

UNITED STATES FOREST SERVICE
INTERMOUNTAIN REGION

BIOLOGICAL EVALUATION OF REGIONALLY
SENSITIVE PLANT SPECIES FOR THE UTAH
NORTHERN GOSHAWK HABITAT MANAGEMENT
ENVIRONMENTAL ASSESSMENT

Draft 10-05-99 (revised)



I. INTRODUCTION

This programmatic Biological Evaluation (BE) analyzes the potential effects of the Utah Northern Goshawk Management Project (Alternative F) on species listed as Regionally Sensitive by the Intermountain Regional Forester. All National Forest System lands within the Ashley, Dixie, Fishlake, Manti-LaSal, Uinta and Wasatch-Cache National Forests are being analyzed this BE (Map 1). The Names of the species known or suspected to occur on the forests described above are shown in Table 1. The occurrence of these species by National Forest is documented in Table 2. The purpose of this biological evaluation is to document a programmatic determination regarding the likely effects of the proposed action on the status of these species and avoid impacts that would cause a trend towards federal listing. Because this analysis is programmatic all site-specific project proposals that implement this proposed action would be determined in a project level biological evaluation.

The objectives of this Biological Evaluation (or Assessment for endangered, threatened or proposed species) include the following (FSM 2672.41): (1.) To ensure that Forest Service actions do not contribute to the loss of viability of any native or desired non-native plant or animal species or contribute to animal species trends towards Federal listing of any species, (2.) To comply with the Endangered Species Act that Federal actions from Federal agencies not jeopardize or adversely modify critical habitat of Federally listed or proposed species, and (3.) To provide a process and standard by which to ensure that Endangered, Threatened, Proposed and Sensitive species receive full consideration in the decision making process.

All 66 regionally sensitive vertebrate species in Utah are being considered in this evaluation. Table 3 documents the occurrence of those species that are known to occur in goshawk habitat¹, and the rationale used for determining suitable habitat that would not be affected directly, indirectly or cumulatively as a result of implementing the proposed action.

Current Management Direction

Current policy as stated in the Forest Service Manual (FSM 2672.1) includes the following: Sensitive species of native plant and animal species must receive special management emphasis to ensure their viability and to preclude trends towards endangerment that would result in the need for Federal listing.

The current management direction specified by each National Forest Land and Resource Management Plan in general is to manage classified species habitat to maintain or enhance their status through direct habitat improvement and agency cooperation and to manage and provide habitat for recovery of endangered, threatened and proposed species.

Table 1. Names and Status of Sensitive Plant Species known or suspected to occur in National Forest System lands in Utah

REGION 4 SENSITIVE PLANT SPECIES
Chatterly onion <i>Allium geveeri chatterleyi</i>
Sweet-flowered rock jasmine <i>Androsace chamaejasme carinata</i>
Link Trail columbine <i>Aquilegia grahamii</i>
Graham columbine <i>Aquilegia grahamii</i>

¹ Goshawk habitat is defined as habitat that is usable for nesting, roosting, and foraging. Forest habitat need not be occupied by goshawks to be considered habitat (Reynolds 1992)

**Table 1. Names and Status of Sensitive Plant Species known or suspected to occur in National Forest System lands in Utah
(continued)**

REGION 4 SENSITIVE PLANT SPECIES
Petiolate wormwood <i><u>Artemisia campestris petiolata</u></i>
Barneby woody aster <i><u>Aster kingii var. barnebyana</u></i>
Bicknell milkvetch <i><u>Astragalus consobrinus</u></i>
Dana milkvetch <i><u>Astragalus henrimontanensis</u></i>
Starving milkvetch <i><u>Astragalus jejunus jejunus</u></i>
Navajo Lake milkvetch <i><u>Astragalus limnocharis var. limnocharis</u></i>
Table Cliff milkvetch <i><u>Astragalus henrimontanensis</u></i>
Guard milkvetch <i><u>Astragalus zioonis vigulus</u></i>
Dainty moonwort <i><u>Botrychium crenulatum</u></i>
Paradox moonwort <i><u>Botrychium paradoxum</u></i>
Aquairus paintbrush <i><u>Castilleja aquariensis</u></i>
Tushar paintbrush <i><u>Castilleja parvula var. parvula</u></i>
Reveal paintbrush <i><u>Castilleja parvula var. revealii</u></i>
Creutzfeldt-flor cryptanth <i><u>Cryptantha creutzfeldtii</u></i>
Yellow-white catseye <i><u>Cryptantha ochroleuca</u></i>
Pinnate spring-parsley <i><u>Cymopterus beckii</u></i>
Cedar Breaks biscuitroot <i><u>Cymopterus minimus</u></i>
Brownie ladyslipper <i><u>Cypripedium fasciculatum</u></i>
Rockress draba <i><u>Draba densifolia apiculata</u></i>

**Table 1. Names and Status of Sensitive Plant Species known or suspected to occur in National Forest System lands in Utah
(continued)**

REGION 4 SENSITIVE PLANT SPECIES

Maguire draba <i><u>Draba maguirei</u></i>
Creeping draba <i><u>Draba sobolifera</u></i>
Nevada willowherb <i><u>Epilobium nevadense</u></i>
Abajo daisy <i><u>Erigeron abajoensis</u></i>
Carrington daisy <i><u>Erigeron carringtonae</u></i>
Cronquist daisy <i><u>Erigeron cronquistii</u></i>
Kachina daisy <i><u>Erigeron kachinensis</u></i>
Maguire daisy <i><u>Erigeron maguirei</u></i>
LaSal daisy <i><u>Erigeron mancus</u></i>
Untermann daisy <i><u>Erigeron untermannii</u></i>
Widtsoe buckwheat <i><u>Eriogonum aretioidesi</u></i>
Elsinore buckwheat <i><u>Eriogonum batermanii</u></i> var. <i><u>ostlundii</u></i>
Logan buckwheat <i><u>Eriogonum brevicaulis</u></i> var. <i><u>loganum</u></i>
Wonderland Alice flower <i><u>Gilia caespitosa</u></i>
Pine Valley goldenweed <i><u>Haplopappus crispus</u></i>
Canyon sweetvetch <i><u>Hedysarum occidentale</u></i> var. <i><u>canone</u></i>
Jones goldenaster <i><u>Heterotheca jonesii</u></i>
Wasatch jamesia <i><u>Jamesia americana macrocalyx</u></i>
Zion jamesia <i><u>Jamesia americana zionis</u></i>

**Table 1. Names and Status of Sensitive Plant Species known or suspected to occur in National Forest System lands in Utah
(continued)**

