Appendix B

Unit Cards

Appendix B, Unit Cards, is used to explain site-specific information about each unit and any resource concerns and mitigations. Narrative cards and maps for each unit in this Draft EIS are in numerical order by VCU. The unit cards summarize the silvicultural prescriptions, and describe the resource concerns and mitigation measures for each unit.

In the Iyouktug project and associated maps, unit boundaries do not include stream (RMA) buffers, high vulnerability karst, or non-forested areas. Areas of resource concern, including RMAs, high vulnerability karst, goshawk nest buffers, leave strips, as well as areas to be harvested in ongoing small timber sales, are displayed as areas dropped from alternative(s) in the attached maps or are described in the unit card. These areas would not be harvested in any alternative. Areas of slopes over 72%, bear dens, marten reserves, or wetlands are described in the text of the unit cards and/or displayed on the maps; the management of these areas is described in the text. Harvest acres could be less than unit acres due to management of these areas.

Alternative 4 unit boundaries were changed to exclude Inventoried Roadless Areas (IRAs). The area in all IRAs is dropped from Alternative 4.

The following sections provide background information for the unit cards. The Introduction to Unit Cards section of this appendix explains information displayed in the individual unit cards. The Project Design, General Mitigation Measures, and Unit Lay-out Instructions section summarizes project design elements (including silvicultural prescription), mitigation measures, and unit layout instructions that apply to all units, either where a particular resource or resource condition is found, or where these conditions are found during unit layout. These elements and measures can be either from the Forest Plan or project specific.

Introduction to Unit Cards

Silvicultural Prescriptions

Silvicultural prescriptions (referred to as RX in the unit cards) have been developed for each unit to meet site specific management objectives and Forest Plan direction. These objectives may include retaining old-growth characteristics for biodiversity, protection of soils, watershed, wildlife habitat or scenery values or designing systems that are most economical for logging feasibility on a site.

Minor changes to unit boundary location and to prescriptions are expected during implementation to better meet on-site conditions. Prescription information included on unit cards and included in the Iyouktug Record of Decision is meant to provide basic guidelines to achieve desired stand structure and to address resource concerns and logging system operability.

Additional information is provided below (under Project Design, General Mitigation Measures, and Unit Lay-out Instructions) for implementing the single tree selection prescription. Detailed silvicultural prescriptions and marking guides located in the project record should also be followed during layout.

Percent species composition is calculated based on stand exam data. Species composition observed during layout may vary somewhat from these percentages.

Watershed and Fisheries

All known streams, either field surveyed or identified from the GIS layer, are shown on the unit card maps. Field surveys have been done on all units that will be harvested using ground-based equipment. Several proposed helicopter units have not yet been field-verified for streams. "GIS-mapped streams" are mapped and classified based on aerial photos. It is likely that when field verification takes place prior to layout, stream inventory and protection will be updated. These streams, and any additional streams found during layout, will be protected by following the Forest Plan Riparian Standards and Guidelines listed below. Class IV streams will be protected by following Best Management Practices. Timing restrictions for instream work may be required for each fish stream crossing listed on unit cards (for temporary roads) and road cards. Instream work would be permitted through the Alaska Office of Habitat Management and Planning

Process Groups and Channel Types

A process group describes streams with similar interrelationships between watershed runoff, landform relief, geology, and glacial or tidal influences on erosion and deposition. A channel type more precisely characterizes a stream and helps predict the probable responses to natural and human influences. Channel types incorporate other aspects such as gradient, pattern, stream bank incision and containment and riparian area vegetation communities. See the Forest Plan, Figure D-1 (page D-4) for a visual representation of the typical distribution of channel process groups. The following table shows the Forest Plan codes used on the unit card narratives. Unit cards summarize protection needed for each stream in the unit by process group.

Table B-1: Process Groups in the Iyouktug Project Area (Paustian et al. 1992)

Process Group	Description	Channel Morphometry	Riparian Management Area
HC	High Gradient Contained	Steep mountain slope tributaries	Within side-slope break
AF	Alluvial Fan	multi-branched channels on depositional footslopes	Greater of 140 feet or active fan surface, remove no more than 10% of trees on remainder of fan
MC	Moderate Gradient Contained	Confined stream entrenched in footslopes or lowlands	Within side-slope break
MM	Moderate Gradient/Mixed Control	Valley bottom streams with variable confinement	Greater of 120 feet or floodplain, riparian wetland extent
LC	Large Contained	Confined streams in lowlands and valleys	Greater of 100 feet or within side-slope break
FP	Floodplain	Unconfined valley flood plain streams	Greater of 130 feet or extent of floodplain or riparian vegetation or wetlands
PA	Palustrine	Placid, sinuous, lowland streams	100 feet (Class I, II)
ES	Estuarine	Unconfined streams on tidal deltas	1000 feet

Source: Forest Plan, pages D-1 - D-4.

Riparian Management Areas and Riparian Standards and Guidelines for Timber Harvest

Stream buffers maintain biodiversity and productivity, streambank and stream channel processes, and the natural and beneficial qualities of large woody debris over the short and long term. Riparian Management Areas are areas of special concern to fish, other aquatic resources and wildlife. They are generally delineated as identified in the process group direction (RIP2, III, E).

The Tongass Timber Reform Act (TTRA) mandates the use of minimum 100-foot wide buffer strips along both sides of all Class I and Class II streams that flow into Class I streams. This was incorporated into the Forest Plan Standards and Guidelines as “No commercial harvest within 100 feet of Class I streams and Class II streams that flow into Class I streams.” All Class II streams in or adjacent to timber units flow into Class I streams.

Reasonable Assurance of Windfirmness (RAW) Zone for Streams

These areas alongside stream buffers are managed to improve windfirmness to the stream buffer where windthrow is a concern. RAW zones are intended to protect the no-harvest stream buffer from accelerated windthrow. These areas, for example, may be harvested to produce a feathered edge or the most windfirm trees may be retained while the trees more likely to blowdown are harvested. Other RAW zones may be based on topography. For Class I, II, and III Floodplain (FP), High Gradient Contained (HC), Large Contained (LC), Moderate Gradient Contained (MC), Moderate Gradient/Mixed Control (MM),

and Palustrine (PA) areas, manage an appropriate distance beyond the no-harvest stream buffer to provide for a reasonable assurance of windfirmness of the Riparian Management Area (pay special attention to the area within one site-potential tree height of the Riparian Management Area). Site-potential tree heights vary according to the channel type as follows:

- Floodplain - 130 feet
- High Gradient Contained - 120 feet
- Large Contained - 100 feet
- Moderate Gradient Contained - 100 feet
- Moderate Gradient/Mixed Control - 120 feet
- Palustrine - 85 feet or less

Lands and Encumbered Land

The proposed timber sales are more than a mile away from private lands. About 5,050 acres of the Iyouktug project area are encumbered. These are lands that have a claim, lien, charge or liability attached to and binding real property. This includes Native Selection land which is selected but as yet unconveyed by the USDI Bureau of Land Management for lands withdrawn in fulfillment of Native entitlements established under ANSCA. Huna Totem Corporation has “selected” all but approximately 6 acres of encumbered lands from other federally-managed land parcels; none of these selected lands fall within the Iyouktug project area.

Recreation

Recreation concerns are the same as the Scenery resource concerns. Scenery resource protection and management reduces effects to recreation.

Project Design, General Mitigation Measures, and Unit Lay-out Instructions

The following general project design, mitigation measures, and unit lay-out instructions apply to all units, actions, and roads in the Iyouktug project where those conditions exist. The source(s) of each general measure are listed after the measure in terms of individual Forest-wide Standards and Guidelines (see Chapter 4 of the Forest Plan) or BMPs (see Appendix C of the Forest Plan and Chapter 10 of FSH 2509.22, The Soil and Water Conservation Handbook), where applicable.

Silvicultural Prescription-Guidelines for All Single Tree Selection Units

The following are general guidelines for Single tree selection prescription: Designate up to specified percent of the existing basal area for harvest emphasizing spruce 24 inches DBH or greater and yellow-cedar. Designate trees for harvest either singly or, preferably, in small clumps (cut-tree mark) to facilitate shovel and helicopter yarding. Clumps will range from several trees up to approximately an acre in size with occasional clumps as large as 2 acres to favor spruce regeneration. Percent basal area designated for harvest should not be increased to account for non forested/nonproductive areas within unit.

Harvest of other species and diameter classes will be based on market conditions at the time and refined during layout. Retain trees that represent all species and diameter classes currently in the stand; retain especially large diameter (30” +DBH) high defect trees that meet safety reserve guidelines and, if present, mid-sized (16-20” DBH) spruce and yellow-cedar with high vigor and good seed producing potential. Designate reserve trees of sufficient size and condition within areas of high value marten habitat to meet marten standards and guidelines. The residual stand and advanced spruce/yellow-cedar regeneration should be protected to the extent possible during harvest. Refer to individual unit prescriptions and marking guides for additional site-specific information.

Silvicultural Prescription-Planting

Inter-planting of yellow-cedar or spruce should be scheduled if necessary to increase post-harvest composition or maintain pre-harvest composition of these species.

Temporary Road Numbers

Temporary roads were assigned a number on analysis maps and in unit cards to provide location information only. These numbers will not be used in the transportation atlas or other documents or maps.

Timber/Logging and Yarding Methods

Yarding methods were proposed for Iyouktug units by the IDT based on operability, and those yarding methods were analyzed by the IDT for environmental effects. Different yarding methods have different environmental effects. Because aerial yarding methods (helicopter yarding in particular) generally have less impact than shovel yarding, a change from shovel yarding to cable or helicopter yarding, or cable to helicopter yarding would not change or would reduce environmental effects; this change to aerial yarding could be made at the discretion of the timber sale administrator without further change analysis as long as concerns in the unit cards are responded to. A change from aerial yarding to shovel yarding would require further review of effects by an IDT prior to harvest.

Stream Channel Protection Measures Incorporated into Unit Design

The following stream protection measures are required in all units where streams are identified. See individual unit cards for stream categories.

Stream Protection Categories

Category A: Class I streams and Class II streams are marked with blue and white striped flagging, and will be protected by no-cut buffers designated by process group in Forest Plan Riparian Standards and Guidelines. No commercial timber will be removed from these buffers. Trees identified for harvest will be felled to avoid no-cut buffers. Prior to any operations within a buffer, a Stream course Protection Plan will be developed for that buffer (BMP 13.16).

Category B: Class III streams are marked with orange and white striped flagging. These stream courses will be protected by no-cut buffers within the v-notch. Class IV streams with unstable side-slopes may also be assigned

Category B protection without buffers. The following are Category B protections:

Split yard and directionally fall trees away from Class III and IV streams without buffers (RIP2-II). Felled trees that inadvertently enter or cross Stream courses shall not be bucked or limbed until clear of Stream courses, unless limbing or bucking would reduce damage to the riparian vegetation or stream banks. Debris in Stream courses resulting from falling or yarding shall be removed immediately to a stable location above high water mark. Existing natural stable debris will be left undisturbed. When ground skidding systems are employed, logs will be end-lined out of riparian areas. Fully suspend logs where yarding is to be done across streams or the full length of a stream or drainage (BMP 13.16, RIP2-II).

Category C: Class IV streams and all other intermittent, ephemeral, and small perennial channels and V notches designated for soil and water quality protection are marked with green and white striped flagging and will be protected in the following manner:

Where practicable, trees will be felled and yarded away from stream courses. The trees that cannot be felled away from stream courses will be felled to bridge the stream providing these trees will be yarded during the same operating season. Trees felled to bridge stream courses will be bucked, limbed, and topped clear of stream course and its banks. Debris which restrict natural water flow, adversely affect water quality or have potential for debris flow will be removed to a stable location above high water mark before the yarder leaves the unit or upon completion of seasonal logging activities in the unit, whichever comes first (BMP 13.16).

Stream Crossing Protections (BMP 13.16)

1. Location and method of stream crossings must be agreed to prior to construction. Crossings are authorized after the location of skid trails, tractor roads, and the Forest Service and the Purchaser agree to temporary roads. Temporary crossings shall not impede fish passage, or result in significant degradation of water quality (BMP 14.17).

2. Material from temporary road and skid trail stream crossings will be removed from the stream channel and the stream banks will be restored to an acceptable condition upon completion of Purchaser's use or prior to the next seasonal high runoff period, unless otherwise agreed (MBMPs 13.11, 13.14, 14.17, and 14.24).

3. Purchaser shall repair all damage to a stream course caused by Purchaser's operations, including damage to banks and channel, as designated by the Forest Service. Revegetation may be required on disturbed stream banks, V-notch sideslopes, and adjacent floodplains (BMP 12.17).

4. Water bars, windrowed slash, and other erosion control structures will be properly located to prevent water and sediment from being channeled into stream courses, and to dissipate concentrated flows.

5. Wheeled or track-laying equipment will not be operated in stream courses unless approved by Forest Service except at crossing designated by Forest Service, or as essential to construction or removal of culverts and bridges (BMP 14.14).

Soil and Water Applicable Best Management Practices (BMPs)

BMPs apply to all units and all road segments. In the unit cards, BMPs were highlighted that were specific to unit concerns. However, all of the following should be implemented through layout and project implementation

The following BMPs for road development apply to temporary roads as well as to National Forest System Roads.

Soil/Water Protection during Timber Sale Planning

Incorporate soil and water resource considerations into timber sale planning. Include site-specific considerations, site preparation, designating water quality protection needs on sale area maps, locating and designing landings for good drainage and dispersion of water, incorporating erosion control and timing responsibilities into the Operating Schedule, scheduling and enforcement of erosion control during and at completion of the timber sale, including non-recurring "C" provisions to protect soil and water resources in timber sale contracts, and seeking an environmental modification of the contract if new circumstances or conditions indicate that soil, water, or watershed damage may occur. (BMPs 13.1, 13.2, 13.3, 13.4, 13.9, 13.10, 13.11, 13.12, 13.14, 13.17, and 13.18)

Soil/Water Protection during Road Development

Implement measures to reduce surface erosion and drainage interruption related to transportation. This includes water barring and cross-draining roads using ditches and culverts to prevent water running long distances over roads, closure, and seeding and fertilizing cut-and-fill slopes. (BMPs 14.1, 14.2, 14.3, 14.5, 14.7, 14.8, 14.9, 14.10, 14.11, 14.12, and 14.19)

Soil/Water Protection during Road Management

Conduct road maintenance and snow removal operations to minimize disruption of road surfaces, embankments, ditches, and drainage facilities, and use road closures or other measures to keep road surface and road site erosion at low or background levels. (TRAN23-I, BMPs 14.20 and 14.23)

Management of Road Use to Reduce Erosion and Sedimentation

Control access and manage road use to reduce the risk of erosion and sedimentation from road surface disturbance especially during the higher risk periods associated with high runoff and spring thaw conditions. (BMP 14.22)

Temporary Road Decommissioning

Decommission temporary roads after use, remove or bypass drainage structures and install waterbars in appropriate places. (RIP2-II and BMPs 12.17 and 14.24)

Soil/Water Protection during Development of Rock Sources, LTFs, & Other Facilities

Implement measures to reduce surface erosion and other impacts on soils and water from gravel sources and quarries, LTFs/MAFs, sortyards, and other facilities. (BMPs 14.18, 14.19, 14.25, 14.26, and 14.27)

Accidental Spills

Implement measures and plans to prevent the contamination of soil and water from accidental spills of petroleum products and hazardous substances. (BMPs 12.8 and 12.9)

Wildlife

The following are to be implemented in units with known resources (see individual unit cards) or where those resources are discovered during layout and implementation:

For marten: Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30’’ dbh or larger), 3 snags or decadent trees/acre (20-30’’ dbh or larger), and 3 large, downed trees/acre (20-30’’ dbh or larger and 10 feet long). Where trees this large are not available, substitute the next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties.

For bear: A 200-foot no harvest buffer will be implemented around den sites documented or observed to occur within units proposed for harvest, where feasible. Recommend that harvest activities occur in these units after June 1 (Flynn 2007, pers. com.). Forest Plan standards and guidelines as defined in pages 4-113 to 4-114 will be applied.

For goshawk: Permit no continuous disturbance likely to result in nest abandonment within the surrounding 600 feet from March 15-August 15. This applies to active nest sites and the Iyouktug nest has been active every year since 2002. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

For raptor and heron nests: Maintain a 600-foot windfirm no-harvest buffer around active raptor (excluding goshawk) and heron nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

Unit Card Key

Harvest System:

SH = Shovel yarding

C = Cable yarding

H = Helicopter yarding

Prescription/Percent Retention:

ST50 = Single tree selection harvesting up to 50% of the basal area in the stand

ST40 = Single tree selection harvesting up to 40% of the basal area in the stand

ST25 = Single tree selection harvesting up to 25% of the basal area in the stand

CC = Clearcut

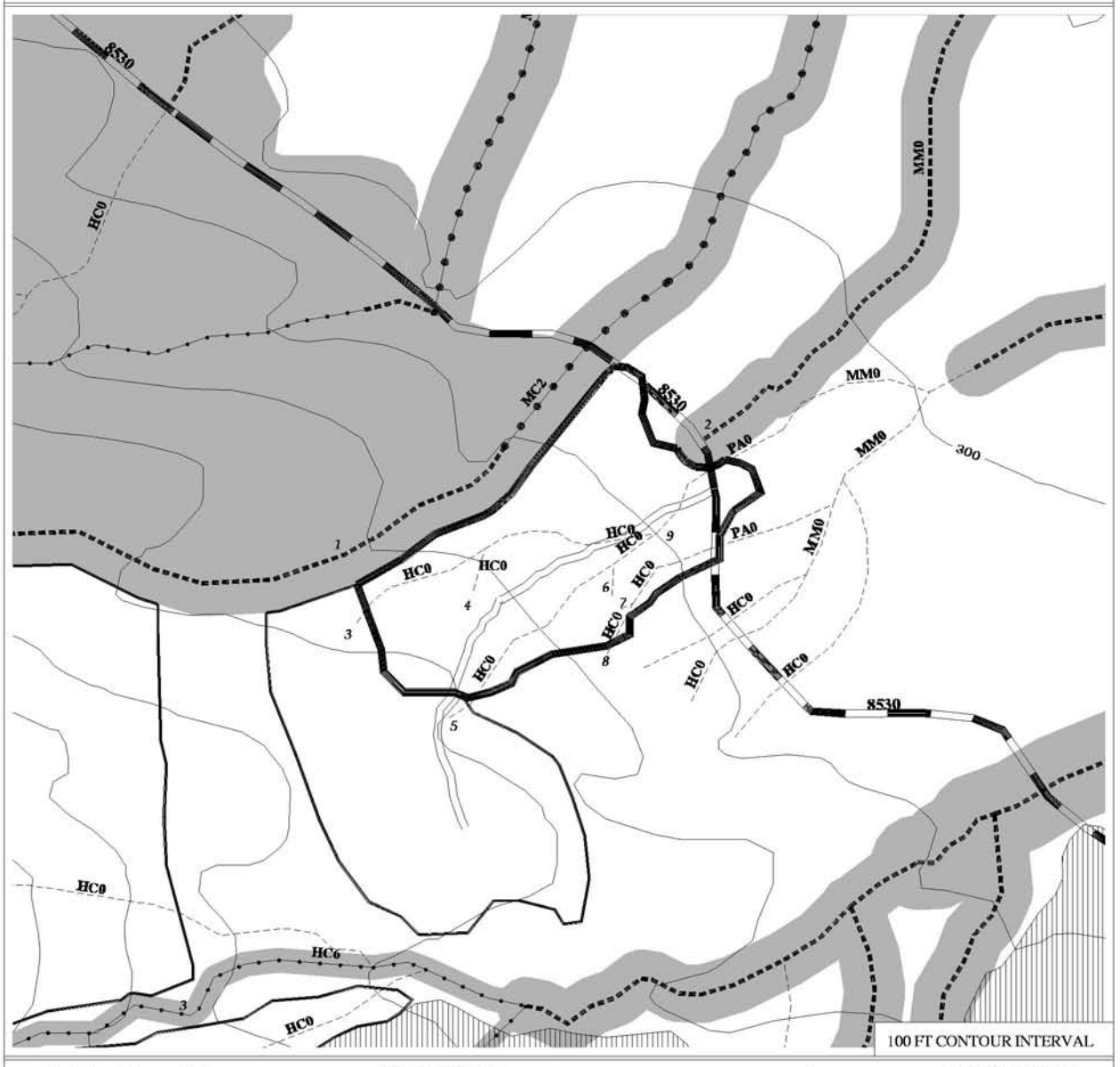
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 806 VCU: 2080 HARVEST SYSTEM: Shovel

UNIT 806 OCCURS IN ALTERNATIVE(S): 2 3 4 5

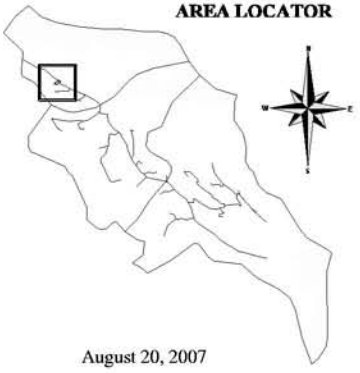
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**806**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	18.0	**Vol Strata Acres:**	High: 0 Med: 6.3 Low: 11.7
VCU Number:	2080	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	202	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of predominately of 12-20" DBH western and mountain hemlock, with some larger diameter spruce. The western portion of the unit is more productive. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 8006 accesses unit from existing Road 8530. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Streams 1 and 2 are Class IV PA channels at the bottom of the unit that become Class IV HC channels and diverge higher in the unit. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in streamc ourses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 3 is a Class I and II MC channel along north boundary of unit. **Response:** Category A protection. Locate unit boundary south of slope break. Maintain a no-harvest buffer of the greater of 100 horizontal feet from the stream channel (BMP 12.6) or within the side-slope break of the stream channel (RIPII). **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: Concern: Unit will meet the required VQO of Modification. **Response:** Design shovel corridors to meet Modification, obtain landscape architect review during layout.

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: Slopes range from 2-40% in Unit 806. Soils range from poorly drained, deep organics on the gentle slopes to well drained deep mineral soils on slopes greater than 25%. The northeastern half of the unit is forested wetland (BMP 12.5). **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in Unit 806. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. Avoid equipment operation on topographically low areas of the unit. Directional falling of trees may be required on low areas so that equipment may reach the felled trees without traversing low areas of the unit. (BMP 13.2 and 13.9) **Concern:** Shovel yarding may cause rutting due to slopes greater then 25%. **Response:** Do not operate shovel on slopes greater than 25%. Utilize the boom, a short choker or cable to remove logs from steeper slopes or directionally fall the trees instead. **Concern:** Half the proposed temporary road is located on forested wetland but not alternative route exists. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)
WILDLIFE: No concerns

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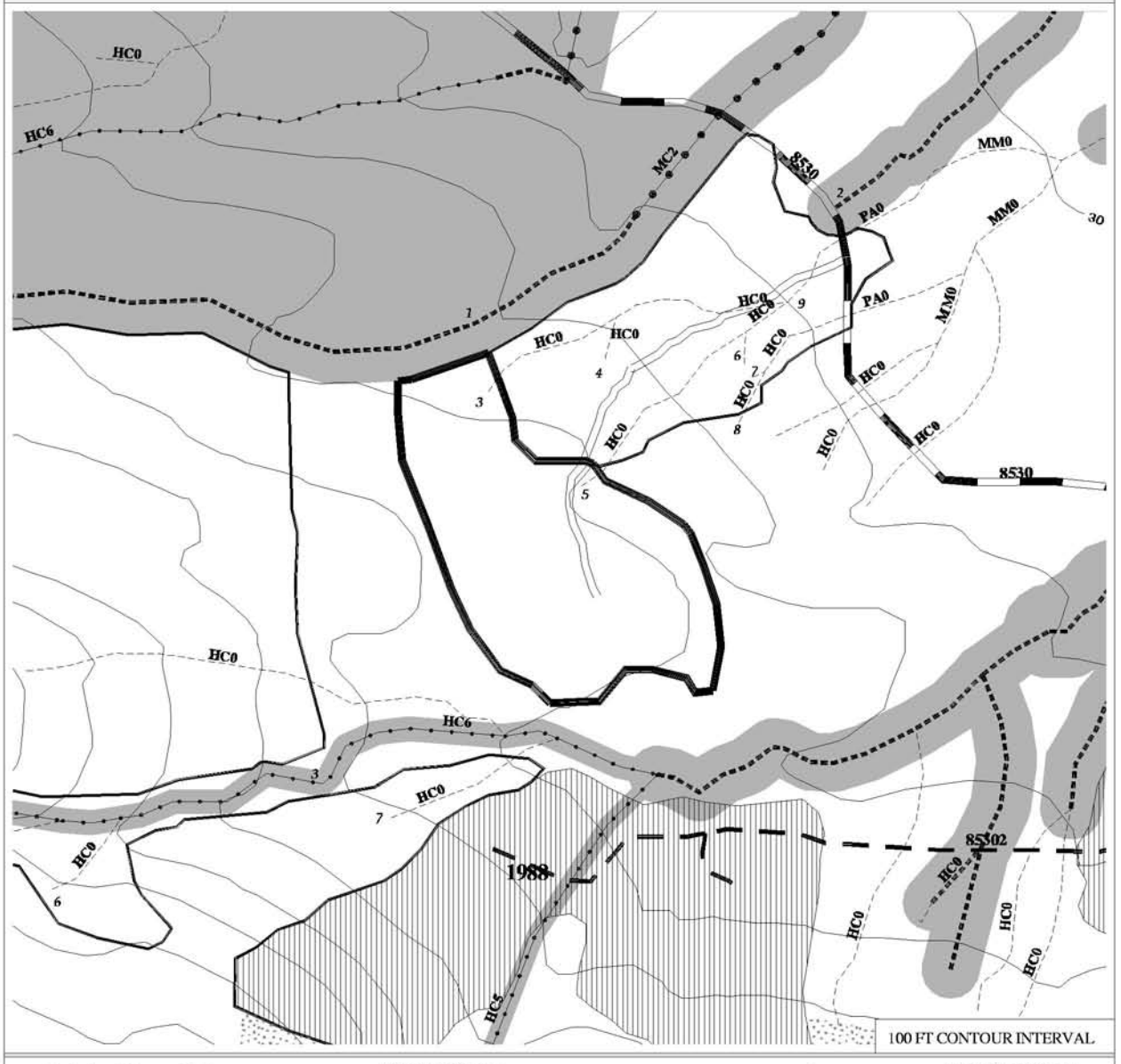
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 807 VCU: 2080 HARVEST SYSTEM: Shovel

UNIT 807 OCCURS IN ALTERNATIVE(S): 2 3 5

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**807**	**In Alternatives:**	2, 3, 5	**Total Unit Acres:**	18.2	**Vol Strata Acres:**	High: 0 Med: 18.2 Low: 0
VCU Number:	2080	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	263	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily 12-24" DBH western and mountain hemlock, with some 24-28" DBH spruce and 12-16 " DBH yellow-cedar. The western portion of the unit is more productive. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 8006 accesses unit from existing Road 8530. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1 and 2 are Class IV HC0 channels. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in stream courses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16).
Concern: Temporary road – stream crossings **Response:** Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 10-35% in Unit 807. **Concern:** Operation of shovel yard equipment on slopes greater then 25% may cause rutting of soils. **Response:** Operate equipment on the contour of the slope, support the machine with puncheon and a slash mattress. (BMP 13.2 and 13.9)

WILDLIFE: No concerns

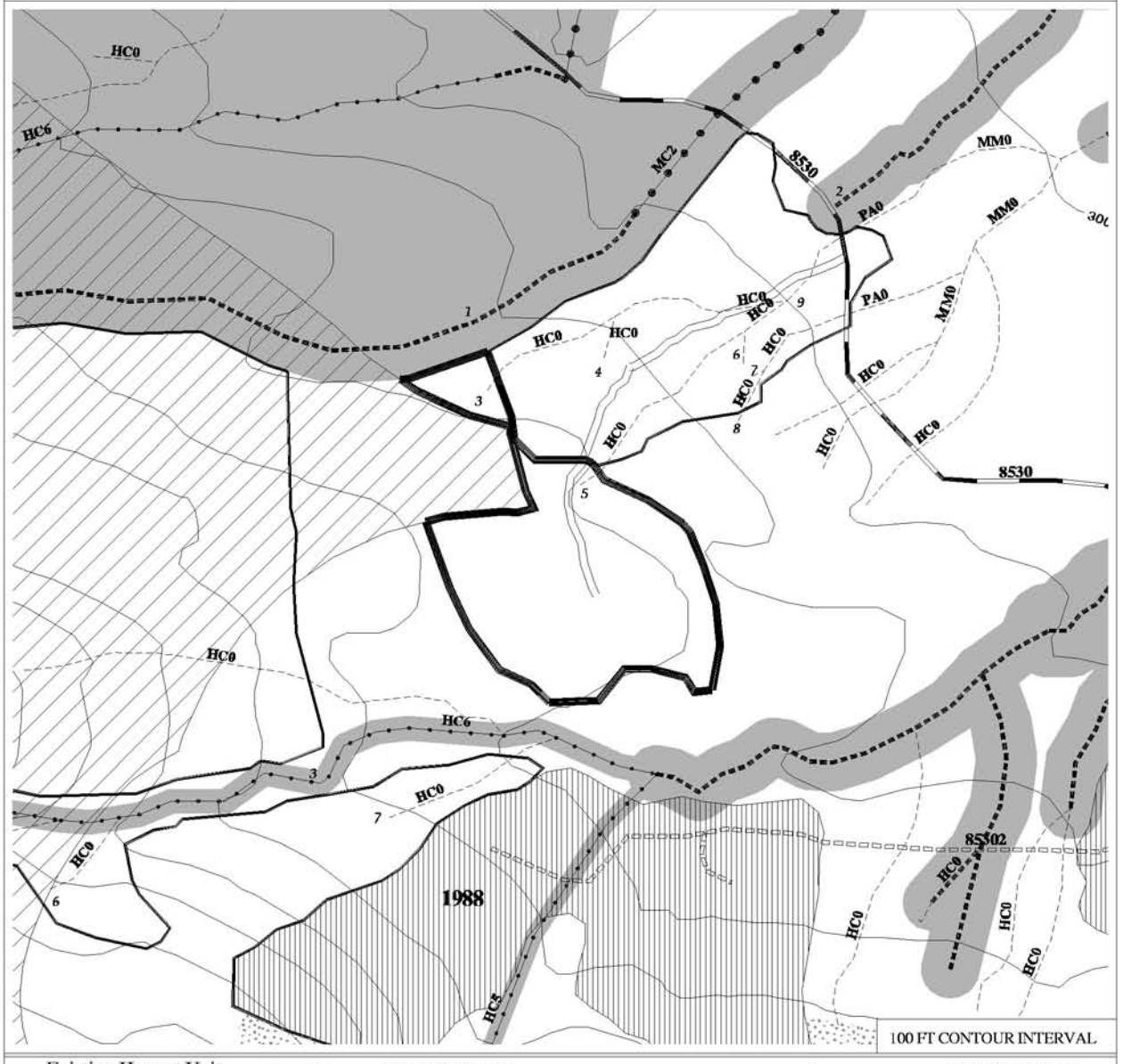
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 807 VCU: 2080 HARVEST SYSTEM: Shovel

UNIT 807 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**807**	**In Alternatives:**	4	**Total Unit Acres:**	14.7	**Vol Strata Acres:**	High: 0 Med: 14.7 Low: 0
VCU Number:	2080	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	213	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily 12-24" DBH western and mountain hemlock, with some 24-28" DBH spruce and 12-16 " DBH yellow-cedar. The western portion of the unit is more productive. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 8006 accesses unit from existing Road 8530 via Unit 806. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1 and 2 are Class IV HC0 channels. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in stream courses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16).
Concern: Temporary road – stream crossings **Response:** Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 10-35% in Unit 807. **Concern:** Slopes greater then 25% exist in Unit 807. **Response:** Operate on the contour of the slope, support the machine with puncheon and a slash mattress. (BMP 13.2 and 13.9)

WILDLIFE: No concerns

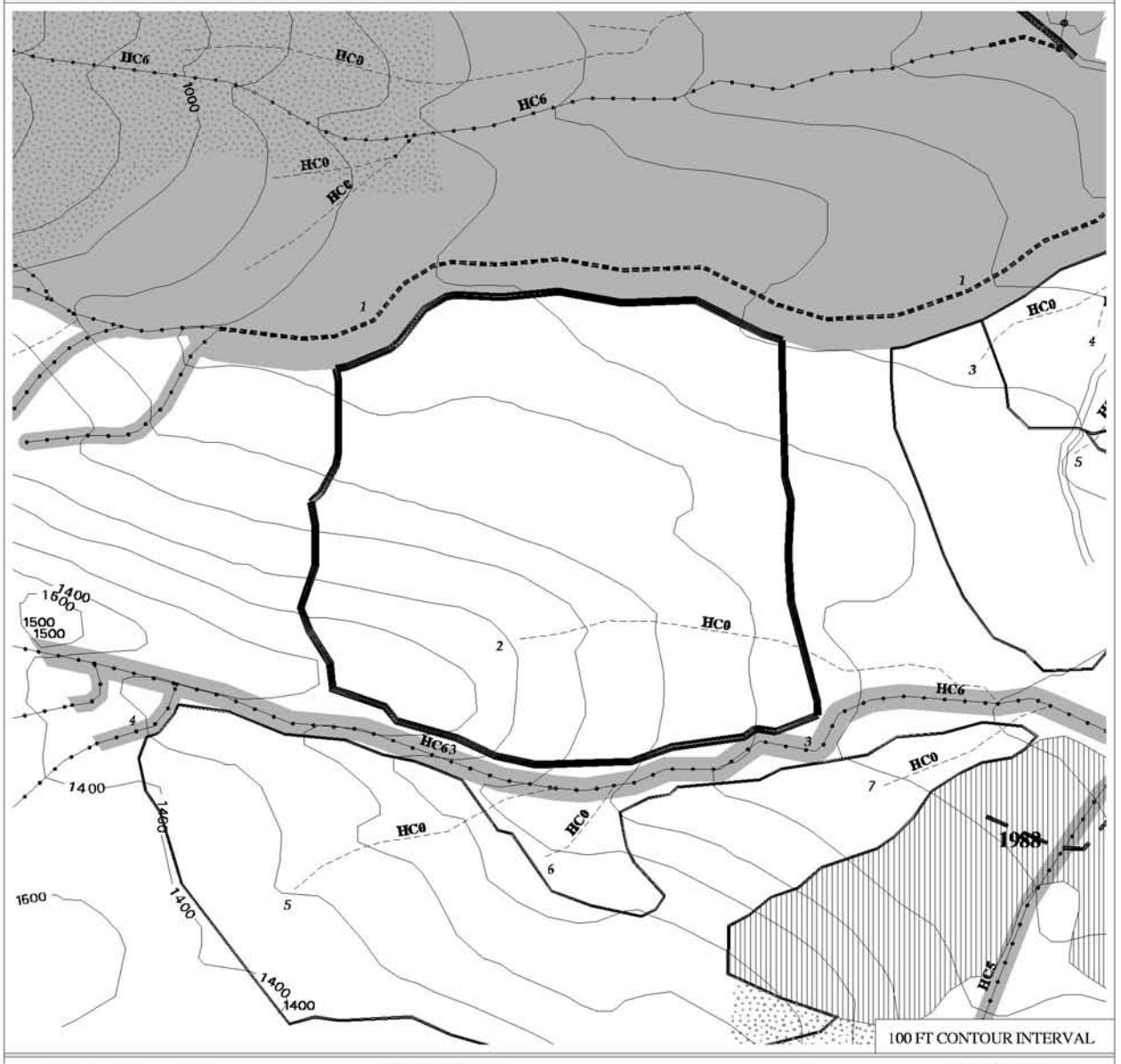
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 808 VCU: 2080 HARVEST SYSTEM: Helicopter

UNIT 808 OCCURS IN ALTERNATIVE(S): 2 3

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**808**	**In Alternatives:**	2, 3	**Total Unit Acres:**	56.5	**Vol Strata Acres:**	High: 0 Med: 56.3 Low: 0.2
VCU Number:	2080	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	658	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 12-20" DBH western and mountain hemlock, with some scattered larger spruce and western hemlock. The more productive areas are scattered in pockets primarily in the central and northern portion of the unit. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** GIS mapped Stream 1 is a Class II HC channel on the northern boundary of the unit. **Response:** Category A protection (BMP 12.6, 13.14). Locate unit boundary south of side-slope break and 100-foot no-cut buffer (RIP III). **Concern:** Stream 3 is a Class III HC channel along southern portion of unit. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 2 is a Class IV HC channel in the unit. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-60% in Unit 808. **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the west of Unit 808 dropped for stability concerns (BMP 13.5)

WILDLIFE: No concerns

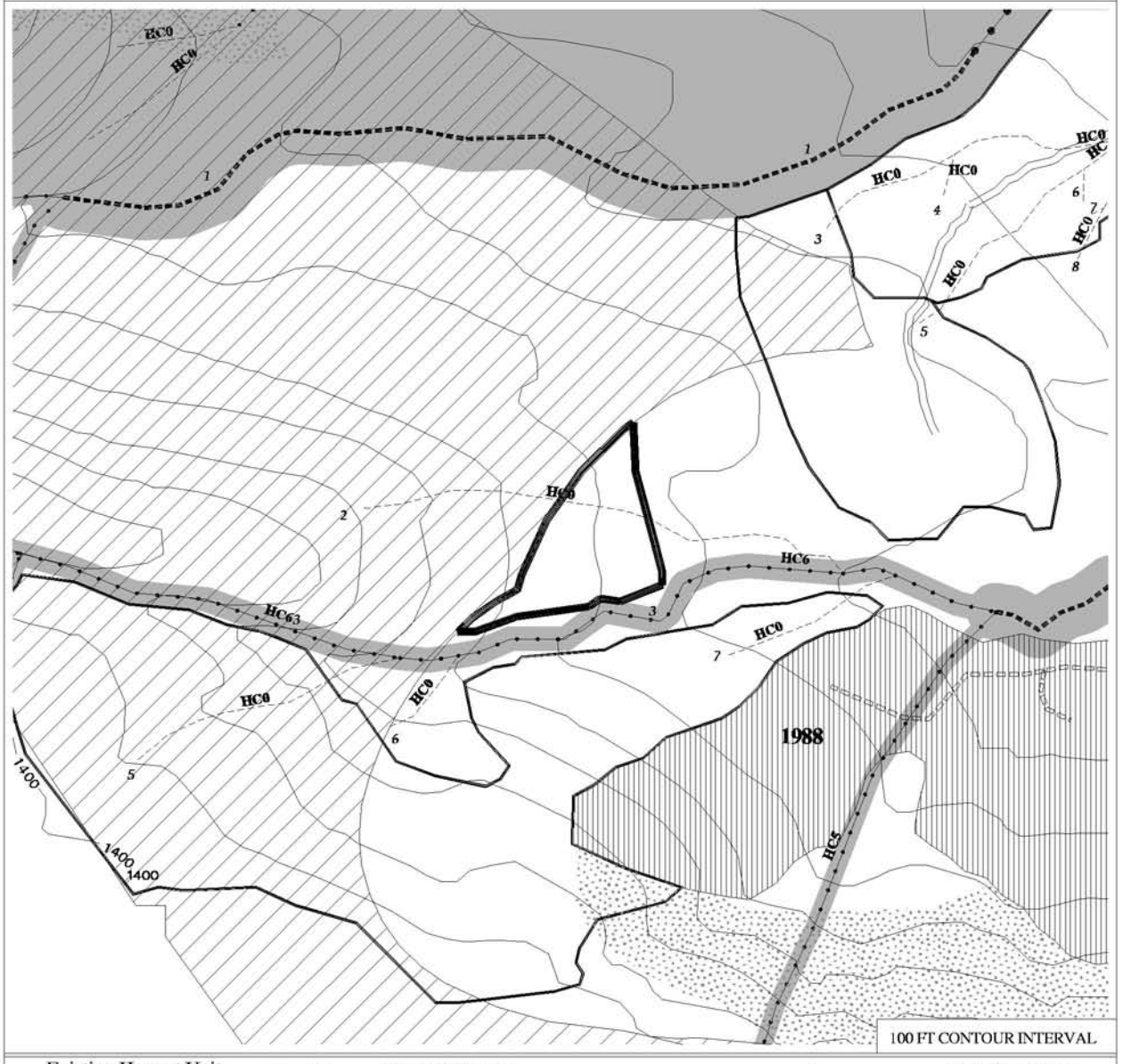
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 808 VCU: 2080 HARVEST SYSTEM: Helicopter

UNIT 808 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**808**	**In Alternatives:**	4	**Total Unit Acres:**	4.8	**Vol Strata Acres:**	High: 0 Med: 4.8 Low: 0
VCU Number:	2080	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	56	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 12-20" DBH western and mountain hemlock, with some scattered larger spruce and western hemlock. The more productive areas are scattered in pockets primarily in the central and northern portion of the unit. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 3 is a Class III HC channel along southern portion of unit. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 2 is a Class IV HC channel in the unit. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-60% in Unit 808. **Concern:** A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response:** Unit is proposed as full suspension, which exceeds partial suspension requirements.

WILDLIFE: No concerns

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 810 VCU: 2080 HARVEST SYSTEM: Helicopter

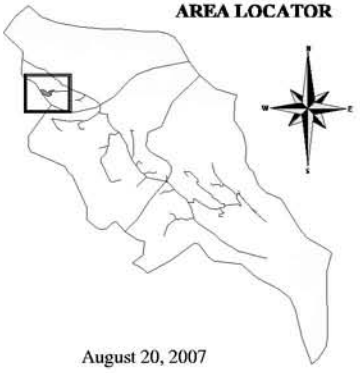
UNIT 810 OCCURS IN ALTERNATIVE(S): 2 3

0 0.22 0.44 Miles

MAPSCALE 1:14000

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**810**	**In Alternatives:**	2, 3	**Total Unit Acres:**	49.8	**Vol Strata Acres:**	High: 1.2 Med: 43.2 Low: 5.4
VCU Number:	2080	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	566	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of patches of 12-24" DBH western and mountain hemlock, with some larger spruce up to 40" DBH spruce. Stand contains many open non-forested areas. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** GIS Mapped Stream 5,6,7: Class IV HC streams. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 3: Class III HC stream. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 10-60% in Unit 810. **Concern:** A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response:** Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the southeast of Unit 810 dropped for stability concerns (BMP 13.5)

WILDLIFE: Concern: Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 810 VCU: 2080 HARVEST SYSTEM: Helicopter

UNIT 810 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**810**	**In Alternatives:**	4	**Total Unit Acres:**	23.7	**Vol Strata Acres:**	High: 1.2 Med:17.2 Low: 5.3
VCU Number:	2080	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	261	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of patches of 12-24" DBH western and mountain hemlock, with some larger spruce up to 40" DBH spruce. Stand contains many open non-forested areas. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** GIS mapped Stream 7 is a Class IV HC streams. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 3: Class III HC stream. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 10-60% in Unit 810. **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the southeast of Unit 810 dropped for stability concerns (BMP 13.5)

WILDLIFE: **Concern:** Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

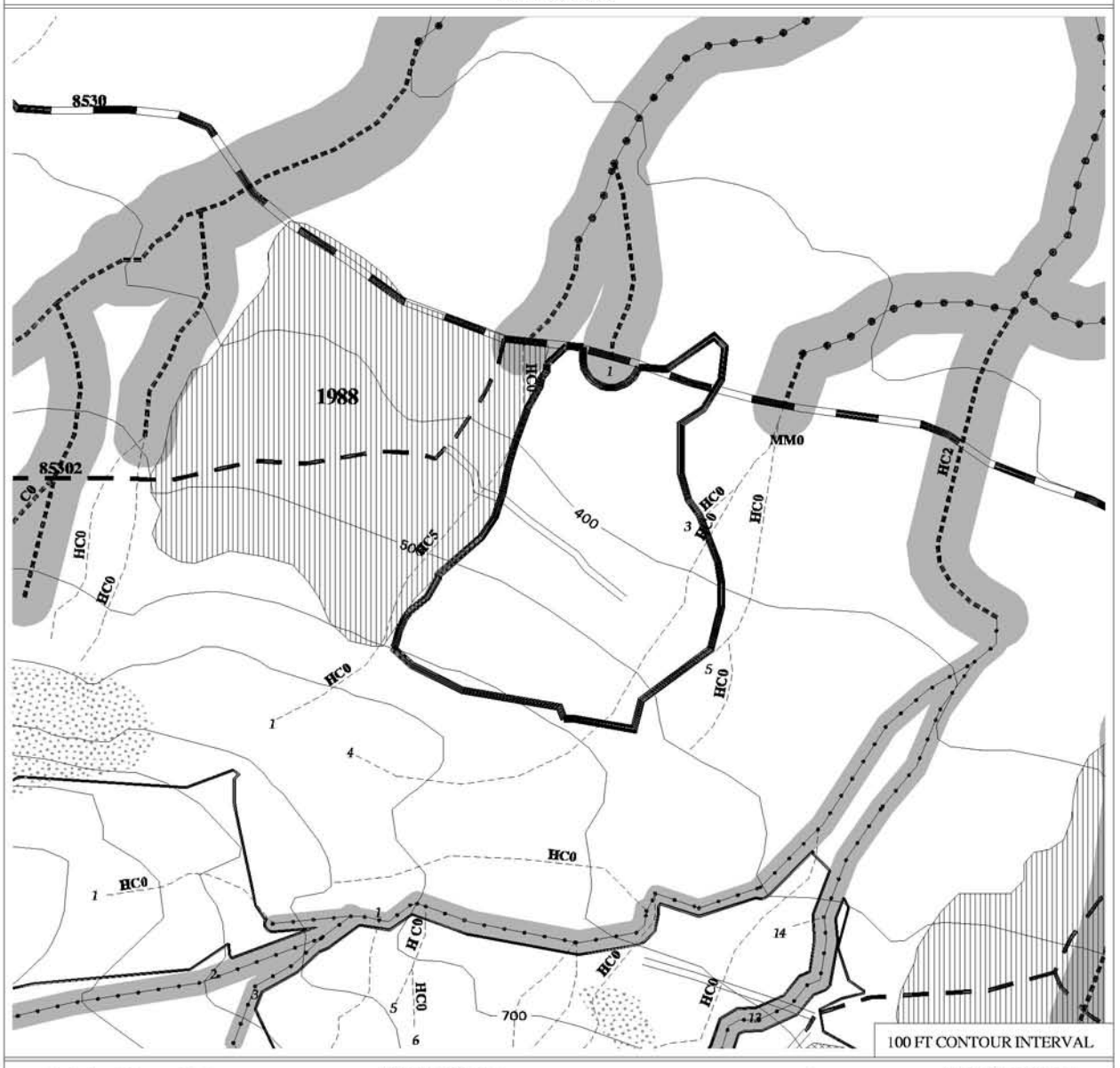
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 813 VCU: 2080 HARVEST SYSTEM: Shovel

UNIT 813 OCCURS IN ALTERNATIVE(S): 2 3 4 5

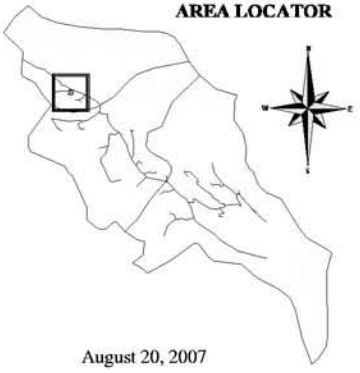
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**813**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	22.1	**Vol Strata Acres:**	High: 0 Med: 1.1 Low: 21.0
VCU Number:	2080	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	202	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of predominately 16-28" DBH western and mountain hemlock with scattered 24-40" DBH spruce. There is an older area of windthrow on the western edge of this unit associated with adjacent past harvest. Wind risk is low to moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 8013 accesses unit from existing Road 85302. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Streams 1,3,4,5 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in streamcourses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Lower part of Stream 1 is Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Stream 2 is Class II MM channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** Temporary road – stream crossings **Response:** Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: Concern: Unit will meet the required VQO of Modification. **Response:** Design shovel corridors to meet Modification, obtain landscape archtiect review during layout.

SOILS/WETLANDS: Slopes range from 10-45% in Unit 813 with slopes greater than 30% in the southern third of the unit. **Concern:** Shovel yarding may cause rutting when operating on slopes greater than 25% or on low-bearing strength soils. **Response:** Operate the shovel on the contour of slopes greater than 25% and support the shovel with puncheon or a slash mattress throughout the unit. Use the boom, a short choker or cable to remove logs from steeper slopes or directionally fall the trees toward the more gentle ground. Operate the shovel on puncheon or a slash mattress in the forested wetland to provide adequate bearing strength. The northern half of the unit is forested wetland. (BMP 12.5, 13.2 and 13.9). **Concern:** The proposed temporary road is located on forested wetland but no alternative route exists. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

WILDLIFE: No concerns

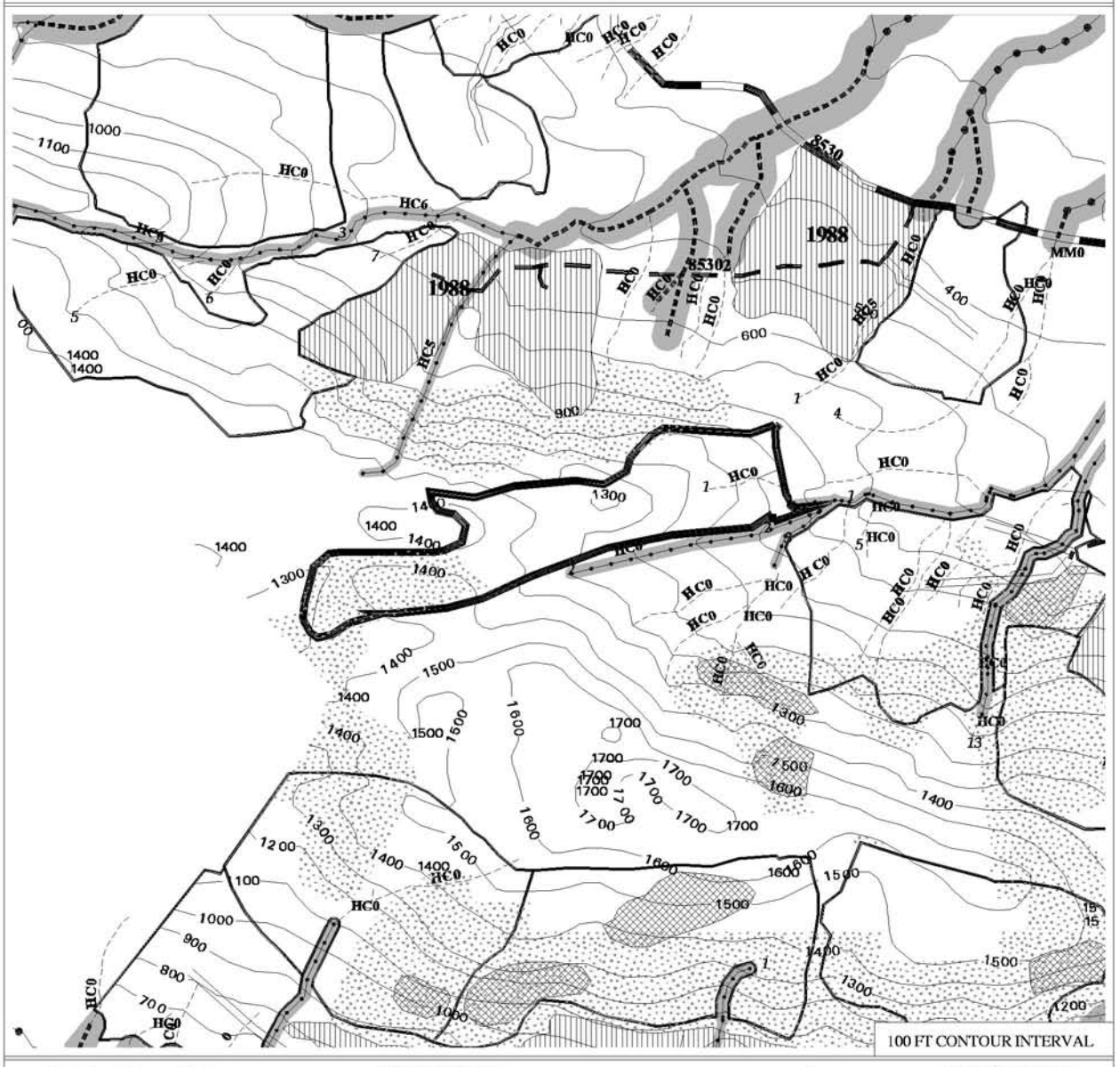
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 815 VCU: 2080 HARVEST SYSTEM: Helicopter

UNIT 815 OCCURS IN ALTERNATIVE(S): 2 3

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**815**	**In Alternatives:**	2, 3	**Total Unit Acres:**	43.2	**Vol Strata Acres:**	High:10.8 Med: 31.2 Low: 1.2
VCU Number:	2080	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	545	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand primarily consists of a mix of 12-20" DBH western and mountain hemlock and spruce with scattered trees up to 40" DBH. The western portion of the unit is more productive. Wind risk is moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 is a Class IV HC channel. **Response:** Category C protection (BMP 12.6, 13.14). **Concern:** Stream 2 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 30-90%. **Concern:** Areas greater than 72% slope are along the northern boundary. **Response:** Involve a soil scientist during layout to verify small inclusions where slopes over 72% are suitable for timber harvest. **Concern:** The eastern quarter of the unit is subalpine forest and muskeg. **Response:** Helicopter logging will protect wetlands and meet resource objectives (BMP 12.5 and 13.5). Area to the north of Unit 815 dropped for stability concerns (BMP 13.5). **Concern**: A minimum of partial suspension is required to meet soil quality standards in the rest of unit 815 (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements.

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines.

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 817 VCU: 2080 HARVEST SYSTEM: Cable

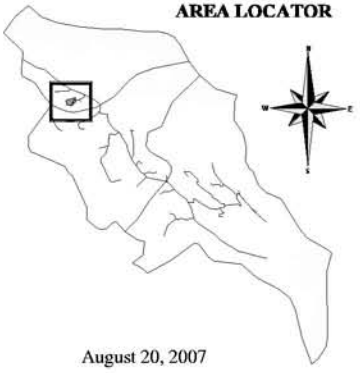
UNIT 817 OCCURS IN ALTERNATIVE(S): 2 3 5

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**817**	**In Alternatives:**	2, 3, 5	**Total Unit Acres:**	50.7	**Vol Strata Acres:**	High: 16.4 Med: 28.9 Low:5.4
VCU Number:	2080	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	1,135	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of western and mountain hemlock 12-20" DBH with some larger spruce and western hemlock 28-48" DBH. Wind risk is moderate. Mistletoe infection is moderate to heavy.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: The southern portion of unit contains high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees if possible as specified under wildlife section and to blend previous harvest edge on eastern side of unit. Additional reserve trees may need to be designated adjacent to previous harvest edge to achieve scenery objectives. Evaluate during layout (see scenery/recreation section).

TIMBER/LOGGING: This unit is comprised of two cable settings. The western-most setting accesses the area west of stream #13, a Class III stream that requires split yarding. The eastern-most setting accesses the area east of stream #13.

ENGINEEERING/ROADS: Temporary road 8017 accesses unit from existing Road 85301. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1, 13 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Streams 2,3,4,5,6,7,8,9, 11,12,14 are Class IV HC channels. **Response:** Category C protection; BMP 12.6. Split yard and fall away from channel where practicable. Remove logging debris from channels. **Concern:** Stream 10 is a Class IV HC 'sensitive' channel. **Response:** Category B protection with split yard to protect side slopes in v-notch. **Concern:** Temporary road – stream crossings **Response:** Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: **Concern:** Unit is visible from Whitestone Harbor, a VPR. Design this unit to mitigate the existing impact and minimize additional impact. **Response:** Involve Landscape Architect in design of unit to meet VQO of Maximum Modification and to blend with adjacent harvest. Design road to minimize visible full bench cut and to minimize sidecast slash in visible portions.

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: The slopes range from 25-85%. **Concern:** There are approximately 3 acres of slopes greater than 72% in the eastern portion, just east of the class III v-notch. This portion of the unit has a history of landslides. There are about 2 acres of forested wetland in this unit. **Response:** Avoid this portion of Unit 817 as any landslides would enter a live stream (BMP 13.5 and 13.9). **Concern:** There are about 2 acres of forested wetland in this unit. **Response:** Partial suspension will protect wetlands and meet resource objectives (BMP 12.5). The rest of 817 is suitable for the proposed cable harvest with partial suspension. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Recommend that this retention be maintained adjacent to the stream buffer on east side of unit to maintain wind firmness.

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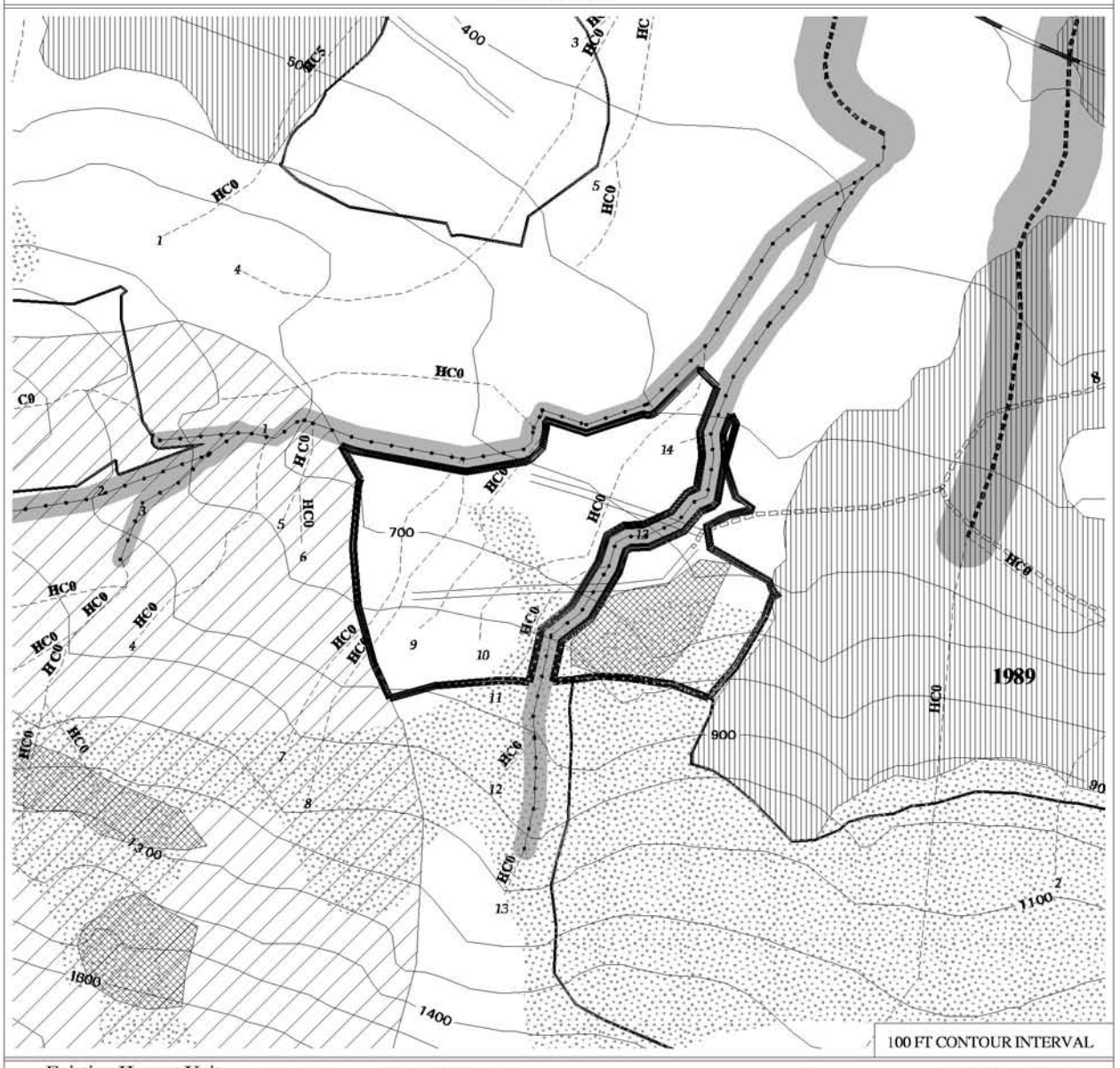
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 817 VCU: 2080 HARVEST SYSTEM: Cable

UNIT 817 OCCURS IN ALTERNATIVE(S): 4

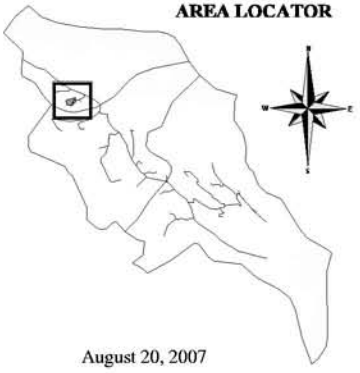
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**817**	**In Alternatives:**	4	**Total Unit Acres:**	24.3	**Vol Strata Acres:**	High: 5.7 Med:13.8 Low: 4.8
VCU Number:	2080	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	528	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of western and mountain hemlock 12-20" DBH with some larger spruce and western hemlock 28-48" DBH. Wind risk is moderate. Mistletoe infection is moderate to heavy.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: The southern portion of unit contains high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees if possible as specified under wildlife section and to blend previous harvest edge on eastern side of unit Additional reserve trees may need to be designated adjacent to previous harvest edge to achieve scenery objectives. Evaluate during layout (see scenery/recreation section).

TIMBER/LOGGING: This unit is comprised of two cable settings. The western-most setting accesses the area west of stream #13, a Class III stream that requires split yarding. The eastern-most setting accesses the area east of stream #13.

ENGINEEERING/ROADS: Temporary road 8017A accesses unit from existing Road 85301. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1, 11 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Streams 2,3,4,5,6,7,8,9,12 are Class IV HC channels. **Response:** Category C protection; BMP 12.6. Split yard and fall away from channel where practicable. Remove logging debris from channels. **Concern:** Stream 10 is a Class IV HC 'sensitive' channel. **Response:** Category B protection with split yard to protect side slopes in v-notch. **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: **Concern:** Unit is visible from Whitestone Harbor, a VPR. Design this unit to mitigate the existing impact and minimize additional impact. **Response:** Involve Landscape Architect in design of unit to meet VQO of Maximum Modification and to blend with adjacent harvest. Design road to minimize visible full bench cut and to minimize sidecast slash in visible portions.

SOILS/WETLANDS: The slopes range from 25-85%. **Concern:** There are approximately 3 acres of slopes greater than 72% in the eastern portion, just east of the class III v-notch. This portion of the unit has a history of landslides. **Response:** Avoid this portion of Unit 817 as any landslides would enter a live stream (BMP 13.5 and 13.9). The rest of 817 is suitable for the proposed cable harvest with partial suspension. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Recommend that this retention be maintained adjacent to the stream buffer on east side of unit to maintain wind firmness.

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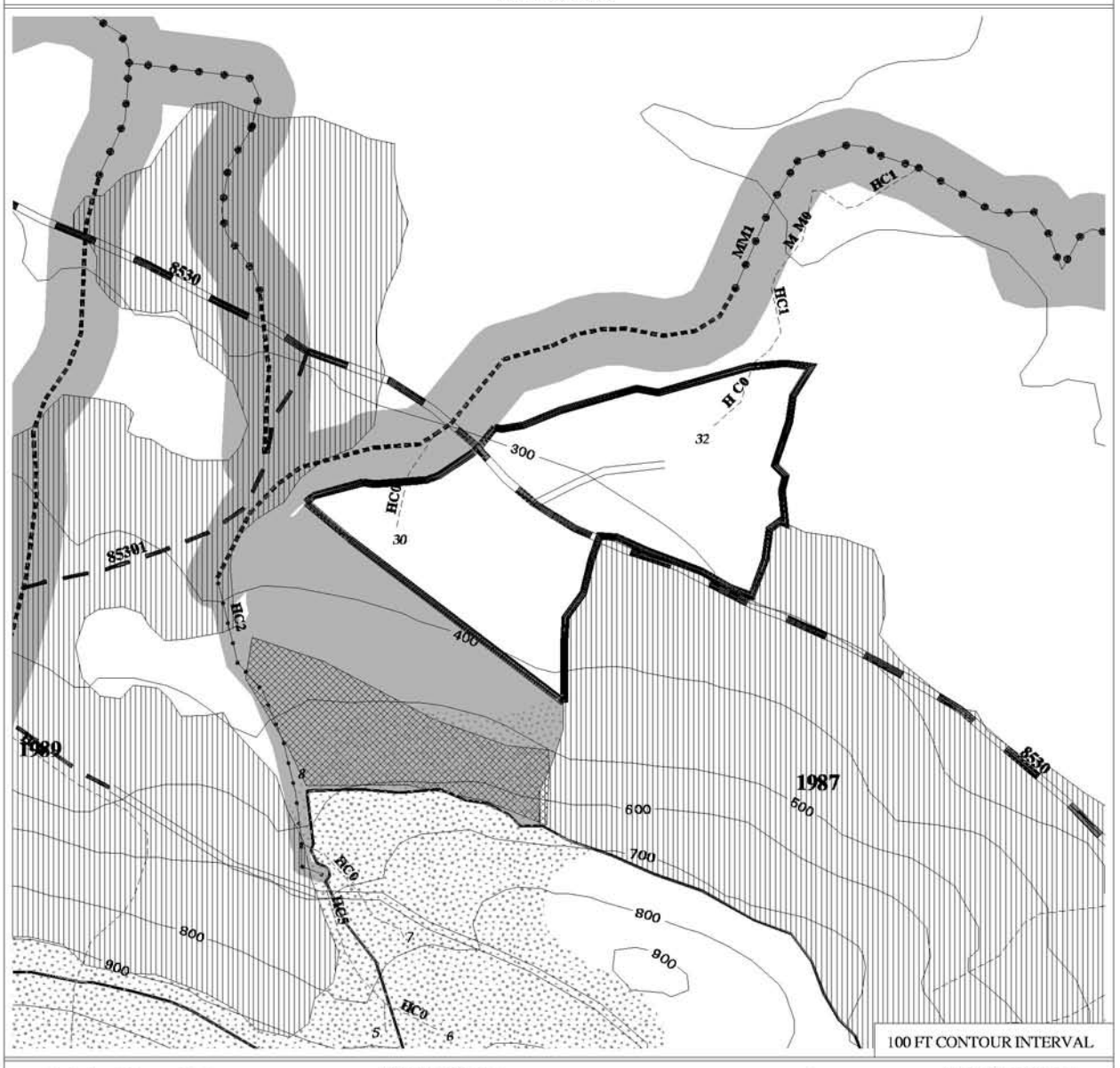
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 818 VCU: 2080 HARVEST SYSTEM: Shovel

UNIT 818 OCCURS IN ALTERNATIVE(S): 2 3 4 5

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**818**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	21.8	**Vol Strata Acres:**	High: 0 Med: 15.2 Low: 6.6
VCU Number:	2080	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	272	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of predominately of smaller western hemlock 12-16" DBH with some larger spruce 28-40" DBH. Wind risk is moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 18A accesses unit from existing Road 8530. Road location will be flagged by USFS prior to harvest.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 1 is a Class II HC/MM channel on the northern unit boundary. **Response:** Category A protection; no harvest within the greater of 100 feet or v-notch side slopes for HC segment, no harvest within 120 feet for MM segment (BMP 12.6, 13.14, RIP III). **Concern:** Streams 30 and 32 are Class IV HC0 channels. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in stream courses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: Concern: Unit will meet the required VQO of Modification. **Response:** Design shovel corridors to meet Modification, obtain landscape architect review during layout. Top portion of unit dropped due to intensity of adjacent harvest.

SOILS/WETLANDS: Slopes in Unit 818 range from 5-35%. The soil in the northeastern portion, north of the road, is forested wetland. **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils. **Response:** Operate shovel on a puncheon or a slash mattress to provide adequate bearing strength on the higher areas of the unit [this means areas with less skunk cabbage and more tree roots]. Southwest of the road, the slopes reach 35% with better drained soils. Utilize the boom, a short choker or cable to remove logs from steeper slopes or directionally fall the trees toward the more gentle ground (BMP 12.5, 13.2 and 13.9). **Concern:** Half the proposed temporary road is located on forested wetland but not alternative route exists. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit is located in a travel corridor that maintains connectivity from low to high elevation habitat. High deer and bear use was observed in the southwest portion of the unit. **Response:** Proposed harvest system will retain 50% of the basal area. Retention will help to maintain connectivity and deer and bear habitat. Recommend that retention be maintained adjacent to the stream buffer along the west side of the unit to maintain a wider corridor and wind firmness. **Concern:** Goshawk observed in the unit. Surveys did not identify a nest site. Plucking post found in unit. **Response:** Goshawk was likely associated with an identified nest site. If a goshawk nest is identified, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

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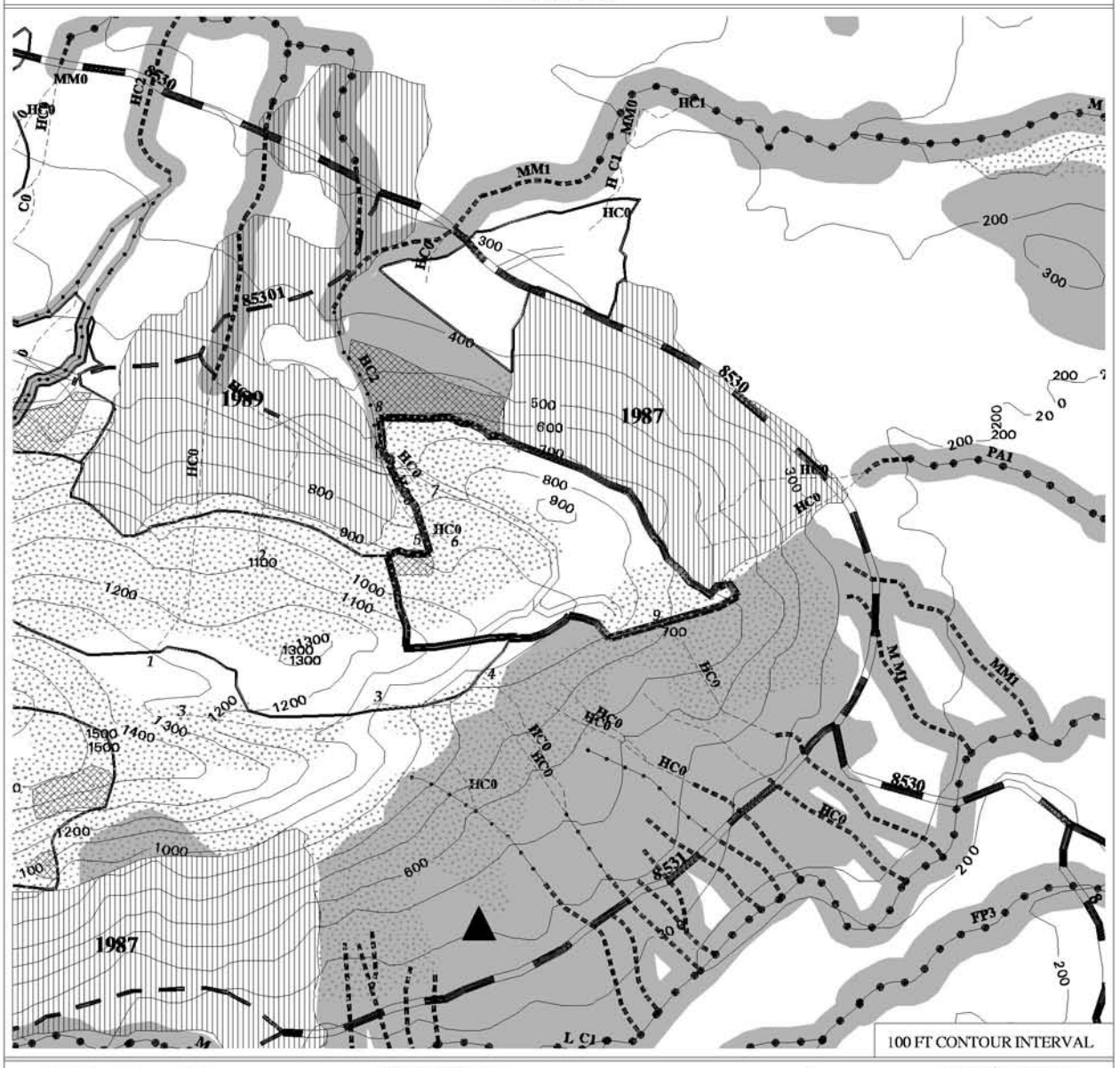
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 819 VCU: 2080/2090 HARVEST SYSTEM: Cable

UNIT 819 OCCURS IN ALTERNATIVE(S): 2 4 5

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**819**	**In Alternatives:**	2, 4, 5	**Total Unit Acres:**	53.0	**Vol Strata Acres:**	High: 31.7 Med: 21.3 Low: 0
VCU Number:	2080	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	1,312	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of western hemlock 12-24" DBH with some larger trees 24-40" DBH. Smaller diameter mountain hemlock, and some scattered spruce up to 36" DBH are also present. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: The western portion of unit contains high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees if possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary roads 853011and 8060 access unit from existing Road 85301. New construction of 853011 begins after 0.13 miles of reconstruction. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Streams 1and 2 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 3 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Maintain 120 foot RAW zone on windward side of buffer, and locate marten reserve within 120–foot RAW zone if feasible. **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: Concern: Unit is highly visible from Whitestone Harbor, a VPR. Existing clearcut below creates strong visual contrast. Design this unit to mitigate the existing impact and minimize additional impact. **Response:** Involve Landscape Architect in design of unit to meet VQO of Maximum Modification. Design road to minimize visible full bench cut and to minimize sidecast slash in visible portions.

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: The slopes range from 5-80% in Unit 819. There is about 1 acre of slopes greater than 72% located along the western boundary. This area has a high rate of landslides. **Concern:** Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Avoid the steep area during layout (BMP 13.5). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report). **Concern:** The proposed temporary road crosses a recent landslide. **Response:** This should be a designed section. Provide adequate cross drainage, locate the road on the small bench in line with the existing road. End haul only here, no sidecast. (BMP 14.9, 14.12, and 14.19) **Concern:** The proposed temporary road crosses patches of wetland. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested.(33 CFR BMPs 4, 5, 6)
WILDLIFE: Concern: Unit contains high value marten habitat. Unit is located in a travel corridor that maintains connectivity from low to high elevation habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Retain trees in the northwest portion of the unit adjacent to the stream buffer to maintain a wider buffer/corridor and wind firmness. **Concern:** High deer and bear use was observed in and around muskegs in the unit. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines. **Concern:** Southeast boundary adjacent to goshawk nest buffer. **Response:** Ensure unit boundary does not enter nest buffer. **Concern:** Red-tailed hawk was observed in unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

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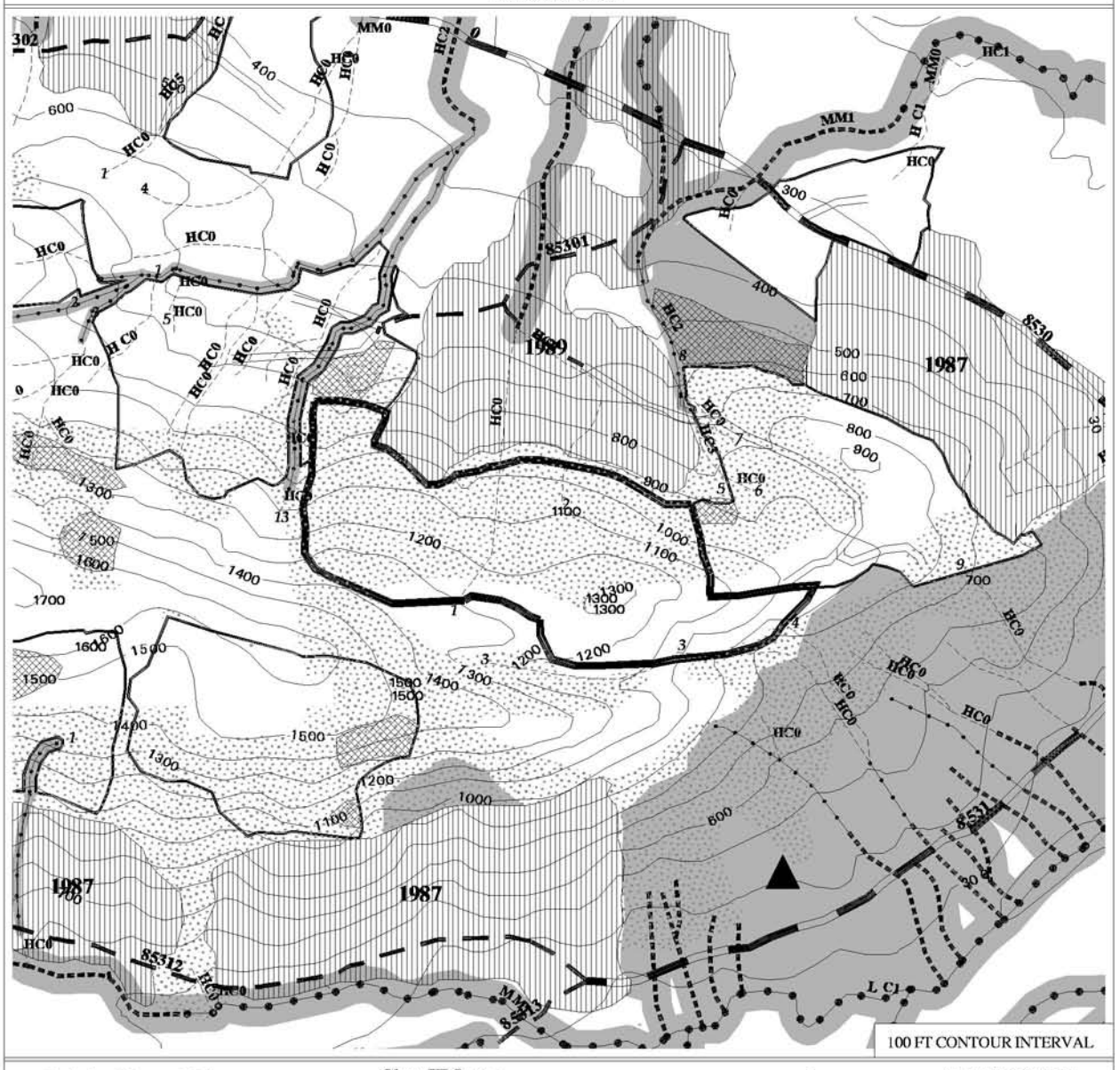
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 820 VCU: 2080/2090 HARVEST SYSTEM: Helicopter

UNIT 820 OCCURS IN ALTERNATIVE(S): 2 3 4

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**820**	**In Alternatives:**	2, 3, 4	**Total Unit Acres:**	73.5	**Vol Strata Acres:**	High: 52.6 Med: 20.9 Low: 0
VCU Number:	2080	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	1,039	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-39" DBH spruce (39%BA), 12-38" DBH western hemlock (36% BA), and 12-30" DBH mountain hemlock (26% BA). The eastern side of the unit is more productive. The western portion of the unit has areas of blowdown. Hemlock and spruce advanced regeneration is present but not abundant. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal area singly and/or in small clumps or corridors to facilitate helicopter yarding. To offset the wind risk in the eastern portion of the unit adjacent to proposed clearcut Unit 819, decrease the basal area removed to 25% and target the tallest trees for removal. Refer to intro to unit cards, marking guidelines and detailed RX for more information

TIMBER/LOGGING: Single tree selection to be marked mostly in small clumps to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1, 2 are Class IV HCO channels. **Response:** Category C protection (BMP 12.6, 13.14). **Concern:** Stream 3 is a Class IV HC0 channel with increased incision depth. **Response:** Category B protection per BMP 12.6. Fall away from channel to protect v-notch side slopes and split yard.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 5-65% in Unit 820. Concern: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). Response: Unit is proposed as full suspension, which exceeds partial suspension requirements.

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines. **Concern:** Red-tailed hawk was observed in unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nests if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

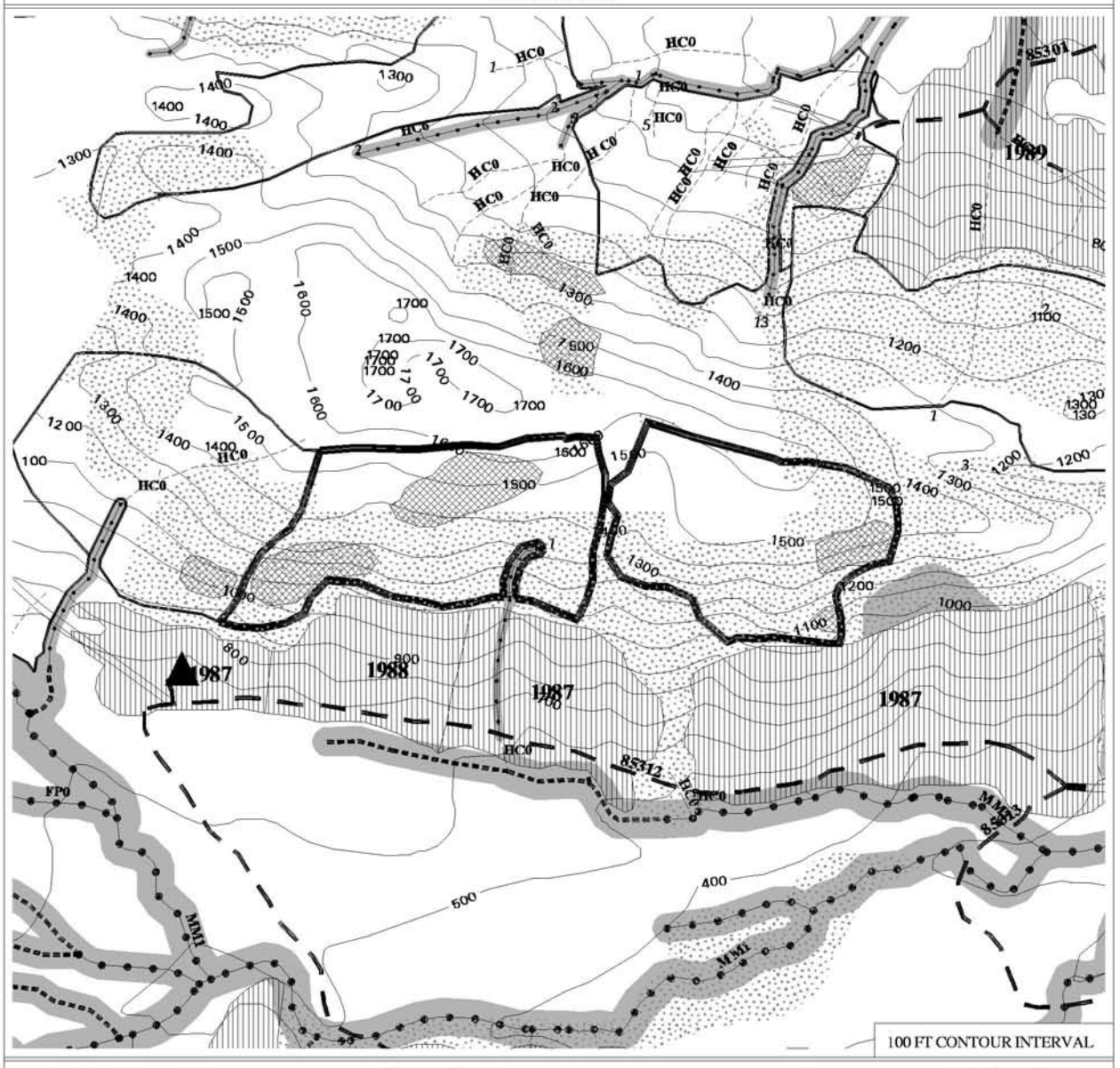
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 903 VCU: 2080/2090 HARVEST SYSTEM: Helicopter

UNIT 903 OCCURS IN ALTERNATIVE(S): 2 3

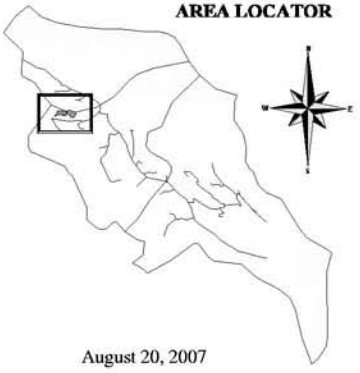
0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**903**	**In Alternatives:**	2, 3	**Total Unit Acres:**	99.4	**Vol Strata Acres:**	High: 97.6 Med: 0 Low: 1.8
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	1,471	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand contains a good mix of 12-39'" DBH mountain hemlock (44% BA), 16-48" DBH spruce (34% BA), and 12-36" DBH western hemlock (22% BA). Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (236 sq. ft. per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 is a Class III HC channel with unstable side-slopes.
Response: Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).
No-harvest buffer will encompass all unstable ground surrounding channel.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range greatly from 5-90% in Unit 903. The soils are generally well-drained and formed over bedrock. **Concern:** There are about 16 acres of slopes over 72% scattered throughout the unit. The largest continuous area is 7 acres located in the middle. The soils are generally well-drained over bedrock. There are no signs of instability, hollow topography or past landslides in this area. **Concern:** Some landslides may initiate on the slopes greater than 72% and enter streams. **Response:** Do not harvest any slopes greater than 72% within 120 feet of any stream. Slopes up to 80% may be harvested with the proposed helicopter prescription. Avoid slopes greater than 80% in Unit 903. (BMP 13.5, 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines. **Concern:** Vancouver Canada geese observed in ponds north of units. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

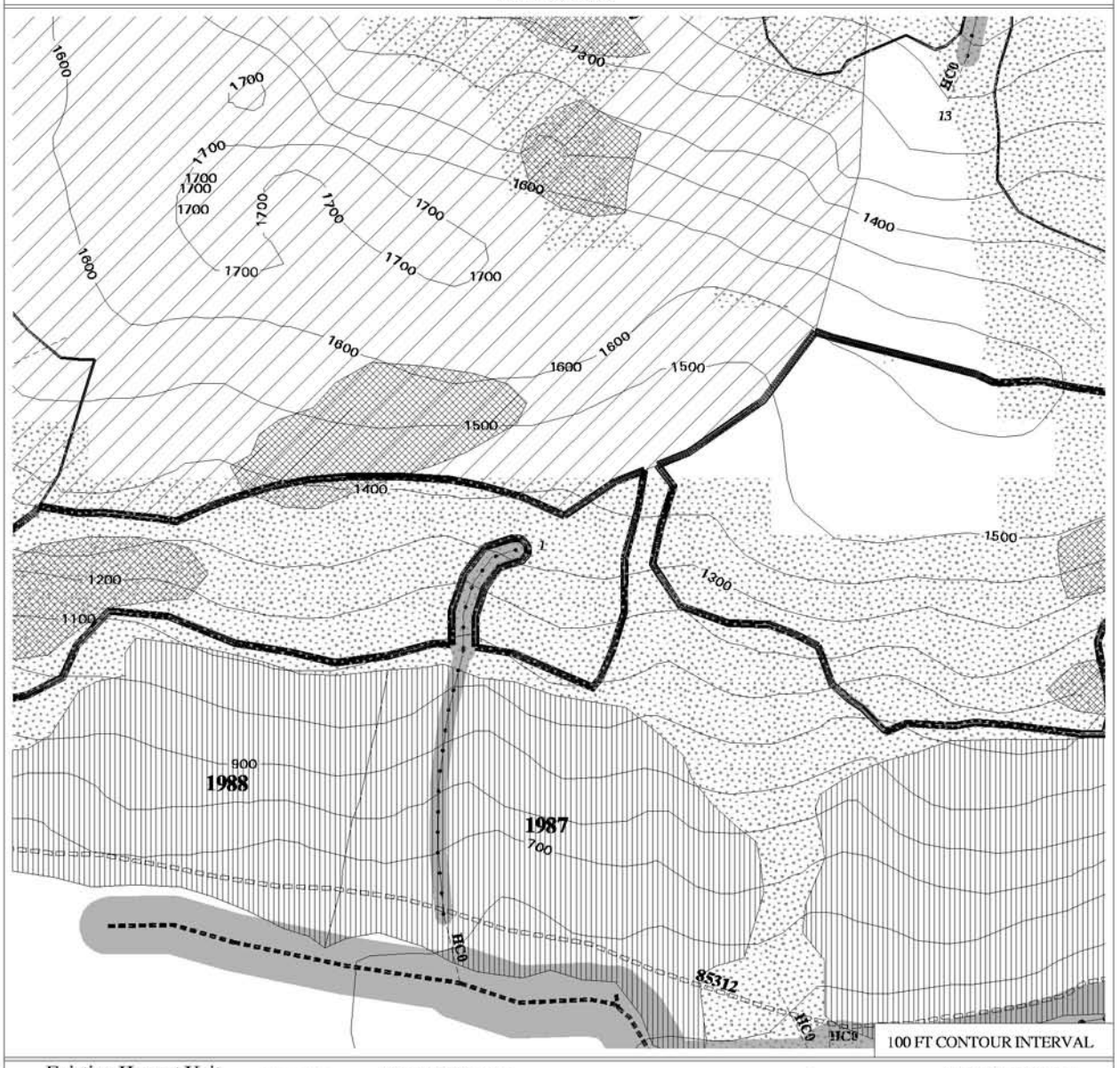
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 903 VCU: 2080/2090 HARVEST SYSTEM: Helicopter

UNIT 903 OCCURS IN ALTERNATIVE(S): 4

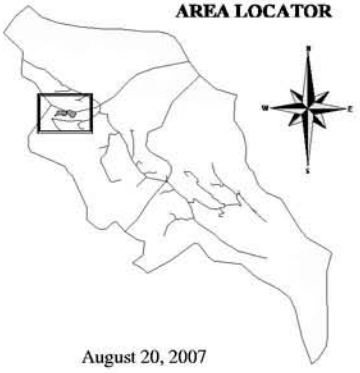
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**903**	**In Alternatives:**	4	**Total Unit Acres:**	72.7	**Vol Strata Acres:**	High: 72.3 Med: 0 Low: 0.4
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	1,084	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand contains a good mix of 12-39'" DBH mountain hemlock (44% BA) 16-48" DBH spruce (34% BA) and 12-36" DBH western hemlock (22% BA). Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (236 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 is a Class III HC channel with unstable side-slopes.
Response: Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).
No-harvest buffer will encompass all unstable ground surrounding the channel.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range greatly from 5-90% in Unit 903. The soils are generally well-drained and formed over bedrock. There are about 9 acres of slopes over 72% scattered throughout the unit. The largest continuous area is 5 acres located in the western portion. The soils are generally well-drained over bedrock. There are no signs of instability, hollow topography or past landslides in this area. **Concern:** Some landslides may initiate on the slopes greater than 72% and enter streams. **Response:** Do not harvest any slopes greater than 72% within 120 feet of any stream. Slopes up to 80% may be harvested with the proposed helicopter prescription. Avoid slopes greater than 80% in Unit 903. (BMP 13.5, 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines. **Concern:** Vancouver Canada geese observed in ponds north of units. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

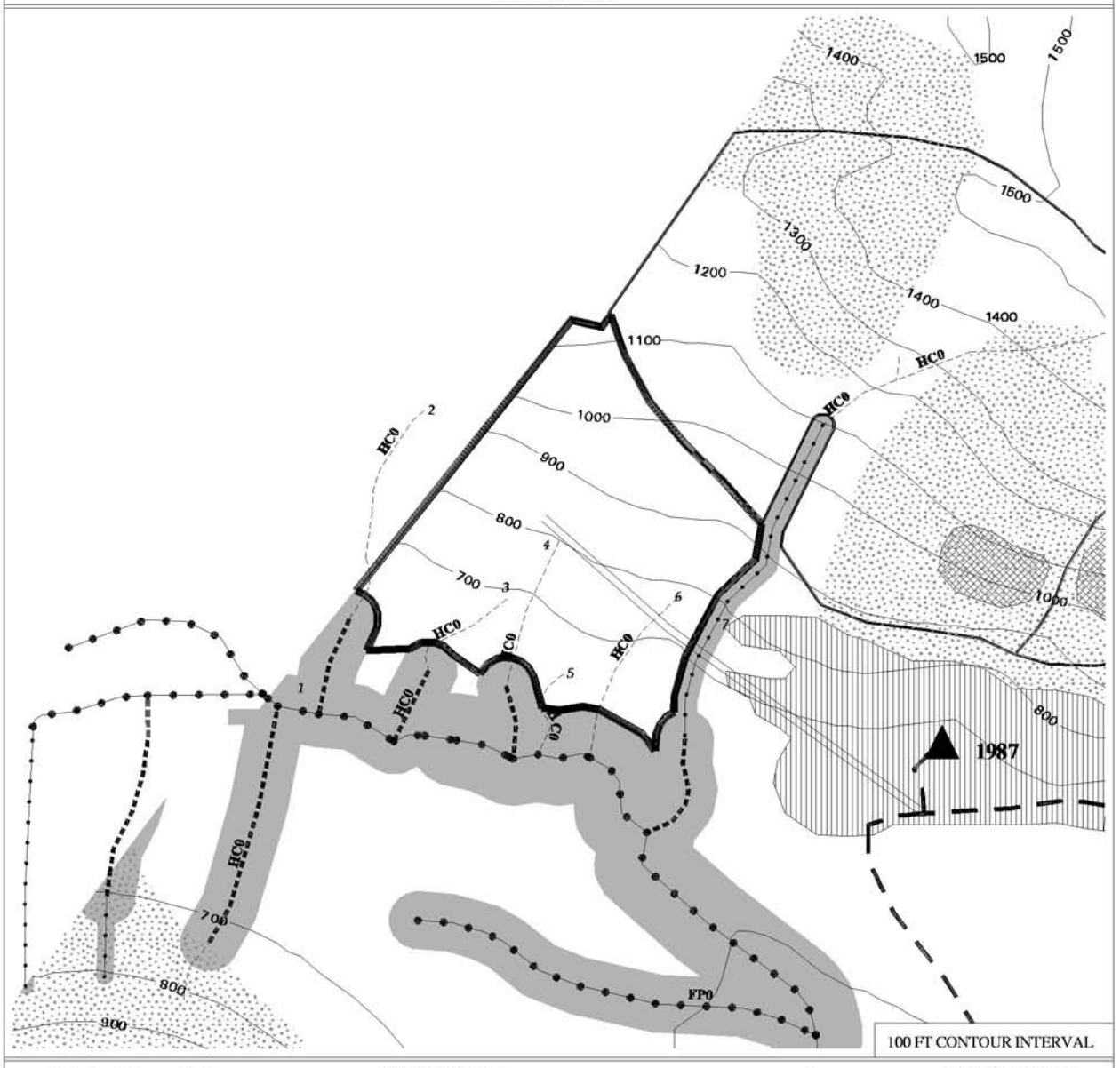
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 904 VCU: 2090 HARVEST SYSTEM: Cable

UNIT 904 OCCURS IN ALTERNATIVE(S): 2

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**904**	**In Alternatives:**	2	**Total Unit Acres:**	26.1	**Vol Strata Acres:**	High: 0 Med: 26.1 Low: 0
VCU Number:	2090	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	581	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 12-32" DBH western hemlock (53% BA), 16-36" DBH mountain hemlock (28% BA) and 12-44" DBH spruce (19% BA). The southwestern portion of the unit is more productive with well drained soils. An area of windthrow exists along the eastern boundary adjacent to the previously harvested stand. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers (refer to fish/watershed section). A high wind risk boundary may be created in the NW side of unit. Review during layout to determine if windfirming is warranted.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: Temporary road 9004 accesses unit from existing Road 85312. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 is a Class I PA and FP channel. **Response:** Locate southern unit boundary at least 130 feet from Stream 1 in eastern half of unit, and at least 100 feet from stream 1 in western half. Maintain a RAW zone of 120 feet north of no-cut buffer (BMP 13.16, RIP-III). **Concern:** Streams 2, 3, 4, 5, 6 are Class II HC channels within 300 - 400 feet of Stream 1, and Class IV HC channels beyond 400 feet. **Response:** No harvest within 100 feet of blue and white flagged segments and maintain RAW zone of 120 feet on the east sides of no-cut buffers. Category A protection. For green and white flagged segments, Category C protection (RIP-II, BMP 13.16). Remove logging debris from stream (BMP 13.9, 13.16) **Concern:** Stream 7 is a Class II HC channel within 400 feet of Stream 1, and a Class III HC channel above. **Response:** Category A protection for blue and white flagged segment. No harvest within 100 feet of channel and v-notch side-slopes. Manage for windfirmness within 120 feet of no-cut buffer (RIP-III). Orange and White flagged segment gets Category B protection (BMP 13.16). No harvest within v-notch side slopes (RIP-III). Manage for windfirmness within 120 feet of no-cut buffer (BMP 12.6, RIP-II, RIP-III). **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 5-60% in Unit 904. **Concern:** The southern half is forested wetland. **Response:** A minimum of partial suspension is required to meet soil and wetland resource standards. (BMP 12.5, 13.9) **Concern:** The proposed temporary road is located on forested wetland and not alternative route exists. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Goshawk observed in the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

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IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 907 VCU: 2090 HARVEST SYSTEM: Cable

UNIT 907 OCCURS IN ALTERNATIVE(S): 2 3 4 5

0 0.22 0.44 Miles

MAPSCALE 1:14000

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**907**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	44.9	**Vol Strata Acres:**	High: 29.6 Med:15.3 Low: 0
VCU Number:	2090	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	881	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 12-30" DBH western hemlock (70% BA) with some scattered 16-36" DBH spruce (17% BA) and 24-28" DBH mountain hemlock (13% BA). The eastern edge of the unit is the most productive. The western edge is less productive and contains some areas of windthrow. Wind risk is moderate. Mistletoe infection is moderate to heavy.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit is bounded on the SE by a class I stream buffer and does not contain high value marten habitat.