REGION 4 SENSITIVE PLANT SPECIES

Neeses' peppergrass	<i><u>Lepidium montanum</u></i> var. <i><u>neeseae</u></i>
Garrett bladderpod	<i><u>Lesquerella garrettii</u></i>
Canyonlands lomatium	<i><u>Lomatium latilobum</u></i>
Fish Lake naiad	<i><u>Najas caespitosa</u></i>
Artic poppy	<i><u>Papaver radicum</u></i> var. <i><u>pygmaeum</u></i>
Paria breadroot	<i><u>Pediomelum pariense</u></i>
Red Canyon beardtongue	<i><u>Penstemon bracteatus</u></i>
Cache beardtongue	<i><u>Penstemon compactus</u></i>
Little penstemon	<i><u>Penstemon parvus</u></i>
Pinyon penstemon	<i><u>Penstemon pinorum</u></i>
Ward beardtongue	<i><u>Penstemon wardii</u></i>
Angell cinquefoil	<i><u>Potentilla angelliae</u></i>
Cottam cinquefoil	<i><u>Potentilla cottamii</u></i>
Arizona willow	<i><u>Salix arizonica</u></i>
Beaver Mountain groundsel	<i><u>Senecio castroeus</u></i>
Podunk groundsel	<i><u>Senecio malmstenii</u></i>
Musinea groundsel	<i><u>Senecio musiniensis</u></i>
Maguire campion	<i><u>Silene petersonii</u></i>
Rock-tansy	<i><u>Sphaeromeria capiata</u></i>
Caespitose greenthread	<i><u>Thelesperma caespitosa</u></i>

Table 1. Names and Status of Sensitive Plant Species known or suspected to occur in National Forest System lands in Utah (continued)

REGION 4 SENSITIVE PLANT SPECIES
Uinta green thread <i>Thelesperma pubescens</i>
Bicknell thelperma <i>Thelesperma subnuda</i> var. <i>alpina</i>
Sevier townsendia <i>Townsendia jonesii</i> var. <i>lutea</i>

Table 2 – Occurrence of Sensitive Species by National Forest in Utah

Plant Species	Ash	Dix	Fish	M-L	Uin	W-C
Chatterly onion <i>Allium geyerei chatterleyi</i>				X		
Sweet-flowered rock jasmine <i>Androsace chamaejasme carinata</i>				X		
Link Trail columbine <i>Aquilegia grahamii</i>				X		
Graham columbine <i>Aquilegia grahamii</i>	X					
Petiolate wormwood <i>Artemisia campestris petiolata</i>	X					
Barneby woody aster <i>Aster kingii</i> var. <i>barnebyana</i>		X			X	
Bicknell milkvetch <i>Astragalus consobrinus</i>			X	?		
Dana milkvetch <i>Astragalus henrimontanensis</i>		X		?		
Starving milkvetch <i>Astragalus jejunus jejunus</i>						X
Navajo Lake milkvetch <i>Astragalus limnocharis</i> var. <i>limnocharis</i>		X				
Table Cliff milkvetch <i>Astragalus henrimontanensis</i>		X				
Guard milkvetch <i>Astragalus zionis vigulus</i>		X				
Dainty moonwort <i>Botrychium crenulatum</i>					X	
Paradox moonwort <i>Botrychium paradoxum</i>		X				
Aquairus paintbrush <i>Castilleja aquariensis</i>		X				
Tushar paintbrush <i>Castilleja parvula</i> var. <i>parvula</i>		X	X			
Reveal paintbrush <i>Castilleja parvula</i> var. <i>revealii</i>		X				
Creutzfeldt-flor cryptanth <i>Cryptantha creutzfeldtii</i>				X		

**Table 2 – Occurrence of Sensitive Species by National Forest in Utah
(continued)**

Plant Species	Ash	Dix	Fish	M-L	Uin	W-C
Yellow-white catseye <i>Cryptantha ochroleuca</i>		X				
Pinnate spring-parsley <i>Cymopterus beckii</i>				X		
Cedar Breaks biscuitroot <i>Cymopterus minimus</i>		X				
Brownie ladyslipper <i>Cypripedium fasciculatum</i>						X
Rockress draba <i>Draba densifolia apiculata</i>					X	X
Maguire draba <i>Draba maguirei</i>						X
Creeping draba <i>Draba sobolifera</i>		X	X			
Nevada willowherb <i>Epilobium nevadense</i>			X			
xAbajo daisy <i>Erigeron abajoensis</i>				X		
Carrington daisy <i>Erigeron carringtonae</i>				X		
Cronquist daisy <i>Erigeron cronquistii</i>						X
Kachina daisy <i>Erigeron kachinensis</i>				X		
Maguire daisy <i>Erigeron maguirei</i>						X
LaSal daisy <i>Erigeron mancus</i>				X		
Untermann daisy <i>Erigeron untermannii</i>	X					
Widtsøe buckwheat <i>Eriogonum aretioidesi</i>		X				
Elsinore buckwheat <i>Eriogonum batermanii</i> var. <i>ostlundii</i>			X			
Logan buckwheat <i>Eriogonum brevicaule</i> var. <i>loganum</i>						X
Wonderland Alice flower <i>Gilia caespitosa</i>						
Pine Valley goldenweed <i>Haplopappus crispus</i>		X				
Canyon sweetvetch <i>Hedsarum occidentale</i> var. <i>canone</i>				X		
Jones goldenaster <i>Heterotheca jonesii</i>		X				
Wasatch jamesia <i>Jamesia americana macrocalyx</i>					X	X
Zion jamesia <i>Jamesia americana zionis</i>		X				

**Table 2 – Occurrence of Sensitive Species by National Forest in Utah
(continued)**

Plant Species	Ash	Dix	Fish	M-L	Uin	W-C
Neeses' peppergrass <i>Lepidium montanum</i> var. <i>neeseae</i>		X				
Garrett bladderpod <i>Lesquerella garrettii</i>					X	X
Canyonlands lomatium <i>Lomatium latilobum</i>				X		
Fish Lake naiad <i>Najas caespitosa</i>			X			
Artic poppy <i>Papaver radiculatum</i> var. <i>pygmaeum</i>	X					X
Paria breadroot <i>Pedimelum pariense</i>		X				
Red Canyon beardtongue <i>Penstemon bracteatus</i>		X				
Cache beardtongue <i>Penstemon compactus</i>						X
Little penstemon <i>Penstemon parvus</i>		X	X			
Pinyon penstemon <i>Penstemon pinorum</i>		X				
Ward beardtongue <i>Penstemon wardii</i>			X			
Angell cinquefoil <i>Pontentilla angelliae</i>		X				
Cottam cinquefoil <i>Pontentilla cottamii</i>						X
Arizona willow <i>Salix arizonica</i>		X	X	X		
Beaver Mountain groundsel <i>Senecio castroeus</i>			X			
Podunk groundsel <i>Senecio malmstenii</i>		X				
Musinea groundsel <i>Senecio musiniensis</i>				X		
Maguire campion <i>Silene petersonii</i>		X	?	X		
Rock-tansy <i>Sphaeromeria capiata</i>		X				
Caespitose greenthread <i>Thelesperma caespitosa</i>	X					
Uinta green thread <i>Thelesperma pubescens</i>						X
Bicknell thelsperma <i>Thelesperma subnuda</i> var. <i>alpina</i>		X	X			
Sevier townsendia <i>Townsendia jonesii</i> var. <i>lutea</i>			X			
Smith violet <i>Viola franksmithii</i>						X

Table 3. Habitat suitability and species occurrence in goshawk habitat¹ for sensitive species on National Forest System lands in Utah