TIMBER/LOGGING: This unit is comprised of three cable settings that are defined by logical setting breaks based on topography and lateral yarding capabilities. There are some limited shovel yarding opportunities near the road.

ENGINEEERING/ROADS: Temporary road 42 accesses unit from existing Road 85331. Road location will be flagged by USFS prior to harvest.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1, 5 and upper segments of streams 2, 3, 4, 6, 7 are Class IV HC0. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Lower segments of streams 2, 3, 4, 6, and 7 and Class II HC0. **Response:** Category A protection. No harvest within 100 feet of channel or within v-notch. **Concern:** Stream 8 is a Class I MC2 along SE unit boundary. **Response:** Category A protection. Locate unit boundary beyond v-notch and 100 foot no-harvest buffer. **Concern:** Stream 9 is a Class I HC channel along S unit boundary. **Response:** Category A protection. Locate unit boundary north of v-notch and 100-foot no-harvest buffer (BMP 12.6, 13.9, RIP-III). **Concern:** Temporary road – stream crossings. **Response:** Log stringer bridge designated for Stream 9 (BMP 14.17). Other crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: The slopes range from 20 to 120% in Unit 907. There are about 10 acres of slopes greater than 72% in cliffs along the southeastern backline. This portion of the unit has a history of landslides. Northern boundary of the unit is a landslide. **Concern:** Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Avoid the steep area during layout by locating the backline below the slopes over 72% (BMP 13.5). The rest of 907 is suitable for the proposed cable harvest with partial suspension (BMP 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report). **Concern:** The proposed temporary road is located on forested wetland and not alternative route exists. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. **Concern:** Unit is located east of a travel corridor that maintains connectivity from low to high elevation habitat. High deer use observed in west and southwest portion of the unit. **Response:** Do not extend unit to the southwest or west boundary. **Concern:** Red-tailed hawk observed in unit. Suspect that there is a nest in the northeast portion of the unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

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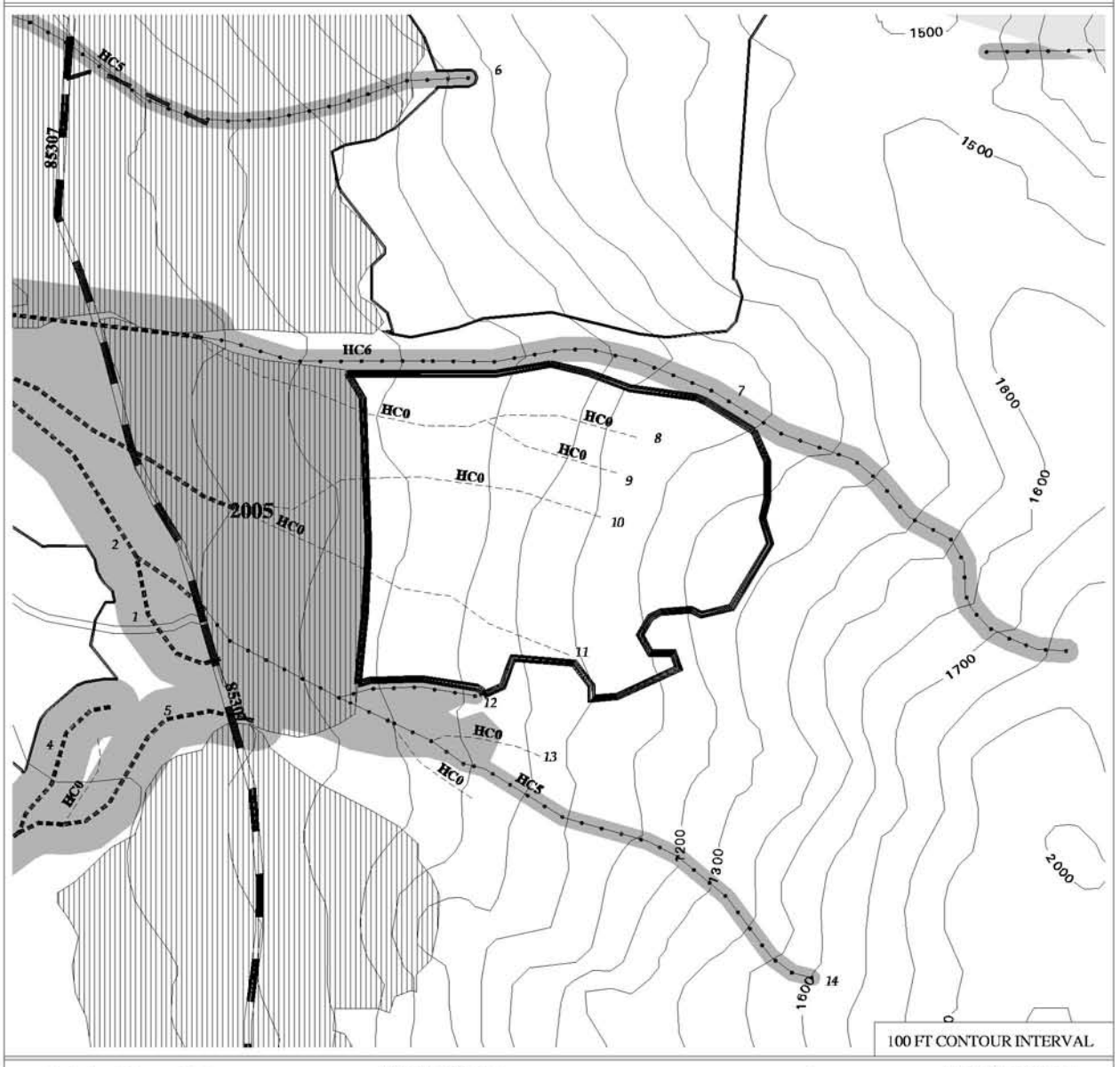
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 909 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 909 OCCURS IN ALTERNATIVE(S): 2 3

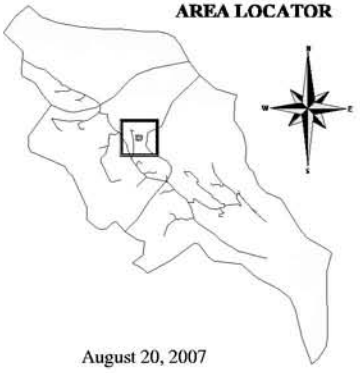
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**909**	**In Alternatives:**	2, 3	**Total Unit Acres:**	31.2	**Vol Strata Acres:**	High: 0 Med: 29.6 Low: 1.6
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	246	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of primarily of 12-36" DBH western hemlock (44% BA), 12-48" DBH mountain hemlock (42% BA), and 24-44" DBH spruce (15% BA). There are windthrown trees scattered throughout the stand. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (260 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 7 is Class III HC channel. **Response:** Category B protection. Locate unit boundary south of v-notch. Maintain 120-foot RAW zone south of no-harvest buffer. **Concern:** Streams 8, 9, 10, 11 are Class IV HC channels. **Response:** Category C protection. Fell away from stream if feasible and remove logging debris from channel. **Concern:** Stream 12 is Class III HC5. **Response:** Category B protection. Locate unit boundary north of v-notch boundary. Maintain 120-foot RAW zone north of v-notch (BMP 12.6, RIPII).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 30-65% in Unit 909. Unit suitable for proposed helicopter harvest. (BMP 13.9) Area to the south of Unit 909 dropped for stability concerns (BMP 13.5)

WILDLIFE: No concerns

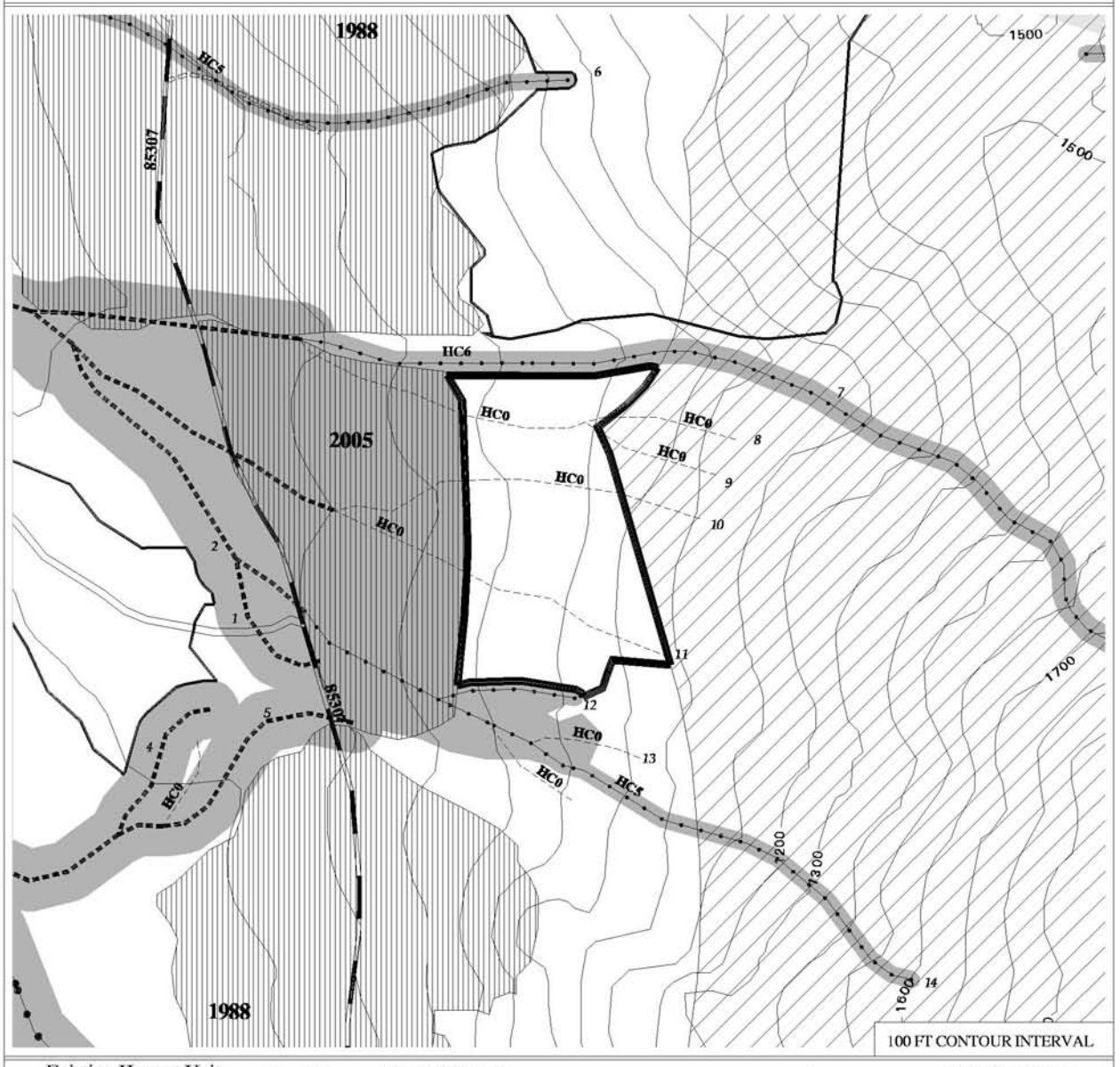
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 909 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 909 OCCURS IN ALTERNATIVE(S): 4

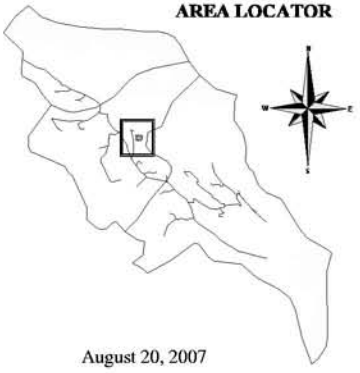
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**909**	**In Alternatives:**	4	**Total Unit Acres:**	14.9	**Vol Strata Acres:**	High: 0 Med: 14.9 Low: 0
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	120	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of primarily of 12-36" DBH western hemlock (44% BA), 12-48" DBH mountain hemlock (42% BA), and 24-44" DBH spruce (15% BA). There are windthrown trees scattered throughout the stand. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (260 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 7 is Class III HC. **Response:** Category B protection. Locate unit boundary south of v-notch. Maintain 120-foot RAW zone south of no-harvest buffer. **Concern:** Streams 8, 9, 10, 11 are Class IV HC channels. **Response:** Category C protection. Fell away from stream if feasible and remove logging debris from channel. **Concern:** Stream 12 is Class III HC5. **Response:** Category B protection. Locate unit boundary north of v-notch boundary. Maintain 120-foot windfirm zone north of v-notch. (BMP 12.6, 13.9, RIPII)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 30-65% in Unit 909. Unit suitable for proposed helicopter harvest. (BMP 13.9) Area to the south of Unit 909 dropped for stability concerns (BMP 13.5)

WILDLIFE: No concerns

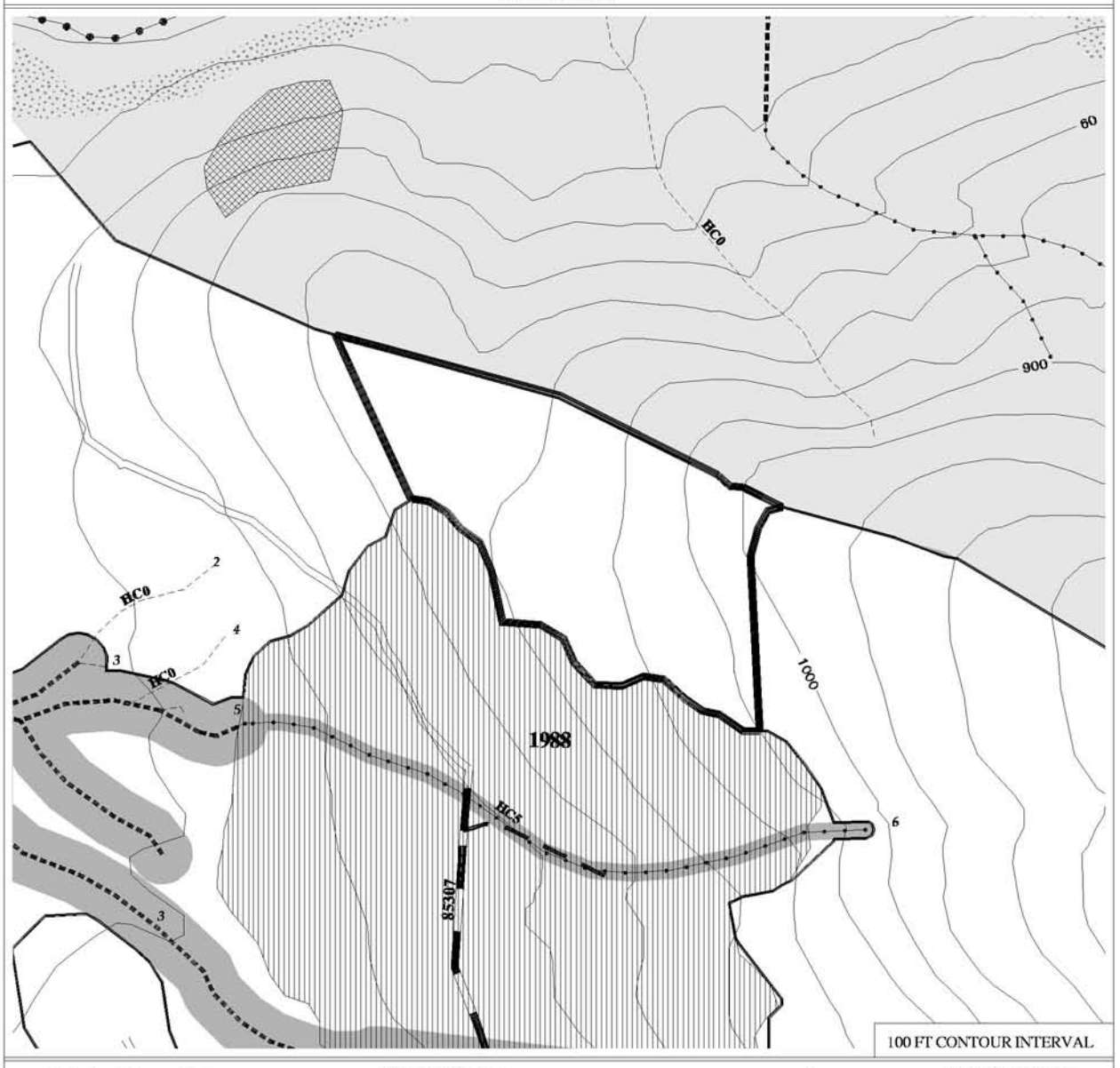
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 910 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 910 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**910**	**In Alternatives:**	4	**Total Unit Acres:**	23.5	**Vol Strata Acres:**	High: 0 Med: 23.5 Low: 0
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	523	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of primarily of 12-24" DBH western hemlock (62% BA) and larger spruce 28-48" DBH (38% BA). There is an area of blowdown in the SW portion of the unit associated with the existing harvest unit. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (200 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: No GIS-mapped streams.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: **Concern:** Unit design does not leave scalped appearance against brushfields
Response: Incorporate landscape architect input during layout, tie unit into brushfields to blend edges

SOILS/WETLANDS: Slopes range from 20-50% in Unit 910. Unit suitable for proposed helicopter harvest. (BMP 13.9) Area to the north of Unit 910 dropped for stability concerns (BMP 13.5)

WILDLIFE: No concerns

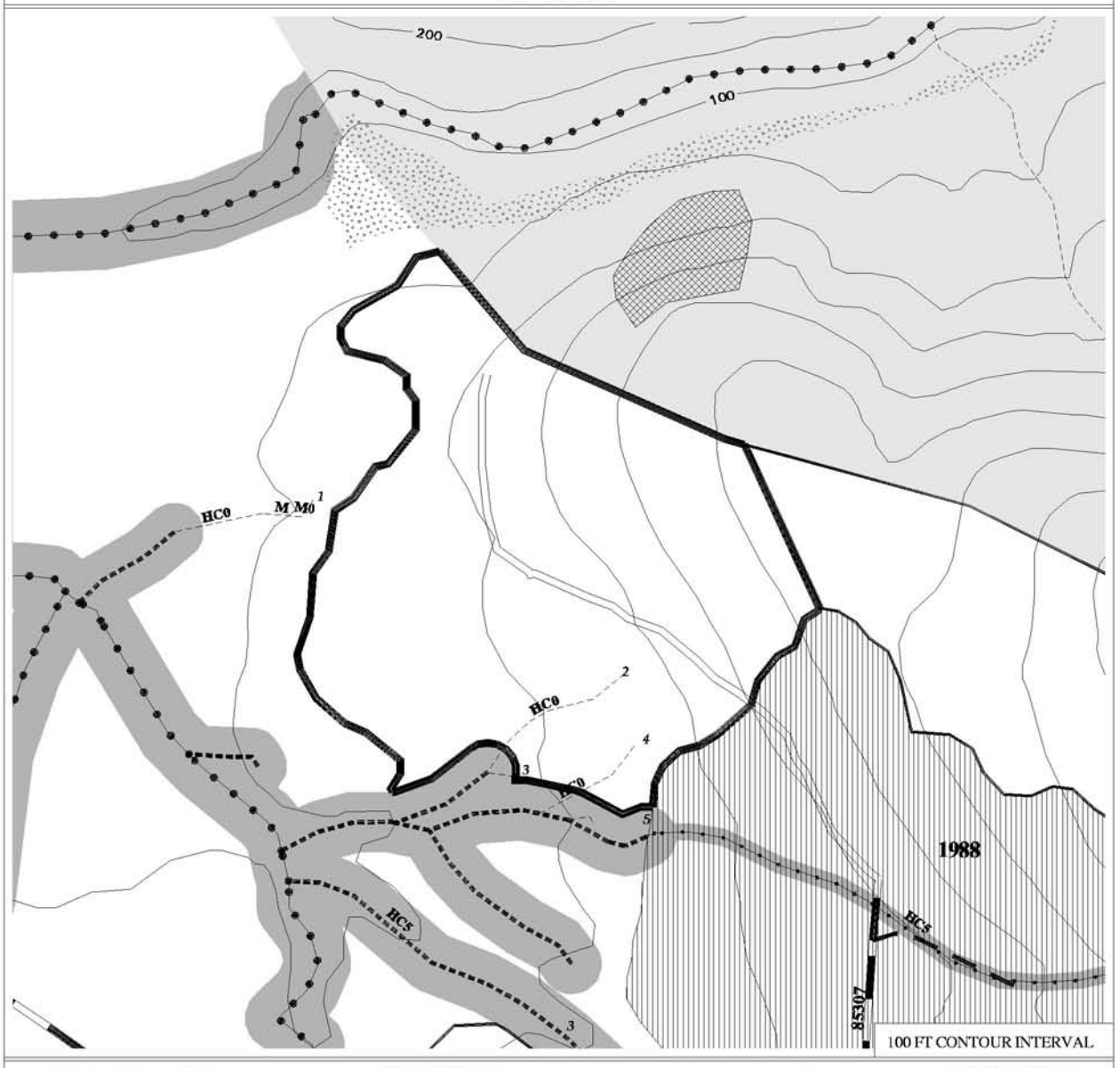
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 911 VCU: 2090 HARVEST SYSTEM: Cable

UNIT 911 OCCURS IN ALTERNATIVE(S): 2 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**911**	**In Alternatives:**	2, 4	**Total Unit Acres:**	49.6	**Vol Strata Acres:**	High: 0 Med: 26.7 Low: 22.9
VCU Number:	2090	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	927	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of primarily of 16-30" DBH western hemlock (53% BA) and 20-36" DBH spruce (43% BA) with a minor component of mountain hemlock. There is some windthrow associated with the edge of the existing harvest unit to the southeast as well as a larger area of windthrow in the center of the unit. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit is bounded on the south by stream buffers and does not contain high value marten habitat. High wind risk area is along NW unit boundary. A high wind risk boundary may be created on this boundary by retaining trees less than 16" DBH within specified distance of one site tree height from boundary. Review during layout to determine if windfirming is warranted.

TIMBER/LOGGING: This unit is comprised of three cable settings that are defined by logical setting breaks based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary road 9051 accesses unit from existing Road 85307. Road location will be flagged by USFS prior to harvest.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 1 is a Class IV MM. **Response:** Category C protection. **Concern:** Stream 2 and 3 (upper), 4 are Class IV HC. **Response:** Category C protection. **Concern:** Lower part of Stream 2 and Stream 5 are Class II HC. **Response:** Category 'A' protection. Locate unit at least 100 feet from channel and outside v-notch. **Concern:** Temporary road – stream crossings **Response:** Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: Concern: Unit design does not leave scalped appearance against brushfields **Response:** Incorporate landscape architect input during layout, tie unit into brushfields to blend edges

SOILS/WETLANDS: Slopes range from 10-50% in Unit 911. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9) The road should avoid side slopes greater than 50% and wetlands where practicable.

WILDLIFE: Concern: Northern boundary adjacent to old growth (OG) LUD. **Response:** Ensure unit boundary does not enter OG LUD.

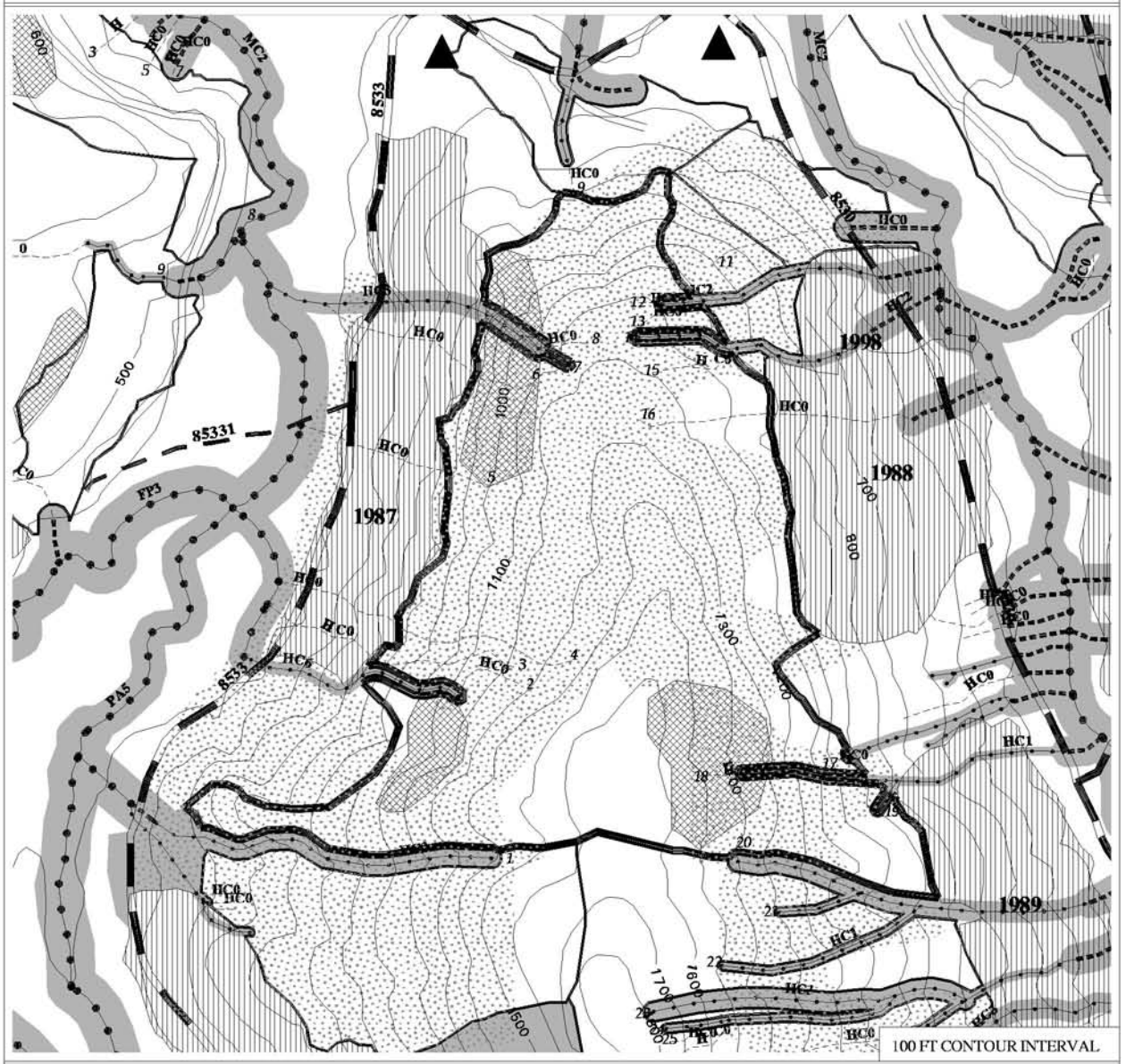
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 914 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 914 OCCURS IN ALTERNATIVE(S): 2 3 4

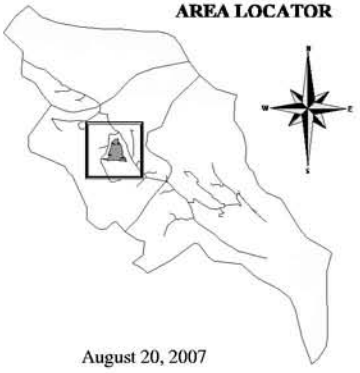
0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**914**	**In Alternatives:**	2, 3, 4	**Total Unit Acres:**	243.4	**Vol Strata Acres:**	High: 200 Med: 20.7 Low: 22.7
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	2,437	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand is comprised predominantly of 12-24"DBH mountain hemlock (51%), 12-36" DBH western hemlock (21% BA) and 12-40" DBH spruce (27% BA). This unit is situated on a hilltop and its flanks. The most productive areas are in the eastern portion where the slopes are moderate and well drained and in the western portion of the unit, where the slopes are steeper. There are several avalanche chutes in this area. The central portion of the unit is a hilltop with considerable small diameter mountain hemlock and less well drained soils including some muskeg areas. Windthrow risk is moderate.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity and provides for a high degree of structural diversity.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (257 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1 (upper), 6, 7, 8, 9, 11, 14, and 15 are Class III HC channels. **Response:** Category B protection. No harvest within the v-notch (BMP 12.6). **Concern:** Lower portion of Stream 1 is a Class II HC on SE edge of the unit. **Response:** No harvest within 100 feet of the stream and within the v-notch (BMP 12.6, RIP). **Concern:** Streams 2, 3, 4, 5, 12, 13, and 17 are Class IV HC channels. **Response:** Category C protection. Directional felling if feasible. Remove logging debris from stream (BMP 13.9, 13.16)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: The slopes range from 35 to 85% in Unit 914. There are about 22 acres of slopes greater than 72% in Unit 914. The soils are generally well-drained over bedrock. There are no signs of instability, hollow topography or past landslides in this area. **Concern:** Some landslides may initiate on the slopes greater than 72% and enter streams. **Response:** Do not harvest any slopes greater than 72% within 120 feet of any stream. Slopes up to 80% may be harvested with the proposed helicopter prescription. Avoid slopes greater than 80% in Unit 914. (BMP 13.5, 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report). **Concern:** The eastern quarter of the unit is subalpine forest and muskeg. **Response:** Helicopter logging will protect wetlands and meet resource objectives. (BMP 12.5). The rest of the unit is suitable for proposed helicopter harvest.

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit contains high value marten habitat. High deer use was observed along the ridge in the unit. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines and maintain habitat for deer.

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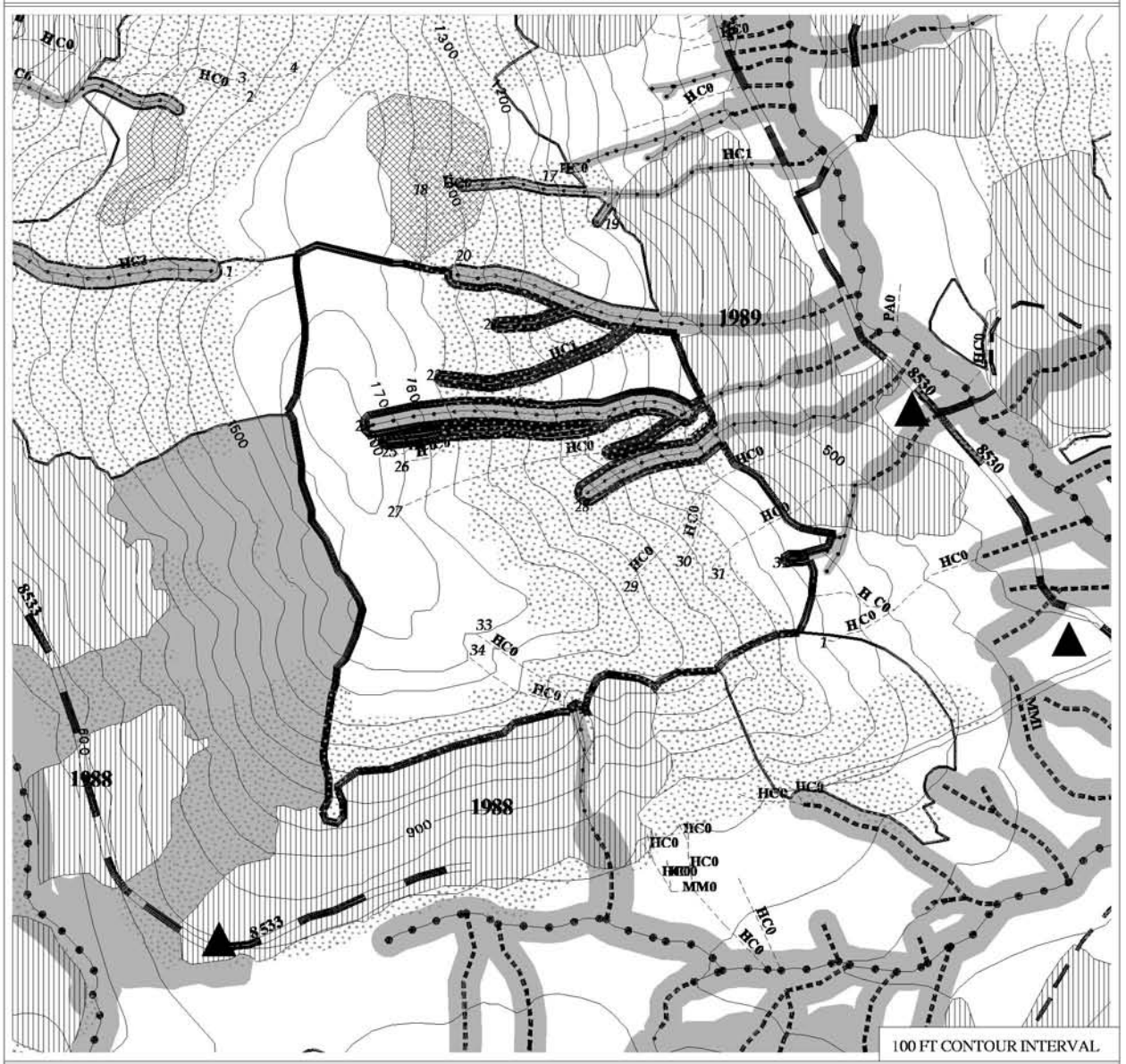
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 915 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 915 OCCURS IN ALTERNATIVE(S): 4

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**915**	**In Alternatives:**	4	**Total Unit Acres:**	178.6	**Vol Strata Acres:**	High: 161.9 Med: 20.7 Low: 0
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	1,817	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand is comprised predominantly of 12-20" DBH mountain hemlock (47% BA), with some larger 16-36" DBH western hemlock (14% BA) and 16-45" DBH spruce (40% BA). This unit is situated on a hilltop and along its eastern flank. The most productive area is in the southeastern portion where the slopes are moderate and well drained. The western portion of the unit is a hill top with considerable small diameter mountain hemlock and less well drained soils including some muskeg areas. Wind risk is moderate.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (225 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Streams 20-24, 27 (lower), 28, 32 are Class III HC channels. **Response:** Category B protection. No harvest in v-notch. (BMP 12.6, 13.14, RIP II) **Concern:** Streams 25, 26, 27 (upper), 29, 30, 31, 33, 34 are Class IV HC channels. **Response:** Category C protection. (BMP 12.6, 13.14, RIP II)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: slopes range from 35-60% in Unit 915. Slopes exceed 72% along v-notches and streams, but these areas are excluded by the stream buffers. Unit suitable for proposed helicopter harvest. (BMP 13.9) Area to the west of Unit 915 dropped for stability concerns (BMP 13.5)

WILDLIFE: Concern: Unit contains high value marten habitat. High deer use was observed along the ridge in the unit. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines and maintain habitat for deer.

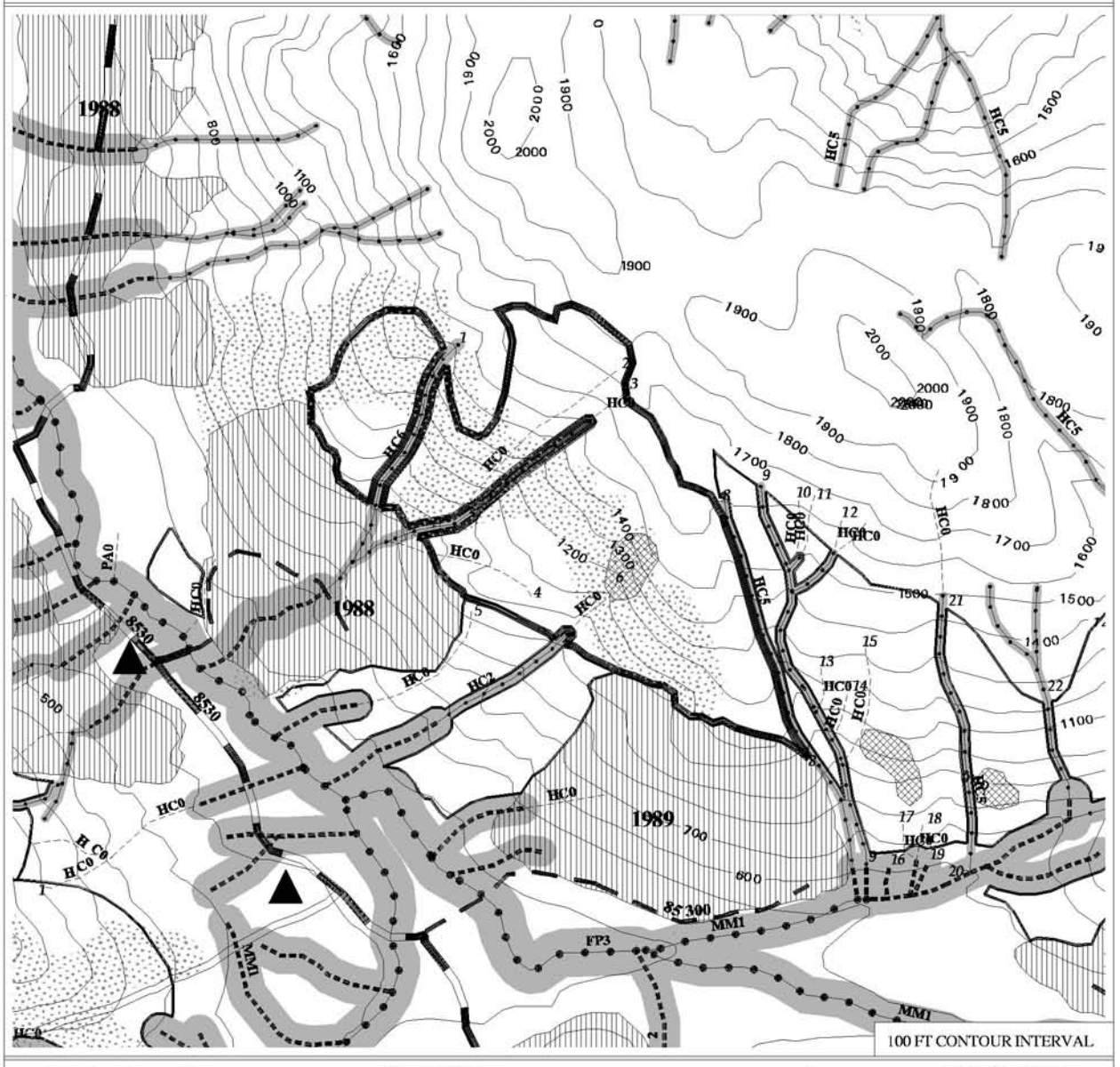
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 916 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 916 OCCURS IN ALTERNATIVE(S): 2 3

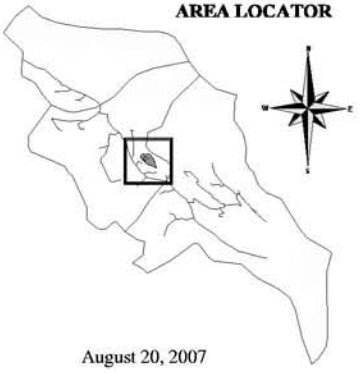
0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**916**	**In Alternatives:**	2, 3	**Total Unit Acres:**	106.6	**Vol Strata Acres:**	High: 55.7 Med:35.9 Low:15.0
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	1,379	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised predominantly of 12-36" DBH western hemlock (43% BA), 16-39" DBH mountain hemlock (33% BA) and 12-40" DBH spruce (24% BA). The most productive area is in the southeastern portion where the slopes are moderate and well drained. There are several v-notches throughout the unit. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (283 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1, 3 (lower), 6 (lower), 8 are Class III HC channels. **Response:** Category B protection(BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Streams 2, 3 (upper), 4, 6 (upper) are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 40-75% in Unit 916. **Concern:** There are about 3 acres of slopes greater than 72% in the unit. Timber harvest on slopes over 72% gradient may result in a loss of soil productivity (BMP 13.5). **Response:** Full suspension is required in these areas (BMP 13.9). The rest of 916 is suitable for the proposed helicopter harvest. Area to the northwest of Unit 916 dropped for stability concerns. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Unit contains high value marten habitat. High deer use was observed in southwest portion of the unit. Unit is located in a travel corridor that maintains connectivity from low to high elevation habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines and help to maintain connectivity and deer habitat. **Concern:** Sharp-shinned hawk was observed in unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nests if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

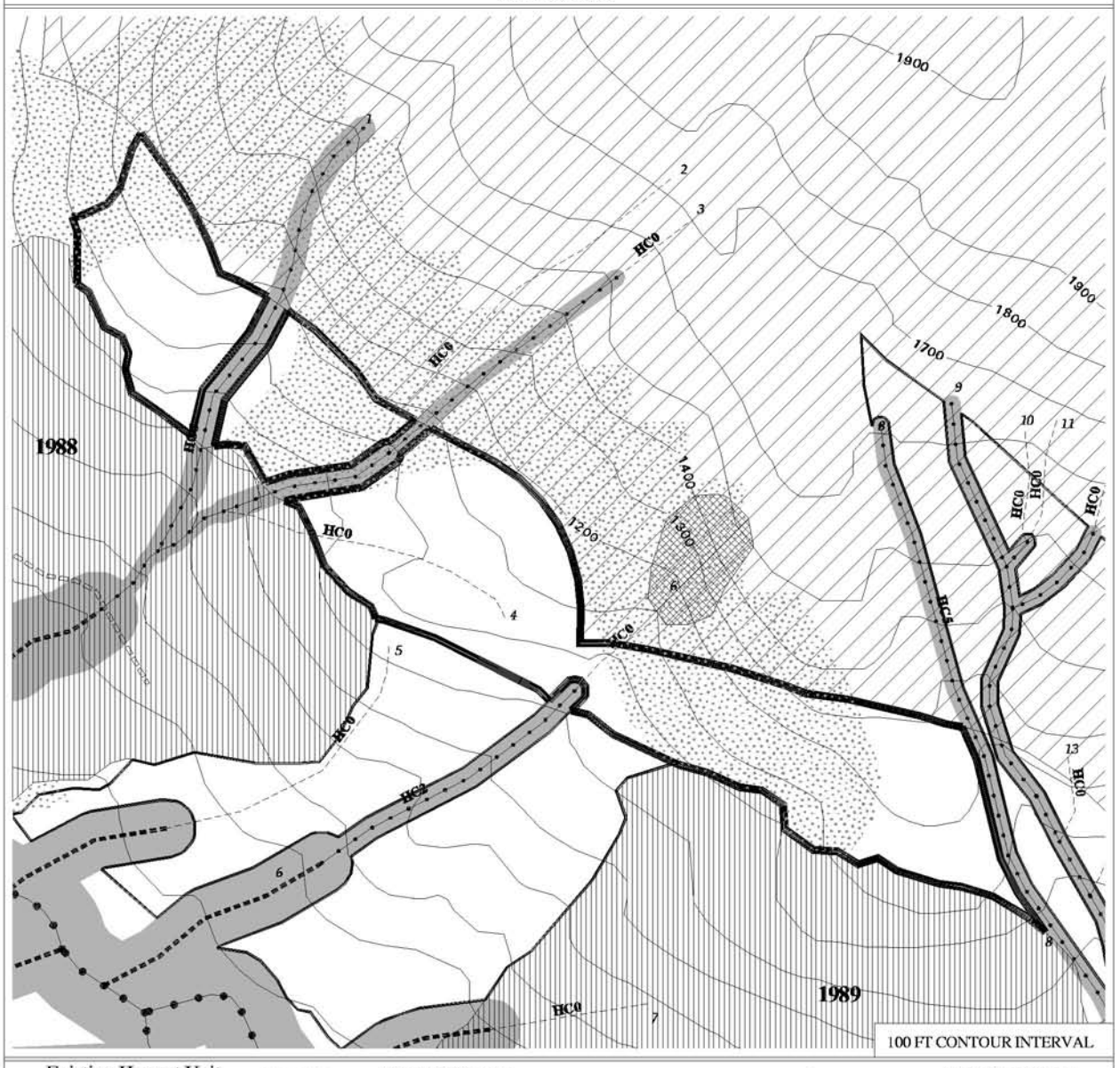
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 916 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 916 OCCURS IN ALTERNATIVE(S): 4

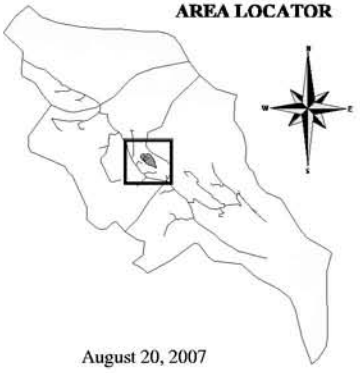
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**916**	**In Alternatives:**	4	**Total Unit Acres:**	41.1	**Vol Strata Acres:**	High: 16.1 Med: 25.0 Low: 0
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	538	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised predominantly of 12-36" DBH western hemlock (43% BA), 16-39" DBH mountain hemlock (33% BA) and 12-40" DBH spruce (24% BA). The most productive area is in the southeastern portion where the slopes are moderate and well drained. There are several v-notches throughout the unit. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (283 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1, 3 (lower), 6 (lower), 8 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Streams 2, 3 (upper), 4, 6 (upper) are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 40-55% in Unit 916. Unit suitable for proposed helicopter harvest. (BMP 13.9) Area to the northwest of Unit 916 dropped for stability concerns (BMP 13.5).

WILDLIFE: **Concern:** Unit contains high value marten habitat. High deer use was observed in southwest portion of the unit. Unit is located in a travel corridor that maintains connectivity from low to high elevation habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines and help to maintain connectivity and deer habitat. **Concern:** Sharp-shinned hawk was observed in unit.
Response: Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nests if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

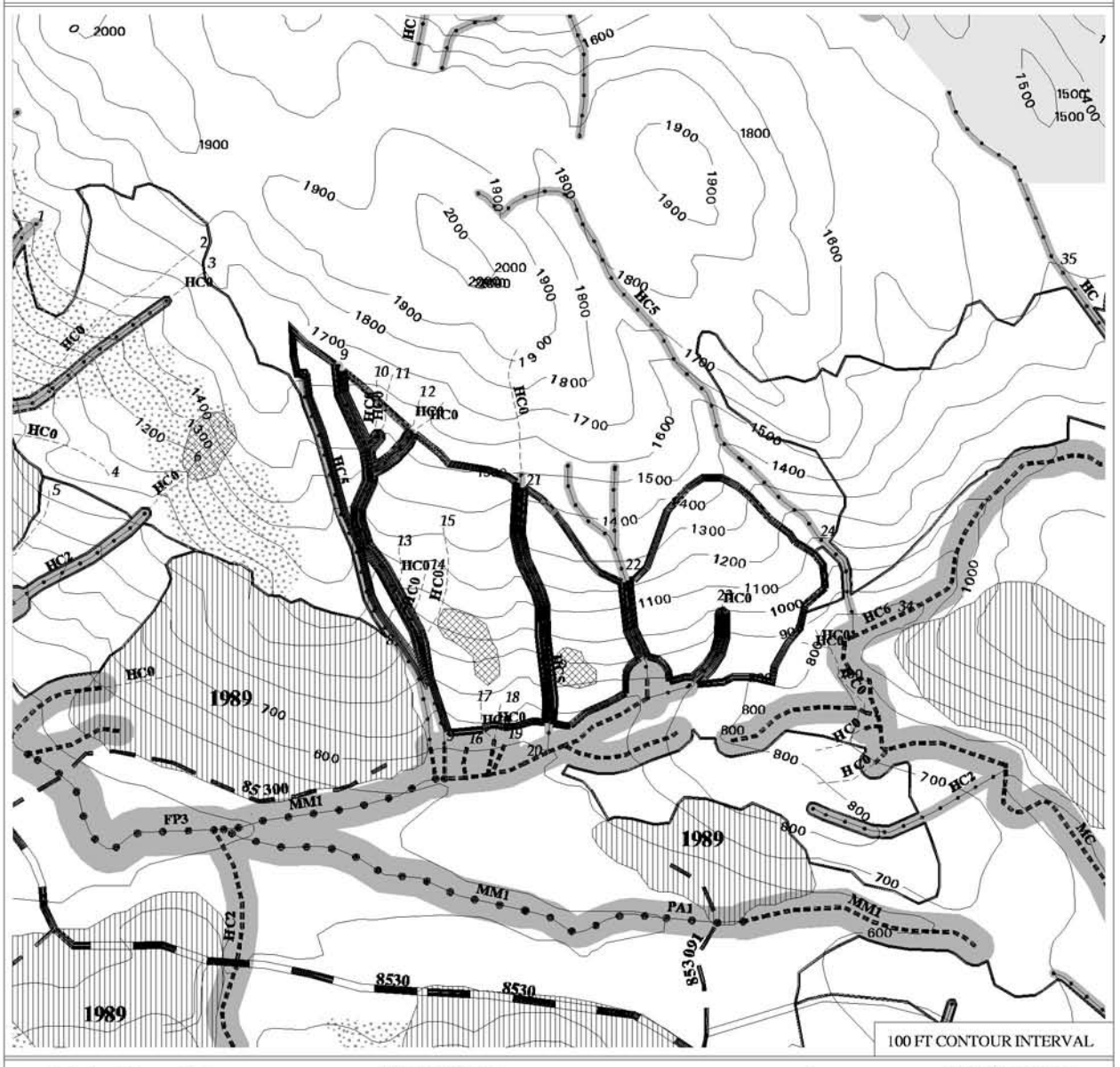
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 917 VCU: 2090/2100 HARVEST SYSTEM: Helicopter

UNIT 917 OCCURS IN ALTERNATIVE(S): 2 3

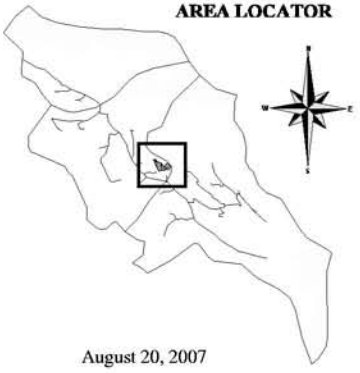
0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**917**	**In Alternatives:**	2, 3	**Total Unit Acres:**	90.4	**Vol Strata Acres:**	High: 0 Med: 90.4 Low: 0
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	1,061	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised predominantly of 12-40" DBH western hemlock (53% BA), 24-40" DBH spruce (24% BA) and 12-38" DBH mountain hemlock (24% BA) . The most productive area is in the central and eastern portion where the slopes are moderate and well drained. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (277 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 8, 9, 10 (lower), 12 (lower), 21, 22 (upper), 23 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest in v-notch (RIP III). **Concern:** Streams 10 (upper), 11, 12, 13, 15, 17, 18, 23 (upper) are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 22 (lower) is a Class II AF channel. **Response:** Category B protection and no harvest within 140 feet of channel or on active portion of fan. Harvest no more than 10% across inactive part of fan (RIP II). **Concern:** Streams 8 (lower), 9 (lower), 16, 17 (lower) 19, and southern boundary stream are Class II HC channels. **Response:** Category A protection. No harvest within 100 feet of channel or within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 30-80% in Unit 917. Soils are generally well drained forming in bedrock. **Concern:** There are about 4 acres of slope greater than 72% in the unit. These areas have an observed landslide history and timber harvest may accelerate landsliding on slopes over 72%. **Response:** Do not harvest timber in these areas greater than 72% (BMP 13.5). The rest of 917 is suitable for the proposed helicopter harvest (BMP 13.9). Areas to the north and southeast of Unit 917 dropped for stability concerns. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Sharp-shinned hawk observed adjacent to unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nests if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 917 VCU: 2090/2100 HARVEST SYSTEM: Helicopter

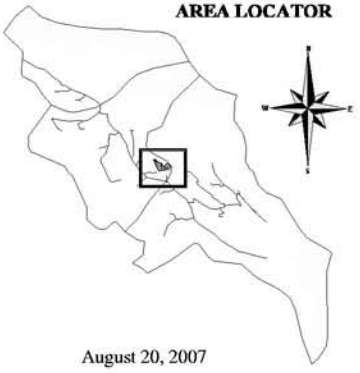
UNIT 917 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**917**	**In Alternatives:**	4	**Total Unit Acres:**	15.8	**Vol Strata Acres:**	High: 0 Med:15.8 Low: 0
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	184	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised predominantly of 12-40" DBH western hemlock (53% BA), 24-40" DBH spruce (24% BA) and 12-38" DBH mountain hemlock (24% BA) . The most productive area is in the central and eastern portion where the slopes are moderate and well drained. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (277 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 8, 9, 10 (lower), 12 (lower), 21, 22 (upper), 23 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest in v-notch (RIP III). **Concern:** Streams 10 (upper), 11, 12, 13, 15, 17, 18, 23 (upper) are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 22 (lower) is a Class II AF channel. **Response:** Category B protection and no harvest within 140 feet of channel or on active portion of fan. Harvest no more than 10% across inactive part of fan (RIP II). **Concern:** Streams 8 (lower), 9 (lower), 16, 17 (lower) 19, and southern boundary stream are Class II HC channels. **Response:** Category A protection. No harvest within 100 feet of channel or within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 30-80% in Unit 917. Soils are generally well drained forming in bedrock. **Concern:** There are about 4 acres of slope greater than 72% in the unit. These areas have an observed landslide history and timber harvest may accelerate landsliding on slopes over 72%. **Response:** Do not harvest timber in these areas greater than 72% (BMP 13.5). The rest of 917 is suitable for the proposed helicopter harvest (BMP 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Sharp-shinned hawk observed adjacent to unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nests if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

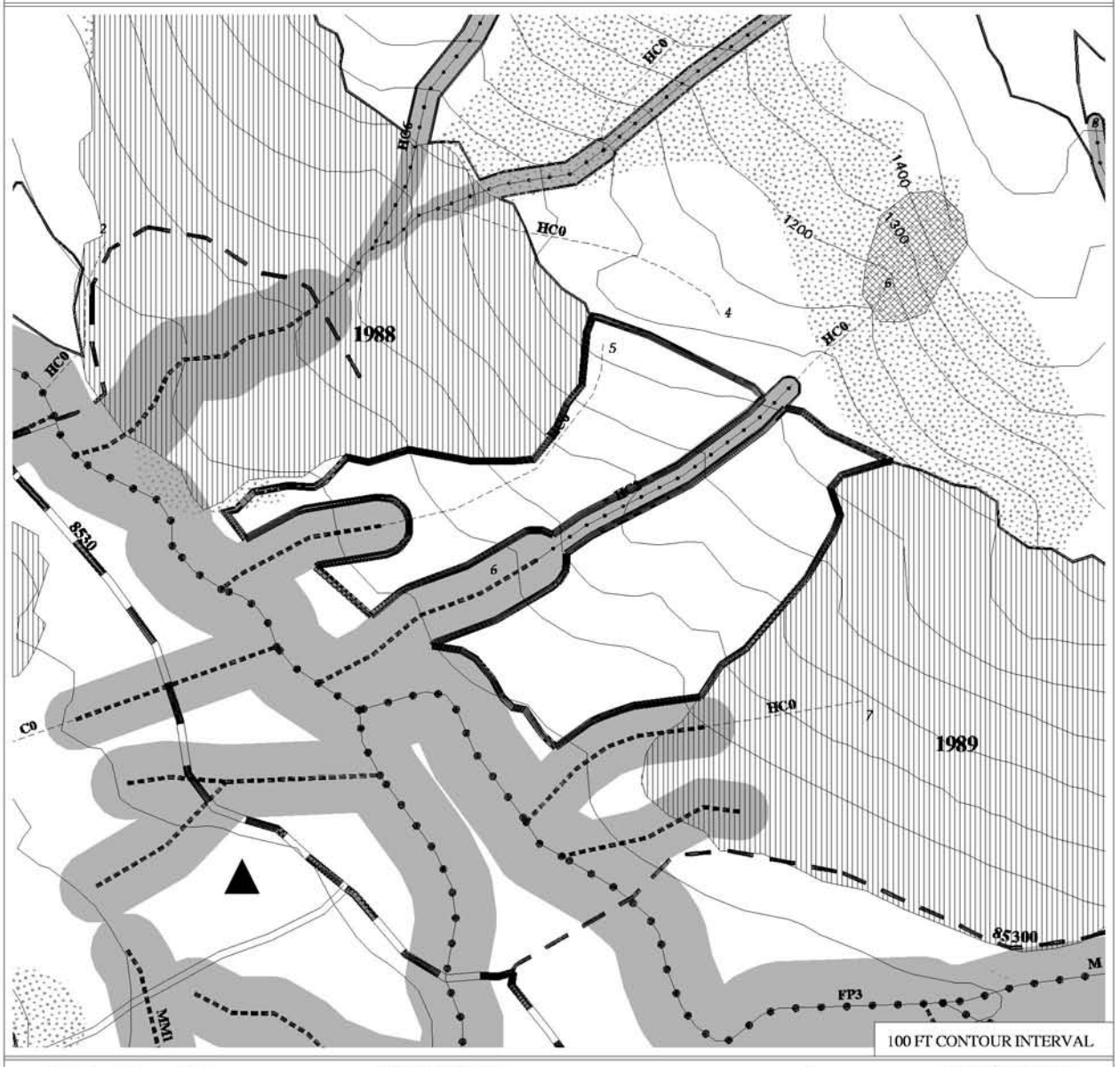
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 919 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 919 OCCURS IN ALTERNATIVE(S): 2 3 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**919**	**In Alternatives:**	2, 3, 4	**Total Unit Acres:**	31.3	**Vol Strata Acres:**	High: 0.2 Med: 27.9 Low: 3.2
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	241	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand is comprised primarily of 12-20" DBH western hemlock, with some larger spruce (15% BA) and yellow-cedar (20% BA) . This unit is situated on a hilltop and along its eastern flank. Slopes are moderate and soil is mostly well drained although the southern portion is next to a muskeg. Western hemlock, spruce and yellow-cedar advanced regeneration is present but not abundant. Wind risk is low.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (227 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 5 (upper) is a Class IV HC channel. **Response:** Category C protection (BMP 12.6, 13.14). **Concern:** Stream 6 (upper) is Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 5 (lower) is Class II MM channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** streams 6 (lower), 7 (lower) are Class II HC channels. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Southern boundary stream is Class I FP channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 130 feet of channel or floodplain (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: slopes range from 25-55% in Unit 919. Adjacent clearcuts have a lot of landslides in them. What are the soils like? No harvest should occur on slopes greater than 72% slope. Full suspension is required to meet soil quality standards. (BMP 13.9) (This unit requires field work)

WILDLIFE: **Concern:** Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines. **Concern:** Unit is located in a travel corridor that maintains connectivity from low to high elevation habitat. High deer use was observed in most of the unit. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will help to maintain travel corridor and habitat for deer.

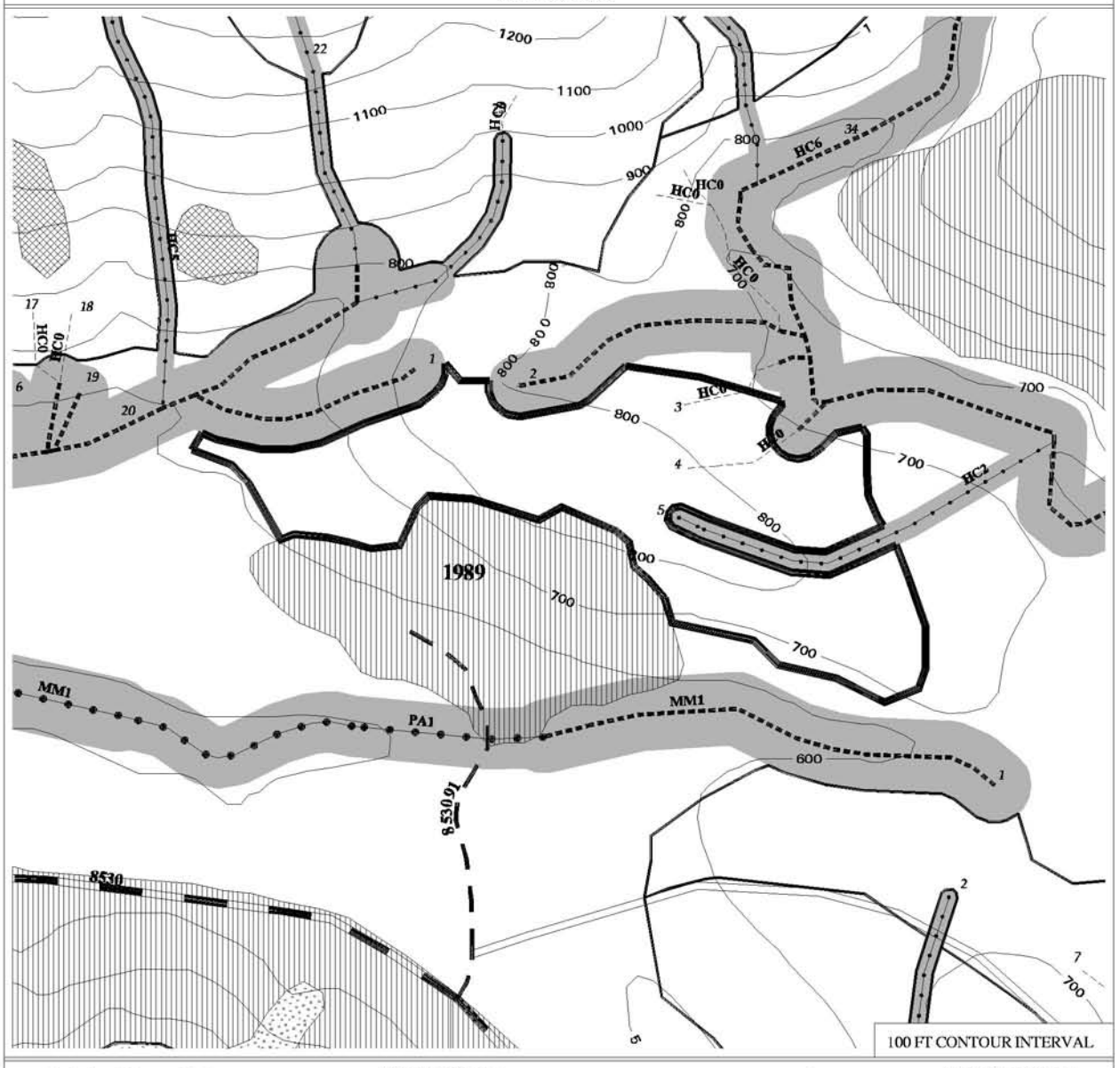
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 921 VCU: 2090/2100 HARVEST SYSTEM: Helicopter

UNIT 921 OCCURS IN ALTERNATIVE(S): 2 3 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

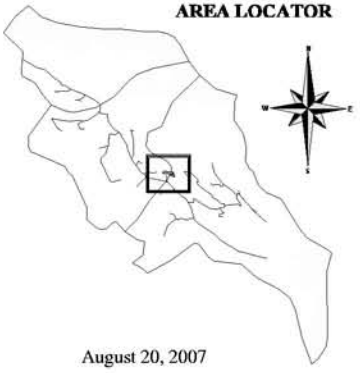
Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**921**	**In Alternatives:**	2, 3, 4	**Total Unit Acres:**	28.8	**Vol Strata Acres:**	High: 0 Med: 12.0 Low: 16.8
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	266	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised pimarily of 12-30" DBH western hemlock (60% BA), spruce (25% BA) and mountain hemlock (15% BA). The central to northern portion of the unit is the most productive and more well drained. Larger spruce and mountain hemlock 30-50" DBH are scattered throughout unit. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (200 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1, 2, 3 (lower), 4 (lower) are Class II HC channels. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Streams 3 (upper and 4 (upper) are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 5 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 10-70% in Unit 921. **Concern:** There about 6 acres of forested wetland and about 1 acre of muskeg in the unit **Response:** Helicopter logging will protect wetlands and meet resource objectives. (BMP 12.5). Unit is suitable for proposed helicopter harvest. (BMP 13.9)

WILDLIFE: **Concern:** High deer use was observed in the east portion of the unit. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will help to maintain deer habitat. **Concern:** Red-tailed hawk was observed in unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

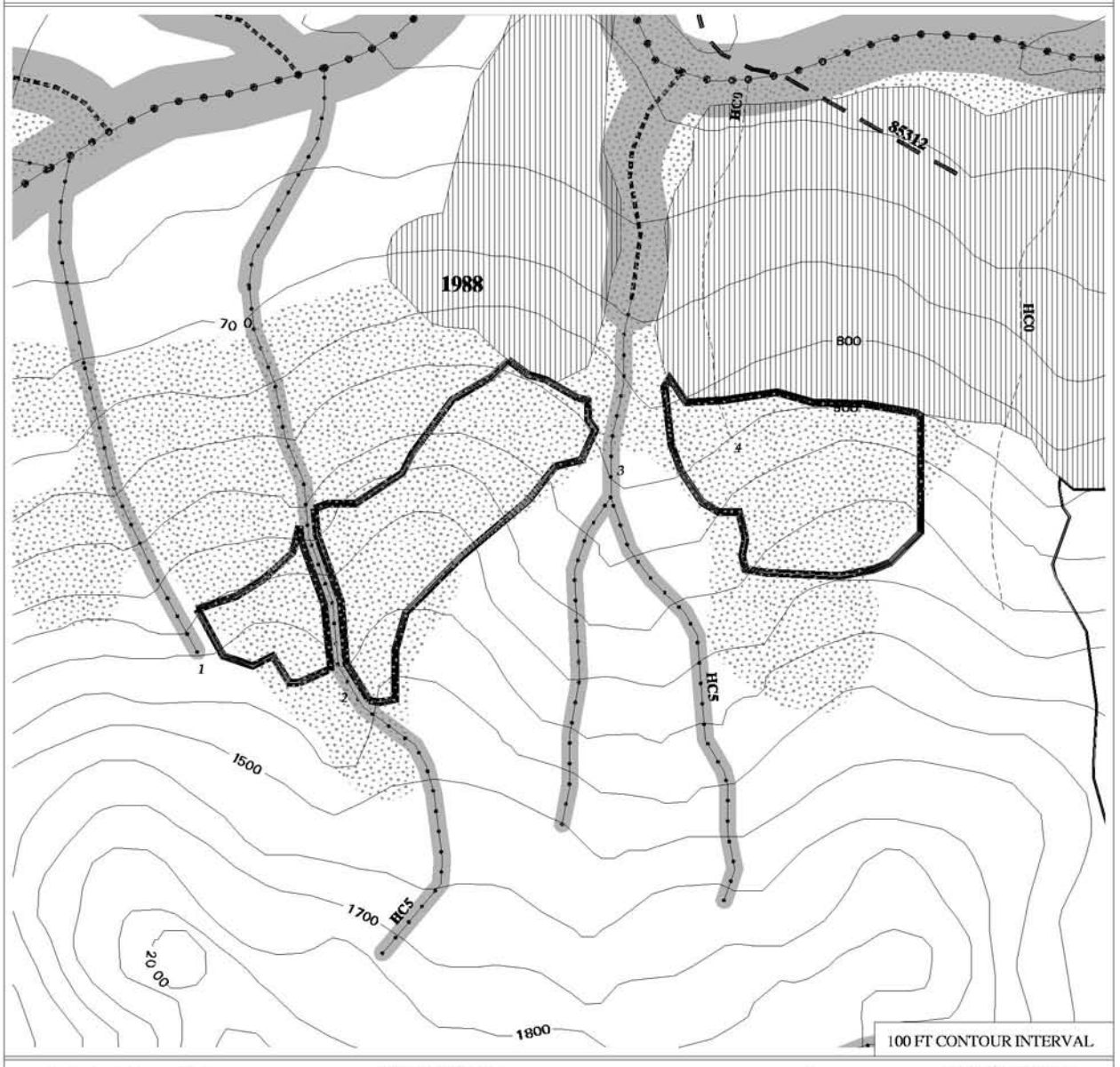
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 932 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 932 OCCURS IN ALTERNATIVE(S): 2 3

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**932**	**In Alternatives:**	2, 3	**Total Unit Acres:**	24.1	**Vol Strata Acres:**	High: 23.6 Med: 0 Low: 0.5
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	356	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised primarily of 12-36" DBH western hemlock (55% BA), 24-40" DBH spruce (23% BA) and 12-40" DBH mountain hemlock (23%). Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (313 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** GIS mapped streams 1,2,3 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 30-50% in Unit 932. **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the south and east of Unit 932 dropped for stability concerns (BMP 13.5)

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines.

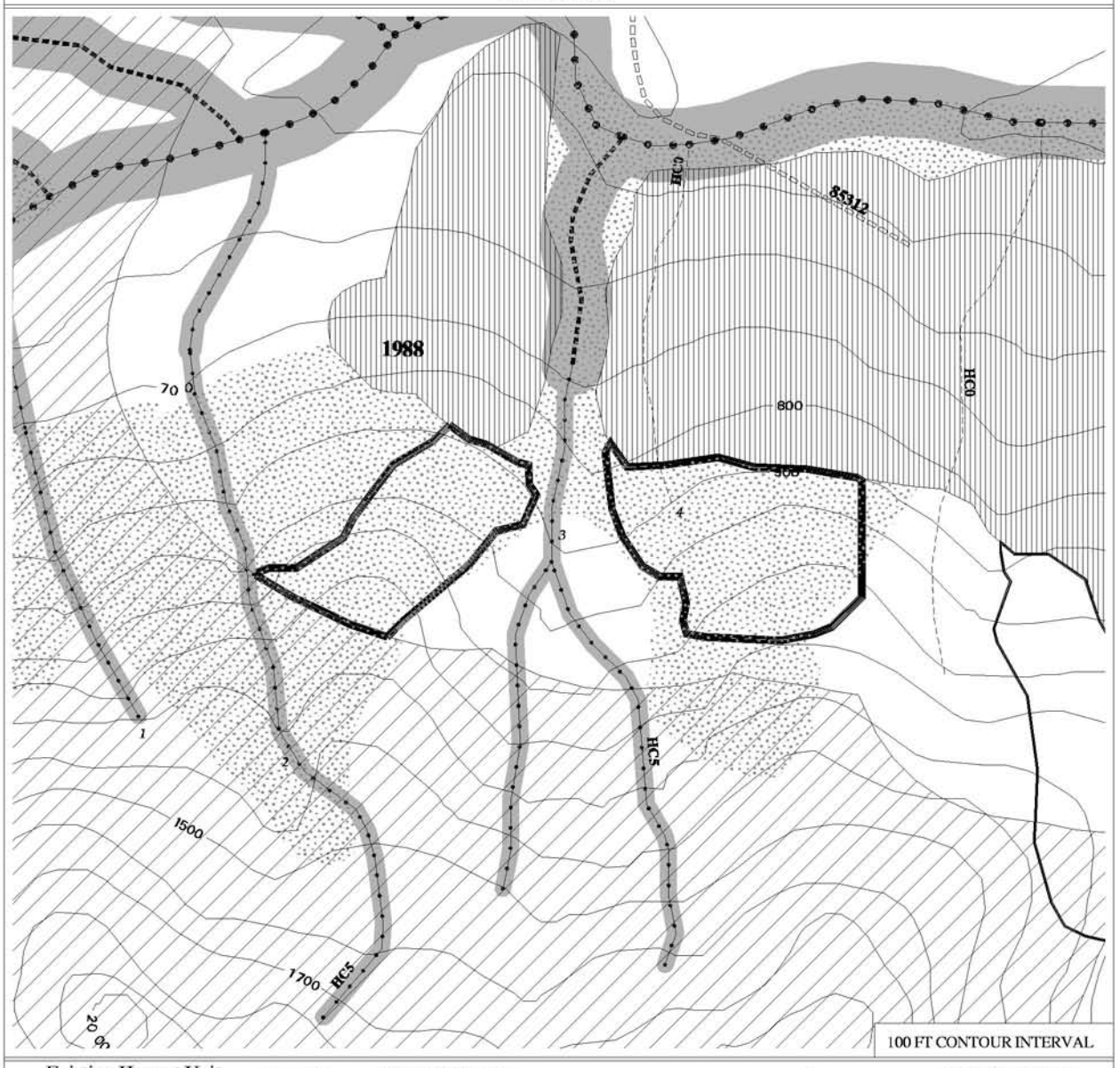
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 932 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 932 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**932**	**In Alternatives:**	4	**Total Unit Acres:**	18.0	**Vol Strata Acres:**	High: 17.7 Med: 0 Low: 0.3
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	267	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised primarily of 12-36" DBH western hemlock (55% BA), 24-40" DBH spruce (23% BA) and 12-40" DBH mountain hemlock (23%). Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (313 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1,2,3 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 30-50% in Unit 932 **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the south and east of Unit 932 dropped for stability concerns (BMP 13.5)

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines.

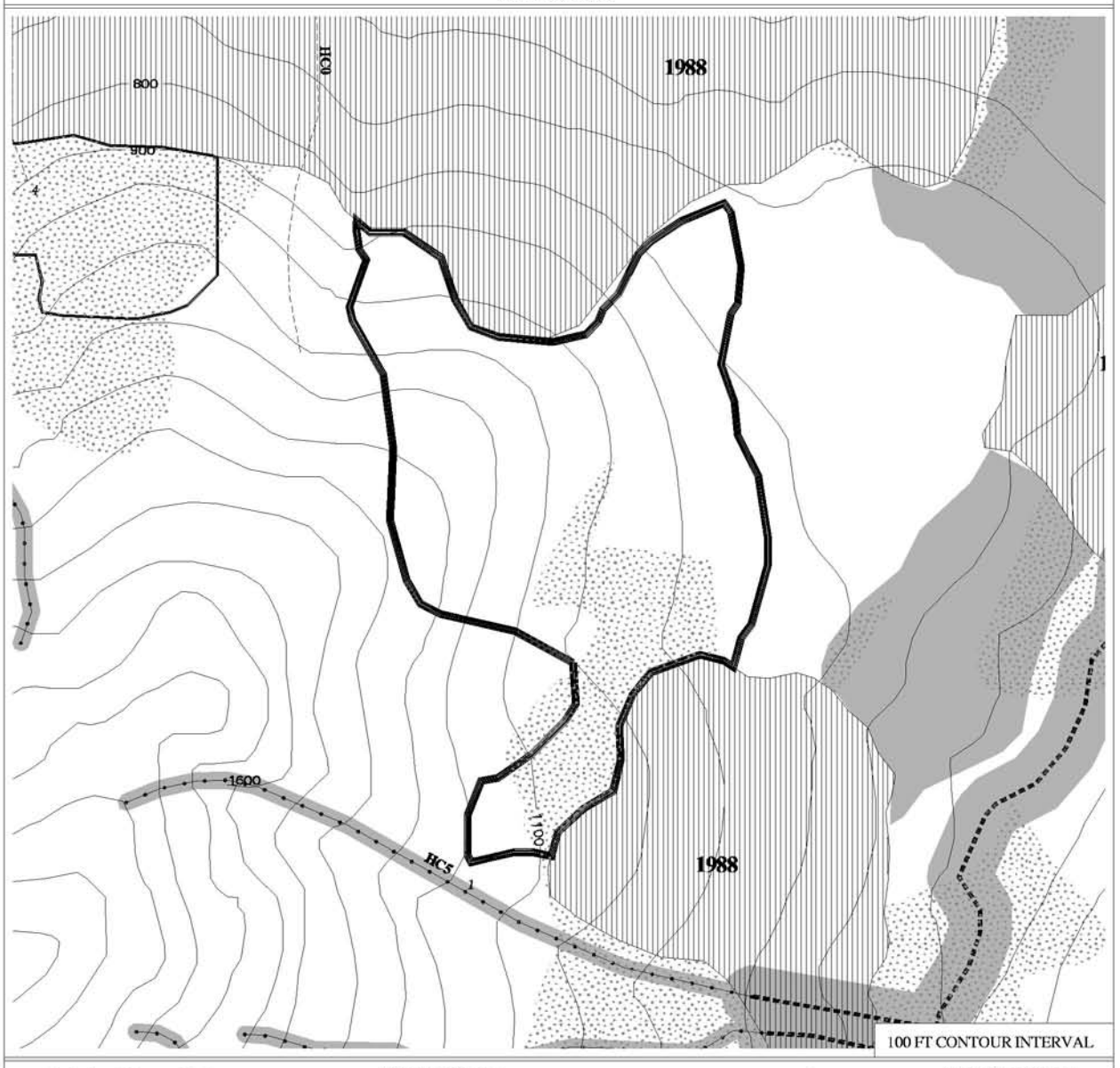
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 937 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 937 OCCURS IN ALTERNATIVE(S): 2 3

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**937**	**In Alternatives:**	2, 3	**Total Unit Acres:**	42.3	**Vol Strata Acres:**	High: 8.9 Med: 30.0 Low: 3.4
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	510	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised primarily of 16-36" DBH western hemlock (45% BA), 12-44" DBH spruce (50% BA) and a minor component of small diameter mountain hemlock (5% BA). Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (314 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: No GIS mapped streams.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 40-70% in Unit 937. **Concern:** a small amount of wetland is scattered through out the unit. **Response:** Helicopter logging will protect wetlands and meet resource objectives. (BMP 12.5) **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the west of Unit 937 dropped for stability concerns (BMP 13.5)

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards.

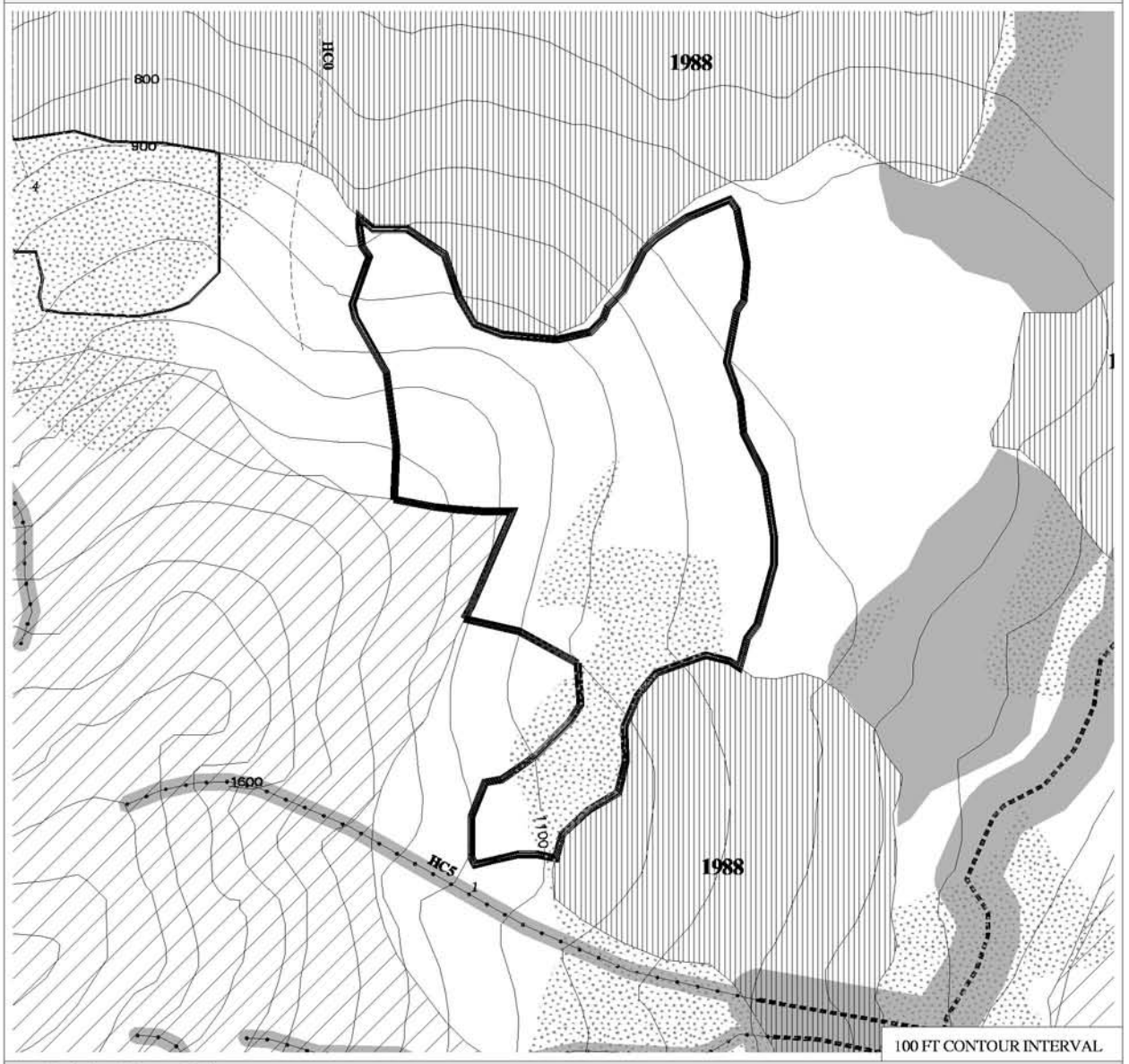
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 937 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 937 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**937**	**In Alternatives:**	4	**Total Unit Acres:**	39.8	**Vol Strata Acres:**	High: 8.9 Med: 27.8 Low: 3.1
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	482	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised primarily of 16-36" DBH western hemlock (45% BA), 12-44" DBH spruce (50% BA) and a minor component of small diameter mountain hemlock (5% BA). Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (314 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: No GIS mapped streams.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 40-70% in Unit 937. **Concern:** a small amount of wetland is scattered through out the unit. **Response:** Helicopter logging will protect wetlands and meet resource objectives. (BMP 12.5) **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the west of Unit 937 dropped for stability concerns (BMP 13.5).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines.