Sensitive Plant Species	Occurring In Habitat Used By Goshawk	Habitat Unsuitable based on the Following
Chatterly onion <i>Allium geveeri chatterleyi</i>		Occurs in shales or barren areas not affected by this action
Sweet-flowered rock jasmine <i>Androsace chamaejasme carinata</i>		Occurs in Alpine tundra not affected by this project
Link Trail columbine <i>Aquilegia grahamii</i>		Occurs in riparian areas not affected by this action
Graham columbine <i>Aquilegia grahamii</i>		Occurs in hanging garden habitat not affected by this project
Petiolate wormwood <i>Artemisia campestris petiolata</i>		Occurs in scattered Ponderosa pine and mountain brush community on steep slopes
Barneby woody aster <i>Aster kingii</i> var. <i>barnebyana</i>		Occurs on rock outcrops in mountain mahogany-oak community
Bicknell milkvetch <i>Astragalus consobrinus</i>		Occurs in sagebrush-grassland and pinyon-juniper on the Mancos shale formation
Dana milkvetch <i>Astragalus henrimontanensis</i>	X	
Starving milkvetch <i>Astragalus jejunus jejunus</i>		Occurs on sagebrush and sagebrush-juniper communities
Navajo Lake milkvetch <i>Astragalus limnocharis</i> var. <i>limnocharis</i>		Occurs on poor sites with loose rocks and clay, often in the pink slopes of the Wasatch Limestone formation
Table Cliff milkvetch <i>Astragalus limnocharis</i> var. <i>tabulaeus</i>		Occurs in steep, unstable limestone slopes in the Pink Member of the Wasatch Limestone formation
Guard milkvetch <i>Astragalus zioonis vigulus</i>		Occurs in pinyon-juniper and mahogany community
Dainty moonwort <i>Botrychium crenulatum</i>		Occurs in open meadows and wet areas not affected by this action
Paradox moonwort <i>Botrychium paradoxum</i>		Occurs in open meadows and wet areas not affected by this action
Aquairus paintbrush <i>Castilleja aquariensis</i>	X	
Tushar paintbrush <i>Castilleja parvula</i> var. <i>parvula</i>		Occurs in alpine meadows and igneous rockbeds
Reveal paintbrush <i>Castilleja parvula</i> var. <i>revealii</i>		Occurs on exposed Wasatch limestone on steep slopes
Creutzfeldt-flor cryptanth <i>Cryptantha creutzfeldtii</i>		Occurs in shadscale and mat atriplex communities on barren slope in shales
Yellow-white catseye <i>Cryptantha ochroleuca</i>		Ponderosa pine/ bristlecone pine type in exposed Wasatch limestone

¹ Goshawk habitat is defined as habitat that is unable for nesting, roosting, and foraging. Forest habitat need not be occupied by goshawks to be considered habitat (Reynolds 1992)

Table 3. Habitat suitability and species occurrence in goshawk habitat¹ for sensitive species on National Forest System lands in Utah (continued)

Sensitive Plant Species	Occurring In Habitat Used By Goshawk	Habitat Unsuitable based on the Following
Pinnate spring-parsley <i>Cymopterus beckii</i>		Occurs in sandy or stoney places in the ponderosa pine type
Cedar Breaks biscuitroot <i>Cymopterus minimus</i>		Occurs in exposed Wasatch limestone in ponderosa and bristlecone pine type
Brownie ladyslipper <i>Cypripedium fasciculatum</i>	X	
Rockress draba <i>Draba densifolia apiculata</i>		Occurs in the alpine type not affected by this action
Maguire draba <i>Draba maguirei</i>		Occurs in rock outcrops not affected by this action
Creeping draba <i>Draba sobolifera</i>		Occurs in alpine type not affected by this action
Nevada willowherb <i>Epilobium nevadense</i>		Occurs in rock outcrops not affected by this action
Abajo daisy <i>Erigeron abajoensis</i>		Occurs in open rock sites
Carrington daisy <i>Erigeron carringtonae</i>		Occurs in meadows and escarpment margins on Flagstaff limestone
Cronquist daisy <i>Erigeron cronquistii</i>		Occurs in crevices in limestone cliffs and talus
Kachina daisy <i>Erigeron kachinensis</i>		Occurs in seeps, hanging gardens, and open slickrock at higher elevations
Maguire daisy <i>Erigeron maguirei</i>		Occurs in rocky outcrops in the juniper type
LaSal daisy <i>Erigeron mancus</i>		Occurs in alpine grass-sedge and forb communities
Untermann daisy <i>Erigeron untermannii</i>		Occurs in pinyon-juniper community nit affected by this action
Widtsoe buckwheat <i>Eriogonum aretioidesi</i>		Occurs in ponderosa and bristlecone pine communities in exposed Wasatch limestone formation
Elsinore buckwheat <i>Eriogonum batemanii</i> var. <i>ostlundii</i>		Occurs in desert shrub and juniper communities
Logan buckwheat <i>Eriogonum brevicaulae</i> var. <i>loganum</i>		Occurs in sagebrush-bunchgrass and rocky outcrops
Wonderland Alice flower <i>Gilia caespitosa</i>		Occurs in pinyon-juniper community in rock outcrops
Pine Valley goldenweed <i>Haplopappus crispus</i>		Occur in open areas associated with Ponderosa pine, fir and manzanita communities

¹ Goshawk habitat is defined as habitat that is unable for nesting, roosting, and foraging. Forest habitat need not be occupied by goshawks to be considered habitat (Reynolds 1992)

Table 3. Habitat suitability and species occurrence in goshawk habitat¹ for sensitive species on National Forest System lands in Utah (continued)

Sensitive Plant Species	Occurring In Habitat Used By Goshawk	Habitat Unsuitable based on the Following
Canyon sweetvetch <i>Hedysarum occidentale</i> var. <i>canone</i>		Occurs in pinyon-juniper, sagebrush communities
Jones goldenaster <i>Heterotheca jonesii</i>		Occurs on sandstone or in sand in the ponderosa pine and manzanita communities
Wasatch jamesia <i>Jamesia americana macrocalyx</i>		Occurs on cliff faces and rocky outcrops in the mountain brush and spruce-fir type
Zion jamesia <i>Jamesia americana zionis</i>		Occurs on cliffsides in the pinyon-juniper and ponderosa pine communities
Neeses' peppergrass <i>Lepidium montanum</i> var. <i>neeseae</i>		Occurs in open sandstone formations in the ponderosa pine and spruce-fir communities
Garrett bladderpod <i>Lesquerella garrettii</i>		Occurs in rocky outcrops in the alpine community
Canyonlands lomatium <i>Lomatium latilobum</i>		Occurs in pinyon-juniper community
Fish Lake naiad <i>Najas caespitosa</i>		Occurs in aquatic ecosystems not affected by this action
Artic poppy <i>Papaver radicum</i> var. <i>pygmaeum</i>		Occurs in the alpine community
Paria breadroot <i>Pediomelum pariense</i>		Occurs in exposed Wasatch limestone formation in the pinyon-juniper and ponderosa pine communities
Red Canyon beardtongue <i>Penstemon bracteatus</i>		Occurs in open gravelly slopes and rock slides along the exposed Wasatch limestone formation
Cache beardtongue <i>Penstemon compactus</i>		Occurs in rock outcrops where this action will not affect
Little penstemon <i>Penstemon parvus</i>		Occurs in openings within the sagebrush-grass, pinyon-juniper, and spruce communities
Pinyon penstemon <i>Penstemon pinorum</i>		Occurs in pinyon-juniper community
Ward beardtongue <i>Penstemon wardii</i>		Occurs in the desert shrub, pinyon-juniper, sagebrush, and shadescale communities
Angell cinquefoil <i>Potentilla angelliae</i>		Occurs in sparsely vegetated rocky subalpine meadows
Cottam cinquefoil <i>Potentilla cottamii</i>		Occurs in cracks and crevices of quartzite outcrops not affected by this action

¹ Goshawk habitat is defined as habitat that is unable for nesting, roosting, and foraging. Forest habitat need not be occupied by goshawks to be considered habitat (Reynolds 1992)

Table 3. Habitat suitability and species occurrence in goshawk habitat¹ for sensitive species on National Forest System lands in Utah (continued)

Sensitive Plant Species	Occurring In Habitat Used By Goshawk	Habitat Unsuitable based on the Following
Arizona willow <i>Salix arizonica</i>	X	Occurs in riparian areas in the spruce community
Beaver Mountain groundsel <i>Senecio castroeus</i>		Occurs in the alpine community not affected by this action
Podunk groundsel <i>Senecio malmstenii</i>		Occurs on talus slopes of the Claron formation in bristlecone pine, spruce, fir and other conifers
Musinea groundsel <i>Senecio musiniensis</i>		Occurs in Flagstaff formation on barren slopes
Maguire campion <i>Silene petersonii</i>		Occurs on openings in calcareous limestone igneous gravels in ponderosa pine, spruce-fir and aspen
Rock-tansy <i>Sphaeromeria capitata</i>		Occurs on exposed slopes of the Cedar Brakes Limestone formation within the bristlecone pine community
Caespitose greenthread <i>Thelesperma caespitosa</i>		Occurs along white shale benches in the pinyon-juniper community
Uinta green thread <i>Thelesperma pubescens</i>		Occurs in grassland, sagebrush-grassland type in cobbly soils
Bicknell thelsperma <i>Thelesperma subnuda</i> var. <i>alpina</i>		Occurs in the pinyon-juniper, bristlecone pine, mountainbrush communities in the Navajo Sandstone and Carmel limestone formations
Sevier townsendia <i>Townsendia jonesii</i> var. <i>lutea</i>		Occurs in salt desert shrub and juniper communities
Smith violet <i>Viola franksmithii</i>		Occurs in cracks, crevices, and holes in outcrops of limestone and dolomite not affected by this project

Proposed Action

Purpose and Need for Action

Purpose: This project was initiated not because the agency was concerned that we would lose a viable population of goshawks prior to revision of Forest Plans in Utah (projected to be 4 years), but in response to identified concerns that current management strategies permitted actions that could degrade habitat and did not emphasize some actions needed to maintain or restore goshawk habitat. In addition, new direction was needed to provide greater consistency in management of habitat for the goshawk. Current direction is not sufficient to provide consistency, resulting in a variety of interpretations on how to manage goshawk habitat. For a far-ranging species such as the goshawk that spans multiple national forests and other jurisdictional boundaries, consistency in habitat management is an essential component of actions needed to provide reasonable assurances that habitat to support viable goshawk populations can be sustained in the future.

¹ Goshawk habitat is defined as habitat that is unable for nesting, roosting, and foraging. Forest habitat need not be occupied by goshawks to be considered habitat (Reynolds 1992)

Due to the important role NFS lands play in restoring or maintaining habitat for the northern goshawk in Utah, the Intermountain Region elected to take action to determine how to incorporate principles recommended in the HCS into management actions proposed in the future. This action will contribute to on-going interagency efforts to prevent the goshawk from being listed as threatened or endangered. Once a species is listed as endangered or threatened, options for management can be reduced.

Need: A habitat assessment and management recommendations for the northern goshawk and subsequent habitat conservation strategy were developed for the State of Utah in response to suspected downward trends in goshawk habitat and/or populations. Due to the important role NFS lands play in restoring or maintaining forested habitat for the northern goshawk, there is an immediate need to incorporate the principles and recommendations from these documents into management direction, for the reasons stated below.

Changes in forest structure, especially large tree removal and other forest management activities singly or in combination, may negatively affect goshawk populations (Crocker-Bedford 1990). In addition, fire exclusion has resulted in an ingrowth of forest stands by shade tolerant species. This in and of itself would likely not lead to goshawk population declines. In the short term the increase in older seral conditions may actually be beneficial. The main issue is the changes in fire severity and risk of large-scale habitat losses from catastrophic fire and insect events that would ultimately lead to a loss of nesting habitat (Bloom et al. 1986, Herron et al. 1985, Kennedy 1989) [Graham et al. 1999].

Each of the six national forests identified in Chapter 1.4.1 completed Supplemental Information Reports (SIRs). The SIRs assessed the sufficiency of management direction in current forest plans to allow use of new information, including management recommendations, found in the Assessment and HCS. While current management direction would allow for use of the recommendations at the project level, some direction was so broad that it also allowed actions that could degrade goshawk habitat. As a result, it was determined that amendments to current forest plans are necessary to address new information found in the assessment and strategy.

Geographic Range and Scope of the Action

Geographic Range: The Proposed Action provides management direction for affected forested habitats on NFS lands within the Ashley, Dixie, Fishlake, Manti-LaSal, Uinta, and Wasatch-Cache National Forests (NF) (hereinafter referred to as Utah's NFs) of the Intermountain Region. Specifically, the geographic area described includes the majority of NFS lands in the State of Utah, with small portions of Wyoming and Colorado. The total NFS lands within these six national forests is approximately 8.1 million acres; 7.98 million acres in Utah, 90,000 acres in Wyoming and 30,000 acres in Colorado. Coniferous and aspen forests occur on approximately 3.9 million acres of this 8.1 million acres.

Scope: *Under the provisions of the NFMA, this action will amend current management direction in six forest plans. It will provide consistency in future project design, implementation and monitoring on the Ashley, Dixie, Fishlake, Manti-LaSal, Uinta, and Wasatch-Cache NFs where habitat for the goshawk and its prey is involved. When forest plans for the affected national forests are revised, the management direction adopted through this amendment will be integrated as needed to best meet the intent of the conservation strategy and assessment.*

Components of the Preferred Alternative (Alternative F)

Categories of Management Direction: The proposed management direction will apply to all forested habitats on the affected national forests except as exempted (see "Features Common to All Action Alternatives"). Seven categories of management direction/requirements have been developed. These management direction categories are:

- Category 1: Native processes. This category applies to all aspects of a goshawk home range¹. Natural disturbances (i.e., fire, insects, disease and wind) are integral processes in many systems. Species like the goshawk and its prey have evolved in response to environmental changes triggered by disturbance. Restoring or mimicking these disturbances is one of the best indicators of ecological sustainability, including sustaining populations of goshawks (Graham et al. 1999; HCS, 1998; R4 Properly Functioning Condition (PFC) Process, 1998).
- Category 2: Forest composition. This category applies to all aspects of a goshawk home range. Forest composition focuses on the importance of seral species and native species in landscape diversity. Landscape diversity is the variety of plant communities evaluated at the landscape level (including their identity, distribution, juxtaposition, and seral stage). The diversity of plant species present within a landscape, especially seral and native species, can have a profound influence on the resiliency of a system and the ability of a system to renew or maintain and propagate itself after disturbance. The continuing productivity of an ecological system, including its ability to produce desirable outputs such as habitat for goshawk and its prey, depends upon potential renewal (ibid.).
- Category 3: Forest structure. This category applies to all aspects of a goshawk home range. Alternatives address biological landscape structural attributes (i.e., vegetative structural stage, snags, down logs and woody debris, and canopy closure) important to habitat for the goshawk and its prey. The sizes, shapes, patterns, and connectivity of these habitat attributes all influence the ability of the goshawk and its prey to exist in landscapes (Graham et al. 1999; HCS 1998; Reynolds et al. 1992).
- Category 4: Nest and post-fledgling areas only. This category applies only to non-exempt forested acres within defined nest and post-fledgling areas. Direction provides additional requirements/guidance specifically designed to sustain nest and post-fledgling areas (Graham et al. 1999; HCS 1998; Reynolds et al. 1992).
- Category 5: Other miscellaneous areas of concern. Some alternatives provide a mix of additional direction addressing other areas of concern that may be important to sustaining habitat for the goshawk and its prey. When management direction is included in this category, it applies to all aspects of a goshawk home range, all forested acres except as exempted. Alternatives address items such as road disturbance, grazing practices, and the need to do landscape assessments to provide context for future project design and implementation (Graham et al. 1999; HCS, 1998; Reynolds et al. 1992; Arizona Game and Fish, 1992/93; Braun et al. 1996; conservation biologist for Forest Guardians and Southwest Center for Biological Diversity).
- Category 6: Treatment prioritization. Alternative F specifically addresses the importance of providing direction to prioritize treatments in areas requiring restoration or areas at high risk to being lost or degraded for the remainder of the current planning period. Management direction is applied to all aspects of a goshawk home range (Graham et al. 1999).
- Category 7: Monitoring Requirements. Key features in any adaptive management strategy are implementation monitoring and, to a lesser extent, effectiveness monitoring; validation monitoring is not addressed. The short-term nature of this direction (remainder of the current planning period) will not allow for meaningful validation monitoring. Monitoring is incorporated into all alternatives, but will not be used to compare alternatives. Monitoring associated with this proposal does not preclude established monitoring efforts by the individual national forests (HCS, 1998).

¹ A home range refers to all non-exempt forested acres within nest, post-fledgling (brood rearing) and foraging areas where management direction under the category will apply.

Desired Habitat Condition: The Assessment by Graham et al. (1999) states that all forested landscapes in Utah are potentially suitable as goshawk habitat for some portion of their life cycle (HCS, page 4). Forested landscapes include those areas dominated by coniferous and aspen forest; but not woodlands such as pinyon-juniper.

In general, when forested landscapes of Utah are in a properly functioning condition (PFC 1998) they will provide excellent habitat for the goshawk and its prey (Graham et al. 1999). Desired habitat attributes important to the home range of the goshawk and its prey, as stated in the HCS, include :

1. Diverse forest cover types with strong representation of early seral tree species dominate the landscape.
2. High quality habitat patches that are no more than 60 miles apart, preferably less than 20 miles apart, exist throughout landscapes (connected habitat).
3. Forested landscapes have 40% of the coniferous land area and 30% of the aspen land area dominated by large trees (*older vegetative structural stages (VSS) 5 and 6*), well distributed. Large trees are defined based on the average size of trees found in the area and by the site potential.
4. Habitats for prey and other associated species are present to meet their needs as described by Reynolds et al. 1992 and Graham et al. 1999 (e.g., snags, down woody, cover, etc.).
5. A variety of structural stages as recommended by Reynolds et al. (1992) are present.

A balance of structural stages across the landscape is needed to ensure the larger structural stages are sustained over time. Tree densities in the smaller structural stages should promote accelerated tree growth into the larger structural stages and maintain crown development important to meeting desired canopy closures in the larger stages. Outside of nest areas, there should be open understories in the larger structural stages with trees irregularly spaced (Reynolds et al. 1992; Graham et al. 1999).

Nesting habitat is an essential component of goshawk home range. With the associated post-fledgling family area, it contributes to habitat connectivity across landscapes and the continuous recruitment of goshawks into the population (Graham et al. 1999). Both habitat connectivity and continuous recruitment are important components for sustaining viable populations of the northern goshawk in Utah. Thus, it is desirable to have nesting habitat and the associated post-fledgling areas well-distributed within and across forested landscapes. Desired nest area habitat varies from the overall home range habitat in that it typically occurs in older-aged stands that have a higher density of large trees, high tree canopy cover, and higher understory tree density.

To understand relationships of these desired habitat conditions they must be viewed in scales at tens of thousands of acres or larger. Scales greater than hundreds of thousands of acres are too large to ensure that desired habitat connectivity attributes are sufficiently distributed.

Where the Proposed Management Direction Will and Will Not Be Applied: The proposed management direction will apply to National Forest System lands within the Ashley, Dixie, Fishlake, Manti-LaSal, Uinta, and Wasatch-Cache National Forests found within the State of Utah, with small portions of these forests in Wyoming and Colorado.

This direction will apply to forested habitats found within the approximately 8.1 million acres of National Forest System lands within the six Utah National Forest identified, *except* in the following areas:

- (1) Designated wilderness areas;
- (2) Administratively or Congressionally designated areas with a defined purpose (e.g., Research Natural Areas, National Recreation Areas, etc.);

- (3) Areas currently managed or allocated for concentrated recreation use and development (does not include ski resorts; ski resorts included under category #5 below);
- (4) National Forest System lands that are significantly influenced by lands in other ownership (e.g., high use urban interface areas); or,
- (5) Areas allocated for leasable mineral activities in current forest plans², areas under existing special use permits (includes ski resorts) which allow vegetative disturbance or treatments (vegetation will be managed to meet the intent of the permit), or current administrative site uses and development.

In these areas, current forest plan direction will still apply. However, *when the direction adopted for management of goshawk habitat through this amendment does not conflict with the primary use in the exemption area, it will be applied.* Refer to Table 1 for acres by forest and exemption area.

While the direction adopted in this amendment will only be applied when it does not conflict with the primary use of an area, the contribution of these areas to sustaining habitat components for the goshawk and its prey are still important and will be analyzed and evaluated through the landscape assessment process. For example, areas such as wilderness may provide suitable goshawk habitat which may influence how habitat attributes in areas outside the wilderness are managed through time. However, vegetation in the wilderness is managed to meet the goals of the wilderness resource which may or may not be contrary to suitable goshawk habitat.

Areas where the proposed direction will and will not apply (#1-5 above) are shown on Maps 1 through 7 in *Appendix D*, when of sufficient size to be mapped. Due to the small size of some areas included under #5, all areas are not shown on the attached map. Examples of these types of areas include existing electronic sites, Federal Aviation Administration (FAA) sites, research plots, and some utility corridors and rights-of-way.