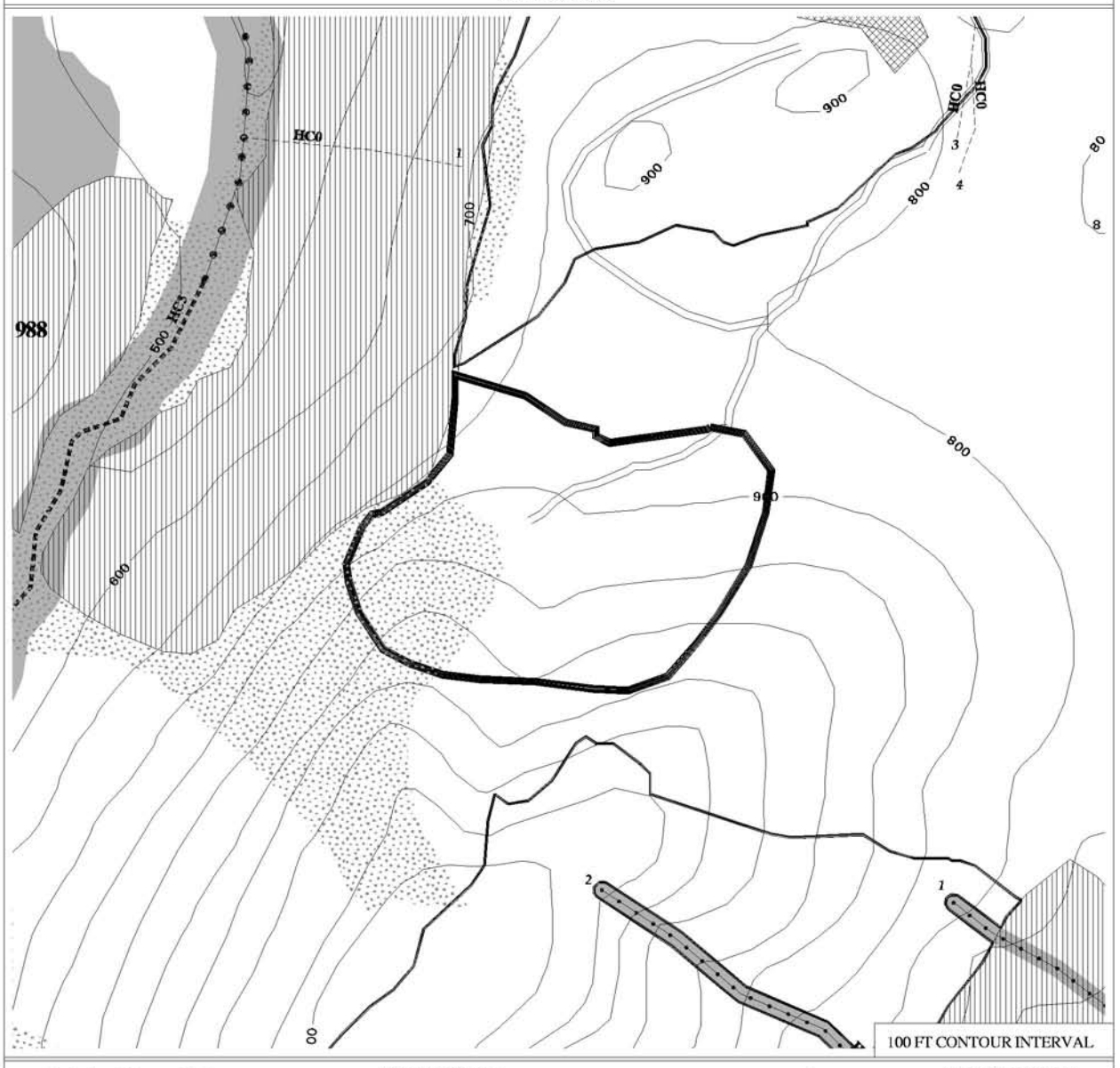
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 941 VCU: 2090 HARVEST SYSTEM: Cable

UNIT 941 OCCURS IN ALTERNATIVE(S): 2 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**941**	**In Alternatives:**	2, 4	**Total Unit Acres:**	25.9	**Vol Strata Acres:**	High: 5.8 Med: 15.1 Low: 5.0
VCU Number:	2090	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	561	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 20-36" DBH western hemlock (45% BA) and 16-24" DBH mountain hemlock (45 % BA), with some 20-24" DBH spruce (10% BA). Wind risk is moderate. Mistletoe infection is moderate to heavy.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: Unit contains 6 acres of high value marten habitat in the SW corner. Designate reserve trees (including of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees if possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary road 9041B accesses unit from existing Road 85313 via planned temporary road 853132. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to harvest.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: No streams found in unit.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 30-50% in Unit 941. The western boundary borders slopes greater than 72%, any layout should avoid this steep, unstable area. (BMP 13.5) **Concern:** the lower third of Unit 941 is forested wetland. **Response:** A minimum of partial suspension is required to meet soil and wetland standards. (BMP 12.5, 13.9) **Concern:** Half the proposed temporary road is located on forested wetland or muskeg. The road needs to maintain grade so the wetland cannot be avoided. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. **Concern:** High deer use was observed in the southeast portion of the unit. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

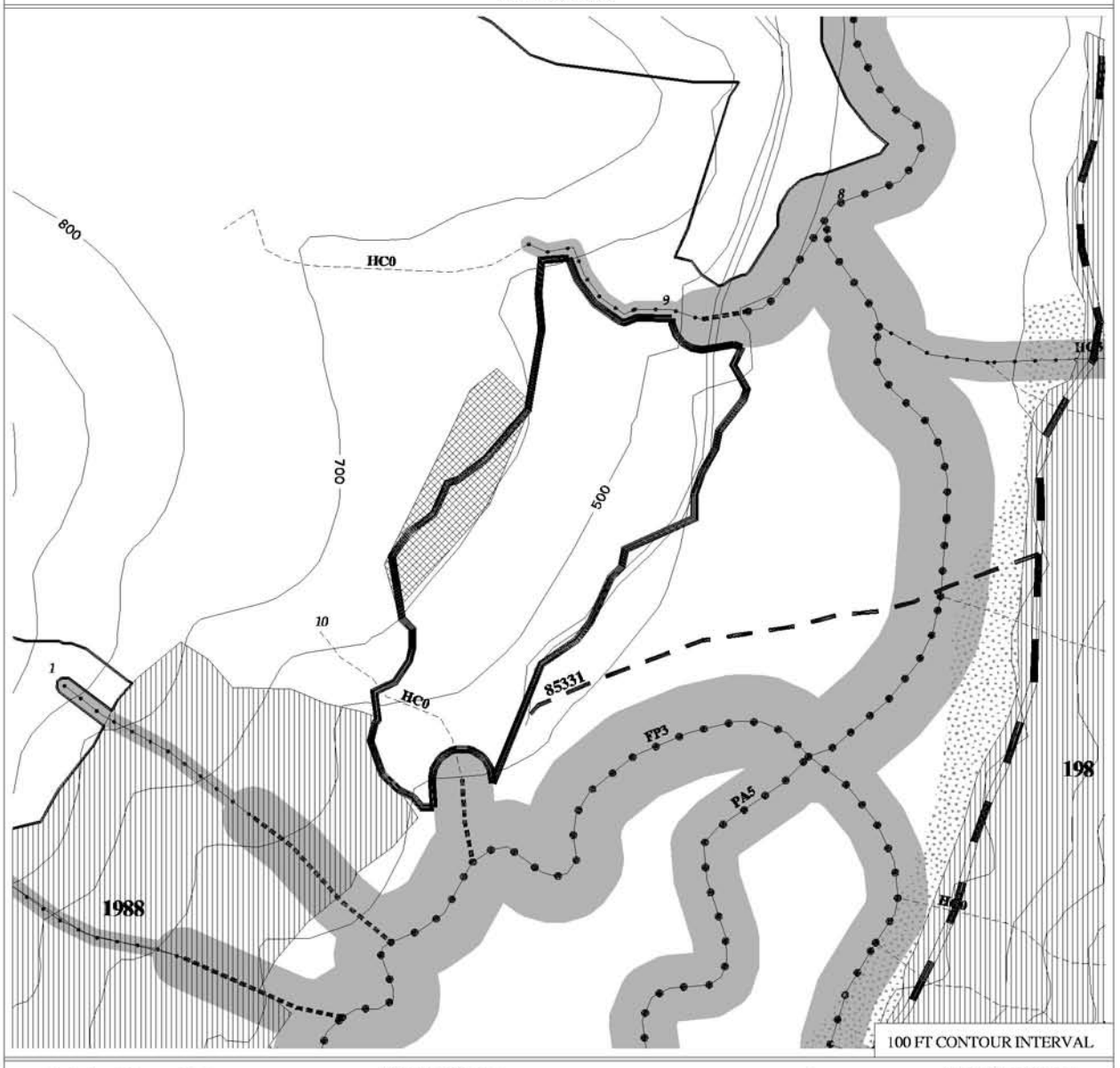
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 942 VCU: 2090 HARVEST SYSTEM: Cable

UNIT 942 OCCURS IN ALTERNATIVE(S): 2 3 4 5

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**942**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	25.5	**Vol Strata Acres:**	High: 0 Med: 22.8 Low: 2.7
VCU Number:	2090	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	546	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 12-36" DBH western hemlock (77% BA) and 16-24" DBH mountain hemlock (16% BA) and 28-32" DBH spruce (8%). Hemlock and spruce advanced regeneration is moderately abundant. Wind risk is moderate. Mistletoe infection is moderate to heavy.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers (refer to fish/watershed section). The unit does not contain high value marten habitat.

TIMBER/LOGGING: This unit is comprised of three cable settings that are defined by logical setting breaks based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary road 42 accesses unit from existing Road 85331. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to harvest.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 9 (upper) is Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 9 (lower) is Class II HC. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Stream 10 is Class IV HC channel. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: The slopes range from 35-90% in Unit 942. **Concern:** There are about 2 acres of slopes greater than 72% located along the northeastern boundary. Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Avoid the steep area during layout by locating the backline below this area over 72% (BMP 13.5). The rest of 942 is suitable for the proposed cable harvest with partial suspension (BMP 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report). **Concern:** The first part of th proposed temporary road is located on forested wetland and not alternative route exists. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

WILDLIFE: **Concern:** Pluck post identified in the unit. Surveys did not identify a goshawk or sharp-shinned hawk nest site. **Response:** If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer. Maintain a 600-foot no-harvest buffer that is windfirm around other active raptor nests if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

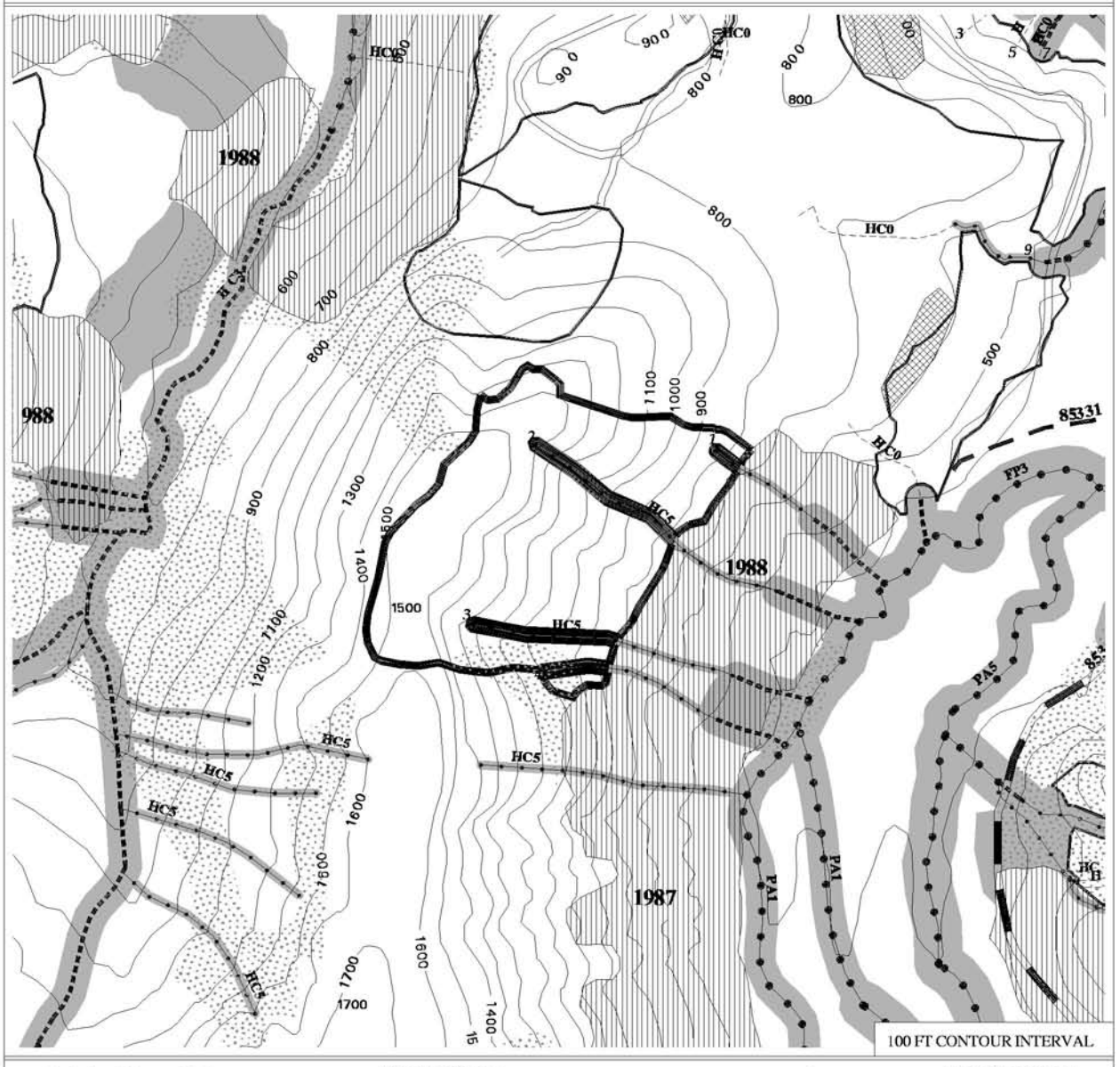
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 948 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 948 OCCURS IN ALTERNATIVE(S): 2 3

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**948**	**In Alternatives:**	2, 3	**Total Unit Acres:**	74.9	**Vol Strata Acres:**	High: 3.5 Med: 67.1 Low: 4.3
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	865	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 12-36" DBH western and mountain hemlock (80% BA) and 12-40" DBH spruce (20%). Hemlock and spruce advanced regeneration is present but not abundant. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (255 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** GIS-mapped streams 1-4 are Class III HC. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 55-75% in Unit 948. There are about 11 acres of slopes greater than 72%. **Concern:** Areas greater than 72% slope are along the northern boundary. **Response:** Involve a soil scientist during layout to verify small inclusions where slopes over 72% are suitable for timber harvest. **Concern:** The western quarter of the unit is ridge top subalpine forest and muskeg. **Response:** Helicopter logging will protect wetlands and meet resource objectives. (BMP 12.5 and 13.5) Area to the west and south of Unit 948 dropped for stability concerns.

WILDLIFE: **Concern:** Unit contains high value marten habitat. High deer use was observed in the north east portion of the unit. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines and help to maintain deer habitat. **Concern:** Bear den located in unit. **Response:** Maintain a 200-foot forested buffer around den sites.

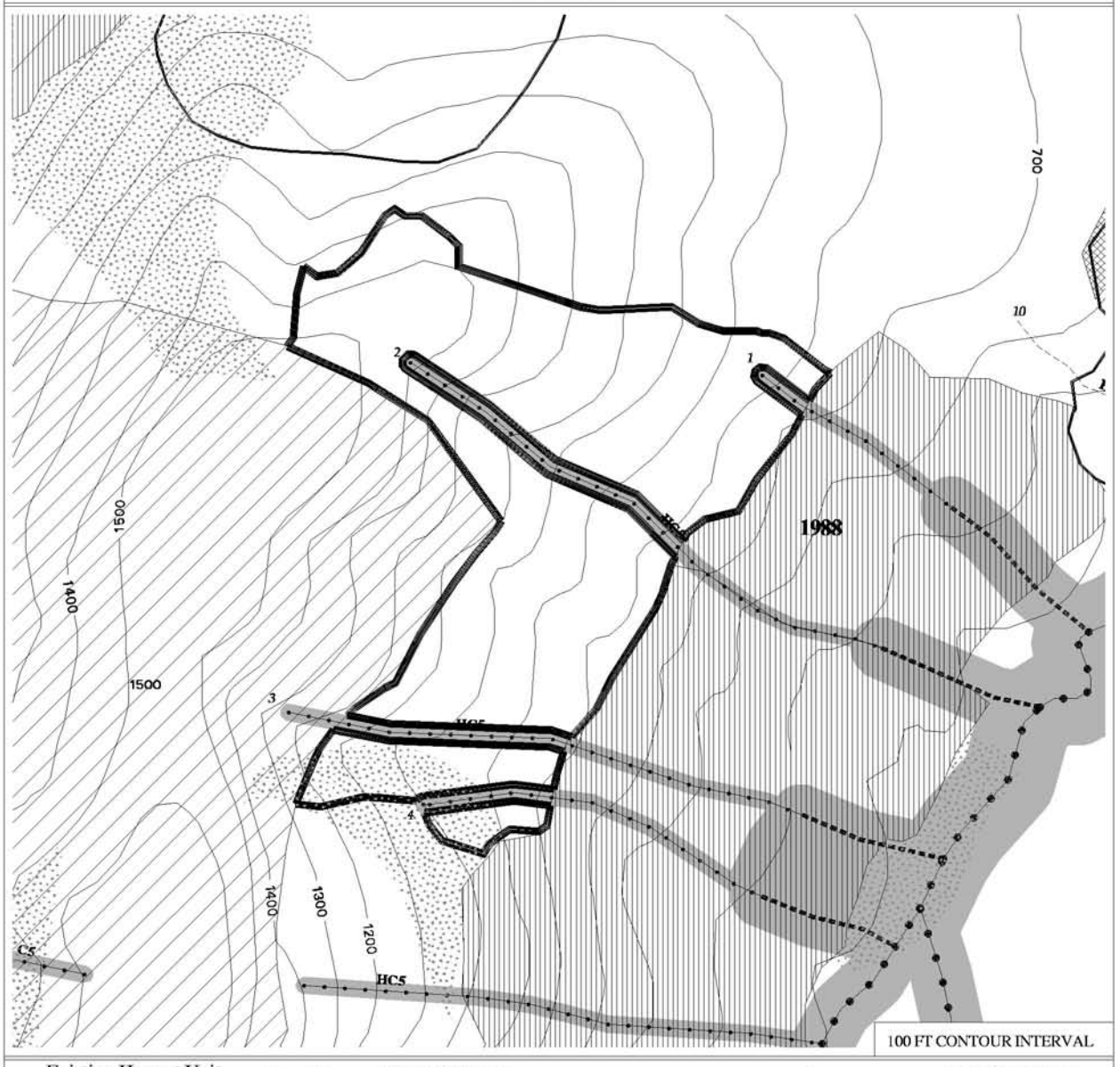
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 948 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 948 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**948**	**In Alternatives:**	4	**Total Unit Acres:**	41.9	**Vol Strata Acres:**	High: 2.8 Med: 34.8 Low: 4.3
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	478	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 12-36" DBH western and mountain hemlock (80% BA) and 12-40" DBH spruce (20%). Hemlock and spruce advanced regeneration is present but not abundant. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (255 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1-4 are Class III HC. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 55-75% in Unit 948. There are about 11 acres of slopes greater than 72%. **Concern:** Areas greater than 72% slope are along the northern boundary. **Response:** Involve a soil scientist during layout to verify small inclusions where slopes over 72% are suitable for timber harvest. **Concern:** The western quarter of the unit is ridge top subalpine forest and muskeg. **Response:** Helicopter logging will protect wetlands and meet resource objectives. (BMP 12.5 and 13.5) Area to the south of Unit 948 dropped for stability concerns. (This unit requires field verification).

WILDLIFE: **Concern:** Unit contains high value marten habitat. High deer use was observed in the northeast portion of the unit. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines and help to maintain deer habitat. **Concern:** Bear den located in unit. **Response:** Maintain a 200-foot forested buffer around den sites.

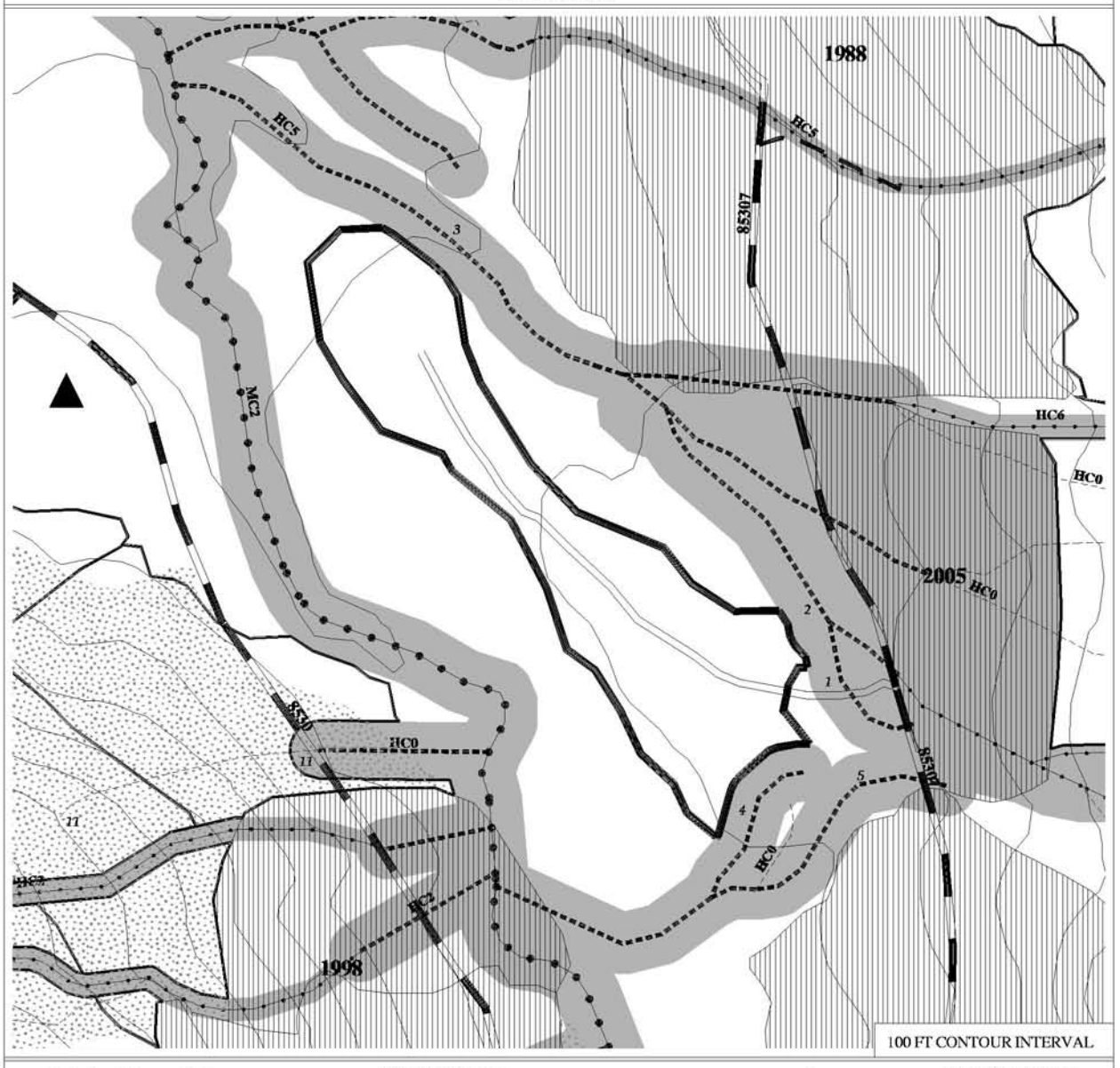
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 952 VCU: 2090 HARVEST SYSTEM: Shovel

UNIT 952 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**952**	**In Alternatives:**	4	**Total Unit Acres:**	22.4	**Vol Strata Acres:**	High: 0 Med: 0 Low: 22.4
VCU Number:	2090	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	197	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 9052 accesses unit from existing Road 85307. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to harvest.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 is a Class II PA channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet of channel (RIP III). **Concern:** Stream 2 is a Class II MM channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** Streams 3 and 4 are Class II HC channels. **Response:** No harvest within 100 feet and side-slope break (RIP III). Equipment will not operate in stream courses and will not cross streams without a temporary structure (BMP 13.9, 13.14). **Concern:** Temporary road – stream crossings **Response:** Log stringer bridge designated for Stream 1 (BMP 14.17). Other crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: The slopes range from 10-25% in Unit 952. The unit is entirely a forested wetland with a 1 acre muskeg in the southern end (BMP 12.5). The soils are poorly drained organic soils. **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils. **Response:** Operate shovel on a puncheon or a slash mattress to provide adequate bearing strength on the higher areas of the unit [this means areas with less skunk cabbage and more tree roots]. (BMP 13.2 and 13.9). **Concern:** The road is entirely on wetlands. There is a large, open muskeg at the start that should be avoided. **Response:** Reroute the road through the forested wetland and out of the muskeg. Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road once the unit is harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

WILDLIFE: No concerns

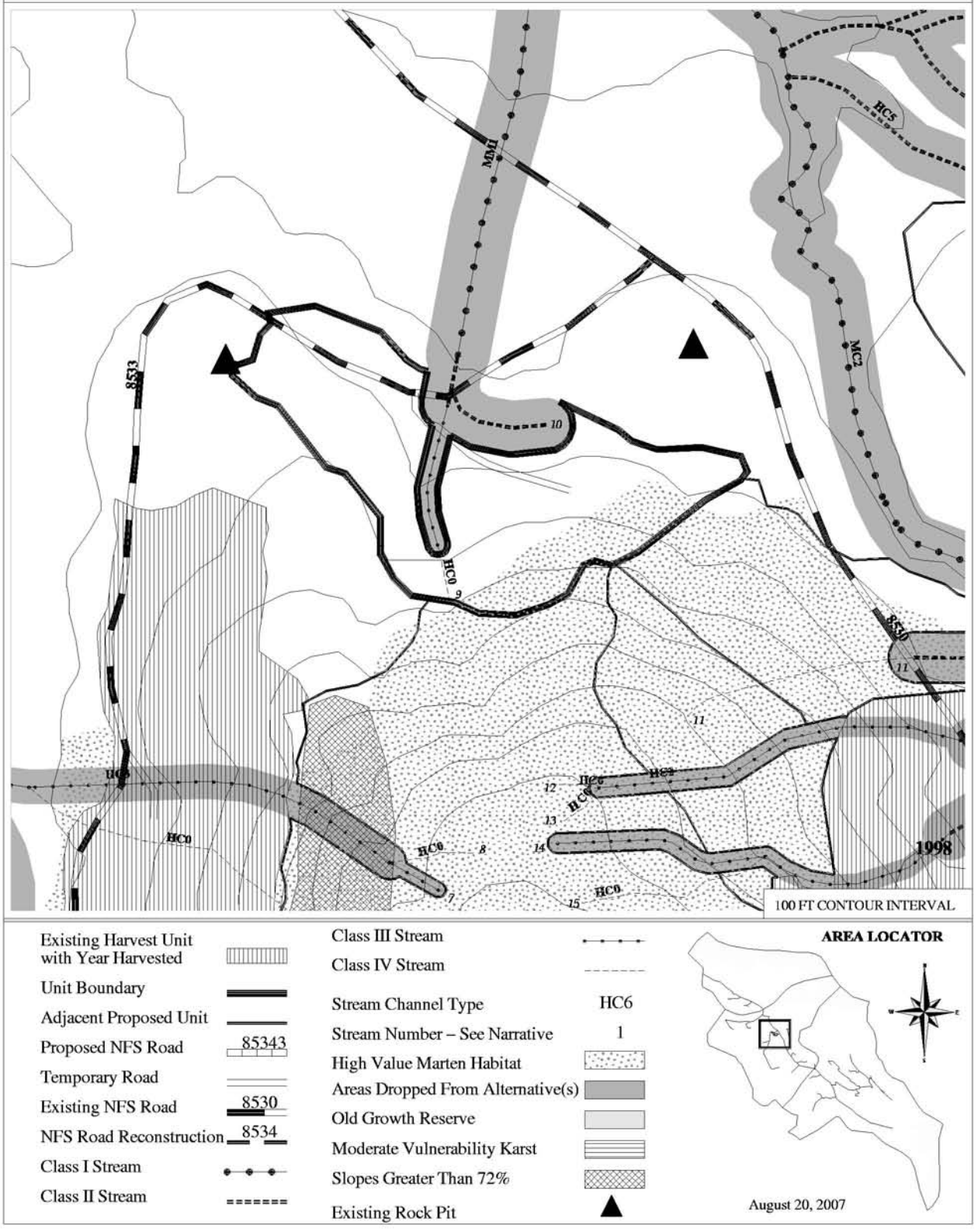
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 953 VCU: 2090 HARVEST SYSTEM: Cable

UNIT 953 OCCURS IN ALTERNATIVE(S): 3 4 5

0 0.11 0.23 Miles

MAPSCALE 1:7200



Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**953**	**In Alternatives:**	3, 4, 5	**Total Unit Acres:**	24.1	**Vol Strata Acres:**	High: 4.2 Med: 9.0 Low: 10.9
VCU Number:	2090	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	470	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 16-24" DBH western hemlock (70% BA), 16-20" spruce (20% BA) and 20-24" DBH mountain hemlock (10% BA). Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit includes stream buffers with RAW zones and contains 4 acres of high value marten habitat. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer.Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of two cable settings. The western-most setting accesses the area west of stream #9, a class III stream that requires split yarding. The eastern-most setting accesses the area east of stream #9.

ENGINEEERING/ROADS: Temporary road 53 accesses unit from existing Road 8533. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to harvest.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 9 (upper) is a Class IV HC channel. **Response:** Category C protection (BMP 12.6, 13.14). **Concern:** Stream 9 (lower) is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 10 is a Class II PA channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet of channel (RIP III). **Concern:** Windthrow risk is high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers. **Concern:** Temporary road – stream crossings **Response:** Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 25-55% in Unit 953. Nearly all the unit is forested wetland (BMP 12.5). Partial suspension is required to meet soil and wetland quality standards (BMP 13.9). **Concern:** The proposed temporary road is located on forested wetland and no alternative route exists. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit contains high value marten habitat. Unit located in a potential travel corridor that may maintain connectivity from low to high elevation habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Retain trees along west edge of the unit to maintain a wider leave strip/corridor between the unit and the previously managed stand. **Concern:** Red-tailed hawk was observed around unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

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IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

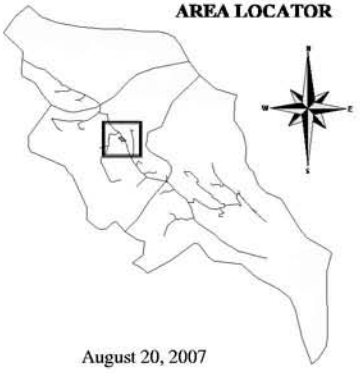
UNIT NUMBER: 954 VCU: 2090 HARVEST SYSTEM: Cable

UNIT 954 OCCURS IN ALTERNATIVE(S): 2 3 4 5

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**954**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	16.4	**Vol Strata Acres:**	High: 13.9 Med: 2.5 Low: 0
VCU Number:	2090	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	360	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists primarily of 12-40" DBH western hemlock (86% BA) and 24-44" DBH spruce (14% BA). There is an area of moderate windthrow in the center of the unit. Advanced hemlock regeneration is moderate with a minor amount of spruce. Wind risk is moderate to high.

Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.

Silvicultural Prescription: Even-aged management – clearcut: This unit includes stream buffers with RAW zones and is mostly within high value marten habitat. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer.

Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: The upper part of Stream 11 is a Class IV HC channel. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** The lower part of stream 11 is a Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Northeast boundary stream is a Class I MC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet of channel and side-slope break (RIP III). **Concern:** Windthrow risk is high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: **Concern:** Unit crosses a VPR **Response:** Incorporate landscape architect input during layout to meet VQO of Maximum Modification

SOILS/WETLANDS: slopes range from 35-60% in Unit 954. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties.

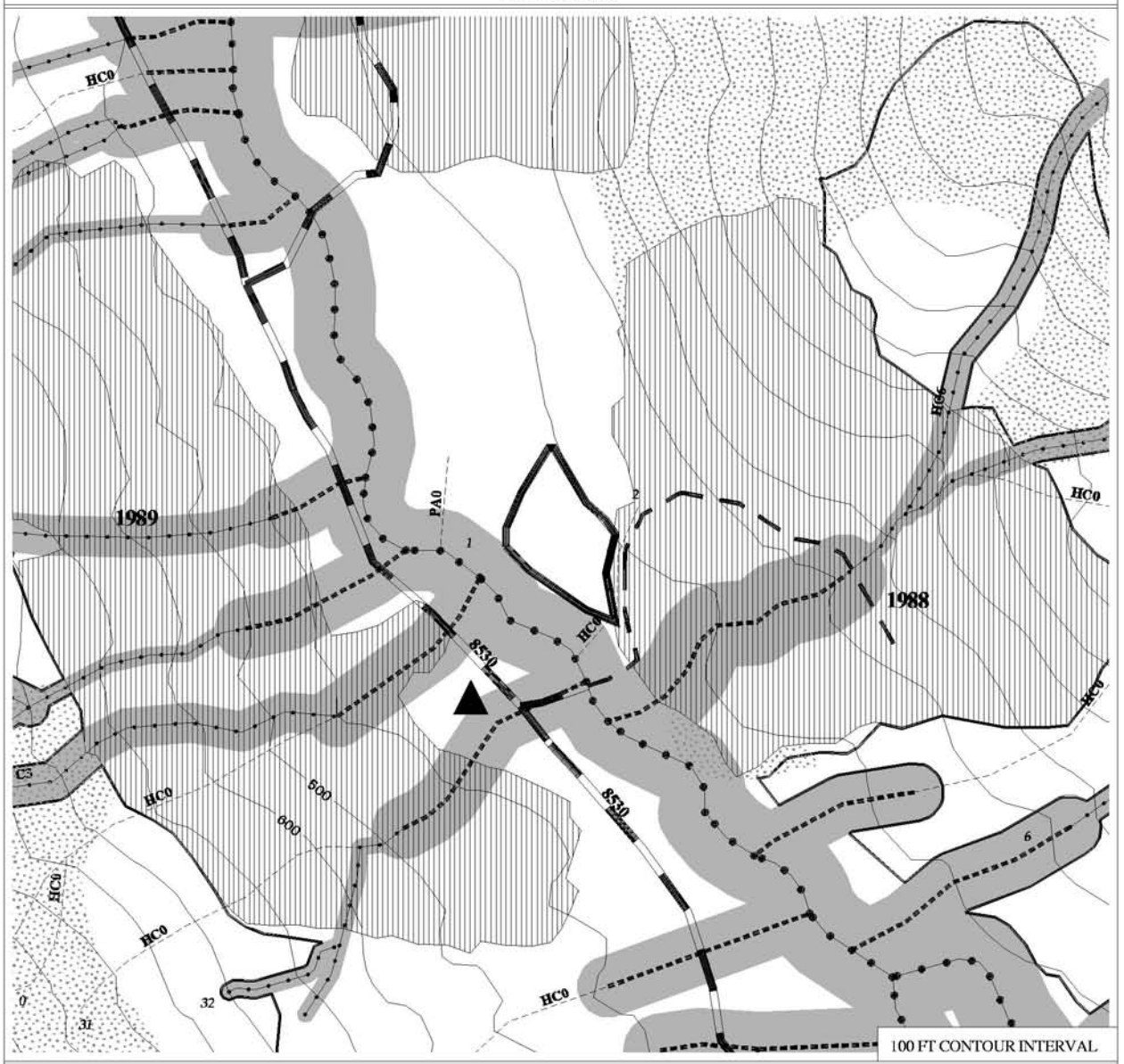
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 958 VCU: 2090 HARVEST SYSTEM: Shovel

UNIT 958 OCCURS IN ALTERNATIVE(S): 2 3 4 5

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**958**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	3.0	**Vol Strata Acres:**	High: 0 Med: 0.5 Low: 2.5
VCU Number:	2090	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	30	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of predominately of 12-28" DBH mountain hemlock (44% BA), 12-28" DBH western hemlock (33% BA) and 16-40" DBH spruce (23% BA) and a minor component of yellow-cedar. There is a moderate amount of spruce advanced regeneration. Wind risk is estimated to be low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (107 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 (southern boundary streams) is a Class I MC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet of channel and side-slope break (RIP III). Stream 2 is a Class IV HC channel. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in stream courses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 5-35% in Unit 958. The entire unit is forested wetland (BMP 12.5). **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils or operation on slopes greater than 25%. **Response:** Operate shovel on a puncheon or a slash mattress to provide adequate bearing strength on the higher areas of the unit [this means areas with less skunk cabbage and more tree roots]. Where the slopes reach 25%, operate the shovel on the contour, utilize the boom, a short choker or cable to remove logs from steeper slopes or directionally fall the trees toward the more gentle ground (BMP 13.2 and 13.9).

WILDLIFE: No concerns

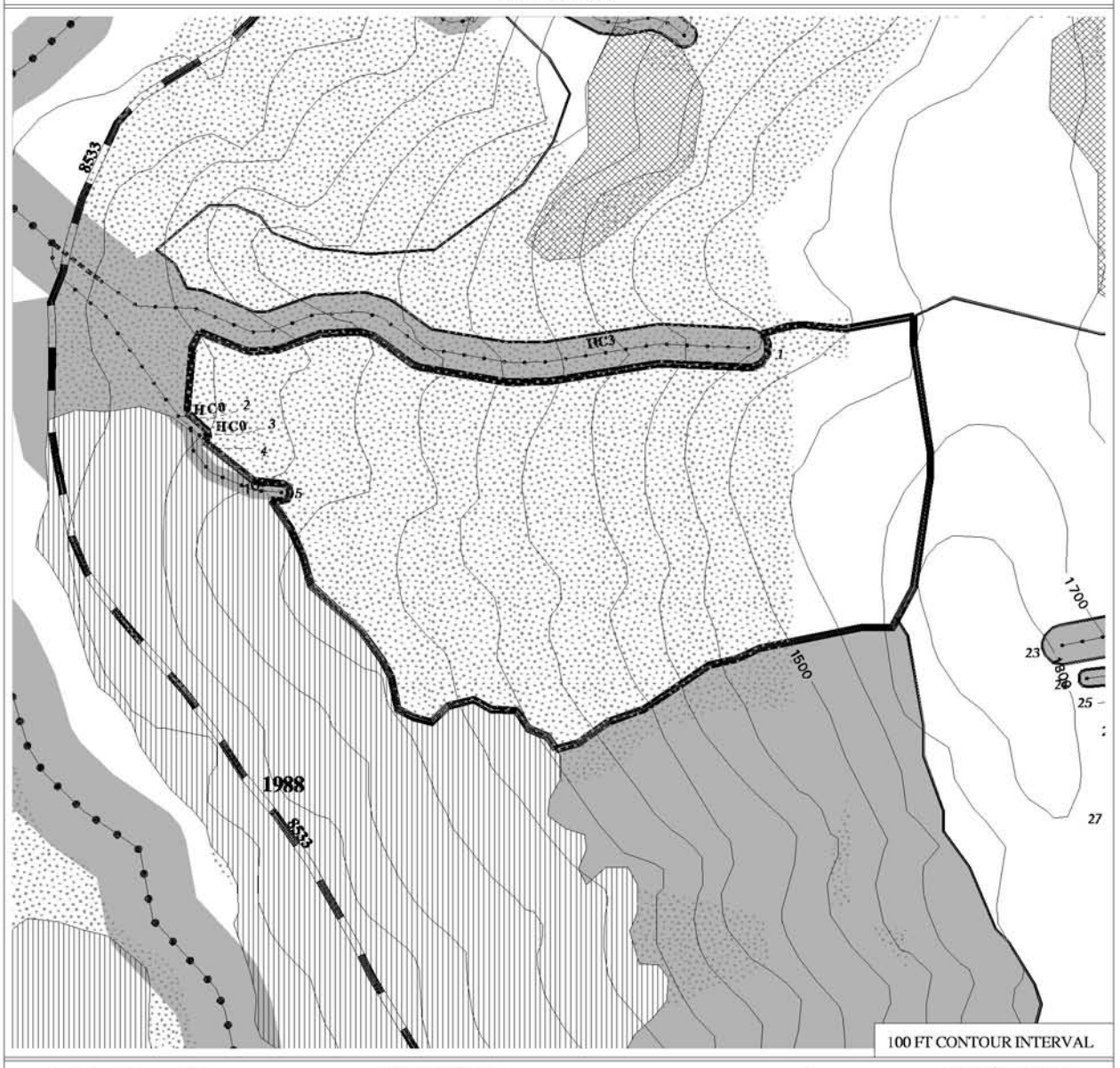
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 960 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 960 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**960**	**In Alternatives:**	4	**Total Unit Acres:**	60.2	**Vol Strata Acres:**	High: 60.2 Med: 0 Low: 0
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	629	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists primarily of 12-44" DBH western hemlock (44% BA), 16-44: DBH spruce (28% BA) and 12-44" DBH mountain hemlock (28% BA). This unit is situated on a hilltop on its western flank. The most productive area is in the center third of the unit. Western hemlock advanced regeneration is moderately abundant with a minor amount of spruce also present. Wind risk is moderate.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (240 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1and 5 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Streams 2,3,4 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). **Concern:** Lower part of Stream 1 is a Class II AF channel. **Response:** Locate unit boundary upstream of blue and white flagged channel.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 60-80%. **Concern:** Areas greater than 72% slope are in the eastern quarter of the unit. **Response:** Involve a soil scientist during layout to verify small inclusions where slopes over 72% are suitable for timber harvest (BMP 13.5). **Concern**: A minimum of partial suspension is required to meet soil quality standards in the rest of the unit (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the south of Unit 960 dropped for stability concerns.

WILDLIFE: **Concern:** Unit contains high value marten habitat. High deer use was observed on the ridge in the unit. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines and help to maintain deer habitat.

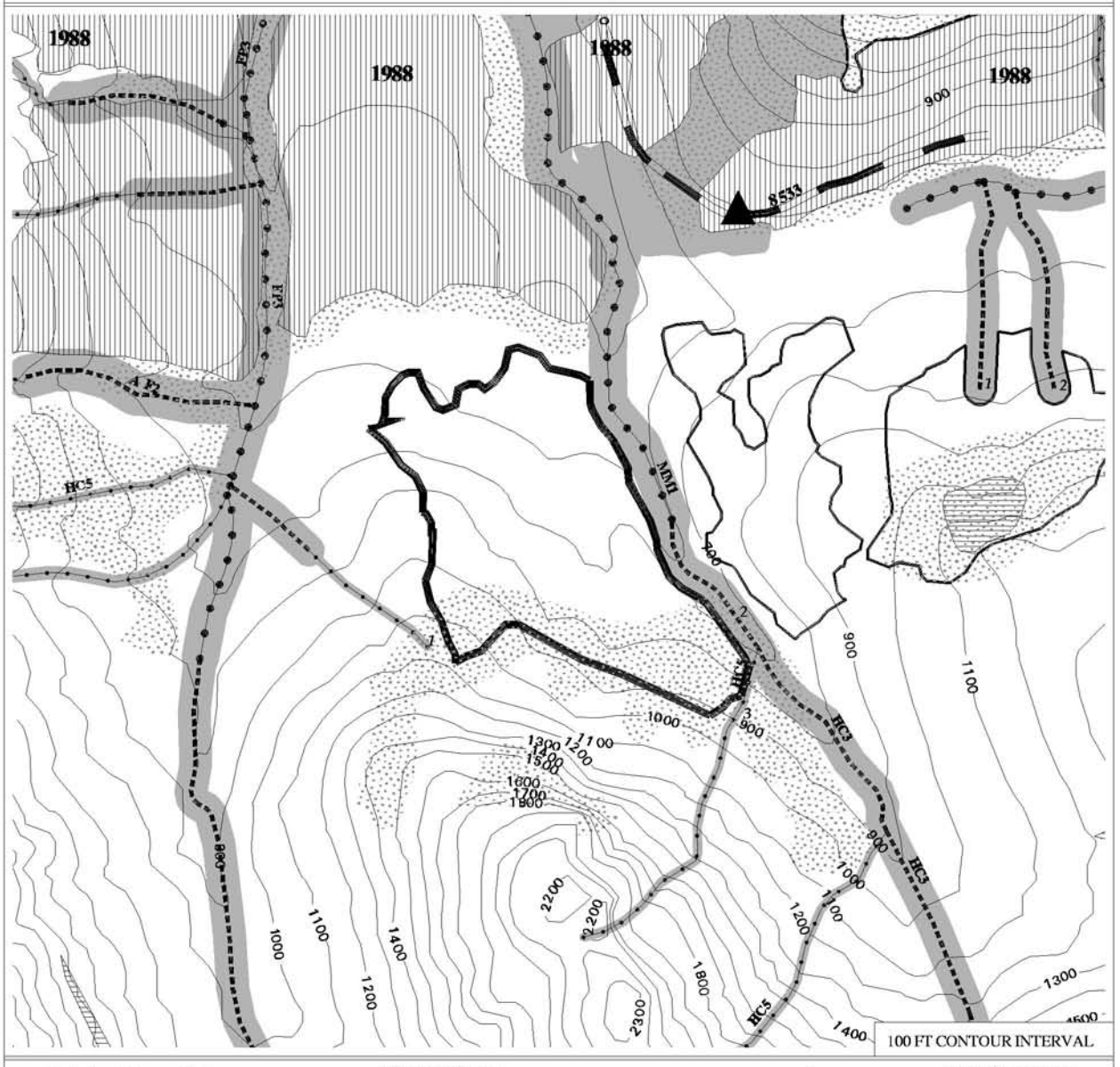
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 970 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 970 OCCURS IN ALTERNATIVE(S): 2 3

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**970**	**In Alternatives:**	2, 3	**Total Unit Acres:**	74.2	**Vol Strata Acres:**	High: 19.7 Med: 19.4 Low: 35.1
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	797	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists 12-28" DBH western hemlock (35% BA), 12-28" DBH mountain hemlock (33% BA), 12-30" DBH yellow-cedar (17% BA) and 16-28" DBH spruce (11% BA). The most productive area is in the southern portion of the unit where slopes are moderate and fairly well drained. The northern portion of the unit is flatter with several small muskeg openings. Western hemlock and yellow-cedar advanced regeneration is moderately abundant with a minor amount of spruce also present. Wind risk is low.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (169 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: GIS-mapped streams 1 and 3 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** GIS-mapped stream 2 is a Class I MM channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-50% in Unit 970. **Concern:** Most of the unit is forested wetland. **Response:** Helicopter logging will protect wetlands and meet resource objectives. (BMP 12.5) **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the south of Unit 970 dropped for stability concerns (BMP 13.5).

WILDLIFE: Concern: Unit contains high value marten habitat. High bear use was observed throughout the unit. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines and help to maintain bear habitat.

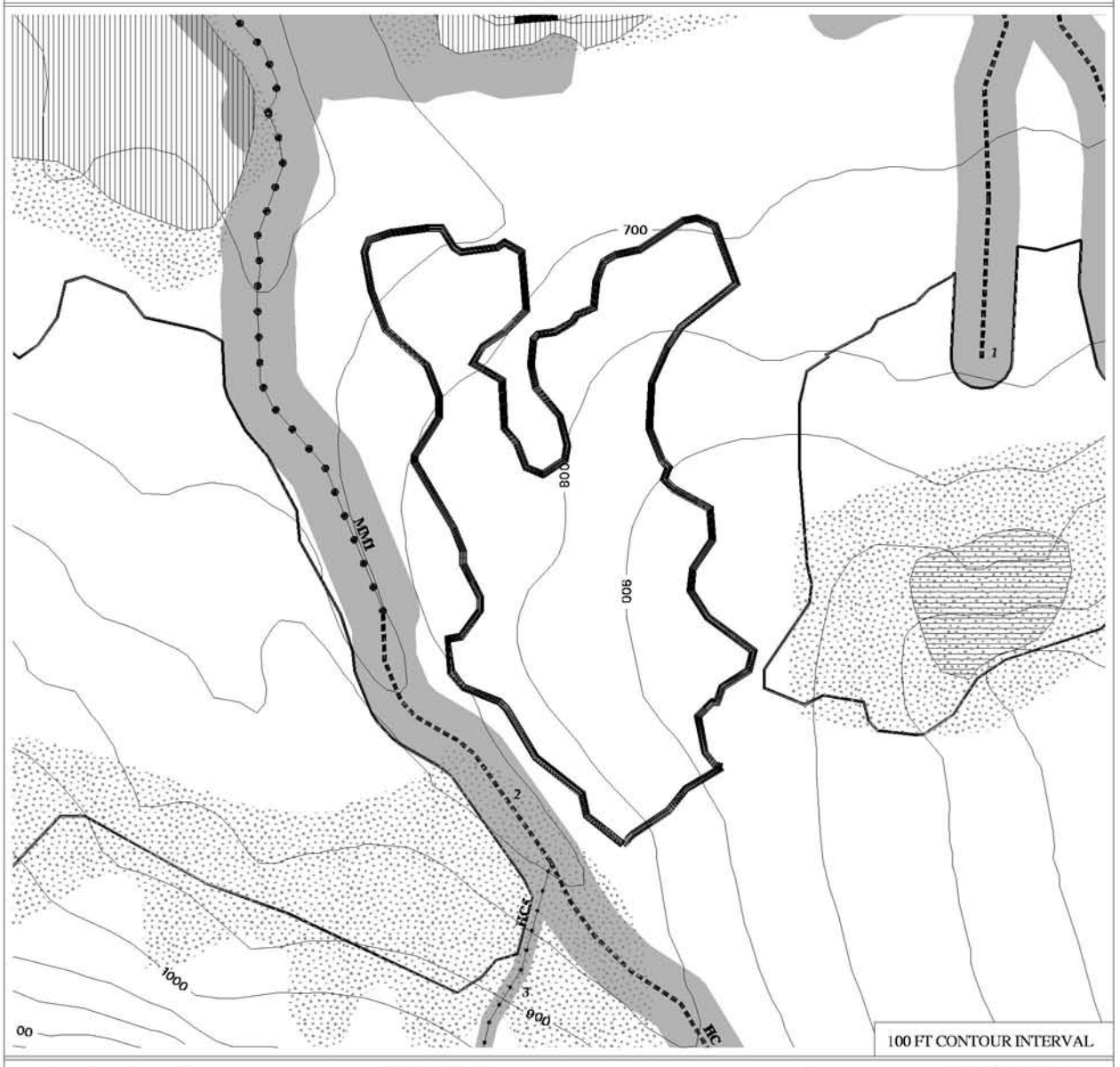
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 973 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 973 OCCURS IN ALTERNATIVE(S): 2 3

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**973**	**In Alternatives:**	2, 3	**Total Unit Acres:**	36.3	**Vol Strata Acres:**	High: 0 Med: 1.4 Low: 34.9
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	279	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-40" DBH western hemlock (35% BA), 12-24" DBH mountain hemlock (35% BA), 12-24" DBH yellow-cedar (27%) and 9-12" DBH spruce (4% BA). The slopes are moderate and poorly drained. There are several muskegs surrounding the unit. Western hemlock advanced regeneration is abundant with yellow-cedar spruce also present. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (140 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: GIS-mapped Class I and II stream on western unit boundary. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within greater of riparian area or120 feet of channel (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-50% in Unit 973. **Concern:** Most of the unit is forested wetland. **Response:** Helicopter logging will protect wetlands and meet resource objectives. (BMP 12.5)
Concern: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9).
Response: Unit is proposed as full suspension, which exceeds partial suspension requirements.

WILDLIFE: Concern: High deer use was observed in the east portion of the unit. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will help to maintain deer habitat.

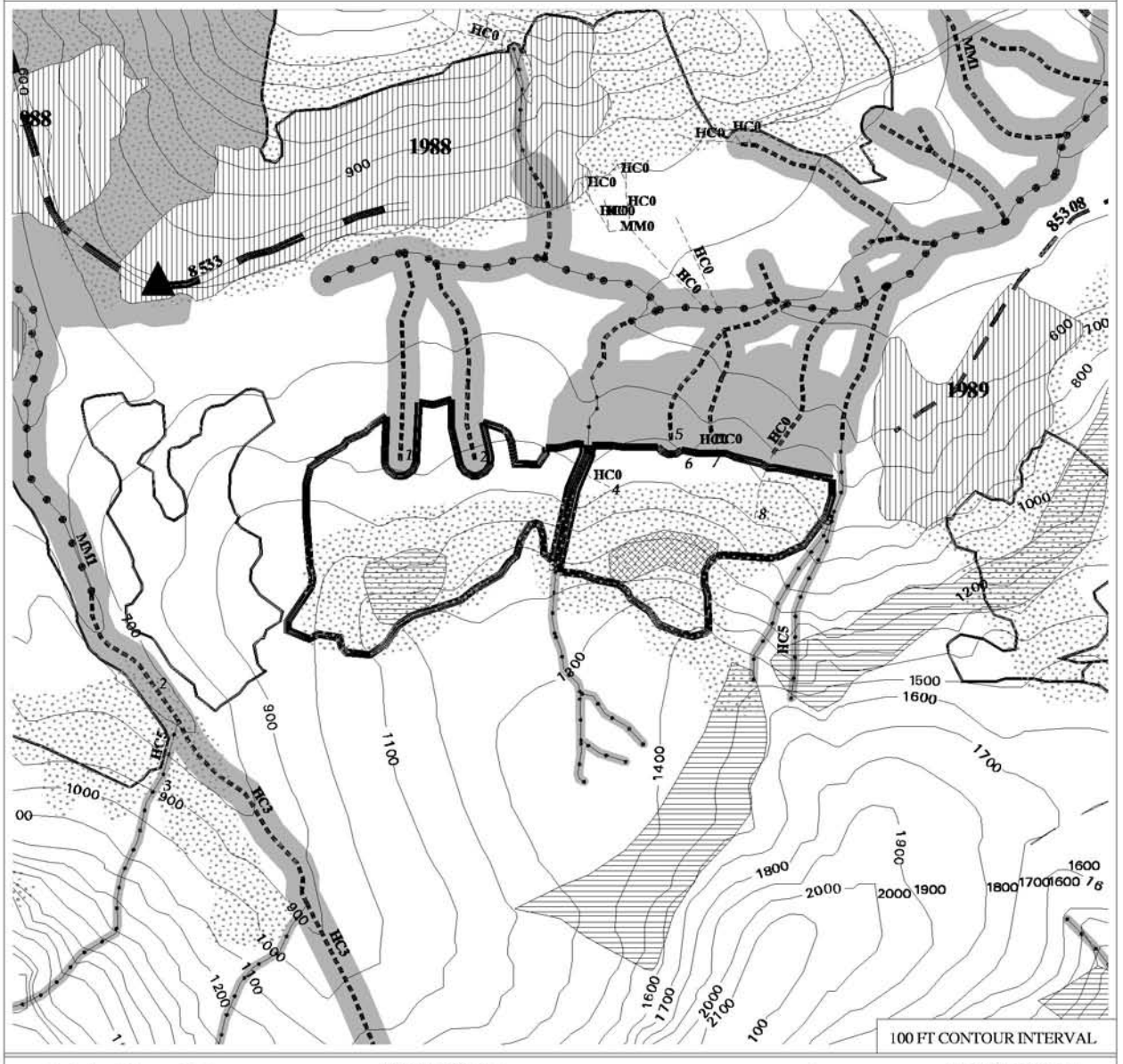
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 976 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 976 OCCURS IN ALTERNATIVE(S): 2 3

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**976**	**In Alternatives:**	2, 3	**Total Unit Acres:**	77.1	**Vol Strata Acres:**	High: 51.1 Med: 10.9 Low: 15.2
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	993	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-40" DBH western hemlock (39% BA) 9-32" DBH mountain hemlock (36% BA) and 9-36" DBH spruce (25% BA). There are several small muskegs surrounding the unit and several v-notches within unit. Western/mountain hemlock and spruce advanced regeneration is moderately abundant. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (204 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1, 2, 5 are Class II HC channels. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Streams 3 and 9 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 4, 6, 7, 8 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14).

GEOLOGY/KARST: **Concern:** There are about 5 acres of moderate vulnerability karst in Unit 976. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes ranged from 20-75% in Unit 976. The steep areas are in the portion east of the Class III v-notch. **Concern:** There are about 12 acres of past landslide slopes and swales with 4 acres of slopes greater than 72%. **Response:** Remove at maximum 40% of the volume between the swales to maintain slope stability. Helicopter yarding will meet soil productivity objectives (BMP 13.5). The rest of Unit 976 is suitable for the proposed helicopter harvest (BMP 13.9). Area to the east of Unit 976 dropped for stability concerns. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Unit contains high value marten habitat. High deer use was observed in the southwest portion of the unit. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat and retention will meet marten standards and guidelines and maintain habitat for deer. **Concern:** Red-tailed hawk nest was observed in the northeast portion of the unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest and restrict harvest and road building activities from March 1 to July 31 within the buffer.

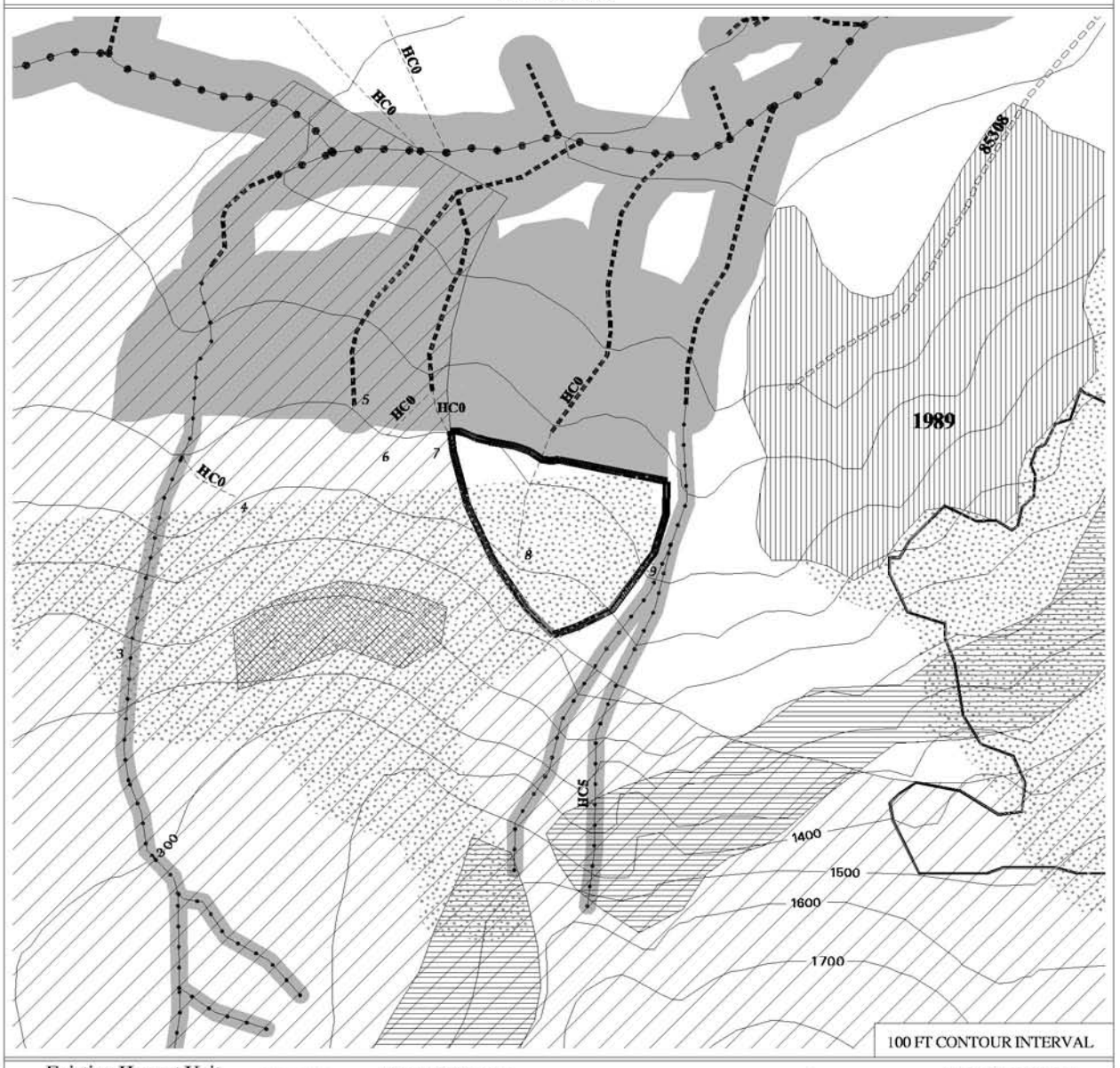
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 976 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 976 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**976**	**In Alternatives:**	4	**Total Unit Acres:**	7.5	**Vol Strata Acres:**	High: 6.1 Med: 1.2 Low: 0.2
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	106	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-40" DBH western hemlock (39% BA) 9-32" DBH mountain hemlock (36% BA) and 9-36" DBH spruce (25% BA). There are several small muskegs surrounding the unit and several v-notches within unit. Western/mountain hemlock and spruce advanced regeneration is moderately abundant. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (204 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1, 2, 5 are Class II HC channels. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Streams 3 and 9 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 4, 6, 7, 8 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14).

GEOLOGY/KARST: **Concern:** There are about 5 acres of moderate vulnerability karst in Unit 976. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes ranged from 20-45% in Unit 976. **Concern:** There are about 5 acres of past landslide slopes and swales. **Response:** Remove at maximum 40% of the volume between the swales to maintain slope stability. Helicopter yarding will meet soil productivity objectives (BMP 13.5).The rest of unit 976 is suitable for the proposed helicopter harvest with partial suspension (BMP 13.9). Area to the east of Unit 976 dropped for slope stability concerns.

WILDLIFE: **Concern:** Unit contains high value marten habitat. High deer use was observed in the southwest portion of the unit. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines and help to maintain deer habitat. **Concern:** Red-tailed hawk nest was observed in the northeast portion of the unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest and restrict harvest and road building activities from March 1 to July 31 within the buffer.

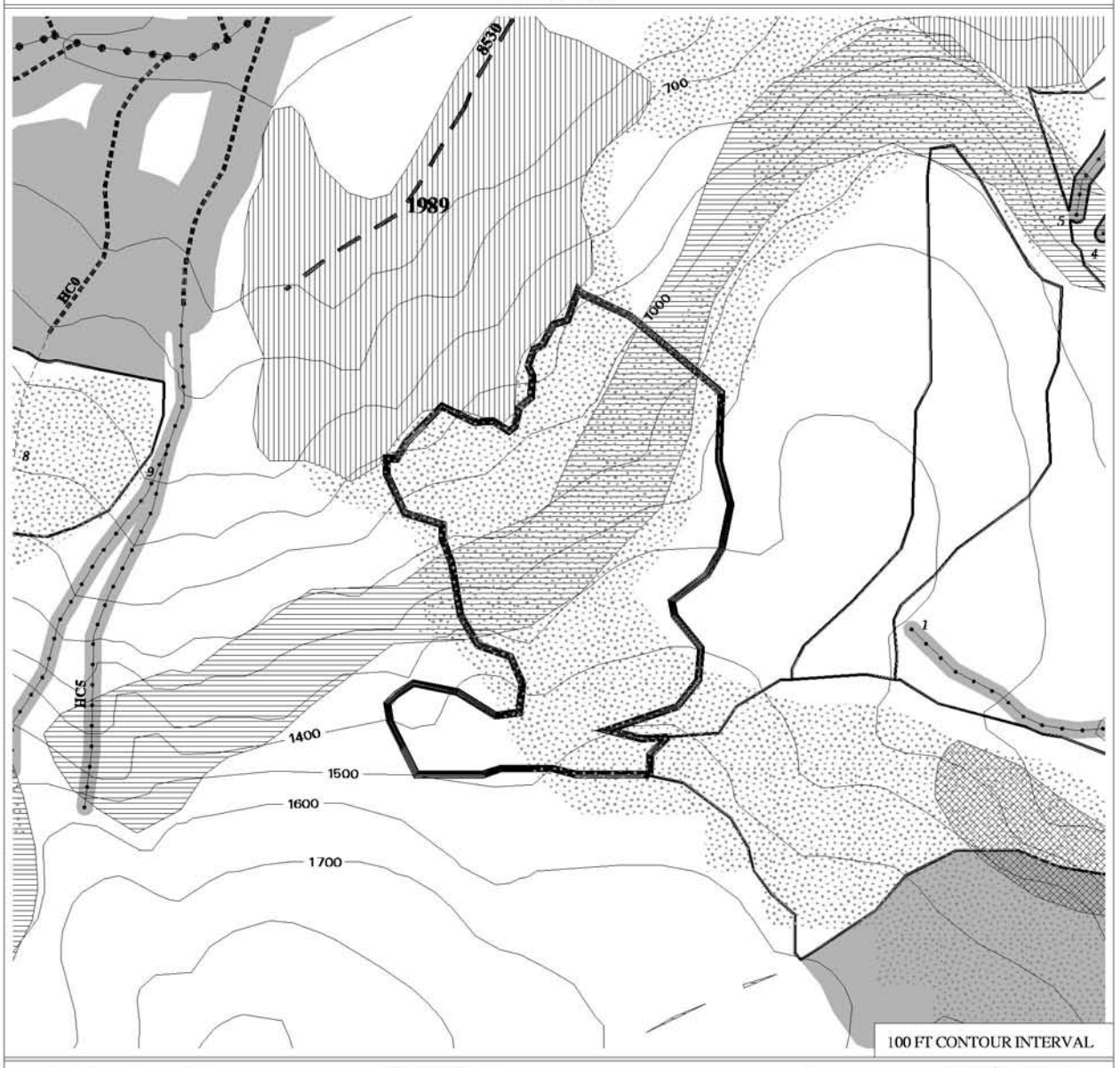
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 979 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 979 OCCURS IN ALTERNATIVE(S): 2 3

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**979**	**In Alternatives:**	2, 3	**Total Unit Acres:**	30.6	**Vol Strata Acres:**	High: 25.7 Med: 2.3 Low: 2.6
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	426	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-36" DBH western hemlock (40% BA), 9-36" DBH mountain hemlock (33% BA) and 16-50" DBH spruce (27% BA). There are several small muskeg openings in the southern portion of the unit. Western/mountain hemlock and spruce advanced regeneration is moderately abundant. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (240 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: No GIS-mapped streams.

GEOLOGY/KARST: Concern: There are about 9 acres of moderate vulnerability karst in Unit 979. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes ranged from 20-55% in Unit 979. Unit is suitable for proposed helicopter harvest (BMP 13.9). Areas to the southwest and north of Unit 979 dropped for stability concerns (BMP 13.5).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines.

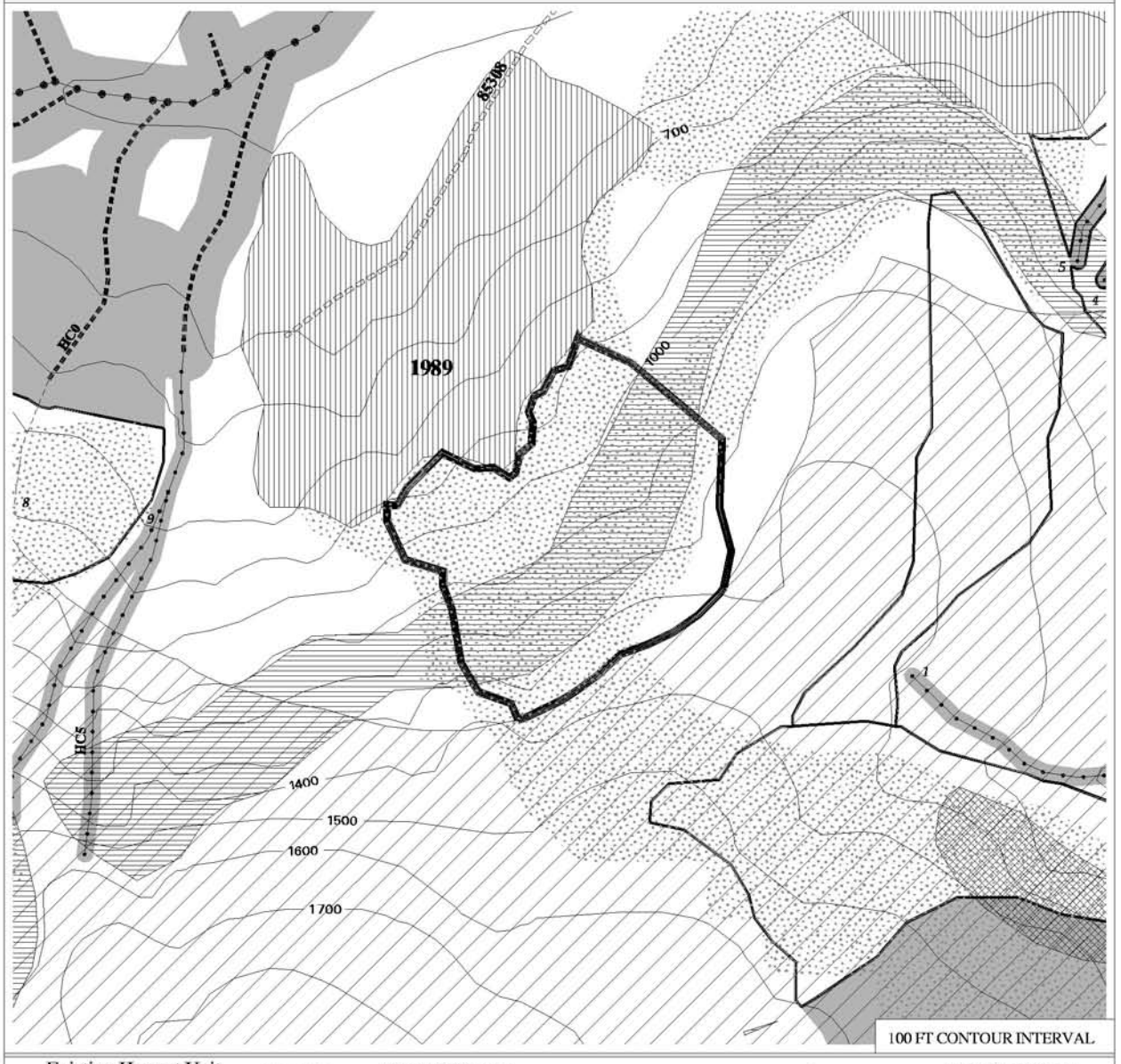
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 979 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 979 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**979**	**In Alternatives:**	4	**Total Unit Acres:**	21.7	**Vol Strata Acres:**	High: 19.9 Med: 1.7 Low: 0.1
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	316	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-36" DBH western hemlock (40% BA), 9-36" DBH mountain hemlock (33% BA) and 16-50" DBH spruce (27% BA). There are several small muskeg openings in the southern portion of the unit. Western/mountain hemlock and spruce advanced regeneration is moderately abundant. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (240 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: No GIS-mapped streams.

GEOLOGY/KARST: Concern: There are about 9 acres of moderate vulnerability karst in Unit 979. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes ranged from 20-55% in Unit 979. Unit is suitable for proposed helicopter harvest (BMP 13.9). Areas to the southwest and north of Unit 979 dropped for stability concerns (BMP 13.5).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines.

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 980 VCU: 2090/2100 HARVEST SYSTEM: Helicopter

UNIT 980 OCCURS IN ALTERNATIVE(S): 2 3

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**980**	**In Alternatives:**	2, 3	**Total Unit Acres:**	27.5	**Vol Strata Acres:**	High: 22.1 Med: 5.3 Low: 0.1
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	667	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-28" DBH mountain hemlock 950% BA) and 20-48" DBH spruce (50% BA). There are several small alpine muskeg openings in the southern portion of the unit. Western/mountain hemlock advanced regeneration is moderately abundant with some spruce also present. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (240 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** GIS-mapped streams 1 and 2 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: **Concern:** There are about 19 acres of high vulnerability karst in Unit 980. **Response:** This area in the south part of Unit 980 is excluded from the proposed helicopter harvest to protect the features in this area (BMP 13.2).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes ranged from 30-90% in Unit 980. The soils are generally well drained and deep with a history of past landslides. **Concern:** There are about 6 acres of slopes greater than 72% located near the western boundary. Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Avoid the slopes over 72% when choosing stands to harvest here to meet soil productivity objectives (BMP 13.5). The rest of Unit 980 is suitable for the proposed helicopter harvest (BMP 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines. **Concern:** Goshawk observed around the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

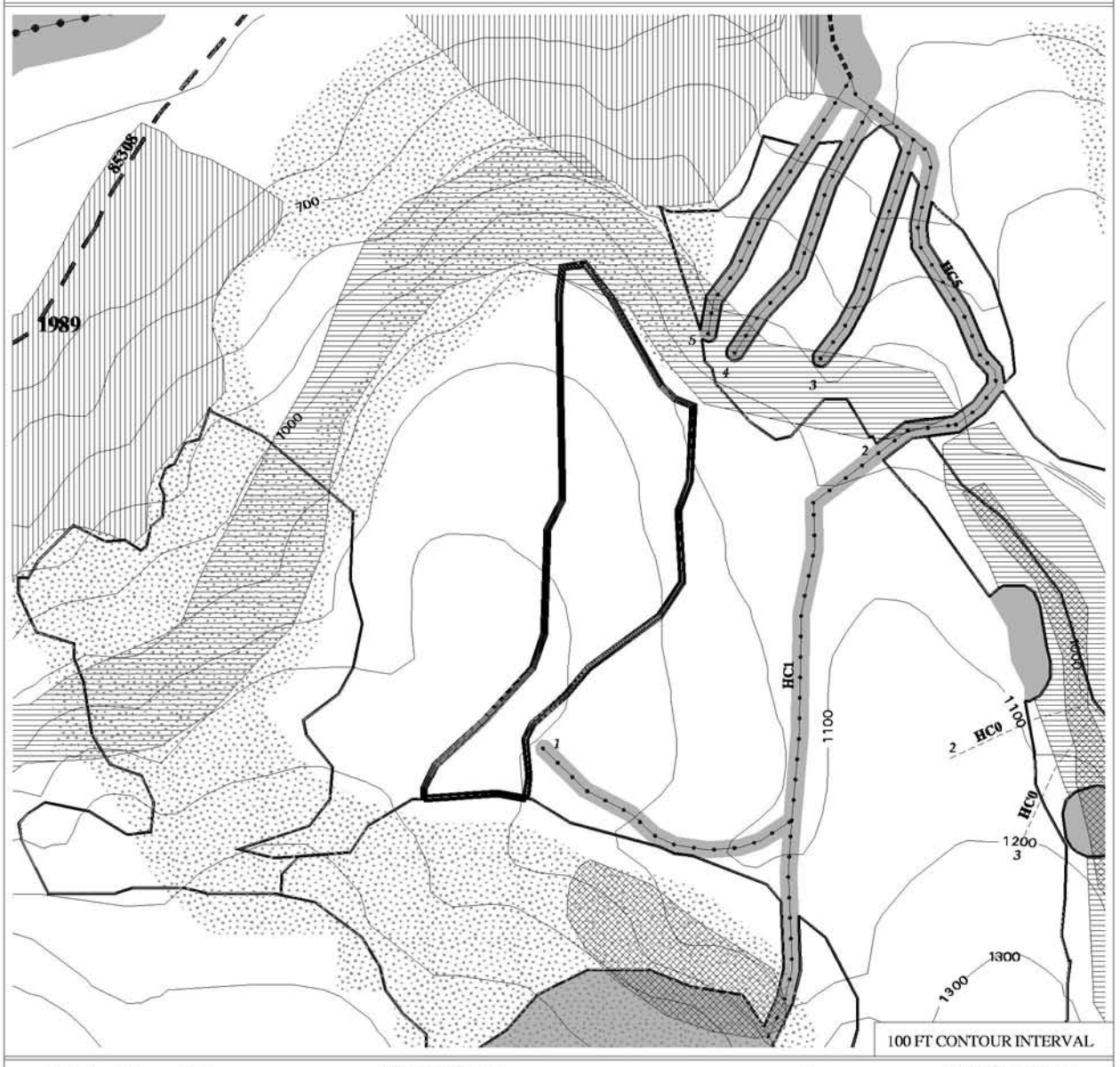
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 981 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 981 OCCURS IN ALTERNATIVE(S): 2 3

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**981**	**In Alternatives:**	2, 3	**Total Unit Acres:**	14.4	**Vol Strata Acres:**	High: 0.0 Med: 1.6 Low: 12.8
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	117	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-36" DBH mountain hemlock (50% BA), 9-40" DBH western hemlock (36% BA), and 16-36' DBH spruce (14% BA). There are several muskeg openings surrounding the unit. Western/mountain hemlock advanced regeneration is moderately abundant with some spruce also present. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (210 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** GIS-mapped stream 1 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: **Concern:** There is less than 1 acre of moderate vulnerability karst in Unit 981. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 25-40% in Unit 981. **Concern:** Most of the unit is forested wetland. **Response:** Helicopter logging will protect wetlands and meet resource objectives. (BMP 12.5)
Concern: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9).
Response: Unit is proposed as full suspension, which exceeds partial suspension requirements. Areas to north of unit 981 dropped for stability concerns (BMP 13.5).

WILDLIFE: No concerns

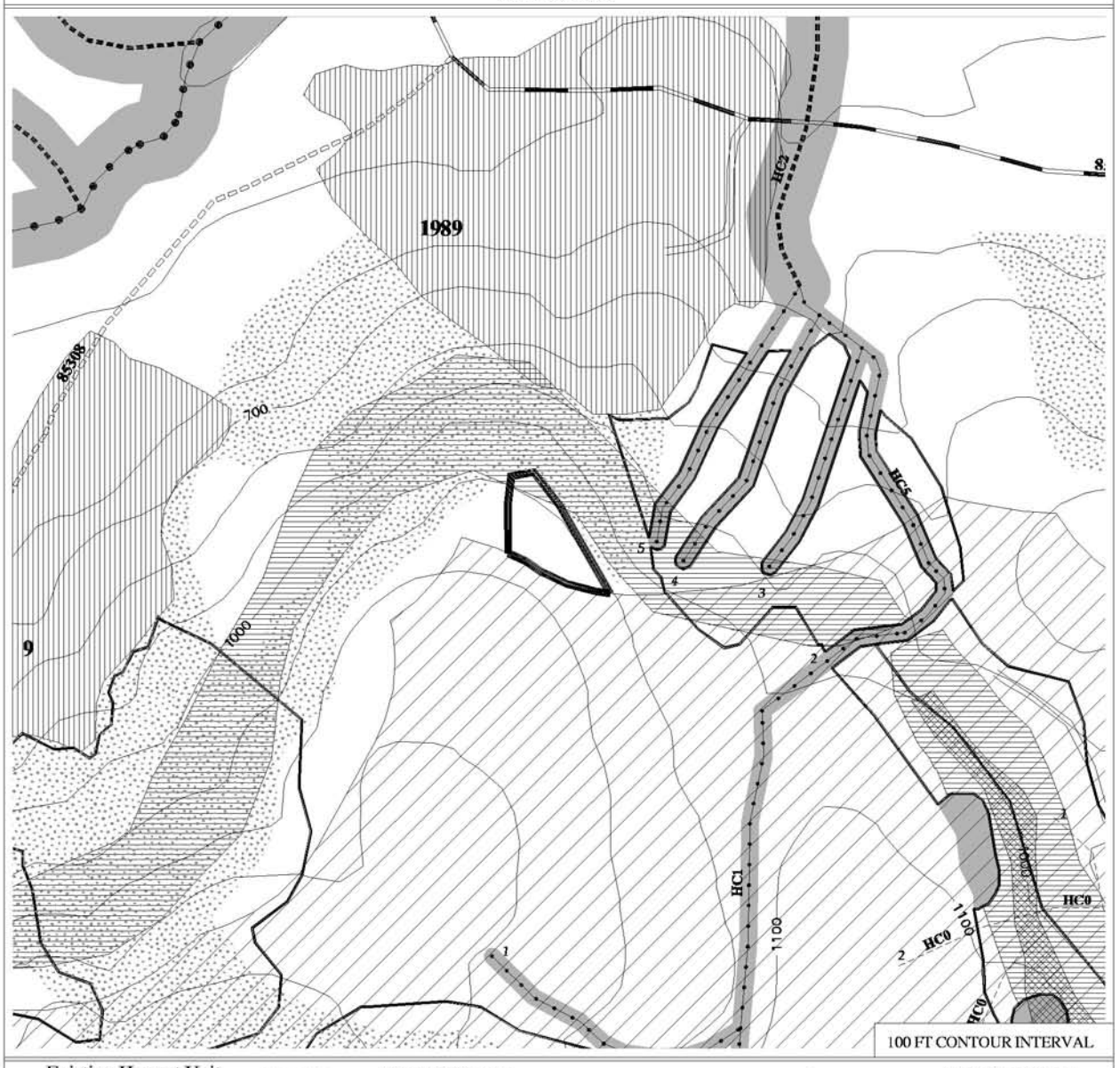
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 981 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 981 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**981**	**In Alternatives:**	4	**Total Unit Acres:**	1.8	**Vol Strata Acres:**	High: 0.0 Med: 0.2 Low: 1.6
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	15	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-36" DBH mountain hemlock (50% BA), 9-40" DBH western hemlock (36% BA), and 16-36' DBH spruce (14% BA). There are several muskeg openings surrounding the unit. Western/mountain hemlock advanced regeneration is moderately abundant with some spruce also present. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (210 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** GIS-mapped stream 1 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: **Concern:** There is less than 1 acre of moderate vulnerability karst in Unit 981. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 25-40% in Unit 981. **Concern:** Most of the unit is forested wetland. **Response:** Helicopter logging will protect wetlands and meet resource objectives. (BMP 12.5)
Concern: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9).
Response: Unit is proposed as full suspension, which exceeds partial suspension requirements. Areas to north of unit 981 dropped for stability concerns (BMP 13.5).

WILDLIFE: No concerns

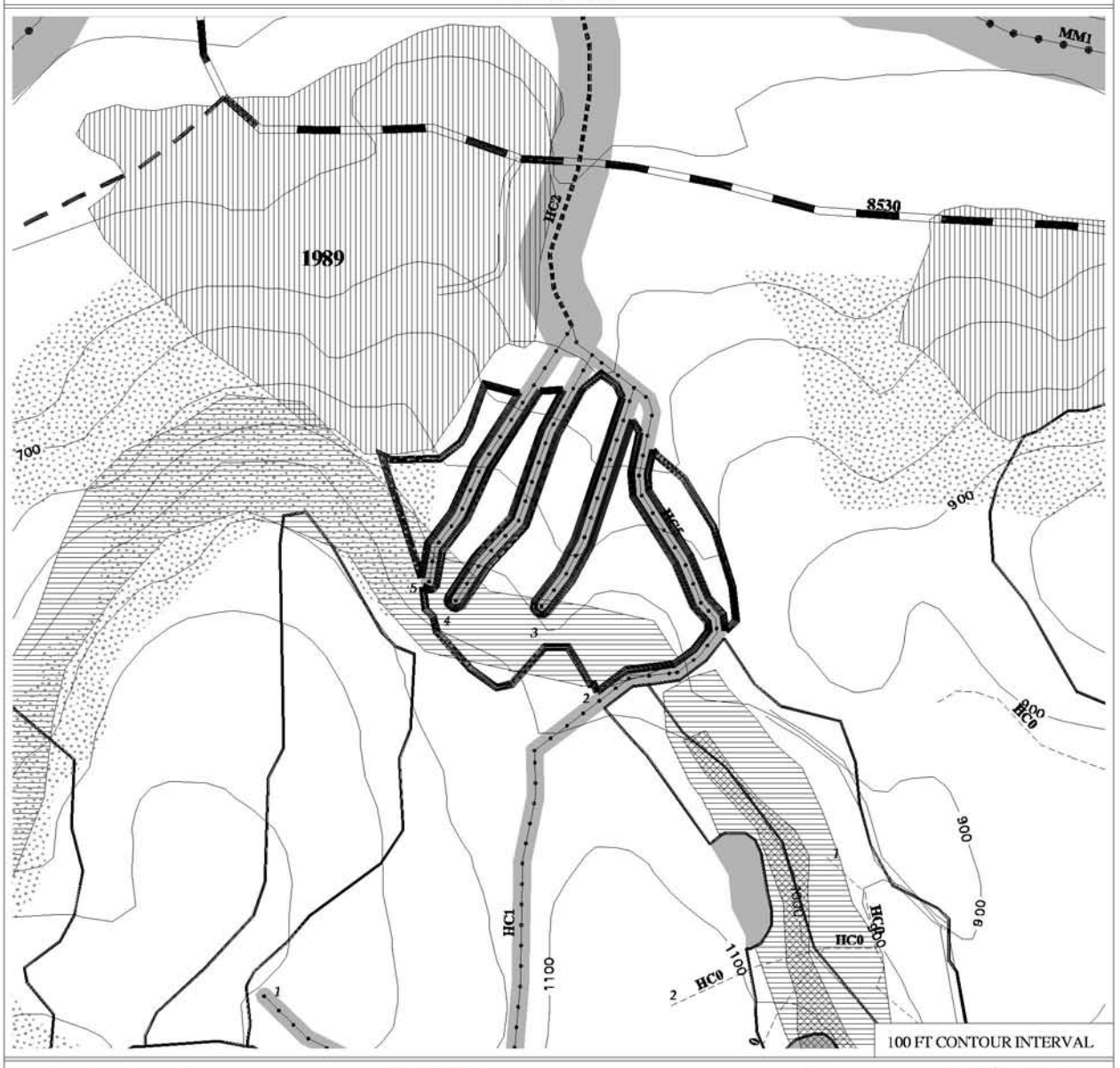
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 982 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 982 OCCURS IN ALTERNATIVE(S): 2 3

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**982**	**In Alternatives:**	2, 3	**Total Unit Acres:**	16.5	**Vol Strata Acres:**	High: 0.9 Med: 15.5 Low: 0.1
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	179	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 16-50" DBH western hemlock (47% BA), 12-40" DBH spruce 942% BA) and 12-16" DBH mountain (11% BA). The NW portion of the is the most productive. Western/mountain hemlock and spruce advanced regeneration is moderately abundant. Wind risk is moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (253 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 2 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** GIS-mapped streams 3,4,5 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: **Concern:** There are about 5 acres of moderate vulnerability karst in Unit 982. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 25-40% in Unit 982. **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the west of Unit 982 dropped for stability concerns (BMP 13.5).

WILDLIFE: **Concern:** Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines. **Concern:** Goshawk observed around the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

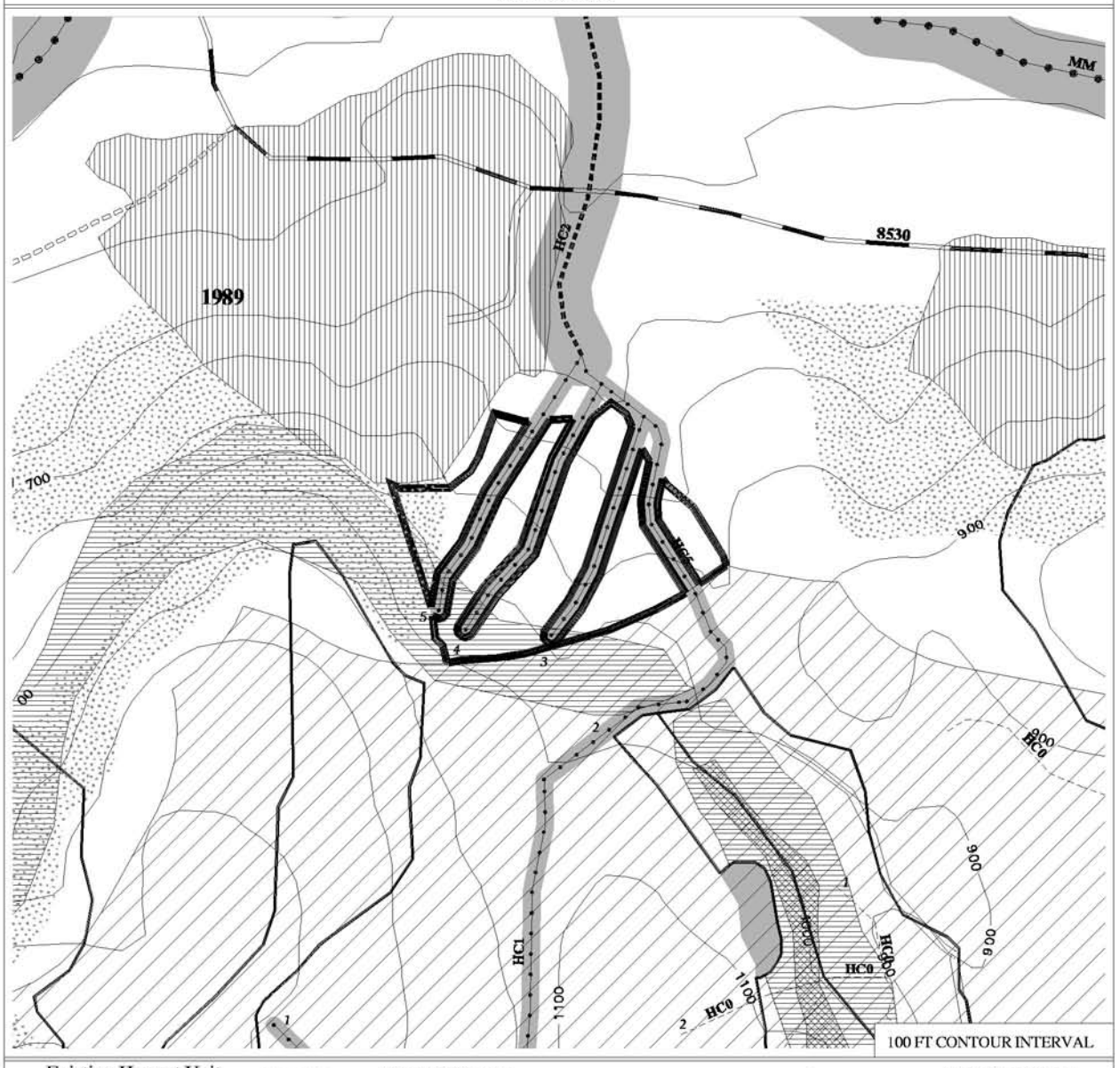
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 982 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 982 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**982**	**In Alternatives:**	4	**Total Unit Acres:**	11.5	**Vol Strata Acres:**	High: 0.9 Med: 10.6 Low: 0
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	127	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 16-50" DBH western hemlock (47% BA), 12-40" DBH spruce 942% BA) and 12-16" DBH mountain (11% BA). The NW portion of the is the most productive. Western/mountain hemlock and spruce advanced regeneration is moderately abundant. Wind risk is moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (253 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 2 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). **Concern:** GIS-mapped streams 3,4,5 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: **Concern:** There are about 5 acres of moderate vulnerability karst in Unit 982. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 25-40% in Unit 982. **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the west of Unit 982 dropped for stability concerns (BMP 13.5).

WILDLIFE: **Concern:** Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines. **Concern:** Goshawk observed around the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

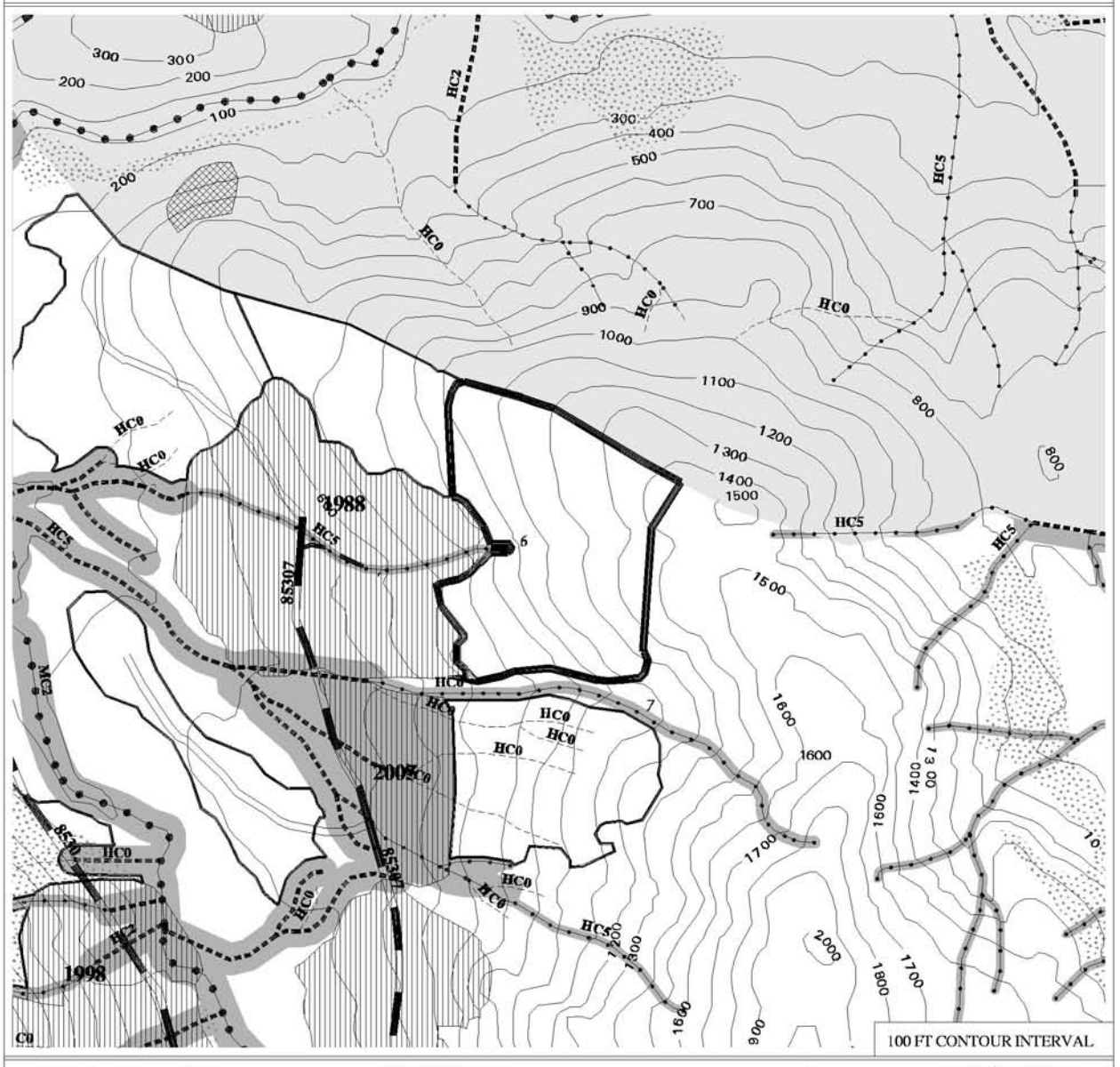
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 983 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 983 OCCURS IN ALTERNATIVE(S): 2 3

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**983**	**In Alternatives:**	2, 3	**Total Unit Acres:**	53.7	**Vol Strata Acres:**	High: 0 Med: 53.4 Low: 0.3
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	431	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-39" DBH western hemlock (52% BA), 9-39" DBH mountain hemlock (38% BA) with some 28-36" DBH spruce (10% BA). There is a patch of moderate windthrow in the eastern part of the unit. Western/mountain hemlock advanced regeneration is moderately abundant with a minor amount of spruce also present. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (211 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 7 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Do not locate patch cuts within windfirm zone 120 feet from v-notch. **Concern:** GIS-mapped stream 6 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Do not locate patch cuts within windfirm zone 120 feet from v-notch.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-60% in Unit 983. Unit is suitable for proposed helicopter harvest. (BMP 13.9) Area to the north of Unit 983 dropped for stability concerns (BMP 13.5).

WILDLIFE: **Concern:** Northern boundary adjacent to old growth LUD. **Response:** Ensure unit boundary does not enter old growth LUD. **Concern:** Bear dens located in unit. **Response:** Maintain a 200-foot forested buffer around den sites.

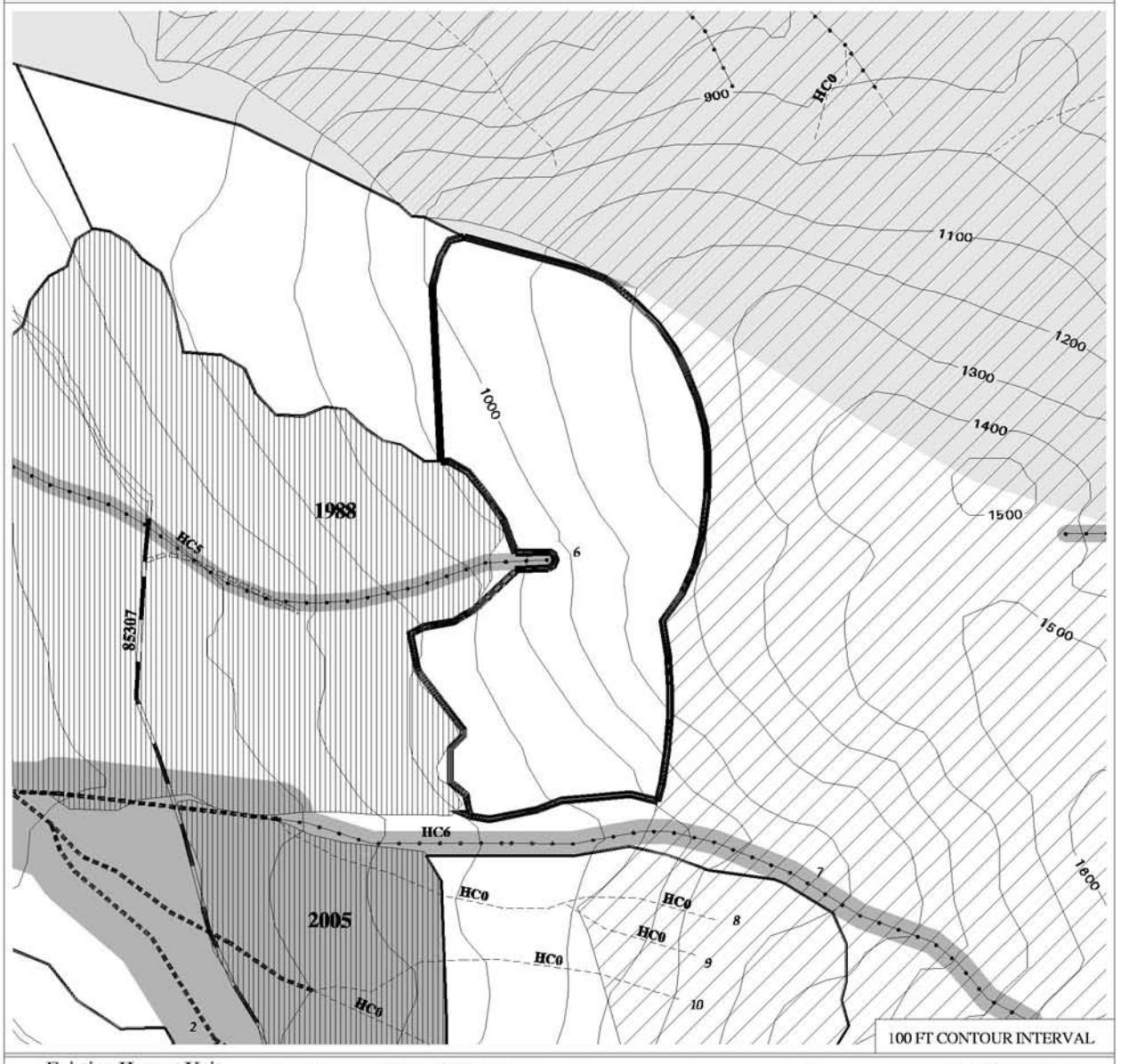
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 983 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 983 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**983**	**In Alternatives:**	4	**Total Unit Acres:**	34.3	**Vol Strata Acres:**	High: 0 Med: 34.3 Low: 0
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	276	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-39" DBH western hemlock (52% BA), 9-39" DBH mountain hemlock (38% BA) with some 28-36" DBH spruce (10% BA). There is a area of moderate windthrow in the eastern part of the unit. Western/mountain hemlock advanced regeneration is moderately abundant with a minor amount of spruce also present. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (211 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 7 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Do not locate patch cuts within windfirm zone 120 feet from v-notch. **Concern:** GIS-mapped stream 6 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Do not locate patch cuts within windfirm zone 120 feet from v-notch.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-60% in Unit 983. Unit is suitable for proposed helicopter harvest. (BMP 13.9) Area to the north of Unit 983 dropped for stability concerns (BMP 13.5)

WILDLIFE: **Concern:** Northern boundary adjacent to old growth LUD. **Response:** Ensure unit boundary does not enter old growth LUD. **Concern:** Bear dens located in unit. **Response:** Maintain a 200-foot forested buffer around den sites.

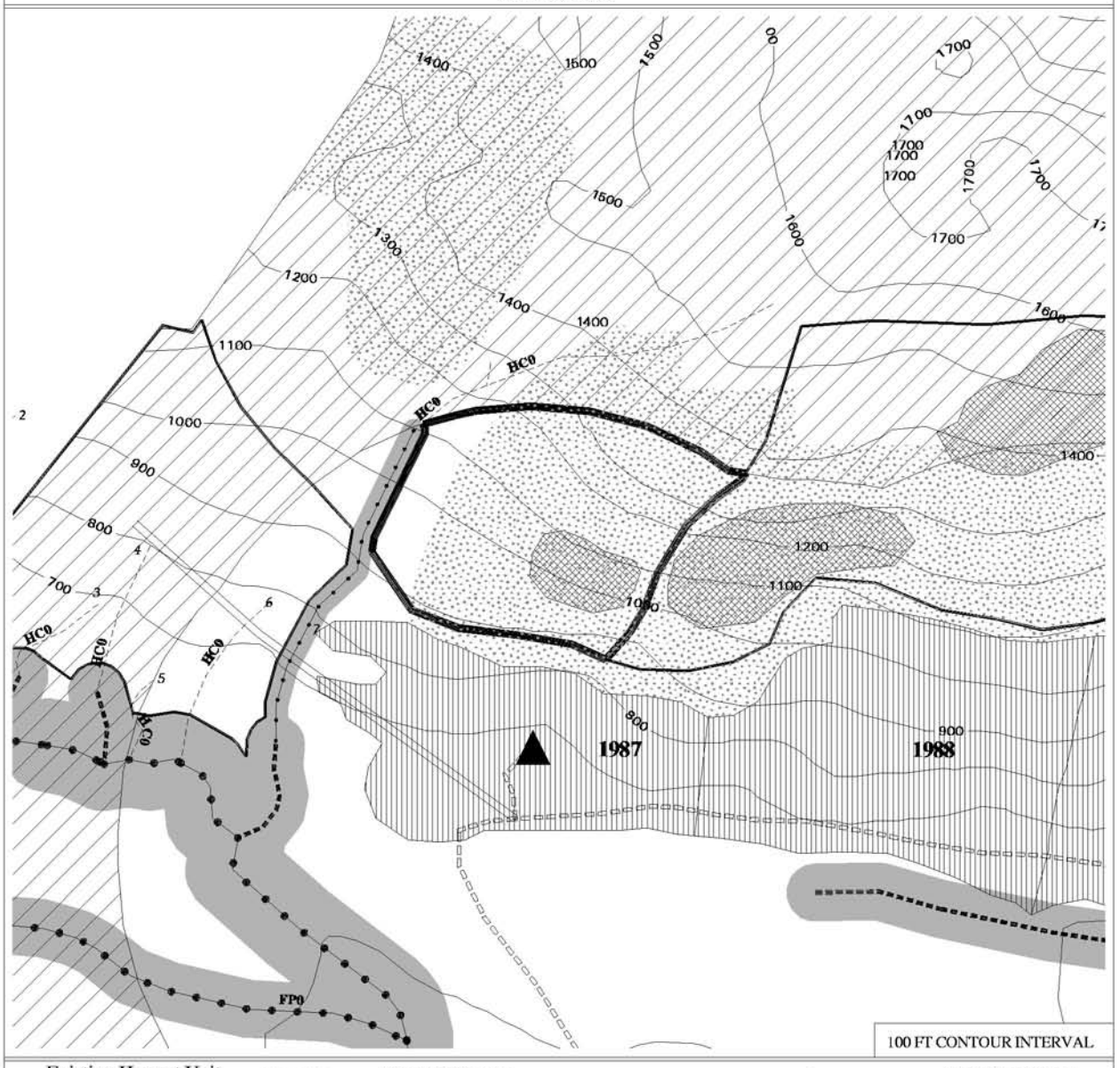
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 9041 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 9041 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**9041**	**In Alternatives:**	4	**Total Unit Acres:**	17.6	**Vol Strata Acres:**	High: 15.0 Med: 2.6 Low: 0
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	252	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of 9-40" DBH western hemlock (48% BA) and 9-31" DBH mountain hemlock (41% BA) with some scattered 12-36" DBH spruce (11% BA). There is an area of higher volume in the southern portion of the unit. Wind risk is moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (217 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 7 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 15-85% in Unit 9041. The soils are moderately deep, well-drained formed in bedrock. **Concern:** There are about 2 acres of slopes greater than 72%. The soils are generally well-drained over bedrock. There are no signs of instability, hollow topography or past landslides in this area. Some landslides may initiate on the slopes greater than 72% and enter streams. **Response:** Do not harvest any slopes greater than 72% within 120 feet of any stream. Slopes up to 80% may be harvested with the proposed helicopter prescription and full suspension. Avoid slopes greater than 80% in Unit 9041. (BMP 13.5, 13.9). The rest of 9041 is suitable for the proposed helicopter harvest. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines. **Concern:** Goshawk observed adjacent to unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

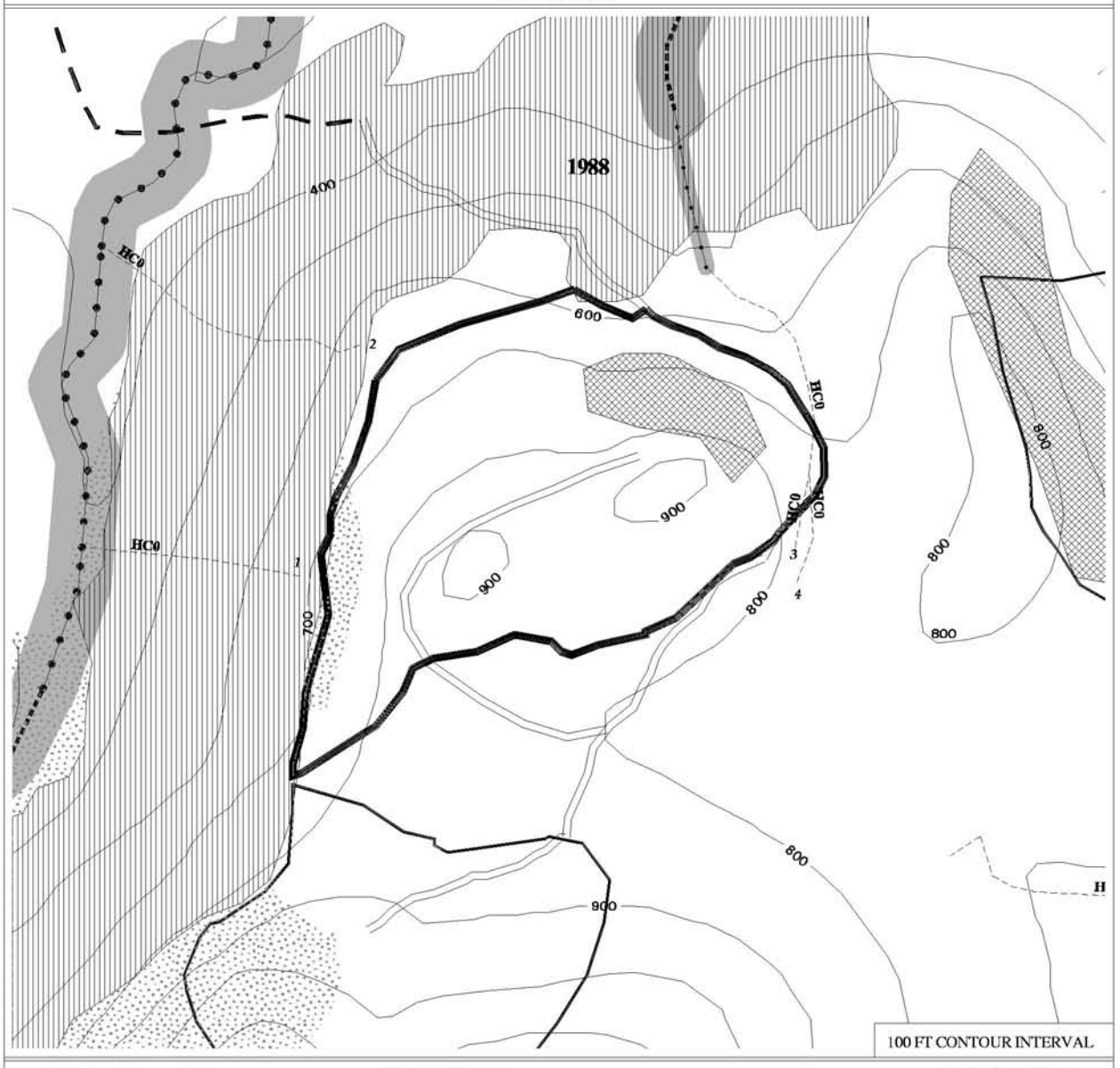
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 9061 VCU: 2090 HARVEST SYSTEM: Cable

UNIT 9061 OCCURS IN ALTERNATIVE(S): 2 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**9061**	**In Alternatives:**	2, 4	**Total Unit Acres:**	40.8	**Vol Strata Acres:**	High: 1.7 Med: 38.1 Low: 0
VCU Number:	2090	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	909	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of 9-40" DBH western hemlock (48% BA) and 9-31" DBH mountain hemlock (41% BA) with some scattered 12-36" DBH spruce (11% BA). There is an area of higher volume in the southern portion of the unit. Wind risk is moderate. Mistletoe infection is moderate to heavy.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit does not contain stream buffers or greater than 2 acres of high value marten habitat.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities. There are some limited shovel yarding opportunities near the road.

ENGINEEERING/ROADS: Temporary road 9006C accesses unit from existing Road 85313 via planned temporary road 853132. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1-4 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 40-80% in Unit 9061. **Concern:** There are about 3 acres of slopes over 72% located in the northern portion of the unit. Timber harvest on slopes over 72% gradient may result in a loss of soil productivity due to landslides. **Response:** Full suspension is required to meet soil productivity objectives (BMP 13.5). The rest of 9061 is suitable for the proposed cable harvest with partial suspension (BMP 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report). **Concern:** Half the proposed temporary road is located on forested wetland or muskeg. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE: **Concern:** Unit contains less than 2 acres high value marten habitat. High deer use was observed on the ridge in the unit. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

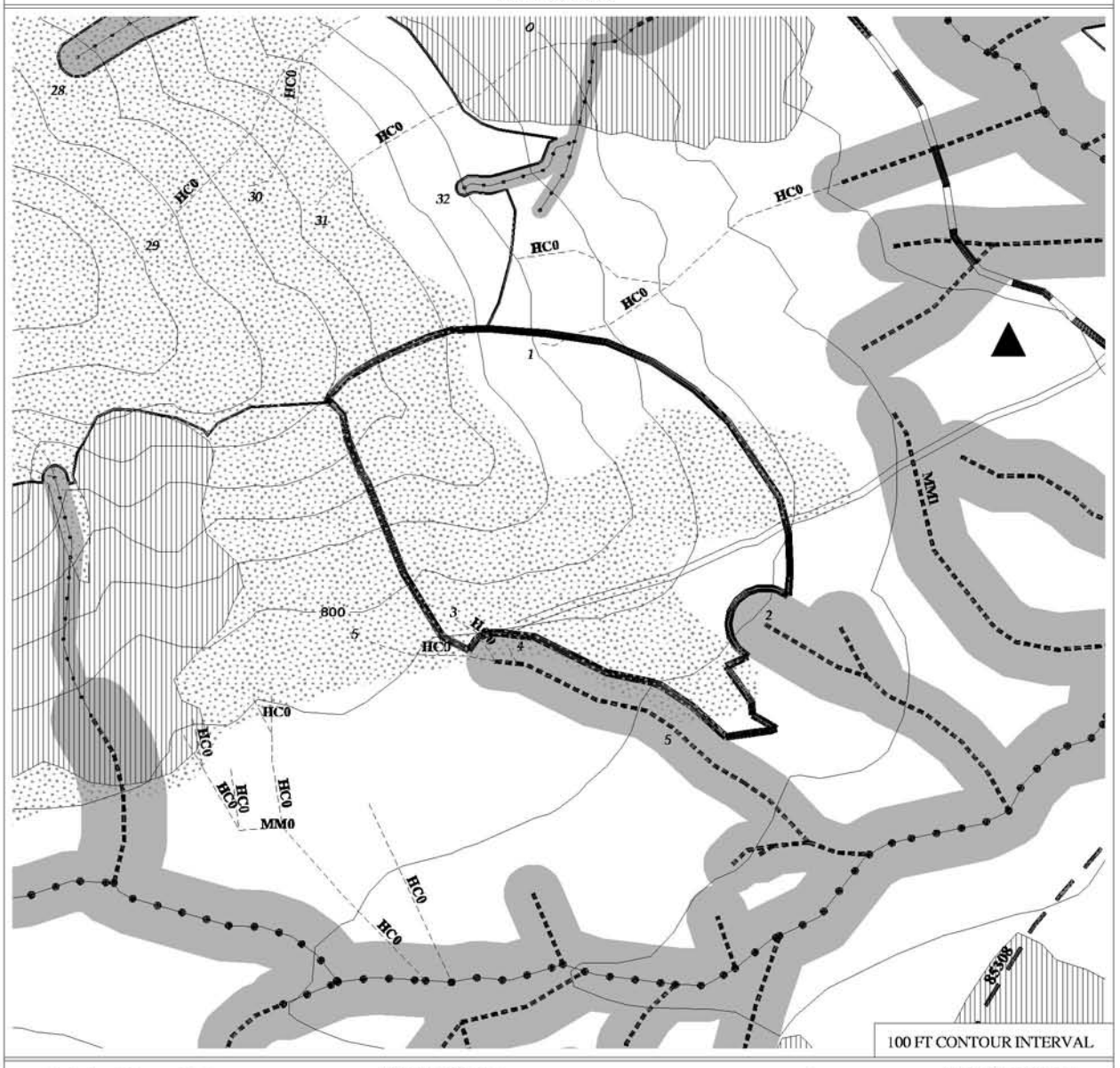
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 9231 VCU: 2090 HARVEST SYSTEM: Cable

UNIT 9231 OCCURS IN ALTERNATIVE(S): 2 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**9231**	**In Alternatives:**	2, 4	**Total Unit Acres:**	33.6	**Vol Strata Acres:**	High: 1.7 Med: 38.2 Low: 0
VCU Number:	2090	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	723	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 9-39" DBH mountain hemlock (41% BA), 9-32" DBH western hemlock (38% BA) and scattered 12-48" DBH spruce (20 % BA). Stand structure tends to be even-aged. Total BA/ac is 310. Consequently, advanced regeneration of any species is sparse. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit is bounded on the south by a stream buffer and is mostly high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees adjacent to stream buffer if possible as specified under wildlife section. High wind risk area is along northwestern unit boundary. A high wind risk boundary may be created on this boundary by retaining trees less than 16" DBH within specified distance of one site tree height from boundary. Review during layout to confirm if windfirming is warranted.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary road 85306 accesses unit from existing Road 8530. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to harvest.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1, 3, and 4 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 2 is a Class II MM channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** Stream 5 is a Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Wind risk is moderate to high. **Response:** Maintain a windfirm zone 120 feet beyond no cut buffers on streams 2 and 5. **Concern:** Temporary road – stream crossings. **Response:** Stream crossing east of unit (Class II MM channel) is designated as a log stringer bridge. Other crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 25-60% in Unit 9231. **Concern:** The southern quarter of the unit is forested wetland. **Response:** A minimum of partial suspension is required to meet soil and wetland quality standards. (BMPs 12.5, 13.9) **Concern:** The road is located entirely on wetlands. It is unavoidable as this whole area is forested wetland or muskeg. Road grade prevents placing the road on uplands. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after harvest. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines. **Concern:** Goshawk observed in the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

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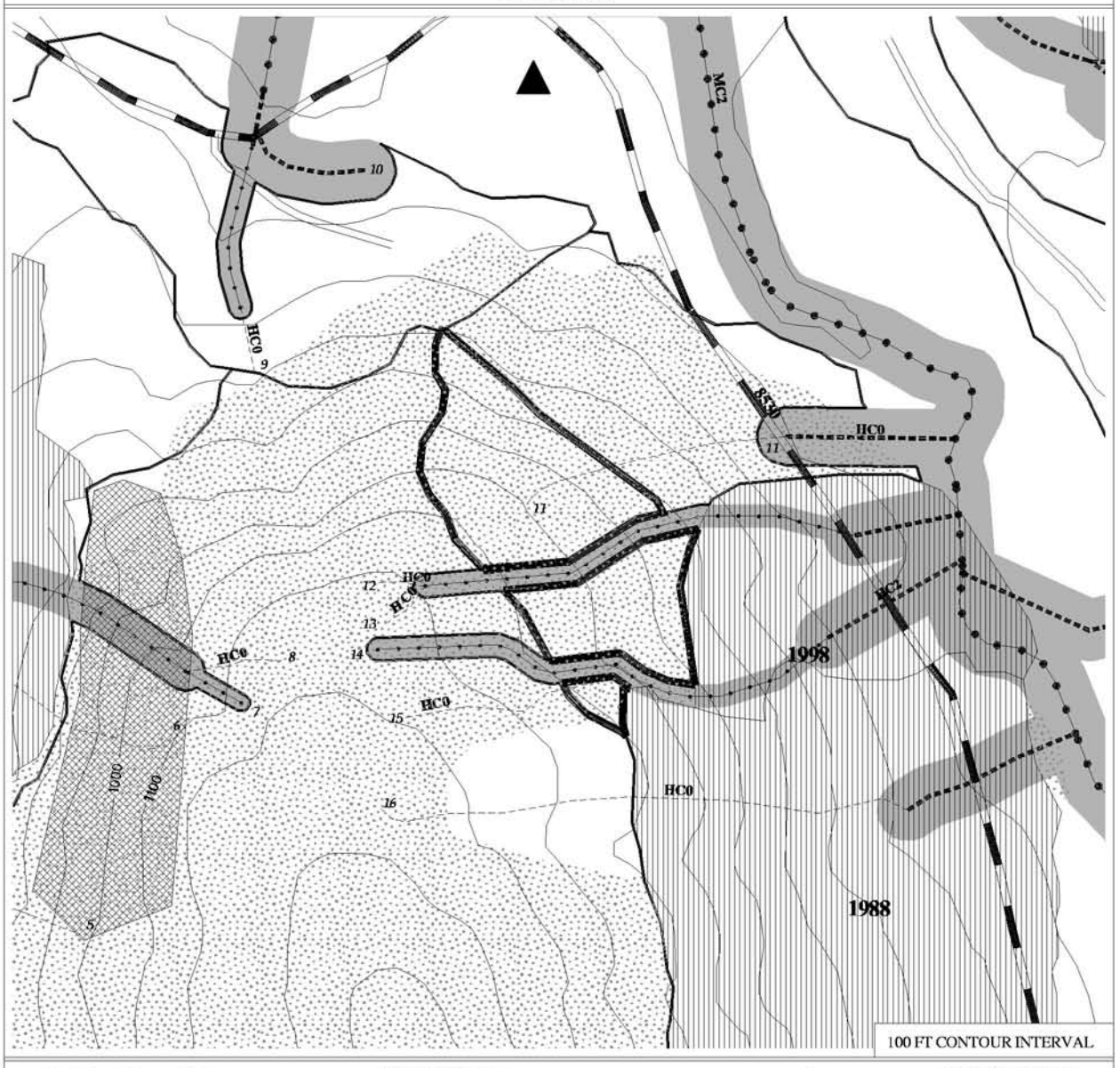
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 9541 VCU: 2090 HARVEST SYSTEM: Helicopter

UNIT 9541 OCCURS IN ALTERNATIVE(S): 2 3 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

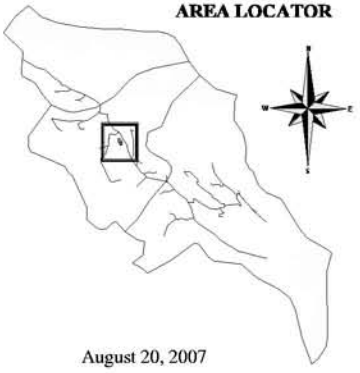
Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**9541**	**In Alternatives:**	2, 3, 4	**Total Unit Acres:**	13.7	**Vol Strata Acres:**	High: 13.6 Med: 0.1 Low: 0
VCU Number:	2090	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	136	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 12-40" DBH western hemlock (86% BA) and 24-44" DBH spruce (14% BA). There is an area of moderate windthrow in the center of the unit. Advanced hemlock regeneration is moderate with a minor amount of spruce. Wind risk is moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (267 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 11 and 15 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). **Concern:** Streams 12,13,14 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: slopes range from 35-60% in Unit 9541. **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements.

WILDLIFE: **Concern:** Unit contains high value marten habitat. High deer use was observed in the west portion of the unit. Unit is located in a travel corridor that maintains connectivity from low to high elevation habitat. **Response:** Proposed timber management will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines and help to maintain connectivity and deer habitat.

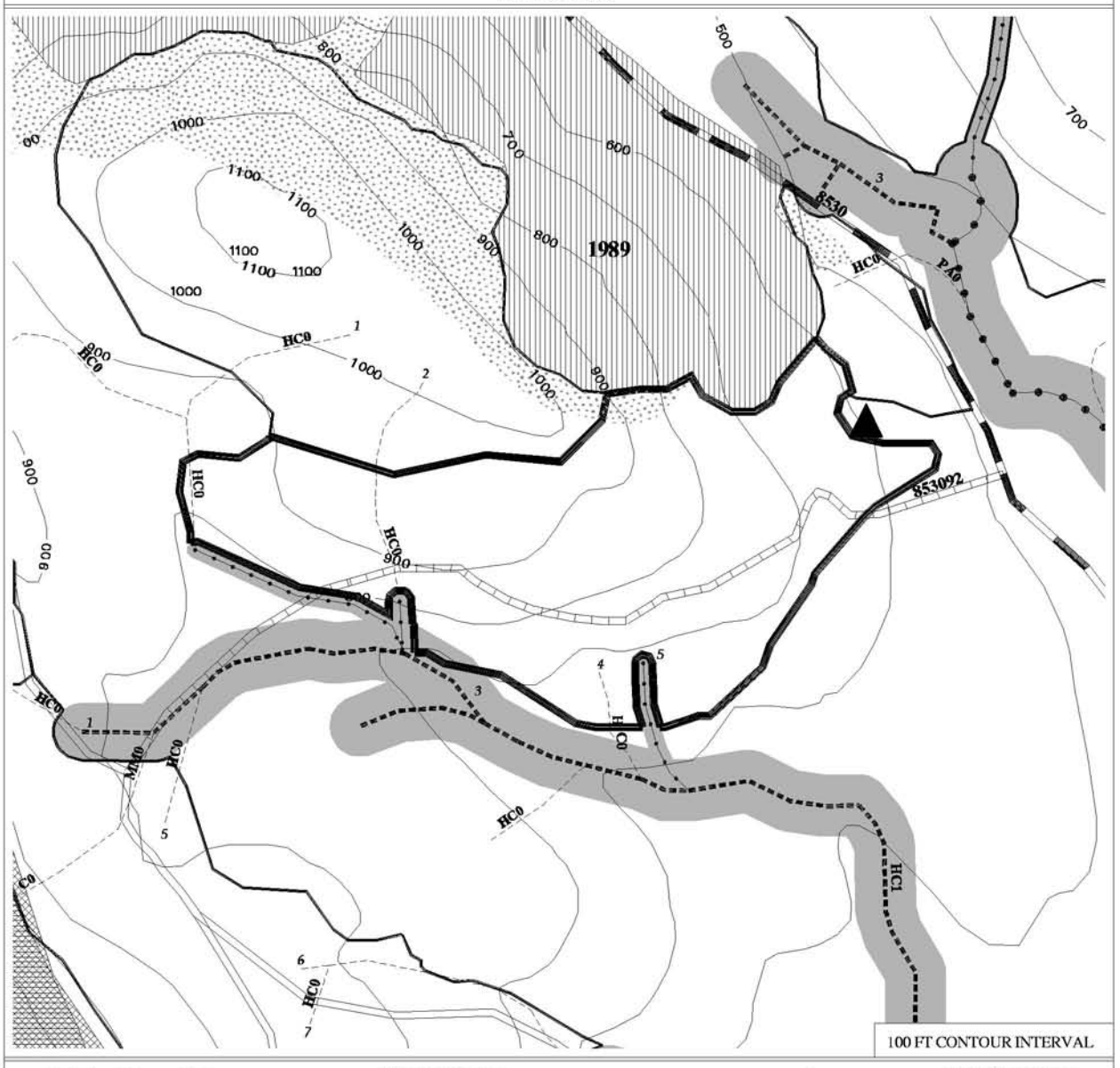
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 101 VCU: 2090/2100 HARVEST SYSTEM: Cable

UNIT 101 OCCURS IN ALTERNATIVE(S): 2 3 5

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**101**	**In Alternatives:**	2, 3, 5	**Total Unit Acres:**	41.3	**Vol Strata Acres:**	High: 0.6 Med: 35.0 Low: 5.7
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	879	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-30+" DBH yellow-cedar (52% BA), 24-40" DBH western hemlock (24% BA), 20-50" DBH spruce (14% BA) and 20-36" mountain hemlock (10%). This unit contains some large yellow-cedar; Sitka Conservation Society identified two (approx 60" DBH) in particular, and would like to see them retained if possible (refer to detailed Rx for specific location). There is significant advanced regeneration of western hemlock, yellow-cedar and spruce. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery requirements, uses an economical regeneration method and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers that require RAW zones (refer to fish/watershed section). For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Retain component of largest yellow-cedar adjacent to proposed road within shovel portion of unit. Yellow-cedar identified by SCS are below the proposed road.

TIMBER/LOGGING: This unit is comprised of four cable settings. The western-most setting accesses the area west of stream #2, a class IV stream that requires split yarding. The other three settings access the remaining area and are defined by logical setting breaks based on topography and lateral yarding capabilities. There are some limited shovel yarding opportunities near the road.

ENGINEEERING/ROADS: NFSR 853092 accesses unit from existing Road 8530. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: The upper parts of streams 1 and 2 and stream number 4 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** The lower parts of streams 1 and 2 and stream 5 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Manage for windfirmness 120 feet beyond no-cut buffers. **Concern:** Stream 3 is a Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: Concern: Unit located adjacent to VPR. **Response:** Incorporate landscape architect input during layout.

SOILS/WETLANDS: Slopes range from 35-55% in Unit 101. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: Concern: Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines. **Concern:** Vancouver Canada geese observed in unit. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

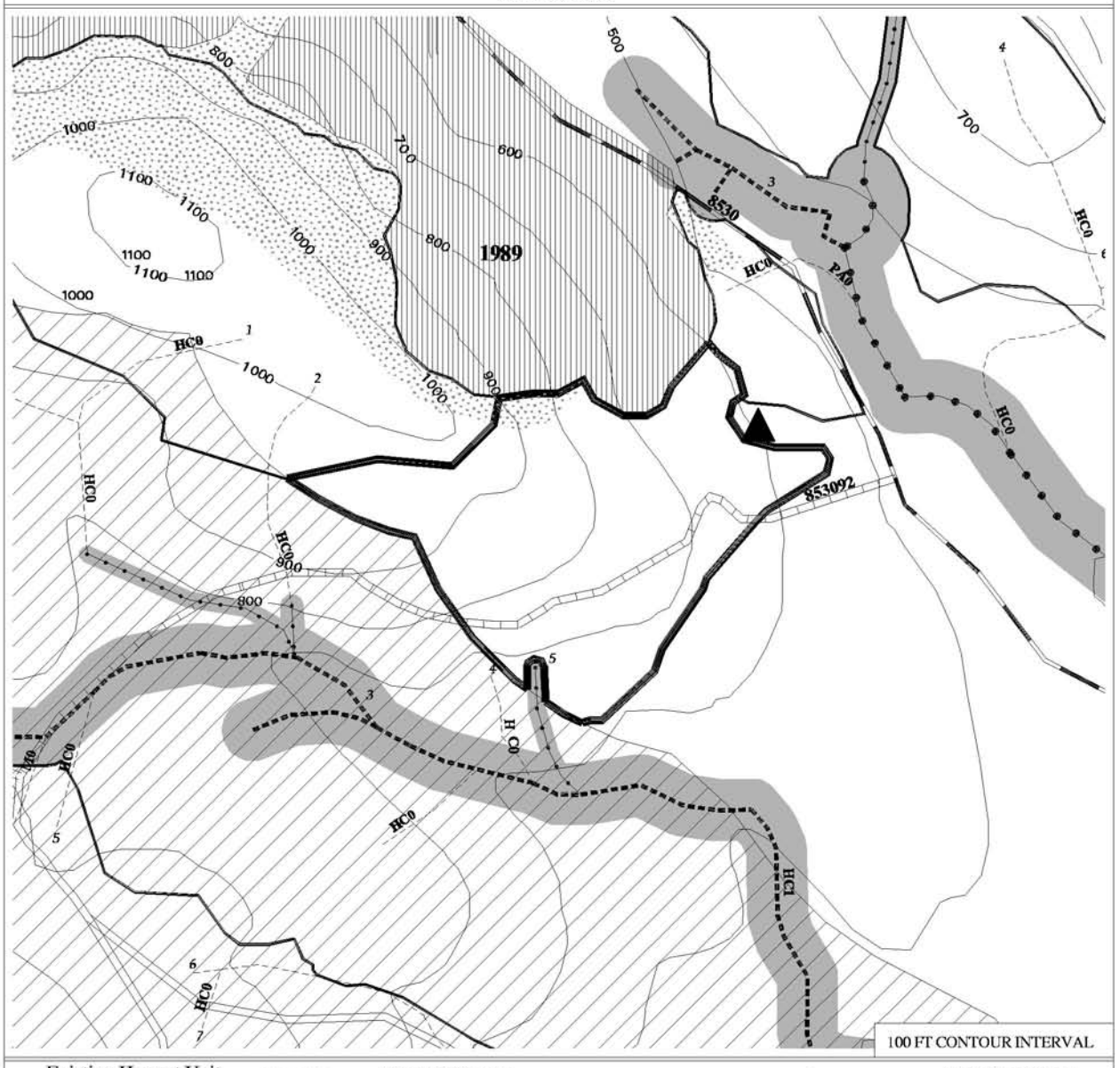
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 101 VCU: 2090/2100 HARVEST SYSTEM: Cable

UNIT 101 OCCURS IN ALTERNATIVE(S): 4

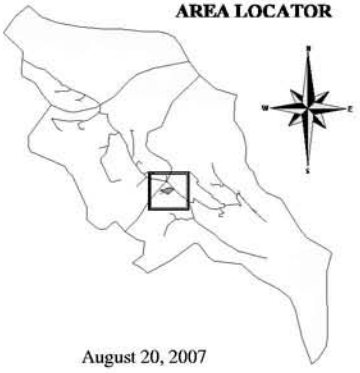
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**101**	**In Alternatives:**	4	**Total Unit Acres:**	25.5	**Vol Strata Acres:**	High: 0.6 Med: 22.9 Low: 2.0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	556	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: **S**tand consists of 9-30" DBH yellow-cedar (52% BA), 24-40" DBH western hemlock (24% BA), 20-50" DBH spruce (14% BA) and 20-36" mountain hemlock (10%). There is significant advanced regeneration of western hemlock, yellow-cedar and spruce. This unit contains some large yellow-cedar; Sitka Conservation Society identified two (approx 60" DBH) in particular and would like to see them retained if possible (refer to detailed Rx for specific location. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery requirements, uses an economical regeneration method and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers with RAW zones (refer to fish/watershed section). For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Retain component of largest yellow-cedar adjacent to proposed road within shovel portion of unit. Yellow-cedar identified by SCS are below the proposed road.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities. There are some limited shovel yarding opportunities near the road.

ENGINEEERING/ROADS: NFSR 853092 accesses unit from existing Road 8530. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** The upper parts of streams 1 and 2 and stream number 4 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** The lower parts of streams 1 and 2 and stream 5 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Manage for windfirmness 120 feet beyond no-cut buffers. **Concern:** Stream 3 is a Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: **Concern:** Unit located adjacent to VPR. **Response:** Incorporate landscape architect input during layout.

SOILS/WETLANDS: Slopes range from 35-55% in Unit 101. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: **Concern:** Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines. **Concern:** Vancouver Canada geese observed in unit. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

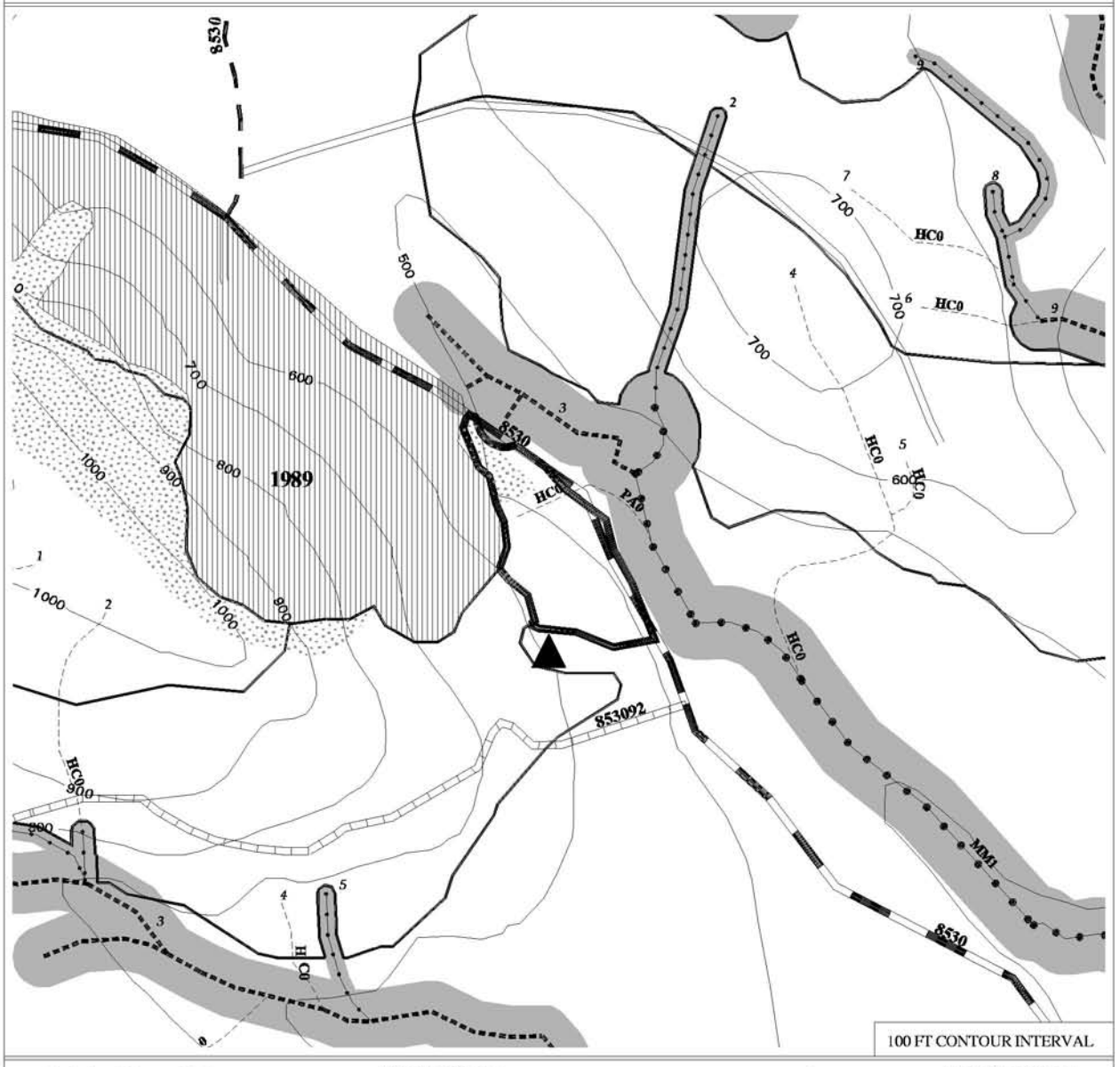
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 102 VCU: 2100 HARVEST SYSTEM: Shovel

UNIT 102 OCCURS IN ALTERNATIVE(S): 2 3 4 5

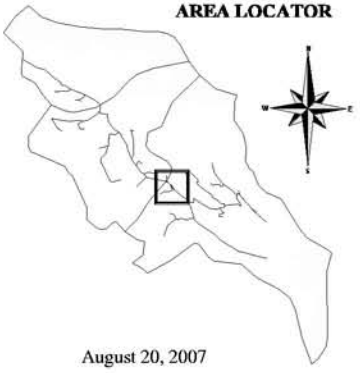
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**102**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	5.4	**Vol Strata Acres:**	High: 0.7 Med: 3.9 Low: 0.9
VCU Number:	2100	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	76	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of 12-24" DBH western hemlock (42% BA), 9-36" DBH spruce (33% BA), and 12-28" DBH mountain hemlock (25% BA). Wind risk is estimated to be moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (133 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: The stream is a Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). Equipment will not operate in streamcourses and will not cross streams without a temporary structure (BMP 13.9, 13.14)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: Concern: Unit will meet the required VQO of Modification. **Response:** Design shovel corridors to meet Modification, obtain landscape architect review during layout.

SOILS/WETLANDS: Slopes range from 12-25% in Unit 102. **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils. **Response:** Operate shovel on a puncheon or a slash mattress to provide adequate bearing strength on the higher areas of the unit [this means areas with less skunk cabbage and more tree roots] (BMP 13.2 and 13.9).

WILDLIFE: Concern: Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

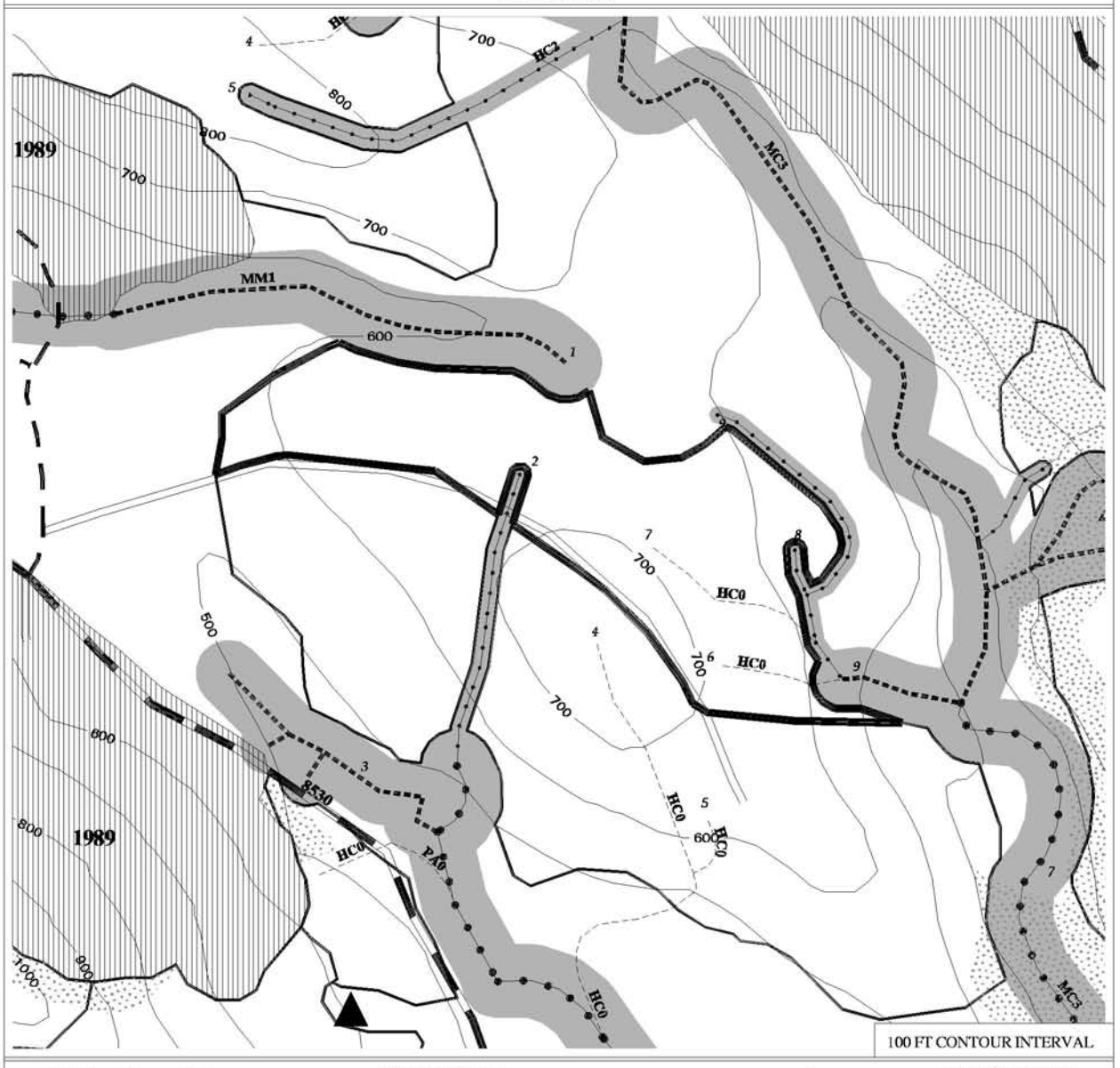
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 103 VCU: 2100 HARVEST SYSTEM: Shovel

UNIT 103 OCCURS IN ALTERNATIVE(S): 2 3 4 5

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

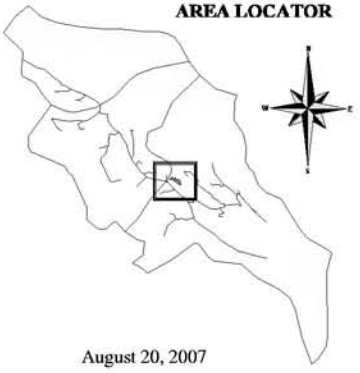
Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**103**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	26.5	**Vol Strata Acres:**	High: 0 Med: 20.0 Low: 6.5
VCU Number:	2100	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	341	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of 9-30" DBH western hemlock (27% BA), 9-24" DBH yellow-cedar (50% BA), 9-30" DBH mountain hemlock (20% BA), and a minor component of spruce (3% BA). Many of the trees are in the 9-16" diameter classes. There is significant advanced regeneration of western hemlock and yellow-cedar. Wind risk is estimated to be moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (280 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information. This unit contains stream buffers that require RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 103A accesses unit from existing Road 853091. Road location will be flagged by USFS prior to harvest.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 is Class II MM channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** Streams 2, 8 and the upper portion of 9 are Class II HC channel type. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 3 is a Class II PA and HC channel types. **Response:** Category A protection for both (BMP 12.6, 13.14). For the PA channel type, No harvest within 100 feet of channel (RIP III). For the HC channel type, No harvest within 100 feet and side-slope break (RIP III). **Concern:** Streams 4, 5, 6 and 7 are class IV HC channel types. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in stream courses and will not cross streams without a temporary structure (BMP 13.9). Remove logging debris from channel (BMP 13.16). **Concern:** The lower portion of stream 9 is Class II HC channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern**: Wind risk is moderate to high over the entire unit. **Response:** Manage for windfirmness 120 feet beyond the windward side of all no-harvest buffers. **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: Slopes range from 12-25% in Unit 103. A 1-acre muskeg exists along the border between units 103 and 1031. **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils. **Response:** Operate shovel on a puncheon or a slash mattress to provide adequate bearing strength (BMP 12.5, 13.9). Do not operate the shovel on the muskeg or any other non-forested area. **Concern:** The proposed temporary road crosses open muskeg between the intersection with 853091and the unit. Avoiding these wetland is not practicable. There are no high value wetlands in the area. **Response:** Provide adequate cross drainage to allow hillslope flow. Remove all structures after the unit is harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)
WILDLIFE: Concern: Vancouver Canada geese observed adjacent to unit. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

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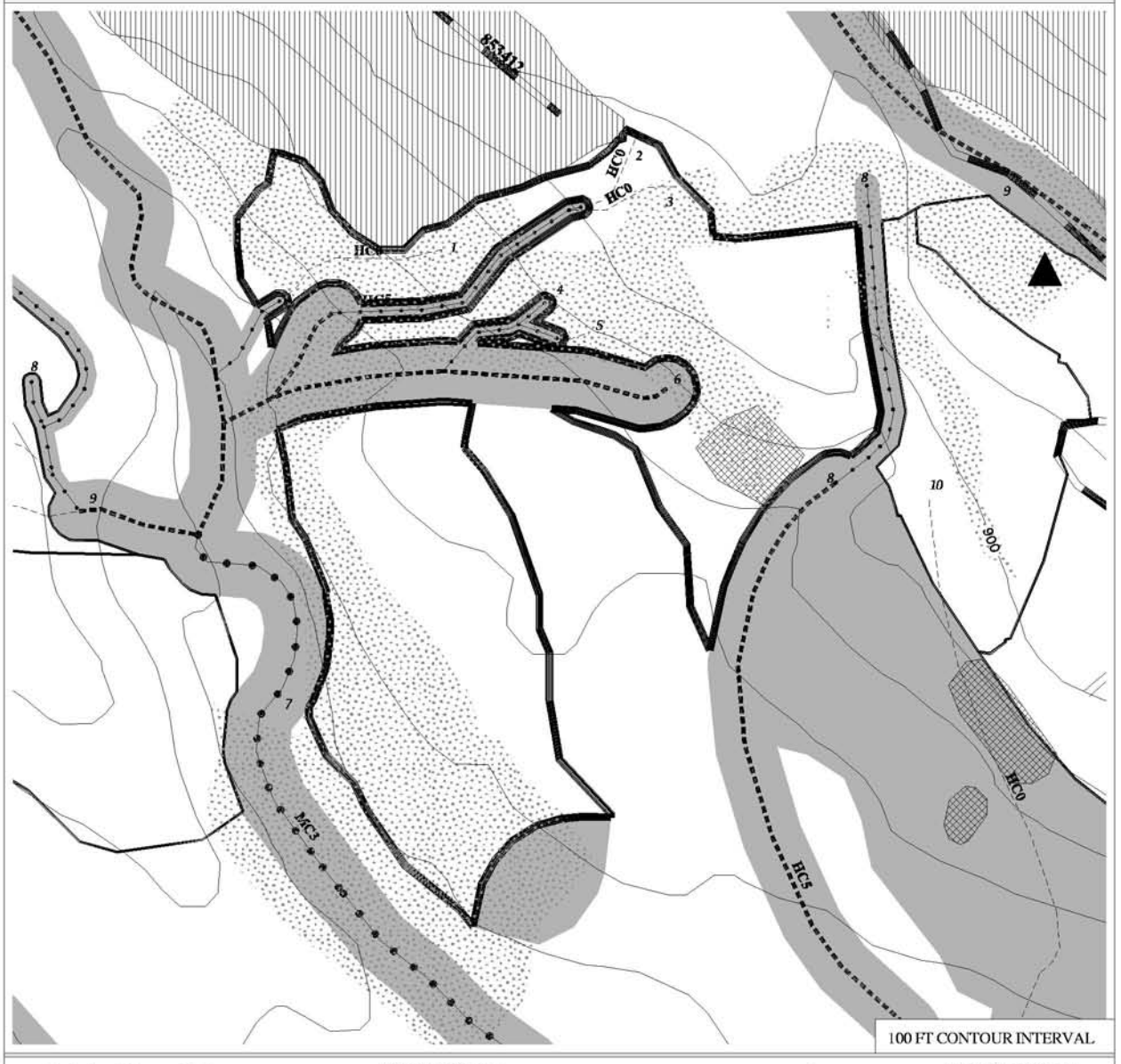
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 104 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 104 OCCURS IN ALTERNATIVE(S): 2 4

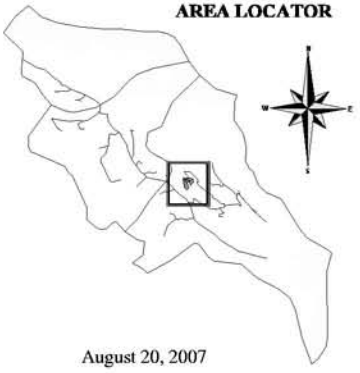
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**104**	**In Alternatives:**	2, 4	**Total Unit Acres:**	60.1	**Vol Strata Acres:**	High: 31.0 Med: 16.4 Low: 12.7
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	750	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of 12-36" DBH western hemlock (27% BA), 9-16" DBH mountain hemlock (5% BA), 16-30" DBH spruce (12% BA) and 9-40" DBH yellow-cedar (56% BA). The yellow-cedar is in pockets and has experienced considerable mortality. Yellow-cedar advanced regeneration is abundant in portions of the stand. Wind risk is estimated to be moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (194 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** The upper parts of streams 1, 2, 3 and 5 are Class IV HC channel types. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** The lower parts of streams 1, 2, 3, 5 and stream 4 and the upper part of stream 8 are Class III HC channel types. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 6 and the lower portion of stream 8 are class II HC channel types. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Stream 7 is a Class I MC channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet of channel and side-slope break. (RIP III). **Concern:** Windthrow risk is moderate to high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-75% in Unit 104. There is about 2 acres of slopes greater than 72% along the southeastern boundary, the soils in the area are poorly drained and the slope is concave. **Concern:** Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Avoid the slopes over 72% during layout (BMP 13.5). **Concern**: A minimum of partial suspension is required to meet soil quality standards in the rest of the unit (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit contains high value marten habitat. Unit is located in a potential travel corridor that may maintain connectivity to the OG LUD. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines and help to maintain connectivity. **Concern:** Southeast and southwest boundaries are adjacent to goshawk nest buffer. **Response:** Ensure unit boundary does not enter nest buffer. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

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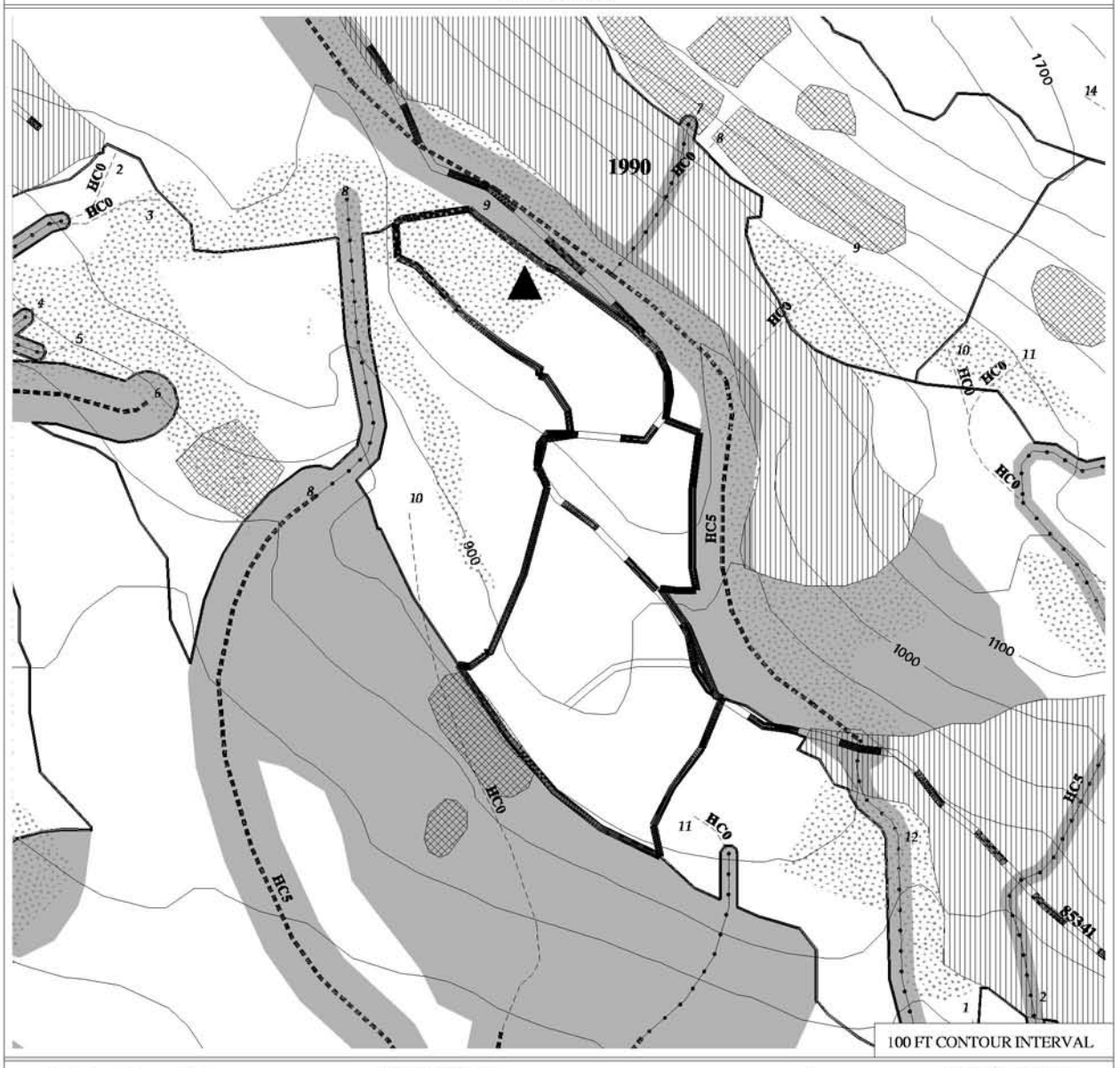
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 105 VCU: 2100 HARVEST SYSTEM: Shovel

UNIT 105 OCCURS IN ALTERNATIVE(S): 2 3 4 5

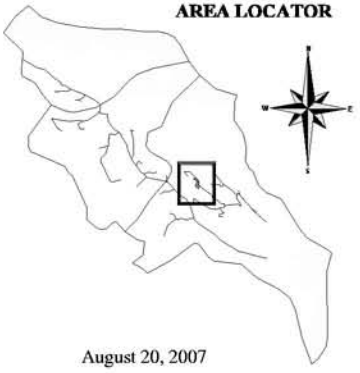
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**105**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	27.1	**Vol Strata Acres:**	High: 3.5 Med: 21.1 Low: 2.5
VCU Number:	2100	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	382	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of 20-28" DBH mountain hemlock (46% BA), 16-36" DBH western hemlock (30% BA), 28-40" DBH spruce (16% BA) and 12-16" DBH Yellow-cedar (8% BA). Advanced regeneration is moderately abundant throughout the stand. Wind risk is estimated to be moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (173 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 5 accesses unit from existing Road 85341. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction. The temp road is located outside and north of a 600 foot goshawk nest activity buffer. Road construction activities will be restricted between March 15 and August 15 if the road is relocated to within 600 feet of the active goshawk nest site.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** The upper part of stream 9 is Class II HC channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** The lower part of stream 9 is class II PA channel Type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet of channel (RIP III). **Concern:** Stream 10 is Class IV HC Channel Type. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in stream.courses and will not cross streams without a temporary structure (BMP 13.9). Remove logging debris from channel (BMP 13.16) **Concern:** Windthrow risk is moderate to high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: Slopes range from 15-55% in Unit 105. Soils range from poorly drained, deep organics on the gentle slopes to well drained deep mineral soils on slopes greater than 25%. There are about 8 acres of forested wetland scattered throughout the unit (BMP 12.5). **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in Unit 105. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. (BMP 13.2 and 13.9) **Concern:** Shovel yarding may cause rutting due to slopes greater then 25%. **Response:** Do not operate shovel on slopes greater than 25%. Utilize the boom, a short choker or cable to remove logs from steeper slopes or directionally fall the trees instead. **Concern:** Proposed temporary road crosses forested wetlands. No high-value wetlands exist in this unit. **Response:** Avoid placing the road in non-forested areas. Provide adequate cross drainage, remove structures and close the road after harvest. (BMP 14.9) (33 CFR BMPs 4, 5, 6)
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. **Concern:** Southwest boundary is adjacent to goshawk nest buffer. **Response:** Ensure unit boundary does not enter nest buffer. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer. **Concern:** Southeast portion of the unit lies within 600 feet of a goshawk nest. **Response:** Road construction and harvest activities are restricted between March 15 and August 15 within 600 feet of active goshawk nest sites.

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IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 108 VCU: 2100 HARVEST SYSTEM: Shovel

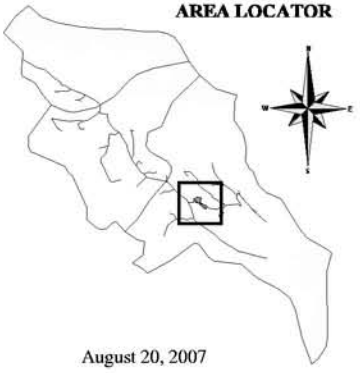
UNIT 108 OCCURS IN ALTERNATIVE(S): 2 4 5

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**108**	**In Alternatives:**	2, 4, 5	**Total Unit Acres:**	47.5	**Vol Strata Acres:**	High: 0 Med: 4.1 Low: 43.4
VCU Number:	2100	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	440	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of 12-24" DBH western hemlock (57% BA), 12-30" DBH mountain hemlock (24% BA) and scattered 20-40" DBH spruce (19% BA) with a minor component of yellow-cedar primarily in the northern portion of the unit. Wind risk is estimated to be high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (127 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 85342 accesses unit from existing Road 8534. Road location will be flagged by USFS prior to harvest.

BOTANY RESOURCES: Numerous rare plant populations; largely open-forested wetland habitat.
Response: stay out of wetland corridor in Unit 108 above road 85342 and leave a buffer around the large muskeg to N of this road. This will leave a 5-10 acre area of low volume forested wetland (if combined with a leave zone in Unit 1081)

FISH/WATERSHED: **Concern:** Stream 1 is a Class II HC. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Stream 2 is a Class II MM channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** Lower segments of streams 4, 6, 8, 10, 13, and 16 are Class II HC channels. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Upper segments of streams 4, 6, 8, 10, 13, and 16, and all of streams 3, 5, 7, 9, 11, 12, and 15 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in streamcourses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Windthrow risk is moderate to high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 5-25% in Unit 108. The southern half of this unit is wetland, both forested and non forested (BMP 12.5). **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in Unit 108. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. Do not operate the shovel in non-forested areas. (BMP 13.2 and 13.9) **Concern:** Proposed temporary road is entirely located on wetlands in the southern portion of the unit. **Response:** Provide adequate cross drainage, remove structures and close the road after harvest. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit is located in a potential travel corridor that may maintain connectivity to the OG LUD. **Response:** Proposed harvest system will retain 50% of the basal area. Rentention will help to maintain connectivity. **Concern:** Northwest boundary is close to goshawk nest buffer. **Response:** Ensure unit boundary does not enter nest buffer. If a goshawk nest is identified in or adjacent to the unit, contact the project project biologist; follow Forest Plan direction for the development of the nest buffer. **Concern:** Northwest portion of the unit lies within 600 feet of a goshawk nest. **Response:** Road construction and harvest activities are restricted between March 15 and August 15 within 600 feet of active goshawk nest sites. **Concern:** Red-tailed hawk was observed around unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer. **Concern:** High bear use was observed south of the unit along Iyouktug Creek. **Response:** Retention and stream buffers will help to maintain bear habitat. Recommend retention be located adjacent to Iyouktug Creek stream buffer.

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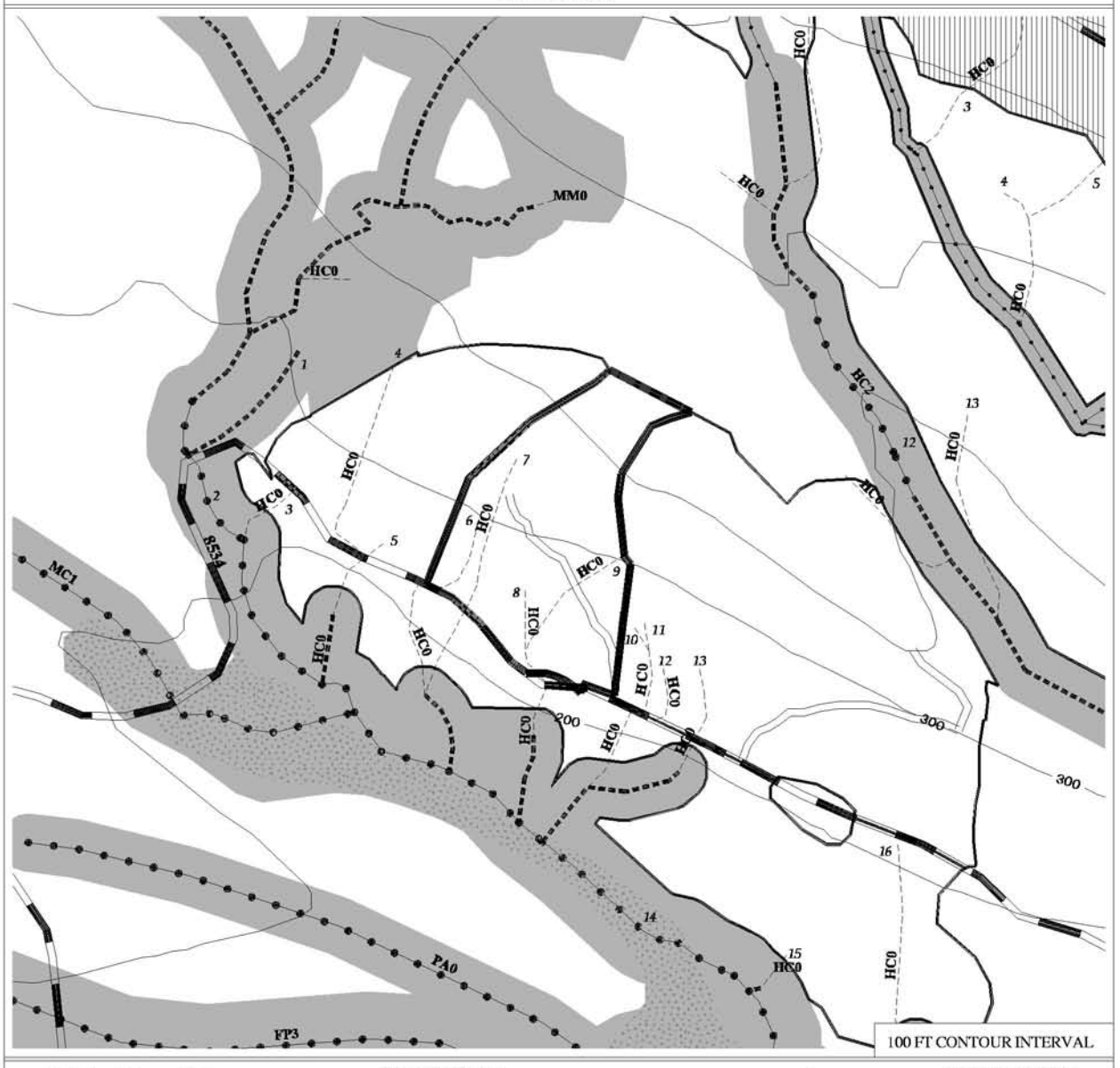
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 108 VCU: 2100 HARVEST SYSTEM: Shovel

UNIT 108 OCCURS IN ALTERNATIVE(S): 3

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**108**	**In Alternatives:**	3	**Total Unit Acres:**	12.5	**Vol Strata Acres:**	High: 0 Med: 0 Low: 12.5
VCU Number:	2100	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	110	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of 12-24" DBH western hemlock (57% BA), 12-30" DBH mountain hemlock (24% BA) and scattered 20-40" DBH spruce (19% BA) with a minor component of yellow-cedar primarily in the northern portion of the unit. Wind risk is estimated to be high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (127 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 85342 accesses unit from existing Road 8534. Road location will be flagged by USFS prior to harvest.

BOTANY RESOURCES: Numerous rare plant populations; largely open-forested wetland habitat.
Response: stay out of wetland corridor in Unit 108 above road 85342 and leave a buffer around the large muskeg to N of this road. This will leave a 5-10 acre area of low volume forested wetland (if combined with a leave zone in Unit 1081)

FISH/WATERSHED: **Concern:** Stream 1 is a Class II HC. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Stream 2 is a Class II MM channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** Lower segments of streams 4, 6, 8, 10, 13, and 16 are Class II HC channels. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Upper segments of streams 4, 6, 8, 10, 13, and 16, and all of streams 3, 5, 7, 9, 11, 12, and 15 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in streamcourses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Windthrow risk is moderate to high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers. **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: Slopes range from 5-25% in Unit 108. About half of this unit is wetland, both forested and non forested. **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in Unit 108. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. Do not operate the shovel in non-forested areas. (BMP 13.2 and 13.9) **Concern:** Proposed temporary road is entirely located on wetlands in the southern portion of the unit. **Response:** Provide adequate cross drainage, remove structures and close the road after harvest. (BMP 14.9) (33 CFR BMPs 4, 5, 6)
WILDLIFE: Concern: Unit is located in a potential travel corridor that may maintain connectivity to the OG LUD. **Response:** Proposed harvest system will retain 50% of the basal area. Retention will help to maintain connectivity. Western portion of the unit was deferred to maintain connectivity. Do not extend unit boundary to the north or west. **Concern:** Northwest boundary is close to goshawk nest buffer. **Response:** Ensure that unit boundary does not enter nest buffer. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer. Road construction and harvest activities are restricted between March 15 and August 15 within 600 feet of active goshawk nest sites. **Concern:** High bear use was observed south of the unit along Iyouktug Creek. **Response:** Unit south of FR 8534 was deferred to maintain bear habitat. Ensure that unit boundary does not extend south of FR 8534.

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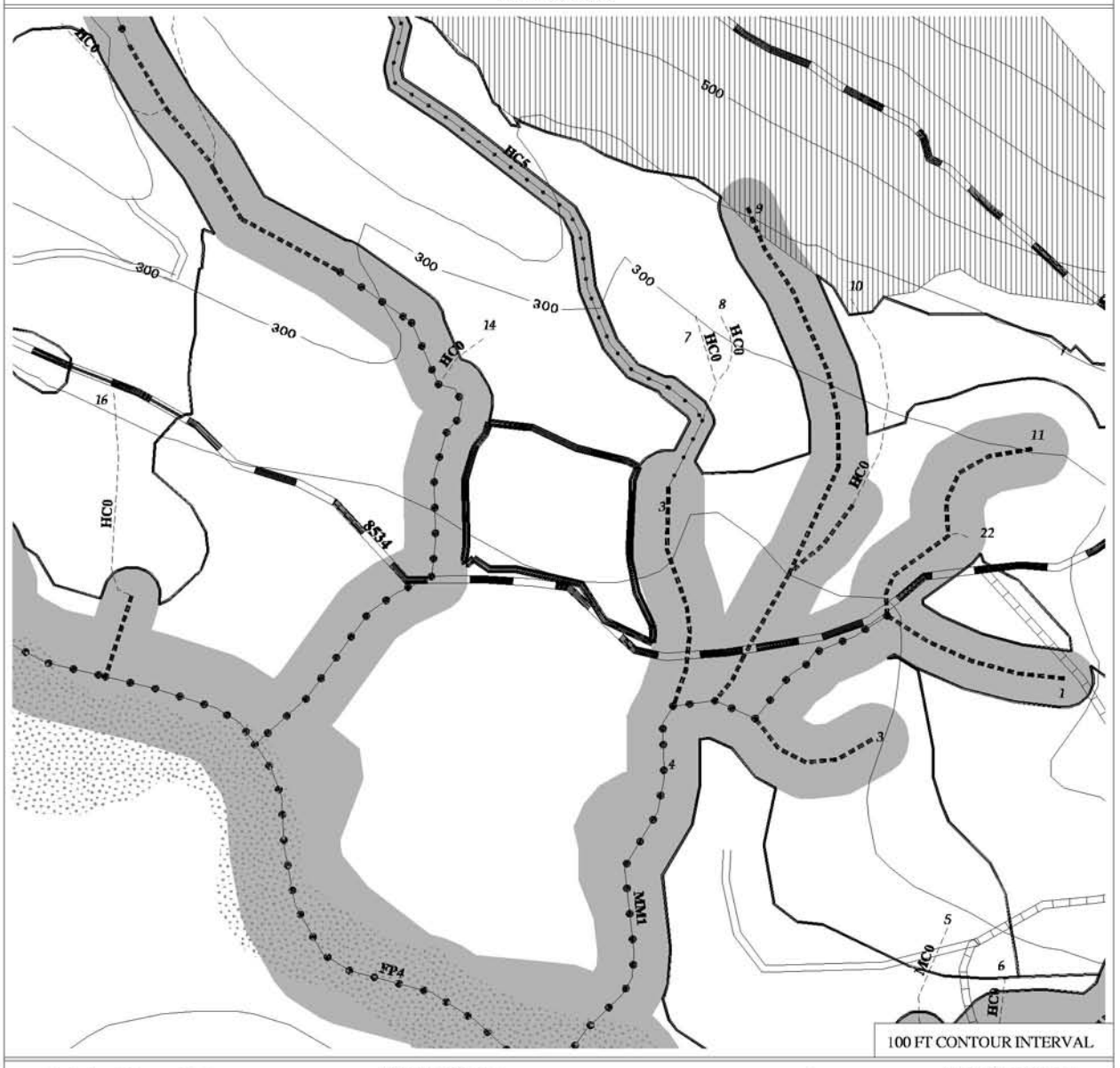
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 109 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 109 OCCURS IN ALTERNATIVE(S): 2 3 4 5

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

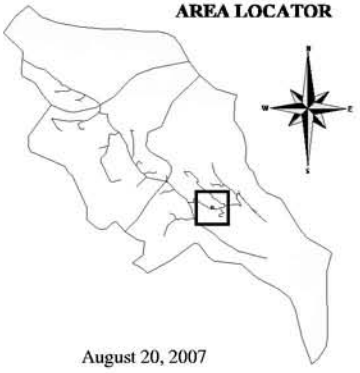
Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**109**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	7.0	**Vol Strata Acres:**	High: 0 Med: 0 Low: 7.0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	101	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of 9-30" DBH western hemlock (70% BA) and scattered 24-40" DBH spruce (30% BA). There is an area of older windthrow in the southeast corner with dense regeneration. Wind risk is estimated to be high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery requirements, uses an economical regeneration method and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: The unit is bounded on the east and west by buffered streams that require RAW zones (refer to fish/watershed section). This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16” DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: The western portion of the unit is bounded by a Class II, HC channel type stream. The unit begins at the edge of the required 100-foot no-cut buffer and side-slope break. **Concern:** Stream 3 is Class II MM channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: slopes range from 25-45% in Unit 109. Most of the unit is forested wetland. A minimum of partial suspension is required to meet soil and wetland standards. (BMPs 12.5, 13.9)

WILDLIFE: No concerns

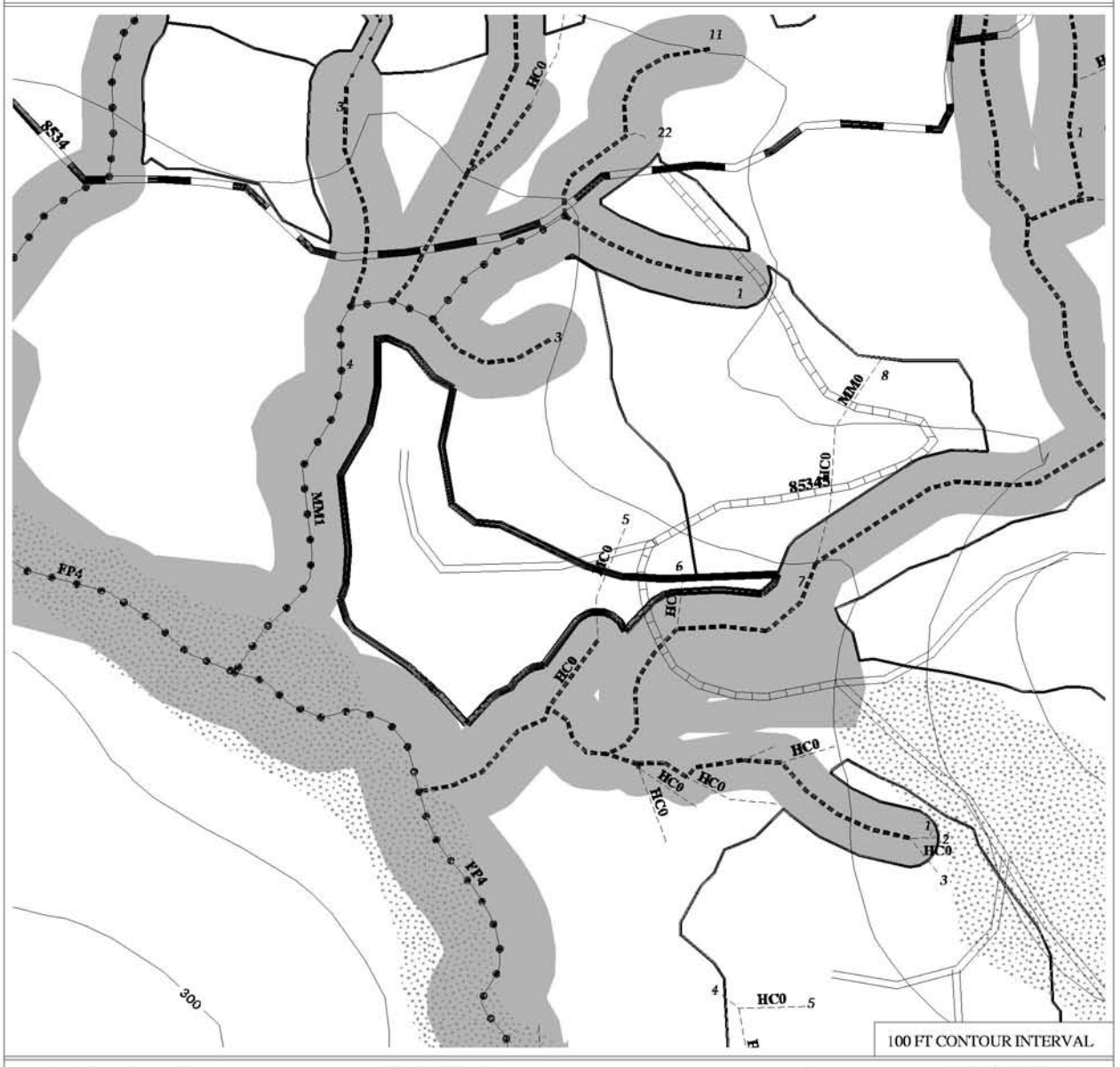
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 110 VCU: 2100 HARVEST SYSTEM: Shovel

UNIT 110 OCCURS IN ALTERNATIVE(S): 2

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**110**	**In Alternatives:**	2	**Total Unit Acres:**	14.9	**Vol Strata Acres:**	High: 0 Med: 0 Low: 14.9
VCU Number:	2100	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	131	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of relatively stunted western hemlock (54% BA) and mountain hemlock (8% BA) and spruce (40% BA) with some scattered yellow-cedar. Hemlock advanced regeneration is abundant. The stand is flat and generally wet. Wind risk is estimated to be low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (107 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 110A accesses unit from existing Road 8534 via planned NFSR 85345. Road location will be flagged by USFS prior to harvest.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 3 is a Class II MM channel type and Stream 4 is a Class I MM channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** The upper part of stream 5 and all of stream 6 are Class IV HC channel types. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in streamcourses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16). The lower portion of stream 5 is class II HC and AF channel types. **Response:** Category A protection (BMP 12.6, 13.14). For HC: No harvest within 100 feet and side-slope break (RIP III). For AF: No harvest within 140 feet and active portion of the fan (RIP III). **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 10-35% in Unit 110. Most of the unit is forested wetland. (BMP 12.5) . **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in Unit 110. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. Do not operate the shovel in non-forested areas. (BMP 13.2 and 13.9) **Concern:** Proposed temporary road is entirely located on wetlands as the most of the unit and surrounding area is wetland. **Response:** Provide adequate cross drainage, remove structures and close the road after harvest. (BMP 14.9) (33 CFR BMPs 4, 5, 6) This unit should be visited fy07

WILDLIFE: No concerns

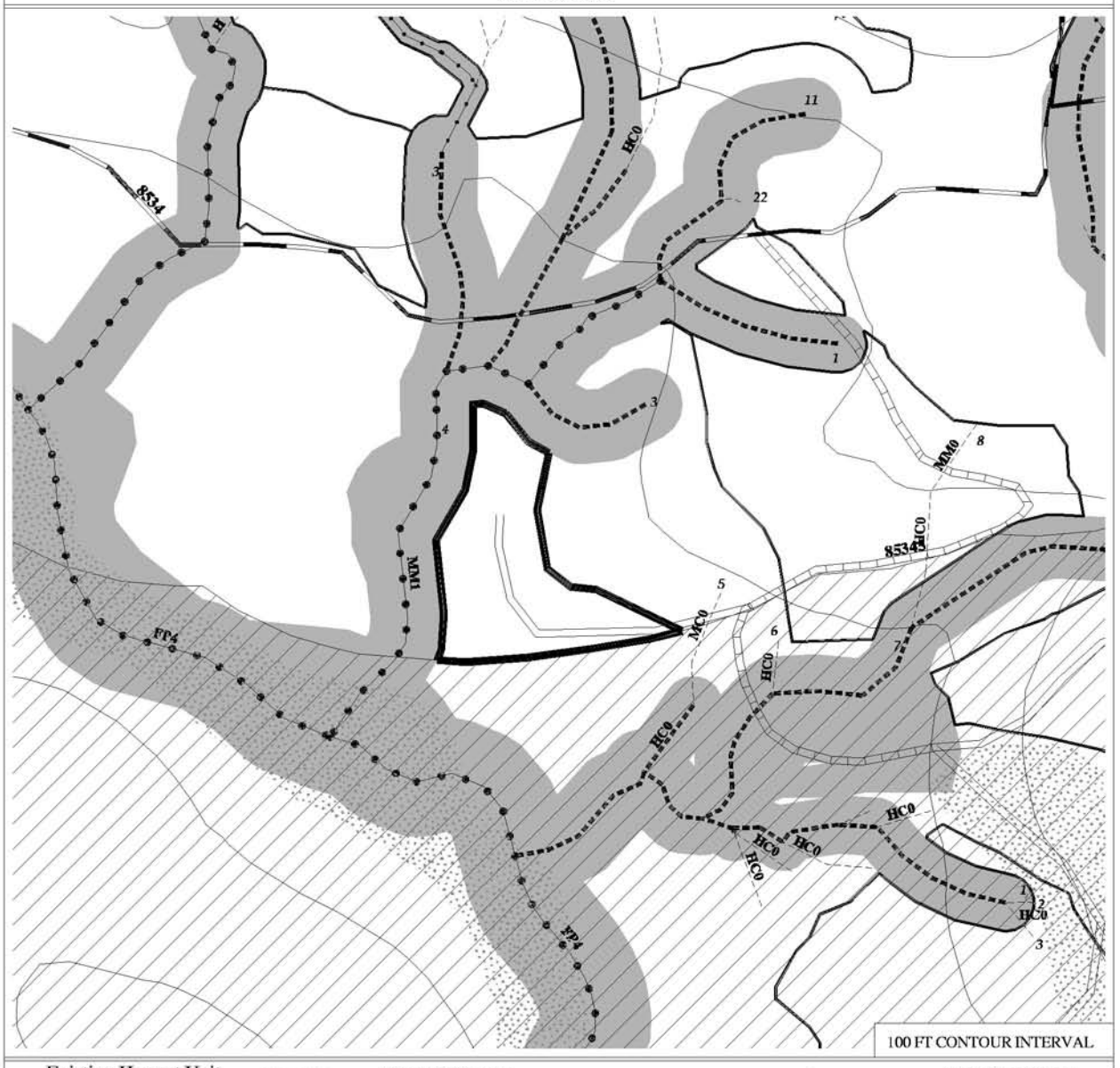
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 110 VCU: 2100 HARVEST SYSTEM: Shovel

UNIT 110 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**110**	**In Alternatives:**	4	**Total Unit Acres:**	8.0	**Vol Strata Acres:**	High: 0 Med: 0 Low: 8.0
VCU Number:	2100	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	70	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of relatively stunted western hemlock (54% BA) and mountain hemlock (8% BA) and spruce (40% BA) with some scattered yellow-cedar. Hemlock advanced regeneration is abundant. The stand is flat and generally wet. Wind risk is estimated to be low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (107 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 110A accesses unit from existing Road 8534 via planned NFSR 85345. Road location will be flagged by USFS prior to harvest.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 3 is a Class II MM channel type and Stream 4 is a Class I MM channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** The upper part of stream 5 and all of stream 6 are Class IV HC channel types. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in streamcourses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16). The lower portion of stream 5 is class II HC and AF channel types. **Response:** Category A protection (BMP 12.6, 13.14). For HC: No harvest within 100 feet and side-slope break (RIP III). For AF: No harvest within 140 feet and active portion of the fan (RIP III). **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 10-35% in Unit 110. Most of the unit is forested wetland. (BMP 12.5) . **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in Unit 110. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. Do not operate the shovel in non-forested areas. (BMP 13.2 and 13.9) **Concern:** Proposed temporary road is entirely located on wetlands as the most of the unit and surrounding area is wetland. **Response:** Provide adequate cross drainage, remove structures and close the road after harvest. (BMP 14.9) (33 CFR BMPs 4, 5, 6) This unit should be visited fy07

WILDLIFE: No concerns

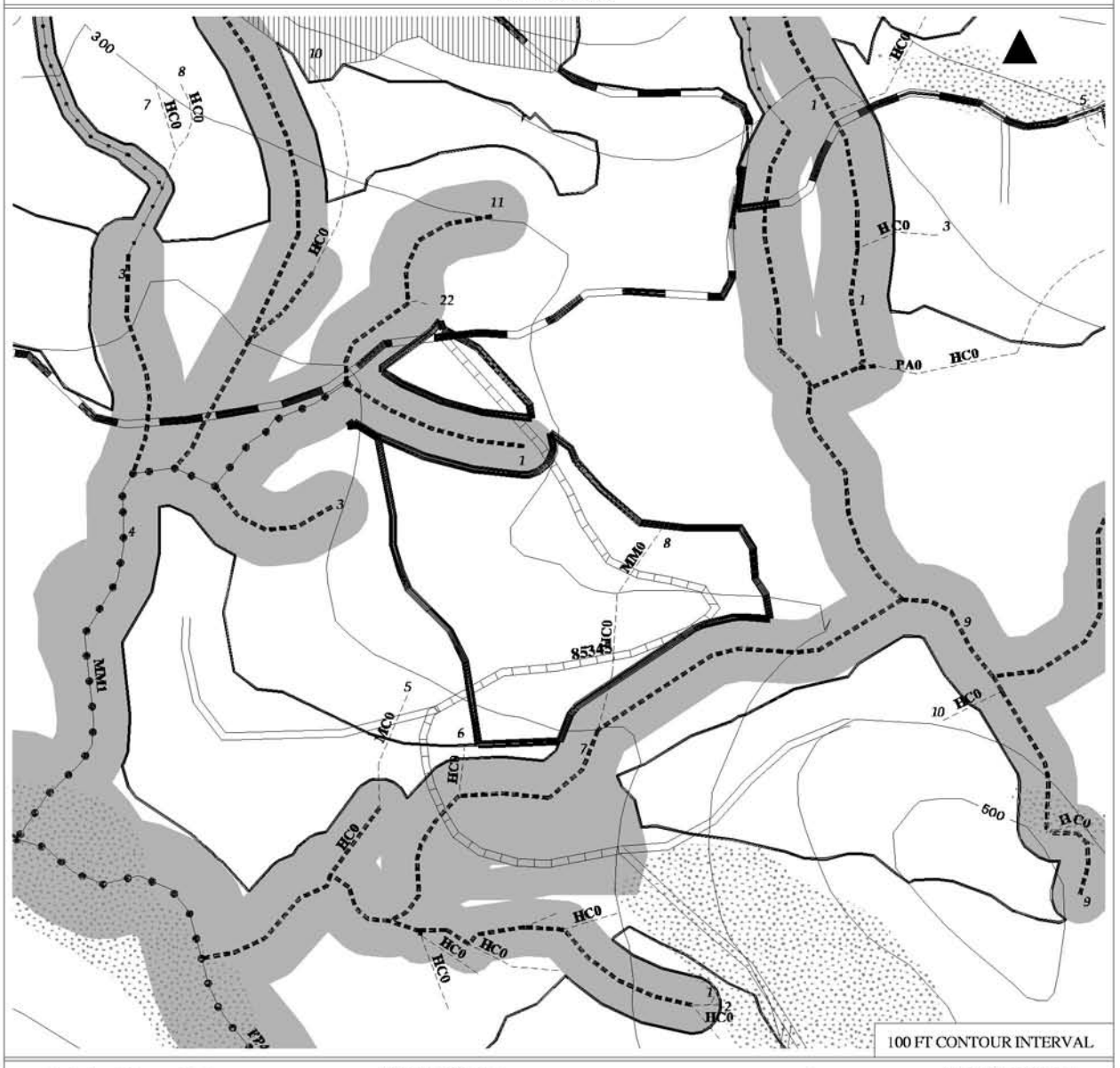
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 111 VCU: 2100 HARVEST SYSTEM: Shovel

UNIT 111 OCCURS IN ALTERNATIVE(S): 2 3 5

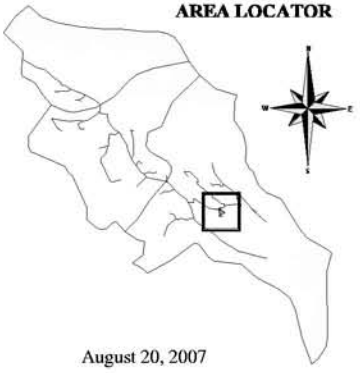
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**111**	**In Alternatives:**	2, 3, 5	**Total Unit Acres:**	20.8	**Vol Strata Acres:**	High: 0 Med: 0 Low: 20.8
VCU Number:	2100	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	182	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of 9-35" DBH western hemlock (47% BA), 9-20" DBH mountain hemlock (24% BA) and 9-20" DBH yellow-cedar (30% BA). Hemlock advanced regeneration is abundant. Yellow-cedar regeneration is less abundant but common. The stand is flat and relatively wet. Wind risk is estimated to be high over the entire unit.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (213 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: NFSR 85345 accesses unit from existing Road 8534. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1 and 7 are Class II HC channel types. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Streams 2, 6 and the lower portion of stream 8 are Class IV HC channel types. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in streamcourses and will not cross streams without a temporary structure (BMP 13.9, 13.14) Remove logging debris from channel (BMP 13.16). tream 3 is a Class II MM channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** Stream 7 is class II HC and MM channel types. **Response:** Category A protection (BMP 12.6, 13.14). For HC: No harvest within 100 feet and side-slope break (RIP III). For MM: No harvest within 120 feet of channel (RIP III). **Concern:** Windthrow risk is high over entire unit. **Response:** Manage for windfirmness 120 feet beyond all no-cut buffers on the windward side.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 10-35% in Unit 111. There are about 4 acres of wetland in the unit. (BMP 12.5) There are about 2 acres of slopes greater than 25% along the eastern boundary of Unit 111. **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in Unit 111. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. Do not operate the shovel in non-forested areas. (BMP 13.2 and 13.9) **Concern:** Shovel yarding may cause rutting due to slopes greater then 25%. **Response:** Do not operate shovel on slopes greater than 25%. Utilize the boom, a short choker or cable to remove logs from steeper slopes or directionally fall the trees instead.