In addition to areas defined in #1-5 above, any valid, prior existing rights on National Forest System lands will not be affected by this amendment. Also, locatable, mineral material or leasable mineral activities and facilities³ that have been authorized for such use under existing plans, licenses or permits⁴, or have been leased or authorized for leasing⁵ prior to the decision date of this amendment, will not be affected by this amendment. Restrictions required on mineral activities in these situations must be consistent with the mining laws, lease rights, and existing lease stipulations. Leasable mineral uses and activities that will not be affected include both on and off-lease activities and facilities⁶ reasonably required to exercise rights granted by the mineral leases. However, appropriate measures

²**Areas Allocated for Mineral Activities under a Forest Plan:** Areas designated by existing Forest Plans with management emphasis on mineral activities. For example: This includes MMA management units (Minerals Management Area) on the Manti-La Sal National Forest where coal mine facilities exist or are reasonably foreseeable and are specifically managed for leasable mineral activities.

³**Mineral Activities and Facilities:** Those activities and facilities needed to reasonably explore for and produce locatable and leasable minerals and mineral materials consistent with the rights granted by a plan of operation, permit, license, lease and requirements of applicable laws, regulations, and lease terms, conditions, and stipulations.

⁴**Plans or Permit Areas:** Areas where plans, licenses or permits have already been approved or issued for mineral related activities. They will include the permit areas for mines, oil and gas fields, oil and gas exploratory and development wells, preliminary exploration activities such as geophysical surveys, as well as ancillary facilities within or outside of existing leases, including (but not limited to) access roads, sediment ponds, staging or office facilities, pipelines, ventilation breakouts/shafts, etc.

⁵**Areas Authorized for Leasing:** Area included within existing leases and those areas authorized and forwarded to the responsible agency for leasing by the Forest Service prior to the date of the Goshawk decision. This does not include all areas potentiality available for mineral leasing under Forest Plans.

⁶**Activities/Facilities Required to Exercise Rights Granted by a Lease:** This will include such activities and facilities within or outside of existing leases reasonably necessary to exercise pre-existing rights granted by a lease and subject to existing lease terms, conditions, and stipulations. They will include exploration and production facilities, reconstruction of existing Forest Service roads for access to leases/facilities, and construction of new access/transportation facilities (roads, pipelines, powerlines).

will be taken to protect goshawk habitat and nesting activity to the extent agreed to by the lessee, permittee, or operator and/or within the legal authorities of the responsible agencies.

The proposed direction will not apply in areas 1-5 above, or relative to existing uses or rights discussed, because:

- the forested habitats in these areas are managed for other purposes as defined by current policy, permits or regulations; or,
- the existing use permitted under the current forest plan will not always allow for the management of habitat as outlined in the proposed management direction; or
- the degree of influence resulting from adjacent lands in other ownership may preclude application of this direction.

Managing these areas consistent with current management direction and allowing for uses discussed above is important to meeting other goals and objectives in the forest plan. Doing so will not result in the loss of sufficient habitat needed to support the currently viable population of goshawks in the State of Utah (refer to Chapter 4, section 4.3.2).

Application of Management Direction: The management direction in the selected alternative will only apply to projects for which there has not been a decision document issued prior to the effective date of this amendment; prospective only.

Table 1: Acres by forest and exemption category

National Forest	Total National Forest Acres (millions)	Acres (Millions) and Percent of Total Acres Direction Will Apply	Acres Direction will not apply (acres rounded to thousands)					
			Total Acres (Millions) and Percent of Total Acres	#1 Wilderness	#2 i.e., RNAs, NRAs, etc.	#3 Developed Recreation ⁷	#4 Urban Interface	#5 MMAs, Special Uses ⁸
Ashley	1.3	0.9 -- 70%	0.4 -- 30%	273,000	83,000	57,000	0	6,000
Dixie	1.9	1.8 -- 94%	0.1 -- 6%	83,000	14,000	13,000	0	7,000
Fishlake	1.5	1.4 -- 96%	0.1 -- 4%	0	10,000	37,000	0	8,000
Manti-Lasal	1.3	1.2 -- 94%	0.1 -- 6%	45,000	20,000	5,000	0	9,000
Uinta	0.9	0.8 -- 88%	0.1 -- 12%	58,000	4,000	20,000	11,000	6,000
Wasatch-Cache	1.2	0.8 -- 64%	0.4 -- 36%	313,000	6,000	9,000	51,000	53,000
Totals	8.1	6.9 -- 85%	1.2 -- 15%	772,000	137,000	141,000	62,000	89,000

⁷Total Forest acres includes both forested and non-forested. Though recent Forest Inventory and Analysis (FIA) work has estimated that approximately 3.9 million acres of the total 8.1 million acres are forested (not including woodland), there is no data set currently available to spatially tie this data set to locations on the ground. GAP data was considered for this purpose, but based on reviews was determined not to be accurate enough for addressing location information of items in categories 3,4 and 5; and marginal in categories 1 and 2. GAP data was intended to be used at the state scale; use at smaller scales has mixed results. Therefore, direction relates to any forested acres found outside exemption areas within the total 6.9 million acres it will be applied to.

⁸#5 - Includes ski resort acres. Several special use permit areas are of small spatial area and highly dispersed. It is impractical to map these small special use areas at the scale of maps contained in Appendix D and forestwide mapping of these areas is still being developed; therefore they are not included on these maps. However, these areas are in the acreage calculation in Table 1 based on acres estimated under permit. Refer the special uses section in chapter 3 and 4 of this document (3.5.6 and 4.5.6, respectively) for a discussions relating to this subject.

Alternative F: This alternative responds to the issue that "Management activities should concentrate on maintenance of habitat areas at risk to provide for the greatest opportunity to minimize any further degradation of habitat and loss of management options." This alternative focuses management on goshawk habitat acres at-risk. Acres at-risk are defined as those that, during the life of this amendment, may lose sufficient habitat elements important to the goshawk and its prey, such that they will no longer be rated as high and optimum habitat based on the Graham et al. (1999) rating process. By focusing management on those forested acres that are at greatest risk of dropping from high and optimum goshawk habitat to low or moderate, the agency will do the most it can do in over the projected 4 year life of this amendment to minimize any further loss of key habitat areas. Graham et al. (1999) use the current distribution and connectivity of high and optimum habitat as their basis for determining if sufficient amounts of habitat are available in the State of Utah to support the currently viable population of goshawks.

This alternative is similar to Alternative C. The key elements that changed in this alternative are:

1. All long term goals common to Alternative C and other action alternatives were deleted and replaced with a single goal which focuses on short-term maintenance or restoration of high or optimum habitats (per Graham et al. 1999 assessment process);
2. Unlike other action alternatives, an objective was added which emphasizes the need to treat at least 1000 acres per year on each administrative unit to further achievement of the short term goal previously discussed.
3. This alternative includes grazing direction. The focus is on the need to change grazing practices only in those areas where landscape assessments determine grazing is a factor in putting a landscape at-risk relative to habitat needs of the goshawk.