WILDLIFE: No concerns

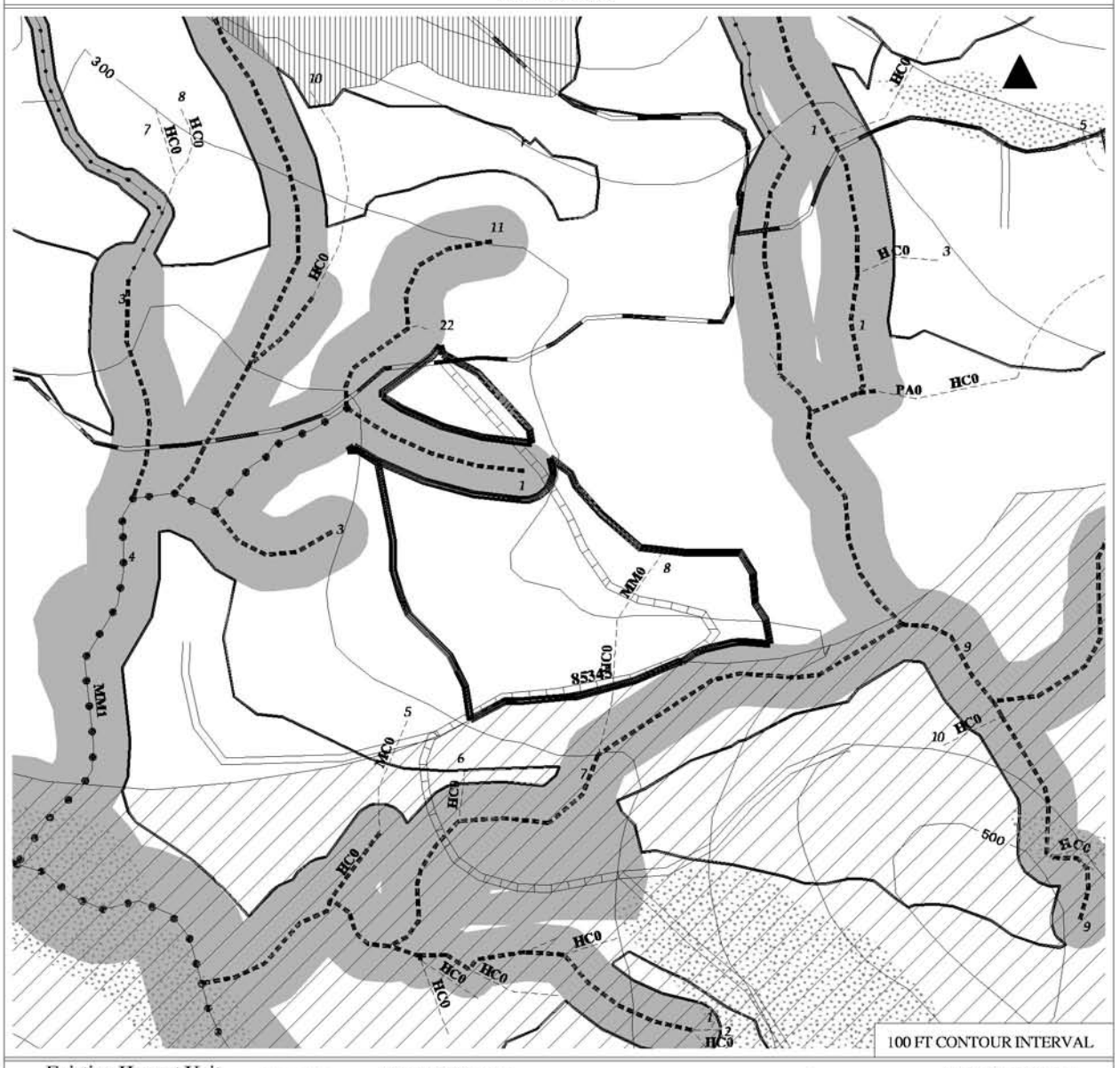
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 111 VCU: 2100 HARVEST SYSTEM: Shovel

UNIT 111 OCCURS IN ALTERNATIVE(S): 4

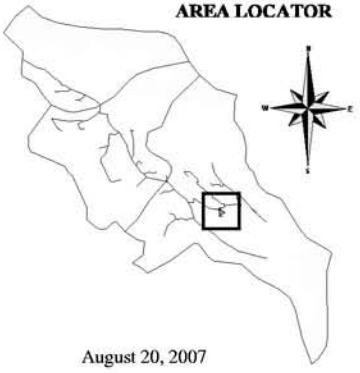
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**111**	**In Alternatives:**	4	**Total Unit Acres:**	18.5	**Vol Strata Acres:**	High: 0 Med: 0 Low: 18.5
VCU Number:	2100	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	162	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of 9-35" DBH western hemlock (47% BA), 9-20" DBH mountain hemlock (24% BA) and 9-20" DBH yellow-cedar (30% BA). Hemlock advanced regeneration is abundant. Yellow-cedar regeneration is less abundant but common. The stand is flat and relatively wet. Wind risk is estimated to be high over the entire unit.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (213 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: NFSR 85345 accesses unit from existing Road 8534. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1 and 7 are Class II HC channel types. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Streams 2, 6 and the lower portion of stream 8 are Class IV HC channel types. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in streamcourses and will not cross streams without a temporary structure (BMP 13.9, 13.14) Remove logging debris from channel (BMP 13.16). tream 3 is a Class II MM channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** Stream 7 is class II HC and MM channel types. **Response:** Category A protection (BMP 12.6, 13.14). For HC: No harvest within 100 feet and side-slope break (RIP III). For MM: No harvest within 120 feet of channel (RIP III). **Concern:** Windthrow risk is high over entire unit. **Response:** Manage for windfirmness 120 feet beyond all no-cut buffers on the windward side.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 10-35% in Unit 111. There are about 4 acres of wetland in the unit. (BMP 12.5) There are about 2 acres of slopes greater than 25% along the eastern boundary of Unit 111. **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in Unit 111. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. Do not operate the shovel in non-forested areas. (BMP 13.2 and 13.9) **Concern:** Shovel yarding may cause rutting due to slopes greater then 25%. **Response:** Do not operate shovel on slopes greater than 25%. Utilize the boom, a short choker or cable to remove logs from steeper slopes or directionally fall the trees instead.

WILDLIFE: No concerns

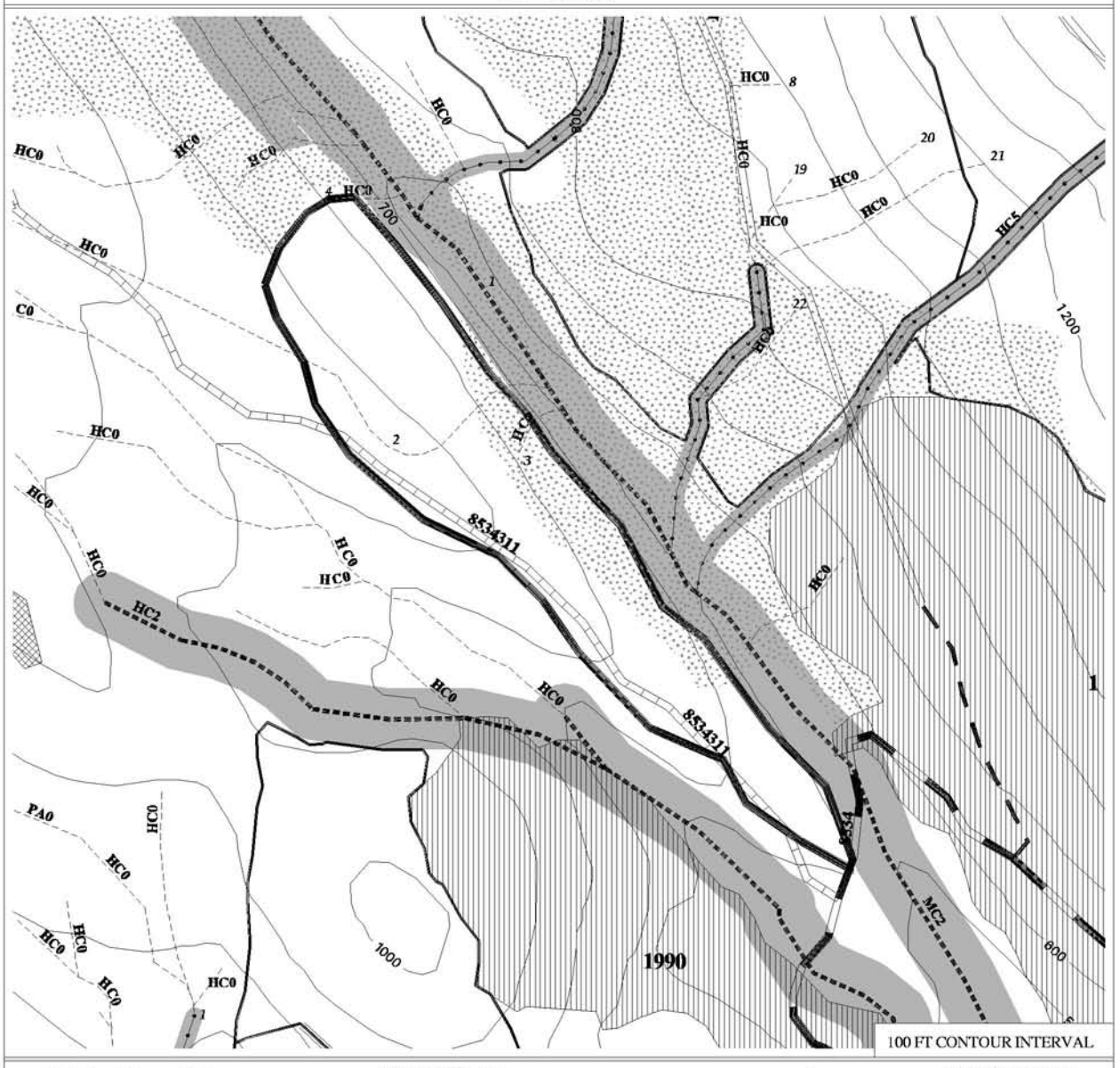
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 114 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 114 OCCURS IN ALTERNATIVE(S): 2 3 5

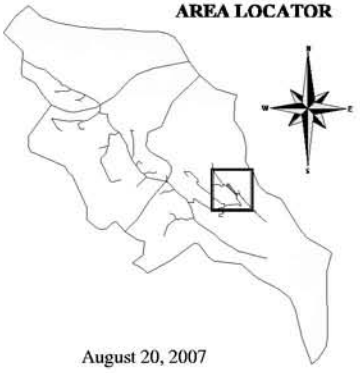
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**114**	**In Alternatives:**	2, 3, 5	**Total Unit Acres:**	25.9	**Vol Strata Acres:**	High: 4.8 Med: 21.1 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	508	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of primarily even-aged 14-28" DBH spruce (48% BA) and hemlock (48% BA). This is a wind generated stand with a high stem count and low defect. Devil's club dominates understory. Wind risk is high throughout unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains a class 4 stream with a RAW zone. For RAW zone retain trees less than 16” DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. A high wind risk boundary may be created in the NW corner using the RAW zone criteria above. Review during layout to determine if windfirming in warranted. This unit contains greater than 2 acres of high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees and locate in RAW zone where possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of three cable settings. The northern-most setting accesses the area north of stream #2, a class IV stream that requires split yarding. The other two settings access the remaining area and are defined by a logical setting break based on topography and lateral yarding capabilities. There are some limited shovel yarding opportunities near the road.

ENGINEEERING/ROADS: NFSR 8534311 accesses unit from existing Road 8534. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 1 is Class II HC and MC channel types. **Response:**Category A protection (BMP 12.6, 13.14). For MC: No harvest within 100 feet of channel and side-slope break. (RIP III). For HC: No harvest within 100 feet and side-slope break (RIP III). **Concern:** Streams 2, 3, and 4are Class IV HC channel types. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 40-61% in Unit 114. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30’’ DBH or larger), 3 snags or decadent trees/acre (20-30’’ DBH or larger), and 3 large, downed trees/acre (20-30’’ DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Recommend that this retention be maintained adjacent to the stream buffer to maintain travel corridor and wind firmness.

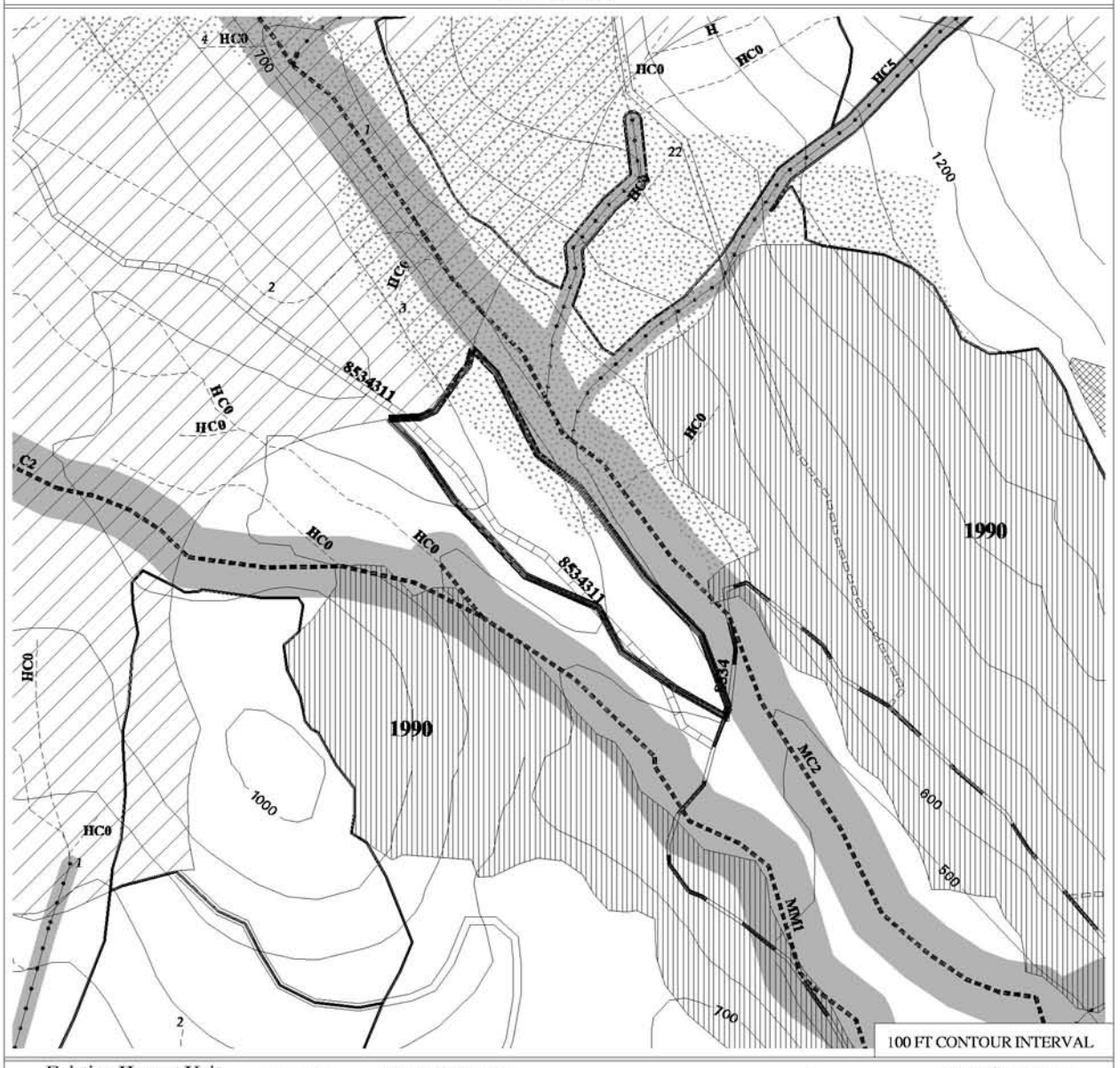
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 114 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 114 OCCURS IN ALTERNATIVE(S): 4

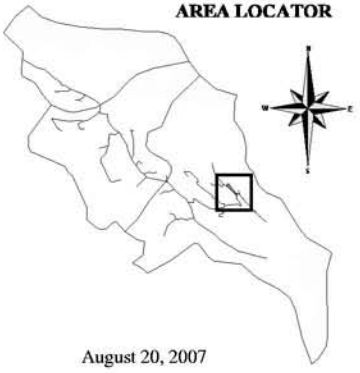
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**114**	**In Alternatives:**	4	**Total Unit Acres:**	9.4	**Vol Strata Acres:**	High: 2.2 Med: 7.2 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	185	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of primarily even-aged 12-32" DBH spruce (48% BA) and hemlock (48% BA). This is a wind generated stand with a high stem count and low defect. Devil's club dominates understory. Wind risk is high throughout unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: A high wind risk boundary may be created in the NW corner of unit. Review during layout to determine if windfirming in warranted. This unit contains greater than 2 acres of high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities. There are some limited shovel yarding opportunities near the road.

ENGINEEERING/ROADS: NFSR 8534311 accesses unit from existing Road 8534. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 1 is Class II HC and MC channel types. **Response:**Category A protection (BMP 12.6, 13.14). For MC: No harvest within 100 feet of channel and side-slope break. (RIP III). For HC: No harvest within 100 feet and side-slope break (RIP III). **Concern:** Streams 2, 3, and 4are Class IV HC channel types. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 40-61% in Unit 114. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Recommend that this retention be maintained adjacent to the stream buffer to maintain travel corridor and wind firmness.

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 116 VCU: 2100 HARVEST SYSTEM: Cable

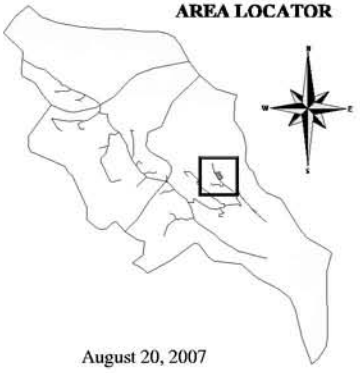
UNIT 116 OCCURS IN ALTERNATIVE(S): 2 3 5

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**116**	**In Alternatives:**	2, 3, 5	**Total Unit Acres:**	34.3	**Vol Strata Acres:**	High: 34.3 Med: 0 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	769	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of primarily even-aged 12-43" DBH spruce (49% BA), 12-43" DBH western hemlock (36% BA) and 20-40" DBH mountain hemlock (36% BA). This is a wind generated stand with a high stem count and low defect. Devil's club dominates understory. Wind risk is high throughout unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers and RAW zones. For RAW zones retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffers. This entire unit is high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees and locate in RAW zones where possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: NFSR 853431 accesses unit from existing Road 8534 via planned NFSR 8534311. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Streams 11, 12, 13, 14, 15, 16, 17 and the upper portion of stream 10 are Class IV HC channel types. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** The lower portion of stream 10 is Class III HC channel type. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 45-75% in Unit 116. There is less than 2 acres of slopes over 72% in the unit. The soils are shallow to bedrock and well-drained. The areas greater than 72% are small rock-outcrops that are very stable. There is no evidence of past landslides in this area. These small areas are suitable for the proposed cable harvest using full suspension (BMP 13.9). A minimum of patrial suspension is required to meet soil quality standards in the rest of unit 116.

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Recommend that this retention be maintained adjacent to north stream buffer adjacent to Unit 117 to maintain wind firmness.

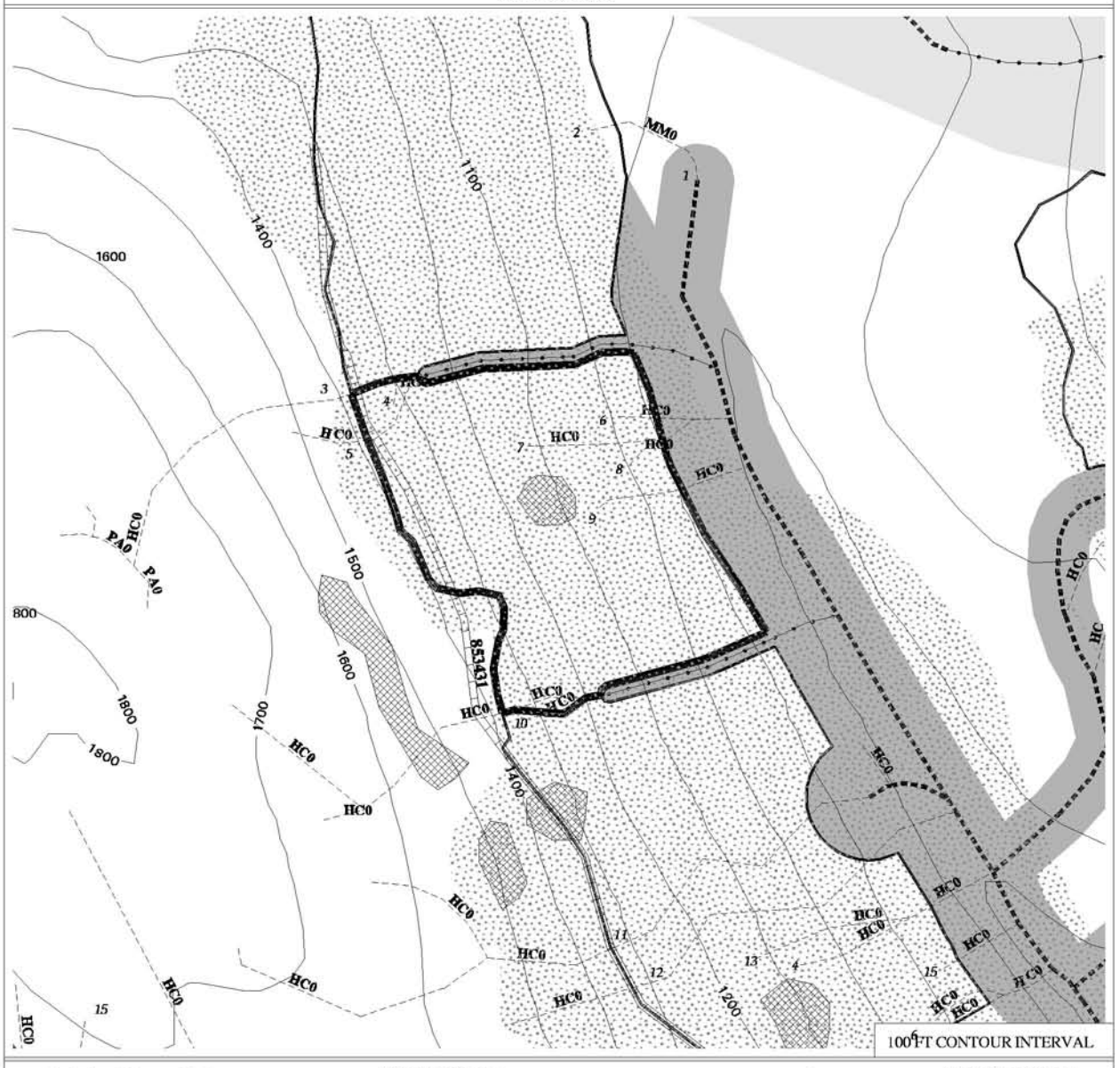
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 117 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 117 OCCURS IN ALTERNATIVE(S): 2 3 5

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**117**	**In Alternatives:**	2, 3, 5	**Total Unit Acres:**	25.3	**Vol Strata Acres:**	High: 25.3 Med: 0 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	568	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of primarily even-aged 9-40" DBH spruce (25% BA), 9-40" DBH western hemlock (53% BA) and 12-30" DBH mountain hemlock (21% BA). This is a wind generated stand with a high stem count and low defect. Devil's club dominates understory. Wind risk is high throughout unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers and RAW zones. For RAW zones retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffers. This entire unit is high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees and locate in RAW zones where possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: NFSR 853431 accesses unit from existing Road 8534 via planned NFSR 8534311. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Streams 3, 5, 6, 7, 8, 9 and the upper portions of 4 and 10 are class IV HC channel types. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** The lower portions of streams 4 and are 10 is Class III HC channel type. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Manage 120 feet beyond v-notch for windfirmness on Class III portions of streams 4 and 10.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 45-80% in Unit 117. There is less than 1/2 acre of slopes greater than 72% in a small rock outcrop. Full suspension is required in this area. A minimum of partial suspension is required in the rest of Unit 117 to meet soil quality standards (BMP 13.9).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Recommend that this retention be maintained adjacent to the north or south stream buffer adjacent to either or both Units 116 and 118 to maintain wind firmness.

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 118 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 118 OCCURS IN ALTERNATIVE(S): 2 3 5

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**118**	**In Alternatives:**	2, 3, 5	**Total Unit Acres:**	33.5	**Vol Strata Acres:**	High:32.6 Med: 0.9 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	748	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of primarily even-aged 9-40" DBH spruce (25% BA), 9-40" DBH western hemlock (53% BA) and 12-30" DBH mountain hemlock (21% BA). This is a wind generated stand with a high stem count and low defect. Devil's club dominates understory. Wind risk is high throughout unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers and RAW zones. For RAW zones retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffers. The majority of this unit is high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees and locate in RAW zones where possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: NFSR 853431 accesses unit from existing Road 8534 via planned NFSR 8534311. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 1 is Class II MM channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). Manage 120 feet beyond RMA buffer for windfirmness.**Concern:** stream 2 is class IV HC channel type. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-60% in Unit 118. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Recommend that this retention be maintained adjacent to the south stream buffer adjacent to Unit 117 to maintain wind firmness.

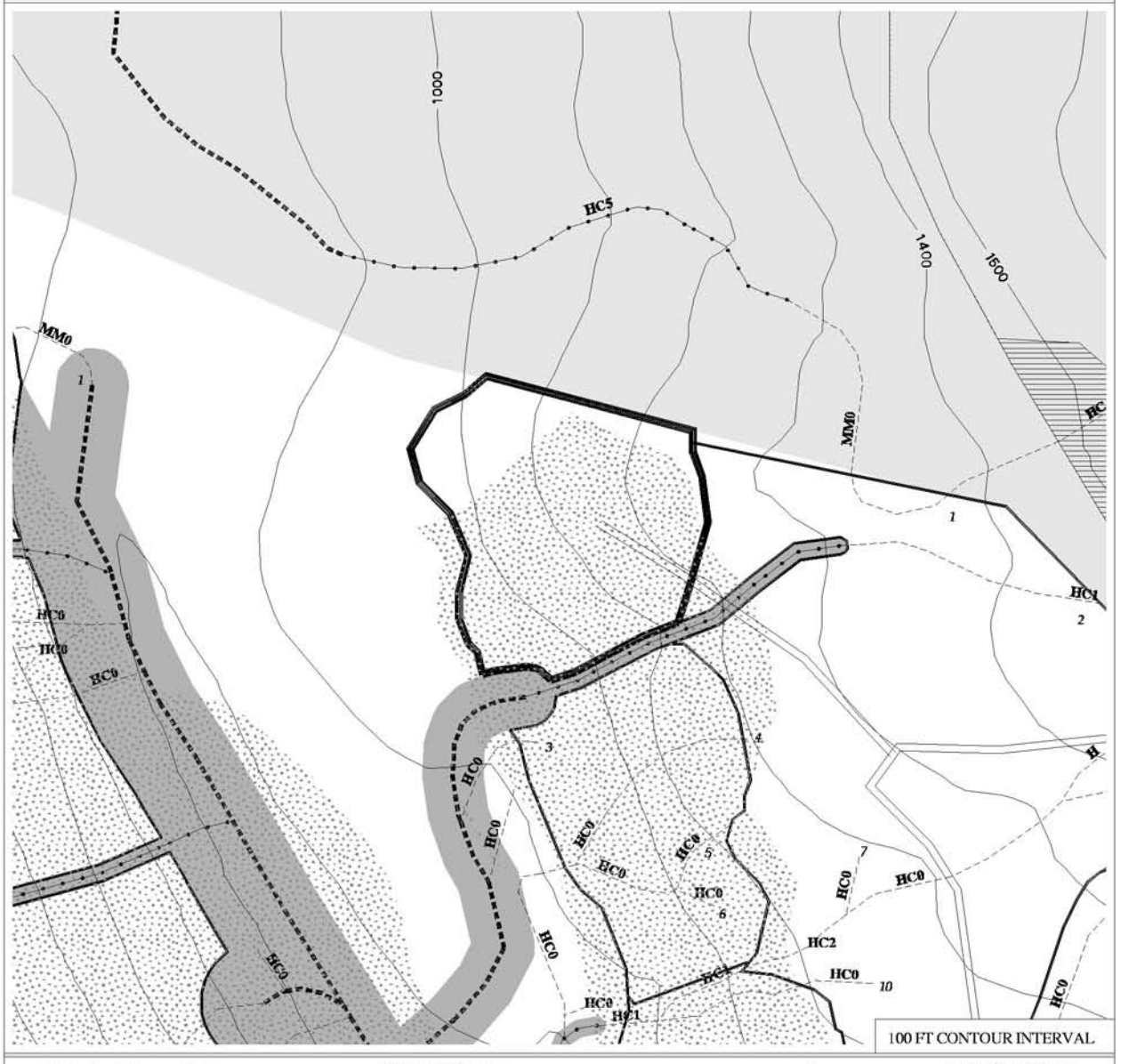
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 119 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 119 OCCURS IN ALTERNATIVE(S): 2

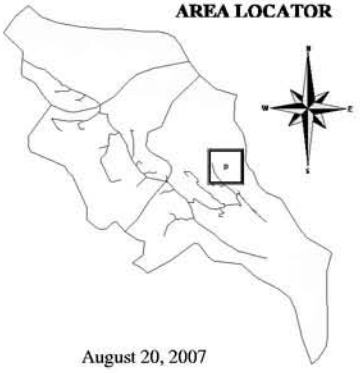
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**119**	**In Alternatives:**	2	**Total Unit Acres:**	18.0	**Vol Strata Acres:**	High 13.4 Med: 4.4 Low: 0.2
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	387	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of primarily even-aged 16-43" DBH spruce (38% BA) and 12-28 " DBH western hemlock (62% BA). This is mainly a wind generated stand with a high stem count and low defect. The majority of the trees are in 16-24" diameter classes. Well drained soils characterize the stand. Wind risk is high throughout unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains a stream buffer along the southern boundary and splits units 119 and 120. The RAW zone will be included in Unit 120 (refer to fish/watershed section). A high wind risk boundary may be created in the NW side of unit using the RAW zone tree retention criteria. Review during layout to determine if windfirming is warranted. The majority of this unit is high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees where possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: Temporary road 85344C accesses unit from existing Road 8534 via planned temporary road 85344. New construction of 85344 begins after 0.19 miles of reconstruction. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: The middle portion of stream 2 is Class III HC channel type. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** The lower portion of stream 2 is class II HC channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). Manage 120 feet beyond no-harvest buffers for windfirmness.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 30-65% slope in Unit 119. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Recommend that this retention be maintained adjacent to the south stream buffer adjacent to Unit 120 to maintain wind firmness.

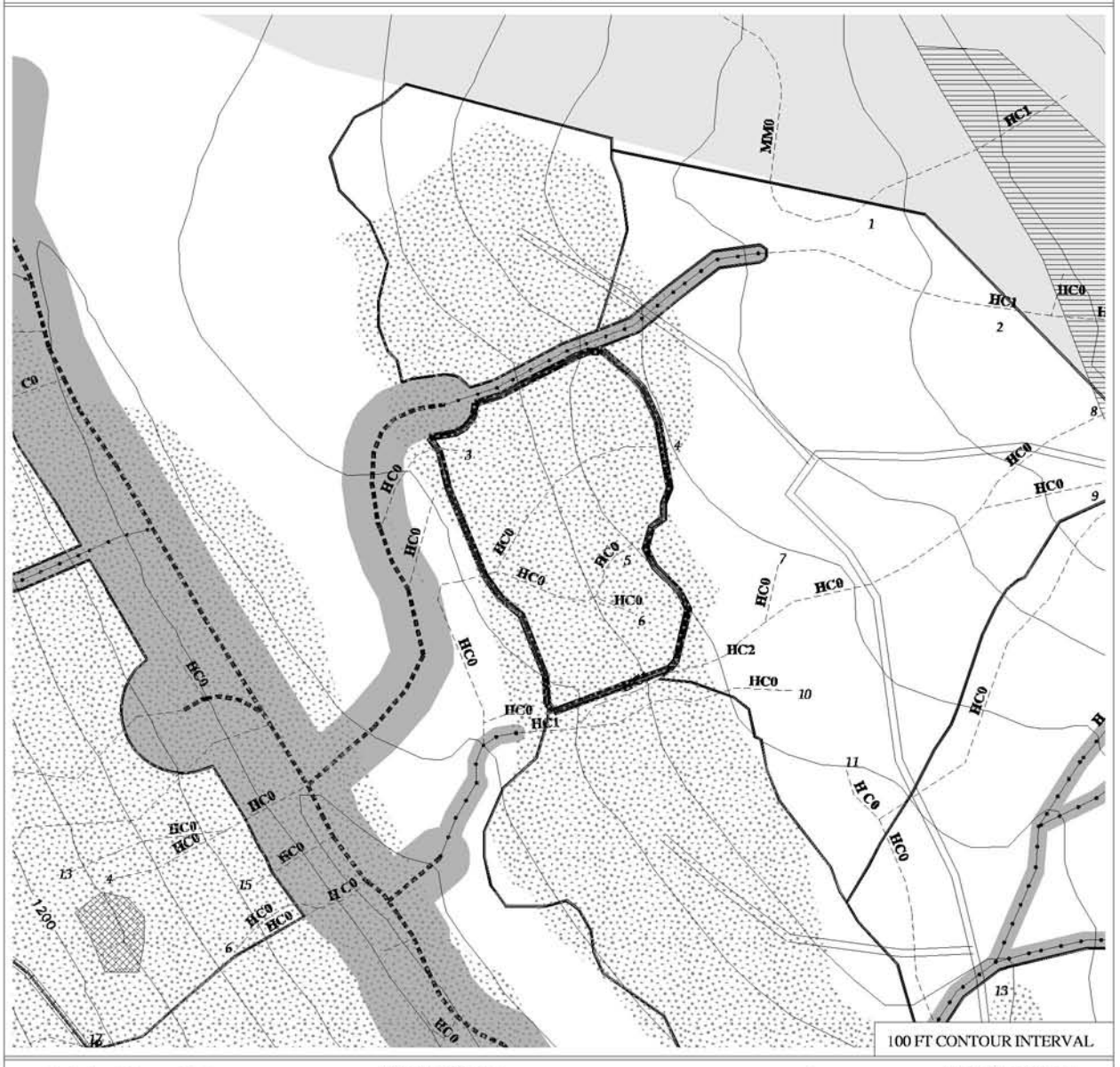
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 120 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 120 OCCURS IN ALTERNATIVE(S): 2

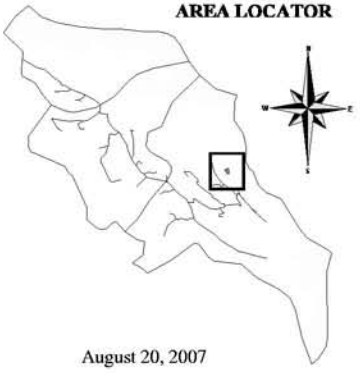
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**120**	**In Alternatives:**	2	**Total Unit Acres:**	16.2	**Vol Strata Acres:**	High: 16.2 Med: 0 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	365	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of primarily even-aged 12-35" DBH spruce (42% BA) and 12-40 " DBH western hemlock (58% BA). This is mainly a wind generated stand with a high stem count and low defect. The majority of the trees are in 16-24" diameter classes. Well drained soils characterize the stand. Wind risk is high throughout unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains a stream buffer along the northern boundary with a RAW zone. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffers. The majority of this unit is high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees and locate in RAW zones where possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of one cable setting. The landing is located on Road 85344C in Unit 123. Both this unit and Unit 123 should be logged concurrently.

ENGINEEERING/ROADS: Temporary road 85344C accesses unit from existing Road 8534 via planned temporary road 85344. New construction of 85344 begins after 0.19 miles of reconstruction. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** The middle portion of stream 2 is Class III HC channel type. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** The lower portion of stream 2 is class II HC channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Streams 3, 4, 5, 6 and, 7 are Class IV HC channel types. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Wind risk is high throughout unit. **Response:** Manage 120 feet beyond all no-harvest buffers for windfirmness.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-65% slope in Unit 120. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Recommend that this retention be maintained adjacent to the north stream buffer adjacent to Unit 119 to maintain wind firmness.

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 121 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 121 OCCURS IN ALTERNATIVE(S): 3 5

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**121**	**In Alternatives:**	3, 5	**Total Unit Acres:**	37.1	**Vol Strata Acres:**	High: 32.7 Med: 4.1 Low: 0.3
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	816	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of primarily even-aged 12-40" DBH spruce (31% BA) and 12-40 " DBH western hemlock (69% BA). This is mainly a wind generated stand with a high stem count and low defect. The majority of the trees are in 16-24" diameter classes. Well drained soils characterize the stand. Wind risk is high throughout unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains a stream buffer along the southern boundary and splits units 121 and 122. The RAW zone will be included in Unit 122 (refer to fish/watershed section) The majority of this unit is high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees where possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities. There are some limited shovel yarding opportunities near the road.

ENGINEEERING/ROADS: Temporary road 22 accesses unit from existing Road 8534 via planned temporary road 85344. New construction of 85344 begins after 0.19 miles of reconstruction. Road location will be flagged by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 8 is a Class IV HC channel with unstable side-slopes. **Response:** Category C protection (BMP 12.6, 13.14) with split yard or full suspension to protect v-notch. **Concern:** Stream 10 is a Class IV HC channel. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 13 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Manage for windfirmness 120 feet from v-notch (RIP III). **Concern:** Temporary road – stream crossings. **Response:** Log stringer bridge designated for Stream 13. Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 10-30% on benches and from 45-55% between benches in Unit 121. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9) **Concern:** Benchy terrain may limit road location. **Response:** Keep road on top of benches to avoid sidehilling and erosion.

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Recommend that this retention be maintained adjacent to the south stream buffer adjacent to Unit 122 to maintain wind firmness. **Concern:** Red-tailed hawk was observed around unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

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IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 122 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 122 OCCURS IN ALTERNATIVE(S): 2 3 5

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**122**	**In Alternatives:**	2, 3, 5	**Total Unit Acres:**	55.4	**Vol Strata Acres:**	High: 29.5 Med: 25.9 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	1,357	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: The western portion, near the footslope, consists primarily of even-aged 12-28" DBH western hemlock with scattered spruce. This is a wind generated stand with a high stem count and low defect. The eastern portion, along the backslope, is an older uneven-aged stand comprised of 20-45" DBH trees with a slightly higher spruce component. Wind risk is high throughout unit. There is an area of windthrow associated with previous harvest along the southeastern edge of unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers and RAW zones. For RAW zones retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffers. A high wind risk boundary may be created in the NW side of unit using the RAW zone criteria above. Review during layout to determine if windfirming is warranted. This unit contains greater than 2 acres of high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees and locate in RAW zones where possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of three cable settings. The southern-most setting accesses the area south of stream #17, a class III stream that requires split yarding. The other two settings access the remaining area and are defined by a logical setting break based on topography and lateral yarding capabilities. There are some limited shovel yarding opportunities near the road.

ENGINEEERING/ROADS: Temporary road 85344 accesses unit from existing Road 8534. New construction of 85344 begins after 0.19 miles of reconstruction. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 13, 17 (lower) and 23 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Manage for windfirmness 120 feet from buffer on south side of streams 13 and 17, or increase buffer width if selective harvest is not feasible. Manage for windfirmness 120 feet from buffer north of stream 23. **Concern:** Streams 17 (upper), 18, 19, 20, 21, and 22 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** The lower 100 feet of Stream 21 is a Class IV HC channel with unstable side-slopes. **Response:** Split yard this channel segment or fully suspend across channel. **Concern:** Temporary road – stream crossings. **Response:** Log stringer bridge designated fro Stream 13. Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: Slopes range from 10-30% on benches and from 45-65% between benches in Unit 122. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9) **Concern:** Proposed temporary road crosses about 100' of wetlands while trying to maintain grade. **Response:** Provide adequate cross drainage, remove structures and close the road after harvest. (BMP 14.9) (33 CFR BMPs 4, 5, 6)
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Recommend that this retention be maintained adjacent to the north stream buffer adjacent to Unit 121 to maintain a wider buffer/corridor and wind firmness. **Concern:** Red-tailed hawk was observed around unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

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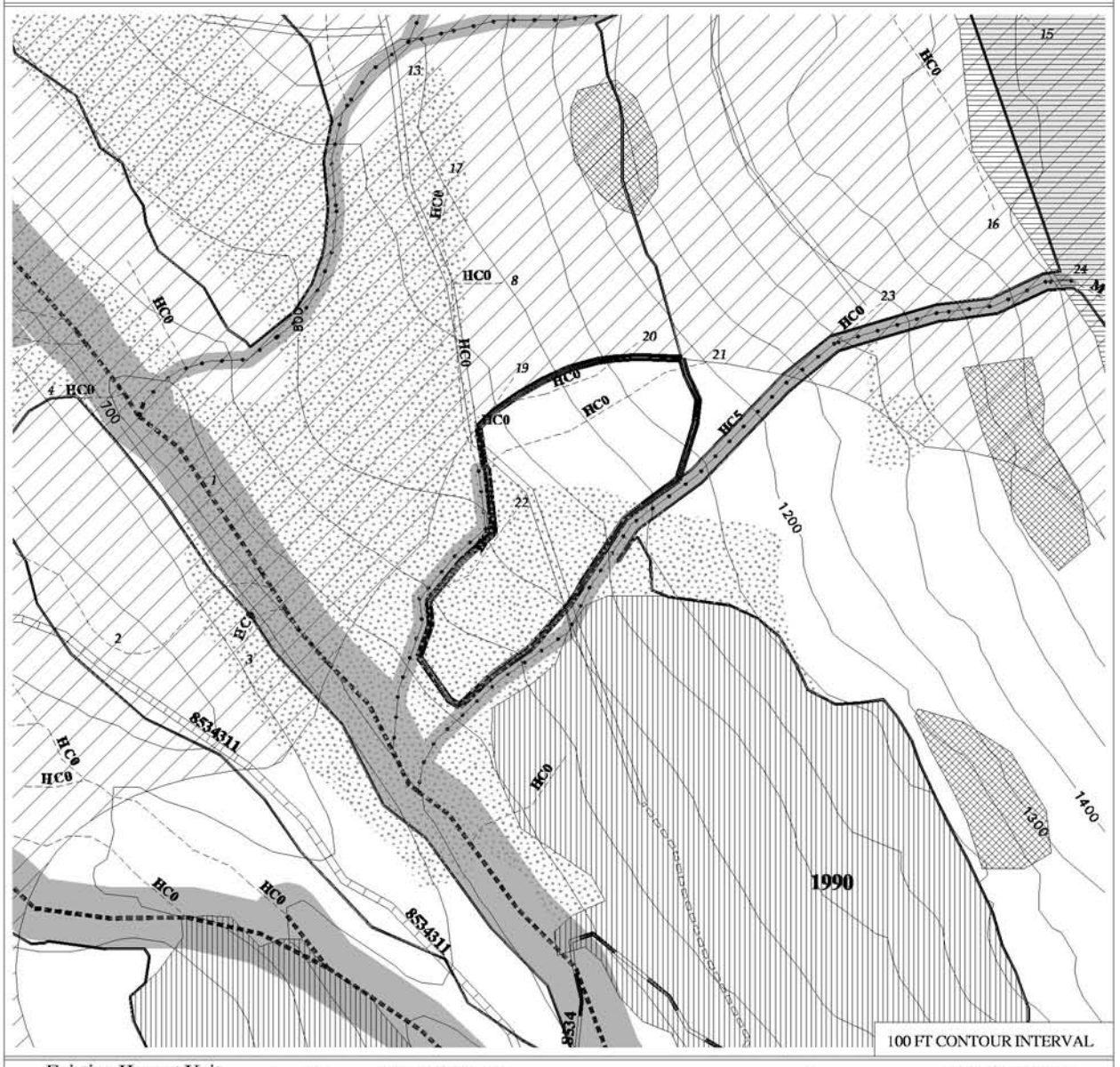
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 122 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 122 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**122**	**In Alternatives:**	4	**Total Unit Acres:**	13.7	**Vol Strata Acres:**	High: 7.1 Med: 6.6 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	336	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: The western portion, near the footslope, consists primarily of even-aged 12-28" DBH western hemlock with scattered spruce. This is a wind generated stand with a high stem count and low defect. The eastern portion, along the backslope, is an older uneven-aged stand comprised of 20-45" DBH trees with a slightly higher spruce component. Wind risk is high throughout unit. There is an area of windthrow associated with previous harvest along the southeastern edge of unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers and RAW zones. For RAW zones retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffers. A high wind risk boundary may be created in the NW side of unit using the RAW zone criteria above. Review during layout to determine if windfirming is warranted. This unit contains greater than 2 acres of high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees and locate in RAW zones where possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: Temporary road 85344 accesses unit from existing Road 8534. New construction of 85344 begins after 0.19 miles of reconstruction. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 13, 17 (lower) and 23 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Manage for windfirmness 120 feet from buffer on south side of streams 13 and 17, or increase buffer width if selective harvest is not feasible. Manage for windfirmness 120 feet from buffer north of stream 23. **Concern:** Streams 17 (upper), 18, 19, 20, 21, and 22 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** The lower 100 feet of Stream 21 is a Class IV HC channel with unstable side-slopes. **Response:** Split yard this channel segment or fully suspend across channel. **Concern:** Temporary road – stream crossings. **Response:** Log stringer bridge designated for Stream 13. Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: Slopes range from 10-30% on benches and from 45-65% between benches in Unit 122. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9) **Concern:** Proposed temporary road crosses about 100' of wetlands while trying to maintain grade. **Response:** Provide adequate cross drainage, remove structures and close the road after harvest. (BMP 14.9) (33 CFR BMPs 4, 5, 6)
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties.

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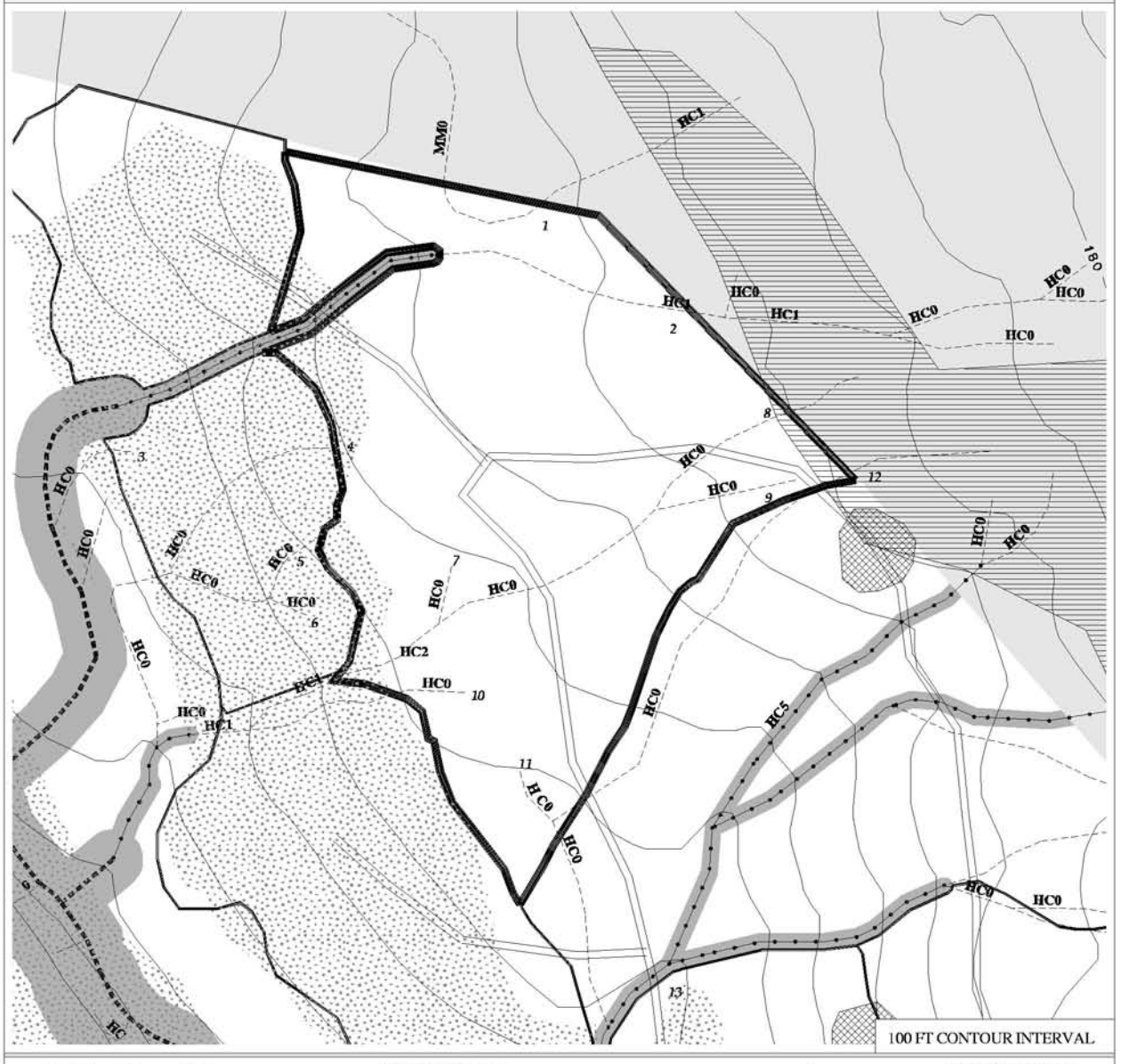
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 123 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 123 OCCURS IN ALTERNATIVE(S): 2

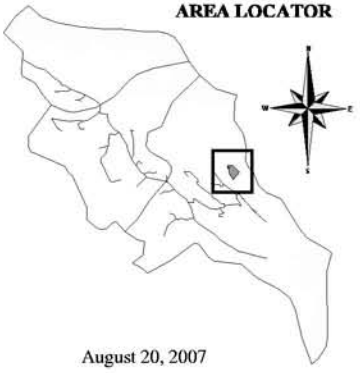
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**123**	**In Alternatives:**	2	**Total Unit Acres:**	62.3	**Vol Strata Acres:**	High: 4.3 Med: 28.5 Low:29.5
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	1,175	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 12-28" DBH mountain hemlock (61% BA), 12-36" DBH spruce (28% BA) and 16-30" western hemlock (10% BA). Several muskegs and open areas occur throughout the unit. Wind risk is moderate to high throughout unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers and RAW zones. For RAW zones retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffers. A high wind risk boundary may be created in the NW side of unit using the RAW zone criteria above. Review during layout to determine if windfirming is warranted. This unit contains greater than 2 acres of high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees and locate in RAW zones where possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of three cable settings. The northern-most setting accesses the area north of stream #2, a class III stream that requires split yarding. The other two settings access the remaining area and are defined by a logical setting break based on topography and lateral yarding capabilities. There are some limited shovel yarding opportunities near the road. Where possible locate landings and shovel corridors to avoid open meadows described under botany section.

ENGINEEERING/ROADS: Temporary roads 85344C and 85344 access unit from existing Road 8534. New construction of 85344 begins after 0.19 miles of reconstruction. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction. See Unit 124 for additional temporary road discussion.

BOTANY RESOURCES: Concern: Large areas of lady fern/forb wetlands with rare plants. **Response:** avoid ground disturbance in meadows (wetlands) as much as possible. Do not use these areas for landings, log storage or shovel yarding corridors.

FISH/WATERSHED: Concern: Stream 1 is a Class IV MM channel. **Response:** Category C protection (BMP 12.6, 13.14). **Concern:** Stream 2 (lower) is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Windthrow risk is high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers. **Concern:** Stream 2 (upper), 4,5,7,8,9,10,11,12 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). **Concern:** Lower 300 feet of Stream 8 in unit is a Class IV HC channel with unstable side-slopes. **Response:** Category B protection (BMP 12.6, 13.14) with split yard to protected side slopes. **Concern:** Temporary road – stream crossings **Response:** Segment of road between Units 123 and 124 must be specified and designed across steep slopes with 2 unstable Class III stream channels to prevent water quality degradation (see Soils/Wetlands). Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

Summary of Concerns, Responses, BMPs and Mitigation
GEOLOGY/KARST: Concern: There is less than 1 acre of moderate vulnerability karst along the eastern boundary of Unit 123. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).
HERITAGE RESOURCES: No concerns
SCENERY/RECREATION: No concerns
SOILS/WETLANDS: Slopes range from 20-50% in Unit 123. There are about 6 acres of forested wetland (BMP 12.5). A minimum of partial suspension is required to meet soil and wetland standards. (BMP 13.9) **Concern:** Proposed temporary road crosses about 1,000 feet of wetlands while trying to maintain grade. **Response:** Provide adequate cross drainage, remove structures and close the road after harvest. (BMP 14.9) (33 CFR BMPs 4, 5, 6). See Unit 124 for additional temporary road discussion.
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Recommend that this retention be maintained adjacent to the north stream buffer to maintain wind firmness. **Concern:** Red-tailed hawk observed adjacent to unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

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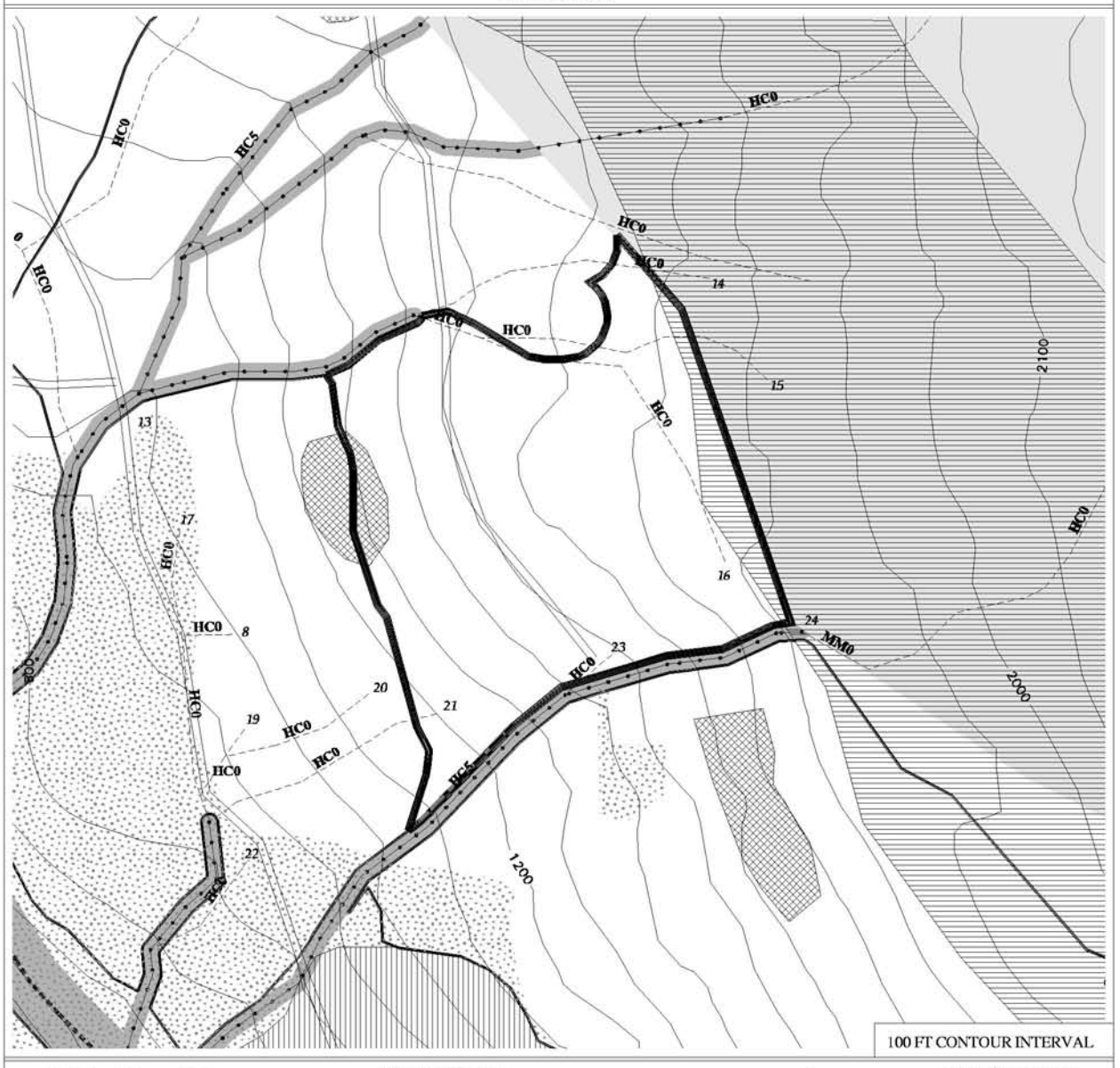
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 124 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 124 OCCURS IN ALTERNATIVE(S): 2

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**124**	**In Alternatives:**	2	**Total Unit Acres:**	40.6	**Vol Strata Acres:**	High: 6.3 Med: 34.3 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	932	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-36" DBH mountain hemlock (39% BA), 9-30" DBH western hemlock (26% BA) and 16-40" DBH spruce (34% BA). Several muskegs and open areas occur throughout the unit. Wind risk is moderate to high throughout unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers and RAW zone along the southeastern boundary (refer to fish/watershed section). For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. A high wind risk boundary may be created in the NW side of unit using the RAW zone criteria above. Review during layout to determine if windfirming is warranted. This unit contains greater than 2 acres of high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees where possible adjacent to stream buffer as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary road 85344 accesses unit from existing Road 8534. New construction of 85344 begins after 0.19 miles of reconstruction. The portion of the proposed temporary road between Unit 123 and 124 crosses slopes greater than 67%; this should be a designed section of road and a soil scientist must be involved in the design (see Soils/Wetlands). Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 14 (lower) and 24 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 14 (upper), 15, 16 (upper) and 23 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). **Concern:** Lower 400 feet of Stream 16 is in unstable v-notch. **Response:** split-yard or full suspension to protect side-slopes. **Concern:** Windthrow risk is high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers. **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: **Concern:** There are about 2 acres of moderate vulnerability karst along the eastern boundary of Unit 124. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: Slopes range from 20-75% slope in Unit 124. There are about 2 acres of slopes over 72%. This is a small bench along the boundary between 124 and 122. The soils are well drained over bedrock. There are no signs of instability, hollow topography or other unstable terrain or past landslides. Any landslide that could occur here would not enter a stream or waterbody. This small area can be harvested using full suspension from the uphill road location (use uphill yarding only). The rest of Unit 124 requires a minimum of partial suspension to meet soil quality standards (BMP 13.9). **Concern:** The portion of the proposed temporary road between Unit 123 and 124 crosses slopes greater than 67%. **Response:** This should be a designed section of road and a soil scientist must be involved in the design with the Sale Administrator and Transportation Engineer. Endhaul with full bench required (BMP 14.12 and 14.19). This is a highly erodible area with a high likelihood of sediment entering a class III stream. Manage this area to reduce sedimentation and landslide risk (BMP 14.7, 14.8). Provide adequate drainage and ditching to reduce the risk of landslides (BMP 14.9).
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. **Concern:** Red-tailed hawk observed adjacent to unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

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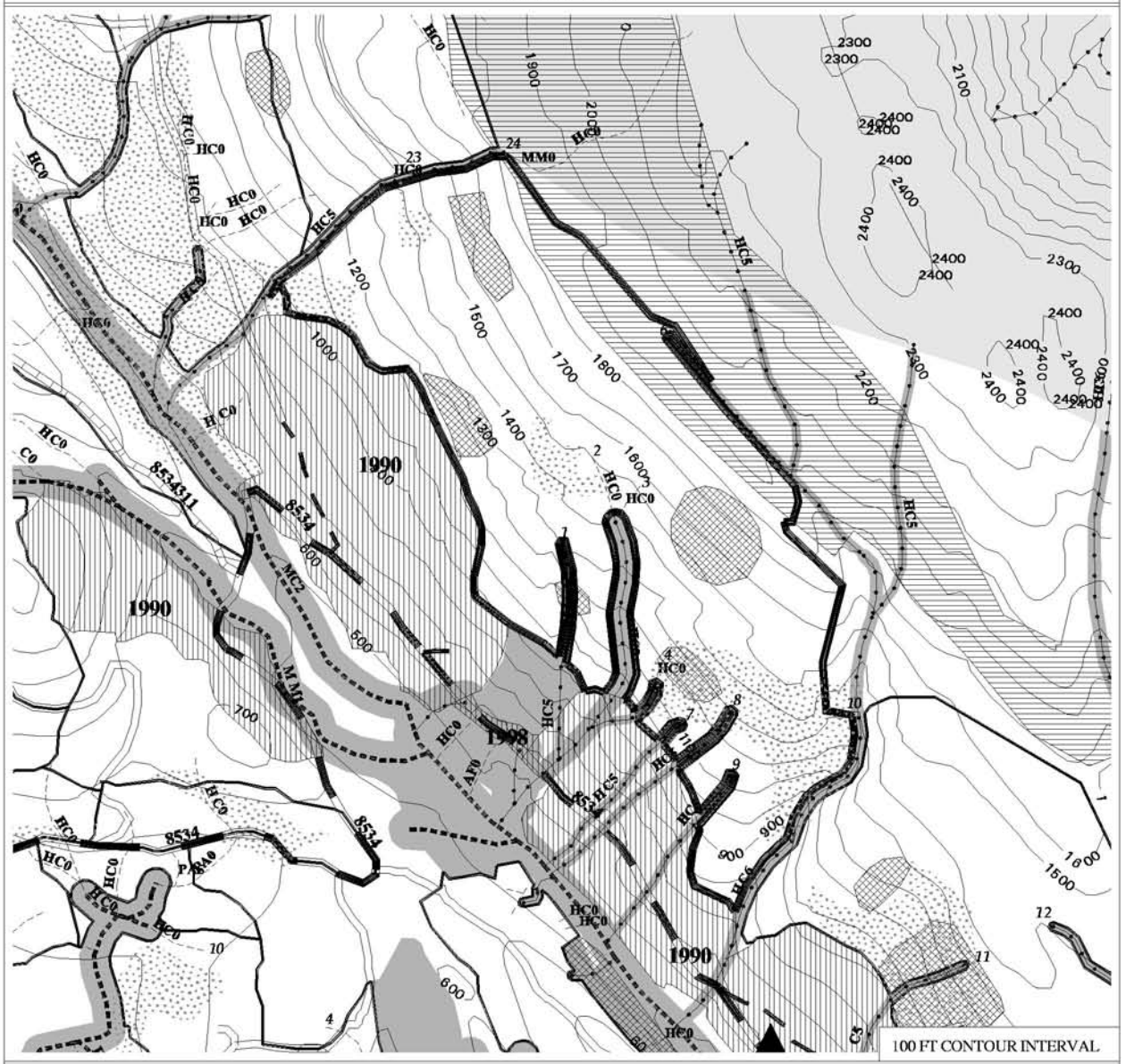
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 125 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 125 OCCURS IN ALTERNATIVE(S): 2 3

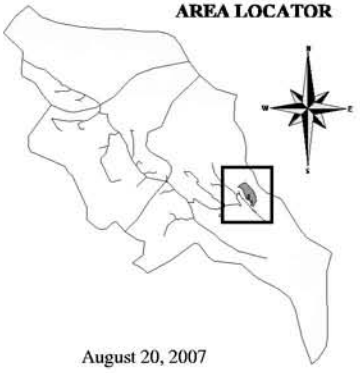
0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**125**	**In Alternatives:**	2, 3	**Total Unit Acres:**	185.2	**Vol Strata Acres:**	High: 80.5 Med: 104.7 Low: 0
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	2,482	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-36" DBH mountain hemlock (39% BA), 9-30" DBH western hemlock (26% BA) and 16-40" DBH spruce (35% BA). The eastern side of the unit is at higher elevation and contains several avalanche chutes on steeper slopes. The western side of the unit supports higher volume, especially spruce. Wind risk is high throughout unit.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (319 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: 24, 1, 2 (lower), 4, 6,7,8, 9 and 10 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Manage for windfirmness 120 feet beyond no-cut buffer along southeasterly edge of v-notches. **Concern:** Streams 2 (upper) and 3 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14).

GEOLOGY/KARST: **Concern:** There are about 19 acres of moderate vulnerability karst along the eastern boundary of Unit 125. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 30-100% with 65% being the median gradient. Slopes frequently exceed 72% slope in Unit 125. There are about 17 acres of slopes over 72%. These slopes are well-drained, steep and benchy with several exposed rock outcrops. Brushslopes are common at these elevations (above 1500 feet). There are no signs of instability on slopes below 1500 feet elevation.
Concern: Some landslides may initiate on the slopes greater than 72% and enter streams or waterbodies.
Response: Do not harvest any slopes greater than 72% within the RAW zone. Slopes up to 80% may be harvested with the proposed helicopter prescription. Avoid slopes greater than 80% in Unit 185. **Concern:** Harvest on slopes greater than 72% adjacent to brush slopes may cause landslides in timbered areas.
Response: Do not harvest slopes over 72% on elevations above 1500 feet elevation. (BMP 13.5, 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit contains high value marten habitat. High deer use was observed in the south end of the unit. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines and help to maintain deer habitat. **Concern:** Red-tailed hawk and sharp-shinned hawk were observed in or adjacent to unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

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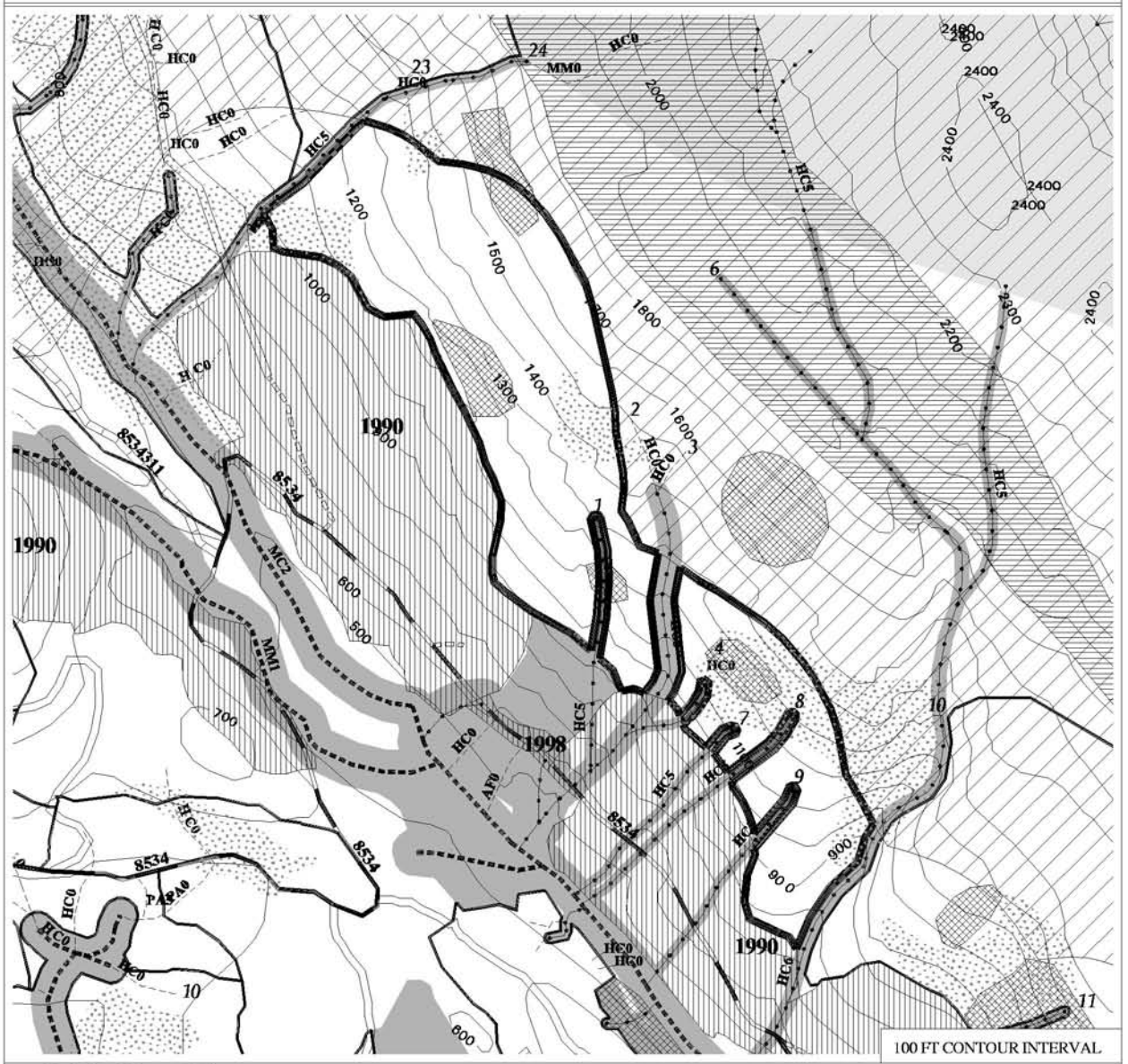
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 125 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 125 OCCURS IN ALTERNATIVE(S): 4

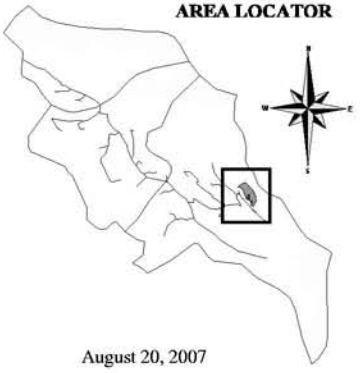
0 0.19 0.38 Miles

MAPSCALE 1:12000



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**125**	**In Alternatives:**	4	**Total Unit Acres:**	95.5	**Vol Strata Acres:**	High: 23.1 Med: 72.4 Low: 0
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	1,200	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-36" DBH mountain hemlock (39% BA), 9-30" DBH western hemlock (26% BA) and 16-40" DBH spruce (35% BA). The eastern side of the unit is at higher elevation and contains several avalanche chutes on steeper slopes. The western side of the unit supports better volume, especially spruce. Wind risk is high throughout unit.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (319 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: 24, 1, 2 (lower), 4, 6,7,8, 9 and 10 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Manage for windfirmness 120 feet beyond no-cut buffer along southeasterly edge of v-notches. **Concern:** Streams 2 (upper) and 3 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 30-100% with 65% the median gradient. Slopes frequently exceed 72% slope in Unit 125. There are about 10 acres of slopes over 72%. These slopes are well-drained, steep and benchy with several exposed rock outcrops. Brushslopes are common at these elevations (above 1500 feet). There are no signs of instability on slopes below 1500 feet elevation.
Concern: Some landslides may initiate on the slopes greater than 72% and enter streams or waterbodies.
Response: Do not harvest any slopes greater than 72% within the RAW zone. Slopes up to 80% may be harvested with the proposed helicopter prescription. Avoid slopes greater than 80% in Unit 185. **Concern:** Harvest on slopes greater than 72% adjacent to brush slopes may cause landslides in timbered areas.
Response: Do not harvest slopes over 72% on elevations above 1500 feet elevation. (BMP 13.5, 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit contains high value marten habitat. High deer use was observed in the south end of the unit. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines and help to maintain deer habitat. **Concern:** Red-tailed hawk and sharp-shinned hawk were observed in or adjacent to unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

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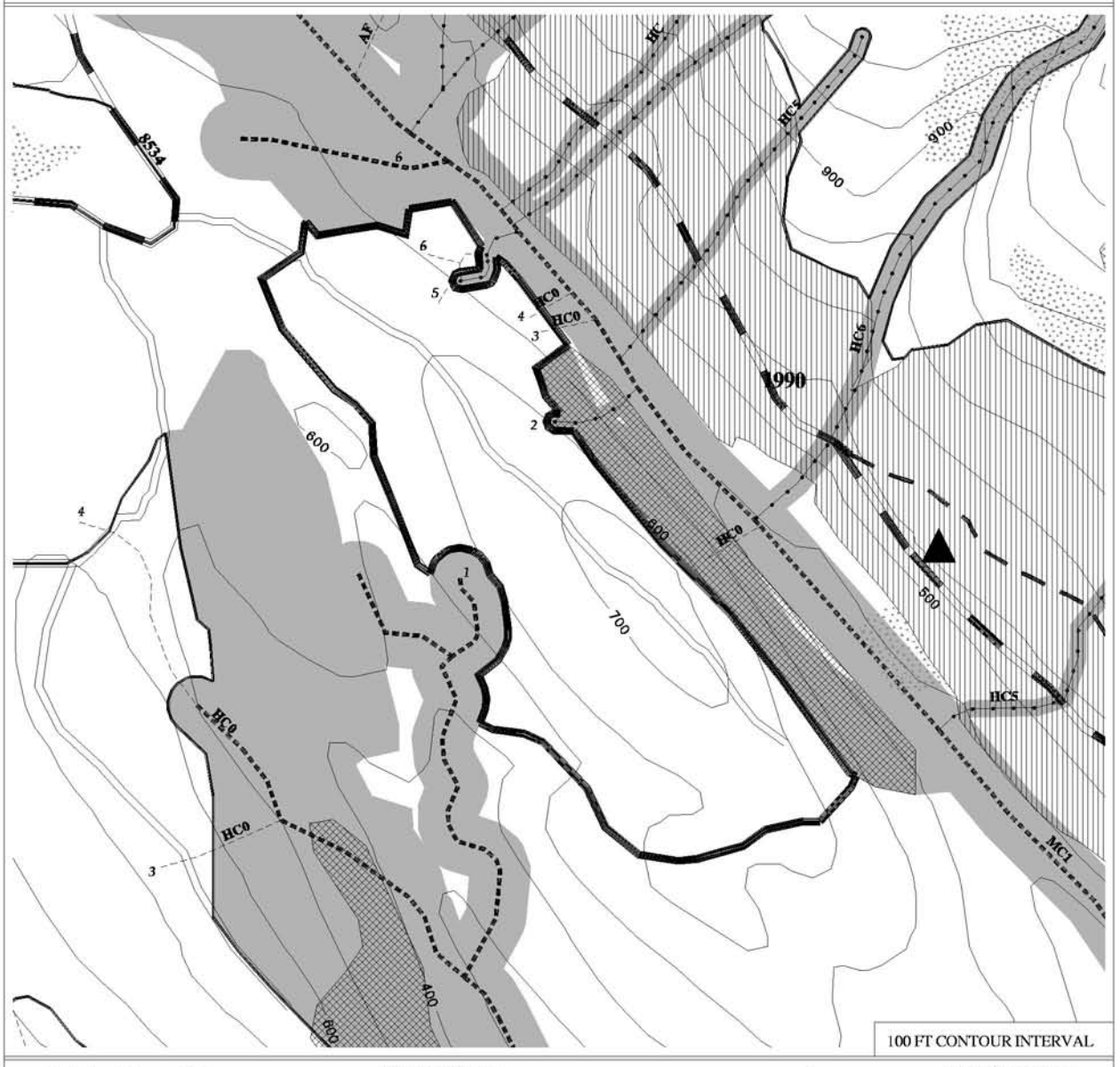
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 126 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 126 OCCURS IN ALTERNATIVE(S): 2

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**126**	**In Alternatives:**	2	**Total Unit Acres:**	42.2	**Vol Strata Acres:**	High: 0 Med: 40.8 Low: 1.4
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	930	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists 12-30" DBH western hemlock (53% BA), 12-28" DBH mountain hemlock (25% BA), and 12-40" DBH spruce (23% BA). The topography is a ridgetop and sideslope with steeper slopes (55%) in the southeastern corner. Wind risk is high throughout unit. There is a small area of older blowdown towards the southern end of unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers and RAW zones. For RAW zones retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffers. A high wind risk boundary may be created on the NW side of unit using the RAW zone criteria above. Review during layout to determine if windfirming is warranted

TIMBER/LOGGING: This unit is comprised of three cable settings that are defined by logical setting breaks based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary road 26 accesses unit from existing Road 8534. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 5 and 6 are Class IV HC channels that run into a Class III HC channel. **Response:** Category C protection for Class IV segments. Category B protection for Class III segment. No harvest within v-notch (BMP 12.6, 13.14, RIP III). **Concern:** Stream 4 and 3 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 2 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 1 is a Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). Manage 120 foor buffer along southeasterly edge of v-notch for windfirmness (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes along the western portion of the unit range from 20-55%. Most of the eastern portion of the unit was dropped due to slopes frequently exceeding 72% and unstable slopes (BMP 13.2, 13.5). The remaining portion of Unit 126 requires a minimum of partial suspension to meet soil quality standards. (BMP 13.9) **Concern:** The portion of the proposed temporary road between the intersection of 8534 and the harvest unit is a mosaic of forested wetland and muskeg. No high-value wetlands exist in this area. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove structures and close road after unit is harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

WILDLIFE: **Concern:** Red-tailed hawk was observed in the unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

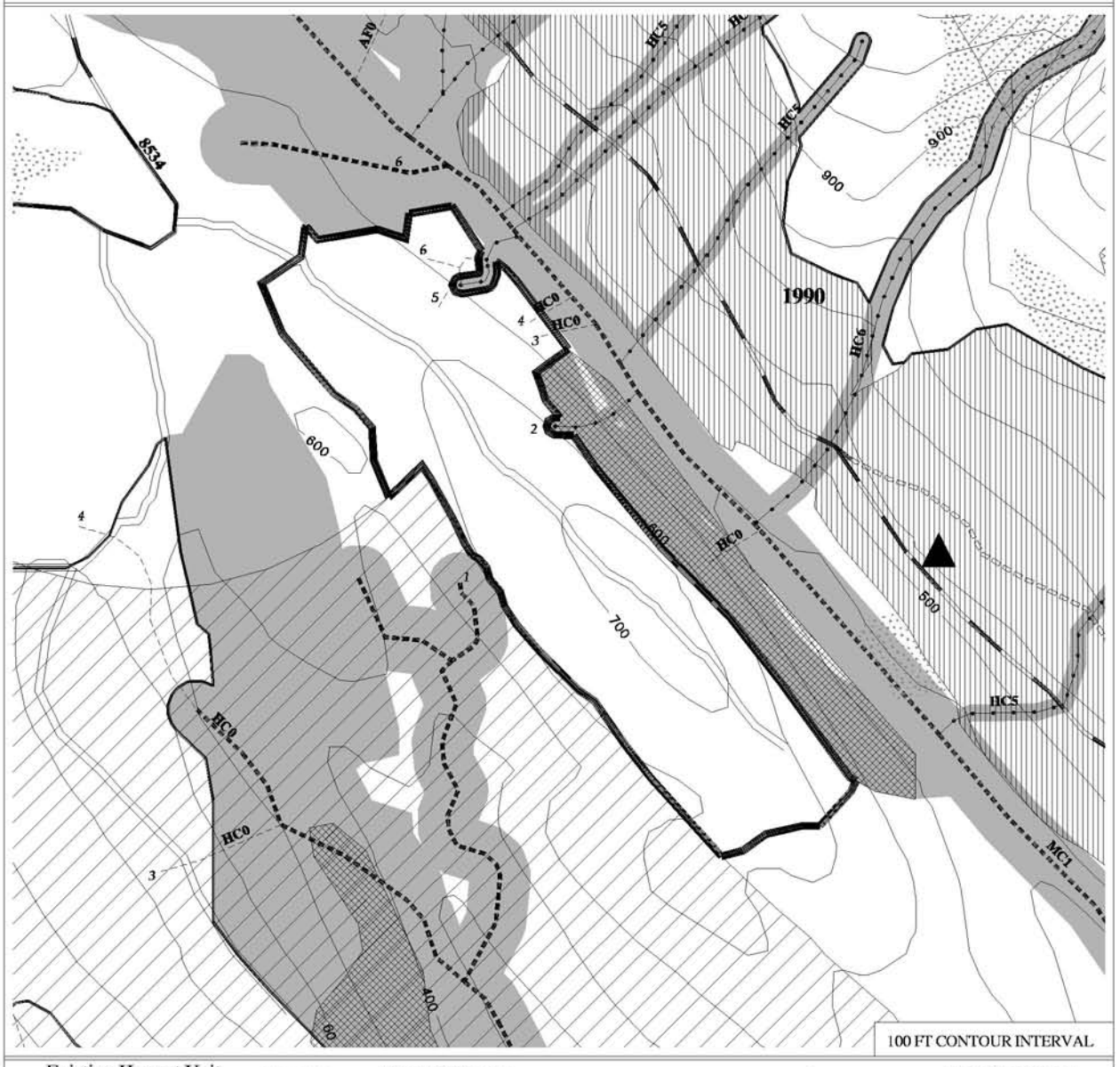
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 126 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 126 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**126**	**In Alternatives:**	4	**Total Unit Acres:**	35.5	**Vol Strata Acres:**	High: 0 Med: 35.2 Low: 0.3
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	789	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists 12-30" DBH western hemlock (53% BA), 12-28" DBH mountain hemlock (25% BA), and 12-40" DBH spruce (23% BA). The topography is a ridgetop and sideslope with steeper slopes (55%) in the southeastern corner. Wind risk is high throughout unit. There is a small area of older blowdown towards the southern end of unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers and RAW zones. For RAW zones retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffers. A high wind risk boundary may be created on the NW side of unit using the RAW zone criteria above. Review during layout to determine if windfirming is warranted.

TIMBER/LOGGING: This unit is comprised of three cable settings that are defined by logical setting breaks based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary road 26 accesses unit from existing Road 8534. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 5 and 6 are Class IV HC channels that run into a Class III HC channel. **Response:** Category C protection for Class IV segments. Category B protection for Class III segment. No harvest within v-notch (BMP 12.6, 13.14, RIP III). **Concern:** Stream 4 and 3 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 2 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 1 is a Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). Manage 120 foor buffer along southeasterly edge of v-notch for windfirmness (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes along the western portion of the unit range from 20-55%. Most of the eastern portion of the unit was dropped due to slopes frequently exceeding 72% and unstable slopes (BMP 13.2, 13.5). The remaining portion of Unit 126 requires a minimum of partial suspension to meet soil quality standards. (BMP 13.9)

WILDLIFE: **Concern:** Red-tailed hawk was observed in the unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

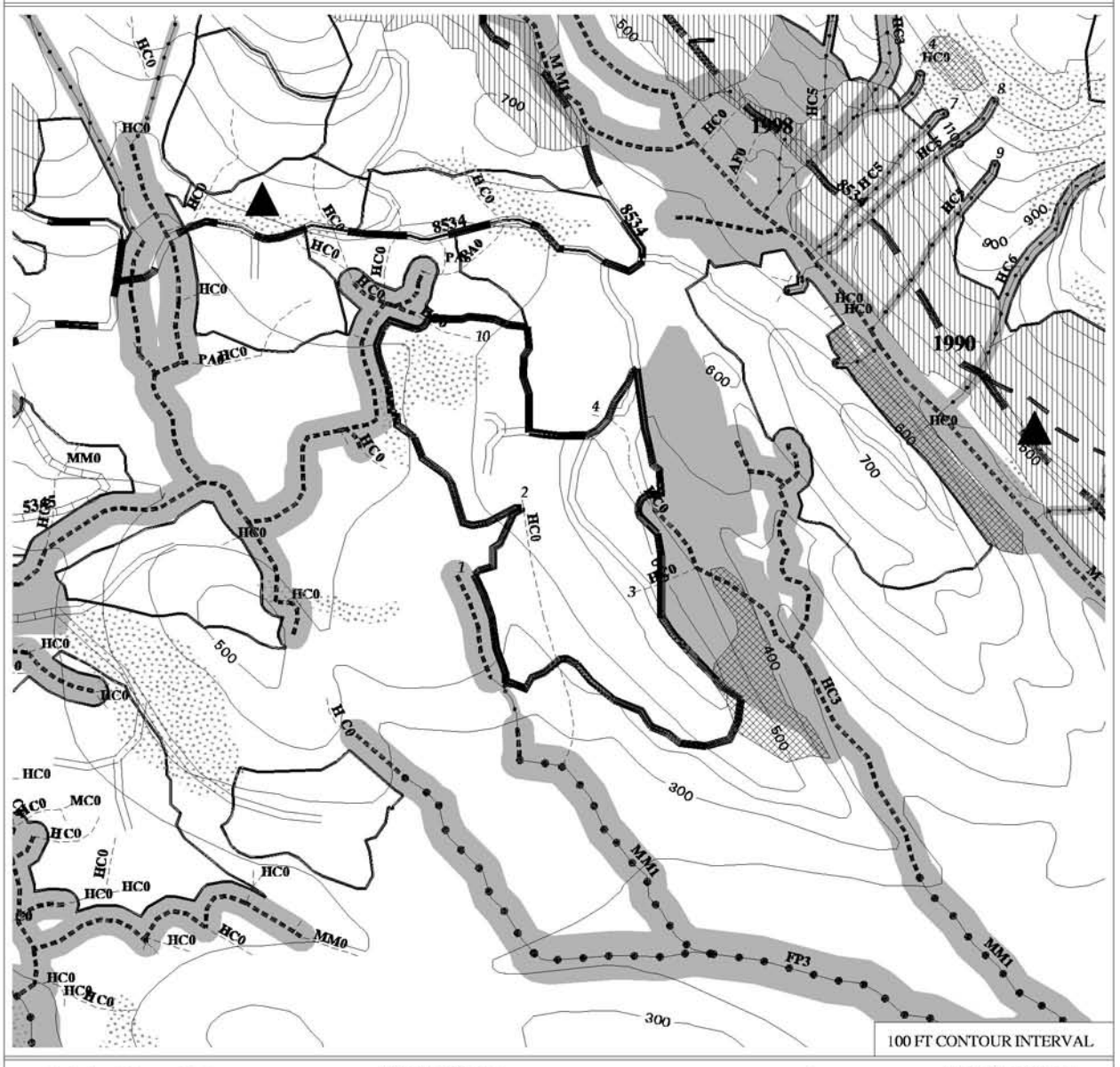
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 127 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 127 OCCURS IN ALTERNATIVE(S): 2

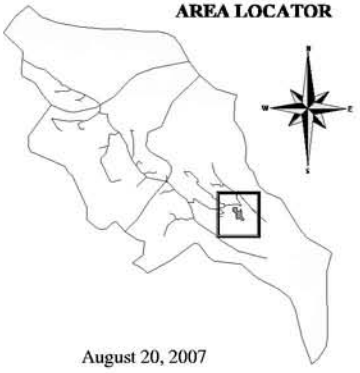
0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**127**	**In Alternatives:**	2	**Total Unit Acres:**	74.2	**Vol Strata Acres:**	High: 6.2 Med: 63.9 Low: 4.1
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	1,649	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-40" DBH spruce (42% BA), 12-30" DBH western hemlock (39% BA), 16-28" DBH mountain hemlock (14% BA) and scattered 24-35" DBH yellow-cedar (5% BA). The eastern portion of the unit contains considerable blowdown with regeneration estimated to be 20-50 years old. The topography is a ridgetop and sideslope with steeper slopes (55%) in the southeastern corner. Wind risk is high throughout unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers and RAW zones. For RAW zones retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffers. A portion of the unit is bounded on the west and northwest by buffered streams (refer to fish/watershed section). A high wind risk boundary may be created on the NW side of unit using the RAW zone criteria above. Review during layout to determine if windfirming is warranted. This unit contains greater than 2 acres of high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees and locate in RAW zones where possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of three cable settings that are defined by logical setting breaks based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary roads 27, 28, and 28A access unit from existing Road 8534 via temporary road 853428. Road locations have been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Northern boundary stream is a Class II MM channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). Manage for windfirmness 120 feet beyond buffer. **Concern:** Stream 1, 4 (lower) and 10 (lower) are Class II HC channels. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). Manage for windfirmness 120 feet beyond buffer. **Concern:** Stream 2, 3, 4 (upper) and 10 (upper) are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: Slopes along the western portion of the unit range from 20-55%. Most of the eastern portion of the unit was dropped due to slopes frequently exceeding 72% and unstable slopes (BMP 13.2, 13.5). The remaining portion of Unit 127 requires a minimum of partial suspension to meet soil quality standards. (BMP 13.9) **Concern:** The portion of the proposed temporary road between the intersection of 8534 and the harvest unit is a mosaic of forested wetland and muskeg. No high-value wetlands exist in this area. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove structures and close road after unit is harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties.