Six monitoring requirements are included under this alternative, m-1 through m-5, and m-7. This is the same as Alternatives C, D and E except the grazing requirement under Alternative D, m-6, is replaced with m-7.

II. EFFECTS OF THE PROPOSED PROJECT.

A total of 66 Regionally Sensitive Plant Species occur on National Forest Systems lands in Utah (Table 1). Of the 66 identified, only 4 occur in goshawk habitat¹ where effects may be encountered. The 4 species that will be analyzed in this document are identified in Table 3.

Existing Environment

A complete list of all Regionally Sensitive Species can be found in Table 1. In addition, location information by National Forest can also be found in Table 2. Listed below are the sensitive plant species that may occur in goshawk habitat¹:

SENSITIVE PLANT SPECIES

Aquarius Paintbrush (*Castilleja aquariensis*)

Aquarius paintbrush is an herbaceous member of the figwort family (Scrophulariaceae), which grows erect, 1.2-2.6 dm tall. There are several unbranched stems, which are irregular in length and often blue-purple in color. The leaves are linear-lanceolate with fine hairs and arise erectly along the stem. The inflorescence is pale yellow except for the reddish margins of the galea, hairy, and glandular. The bracts are broadly lanceolate to ovate, the lower ones are entire. The sepals are cleft, deeper in front than in back. The petals are 1.3-1.6 cm long. The anthers have basal tufts of hair and the stigmas are

¹ Goshawk habitat is defined as habitat that is usable for nesting, roosting, and foraging. Forest habitat need not be occupied by goshawks to be considered habitat (Reynolds 1992)

black and spherical (Spahr et al. 1991). Flowering begins soon after snowmelt, mid-June through mid-August. It produces a capsule 7-10 mm long with about 100 seeds. Seed is set in 15-20 days and is scattered by the wind, small birds and mammals. Surviving plants overwinter by a perennial root (Spahr et al. 1991).

Aquarius paintbrush is restricted to the Aquarius Plateau and the top of Boulder Mountain in Garfield and Wayne Counties, Utah. Its entire known distribution is on lands administered by the Teasdale and Escalante Ranger Districts of the Dixie National Forest. It was first collected in 1905, and was recognized and described as a new species by Noel Holmgren in 1973 (Holmgren 1973).

On the Aquarius Plateau, the Aquarius paintbrush is found at elevations ranging from 9,150 to 10,500 feet, on gently rolling terrain, often forming broad, shallow swales, and on clay loam or clay sand soils, usually with high gravel content. Tuhy (1991) found that this species occurs in two types of habitats on the Aquarius Plateau:

1. Silver sagebrush meadows in which the ground has few or no sizeable rocks or boulders scattered on the surface, moderate amounts of bare ground exposed, and moderate pedestaling of sheep fescue plants. The dominant plants in these communities are silver sagebrush (*Artemisia cana* spp. *viscidula*) and sheep fescue (*Festuca ovina*). *Antennaria rosulata*, *Cymopterus lemmonii*, *Penstemon procerus*, *Potentilla concinna*, *Potentilla hippiana*, and *Taraxacum officinale* are also usually present.
2. Within the sagebrush/grass meadows on the Aquarius Plateau are local areas with large amounts of angular cobbles and rocks on the ground surface, with grass-forb turf growing in the rock interspaces. These rockier sites have the same species composition as in the non-rocky sites described above.

The Aquarius paintbrush was also seen less frequently in centers of certain large meadows that otherwise appear to have suitable habitat such as in upper Dark Valley, upper Rock Spring Draw, and near Big Lake. In many locations it also grows along the edges of the sagebrush/grass meadows adjacent to the conifer-aspen forest patches. It has never been observed growing in the understories of the forest communities on the Aquarius Plateau.

Essential habitat on Aquarius Plateau has been designated in three areas: 1) the eastern portion of Davis Flat, on both sides of the main Bicknell-Escalante Road, 2) the low summit or divide along the primitive road between Big Lake and Lake Philo, and 3) inside the Big Lake Enclosure (Tuhy 1991).

In 1983, a management plan for *Castilleja aquariensis* was prepared and approved, a single permanent monitoring plot on the Aquarius Plateau was established, and general locations of this species mapped. Fieldwork by Atwood (1989) found that there was a large discrepancy between abundance of *Castilleja aquariensis* between July (before grazing) and August (late in grazing season) and cast doubts on the immediate survival and long-term viability of the species. In 1990 a cooperative cost-share project between the Dixie National Forest and the Utah Natural Heritage Program investigated the distribution, status, and habitat characteristics of this species, the effects of land uses, and recommendations for future action (Tuhy 1991). In 1992 a cooperative education project was begun with Brigham Young University to further study this species. This study showed that 1) ungrazed plants were significantly larger than grazed plants, 2) fruiting success of individual plants was significantly greater when plants were grazed after flowers had appeared rather than before flowering, and 3) ungrazed plants usually set more fruits than plants grazed after the onset of flowering (Whittekend 1992).

The current number of Aquarius paintbrush plants is estimated to be about 45,000. At present, there are seven apparently viable populations of the species, containing 93 percent of the total number of plants. By far the largest of these populations, in terms of area and paintbrush numbers, are on the Boulder Top (Tuhy 1991).

Limiting factors to this species' survival include: road realignment or other construction activity, which destroys, modifies, or curtails habitat and grazing and trampling by livestock and big game (Tuhy 1991).

A multi-agency Conservation Agreement and Strategy has been developed for the Aquarius paintbrush. This agreement committed the U.S. Forest Service and the U.S. Fish and Wildlife Service to specific actions which reduced site-specific threats, and provide long-term protection and habitat improvements.

Arizona Willow (*Salix arizonica*)

The Arizona willow (Salicaceae) is a small shrub up to two feet tall that can be scraggly, rounded, and prostrate or thicket formed (Galeano-Popp 1988). Leaves, 0.4-1.8 in long and 0.2-0.9 in wide, are rounded or nearly heart-shaped at the base, with fine-toothed margins. The current year's stems are bright red but become lighter as the season progresses. Stems commonly have two to six leaves (USFWS 1992a). Male catkins are one to three cm long, with brown to black pubescent scales and female catkins are between one to four cm long. This species is related to and can be confused with *Salix boothii* in morphology (Kearney and Peebles 1960).

According to Arizona documents, *Salix arizonica* occurs at elevations above 8,500 feet in wet meadows, streamsides and cienegas on volcanic soils (Galeano-Popp, 1988). In Utah, Arizona willow has also been found as low as 8,300 feet on calcareous soils (Mead 1996). Most plants have been found adjacent to perennial water and less commonly in meadows adjacent to forest edges or meadows with sparse stands of spruce. Species associated with the Arizona willow include: Geyer willow, serviceberry, Bebb willow, blue and Engelmann spruce, shrubby cinquefoil, monkeyflower, tufted hairgrass, sheep fescue and *Carex* species (USFWS 1992a).