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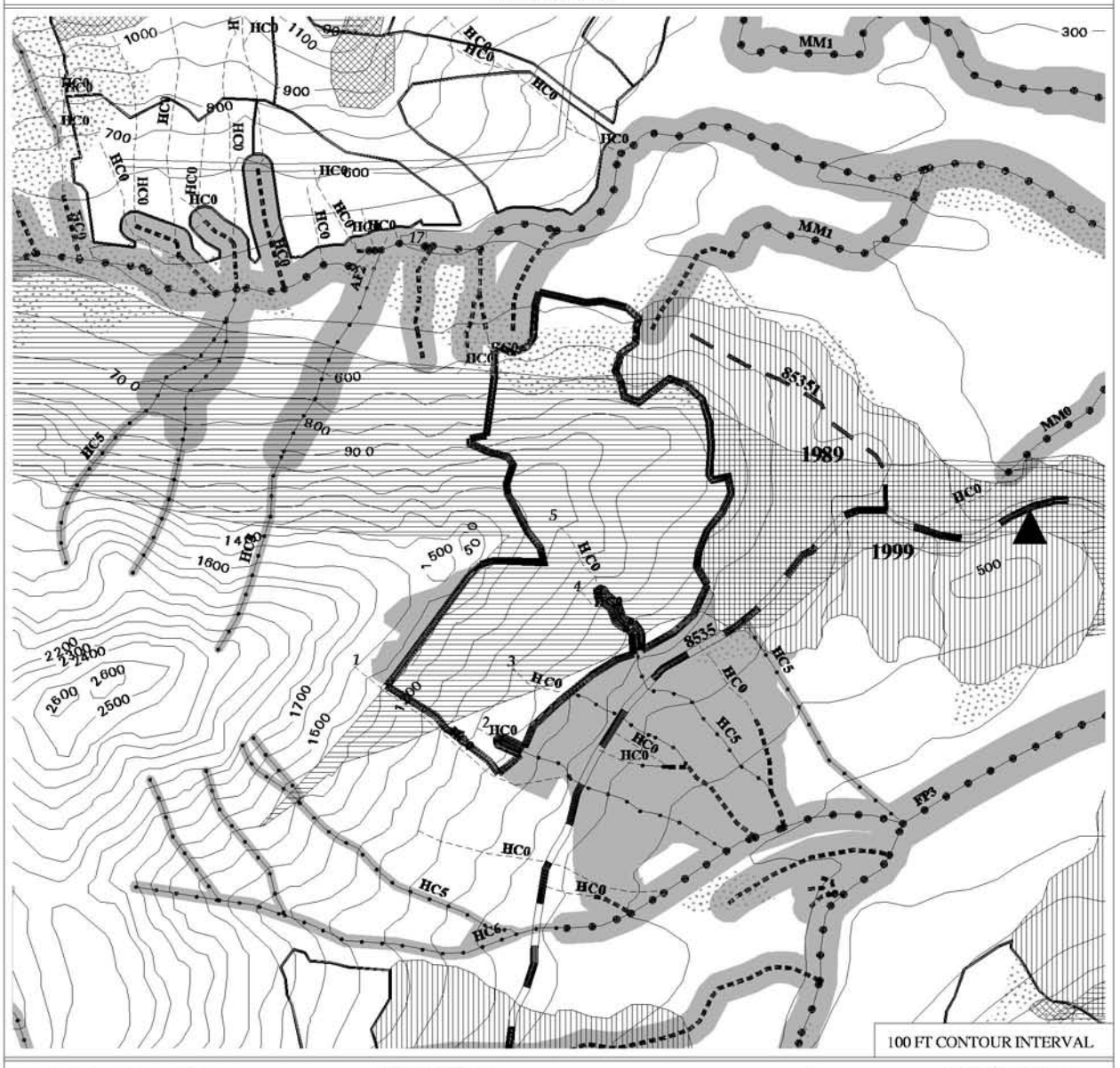
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 130 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 130 OCCURS IN ALTERNATIVE(S): 2 3

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**130**	**In Alternatives:**	2, 3	**Total Unit Acres:**	86.3	**Vol Strata Acres:**	High: 9.0 Med:72.6 Low: 4.7
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	721	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists of 12-36" DBH mountain hemlock (39% BA), 12-43" DBH western hemlock (23% BA), 16-40" DBH spruce (22% BA), and 12-40" DBH yellow-cedar (16% BA). The yellow-cedar is concentrated primarily in the eastern portion of the unit and is of exceptional quality. Many trees are 90'+ and 30"+ DBH with minimal defect. The ridge top contains many large hemlock 30-40" DBH with low defect. unit also contain several brush fields/openings. Hemlock advanced regeneration is abundant with yellow-cedar regeneration also present. Wind risk is low throughout unit.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (145 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 1, 2 (upper), 3, 4, and 5 (upper) are class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Streams 2 (lower) and 5 (lower) are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: Concern: There are about 4 acres of high vulnerability and 72 acres of moderate vulnerability karst in Unit 130. **Response:** The high vulnerability area in the western portion of Unit 130 is excluded from the proposed helicopter harvest to protect the features in this area and a minimum of partial suspension is require to meet karst resource objectives in the moderate vulnerability area. (BMP 13.2)

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 50-100%. **Concern:** About 3 acres greater than 72% slope exist in this unit. **Response:** These slopes are unsuitable for Timber harvest. Do not mark trees for cutting in this unit. The rest of the unit is suitable for the proposed helicopter yarding. (BMP 13.5, 13.9)

WILDLIFE: Concern: Unit contains high value marten habitat. High deer use was observed in the north portion of the unit. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines and help to maintain deer habitat. **Concern:** Pluck post identified in the unit. Surveys did not identify a goshawk or sharp-shinned hawk nest site. **Response:** If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer. Maintain a 600-foot no-harvest buffer that is windfirm around other active raptor nests if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer. **Concern:** Bear den located in unit. **Response:** Maintain a 200-foot forested buffer around den sites.

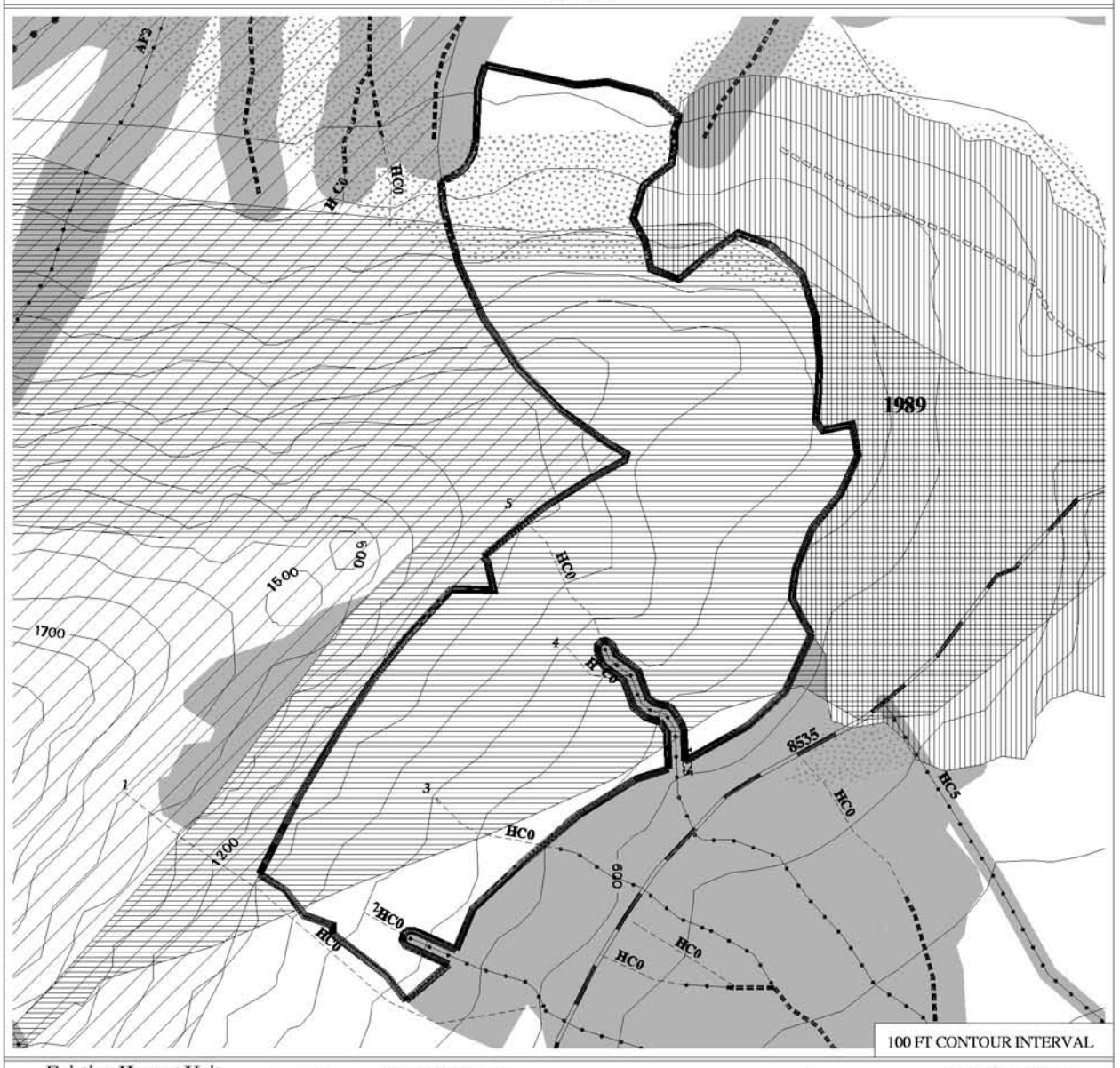
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 130 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 130 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**130**	**In Alternatives:**	4	**Total Unit Acres:**	69.6	**Vol Strata Acres:**	High: 8.1 Med: 59.1 Low: 2.4
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	569	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-36" DBH mountain hemlock (39% BA), 12-43" DBH western hemlock (23% BA), 16-40" DBH spruce (22% BA), and 12-40" DBH yellow-cedar (16% BA). The yellow-cedar is concentrated primarily in the eastern portion of the unit and is of exceptional quality. Many trees are 90'+ and 30"+ DBH with minimal defect. The ridge top contains many large hemlock 30-40" DBH with low defect. Unit contains several brush fields/openings. Hemlock advanced regeneration is abundant with yellow-cedar regeneration also present. Wind risk is low throughout unit.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (145 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 1, 2 (upper), 3, 4, and 5 (upper) are class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Streams 2 (lower) and 5 (lower) are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: Concern: There are about 57 acres of moderate vulnerability karst in Unit 130. **Response:** A minimum of partial suspension is require to meet karst resource objectives. (BMP 13.2 and 13.9)

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-80%. **Concern:** Areas greater than 72% slope exist in this unit. **Response:** Involve a soil scientist during layout to verify small inclusions where slopes over 72% are suitable for timber harvest. Areas to the west and southwest of Unit 130 dropped for stability concerns (BMP 13.5).

WILDLIFE: Concern: Unit contains high value marten habitat. High deer use was observed in the north portion of the unit. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines and help to maintain deer habitat.

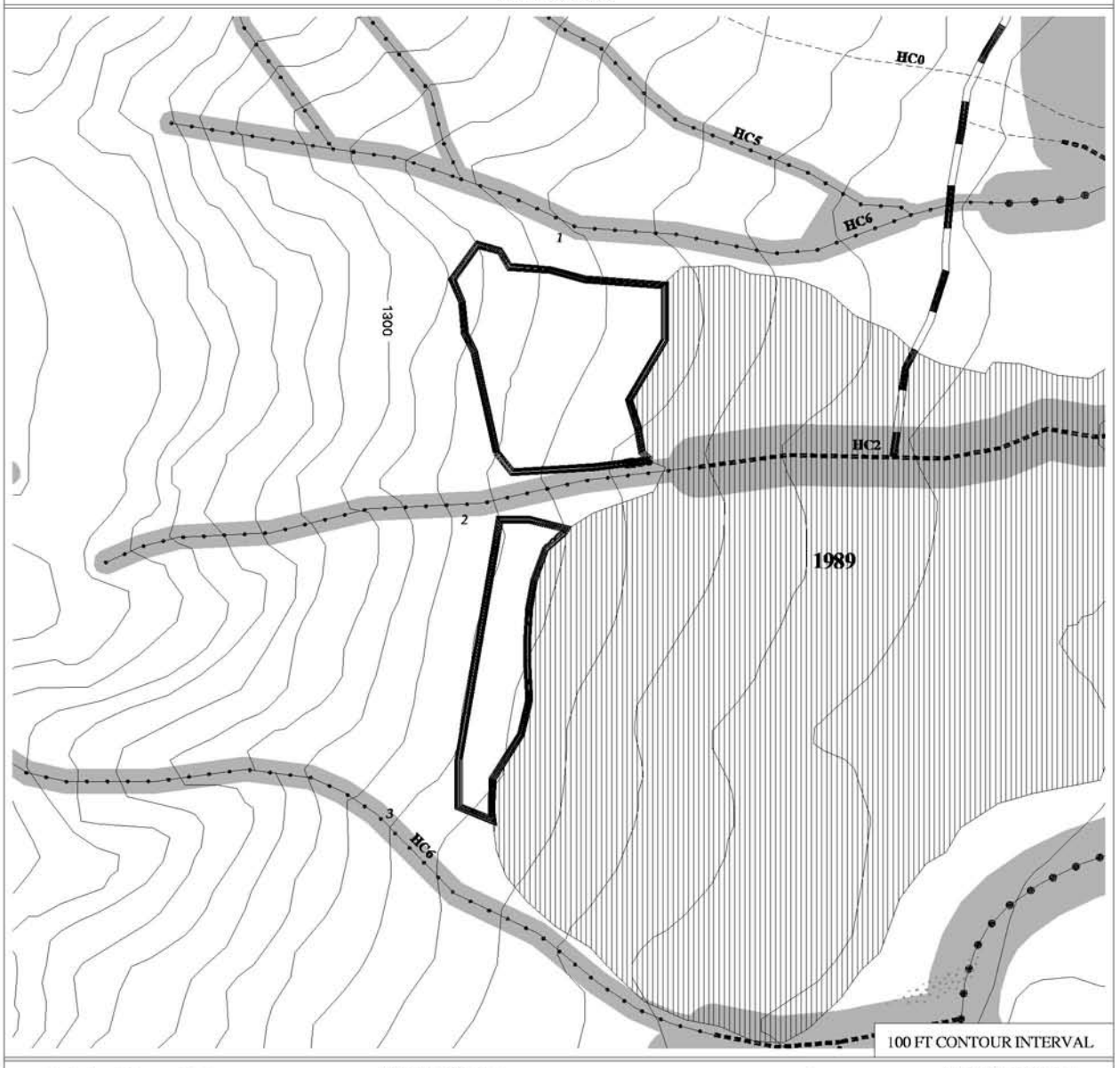
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 134 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 134 OCCURS IN ALTERNATIVE(S): 2 3 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**134**	**In Alternatives:**	2, 3, 4	**Total Unit Acres:**	13.7	**Vol Strata Acres:**	High: 0 Med: 13.7 Low: 0
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	110	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists 16-48" DBH western hemlock (46% BA) and 16-55" DBH spruce (54% BA). There is a considerable number of 40-50" DBH low defect spruce and hemlock in this unit (5-7/acre). There are also pockets of abundant advanced regeneration throughout the unit. Wind risk is low throughout unit.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (213 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1, 2, and 3 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 30-60% in Unit 134. **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Areas to the north, west and south of Unit 134 dropped for stability concerns (BMP 13.5).

WILDLIFE: No concerns

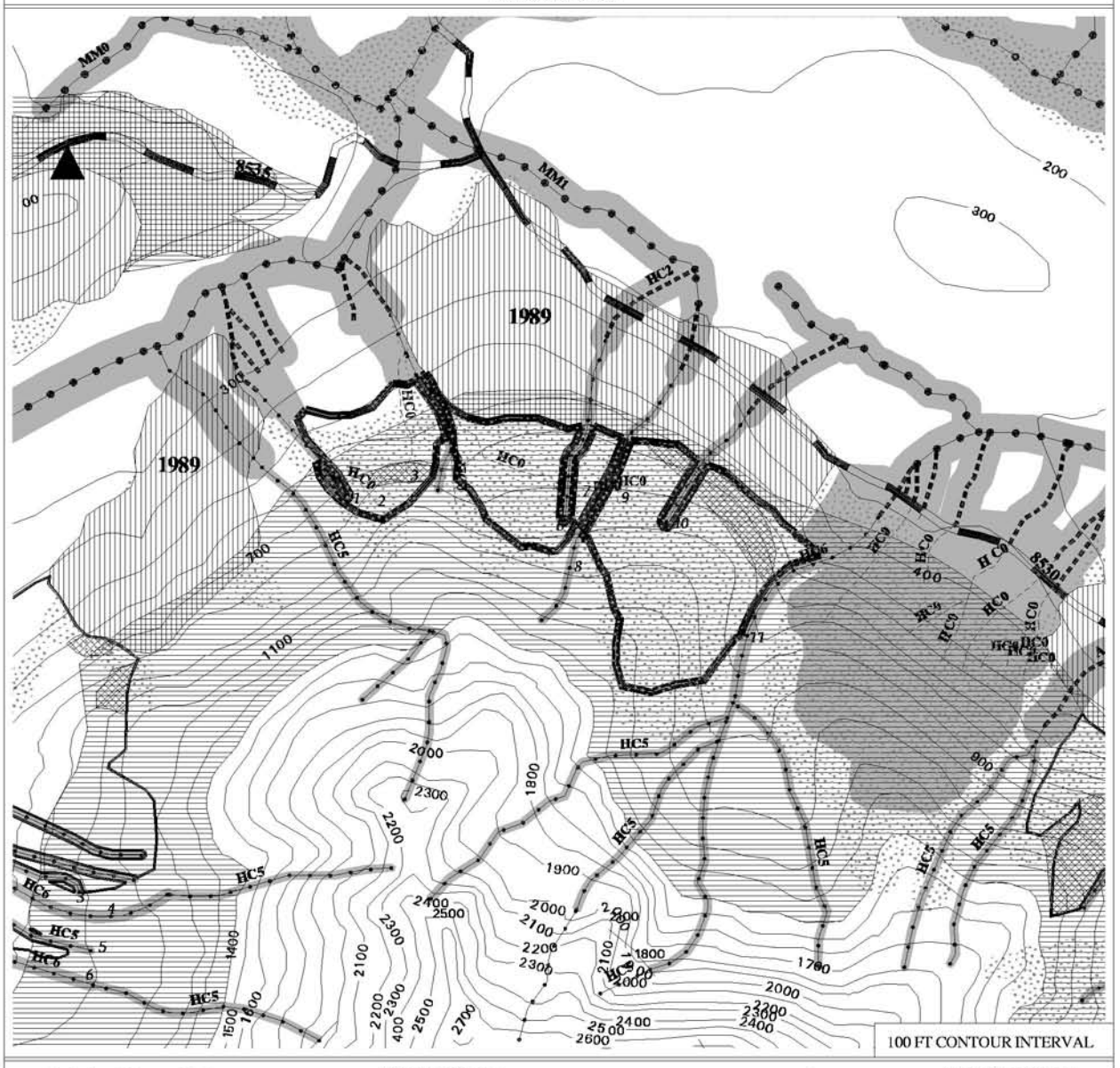
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 135 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 135 OCCURS IN ALTERNATIVE(S): 2 3

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**135**	**In Alternatives:**	2, 3	**Total Unit Acres:**	64.7	**Vol Strata Acres:**	High: 62.3 Med: 1.8 Low: 0.6
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	667	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists of 12-40" DBH western hemlock (68% BA), 20-36" DBH spruce (19% BA), 16-40" DBH mountain hemlock and 9-24" DBH yellow-cedar (11% BA). There are cliffs in the lower elevations of the units, just above the existing managed stand. The area above the cliffs is the most productive. Hemlock advanced regeneration is abundant with yellow-cedar regeneration also present. Wind risk is low throughout unit.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (186 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1, 4, 6, 8, 10, and 11 are Class III HC channels. **Response:**Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Strems 2, 3, 5, 7, and 9 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: **Concern:** There are about 60 acres of moderate vulnerability karst in Unit 135. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 55-120% in Unit 135. There are about 7 acres of slopes greater than 72% in Unit 135. About 6 of those acres are in the cliffs along the northeastern boundary of the unit above the backline of the clearcut. **Concern:** Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Avoid the slopes over 72% during layout as they are unsuitable for harvest (BMP 13.5). **Concern**: A minimum of partial suspension is required to meet soil quality standards in the rest of the unit (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Areas to the west and south of Unit 135 dropped for stability concerns. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines.

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 135 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 135 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**135**	**In Alternatives:**	4	**Total Unit Acres:**	50.9	**Vol Strata Acres:**	High: 48.5 Med: 1.8 Low: 0.6
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	526	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists of 12-40" DBH western hemlock (68% BA), 20-36" DBH spruce (19% BA), 16-40" DBH mountain hemlock and 9-24" DBH yellow-cedar (11% BA). There are cliffs in the lower elevations of the units, just above the existing managed stand. The area above the cliffs is the most productive. Hemlock advanced regeneration is abundant with yellow-cedar regeneration also present. Wind risk is low throughout unit.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (186 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1, 4, 6, 8, 10, and 11 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Strems 2, 3, 5, 7, and 9 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: **Concern:** There are about 46 acres of moderate vulnerability karst in Unit 135. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 55-120% slope in Unit 135. There are about 7 acres of slopes greater than 72% in Unit 135. About 6 of those acres are in the cliffs along the northeastern boundary of the unit above the backline of the clearcut. **Concern:** Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Avoid the slopes over 72% during layout as they are unsuitable for harvest (BMP 13.5). **Concern**: A minimum of partial suspension is required to meet soil quality standards in the rest of the unit (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Areas to the west and south of Unit 135 dropped for stability concerns. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines.

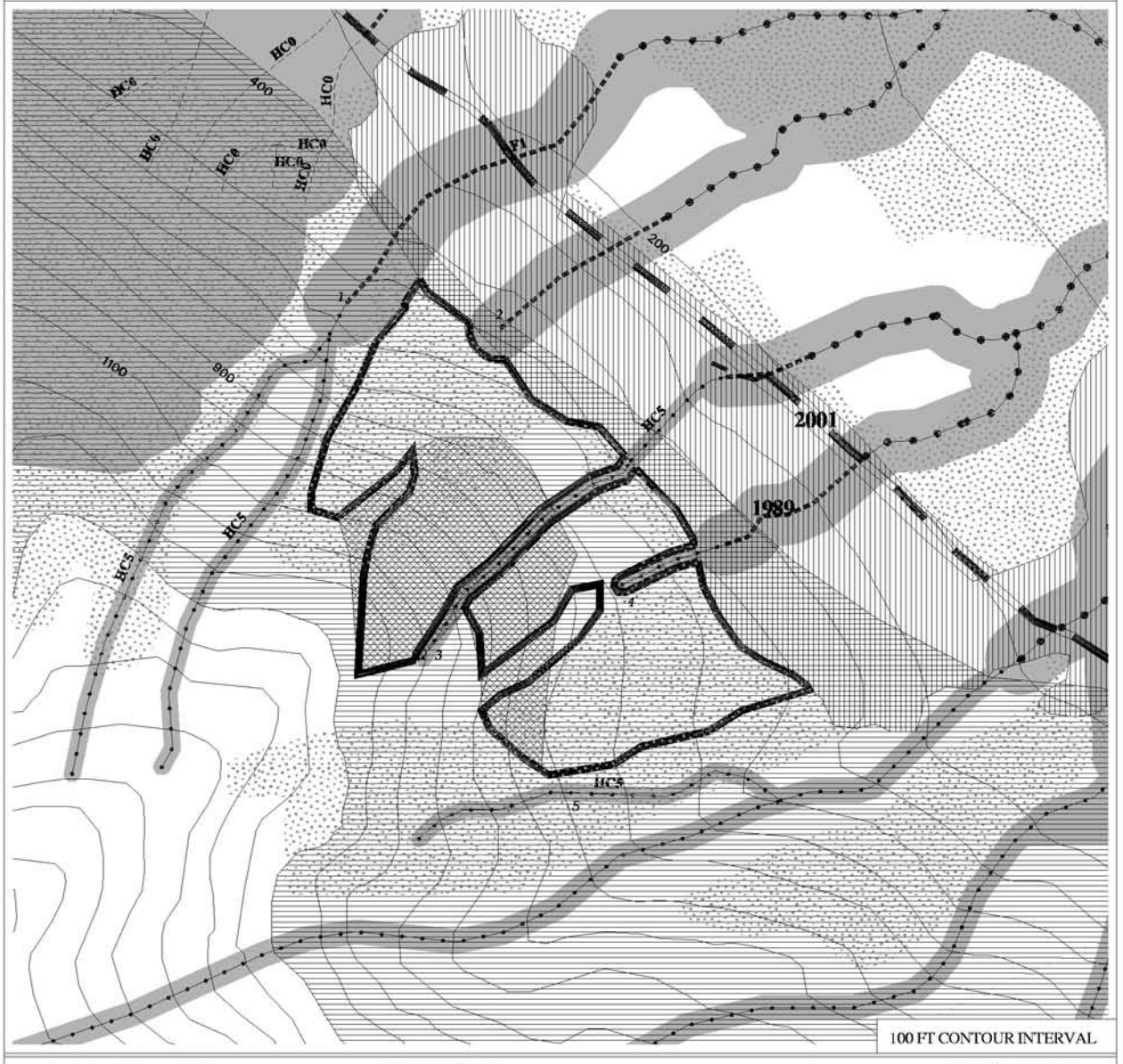
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 138 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 138 OCCURS IN ALTERNATIVE(S): 2 3

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**138**	**In Alternatives:**	2, 3	**Total Unit Acres:**	30.1	**Vol Strata Acres:**	High: 20.3 Med: 0 Low: 9.8
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	254	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists 12-40" DBH mountain hemlock (39% BA), 16-50" DBH spruce (33% BA), 12-28" DBH western hemlock (17% BA) and 20-28" DBH yellow-cedar (13% BA). The area just above the existing managed stand is the most productive. Hemlock advanced regeneration is abundant with yellow-cedar regeneration also present. Wind risk is high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (184 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 (upper), 3, 4 (upper) and 5 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 1 (lower) is a Class II AF channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 140 feet of channel or on active portion of fan (RIP III). **Concern:** Streams 2 and 4 (lower) are Class II HC channels. **Response:** Locate unit above blue and white flagged channels if feasible. Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Windthrow risk is high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: **Concern:** All of Unit 138 is moderate vulnerability karst. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 65-120% in Unit 138 There are about 13 acres of slopes greater than 72% in Unit 138. There is evidence of past landslides and current slumping. These are highly unstable areas. **Concern:** Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Avoid the slopes over 72% during layout as they are unsuitable for harvest (BMP 13.5). The rest of the unit is suitable for the proposed helicopter with a minimum of partial suspension to meet soil quality standards. (BMP 13.9) Area to the southeast of Unit 138 dropped for stability concerns. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines.

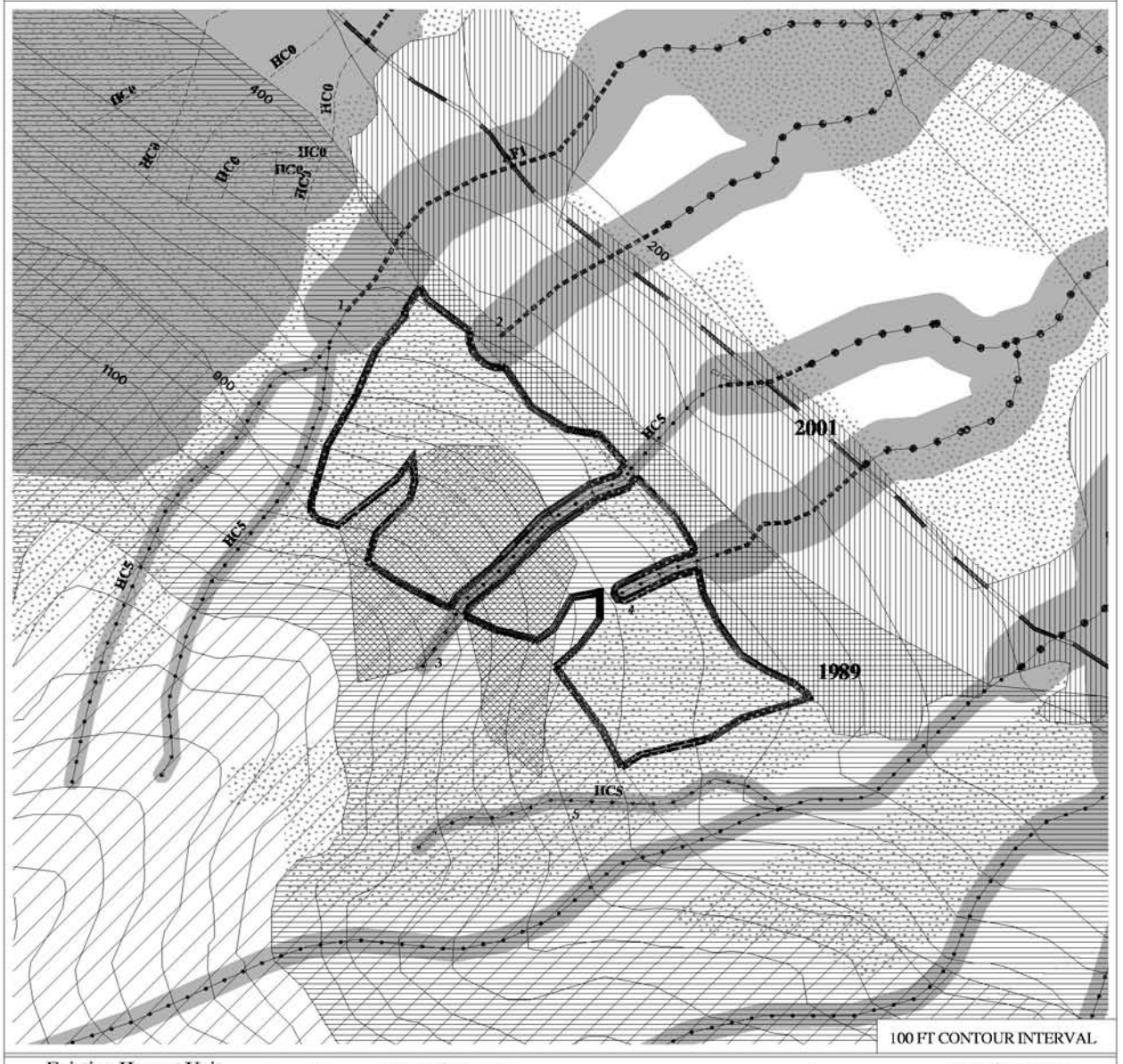
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 138 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 138 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**138**	**In Alternatives:**	4	**Total Unit Acres:**	25.2	**Vol Strata Acres:**	High: 17.9 Med: 0 Low: 7.3
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	220	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists 12-40" DBH mountain hemlock (39% BA), 16-50" DBH spruce (33% BA), 12-28" DBH western hemlock (17% BA) and 20-28" DBH yellow-cedar (13% BA). The area just above the existing managed stand is the most productive. Hemlock advanced regeneration is abundant with yellow-cedar regeneration also present. Wind risk is high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (184 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 (upper), 3, 4 (upper) and 5 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 1 (lower) is a Class II AF channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 140 feet of channel or on active portion of fan (RIP III). **Concern:** Streams 2 and 4 (lower) are Class II HC channels. **Response:** Locate unit above blue and white flagged channels if feasible. Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Windthrow risk is moderate to high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: **Concern:** All of Unit 138 is moderate vulnerability karst. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 65-120% in Unit 138 There are about 13 acres of slopes greater than 72% in Unit 138. There is evidence of past landslides and current slumping. These are highly unstable areas. **Concern:** Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Avoid the slopes over 72% during layout as they are unsuitable for harvest (BMP 13.5). The rest of the unit is suitable for the proposed helicopter with a minimum of partial suspension to meet soil quality standards. (BMP 13.9) Area to the southeast of Unit 138 dropped for stability concerns. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines.

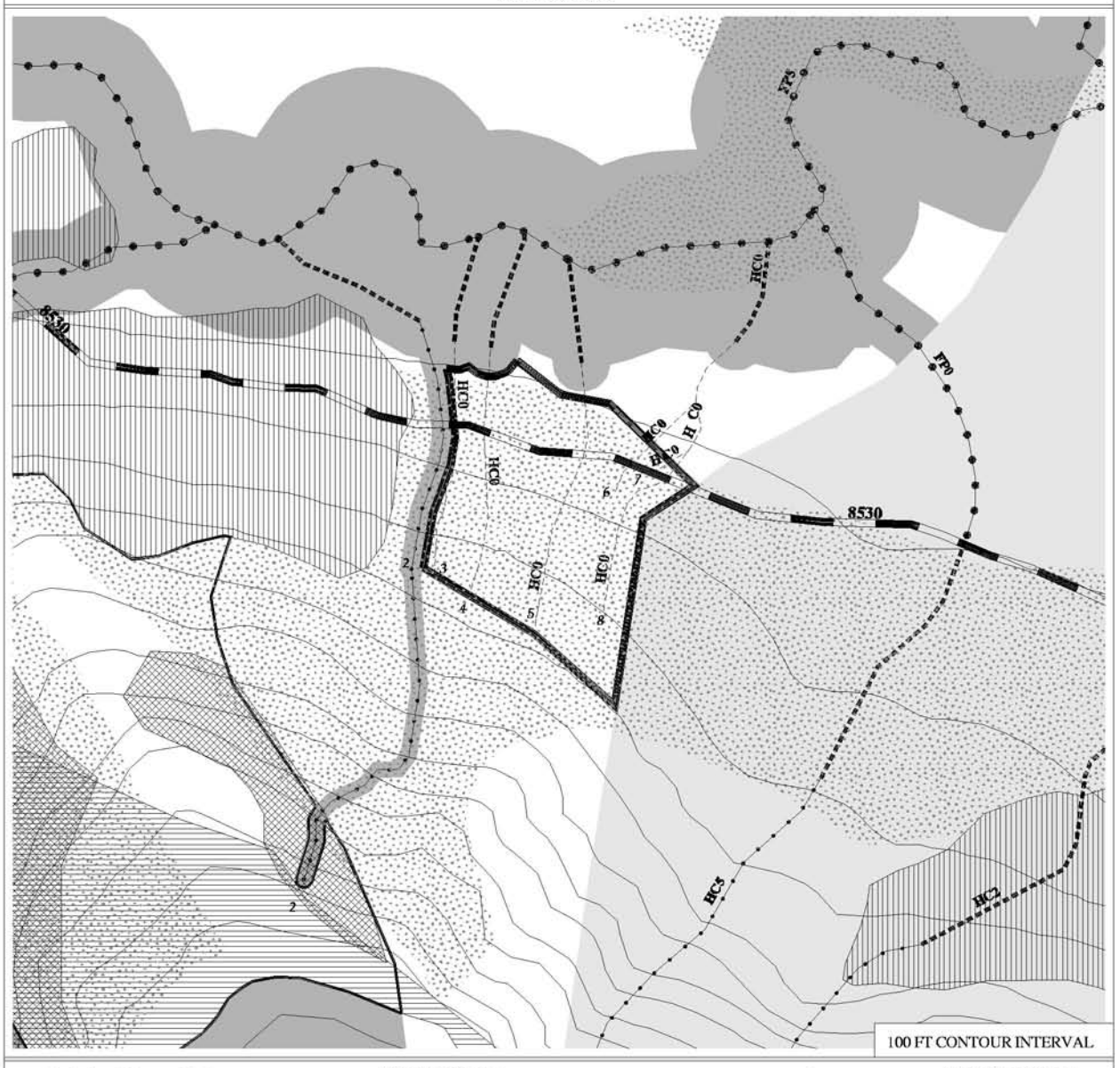
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 142 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 142 OCCURS IN ALTERNATIVE(S): 2 3 4 5

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**142**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	14.6	**Vol Strata Acres:**	High: 14.0 Med: 0.6 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	325	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists 12-28" DBH western hemlock (54% BA) and 16-36" DBH spruce (46% BA). There is a large area of older windthrow adjacent to the existing road which is likely non-salvageable. The upslope portion of the stand is intact and has good volume. Wind risk is high throughout unit.

Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.

Silvicultural Prescription: Even-aged management – clearcut: This unit includes a class III stream buffer on the northwestern boundary with a RAW zone. For RAW zone retain trees less than 16” DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffer to minimize windthrow in buffers. This unit is all high value marten habitat. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees and locate in RAW zone where possible as specified under wildlife section. If sufficient trees cannot be located in RAW zone designate additional trees in clumps adjacent to RAW zone where possible.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 2 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Manage for windfirmness within 120 feet of v-notch on eastern side. **Concern:** Streams 3-8 are Class IV HC0 channels within the unit that run into Class II HC channels below unit. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). Locate unit boundary above blue and white flagged channels.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: Concern: Unit crosses a VPR. **Response:** Incorporate landscape architect input during layout to meet VQO of Maximum Modification

SOILS/WETLANDS: Slopes range from 25-55% in Unit 142. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9) Area to the south of Unit 142 dropped for stability concerns (BMP 13.5)

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. **Concern:** Red-tailed hawk observed adjacent to unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

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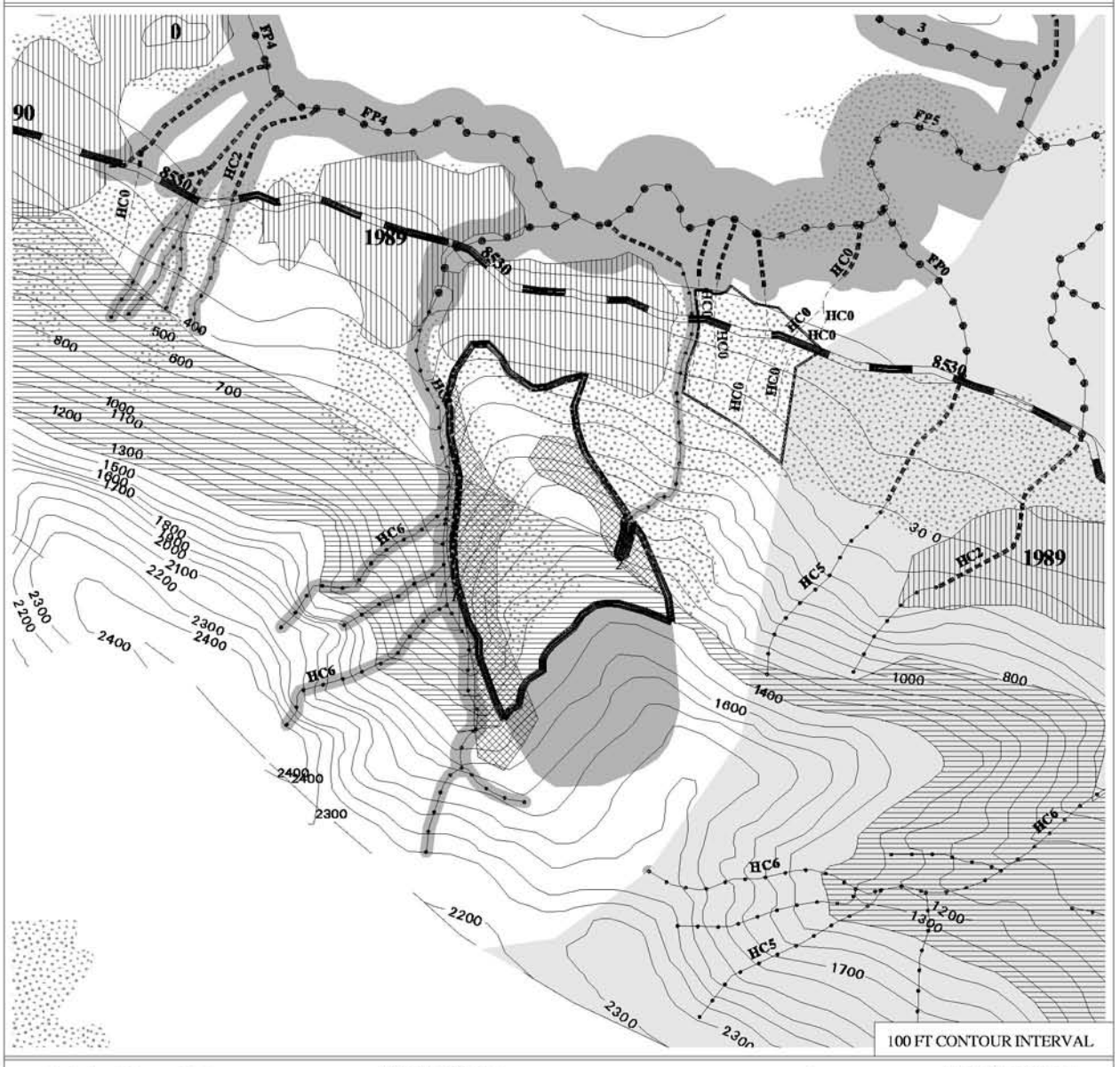
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 143 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 143 OCCURS IN ALTERNATIVE(S): 2 3

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**143**	**In Alternatives:**	2, 3	**Total Unit Acres:**	47.8	**Vol Strata Acres:**	High: 25.1 Med: 17.3 Low: 5.4
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	529	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consist 12-43" DBH western hemlock (37% BA), 9-30" mountain hemlock (37%BA), 9-30" DBH yellow-cedar (14% BA - NW corner) and 24-43" DBH spruce (12% BA). There are several areas of exposed rock and cliffs and slides are present on the steeper slopes. Western hemlock and yellow-cedar advanced regeneration present but not abundant. Wind risk is moderate throughout unit.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (205 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: GIS-mapped streams 1 and 2 are class III HC channels. **Response**: Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: Concern: There are about 25 acres of high vulnerability and 25 acres of moderate vulnerability karst in unit 980. **Response:** The high vulnerability area to the south of the unit is excluded from the proposed helicopter harvest to protect the features in this area and a minimum of partial suspension is require to meet karst resource objectives in the moderate vulnerability area. (BMP 13.2 and 13.9)

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 55-120% in Unit 143. There are about 23 acres of slopes greater than 72% in Unit 143. There is evidence of past landslides in the unit. **Concern:** Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Avoid the slopes over 72% during layout as they are unsuitable for harvest (BMP 13.5). **Concern**: A minimum of partial suspension is required to meet soil quality standards in the rest of the unit (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Areas to the east and west of Unit 143 dropped for stability concerns. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines.

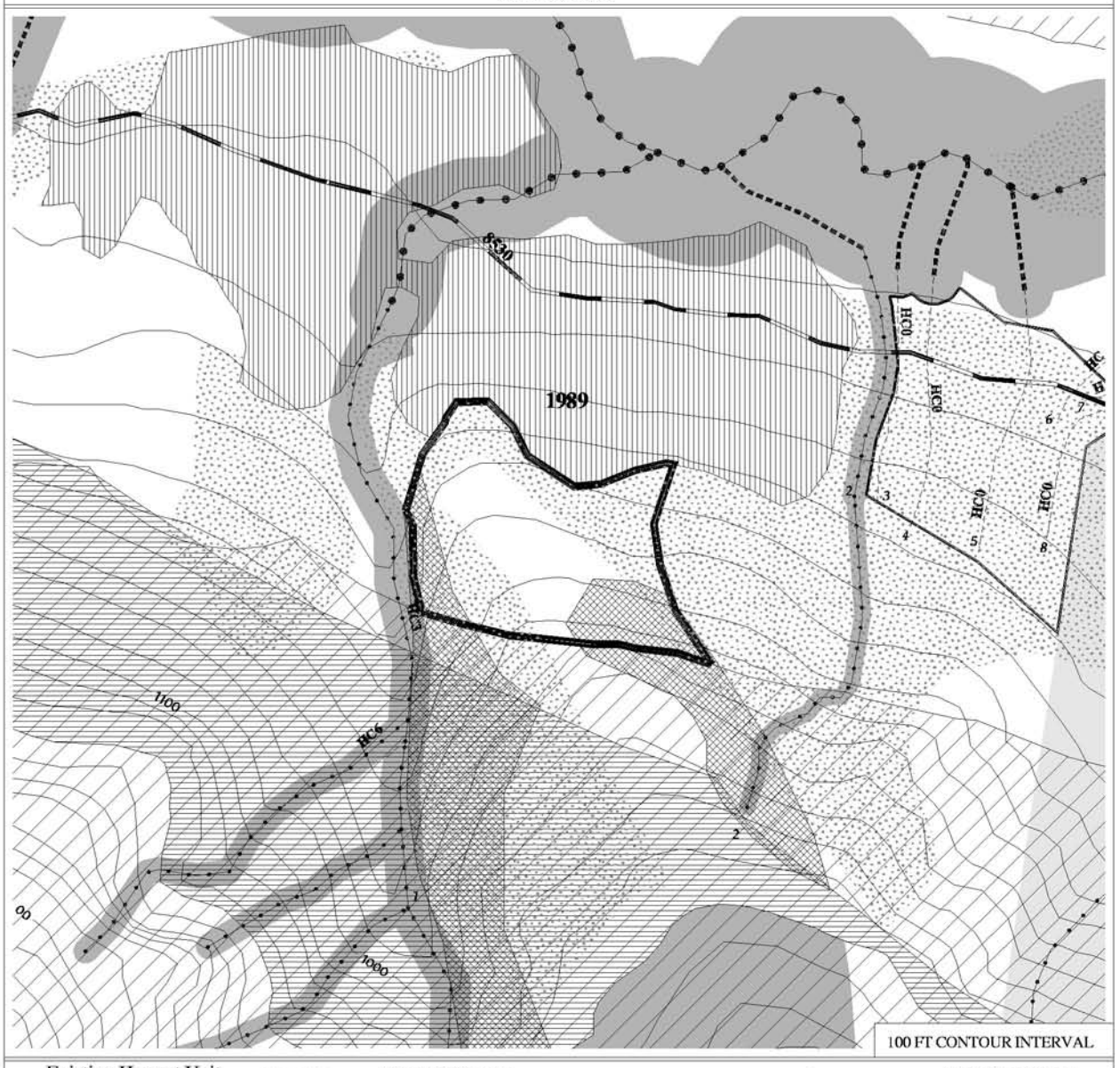
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 143 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 143 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**143**	**In Alternatives:**	4	**Total Unit Acres:**	13.4	**Vol Strata Acres:**	High: 7.8 Med: 5.6 Low: 0
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	124	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consist 12-43" DBH western hemlock (37% BA), 9-30" mountain hemlock (37%BA), 9-30" DBH yellow-cedar (14% BA - NW corner) and 24-43" DBH spruce (12% BA). There are several areas of exposed rock and cliffs and slides are present on the steeper slopes. Western hemlock and yellow-cedar advanced regeneration present but not abundant. Wind risk is moderate throughout unit.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (205 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: GIS-mapped streams 1 and 2 are class III HC channels. **Response**: Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 55-120% in Unit 143. There are about 3 acres of slopes greater than 72% in Unit 143. There is evidence of past landslides in the unit. **Concern:** Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Avoid the slopes over 72% during layout as they are unsuitable for harvest (BMP 13.5). **Concern**: A minimum of partial suspension is required to meet soil quality standards in the rest of the unit (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Areas to the east and west of Unit 143 dropped for stability concerns. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines.

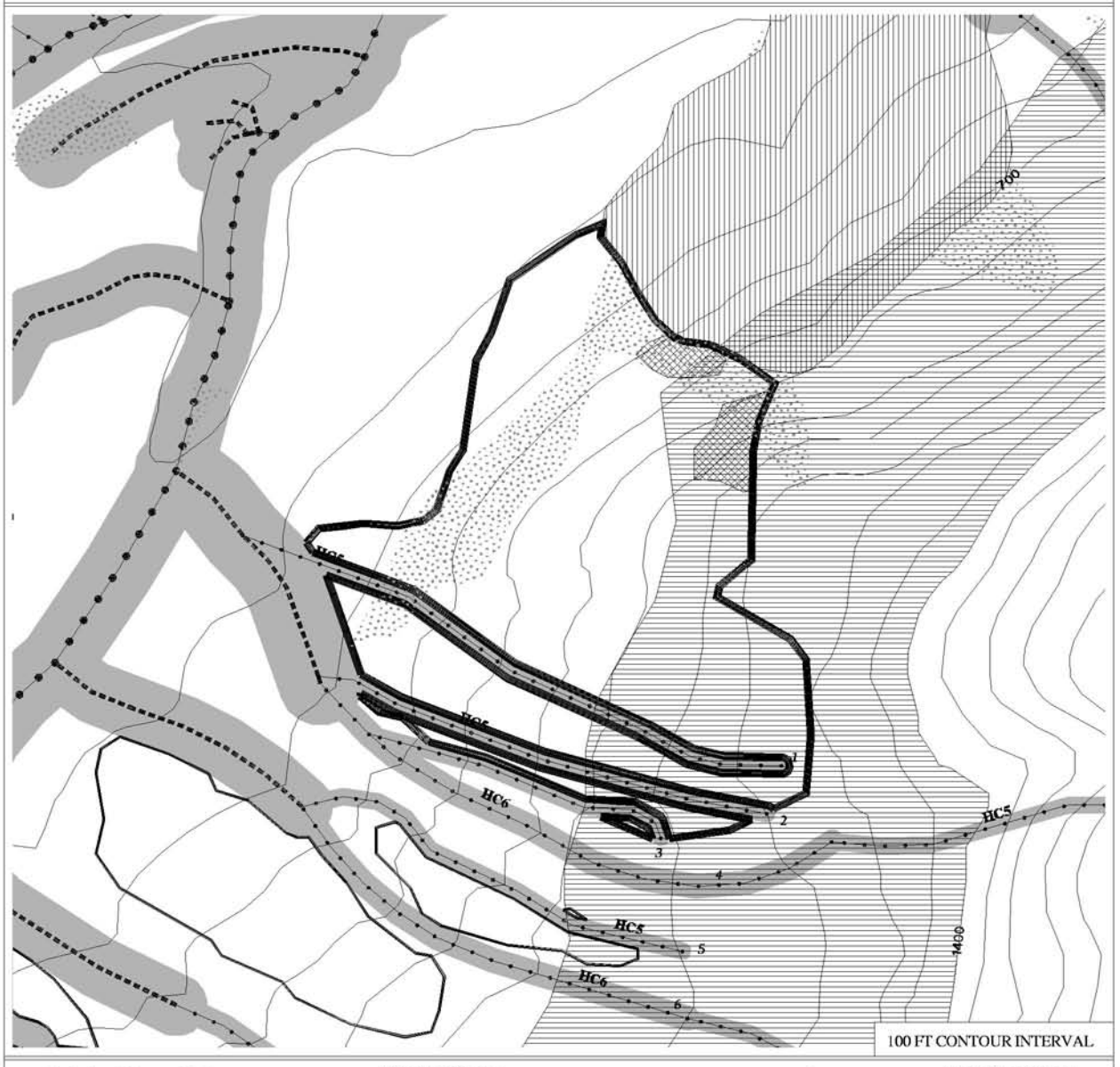
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 149 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 149 OCCURS IN ALTERNATIVE(S): 2 3

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**149**	**In Alternatives:**	2, 3	**Total Unit Acres:**	46.4	**Vol Strata Acres:**	High: 8.8 Med: 35.3 Low: 2.3
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	379	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 12-38" DBH western hemlock (59% BA) and 12-30" DBH spruce (30%) and 12-22" DBH mountain hemlock (11% BA) there is also a minor componemt of 10-16" DBH yellow-cedar in the eastern half of the unit. Western hemlock advanced regeneration is abundant with some spruce also. Wind risk is low throughout unit.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (143 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: GIS-mapped streams 1,2 and 3 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** There is a Class II GIS-mapped alluvial fan channel west of unit. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within active portion of fan or 140 feet of channel (RIP III). Harvest no more than 10% of trees on remainder of fan (RIP III).

GEOLOGY/KARST: Concern: There are about 18 acres of moderate vulnerability karst along the eastern boundary of Unit 149. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 45-90%. Soils are generally well drained with somewhat poorly drained soils on slopes less than 50%. There are 3 acres of slopes greater than 72% near the Northeast boundary. The soils are generally well-drained over bedrock. There are no signs of instability, hollow topography or past landslides in this area. These slopes are straight, smooth slopes about 200 feet long. Any potential landslide would not enter any stream or water body. These small areas are suitable for the proposed IT25 RX. Slopes up to 80% may be harvested with the proposed helicopter prescription and full suspension. Avoid slopes greater than 80% in Unit 149. Only 25% of the volume in these small areas should be removed, avoid group selection and full suspension is required (BMP 13.5, 13.9). Area to the northeast of Unit 149 dropped for stability concerns. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines. **Concern:** Bear den located in unit. **Response:** Maintain a 200-foot forested buffer around den sites.

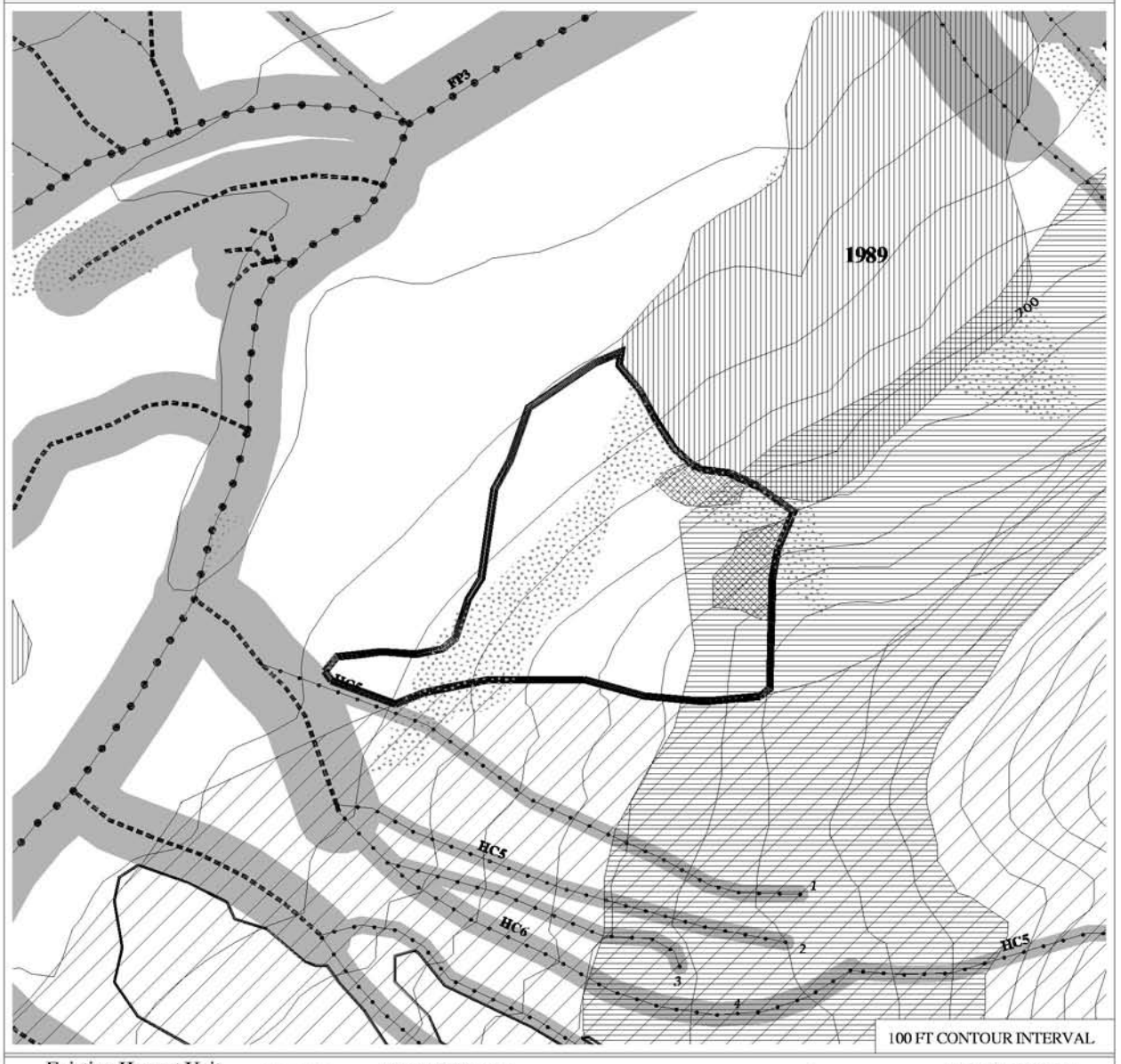
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 149 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 149 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**149**	**In Alternatives:**	4	**Total Unit Acres:**	23.5	**Vol Strata Acres:**	High 7.6 Med: 15.9 Low:0
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	212	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 12-38" DBH western hemlock (59% BA) and 12-30" DBH spruce (30%) and 12-22" DBH mountain hemlock (11% BA) there is also a minor componemt of 10-16" DBH yellow-cedar in the eastern half of the unit. Western hemlock advanced regeneration is abundant with some spruce also. Wind risk is low throughout unit.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (143 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: GIS-mapped streams 1,2 and 3 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** There is a Class II GIS-mapped alluvial fan channel west of unit. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within active portion of fan or 140 feet of channel (RIP III). Harvest no more than 10% of trees on remainder of fan (RIP III).

GEOLOGY/KARST: Concern: There are about 5 acres of moderate vulnerability karst along the eastern boundary of Unit 149. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 45-90%. Soils are generally well drained with somewhat poorly drained soils on slopes less than 50%. There are 3 acres of slopes greater than 72% near the Northeast boundary. The soils are generally well-drained over bedrock. There are no signs of instability, hollow topography or past landslides in this area. These slopes are straight, smooth slopes about 200 feet long. Any potential landslide would not enter any stream or water body. These small areas are suitable for the proposed IT25 RX. Slopes up to 80% may be harvested with the proposed helicopter prescription and full suspension. Avoid slopes greater than 80% in Unit 149. Only 25% of the volume in these small areas should be removed, avoid group selection and full suspension is required (BMP 13.5, 13.9). Area to the northeast of Unit 149 dropped for stability concerns. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines.

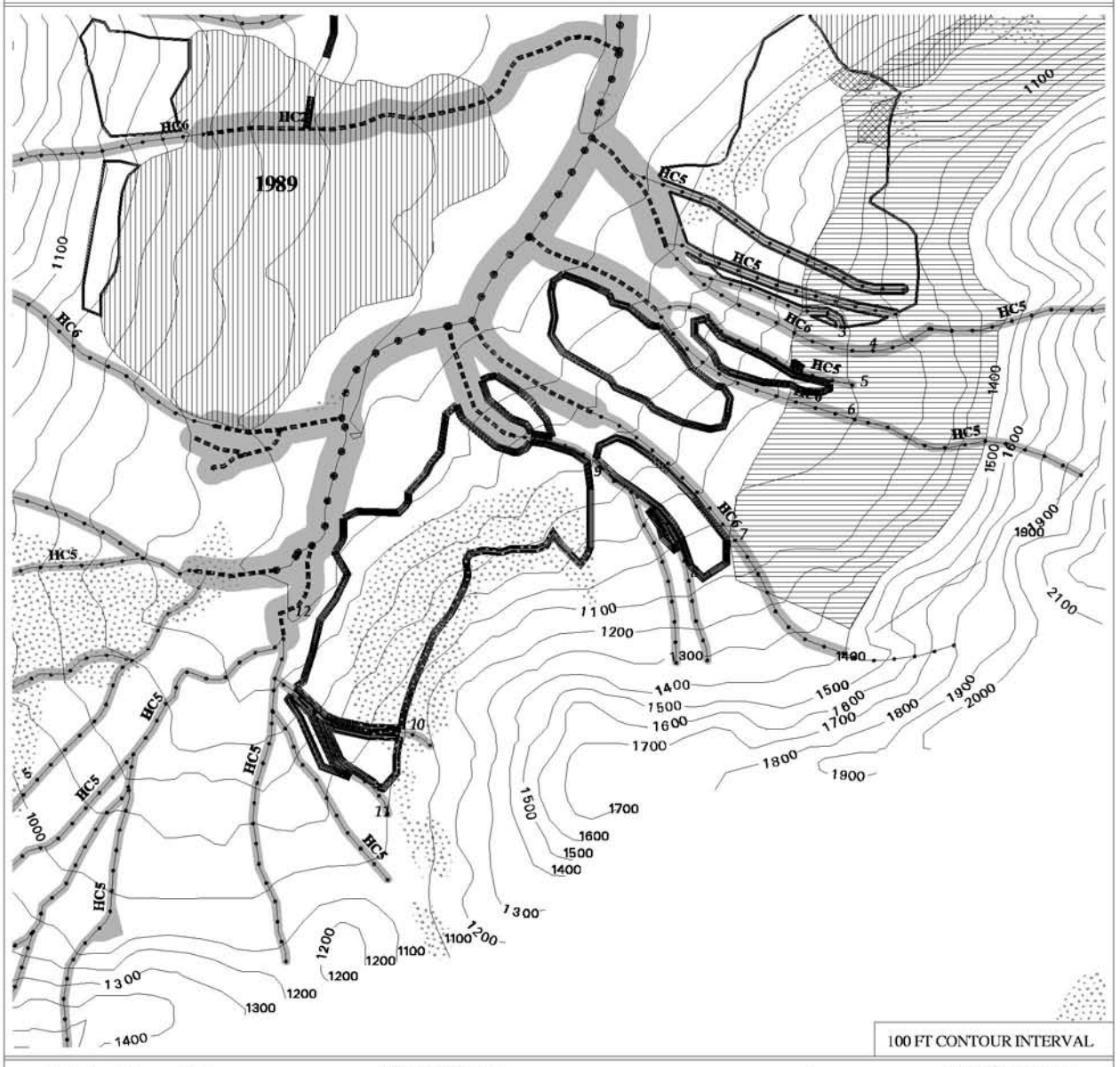
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 151 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 151 OCCURS IN ALTERNATIVE(S): 2 3

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number: **151**	**In Alternatives:** 2, 3	**Total Unit Acres:** 72.8	**Vol Strata Acres:** High: 24.7 Med: 32.0 Low: 16.1
VCU Number: 2100	**Harvest System:** HE	**Net Estimated Harvest Volume (MBF):** 859	**Prescription /Percent Retention:** ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists of 9-38" DBH western hemlock (64% BA), 12-47" DBH spruce (23% BA), 9-30" DBH mountain hemlock (10% BA) and 24-27" DBH yellow-cedar (3% BA-eastern half). The northern portion contains the best volume. Slopes are fairly uniform and mostly-well drained in this part of the unit. The southern potion is less productive. Western hemlock advanced regeneration is abundant with some yellow-cedar and spruce also. Wind risk is moderate.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (190 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: GIS-mapped streams 5 and 6 are Class III HC channels that converge into a Class II HC channel. **Response:** Category B protection for Class III segments (BMP 12.6, 13.14). No harvest within v-notch (RIP III). Category A protection for Class II segment. (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III).

GEOLOGY/KARST: Concern: There is less than 1 acre of moderate vulnerability karst in Unit 151. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 45-65% in Unit 151. **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the southeast of Unit 151 dropped for stability concerns (BMP 13.5).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines.

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 163 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 163 OCCURS IN ALTERNATIVE(S): 2

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**163**	**In Alternatives:**	2	**Total Unit Acres:**	22.6	**Vol Strata Acres:**	High: 2.2 Med: 20.4 Low:0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	514	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-34" DBH western hemlock (55% BA), 40-42" DBH spruce (18% BA), and 16-22" DBH yellow-cedar (27% BA). Western hemlock and yellow-cedar advanced regeneration is moderately abundant with some spruce also present. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit includes stream buffers. This unit contains 2 acres of high value marten habitat in the NW corner. Designate reserve trees (including yellow-cedar if possible) of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees adjacent to stream buffer if possible as specified under wildlife section. High wind risk area is along northern unit boundary. A high wind risk boundary may be created on this boundary by retaining trees less than 16" DBH within specified distance of one site tree height from boundary. Review during layout to determine if windfirming is warranted.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary road 66 accesses unit from existing Road 8534 via planned NFSR 853092. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Lower sections of streams 4, 6, and 11 are Class II HC channels. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). Manage 120 feet beyond stream buffer for windfirmness, or increase width of stream buffer if selective harvest is not feasible. **Concern:** Stream 2 is a Class II MM channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel or within floodplain (RIP III). Manage 120 feet beyond stream buffer for windfirmness, or increase width of stream buffer if selective harvest is not feasible. **Concern:** Streams 1, 3, 4 (upper) 5, 6 (upper) 7, and 9 are CLass IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 9 is a Class IV HC channel with unstable side-slopes. **Response:** Category B protection and split yard to protect side-slopes. **Concern:** Temporary road – stream crossings **Response:** Stream 11 crossing will be a log stringer bridge unless the road is located above fish habitat (BMP 14.17). Other crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: slopes range from 15-55% in Unit 163. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9) Area to the northwest of Unit 163 dropped for stability concerns (BMP 13.5).
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. Rentention should be contiguous with rentenion in Unit 1631.

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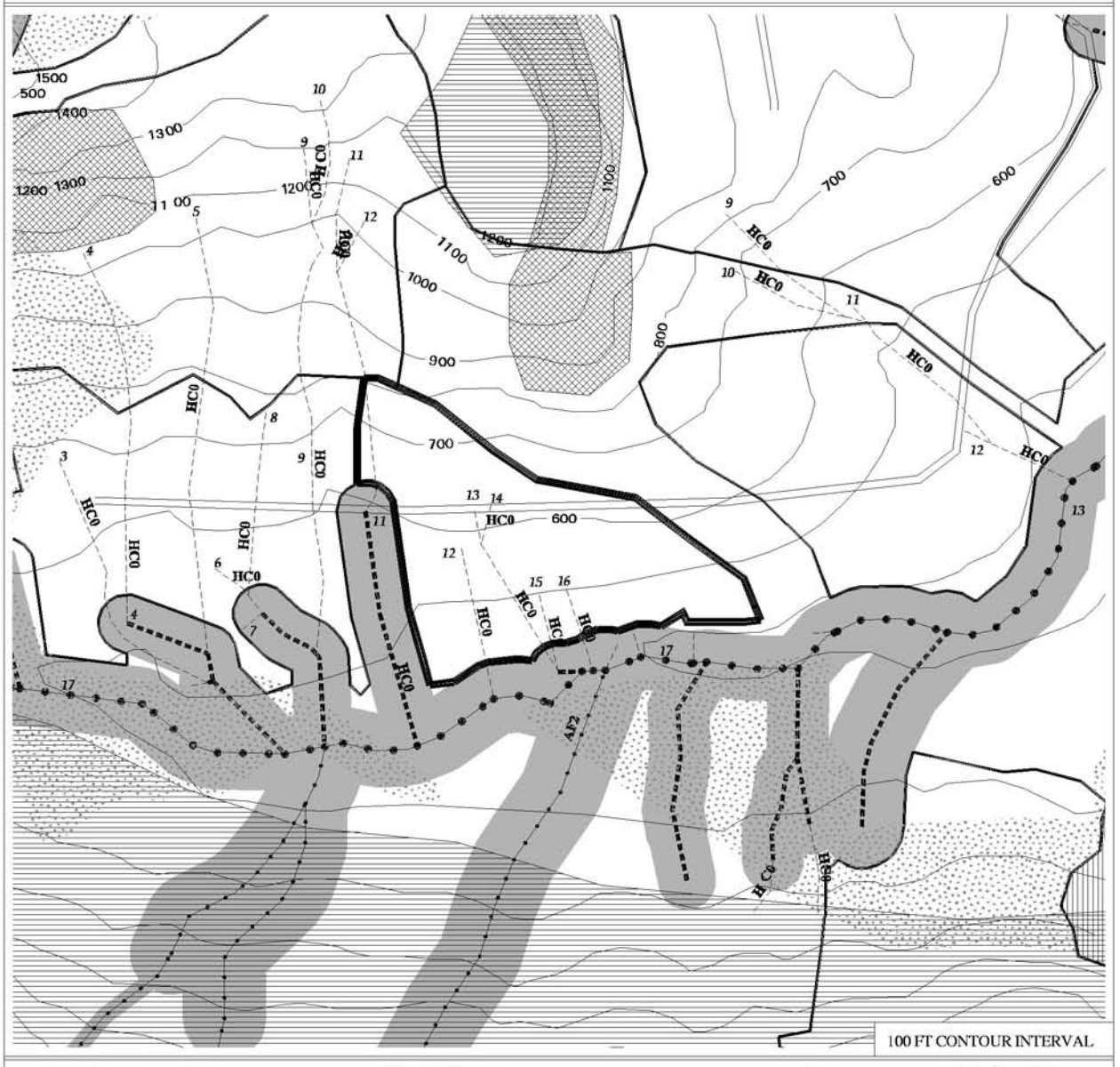
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 164 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 164 OCCURS IN ALTERNATIVE(S): 2

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**164**	**In Alternatives:**	2	**Total Unit Acres:**	16.9	**Vol Strata Acres:**	High: 0 Med: 16.9 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	378	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of a good mix of 11-30" western hemlock (39% BA), 20-27" DBH mountain hemlock (11% BA), 20-35" DBH spruce (22% BA) and 16-34" DBH yellow-cedar (28% BA). Western hemlock and yellow-cedar advanced regeneration is moderately abundant with some spruce also present. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit includes stream buffers. High wind risk area is along northern unit boundary. A high wind risk boundary may be created on this boundary by retaining trees less than 16" DBH within specified distance of one site tree height from boundary. Review during layout to determine if windfirming is warranted.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: Temporary road 66 accesses unit from existing Road 8534 via planned NFSR 853092. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 11 (upper) is a Class IV HC channel with unstable side-slopes draining into fish habitat. **Response:** Category B protection with split yard to protect side-slopes (BMP 13.16, RIP II). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 11 (lower) is a Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). Manage 120 feet beyond stream buffer for windfirmness, or increase width of stream buffer if selective harvest is not feasible (RIP II). **Concern:** Streams 12, 13, 14, 15, and 16 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 17 is a Class I MM/MC channel along the southern boundary of the unit. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). Manage 120 feet beyond stream buffer for windfirmness, or increase width of stream buffer if selective harvest is not feasible (RIP II). **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 15-55% in Unit 164. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: No concerns

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 165 VCU: 2090/2100 HARVEST SYSTEM: Cable

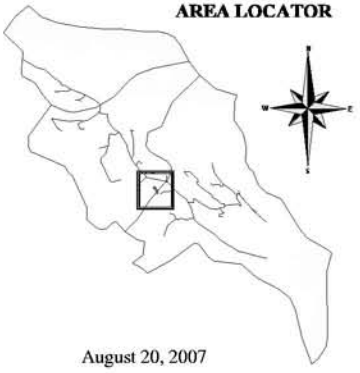
UNIT 165 OCCURS IN ALTERNATIVE(S): 2

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**165**	**In Alternatives:**	2	**Total Unit Acres:**	12.3	**Vol Strata Acres:**	High: 0 Med: 3.4 Low: 8.9
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	204	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-35"DBH mountain hemlock (58% BA), 28-38" DBH western hemlock (25% BA), with a smaller component of 16-20" DBH spruce (8% BA) and 12-16" DBH yellow-cedar (8% BA). Western hemlock advanced regeneration is abundant with lesser amounts of spruce and yellow-cedar. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary road 65A accesses unit from existing Road 8534 via planned NFSR 853092. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Northern boundary stream (1) is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Streams 1,2,and 3 within unit are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 1 enters a Class II MM channel on the southern margin of unit. **Response:** Locate unit north of blue and white flagged channel if feasible. Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** Windthrow risk is moderate to high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers. **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: Concern: There are about 6 acres of moderate vulnerability karst along the western boundary of Unit 165. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: Slopes range from 35-110% in Unit 165, with most of the unit about 45-55%. These is less than 1 acre of slopes greater than 72% along the backline (western boundary) of Unit 165. The soils are shallow to bedrock and well-drained on smooth straight topography. Most of the slopes greater than 72% are contained in Unit 1652. There are not signs of instability in this unit and any potential landslide would not enter any stream or water body. These small areas are suitable for the proposed cable harvest with full suspension (BMP 13.5, 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).
WILDLIFE: No concerns

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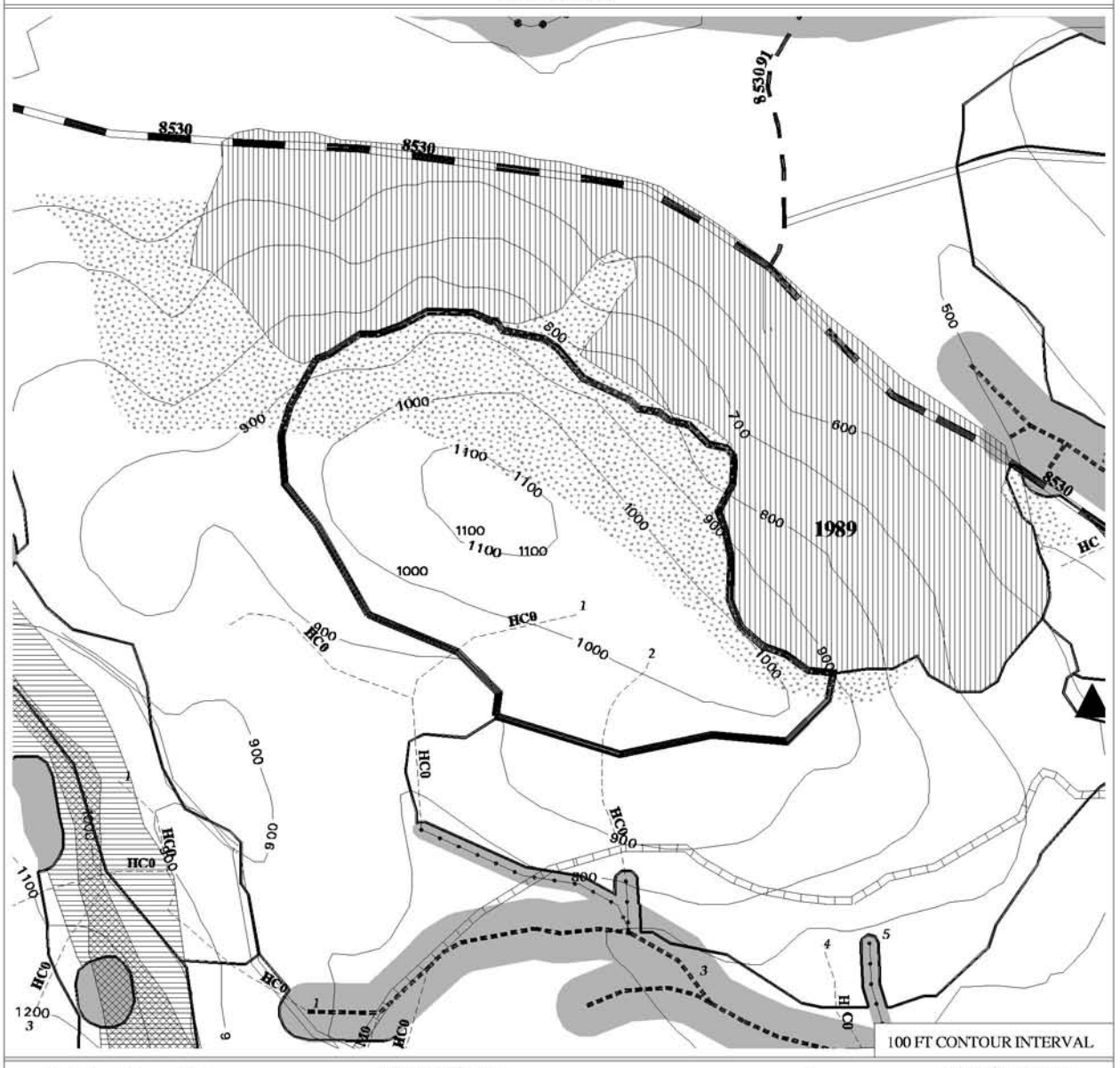
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 167 VCU: 2090/2100 HARVEST SYSTEM: Helicopter

UNIT 167 OCCURS IN ALTERNATIVE(S): 2 3

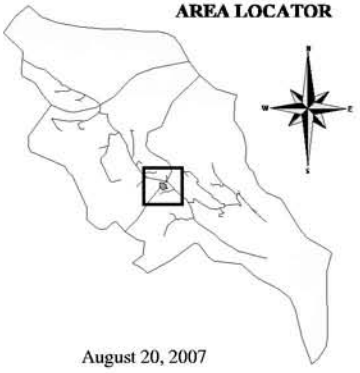
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**167**	**In Alternatives:**	2, 3	**Total Unit Acres:**	41.7	**Vol Strata Acres:**	High: 17.5 Med: 24.2 Low: 0
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	556	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-39" DBH western hemlock (48% BA), 16-47" DBH spruce (18% BA), 9-40" DBH yellow-cedar (18% BA) and and 9-30" DBH mountain hemlock (16% BA). Soils are well drained except for the ridge top in the center of the unit which is scabby with poorer drainage. Wind risk is moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (274 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. To offset the wind risk on the ridge top in the center of the unit decrease the basal area removed to 25% and target the tallest trees for removal. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 and 2 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-80% in Unit 167. There are about 3 acres of slopes greater than 72%. **Concern:** Areas greater than 72% slope are along the northern boundary. **Response:** Involve a soil scientist during layout to verify small inclusions where slopes over 72% are suitable for timber harvest. (BMP 13.9)

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines. **Concern:** Red-tailed hawk observed adjacent to unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

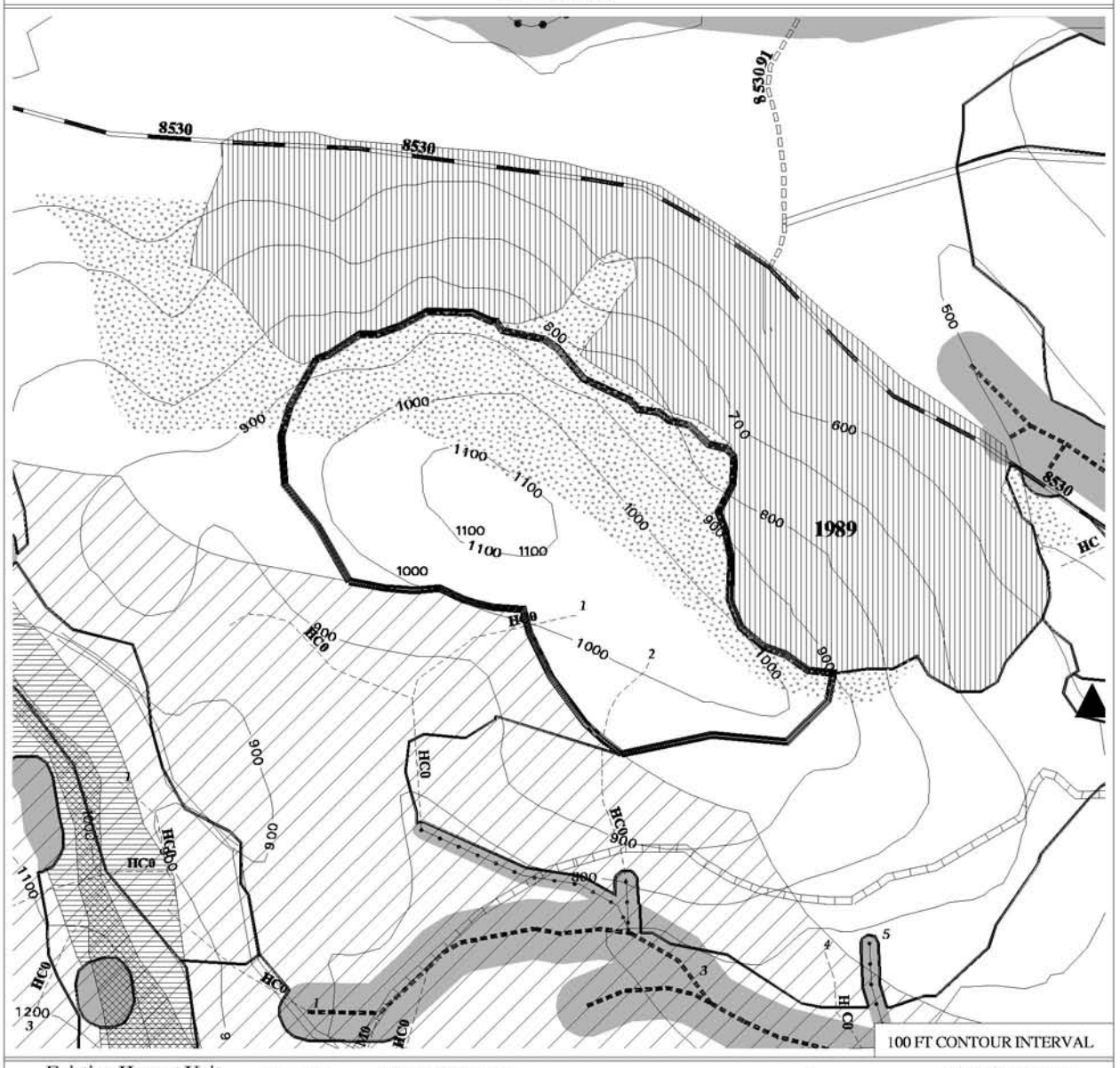
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 167 VCU: 2090/2100 HARVEST SYSTEM: Helicopter

UNIT 167 OCCURS IN ALTERNATIVE(S): 4

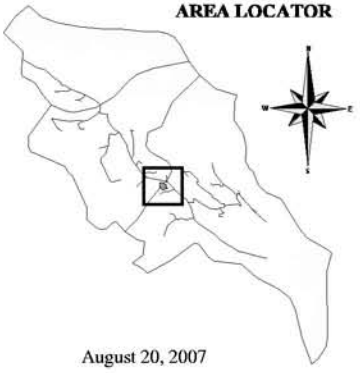
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**167**	**In Alternatives:**	4	**Total Unit Acres:**	37.8	**Vol Strata Acres:**	High: 17.5 Med: 20.3 Low: 0
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	511	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-39" DBH western hemlock (48% BA), 16-47" DBH spruce (18% BA), 9-40" DBH yellow-cedar (18% BA) and 9-30" DBH mountain hemlock (16% BA). Soils are well drained except for the ridge top in the center of the unit, which is scabby with poorer drainage. Wind risk is moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (274 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. To offset the wind risk on the ridge top in the center of the unit decrease the basal area removed to 25% and target the tallest trees for removal. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 and 2 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-80% in Unit 167. There are about 3 acres of slopes greater than 72%. **Concern:** Areas greater than 72% slope are along the northern boundary. **Response:** Involve a soil scientist during layout to verify small inclusions where slopes over 72% are suitable for timber harvest. (BMP 13.9)

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines.

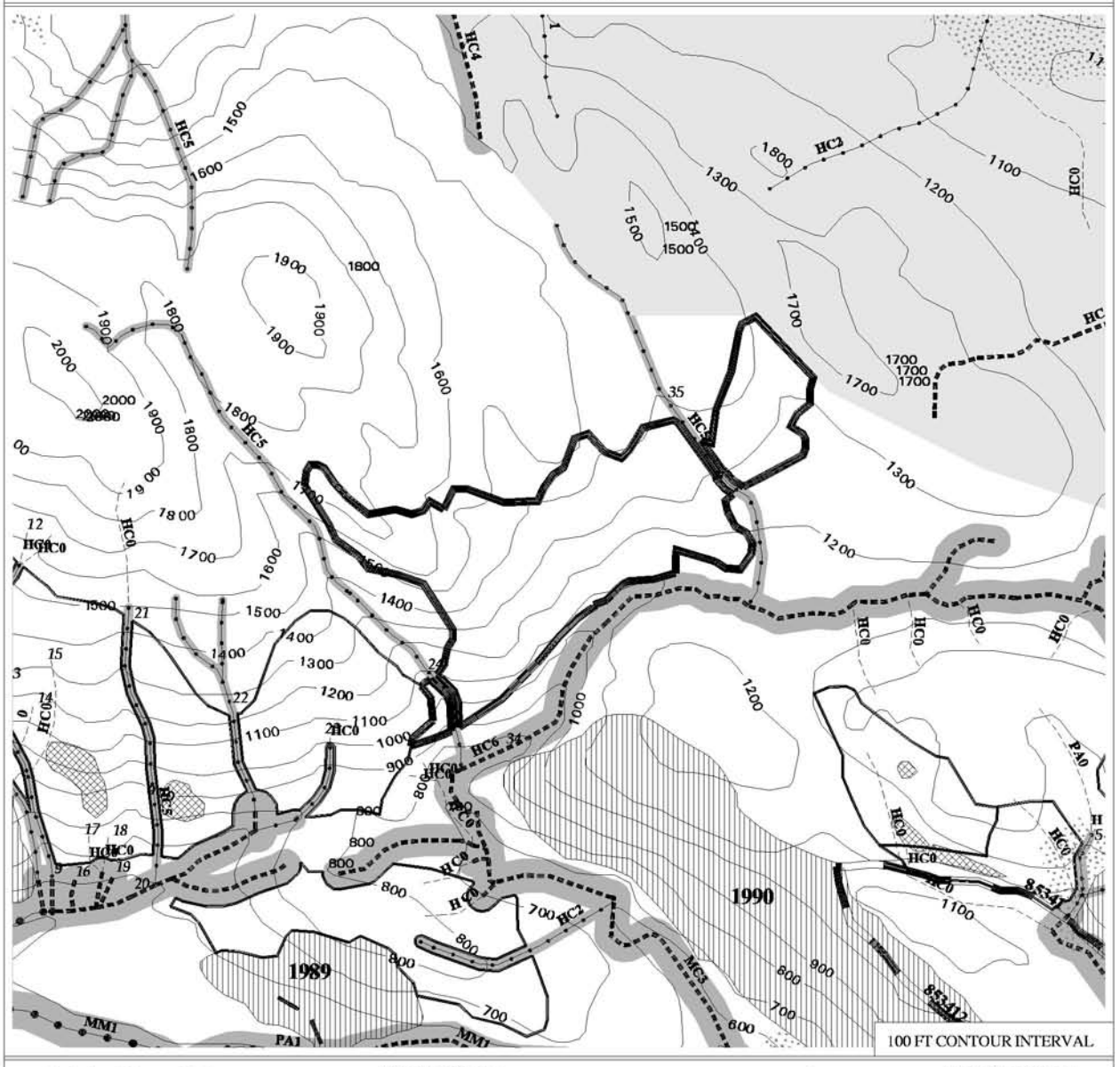
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 168 VCU: 2100/2090 HARVEST SYSTEM: Helicopter

UNIT 168 OCCURS IN ALTERNATIVE(S): 2 3

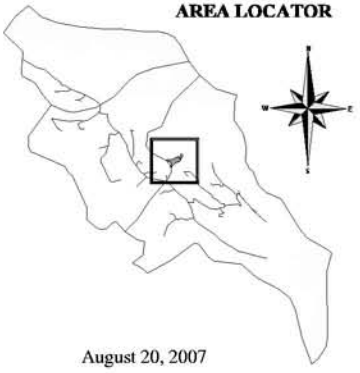
0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**168**	**In Alternatives:**	2, 3	**Total Unit Acres:**	72.0	**Vol Strata Acres:**	High: 0 Med: 66.4 Low: 5.6
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	796	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists of 9-35" DBH mountain hemlock (39% BA), 9-35" DBH western hemlock (31% BA) and 9-42" DBH spruce (29% BA). The western and upper slopes of the eastern portion of the unit are the most productive. The lower slopes are scrubby with poorly drained hydric soils. Much of the hemlock throughout the unit is uniform in diameter and relatively even-aged. Western hemlock advanced regeneration is abundant with some spruce also present. Wind risk is low.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (250 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** GIS-mapped streams 24 and 35 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** GIS-mapped stream 34 is a Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-55% in Unit 168. **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Areas to the southwest and southeast of unit 168 dropped for stability concerns (BMP 13.5).

WILDLIFE: No concerns

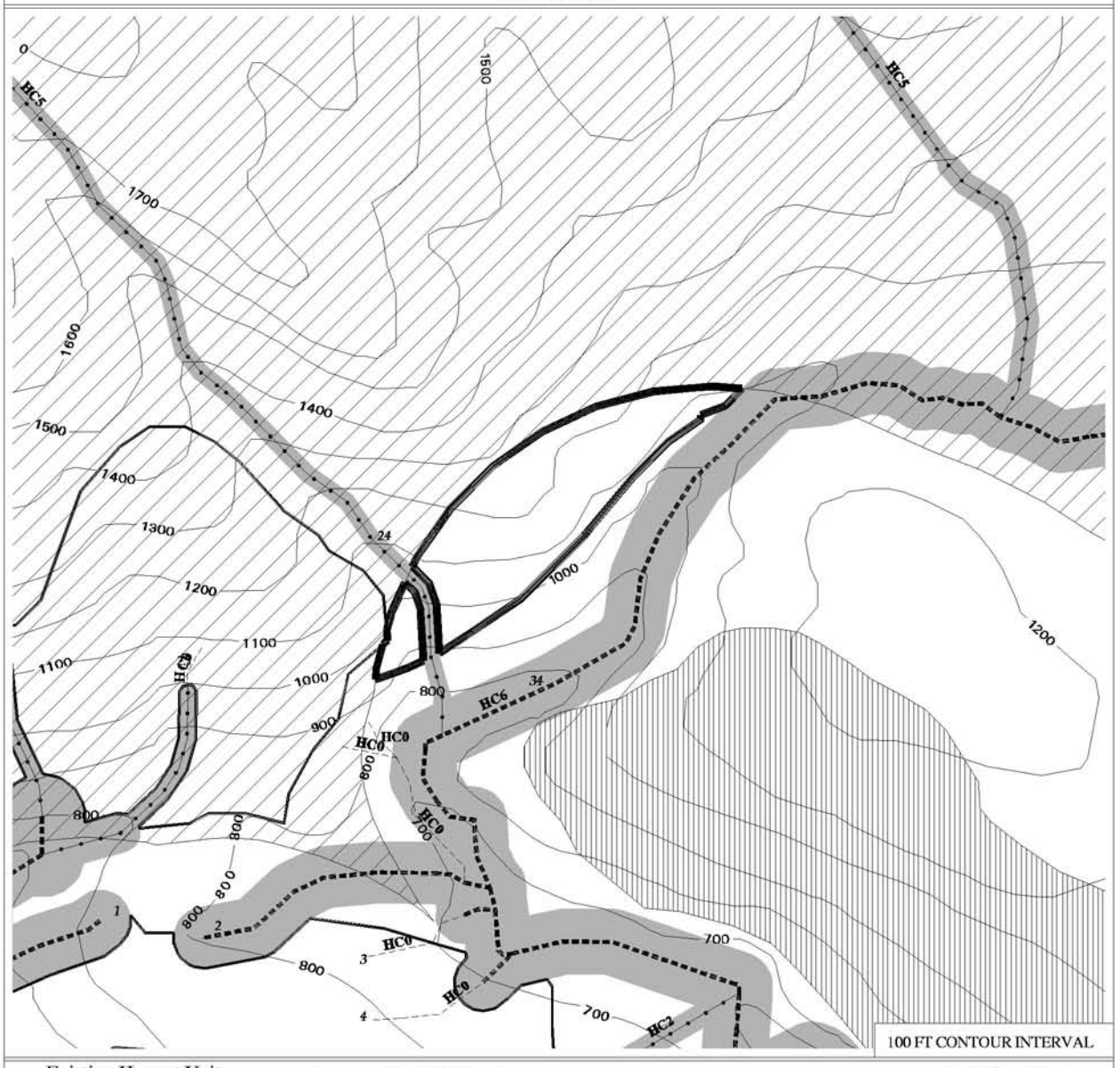
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 168 VCU: 2100/2090 HARVEST SYSTEM: Helicopter

UNIT 168 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**168**	**In Alternatives:**	4	**Total Unit Acres:**	9.6	**Vol Strata Acres:**	High: 0 Med: 9.6 Low: 0
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	101	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists of 9-35" DBH mountain hemlock (39% BA), 9-35" DBH western hemlock (31% BA) and 9-42" DBH spruce (29% BA). The western and upper slopes of the eastern portion of the unit are the most productive. The lower slopes are scrubby with poorly drained hydric soils. Much of the hemlock throughout the unit is uniform in diameter and relatively even-aged. Western hemlock advanced regeneration is abundant with some spruce also present. Wind risk is low.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (250 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: GIS-mapped streams 24 and 35 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** GIS-mapped stream 34 is a Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-55% in Unit 168. **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. Area to the southwest of Unit 168 dropped for stability concerns (BMP 13.5).

WILDLIFE: No concerns

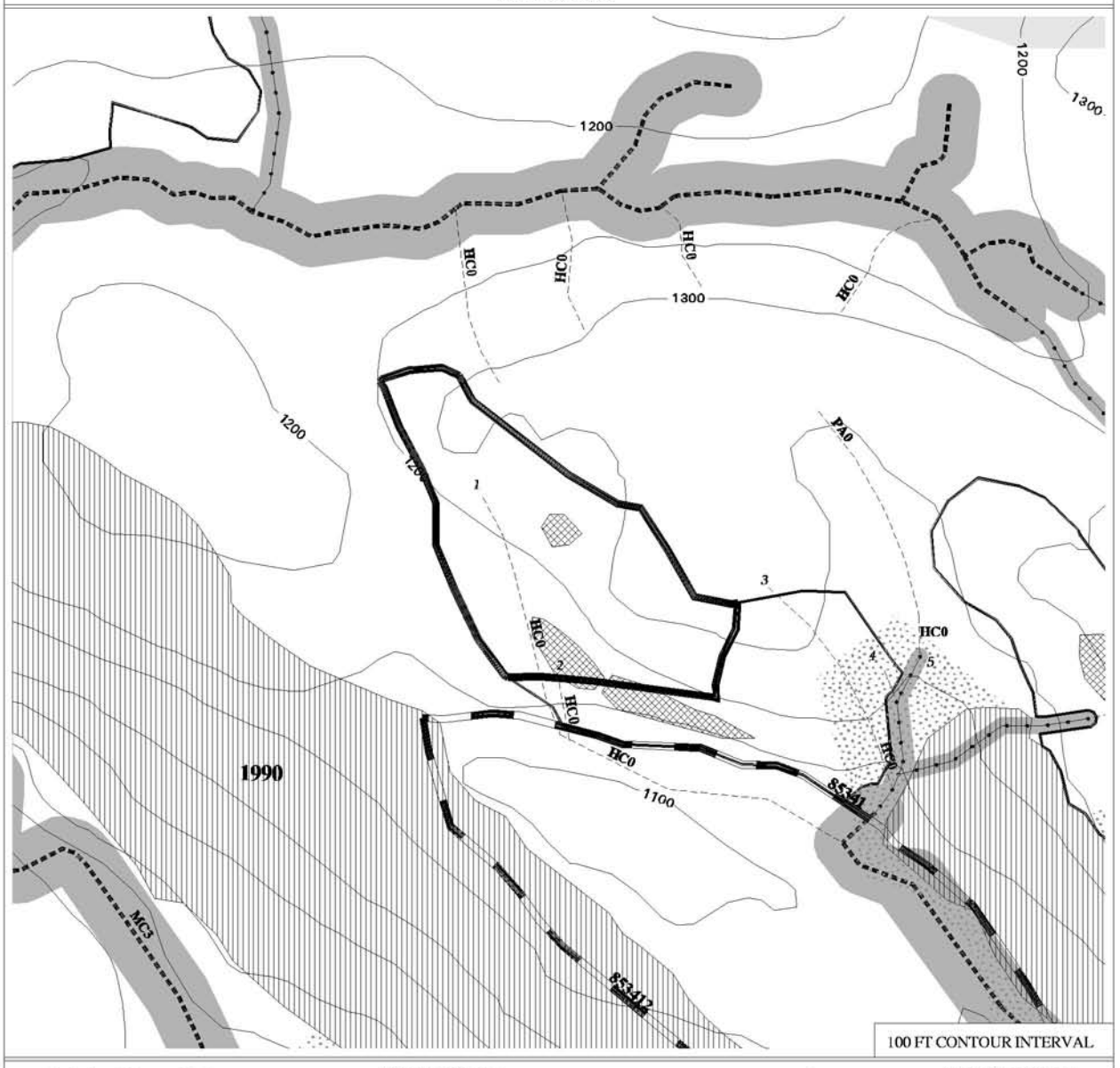
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 171 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 171 OCCURS IN ALTERNATIVE(S): 2 3

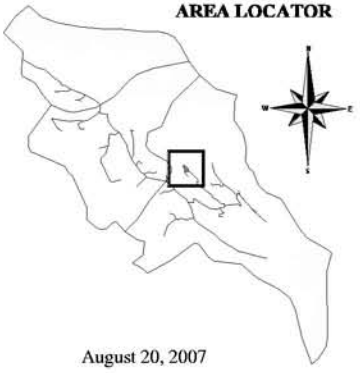
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number: 171	**In Alternatives:** 2, 3	**Total Unit Acres:** 16.5	**Vol Strata Acres:** High: 0 Med: 13.1 Low: 3.4
VCU Number: 2100	**Harvest System:** HE	**Net Estimated Harvest Volume (MBF):** 120	**Prescription /Percent Retention:** ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-35" DBH mountain hemlock (39% BA), 9-35" DBH western hemlock (31% BA) and 9-42" DBH spruce (29% BA). The western and upper slopes of the eastern portion of the unit are the most productive. The lower slopes are scrubby with poorly drained hydric soils. Much of the hemlock throughout the unit is uniform in diameter and relatively even-aged. Western hemlock advanced regeneration is abundant with some spruce also present. Wind risk is moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (260 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 and 2 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-75% in Unit 171. There is less than 1 acre of slopes over 72%. The soils are well drained in dense till. **Concern:** Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Avoid the steep area during layout (BMP 13.5). **Concern**: A minimum of partial suspension is required to meet soil quality standards in the rest of the unit (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Unit is located in a potential travel corridor that may maintain connectivity to the OG LUD. **Response:** Proposed harvest system will retain 75% of the basal area. Retention will help to maintain connectivity. **Concern:** Goshawk observed around the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer. **Concern:** Red-tailed hawk observed adjacent to unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

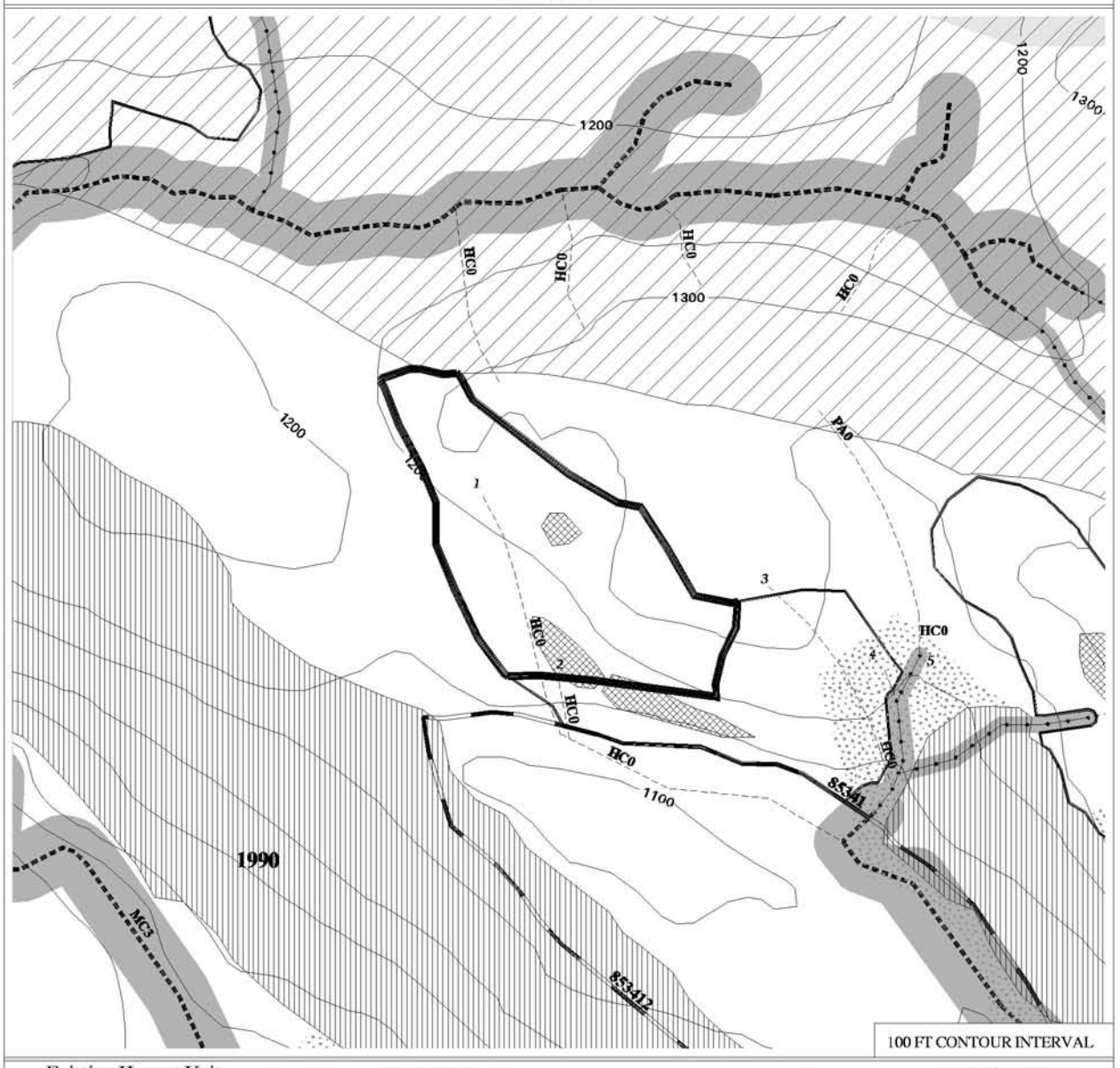
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 171 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 171 OCCURS IN ALTERNATIVE(S): 4

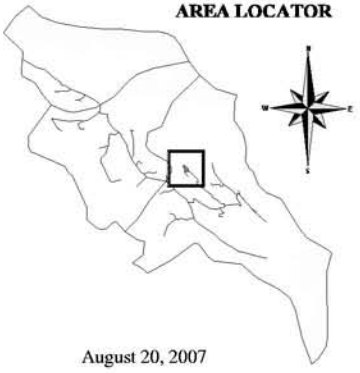
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**171**	**In Alternatives:**	4	**Total Unit Acres:**	16.4	**Vol Strata Acres:**	High: 0 Med: 13.0 Low: 3.4
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	120	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists of 20-38" DBH western hemlock (43% BA), 12-28" DBH mountain hemlock (36% BA) and 20-38" DBH spruce (21% BA). The southern portion of the unit contains most of the larger diameter trees and the northern portion is almost pure mountain hemlock. Western hemlock advanced regeneration is abundant with some spruce also present. Wind risk is moderate.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (260 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 and 2 are Class IV HC channels. **Response:**Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-75% in Unit 171. There is less than 1 acre of slopes over 72%. The soils are well drained in dense till. **Concern:** Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Avoid the steep area during layout (BMP 13.5). **Concern**: A minimum of partial suspension is required to meet soil quality standards in the rest of the unit (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Unit is located in a potential travel corridor that may maintain connectivity to the OG LUD. **Response:** Proposed harvest system will retain 75% of the basal area. Retention will help to maintain connectivity. **Concern:** Goshawk observed around the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer. **Concern:** Red-tailed hawk observed adjacent to unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

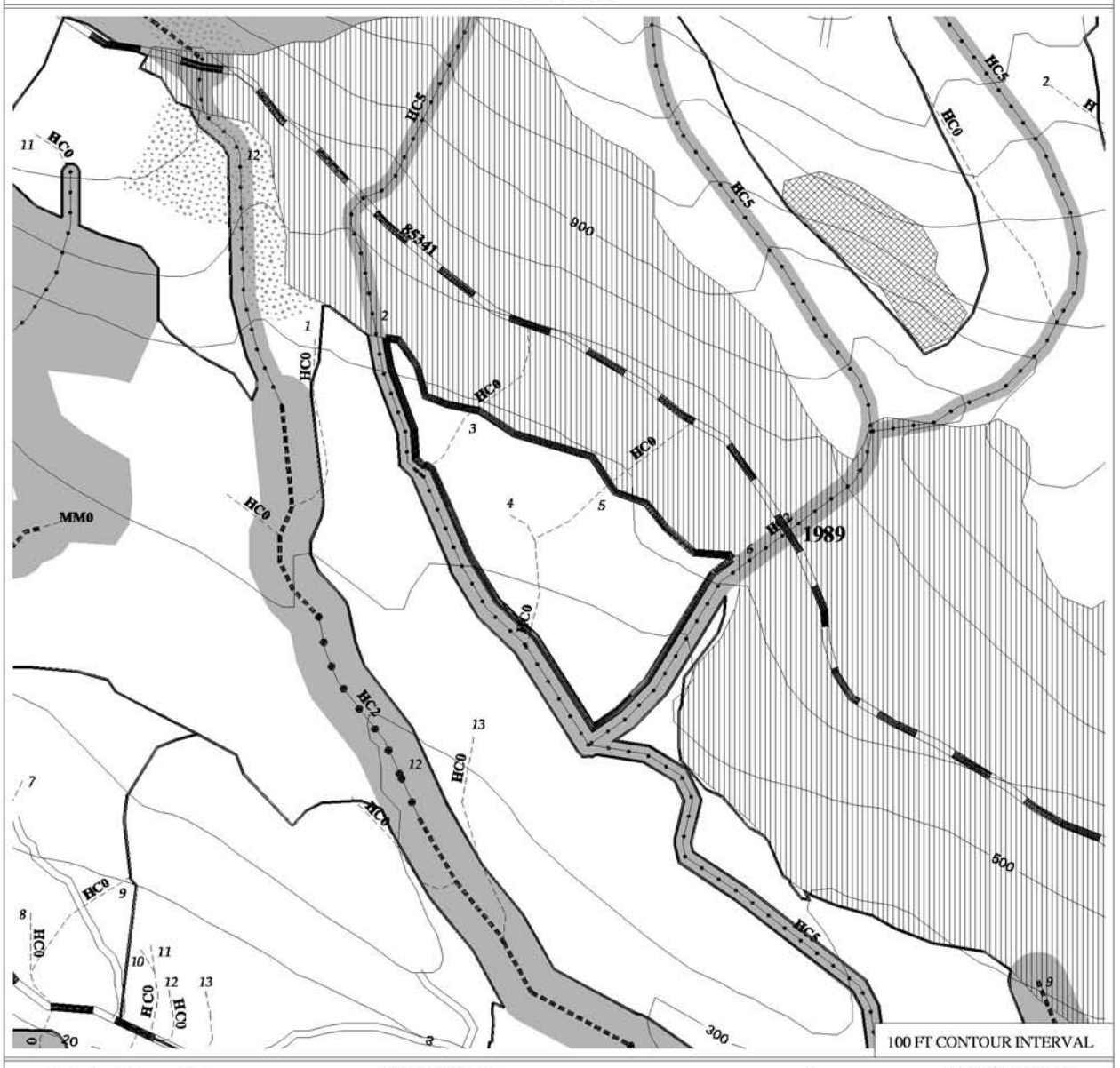
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 174 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 174 OCCURS IN ALTERNATIVE(S): 2 3 4

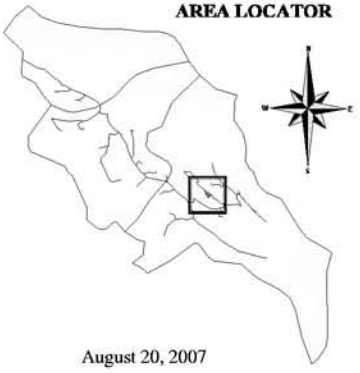
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**174**	**In Alternatives:**	2, 3, 4	**Total Unit Acres:**	14.1	**Vol Strata Acres:**	High: 0 Med: 14.1 Low: 0
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	164	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 20-38" DBH western hemlock (43% BA), 12-28" DBH mountain hemlock (36% BA) and 20-38" DBH spruce (21% BA). The southern portion of the unit contains most of the larger diameter trees and the northern portion is almost pure mountain hemlock. Western hemlock advanced regeneration is abundant with some spruce also present. Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (120 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 2 and 6 are Class III HC/MC channels along unit boundaries. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 3 is a Class IV HC channel with steep, unstable side-slopes. **Response:** Category B protection (BMP 12.6, 13.14). **Concern:** Streams 4 and 5 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-55% in Unit 174. **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements.

WILDLIFE: No concerns

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 175 VCU: 2100 HARVEST SYSTEM: Helicopter

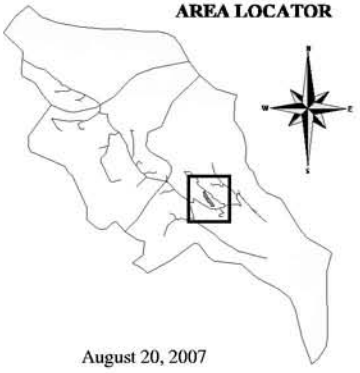
UNIT 175 OCCURS IN ALTERNATIVE(S): 2 3 4

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**175**	**In Alternatives:**	2, 3, 4	**Total Unit Acres:**	40.4	**Vol Strata Acres:**	High: 0 Med: 5.9 Low: 34.5
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	326	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: This stand consists of many smaller defective 9-19" DBH western hemlock (52% BA), some larger diameter 20-35" DBH spruce (24% BA), 9-23" DBH yellow-cedar(19% BA) and 20-24" DBH mountain hemlock (5% BA). Wind risk is low.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (160 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 is a Class IV HC channel with unstable side-slopes that runs into a fish stream. **Response:** Category B protection (BMP 13.16). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 2 is Class III HC/MC channel along unit boundary. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 12 is a Class II HC/MC channel along unit boundary. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet of channel and side-slope break. (RIP III). **Concern:** Streams 13 and 14 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-55% in Unit 175. **Concern:** wetlands exist in the northern quarter of Unit 175. **Response:** Helicopter logging will protect wetlands and meet resource objectives. (BMP 12.5) Rest of unit is suitable for proposed helicopter harvest. (BMP 13.9)

WILDLIFE: **Concern:** Goshawk observed around the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

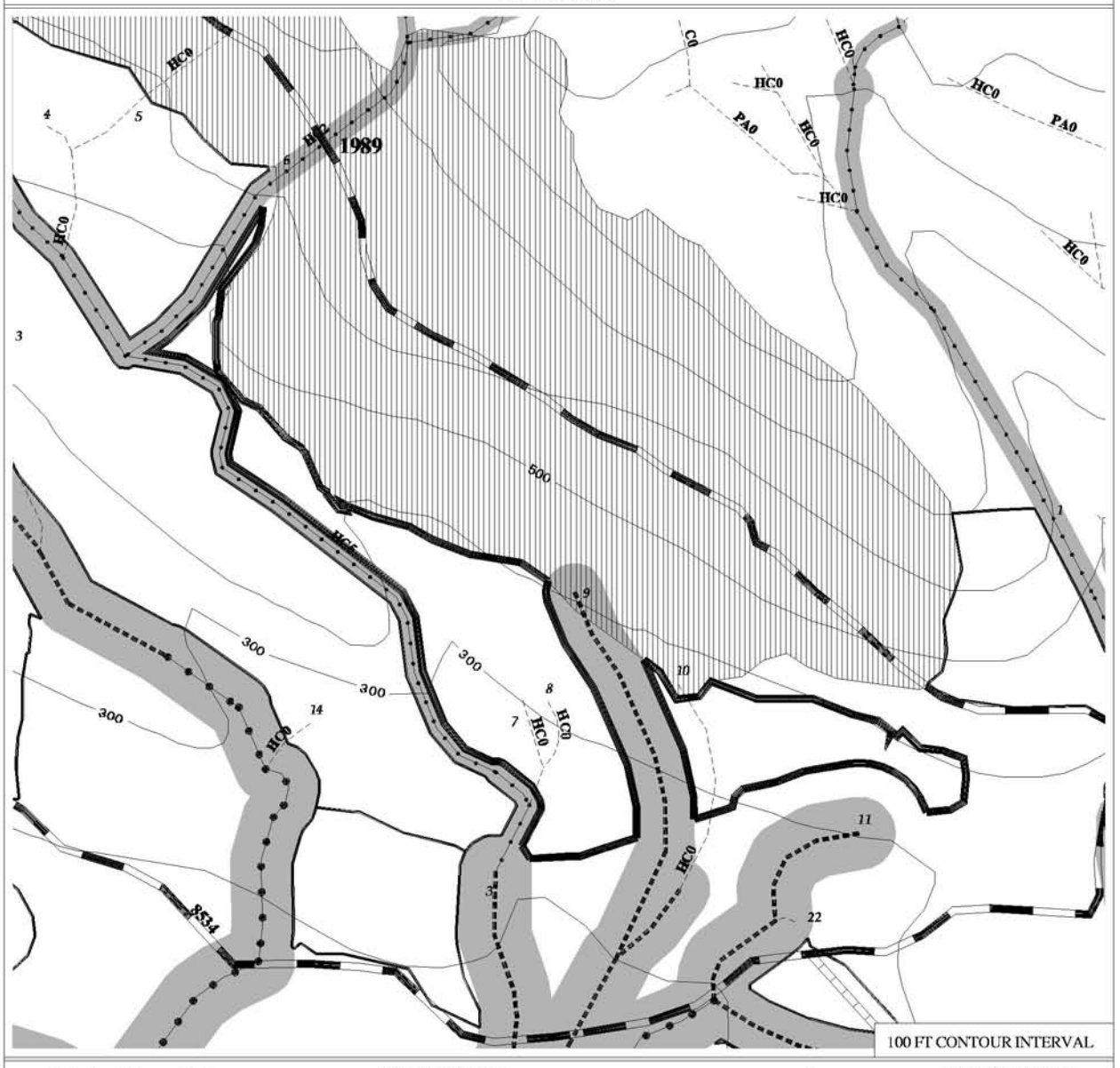
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 176 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 176 OCCURS IN ALTERNATIVE(S): 2 3 4

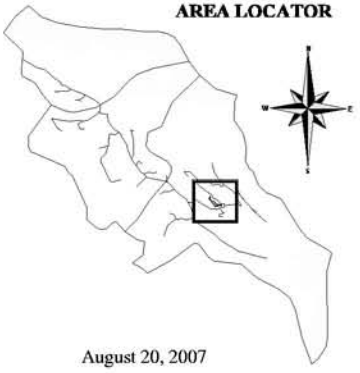
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**176**	**In Alternatives:**	2, 3, 4	**Total Unit Acres:**	21.4	**Vol Strata Acres:**	High: 0 Med: 6.6 Low: 14.8
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	121	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: This stand consists primarily of smaller diameter, defective 9-20" DBH western hemlock (63% BA), 12-23" DBH yellow-cedar (19% BA), 20-23" DBH mountain hemlock (13% BA) and a ninor component of larger diameter 32-35" DBH spruce (6% BA). Western hemlock advanced regeneration is abundant with some spruce and yellow-cedar also present. The slopes are relatively flat and hydric. Wind risk is low.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (140 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 6 is a Class III HC channel that runs along the north and west unit boundaries. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Streams 7 and 8 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14) . Remove logging debris from channel (BMP 13.16). **Concern:** The lower part of stream 7 is a Class IV HC channel with unstable side-slopes that runs into a fish stream. **Response:** Category B protection (BMP 13.16). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 9 is a Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Stream 10 is a Class IV HC channel. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-55% in Unit 176. **Concern**: A minimum of partial suspension is required to meet soil quality standards (BMP 13.9). **Response**: Unit is proposed as full suspension, which exceeds partial suspension requirements.

WILDLIFE: No concerns

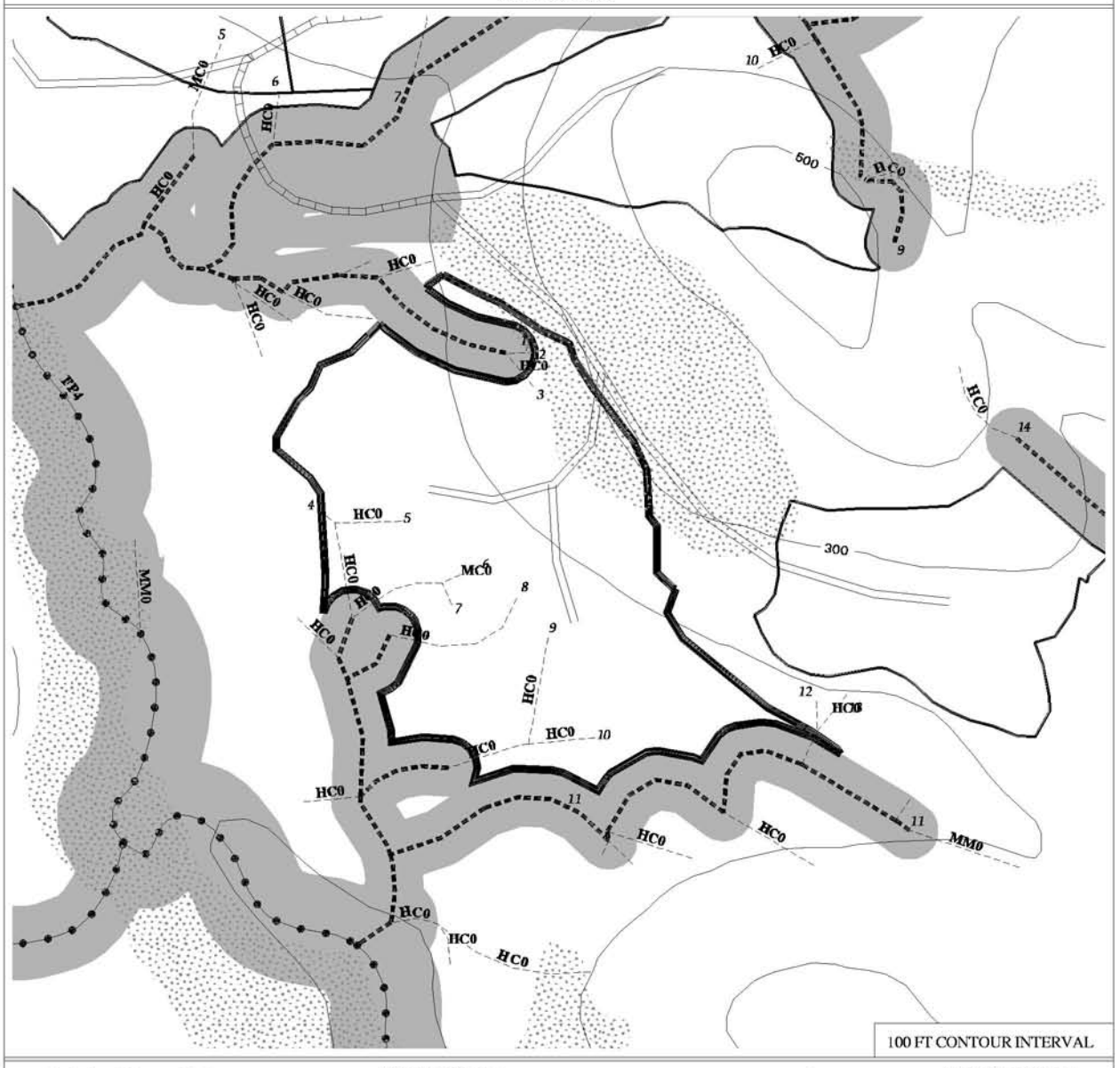
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 178 VCU: 2100 HARVEST SYSTEM: Shovel

UNIT 178 OCCURS IN ALTERNATIVE(S): 2

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**178**	**In Alternatives:**	2	**Total Unit Acres:**	37.6	**Vol Strata Acres:**	High: 2.9 Med: 3.5 Low: 31.2
VCU Number:	2100	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	385	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised primarily of smaller 9-20" DBH western hemlock (70% BA) with some scattered spruce (10% BA), small diameter yellow-cedar (10% BA), and mountain hemlock (10% BA). Western hemlock advanced regeneration is abundant with some spruce and yellow-cedar also present. Slopes are relatively flat (10%) and hydric. Wind risk is moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (120 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary roads 77A, 178B, and 178C access unit from existing Road 8534 via planned NFSR 85345. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1 (upper), 2, 3, 4 (upper) 5, 6, 7, 8 (upper), 9 (upper), 10, 12, and 13 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in stream courses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 1 (lower), 4 (lower), 8 (lower), and 9 (lower) are Class II HC/MC channels. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Stream 11 is a Class II MM channel. **Response:** Locate unit north of stream buffer is feasible. Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 10-25% in Unit 178. Nearly all of the unit is forested wetland. (BMP 12.5) **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in Unit 178. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. (BMP 13.9) **Concern:** Proposed temporary road crosses about 500' of wetlands while trying to maintain grade. **Response:** Provide adequate cross drainage, remove structures and close the road after harvest. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties.

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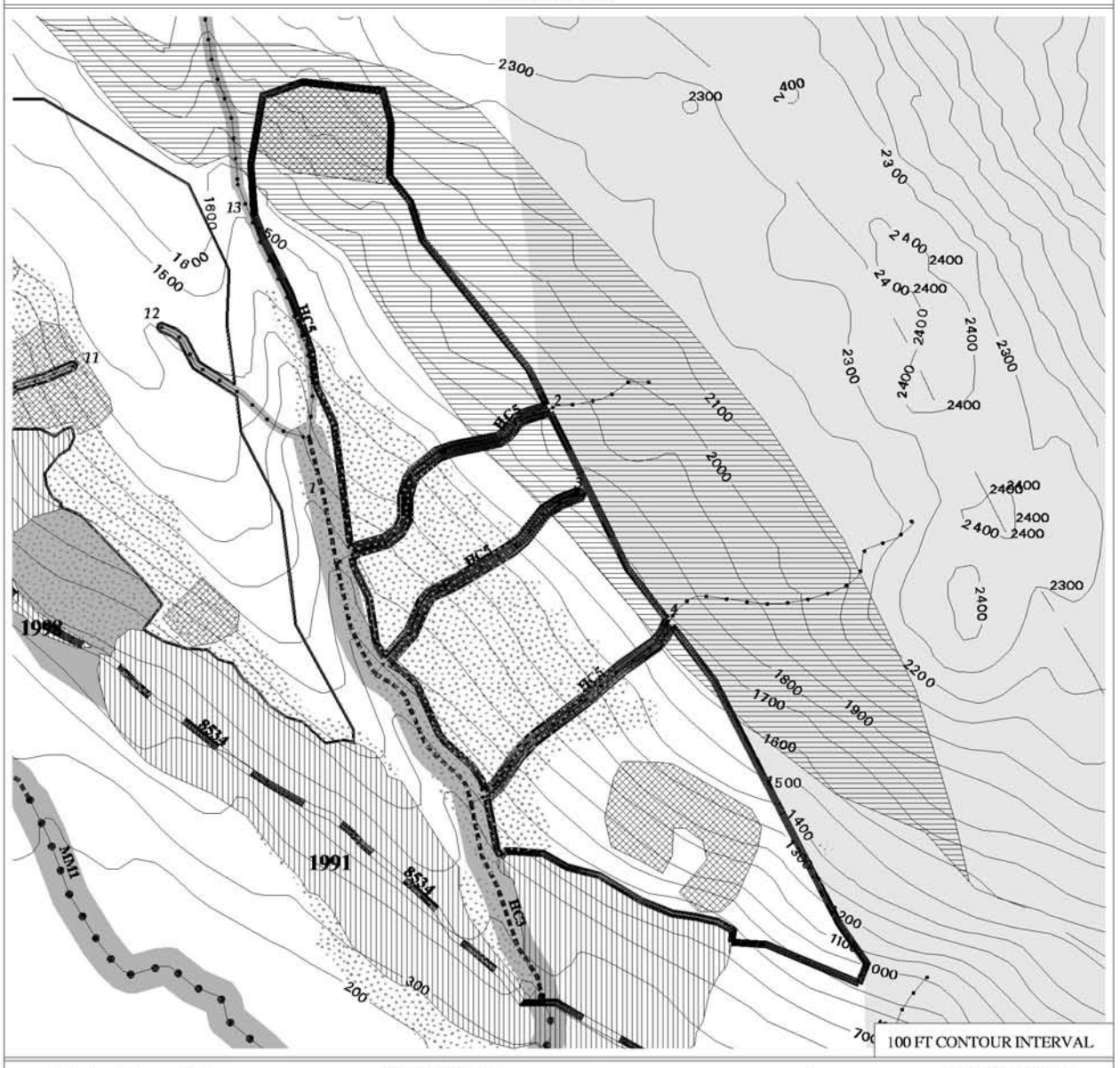
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 184 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 184 OCCURS IN ALTERNATIVE(S): 2 3

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**184**	**In Alternatives:**	2, 3	**Total Unit Acres:**	202.4	**Vol Strata Acres:**	High: 151.2 Med: 50.1 Low: 1.1
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	1,997	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: The northern third of stand is comprised predominantly of mountain hemlock and a few scattered spruce. The middle third of unit consists of a mix of mountain hemlock, western hemlock, and tall spruce with little defect. The southern third consists of western hemlock and larger diameter spruce with little defect. Slopes average 60%. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (322 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: GIS-mapped stream 1 is a Class II HC3 channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** GIS-mapped streams 13, 2, 3, and 4 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Windthrow risk is high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: Concern: There are about 56 acres of moderate vulnerability karst along the northern and eastern boundaries of Unit 184. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes are generally greater than 55% in Unit 184. There are two large areas of slopes greater than 72% for a total of 27 acres. The soils are generally well-drained over bedrock. There are no signs of instability, hollow topography or past landslides in this area. **Concern:** Some landslides may initiate on the slopes greater than 72% and enter streams. **Response:** Do not harvest any slopes greater than 72% within the RAW zone. Slopes up to 80% may be harvested with the proposed helicopter prescription and full suspension. Avoid slopes greater than 80% in Unit 185. (BMP 13.5, 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines.

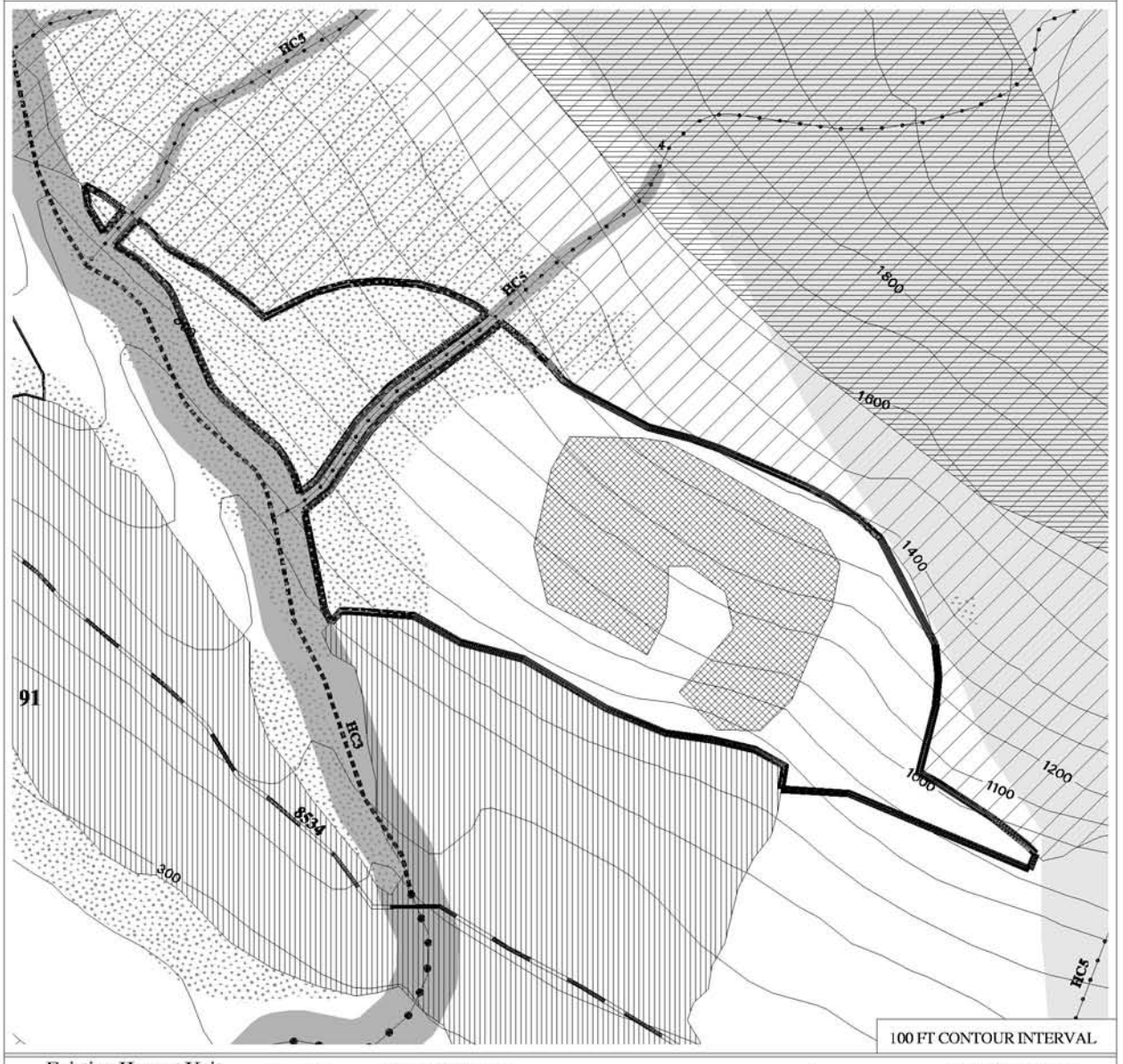
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 184 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 184 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**184**	**In Alternatives:**	4	**Total Unit Acres:**	58.3	**Vol Strata Acres:**	High: 17.2 Med: 41.0 Low: 0
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	512	**Prescription /Percent Retention:**	ST25

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: The northern third of stand is comprised predominantly of mountain hemlock and a few scattered spruce. The middle third of unit consists of a mix of mountain hemlock, western hemlock, and tall spruce with little defect. The southern third consists of western hemlock and larger diameter spruce with little defect. Slopes average 60%. Wind risk is moderate to high.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 25 percent of existing basal (322 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16” DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: GIS-mapped stream 1 is a Class II HC3 channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** GIS-mapped streams 13, 2, 3, and 4 are Class III HC channels. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Windthrow risk is high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes are generally greater than 55% in Unit 184. There are about 15 acres of slopes greater than 72%. The soils are generally well-drained over bedrock. There are no signs of instability, hollow topography or past landslides in this area. **Concern:** Some landslides may initiate on the slopes greater than 72% and enter streams. **Response:** Do not harvest any slopes greater than 72% within the RAW zone. Slopes up to 80% may be harvested with the proposed helicopter prescription and full suspension. Avoid slopes greater than 80% in Unit 185. (BMP 13.5, 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 75% of the basal area will meet marten standards and guidelines.

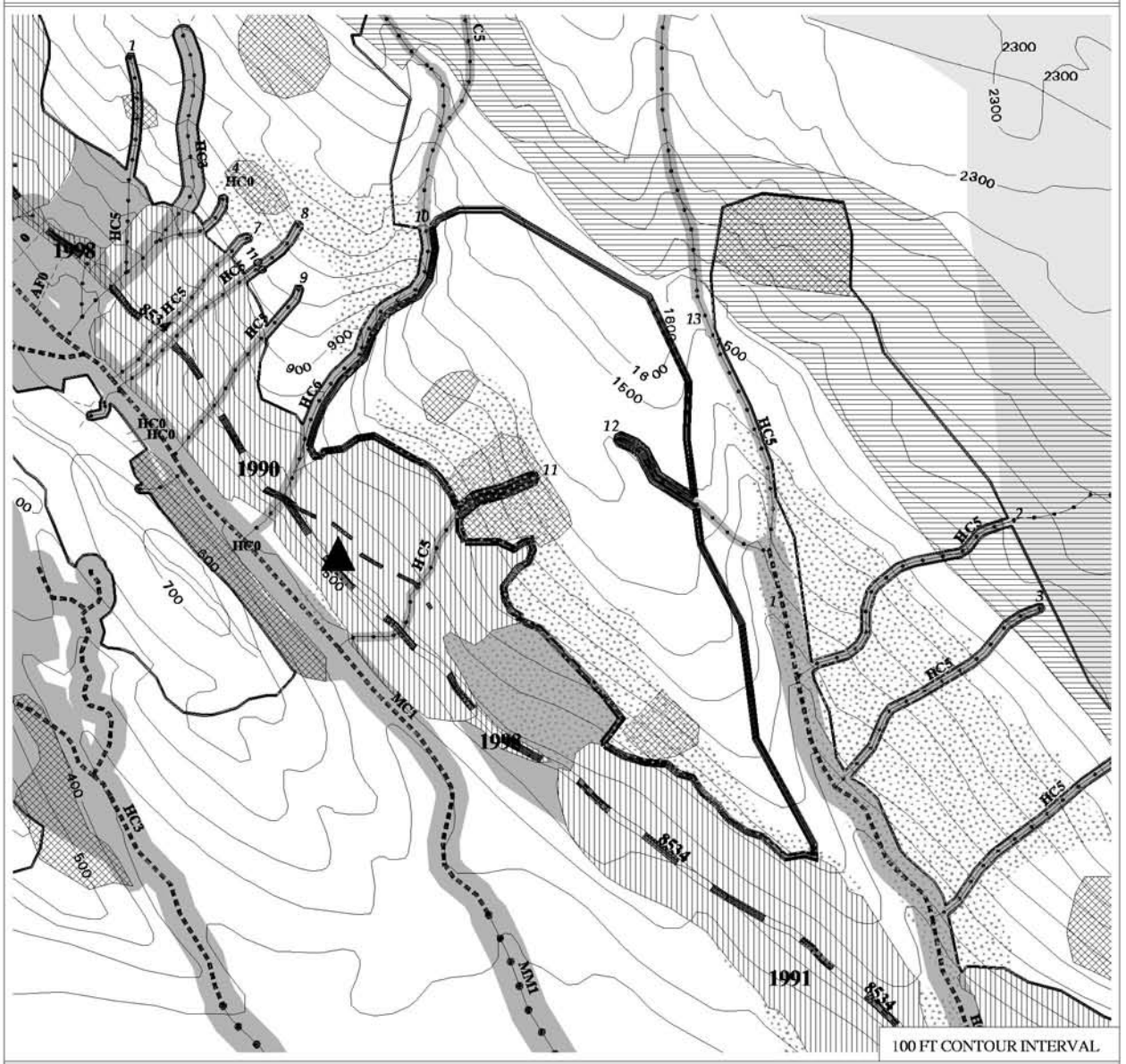
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 185 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 185 OCCURS IN ALTERNATIVE(S): 2 3

0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number: **185**	**In Alternatives:** 2, 3	**Total Unit Acres:** 136.8	**Vol Strata Acres:** High: 44.0 Med: 49.3 Low: 43.5
VCU Number: 2100	**Harvest System:** HE	**Net Estimated Harvest Volume (MBF):** 1,557	**Prescription /Percent Retention:** ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised predominantly of 9-20"DBH western hemlock (61% BA) and 9-27" DBH mountain hemlock (12% BA) with some larger diameter 12-39" DBH spruce (27% BA). The southern portion of the unit contains a sizeable area of windthrow with significant regeneration among the residuals. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (311 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16” DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: GIS-mapped streams 10,11, and 12 are Class III HC channels.
Response: No harvest within 100 feet and side-slope break (RIP III). Manage 120 feet beyond no-cut buffer for windfirmness.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-80% in Unit 185. The soils are generally well drained and moderately deep. The is one 20-acre forested wetland in the middle of the unit, where soils are poorly drained and slopes are generally less than 30% (BMP 12.5). There are about 15 acres of slopes greater than 72%. Most of these areas occur along the backline of the previous harvest. There are no signs of instability, hollow topography or past landslides in this area. **Concern:** Some landslides may initiate on the slopes greater than 72% and enter streams. **Response:** Do not harvest any slopes greater than 72% within the RAW zone. Slopes up to 80% may be harvested with the proposed helicopter prescription and full suspension. Avoid slopes greater than 80% in Unit 185. (BMP 13.5, 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit contains high value marten habitat. High deer use was observed in the west portion of the unit. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines and help maintain deer habitat. **Concern:** Goshawk observed around the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer. **Concern:** Red-tailed hawk observed adjacent to unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

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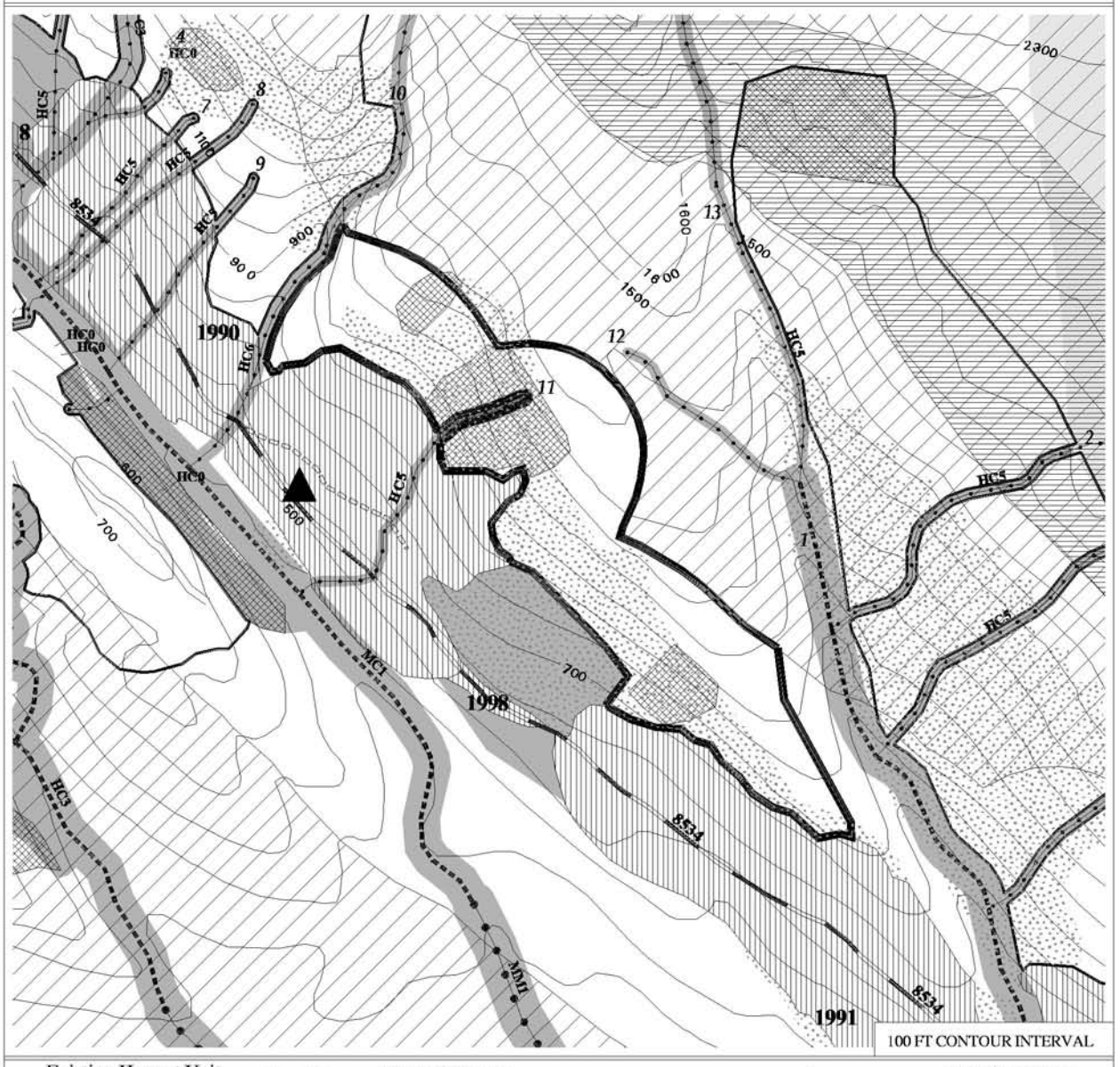
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 185 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 185 OCCURS IN ALTERNATIVE(S): 4

0 0.19 0.38 Miles

MAPSCALE 1:12000



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**185**	**In Alternatives:**	4	**Total Unit Acres:**	71.2	**Vol Strata Acres:**	High: 36.9 Med: 27.3 Low: 7.0
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	953	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised predominantly of 9-20"DBH western hemlock (61% BA) and 9-27" DBH mountain hemlock (12% BA) with some larger diameter 12-39" DBH spruce (27% BA). The southern portion of the unit contains a sizeable area of windthrow with significant regeneration among the residuals. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (311 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: GIS-mapped streams 10,11, and 12 are Class III HC channels. **Response:** No harvest within 100 feet and side-slope break (RIP III). Manage 120 feet beyond no-cut buffer for windfirmness.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-80% in Unit 185. The soils are generally well drained and moderately deep. There are about 15 acres of slopes greater than 72%. Most of these areas occur along the backline of the previous harvest. There are no signs of instability, hollow topography or past landslides in this area. **Concern:** Some landslides may initiate on the slopes greater than 72% and enter streams. **Response:** Do not harvest any slopes greater than 72% within the RAW zone. Slopes up to 80% may be harvested with the proposed helicopter prescription and full suspension. Avoid slopes greater than 80% in Unit 185. (BMP 13.5, 13.9). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: Concern: Unit contains high value marten habitat. High deer use was observed in the west portion of the unit. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines and help maintain deer habitat. **Concern:** Goshawk observed around the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer. **Concern:** Red-tailed hawk observed adjacent to unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

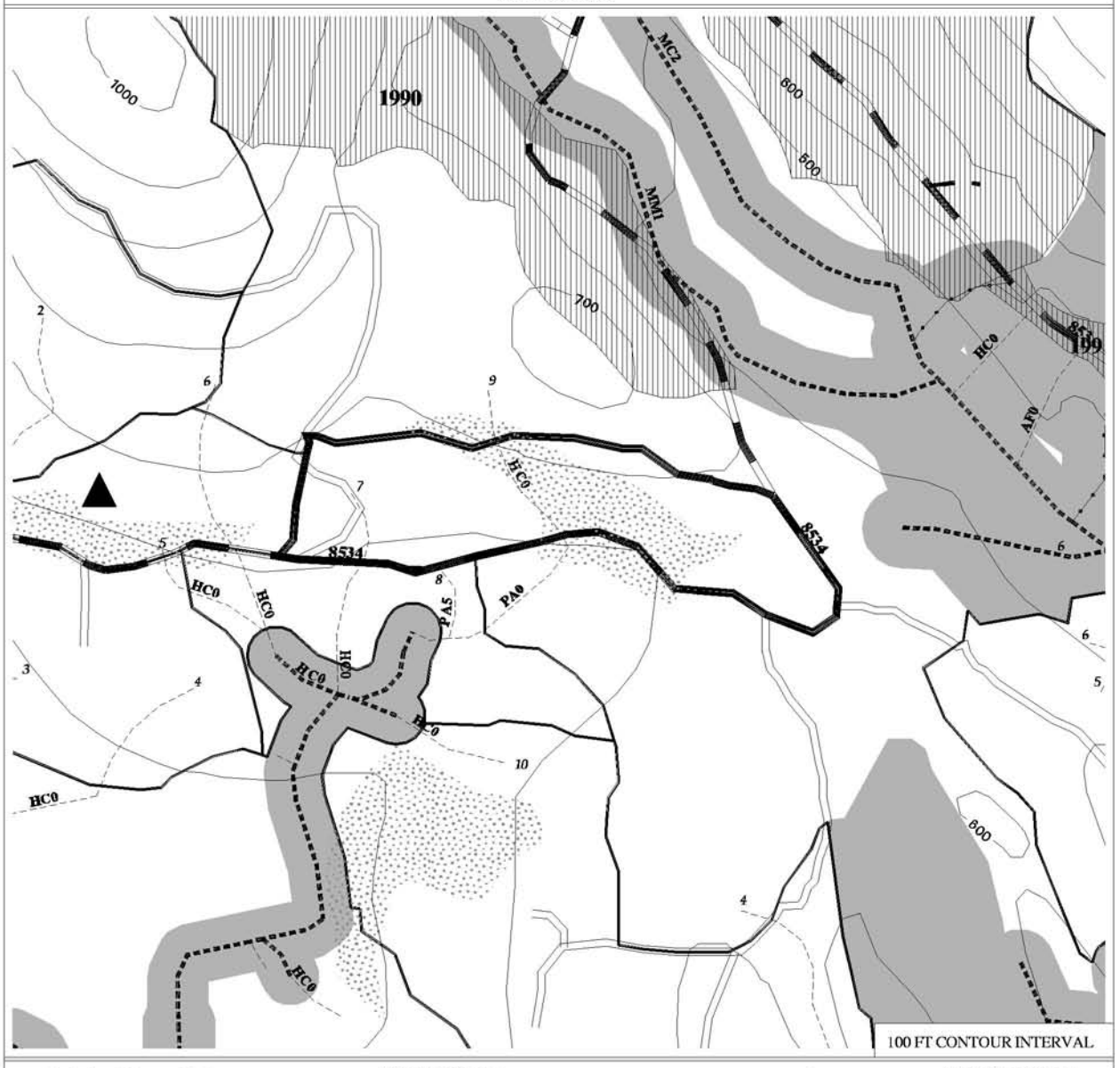
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 189 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 189 OCCURS IN ALTERNATIVE(S): 2 4 5

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**189**	**In Alternatives:**	2, 4, 5	**Total Unit Acres:**	16.8	**Vol Strata Acres:**	High: 4.2 Med: 8.9 Low: 3.7
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	362	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of smaller diameter 12-22" DBH western hemlock (83% BA), and 16-22" DBH spruce (17% BA) and possibly some yellow-cedar. Western hemlock advanced regeneration is abundant with some spruce also present. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains 4 acres of high value marten habitat in the NW corner. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees as specified under wildlife section. High

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Streams 7, 8, 9 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Temporary road may cross Stream 7. **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: slopes range from 25-55% slope in Unit 189. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. **Concern:** High deer use observed throughout unit. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

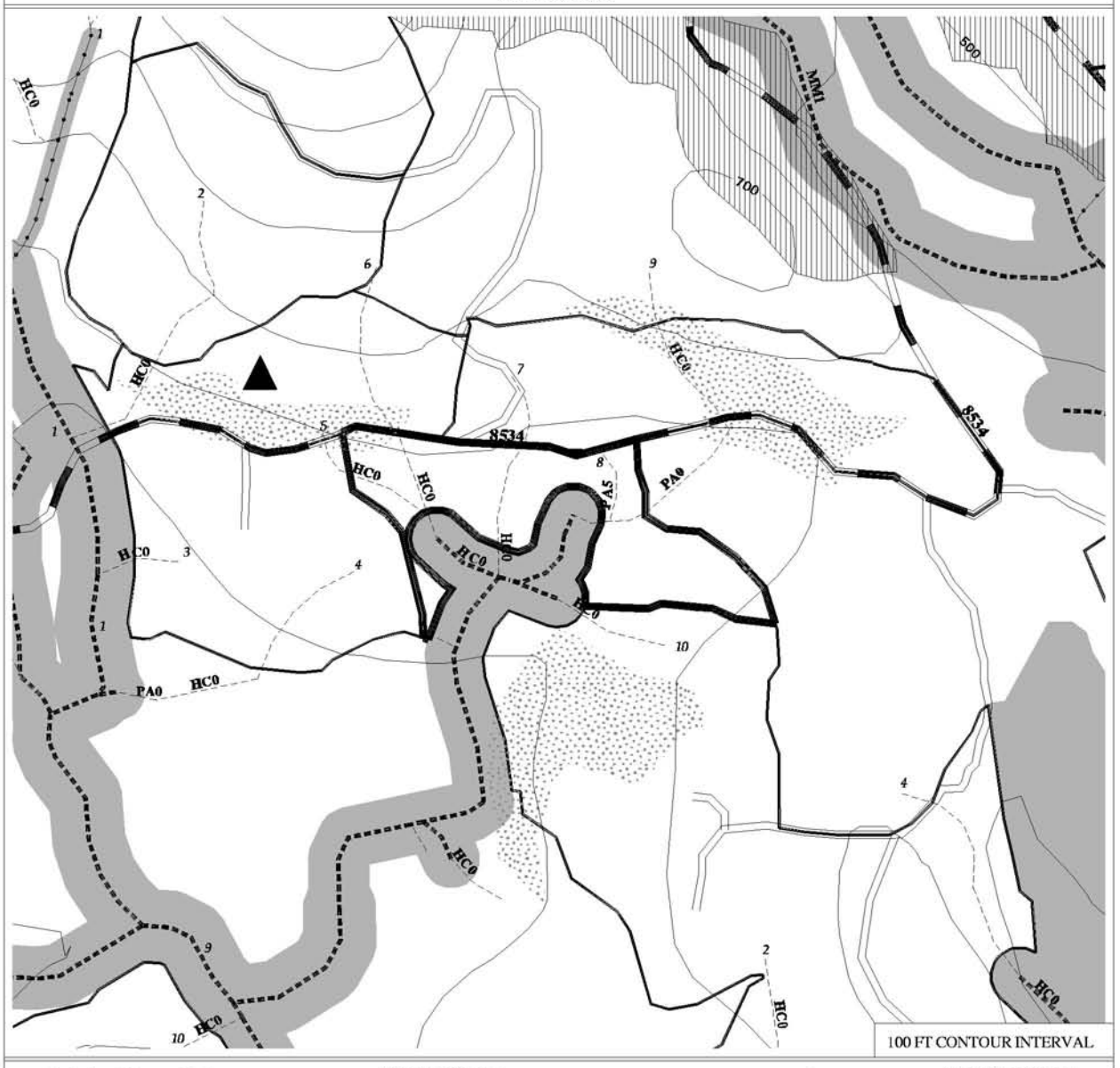
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 190 VCU: 2100 HARVEST SYSTEM: Shovel

UNIT 190 OCCURS IN ALTERNATIVE(S): 2 3 4 5

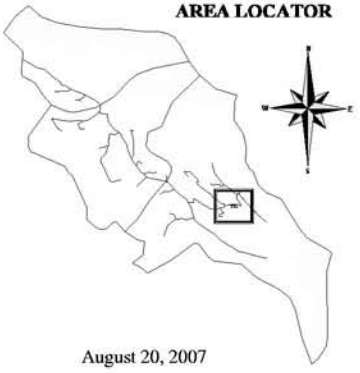
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**190**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	10.5	**Vol Strata Acres:**	High: 0.3 Med: 10.2 Low: 0
VCU Number:	2100	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	153	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of smaller diameter 9-20" western hemlock (67% BA), a few large diameter 40-42" DBH spruce (17% BA) and some small diameter 9-11" DBH yellow-cedar (17% BA). Western hemlock advanced regeneration is abundant with some spruce and yellow-cedar also present. Wind risk is moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (100 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 5 (upper), 6, 7, 8, and 9 (upper) are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in streamcourses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Temporary structures for crossing streams 8 and 9 will be agreed upon by USFS. Remove logging debris from channel (BMP 13.16). **Concern:** Stream 6 (lower) and 9 (lower) are CLass II HC channels that enter MM channels. **Response:** Locate unit boundaris north of stream buffers if feasible. Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III) for HC channels, no harvest within 120 feet of MM channels.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 15-50% in Unit 190. About half of the unit is forested wetland (BMP 12.5). The soils are poorly drained organic soils in the wetland and somewhat poorly drained, deep mineral soils on slopes greater than 25%. **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in unit 806. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. (BMP 13.2 and 13.9) **Concern:** Shovel yarding may cause rutting due to slopes greater then 25% in the western half of the unit. **Response:** Do not operate shovel on slopes greater than 25%. Utilize the boom, a short choker or cable to remove logs from steeper slopes or directionally fall the trees instead.

WILDLIFE: **Concern:** Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

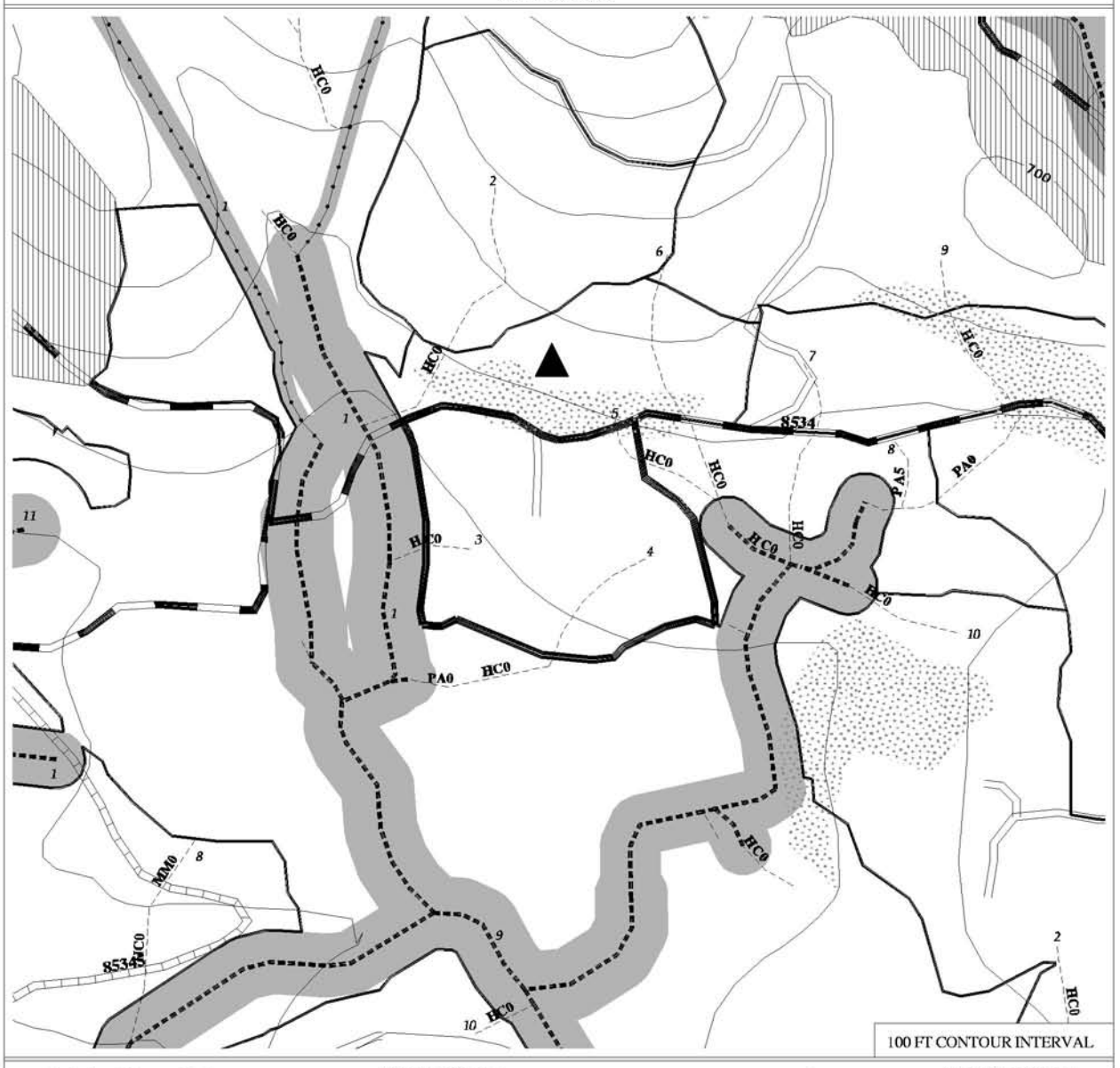
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 191 VCU: 2100 HARVEST SYSTEM: Shovel

UNIT 191 OCCURS IN ALTERNATIVE(S): 2 3 4 5

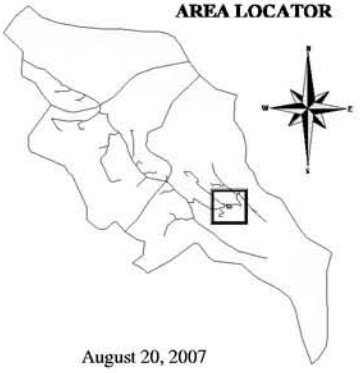
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**191**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	16.1	**Vol Strata Acres:**	High: 0.3 Med: 15.8 Low: 0
VCU Number:	2100	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	235	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists of 12-30" DBH western hemlock (61% BA) with some larger diameter 24-42" DBH spruce (17% BA), 9-18" DBH yellow-cedar (17% BA) and 12-30" DBH mountain hemlock (6% BA) . The southwest portion of the unit is the most productive with better drained soils. Slopes are relatively flat and poorly drained throughout the rest of the unit. Western hemlock advanced regeneration is abundant with considerable yellow-cedar regeneration and some spruce. Wind risk is moderate.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (170 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Single tree selection to be marked in and along corridors to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 191A accesses unit from existing Road 8534. Road location will be flagged by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 1 is a Class II MM channel on western unit boundary. **Response:** Locate unit boundary east of stream buffer. Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** Stream 3, 4, and 5 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in streamcourses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 5-25% in Unit 191. The soils are a mosaic of poorly drained organic soils over till and somewhat poorly drained till soils. **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in Unit 191. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. (BMP 13.2 and 13.9) **Concern:** Proposed temporary road crosses forested wetlands. No high-value wetlands exist in this unit. **Response:** Avoid placing the road in non-forested areas. Provide adequate cross drainage, remove structures and close the road after harvest. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

WILDLIFE: Concern: Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 192 VCU: 2100 HARVEST SYSTEM: Cable

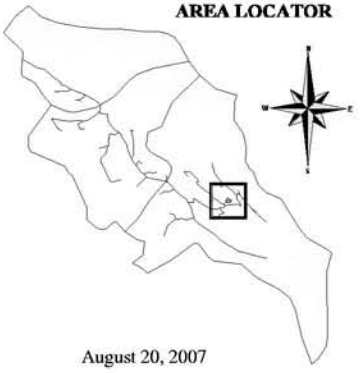
UNIT 192 OCCURS IN ALTERNATIVE(S): 2 4

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**192**	**In Alternatives:**	2, 4	**Total Unit Acres:**	18.3	**Vol Strata Acres:**	High: 0 Med: 18.3 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	409	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists predominantly of 12-36" DBH western hemlock (73% BA) and 16-47" DBH spruce (27% BA). There is an area of recent salvable) windthrow in the southwest corner. Soils are well drained with slopes averaging 35%. Western hemlock advanced regeneration is abundant with some spruce also present. Wind risk is high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit is bounded on the west by a stream buffer with a RAW zone. For RAW zone retain trees less than 16” DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffer to minimize windthrow in buffers.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: Temporary road 85343 accesses unit from existing Road 8534. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 2 and 6 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 1 is a Class III HC channel that runs into a Class II MM channel along the western boundary of unit. **Response:** Maintain current unit boundary 200 feet from channel to provide windfirmess to riparian areas.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 10-45% in Unit 192. There is about 1 acre of forested wetland along the boundary between 192 and 194. (BMP 12.5) A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9) **Concern:** Proposed temporary road crosses about 300 feet of wetland. Some of these areas could be easily avoided by re-routing the proposed road around these areas. **Response:** Reroute road to avoid wetland where practicable. Otherwise, provide adequate cross drainage to allow proper groundwater flow. Pull Structures and close road after the unit has been harvested. (BMP 14.9) (33 CFR BMP 4, 5, 6) **Concern:** There is about 75 feet of road on slopes greater than 50%. **Response:** Reroute road to avoid this area where practicable. Otherwise, sidecasting is prohibited and endhaul is required. A soil scientist is required to approve layout prior to construction. (BMP 14.12 and 14.19)

WILDLIFE: No concerns

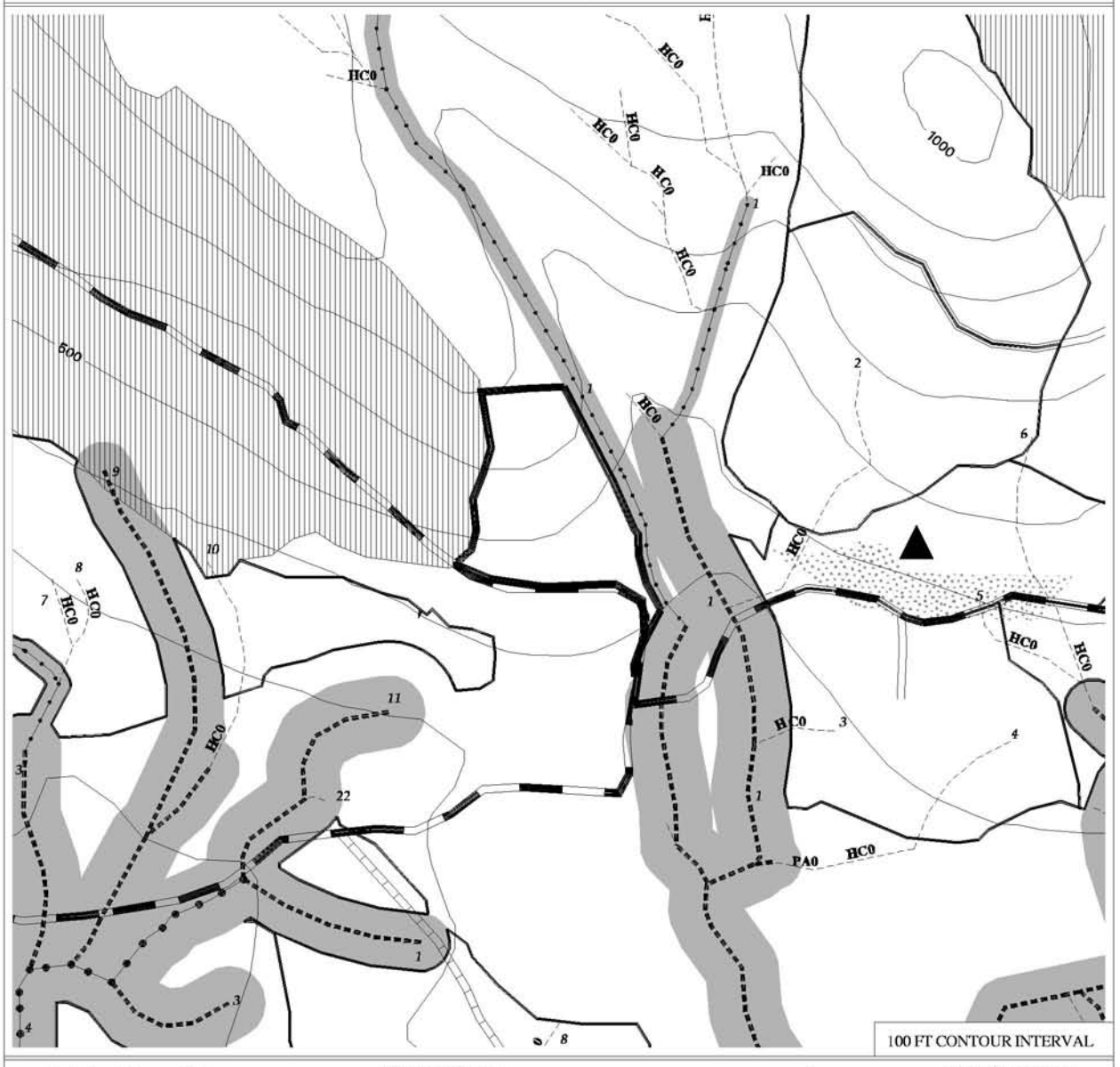
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 193 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 193 OCCURS IN ALTERNATIVE(S): 3 4 5

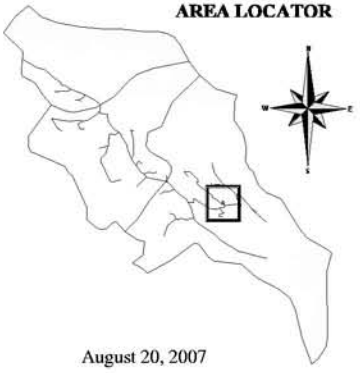
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**193**	**In Alternatives:**	3, 4, 5	**Total Unit Acres:**	7.6	**Vol Strata Acres:**	High: 0 Med: 6.3 Low: 1.2
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	159	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists predominantly of 12-36" DBH western hemlock (73% BA) and 16-47" DBH spruce (27% BA). There is an area of recent salvable) windthrow in the southwest corner. Soils are well drained with slopes averaging 35%. Western hemlock advanced regeneration is abundant with some spruce also present. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit is bounded on the east by a stream buffer (refer to fish/watershed section).

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 1 is a Class III HC channel along eastern unit boundary. **Response:** Locate unit boundary west of v-notch. Manage for windfirmness 120 feet from buffer to provide windfirmness. **Concern:** Lower part of Stream 1 is a Class II HC channel. **Response:** Locate unit boundary northeast of 100- foot no-harvest buffer (RIP III). Manage for windfirmness 120 feet from buffer.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-42% in Unit 193. The soils are generally well drained and deep. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: Concern: High deer use observed throughout unit. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 194 VCU: 2100 HARVEST SYSTEM: Cable

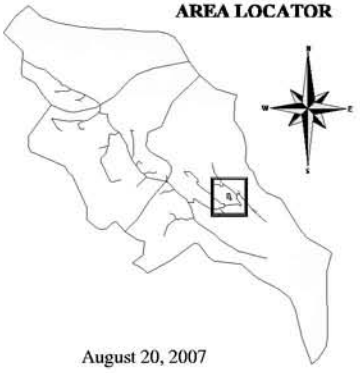
UNIT 194 OCCURS IN ALTERNATIVE(S): 2

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**194**	**In Alternatives:**	2	**Total Unit Acres:**	21.7	**Vol Strata Acres:**	High: 0 Med: 20.1 Low: 1.6
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	471	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists predominantly of larger 16-30" DBH western hemlock (50% BA) and 16-43" DBH spruce (50% BA). Slopes are moderate and soils are well drained. Western hemlock advanced regeneration is moderately abundant with some spruce also present. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit is bounded on the north by a stream buffer (refer to fish/watershed section). High wind risk area is along northwestern unit boundary. A high wind risk boundary may be created on this boundary by retaining trees less than 16" DBH within specified distance of one site tree height from boundary. Review during layout to confirm if windfirming is warranted.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: Temporary road 85343 accesses unit from existing Road 8534. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: No streams mapped within unit. Northern boundary stream is a Class II MC channel. **Response:** Locate unit boundary south of 100-foot no-harvest buffer and manage for windfirmness within 120 feet of buffer (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 15-30% on benches and from 45-65% between benches in Unit 194. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9) **Concern:** Proposed temporary road crosses about 300 feet of wetland. Some of these areas could be easily avoided by re-routing the proposed road around these areas. **Response:** Reroute road to avoid wetland where practicable. Otherwise, provide adequate cross drainage to allow proper groundwater flow. Pull Structures and close road after the unit has been harvested. (BMP 14.9) (33 CFR BMP 4, 5, 6) **Concern:** There is about 75 feet of road on slopes greater than 50%. **Response:** Reroute road to avoid this area where practicable. Otherwise, sidecasting is prohibited and endhaul is required. A soil scientist is required to approve layout prior to construction. (BMP 14.12 and 14.19)

WILDLIFE: No concerns

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 194 VCU: 2100 HARVEST SYSTEM: Cable

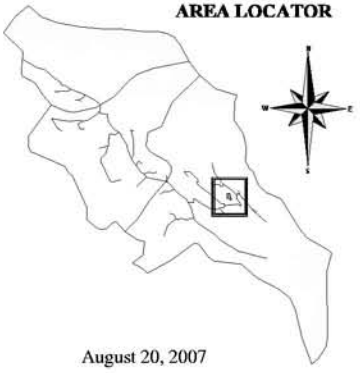
UNIT 194 OCCURS IN ALTERNATIVE(S): 4

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**194**	**In Alternatives:**	4	**Total Unit Acres:**	16.7	**Vol Strata Acres:**	High: 0 Med: 16.1 Low: 0.6
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	368	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists predominantly of larger 16-30" DBH western hemlock (50% BA) and 16-43" DBH spruce (50% BA). Slopes are moderate and soils are well drained. Western hemlock advanced regeneration is moderately abundant with some spruce also present. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit is bounded on the north by a stream buffer (refer to fish/watershed section). A high wind risk boundary may be created on this boundary by retaining trees less than 16" DBH within specified distance of one site tree height from boundary. Review during layout to confirm if windfirming is warranted.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: Temporary road 85343 accesses unit from existing Road 8534. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: No streams mapped within unit. Northern boundary stream is a Class II MC channel. **Response:** Locate unit boundary south of 100-foot no-harvest buffer and manage for windfirmness within 120 feet of buffer (RIP III).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 15-30% on benches and from 45-65% between benches in Unit 194. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9) **Concern:** Proposed temporary road crosses about 300 feet of wetland. Some of these areas could be easily avoided by re-routing the proposed road around these areas. **Response:** Reroute road to avoid wetland where practicable. Otherwise, provide adequate cross drainage to allow proper groundwater flow. Pull Structures and close road after the unit has been harvested. (BMP 14.9) (33 CFR BMP 4, 5, 6) **Concern:** There is about 75 feet of road on slopes greater than 50%. **Response:** Reroute road to avoid this area where practicable. Otherwise, sidecasting is prohibited and endhaul is required. A soil scientist is required to approve layout prior to construction. (BMP 14.12 and 14.19)

WILDLIFE: No concerns

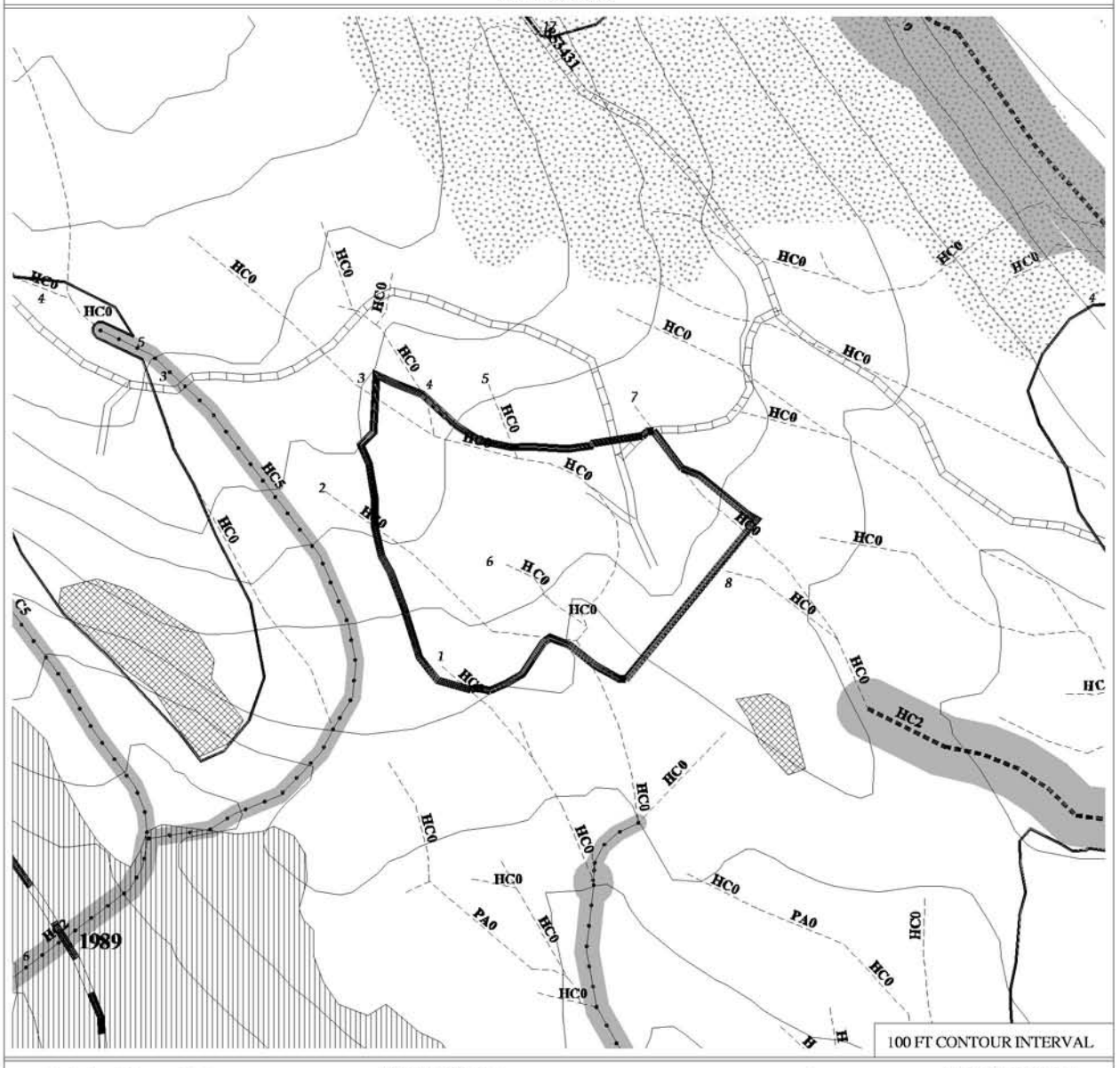
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 197 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 197 OCCURS IN ALTERNATIVE(S): 2

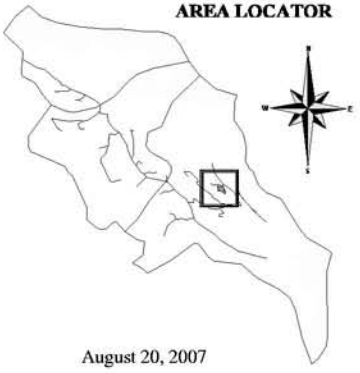
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**197**	**In Alternatives:**	2	**Total Unit Acres:**	21.2	**Vol Strata Acres:**	High: 0 Med: 21.2 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	472	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists predominantly of 9-24" DBH mountain hemlock (62% BA), 9-24" DBH western hemlock (15% BA) with 20-24" DBH spruce (8% BA) and 12-20" DBH yellow-cedar (15% DBH). Yellow-cedar advanced regeneration is moderately abundant with hemlock and some spruce also present. Wind risk is high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit does not contain stream buffers.

TIMBER/LOGGING: This unit is comprised of two cable settings. The western-most setting accesses the area west of stream #3, a class IV stream that requires split yarding. The eastern-most setting accesses the area east of stream #3.

ENGINEEERING/ROADS: Temporary roads 85343 and 2130 access unit from existing Road 8534 via planned NFSRs 8534311 and 853431. Road locations have been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1-8 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Lower part of Stream 3 is a Class IV HC channel with steep, unstable side-slopes. **Response:** Category B protection with split yard to protect side-slopes. **Concern:** Temporary road-stream crossings. **Response:** Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-60% slope in Unit 197. The Northwest quarter of Unit 197 is forested wetland. A minimum of partial suspension is required to meet soil and wetland standards. (BMPs 12.5, 13.9) **Concern:** The proposed temporary road is located in the wetland portion of the unit. No high-value wetlands exist in this area. **Response:** Provide adequate cross drainage to maintain groundwater flow. Remove structures and close road after unit is harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

WILDLIFE: No concerns

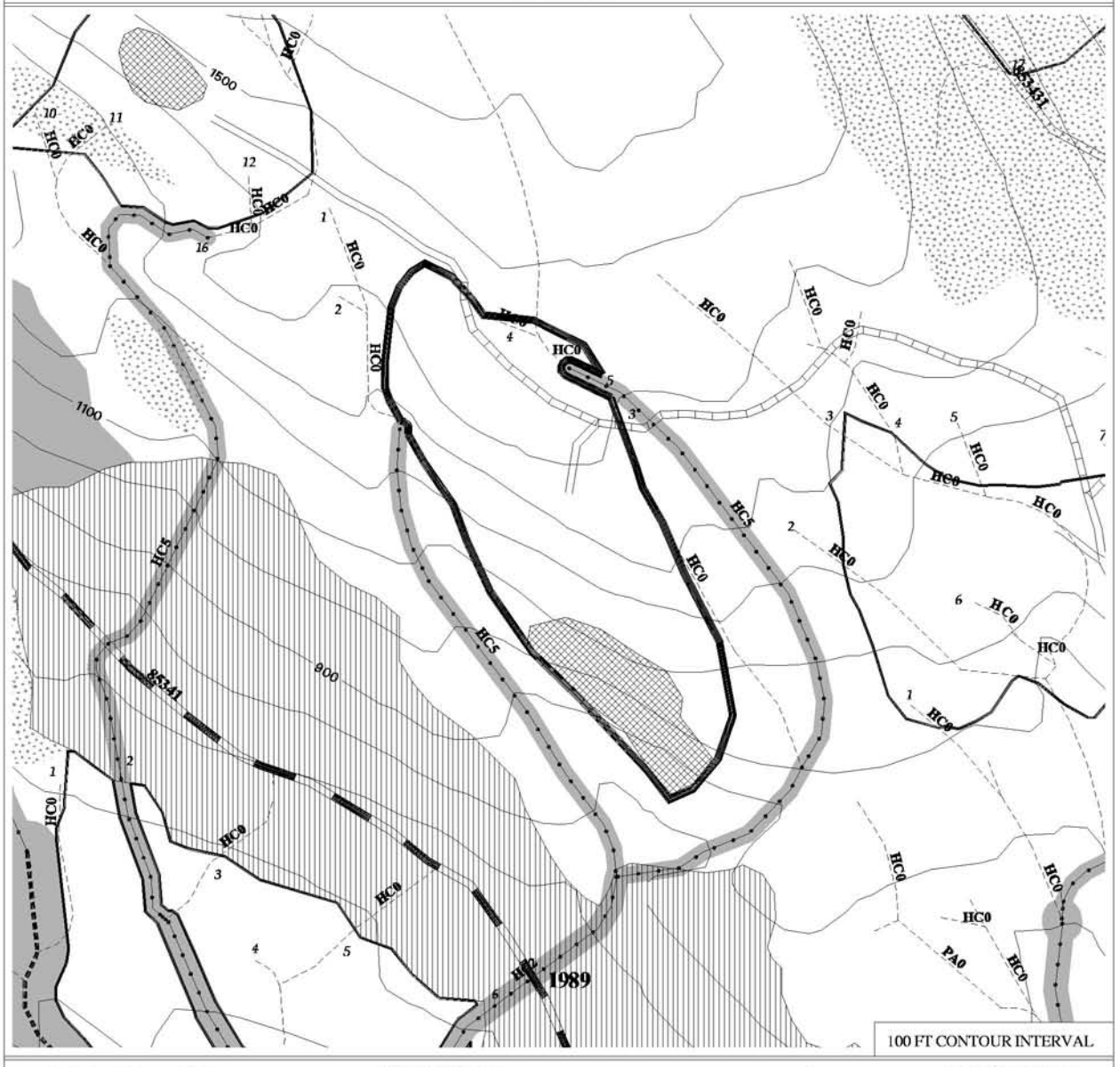
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 202 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 202 OCCURS IN ALTERNATIVE(S): 2

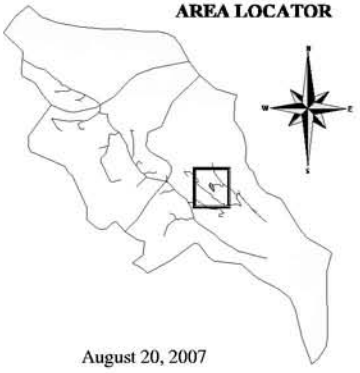
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**202**	**In Alternatives:**	2	**Total Unit Acres:**	24.8	**Vol Strata Acres:**	High: 0 Med: 18.3 Low: 6.5
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	502	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-40" DBH western hemlock (41% BA) with larger 16-55" DBH spruce (56% BA) with some 20-24" DBH mountain hemlock (4% BA). Western hemlock advanced regeneration is moderately abundant with mountain hemlock and some spruce also present. Wind risk is high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16” DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary road 202A and NFSR 85343 access unit from existing Road 8534 via planned NFSRs 8534311 and 853431. Road location will be flagged by USFS prior to harvest.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 (upper), 2, 3, and 4 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Lower part of Stream 3 is a Class IV HC channel with steep, unstable side-slopes. **Response:** Maintain current unit boundary west of stream 3 if feasible. Category B protection with split yard to maintain channel stability. **Concern:** Stream 1 (lower) and 5 are Class III HC channels that form west, south, and eat unit boundaries. **Response:** Locate unit between channels if feasible. Category B protection and no harvest within v-notch (RIP III, BMP 13.16). Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 20-40% in the northern end of Unit 202 and 40-90% in the southern end. There are about 4 acres of slopes over 72% in this unit with evidence of past landslide activity. **Concern:** Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** Locate unit boundary above this area. (BMP 13.5) The rest of the unit is suitable with a minimum of partial suspension to meet soil quality standards. (BMP 13.9) An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: No concerns

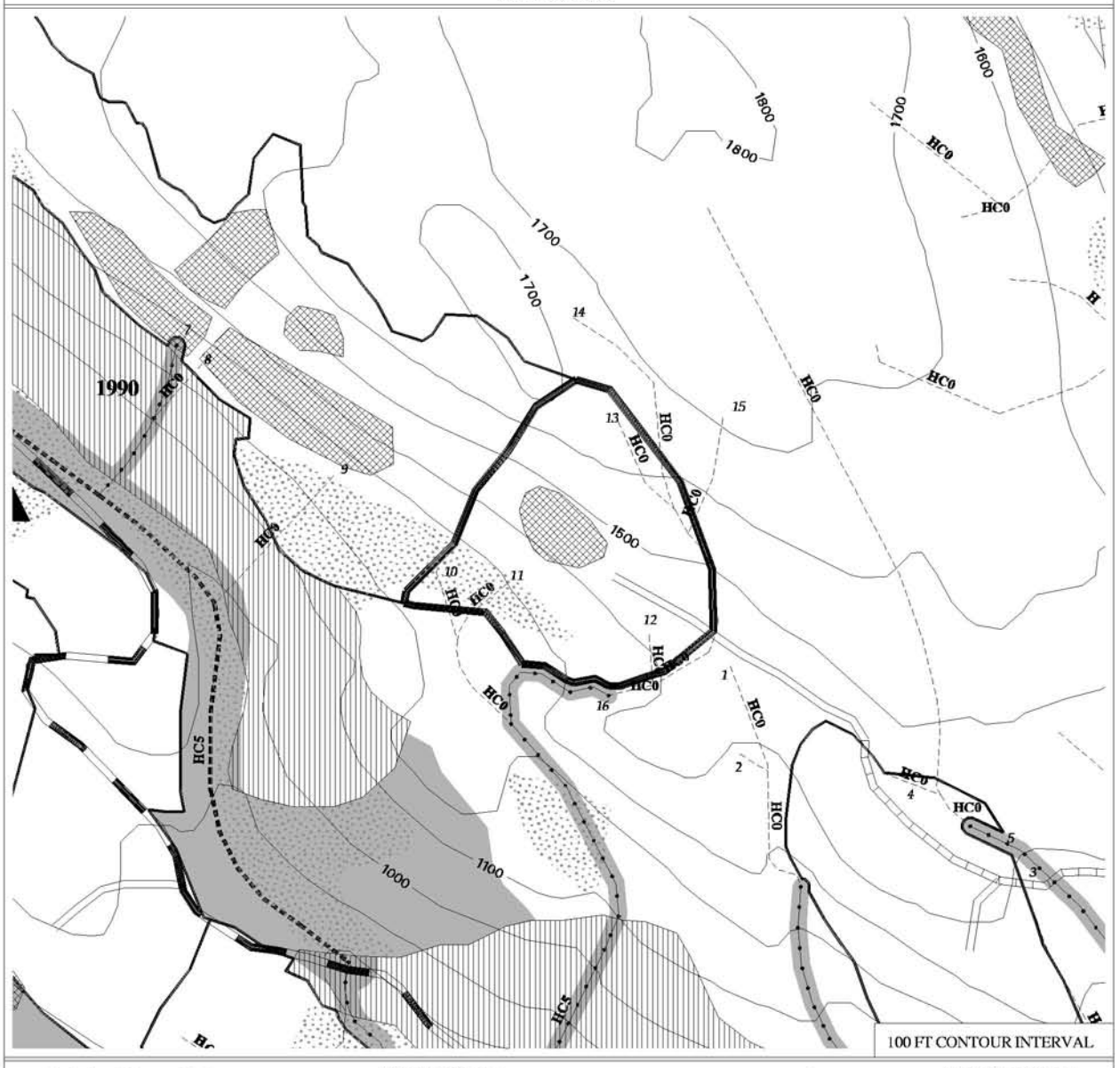
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 203 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 203 OCCURS IN ALTERNATIVE(S): 2

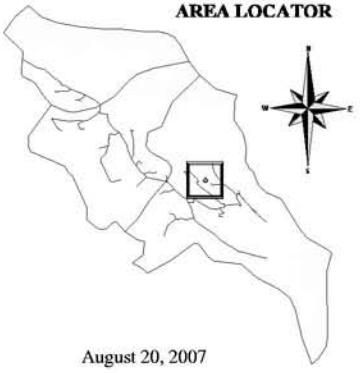
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**203**	**In Alternatives:**	2	**Total Unit Acres:**	16.2	**Vol Strata Acres:**	High: 1.6 Med: 13.3 Low: 1.3
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	359	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-24" DBH mountain hemlock (52% BA), 9-44" DBH spruce (35% BA) and 9-24" DBH western hemlock (13% BA). There is some recent windthrow throughout the unit and is particularly heavy in the northern portion of the unit. Western hemlock and spruce advanced regeneration is moderately abundant. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: A small portion of the unit is bounded on the south by a stream buffer (refer to fish/watershed section). This unit contains less than 2 acres of high value marten habitat. High wind risk area is along northwestern unit boundary. A high wind risk boundary may be created on this boundary by retaining trees less than 16" DBH within specified distance of one site tree height from boundary. Review during layout to confirm if windfirming is warranted.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: Temporary Road 2101 accesses unit from existing Road 8534 via planned NFSRs 8534311, 853431, and 85343. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Streams 10, 11, 12, 13, 14, and 15 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 16 is a Class III HC channel on southwestern unit boundary. **Response:** Locate unit boundary northeast of v-notch if feasible. Category B protection and no harvest within v-notch (RIP-III, BMP 13.16). Manage for windfirmness 120 feet beyond v-notch buffer. **Concern:** Temporary road-stream crossings. **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 45-80% in Unit 203. There is less than 1 acre of forested wetland in the unit. (BMP 12.5). There is 1 acre of slopes over 72%. The soils are well drained over bedrock and most of the steep area is rock outcrop without any signs of instability. A minimum of partial suspension is required to meet soil quality standards for most of Unit 203 (BMP 13.9); the acre of 72+% slopes could be harvested but must use full suspension.

WILDLIFE: Concern: Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

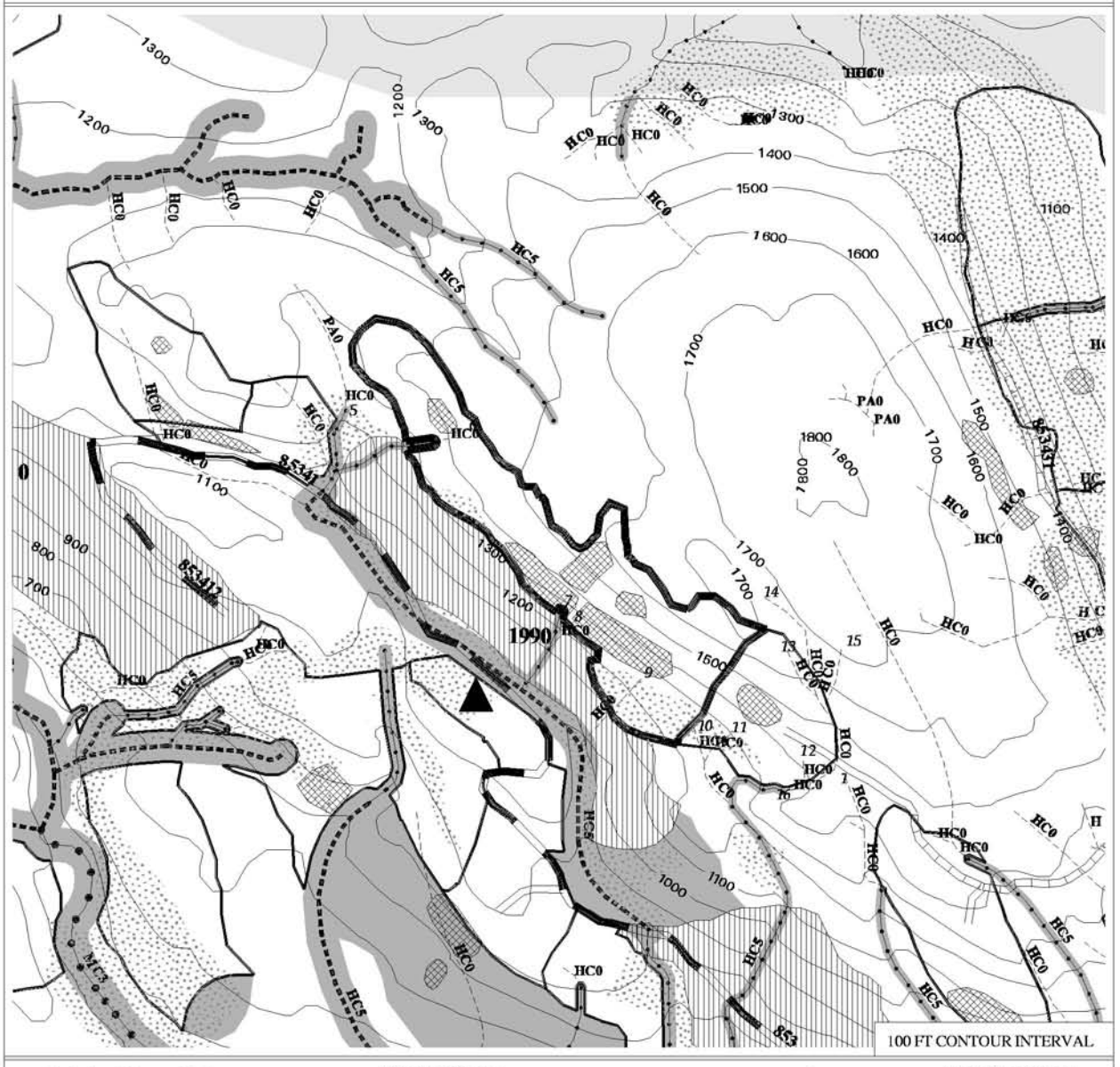
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 204 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 204 OCCURS IN ALTERNATIVE(S): 2 3

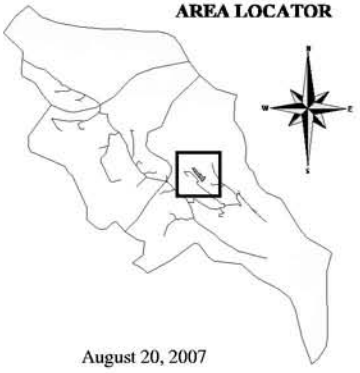
0 0.22 0.44 Miles

MAPSCALE 1:14000



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**204**	**In Alternatives:**	2, 3	**Total Unit Acres:**	47.2	**Vol Strata Acres:**	High: 5.7 Med:31.4 Low: 10.1
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	522	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists of 9-35" DBH mountain hemlock (41% BA), 9-35" DBH spruce (33% BA) and 16-43" DBH western hemlock (26% BA). There are areas of larger diameter trees scattered throughout unit, especially in the southern portion. Slopes are moderate to steep and the soils are well drained. Western and mountain hemlock advanced regeneration is moderately abundant with some spruce also present. Wind risk is moderate to high.

Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.

Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (271 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. To offset the wind risk on the ridge top in the center of the unit decrease the basal area removed to 25% and target the tallest trees for removal. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Streams 6 (upper), 7, 8, and 9 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 6 (lower) and 7 are Class III HC channels. **Response:** Category B protection and no harvest within v-notch (RIP-III, BMP 13.16). Manage for windfirmness 120 feet beyond v-notch buffer.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 5-90% in Unit 204. The gentle slopes are on the summit and on top of benches. There are about 8 acres of slopes greater than 72% in the unit. Most of the soils are well drained over bedrock at steep slopes without any signs of instability. There is a low risk of landslides entering streams. **Concern:** Timber harvest may accelerate landsliding on slopes over 80% gradient. **Response:** Avoid slopes greater than 80% when choosing stands or trees for the proposed helicopter prescription. (BMP 13.5) The rest of the unit is suitable for the proposed helicopter with a minimum of partial suspension to meet soil quality standards. (BMP 13.9) **Concern:** here is about 1 acres of wetland in this unit. **Response:** Helicopter logging will protect wetlands and meet resource objectives (BMP 12.5). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines. **Concern:** Bear den located in unit. **Response:** Maintain a 200-foot forested buffer around den sites.

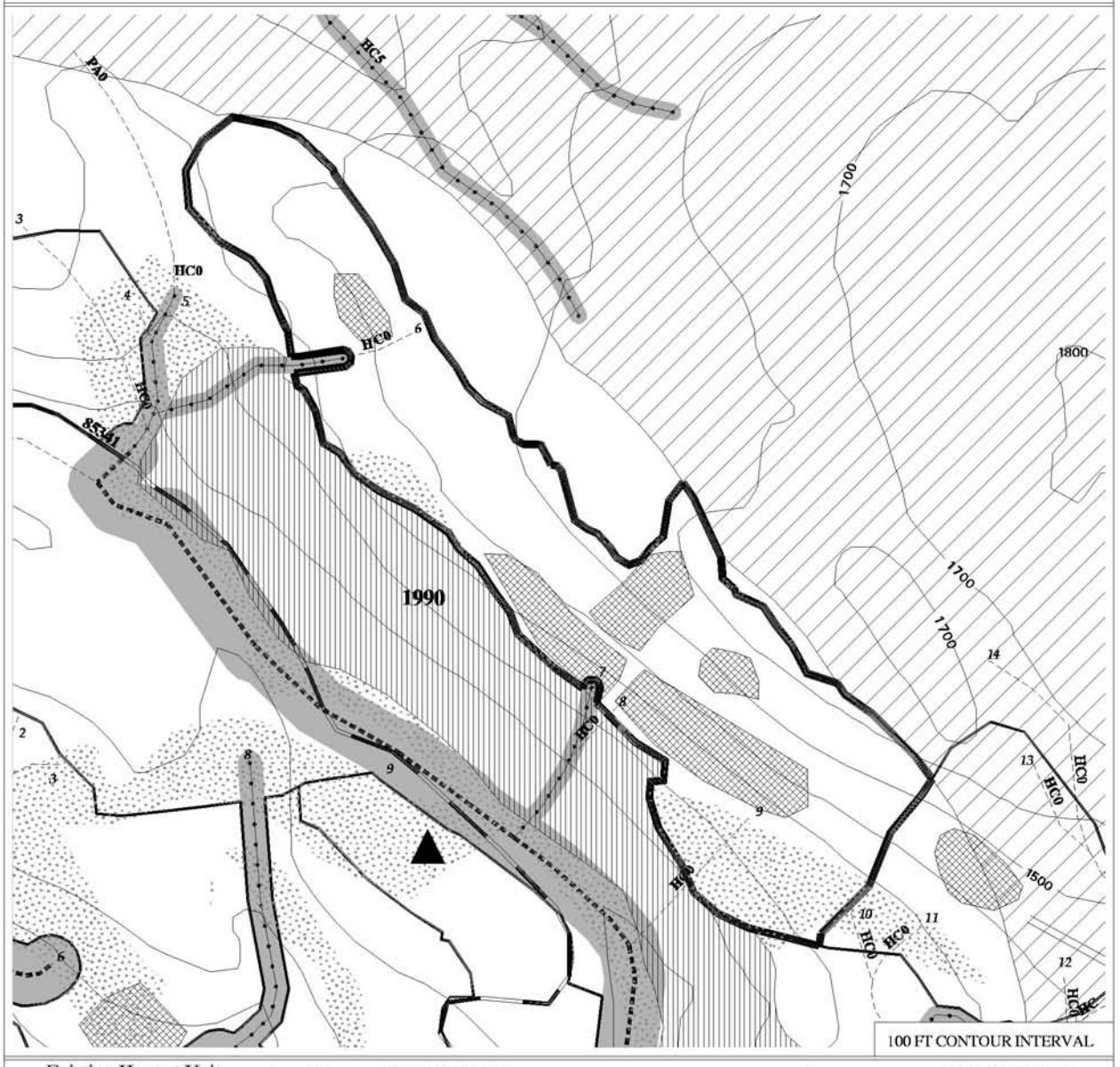
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 204 VCU: 2100 HARVEST SYSTEM: Helicopter

UNIT 204 OCCURS IN ALTERNATIVE(S): 4

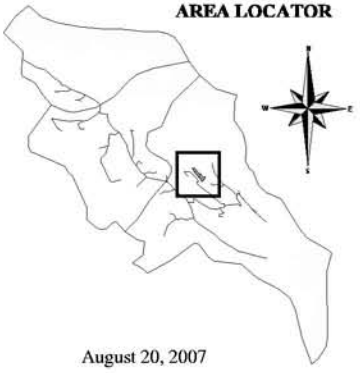
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested		Class IV Stream	
Unit Boundary		Stream Channel Type	HC6
Adjacent Proposed Unit		Stream Number – See Narrative	1
Proposed NFS Road	85343	High Value Marten Habitat	
Temporary Road		Areas Dropped From Alternative(s)	
Existing NFS Road	8530	Inventoried Roadless	
NFS Road Reconstruction	8534	Old Growth Reserve	
Class I Stream		Moderate Vulnerability Karst	
Class II Stream		Slopes > 72%	
Class III Stream		Existing Rock Pit	

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**204**	**In Alternatives:**	4	**Total Unit Acres:**	44.7	**Vol Strata Acres:**	High: 5.7 Med:30.1 Low: 8.9
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	502	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-35" DBH mountain hemlock (41% BA), 9-35" DBH spruce (33% BA) and 16-43" DBH western hemlock (26% BA). There are areas of larger diameter trees scattered throughout unit, especially in the southern portion. Slopes are moderate to steep and the soils are well drained. Western and mountain hemlock advanced regeneration is moderately abundant with some spruce also present. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (271 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. To offset the wind risk on the ridge top in the center of the unit decrease the basal area removed to 25% and target the tallest trees for removal. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Streams 6 (upper), 7, 8 ,and 9 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 6 (lower) and 7 are Class III HC channels. **Response:** Category B protection and no harvest within v-notch (RIP-III, BMP 13.16). Manage for windfirmness 120 feet beyond v-notch buffer.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 5-90% in Unit 204. The gentle slopes are on the summit and on top of benches. There are about 8 acres of slopes greater than 72% in the unit. Most of the soils are well drained over bedrock at steep slopes without any signs of instability. There is a low risk of landslides entering streams. **Concern:** Timber harvest may accelerate landsliding on slopes over 80% gradient. **Response:** Avoid slopes greater than 80% when choosing stands or trees for the proposed helicopter prescription. (BMP 13.5) The rest of the unit is suitable for the proposed helicopter with a minimum of partial suspension to meet soil quality standards. (BMP 13.9) **Concern:** here is about 1 acres of wetland in this unit. **Response:** Helicopter logging will protect wetlands and meet resource objectives (BMP 12.5). An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines. **Concern:** Bear den located in unit. **Response:** Maintain a 200-foot forested buffer around den sites.

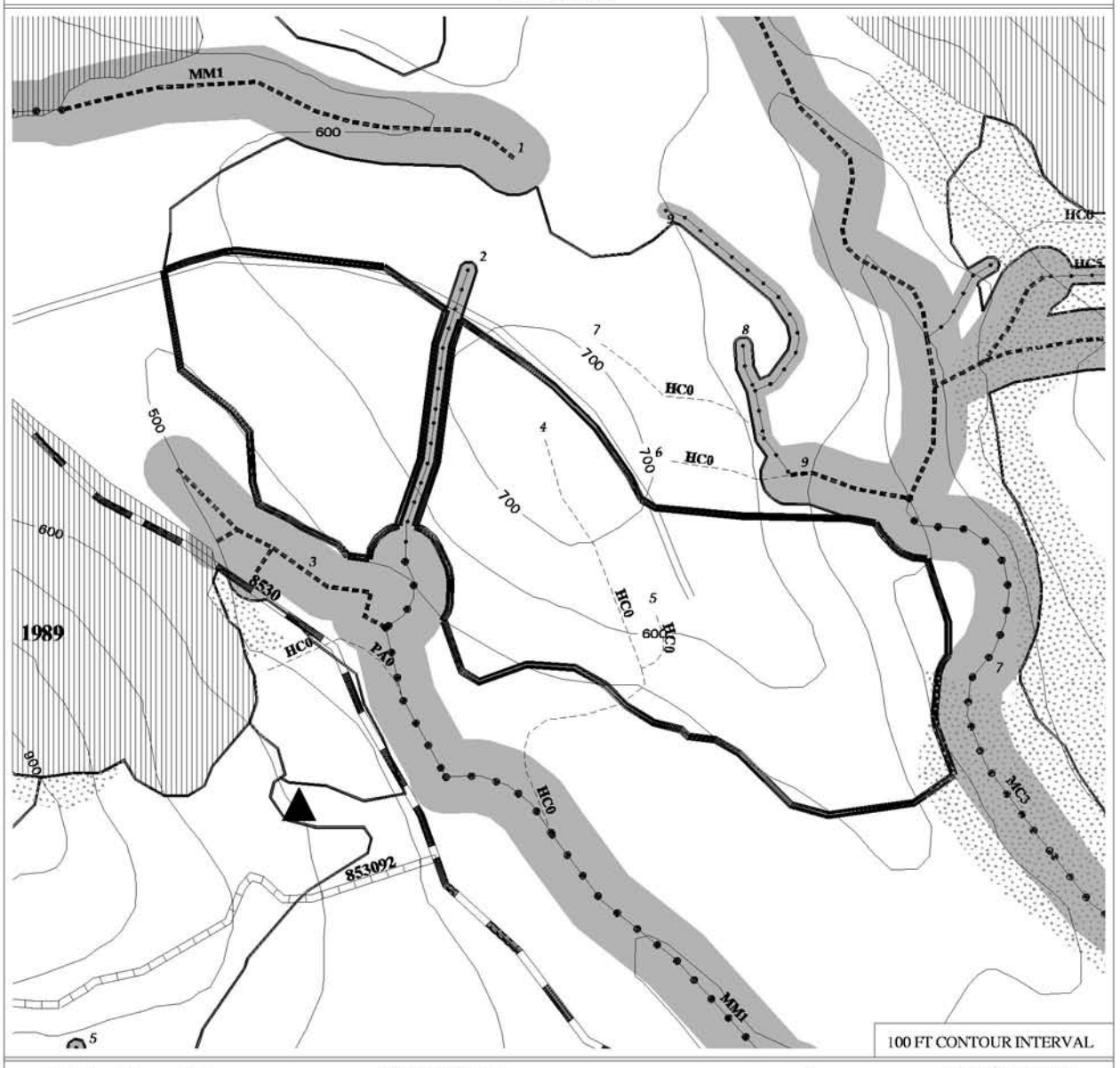
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1031 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 1031 OCCURS IN ALTERNATIVE(S): 2 3 4 5

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

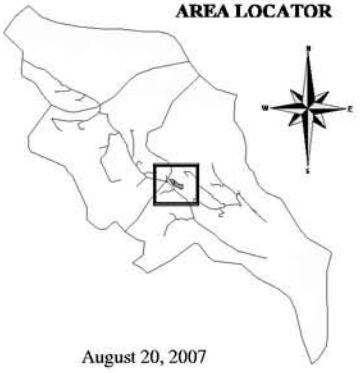
Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**1031**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	54.3	**Vol Strata Acres:**	High: 0.5 Med: 48.0 Low: 5.8
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	1,168	**Prescription/ Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand is comprised of 9-30" DBH western hemlock 39% BA), 9-30" DBH mountain hemlock (33% BA) 9-20" DBH yellow-cedar (25% BA), and a minor component of spruce (3%). Much of the spruce is dead and non-salvable. The majority of trees are in the 9-16" diameter classes. There is significant advanced regeneration of western hemlock and yellow-cedar. Wind risk is estimated to be moderate to high over the entire unit.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery requirements, uses an economical regeneration method and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers with RAW zones (refer to fish/watershed section). For RAW zone retain trees less than 16” DBH within specified distance from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer.

TIMBER/LOGGING: This unit is comprised of three cable settings. The western-most setting accesses the area west of stream #2, a class III stream that requires split yarding. The other two settings access the remaining area and are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary road 103A accesses unit from existing Road 853091. Road location will be flagged by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 1 is Class II MM channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). **Concern:** Streams 2, 8 and the upper portion of 9 are Class II HC channel type. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Stream 3 is a Class II PA and HC channel types. **Response:** Category A protection for both (BMP 12.6, 13.14). For the PA channel type, No harvest within 100 feet of channel (RIP III). For the HC channel type, No harvest within 100 feet and side-slope break (RIP III). **Concern:** Streams 4, 5, 6 and 7 are class IV HC channel types. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** The lower portion of stream 9 is Class II HC channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Windthrow risk is moderate to high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers. **Concern:** Temporary road – stream crossings. **Response:** Crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

Summary of Concerns, Responses, BMPs and Mitigation
SOILS/WETLANDS: Slopes range from 25-65%. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9) **Concern:** The proposed temporary road crosses open muskeg between the intersection with 853091and the unit. Avoiding these wetland is not practicable. There are no high value wetlands in the area. **Response:** Provide adequate cross drainage to allow hillslope flow. Remove all structures after the unit is harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)
WILDLIFE: **Concern:** Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines. **Concern:** Vancouver Canada geese observed in units. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

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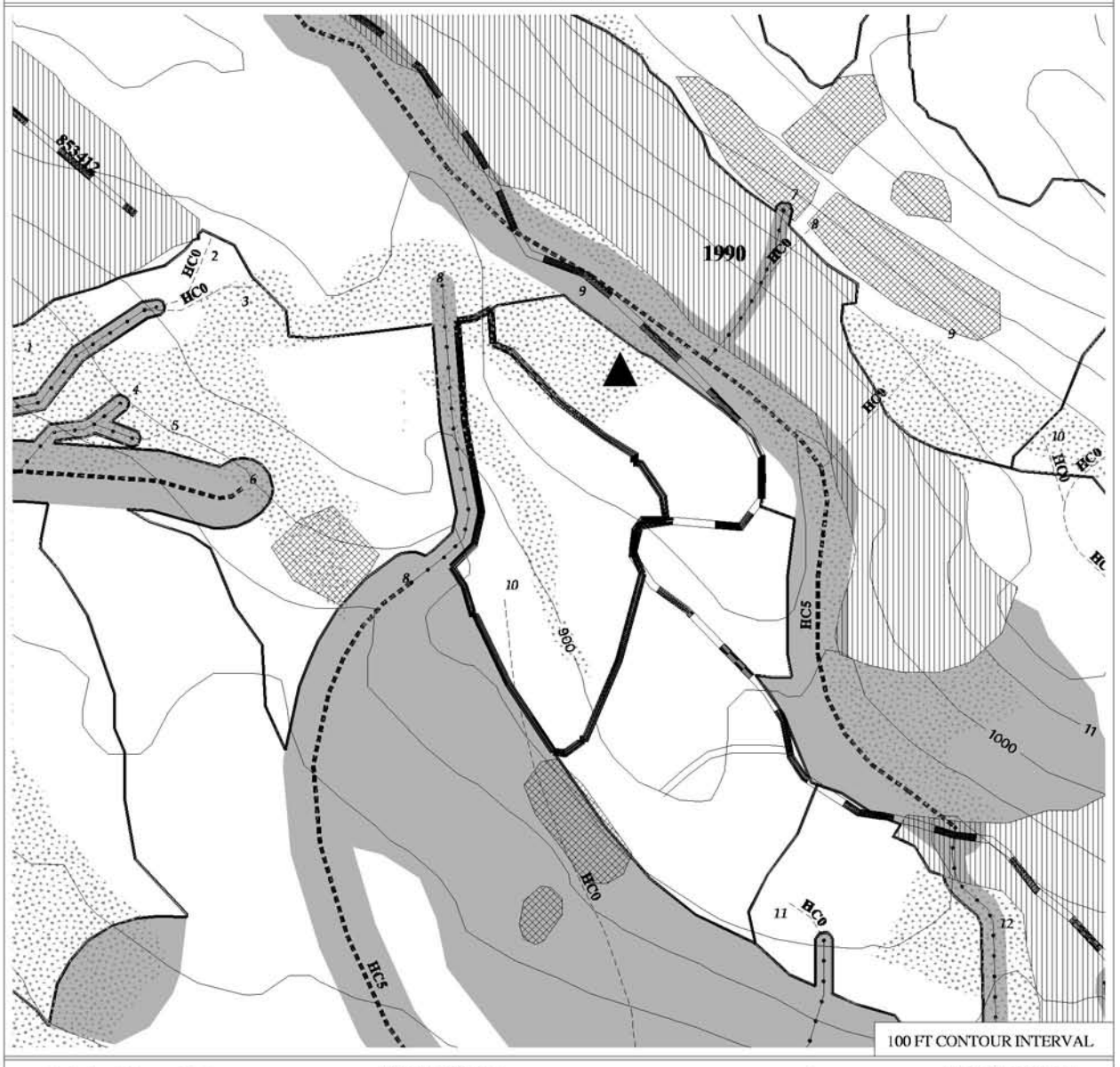
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1051 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 1051 OCCURS IN ALTERNATIVE(S): 2 3 4 5

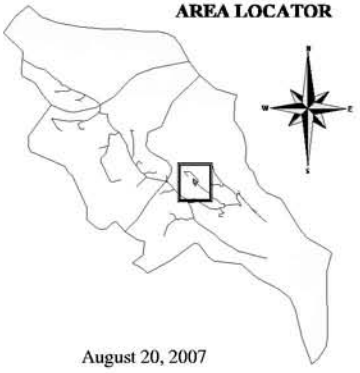
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**1051**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	14.9	**Vol Strata Acres:**	High: 3.0 Med: 11.9 Low: 0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	344	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 16-28" DBH western hemlock, mountain hemlock and spruce each representing approximately 30% of the BA and small amount of 12-16" DBH yellow-cedar (10% BA). Western hemlock advanced regeneration is common with some spruce and yellow-cedar also present. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery requirements, uses an economical regeneration method and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit includes stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. This unit contains 3 acres of high value marten habitat in the NW corner. Designate reserve trees (including yellow-cedar if possible) of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees adjacent to stream buffer if possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: The upper part of stream 9 is Class II HC channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** The lower part of stream 9 is class II PA channel Type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet of channel (RIP III). **Concern:** Stream 10 is Class IV HC Channel Type. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16) **Concern:** Windthrow risk is moderate to high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 45-65% in Unit 1051. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. **Concern:** Southwest boundary is adjacent to goshawk nest buffer. **Response:** Ensure unit boundary does not enter nest buffer. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

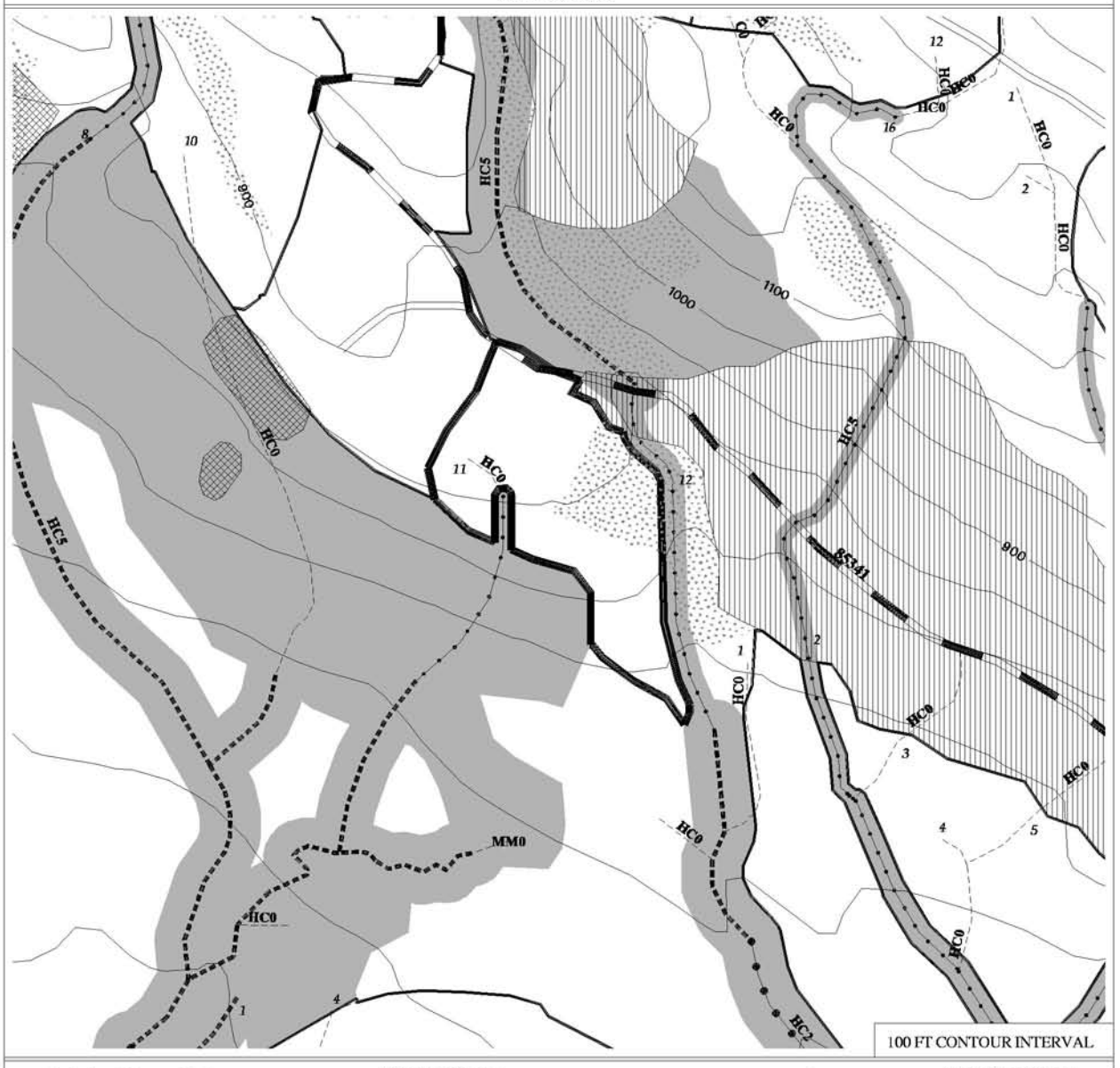
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1053 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 1053 OCCURS IN ALTERNATIVE(S): 2 3 4 5

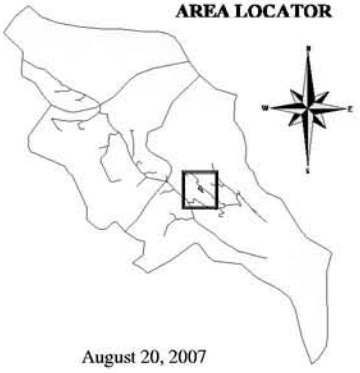
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**1053**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	12.3	**Vol Strata Acres:**	High: 2.4 Med: 8.6 Low: 1.3
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	273	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Stand Condition/Vegetation: Stand consists of 16-40 " DBH western hemlock (64% BA), 12-24" DBH mountain hemlock (27% BA), and 12-16" DBH yellow-cedar (9% BA). Western hemlock advanced regeneration is common with some spruce and yellow-cedar also present. Wind risk is moderate to high.

Silvicultural Objective/Desired Future Condition:

Silvicultural Prescription: Even-aged management – clearcut: This unit includes stream buffers with RAW zones. For RAW zone retain trees less than 16” DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. This unit contains high value marten habitat in eastern portion of unit. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees if possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** The upper part of stream 9 is Class II HC channel type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** The lower part of stream 9 is class II PA channel Type. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet of channel (RIP III). **Concern:** The upper part of stream 11 is Class IV HC Channel Type. **Response:** Category C protection (BMP 12.6, 13.14) Remove logging debris from channel (BMP 13.16). **Concern:** The lower part of stream 11 and stream 12 are Class III HC channel types. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Windthrow risk is moderate to high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 45-65% in Unit 1053. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

Summary of Concerns, Responses, BMPs and Mitigation
WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. **Concern:** Southwest boundary adjacent to goshawk nest buffer. **Response:** Ensure unit boundary does not enter nest buffer. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer. **Concern:** Southwest portion of the unit lies within 600 feet of a goshawk nest. **Response:** Road construction and harvest activities are restricted between March 15 and August 15 within 600 feet of active goshawk nest sites. **Concern:** Red-tailed hawk was observed around unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nests if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

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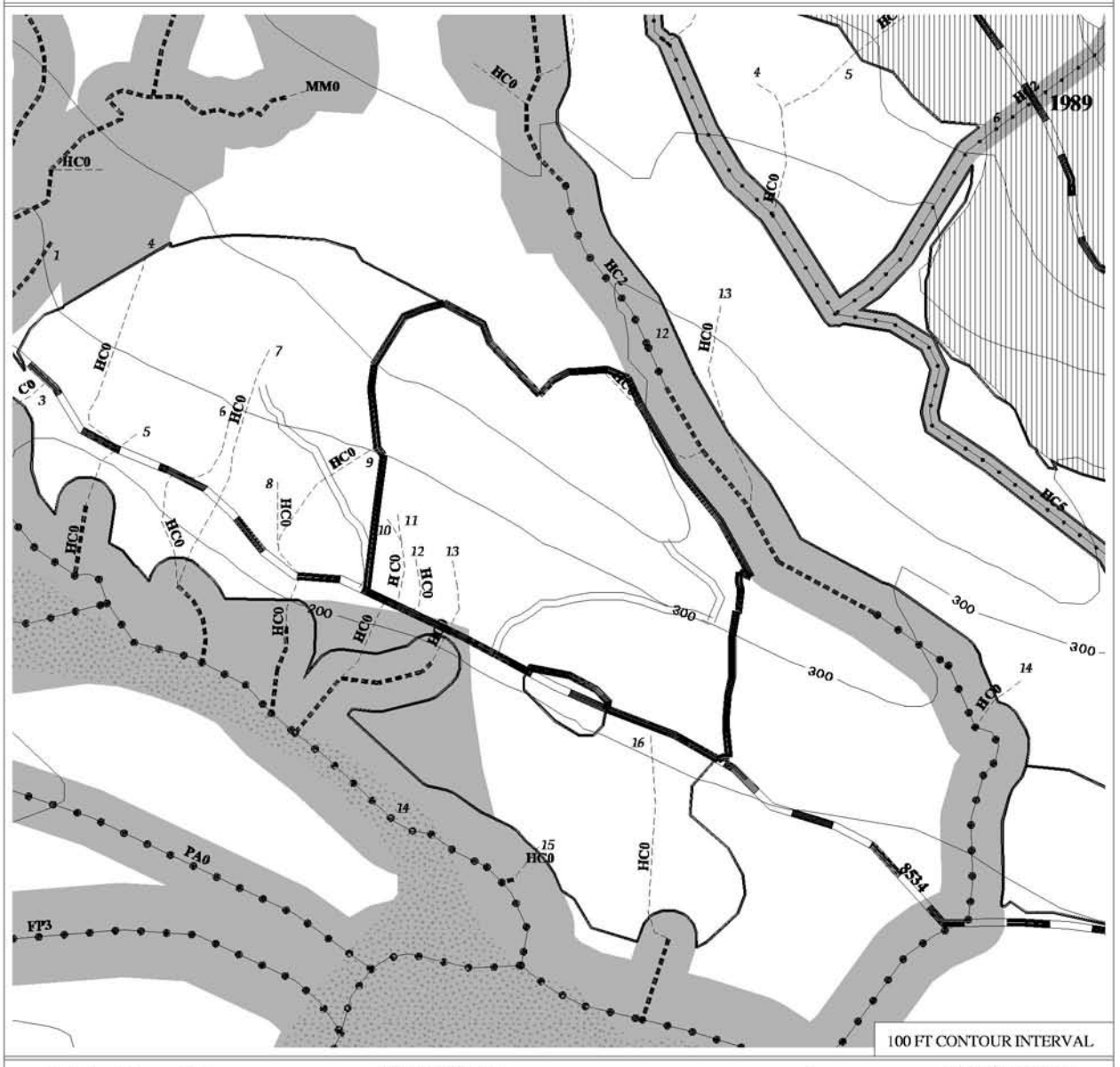
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1081 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 1081 OCCURS IN ALTERNATIVE(S): 2 3 4 5

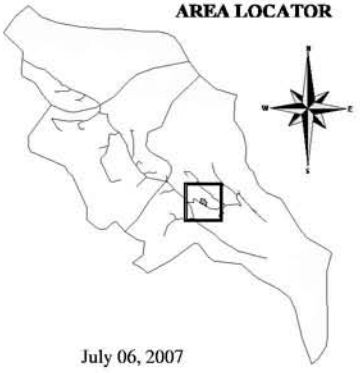
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Rock Pit

AREA LOCATOR



July 06, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**1081**	**In Alternatives:**	2, 3, 4, 5	**Total Unit Acres:**	30.0	**Vol Strata Acres:**	High: 0 Med: 0.1 Low: 29.9
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	435	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-32" DBH mountain hemlock (47% BA), 9-24" DBH western hemlock (35% BA), and 16-28" DBH yellow-cedar (17% BA). Western hemlock advanced regeneration is common with some spruce and yellow-cedar also present. Wind risk is high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery requirements, uses an economical regeneration method and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit includes stream buffers.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary road 8 accesses unit from existing Road 8534. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: Numerous rare plant populations; largely low-volume open forested wetland habitat. **Response:** Don't harvest the SW corner of Unit 1081, from the entry point of Temp Rd. 8 running NW above the large muskeg in Unit 108.

FISH/WATERSHED: Concern: Streams 10, 11, 12, and 13 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).**Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-65% in Unit 1081. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: Concern: Goshawk observed adjacent to the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer. **Concern:** Red-tailed hawk was observed around unit. **Response:** Maintain a 600-foot no-harvest buffer that is windfirm around active raptor nest sites if identified and restrict harvest and road building activities from March 1 to July 31 within the buffer.

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1631 VCU: 2100/2090 HARVEST SYSTEM: Helicopter

UNIT 1631 OCCURS IN ALTERNATIVE(S): 2 3

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**1631**	**In Alternatives:**	2, 3	**Total Unit Acres:**	41.6	**Vol Strata Acres:**	High: 5.4 Med: 35.4 Low: 0.8
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	504	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-42" DBH western hemlock (70% BA), 12-39" DBH spruce (25% BA), and 9-12" DBH yellow-cedar (3% BA) and 9-12" DBH mountain hemlock (2-3% BA). Western hemlock and yellow-cedar advanced regeneration is moderately abundant with some spruce also present. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (350 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 1, 4, 5, 9, 10, and 12 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 11 is a Class IV HC channel with unstable side-slopes that runs into a fish stream. **Response:** Category B protection with split yard to protect side-slopes. (BMP 13.16, RIP III).**Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: Concern: There is less than1 acre of moderate vulnerability karst along the eastern boundary of Unit 1631. **Response:** A minimum of partial suspension is required to meet karst resource objectives (BMP 13.9).

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 40-90% in Unit 1631. **Concern:** There are about 7 acres of slopes greater than 72% in Unit 1631. The poorly drained soils on smooth slopes indicate a high risk for landslides. **Response:** Avoid this portion of Unit 1631 as any landslides would enter a live stream (BMP 13.5 and 13.9). The rest of 1631 is suitable for the proposed helicopter harvest. Area to the west of Unit 1631 dropped for stability concerns. An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Proposed harvest system will not create openings greater than 2 acres in size within this habitat. Retention of 60% of the basal area will meet marten standards and guidelines. **Concern:** Goshawk observed adjacent to the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1641 VCU: 2100 HARVEST SYSTEM: Cable

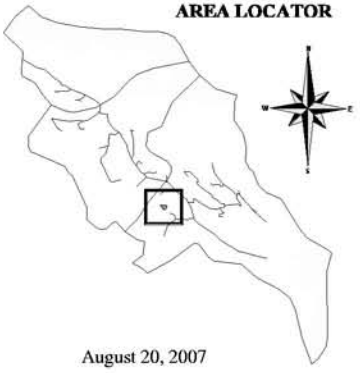
UNIT 1641 OCCURS IN ALTERNATIVE(S): 2

0 0.11 0.23 Miles

MAPSCALE 1:7200

Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**1641**	**In Alternatives:**	2	**Total Unit Acres:**	21.0	**Vol Strata Acres:**	High: 0 Med: 18.3 Low: 2.7
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	447	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 16-23" DBH western hemlock (39% BA) and 28-35" DBH yellow-cedar (39% BA) with some 12-19" DBH mountain hemlock (16% BA) and 9-12" DBH spruce (7% BA). There is considerable standing dead hemlock in this stand. Western hemlock advanced regeneration is abundant with lesser amounts of spruce and yellow-cedar. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16” DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. This unit does not contain high value marten habitat.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: Temporary road 66 accesses unit from existing Road 8534 via planned NFSR 853092. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 9-12 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Southern boundary stream is a Class I MC channel. **Response:** Locate unit boundary 100 feet north of channel. Category A protection (BMP 13.61, RIP-III). Manage 120 feet beyond no-cut buffer for windfirmness. **Concern:** Temporary road-stream crossings. **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-55% in Unit 1641. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: No concerns

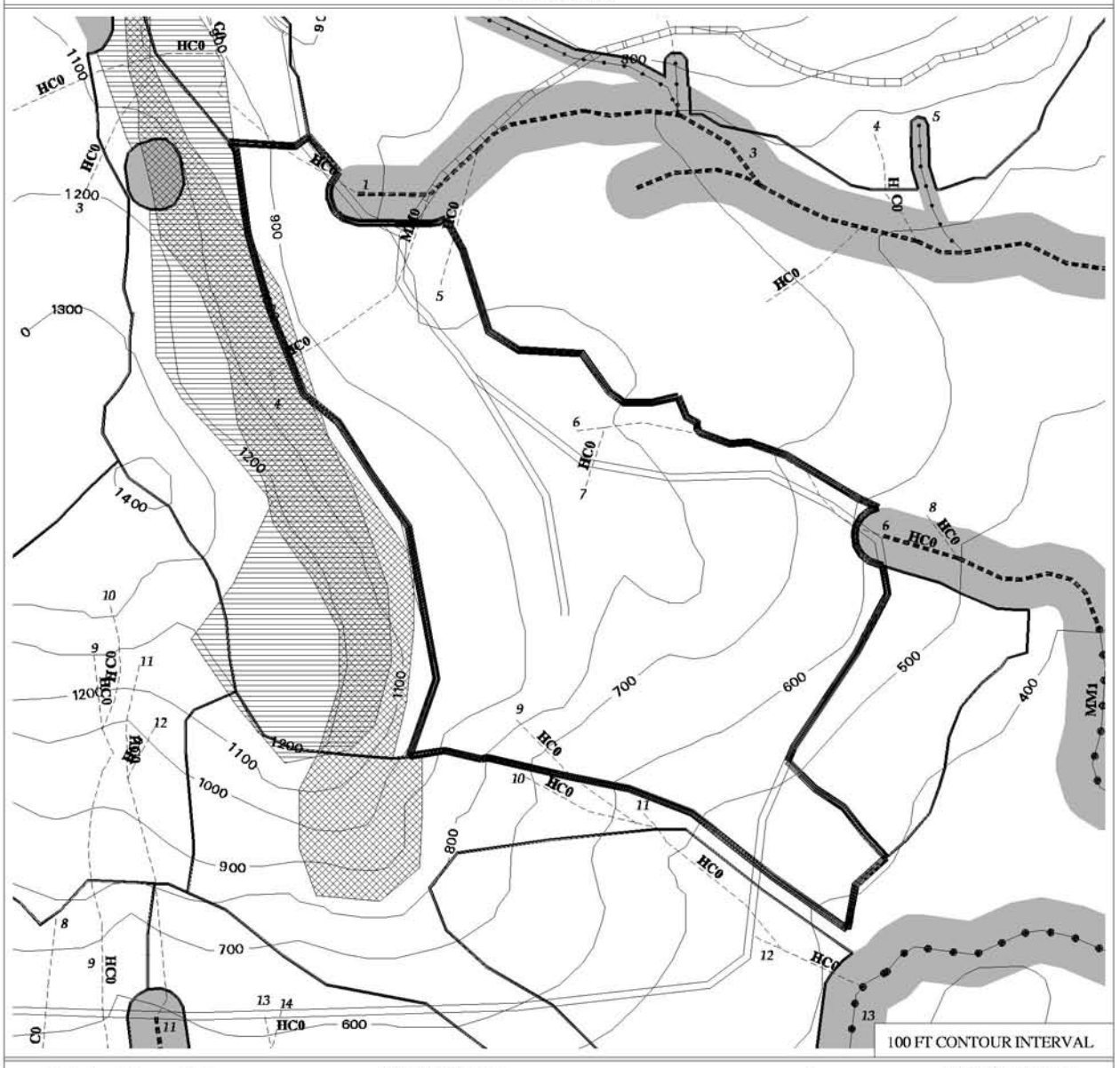
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1651 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 1651 OCCURS IN ALTERNATIVE(S): 2

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**1651**	**In Alternatives:**	2	**Total Unit Acres:**	63.3	**Vol Strata Acres:**	High: 0 Med: 49.2 Low: 14.1
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	1,301	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 9-39" DBH western hemlock (47% BA), 9-36" DBH yellow-cedar (29% BA) with some larger diameter 12-47" DBH spruce (18% BA) and a minor amount of 28-36"DBH mountain hemlock (5% BA). Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit contains stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. This unit does not contain high value marten habitat.

TIMBER/LOGGING: This unit is comprised of four cable settings that are defined by logical setting breaks based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: Temporary roads 66 and 63 access unit from existing Road 8534 via planned NFSR 853092. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1 (upper), 4, 5, 6 (upper), 7, and 9 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Streams 1 (lower) and 6 (lower) are Class II HC channels. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). Manage for windfirmness 120 feet beyond no-cut buffers. **Concern:** Temporary road-stream crossings. **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 25-55% in Unit 1651. There are about 8 acres of forested wetland in the unit. A minimum of partial suspension is required to meet soil and wetland standards. (BMPs 12.5, 13.9) **Concern:** The proposed temporary road crosses forested wetland. **Response:** Avoiding these wetlands is not feasible so provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

WILDLIFE: No concerns

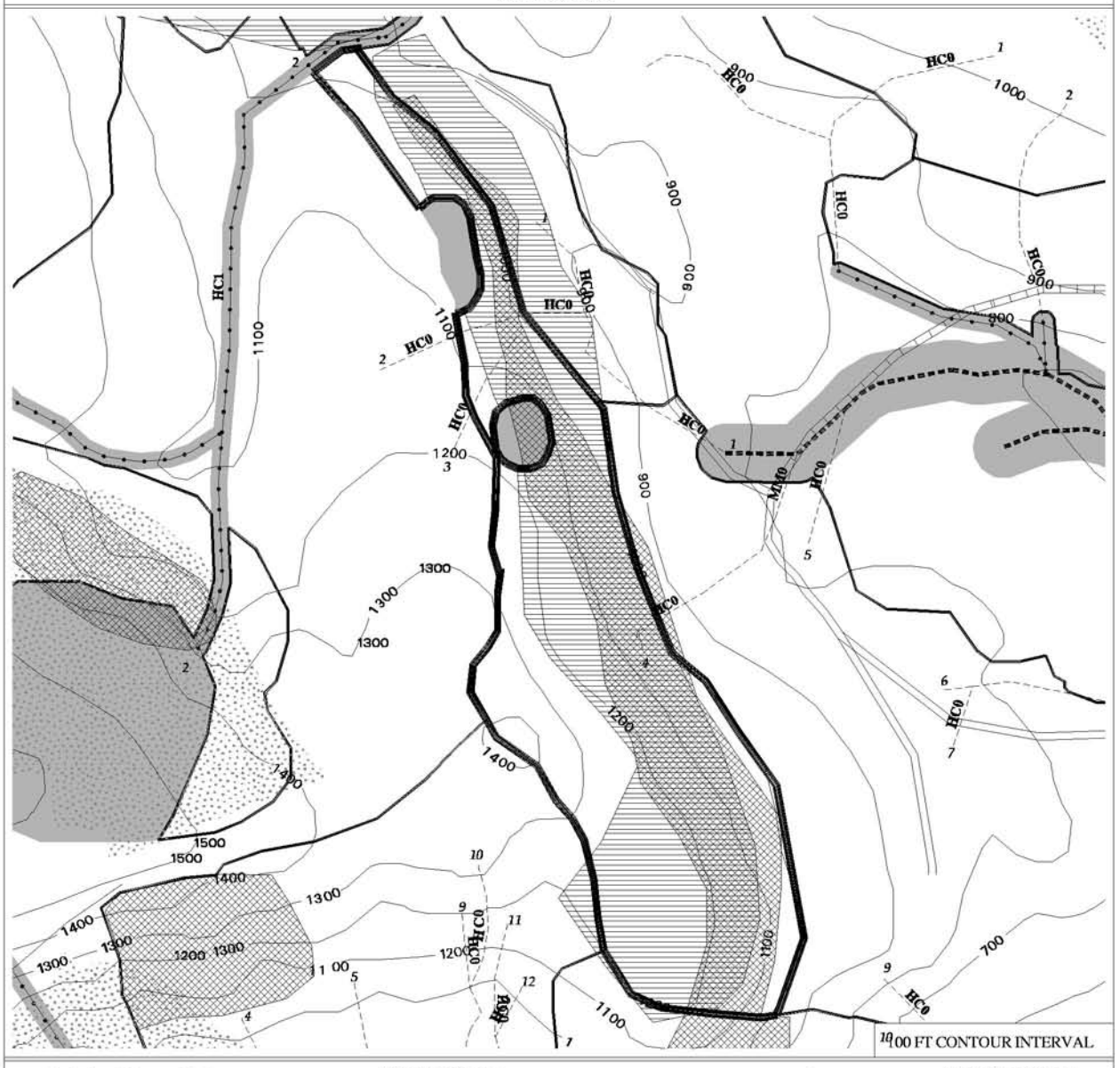
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1652 VCU: 2090/2100 HARVEST SYSTEM: Helicopter

UNIT 1652 OCCURS IN ALTERNATIVE(S): 2 3

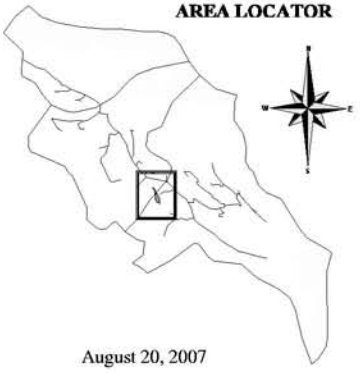
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**1652**	**In Alternatives:**	2, 3	**Total Unit Acres:**	36.3	**Vol Strata Acres:**	High: 0 Med: 34.1 Low: 2.2
VCU Number:	2100	**Harvest System:**	HE	**Net Estimated Harvest Volume (MBF):**	436	**Prescription /Percent Retention:**	ST40

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 12-48" DBH spruce (41% BA), 9-28" DBH western hemlock (37% BA), 12-28" DBH mountain hemlock (22% BA). There is a considerable amount of windthrow near the top of the ridge on the western side of the unit. Western hemlock and spruce advanced regeneration is present but not abundant. Wind risk is moderate to high on the western side.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery and high value marten habitat requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 40 percent of existing basal (250 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate helicopter yarding. To offset the wind risk on the ridge top in the center of the unit decrease the basal area removed to 25% and target the tallest trees for removal. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate helicopter yarding.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Northern boundary stream is a Class III HC channel. **Response:** Locate unit boundary south of v-notch and manage for windfirmness within 120 feet of v-notch (BMP 13.16, RIP-III). **Concern:** Streams 2, 3, and 4 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: Concern: There are 4 karst features and 24 acres of moderate vulnerability karst in Unit 1652. **Response:** The features and their 100 foot no-harvest buffer in the west of Unit 1652 are excluded from the unit and a minimum of partial suspension is require to meet karst resource objectives in the moderate vulnerability area. (BMP 13.2 and 13.9)

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 50-120% in Unit 1652. **Concern:** There are about 17 acres of slopes over 72%. The southern 3/4 of this steep area is made up of devil's club and alder- covered cliffs. The soils are shallow over bedrock and are easily disturbed by timber harvest. **Response:** Avoid the areas greater than 72% along the eastern boundary of the unit. The rest of Unit 1652 is suitable for the proposed helicopter harvest (BM 13.5, 13.9). An onsite analysis was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: Concern: Goshawk observed adjacent to the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

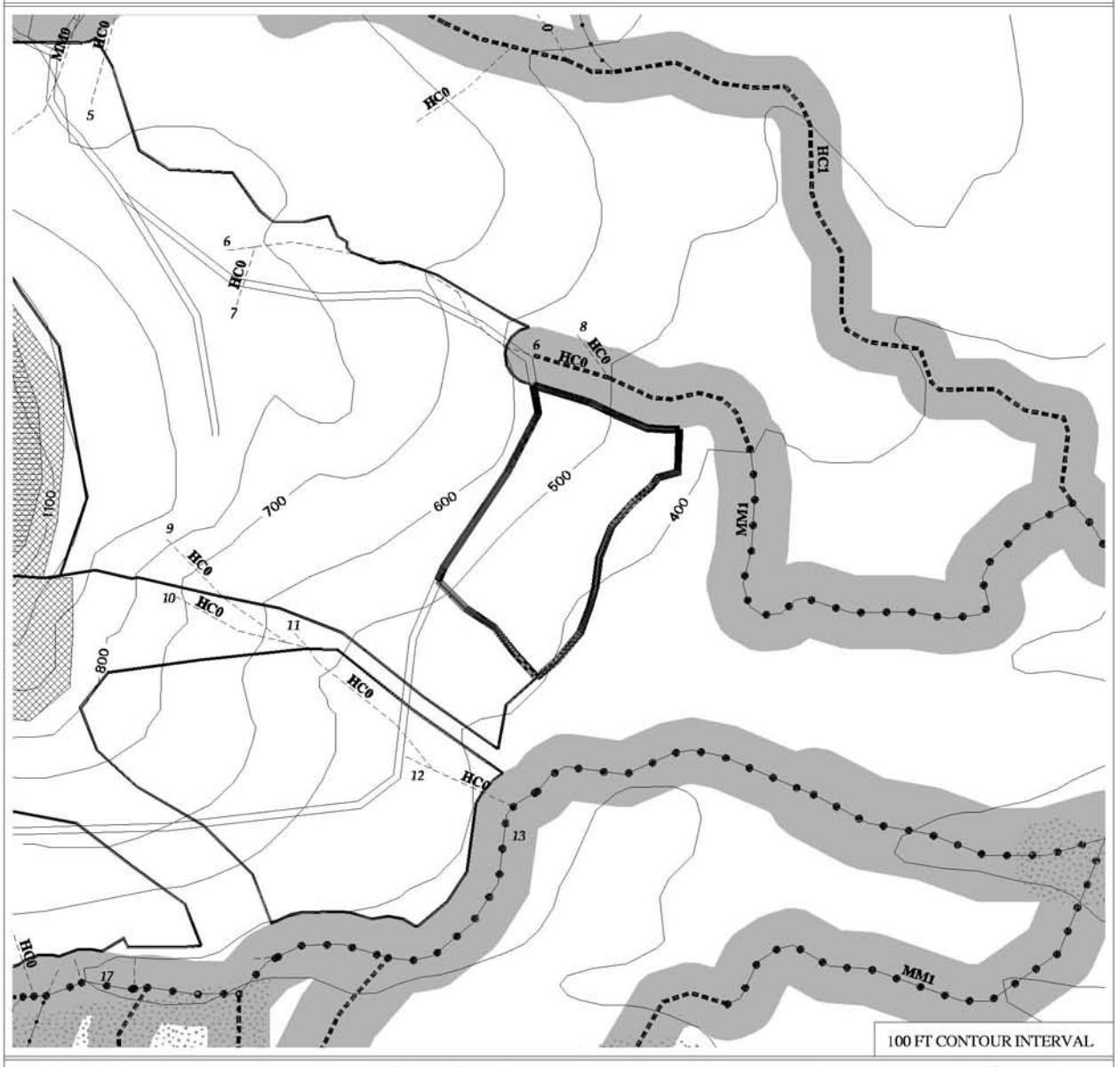
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1654 VCU: 2100 HARVEST SYSTEM: Shovel

UNIT 1654 OCCURS IN ALTERNATIVE(S): 2

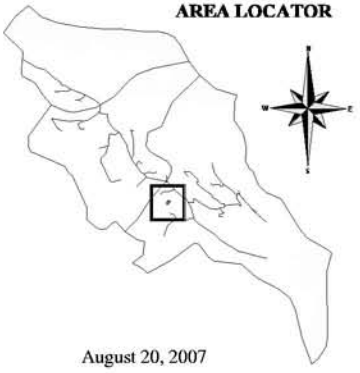
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number: 1654	**In Alternatives:** 2	**Total Unit Acres:** 9.6	**Vol Strata Acres:** High: 0 Med: 3.6 Low: 6.0
VCU Number: 2100	**Harvest System:** SH	**Net Estimated Harvest Volume (MBF):** 109	**Prescription /Percent Retention:** ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of average sized 16-28" DBH spruce (50% BA) and smaller diameter 5-9" DBH western hemlock (38% BA) and some 12-16" DBH mountain hemlock (13% BA) and a minor component of yellow-cedar. Western hemlock advanced regeneration is abundant with some spruce also present. There is a small patch of windthrow near the northeast corner of the unit. Wind risk is moderate.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (100 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 66 accesses unit from existing Road 8534 via planned NFSR 853092. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 6 is the northeastern boundary stream, a Class II HC channel. **Response:** locate unit south of 100-foot no-cut buffer (BMP 13.16, RIP III). **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 15-25% in Unit 1654. Soils are somewhat poorly drained, deep mineral soils to poorly drained organic soils in the shallow areas and swales. There are small pockets of forested wetland through the unit (BMP 12.5). **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in Unit 1654. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. (BMP 13.2 and 13.9) **Concern:** The proposed temporary road crosses forested wetland. **Response:** Avoiding these wetlands is not feasible so provide adequate cross drainage to maintain groundwater flow. Remove all structures and close the road after the unit has been harvested. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

WILDLIFE: No concerns

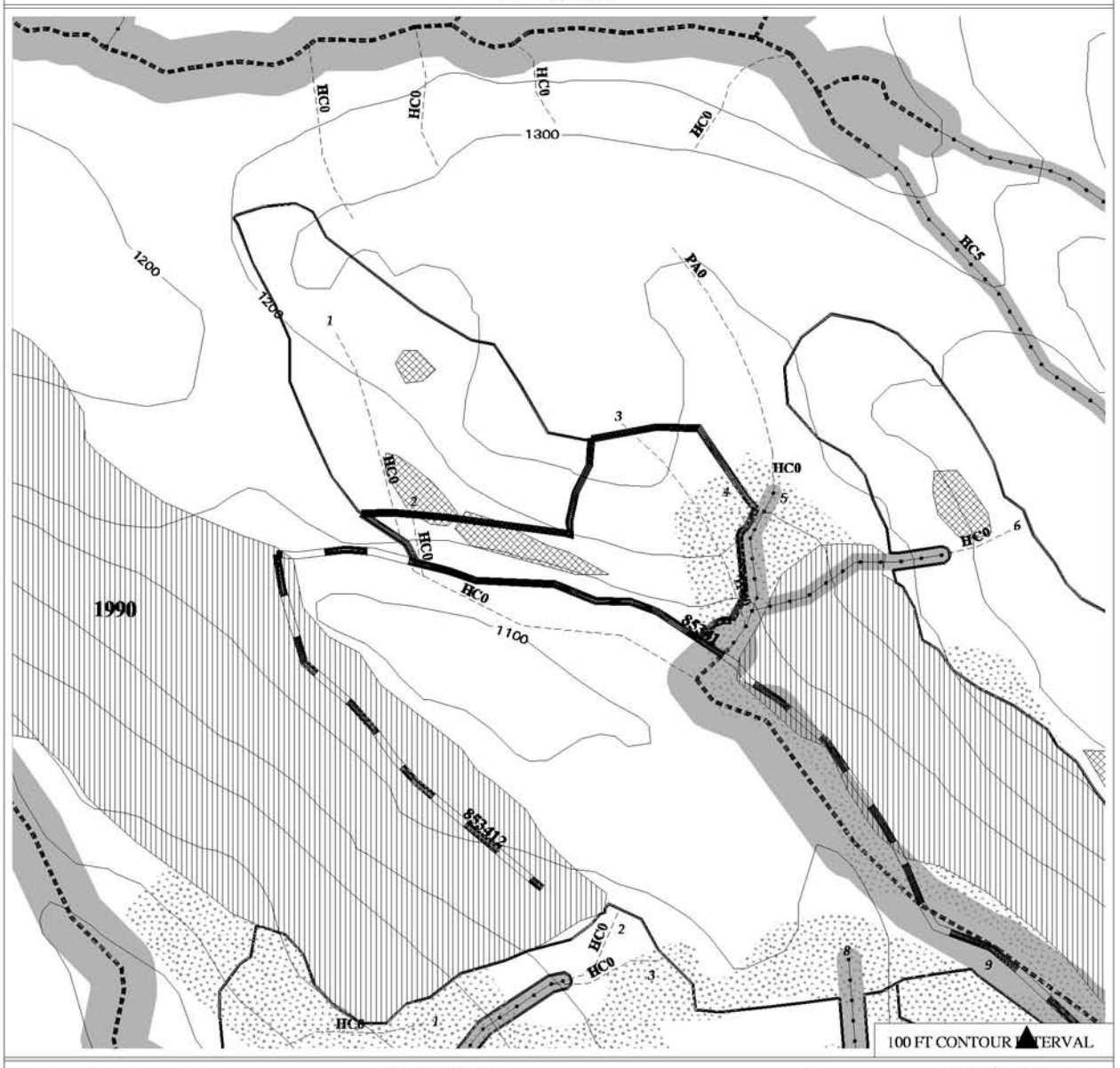
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1711 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 1711 OCCURS IN ALTERNATIVE(S): 2 4 5

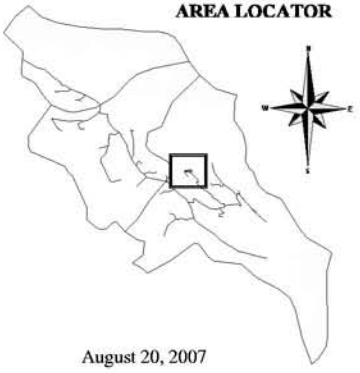
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**1711**	**In Alternatives:**	2, 4, 5	**Total Unit Acres:**	11.0	**Vol Strata Acres:**	High: 2.3 Med: 6.7 Low: 2.0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	238	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 24-36" DBH western hemlock (56% B) and 24-48" DBH spruce (44% BA), both of larger diameter. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit includes stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. This unit contains 2 acres of high value marten habitat in the NE corner. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees adjacent to stream buffer if possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 1,2, 3 and 4 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 5 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Lower part of Stream 5 is a Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Windthrow risk is moderate to high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-75% in Unit 1711. There is less than 1 acre of slopes over 72%. The soils are well-drained formed in glacial till. **Concern:** Timber harvest may accelerate landsliding on slopes over 72% gradient. **Response:** exclude this area from the proposed downhill cable harvest (BMP 13.5). The rest of the unit is suitable for the proposed cable with a minimum of partial suspension to meet soil quality standards. (BMP 13.9) An onsite analysis for suitability on slopes over 72% was conducted on this unit as per Forest Plan Standards (soil resource report).

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. **Concern:** Goshawk observed adjacent to the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

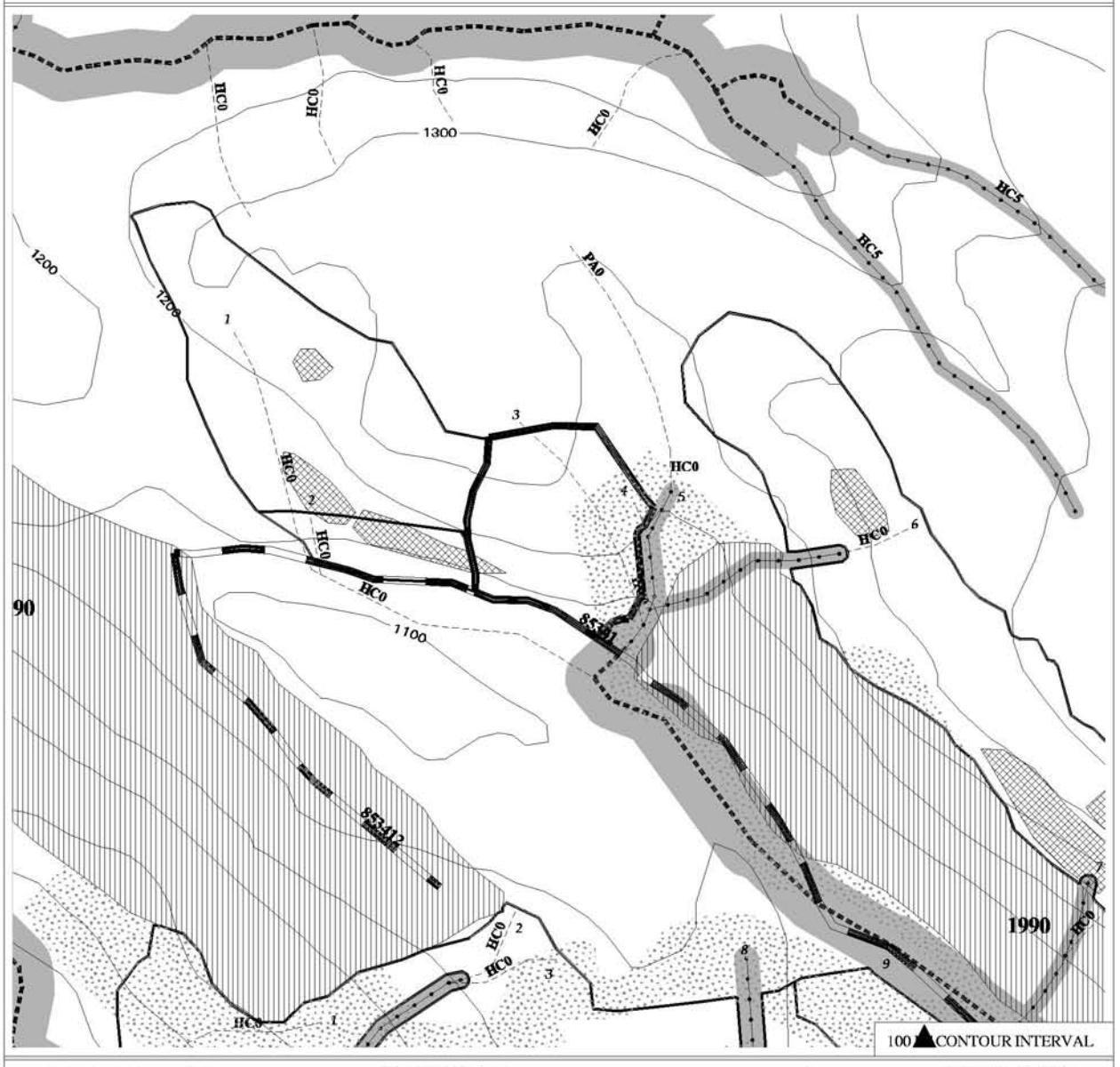
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1711 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 1711 OCCURS IN ALTERNATIVE(S): 3

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**1711**	**In Alternatives:**	3	**Total Unit Acres:**	8.2	**Vol Strata Acres:**	High: 2.3 Med: 3.9 Low: 2.0
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	176	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists primarily of 24-36" DBH western hemlock (56% B) and 24-48" DBH spruce (44% BA), both of larger diameter. Wind risk is moderat to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit includes stream buffers with RAW zones. For RAW zone retain trees less than 16" DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. This unit contains 2 acres of high value marten habitat in the NE corner. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees adjacent to stream buffer if possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 3 and 4 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 5 is a Class III HC channel. **Response:** Category B protection (BMP 12.6, 13.14). No harvest within v-notch (RIP III). **Concern:** Lower part of Stream 5 is a Class II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). **Concern:** Windthrow risk is moderate to high. **Response:** Manage for windfirmness 120 feet beyond no-cut buffers.

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-65% in Unit 1711. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: **Concern:** Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30'' DBH or larger), 3 snags or decadent trees/acre (20-30'' DBH or larger), and 3 large, downed trees/acre (20-30'' DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. **Concern:** Goshawk observed around the unit. Surveys did not identify a nest site. **Response:** Goshawk is likely associated with identified nest site. If a goshawk nest is identified in or adjacent to the unit, contact the project biologist; follow Forest Plan direction for the development of the nest buffer.

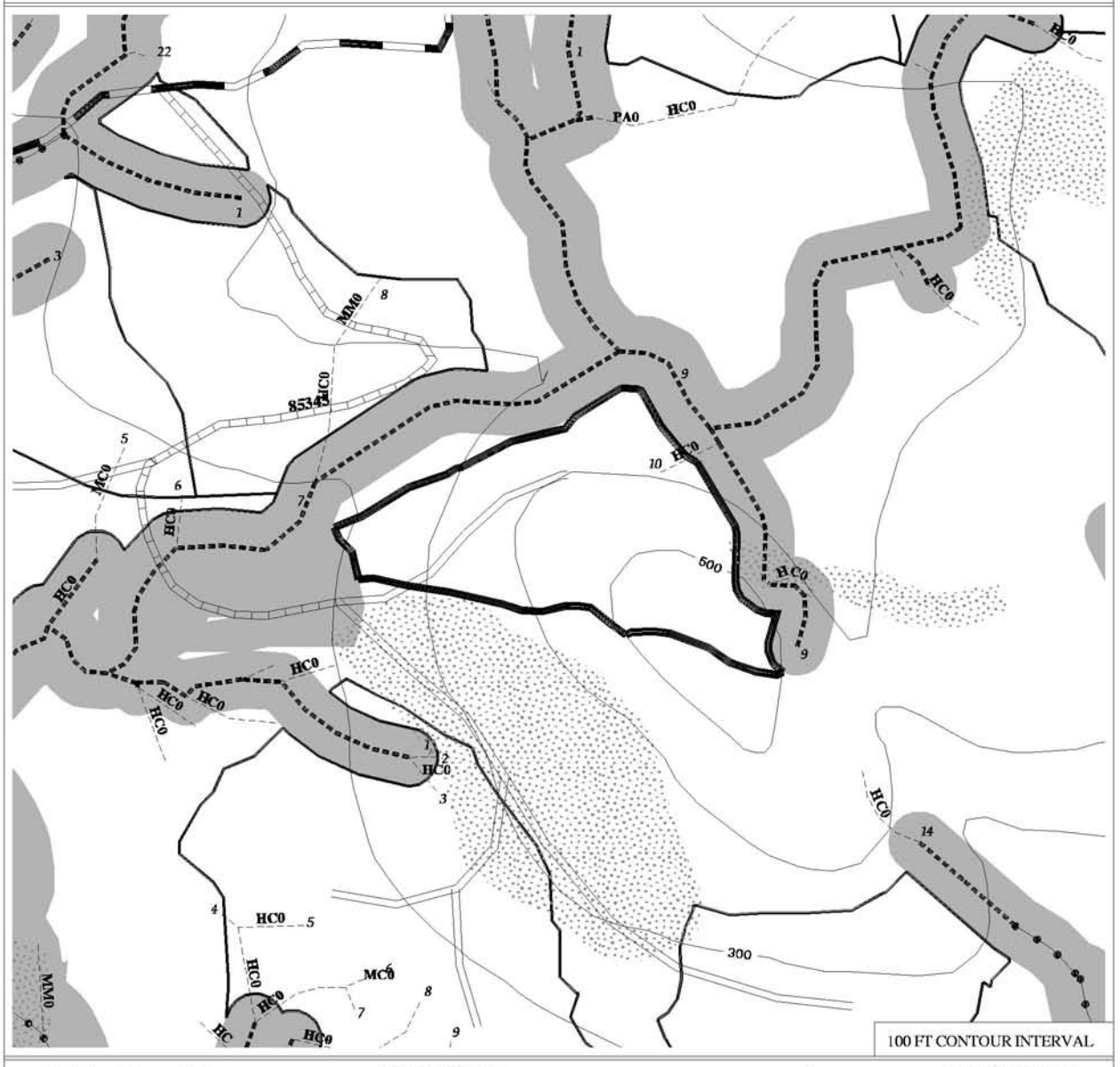
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1772 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 1772 OCCURS IN ALTERNATIVE(S): 2

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

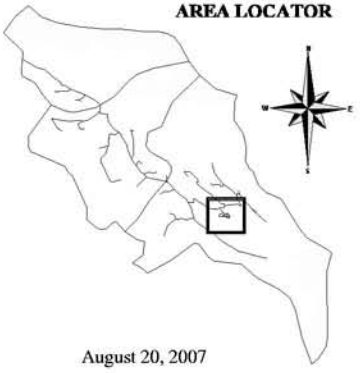
Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**1772**	**In Alternatives:**	2	**Total Unit Acres:**	18.0	**Vol Strata Acres:**	High: 0 Med: 8.2 Low: 9.8
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	325	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of primarily 9-30" DBH western hemlock (86% BA) with some larger 32-36" DBH spruce (7% BA) and some 12-16"DBH yellow-cedar. The eastern portion is more well drained with relatively flat hydric soils in the western portion. There is a patch of younger even-aged hemlock of uniform size in the center of the unit, likely the result of a past windevent. Western hemlock advanced regeneration is abundant with some spruce and cedar present also. Wind risk is high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This unit is bounded by stream buffers on the NE and NW with RAW zones. For RAW zone retain trees less than 16” DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer.

TIMBER/LOGGING: This unit is comprised of one cable setting.

ENGINEEERING/ROADS: Temporary road 77D accesses unit from existing Road 8534 via planned NFSR 85345. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Stream 9 is a Class II MM channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). Manage 120 feet beyond no-cut buffer for windfirmness. **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 35-50% in Unit 1772. The northeast quarter of the unit is wetland with some poor fens and muskegs. A minimum of partial suspension is required to meet soil quality standards. (BMP 12.5, 13.9) **Concern:** Proposed temporary road crosses about 400' of wetlands while trying to maintain grade. **Response:** Provide adequate cross drainage, remove structures and close the road after harvest. (BMP 14.9) (33 CFR BMPs 4, 5, 6

WILDLIFE: No concerns

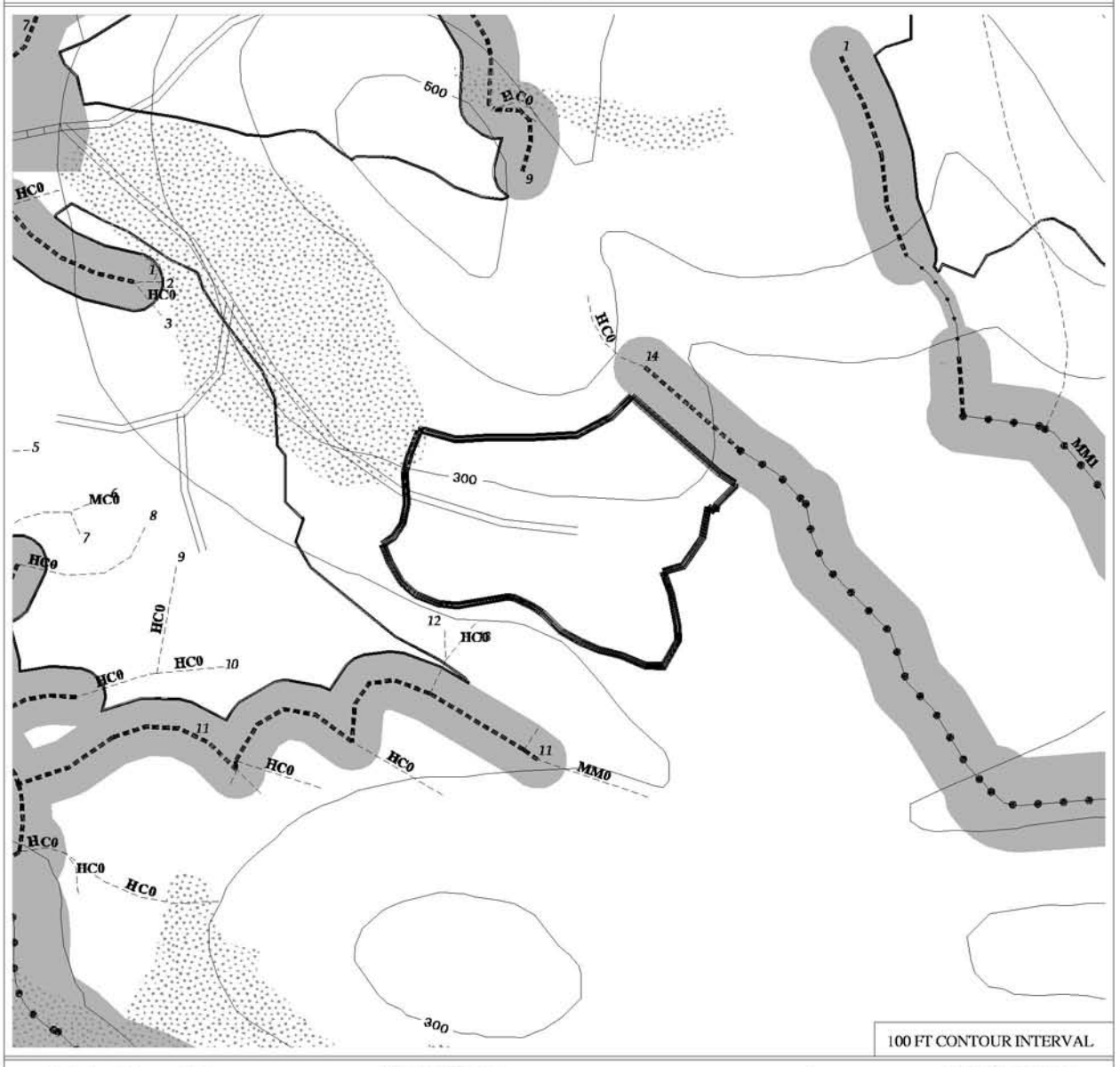
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1773 VCU: 2100 HARVEST SYSTEM: Shovel

UNIT 1773 OCCURS IN ALTERNATIVE(S): 2

0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested

Unit Boundary

Adjacent Proposed Unit

Proposed NFS Road 85343

Temporary Road

Existing NFS Road 8530

NFS Road Reconstruction 8534

Class I Stream

Class II Stream

Class III Stream

Class IV Stream

Stream Channel Type HC6

Stream Number – See Narrative 1

High Value Marten Habitat

Areas Dropped From Alternative(s)

Old Growth Reserve

Moderate Vulnerability Karst

Slopes Greater Than 72%

Existing Rock Pit

AREA LOCATOR

August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**1773**	**In Alternatives:**	2	**Total Unit Acres:**	16.2	**Vol Strata Acres:**	High: 0.1 Med: 10.8 Low: 5.3
VCU Number:	2100	**Harvest System:**	SH	**Net Estimated Harvest Volume (MBF):**	200	**Prescription /Percent Retention:**	ST50

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists of 10-26" DBH western hemlock (39% BA), 12-22" DBH yellow-cedar (39% BA) with some larger 18-26" DBH spruce (23% BA). There is a patch of younger even-aged hemlock of uniform size in the northern portion of the unit; likely the result of a past windevent. Slopes are relatively flat and hydric in the southern portion of the unit. Western hemlock advanced regeneration is abundant with some spruce and cedar present also. Wind risk is high.
Silvicultural Objective/Desired Future Condition: Maintain or create a stand with three or more distinct age (size) classes of trees that maintains species diversity, provides for a high degree of structural diversity and meets Forest Plan scenery requirements.
Silvicultural Prescription: Uneven-aged management – Single tree selection. Designate up to 50 percent of existing basal (173 sq.ft.per acre) area singly and/or in small clumps or corridors to facilitate shovel yarding. Refer to the intro to unit cards, marking guidelines and detailed RX for more information.

TIMBER/LOGGING: Refer to Silvicultural RX and marking guides for single tree selection guidelines to facilitate shovel yarding.

ENGINEEERING/ROADS: Temporary road 1773B accesses unit from existing Road 8534 via planned NFSR 85345 and temporary road 77A. Road location has been flagged. Deviations to flagged route must be approved by USFS prior to construction.

BOTANY RESOURCES: No concerns

FISH/WATERSHED: **Concern:** Streams 12 and 13 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Equipment will not operate in streamcourses and will not cross streams without a temporary structure (BMP 13.9, 13.14). Remove logging debris from channel (BMP 13.16). **Concern:** Stream 14 is a CLass II HC channel. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 100 feet and side-slope break (RIP III). Manage 120 feet beyond west side of buffer for windfirmness (RIP II). **Concern:** Temporary road – stream crossings **Response:** crossing structures and locations will be approved by USFS prior to construction. Upon completion of unit harvest, restore natural drainage patterns by removing road fill from channels and installing water bars as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17)

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 15-25% in Unit 1773. Soils are somewhat poorly drained, deep mineral soils to poorly drained organic soils in the shallow areas and swales. **Concern:** Shovel yarding may cause rutting due to lack of bearing strength on poorly drained organic soils in Unit 1773. **Response:** Operate on a puncheon or a slash mattress to provide adequate bearing strength. (BMP 13.2 and 13.9) **Concern:** Proposed temporary road crosses about 500' of wetlands while trying to maintain grade. **Response:** Provide adequate cross drainage, remove structures and close the road after harvest. (BMP 14.9) (33 CFR BMPs 4, 5, 6)

WILDLIFE: **Concern:** Unit contains less than 2 acres high value marten habitat. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

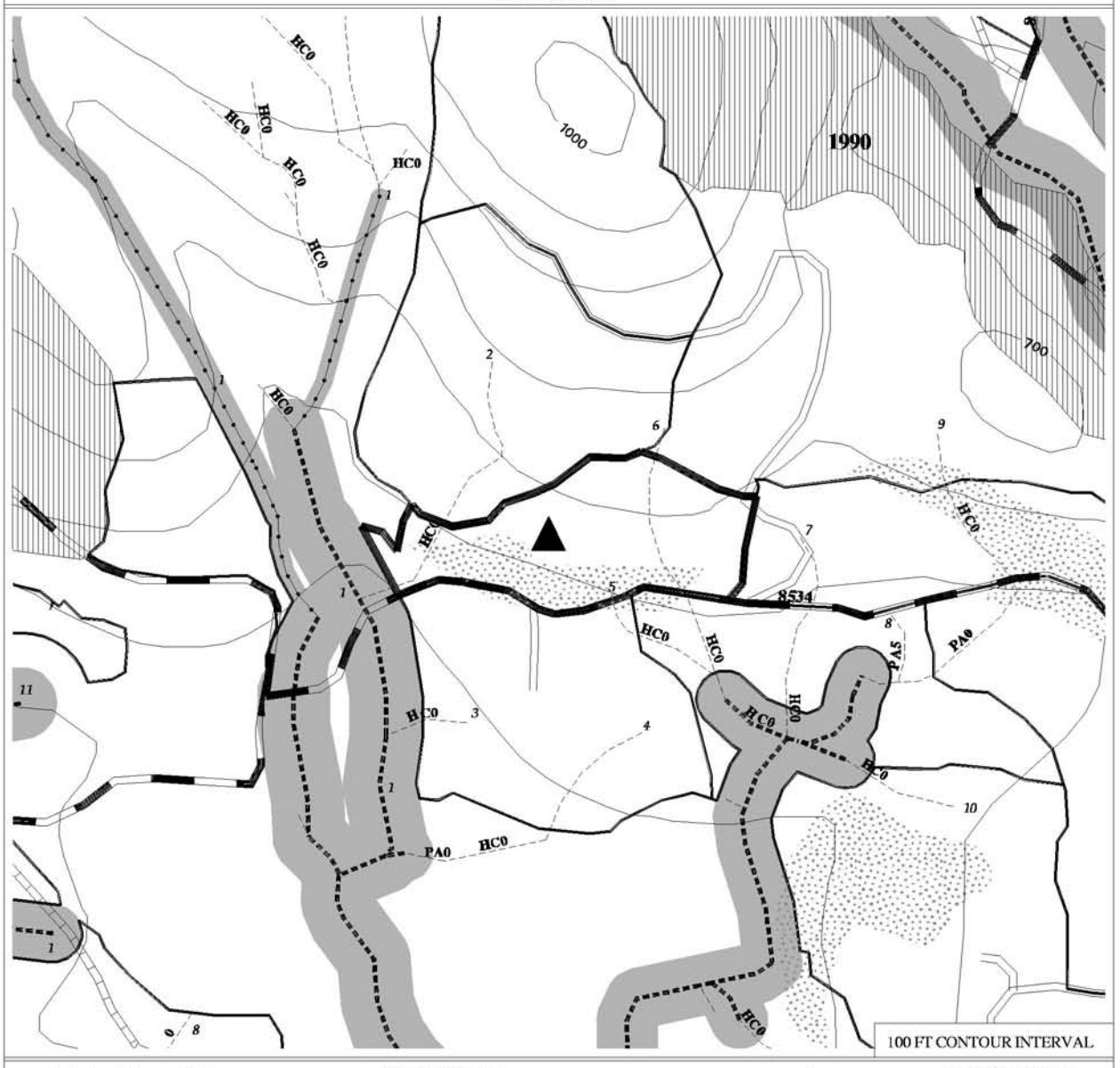
IYOUKTUG TIMBER SALE UNIT CARD
PLANNED HARVEST UNIT MAP

UNIT NUMBER: 1921 VCU: 2100 HARVEST SYSTEM: Cable

UNIT 1921 OCCURS IN ALTERNATIVE(S): 3 4 5

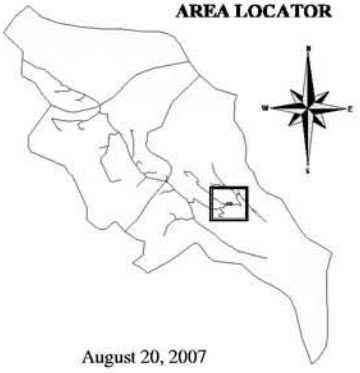
0 0.11 0.23 Miles

MAPSCALE 1:7200



Existing Harvest Unit with Year Harvested
Unit Boundary
Adjacent Proposed Unit
Proposed NFS Road 85343
Temporary Road
Existing NFS Road 8530
NFS Road Reconstruction 8534
Class I Stream
Class II Stream
Class III Stream
Class IV Stream
Stream Channel Type HC6
Stream Number – See Narrative 1
High Value Marten Habitat
Areas Dropped From Alternative(s)
Old Growth Reserve
Moderate Vulnerability Karst
Slopes Greater Than 72%
Existing Rock Pit

AREA LOCATOR



August 20, 2007

Unit Data Card – Iyouktug Timber Sale Draft EIS

Unit Number:	**1921**	**In Alternatives:**	3, 4, 5	**Total Unit Acres:**	10.8	**Vol Strata Acres:**	High: 2.9 Med: 7.6 Low: 0.3
VCU Number:	2100	**Harvest System:**	C	**Net Estimated Harvest Volume (MBF):**	252	**Prescription /Percent Retention:**	CC

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
Existing Stand Condition/Vegetation: Stand consists predominantly of average diameter 10-30" DBH western hemlock (82% BA) and larger 22-26" DBH spruce (19% BA). Soils are well drained and slopes are relatively gentle. Western hemlock advanced regeneration is abundant with some spruce also present. Wind risk is moderate to high.
Silvicultural Objective/Desired Future Condition: Create an even-aged managed stand of the same species composition as the original stand that meets Forest Plan scenery and high value marten habitat requirements, uses an economical regeneration method, and is windfirm, free of mistletoe infection and growing at full site potential.
Silvicultural Prescription: Even-aged management – clearcut: This units is bounded on the west by a stream buffer with a RAW zone. For RAW zone retain trees less than 16” DBH within specified distance (refer to fish/watershed section) from windward (southeasterly) edge of stream buffers to minimize windthrow in buffer. This unit contains 3 acres of high value marten habitat in the SW corner. Designate reserve trees of sufficient size and condition within high value marten habitat to meet marten standards and guidelines. Clump trees adjacent to stream buffer if possible as specified under wildlife section.

TIMBER/LOGGING: This unit is comprised of two cable settings that are defined by a logical setting break based on topography and lateral yarding capabilities.

ENGINEEERING/ROADS: N/A

BOTANY RESOURCES: No concerns

FISH/WATERSHED: Concern: Stream 1 is a Class II MM1 on the western side of unit. **Response:** Category A protection (BMP 12.6, 13.14). No harvest within 120 feet of channel (RIP III). Manage for windfirmenss 120 feet beyond no-cut buffer. **Concern:** Stream 2, 5, and 6 are Class IV HC channels. **Response:** Category C protection (BMP 12.6, 13.14). Remove logging debris from channel (BMP 13.16).

GEOLOGY/KARST: No carbonate bedrock found within unit. No karst resource concerns identified.

HERITAGE RESOURCES: No concerns

SCENERY/RECREATION: No concerns

SOILS/WETLANDS: Slopes range from 25-55% slope in Unit 1921. A minimum of partial suspension is required to meet soil quality standards. (BMP 13.9)

WILDLIFE: Concern: Unit contains high value marten habitat. **Response:** Retain 10-20% of original stand structure as measured by basal area or trees per acre in high value marten habitat. Maintain an average of 4 large live trees/acre (20-30’’ DBH or larger), 3 snags or decadent trees/acre (20-30’’ DBH or larger), and 3 large, downed trees/acre (20-30’’ DBH or larger and 10 feet long). Where trees this large are not available, substitute next largest trees. Retained trees can be clumped to maintain a reasonable assurance of windfirmness and to minimize operational difficulties. **Concern:** High deer use observed throughout unit. **Response:** No design elements or mitigation required to meet Forest Plan standards and guidelines.

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