Until recently, Arizona willow was known only to exist in the White Mountains of Arizona on land managed by the Apache-Sitgreaves National Forest and the White Mountain Fort Apache Indian Reservation. In 1993, a specimen was discovered in the Forest Service National collection that had been collected in 1913 from the Sevier National Forest, now administered by the Powell Ranger District, Dixie National Forest. Since formal surveys began in July 1994, five verified populations of this species have been recorded in Utah. Confirmed sightings occur in Sidney Valley and Rainbow Meadows (Cedar City District), East Fork of the Sevier River (Powell Ranger District), Cedar Breaks National Monument, in Sevenmile Creek and UM Creek on the Fishlake National Forest. In addition to the areas listed above, one population has been recorded on the Manti-LaSal National Forest.

Recent surveys have indicated that the species has a wider distribution and greater abundance than previously known. The main threat to this species is the degradation of its habitat by livestock/big game, off-road vehicle use, road and pond construction and timber harvesting. Weakened plants become more prone to rust infection with increased risks of mortality from other environmental factors (USFWS 1992a).

Brownie Ladyslipper (*Cypripedium fasciculatum*)

This member of the orchid family has numerous fibrous roots and grows to a height of 3 dm. The stems are slender with, long, soft, sticky hairs. There are 2 opposite leaves 4-11 cm long, 2.5-7.5 cm wide with little to no hairs. The bracts surrounding the flowers are 3.5 cm long and 6-13 mm wide. There are 2-4 small flowers per stem. The sepals are lanceolate in shape, 1.5-2.5 cm long, and 3-6 mm wide. The petals are broadly ovate with a small greenish yellow lip. The lip is spherical-shaped and 8-14 mm long with a purplish margin deeply infolded.

Flowering occurs in June and July. The fruit is an obovoid-ellipsoid capsule, 1.5-2.0 cm in length. It produces numerous small seeds. They germinate yearly when environmental conditions for germination are met. The fibrous roots overwinter, and regrowth occurs soon after snowmelt and when soils are free of frost.

This species is found in the forest duff layer among lodgepole or spruce-fir forests between 7,940-9,840 feet in elevation. This species occurs in limited disjunct locations in the west. It is known from Daggett, Salt Lake, Uinta, and Summit counties in Utah. Timber management practices are the biggest threat to the species. Other threats include livestock grazing and degradation of riparian areas.

Dana Milkvetch (*Astragalus henrrimontanensis*)

Dana milkvetch is a perennial herb and a member of the pea family (Fabaceae). It grows 4-15 cm tall from a branching base, which is clothed with coarse persistent leaf bases. The leaves contain 7-17 elliptic to oblanceolate leaflets, which are hairy on both sides. The yellowish flowers occur 2-11 per cluster; the seaples form a long cylindrical hairy tube. The petals are yellow-white with a purple tip. This species flowers from April to May and produces a slightly curved, unilocular, 22-35 mm hairy pod (Spar et al. 1991).

Dana milkvetch occurs in washouts and gravelly loam soils in mixed ponderosa pine, juniper, and sagebrush communities in areas between 7,000 and 9,200 feet in elevation. This species is endemic to the Henry Mountains and the Aquarius plateau in Garfield Count, Utah (Spahr et al.) and is located in the Escalante and Teasdale Ranger Districts.

The major threats and limitations to this species' habitat and population are reclamation of vegetation on the Henry Mountains, chaining, windthrow, and reseeding with introduced old world plants (Spar et al. 1991). Effects of grazing on this species are unknown (Atwood 1995b).

Indirect Effects

In addition to the direct and indirect effects discussed by species. The following discussion pertaining to indirect effects are common to all species. Effects occurring at a later time may be: 1) increased grass, forb, and shrub species diversity, 2) increased animal species distribution, and their use of the vegetation, and 3) increased human disturbances, primarily as a result of off highway vehicle use.

An indirect impact, which may occur as a result of implementing the proposed action, would be increased human activity due to improved road access, which may disrupt or impact some species. Improved access coupled with increased recreation and fuelwood gathering opportunities may cause further disturbances partially as a result of off road use. However, these disturbances would be seasonal and short term (1-5 years) as access roads are closed or obliterated as timber sale contracts are closed out.

Direct Effects

Aquairus Paintbrush (*Castilleja aquariensis*)

This species occurs along the edges of sagebrush/grass meadows adjacent to conifer and aspen patches, and in open sagebrush/grass parklands. Effects resulting from implementation of the proposed action would likely occur as a result of development of the transportation system, such as road construction, skidding and timber harvesting. Implementing the approved Conservation Assessment, Strategy and Agreement, in conjunction with project-specific surveys would ensure that minimal effects if any would occur over the next four years. These effects would be documented in a project-specific Biological Evaluation.

Arizona Willow (*Salix arizonica*)

This species occurs in riparian areas in the spruce, spruce-fir community types. Effects that may occur as a result of implementing the proposed action would be related to all ground disturbing activities from timber harvesting. These would include development of the transportation system, timber harvesting

and possibly human use of the area after implementation. Because all actions would be in compliance with the Conservation Assessment, Strategy and Agreement, effects would be minimal if any over the next four years. These effects would be documented in a project-specific Biological Evaluation.

Brownie Ladyslipper (*Cypripedium fasciculatum*)

This species occurs in the duff layer in the spruce-fir and lodgepole pine community types. Direct effects that may occur to this species as a result of implementation of the proposed action include all ground disturbing activities related to timber harvesting. Because site-specific surveys would identify any members of this species or suitable habitat, effects would be minimal if any over the next four years. These effects would be documented in a project-specific Biological Evaluation.

Dana Milkvetch (*Astragalus henrrimontanensis*)

Effects to this species would likely occur as a result of road construction and possibly timber harvesting. This species occurs in openings within the ponderosa pine and juniper communities where little timber harvesting would occur during the next four years. Because project-specific surveys would locate the occurrence of this species and/or habitats, effects would be minimal if any. These effects would be documented in a project-specific Biological Evaluation.

Cumulative Effects Area

“Cumulative effects” or cumulative impacts are those impacts on the environment which result from the incremental effects of a proposal added to other past, present or reasonably foreseeable future actions regardless of which agency or person undertakes them (see CFR 1508.7). In light of the extremely broad geographic scope of the proposed action and the level of spatial resolution involved, the analysis does not in most instances address all possible cumulative effects that may result at the site-specific level. A more detailed analysis would be conducted at the site-specific level on all projects that may potentially impact suitable goshawk habitat. Furthermore, this analysis is only effective over the next 4 years until forest plans are revised. Therefore, the effects that may be cumulative are minimal, whereas, in an extended timeframe they may be more important. In the short timeframe involved, effects from past, present and reasonably foreseeable future actions on potentially suitable habitat may include those occurring from the following: ungulate grazing, timber harvest, recreation, existing policies (e.g. fire management), endangered species act, recovery plans, existing conservation, and assessments, strategies and agreements.

The cumulative effects area for Regionally sensitive species includes the entire State of Utah and contiguous forested lands in the adjoining states of Colorado and Wyoming (Map 1). This area includes all or portions of the sections as adapted from the Baileys Ecoregions of the United States (1994). All or portions of the following sections were included in this analysis: Grand Canyon Lands, Uinta Mountains, Bonneville Basin, Northern Canyon Lands, Uinta Basin, Southeastern Great Basin, Tavaputs Plateau, Overthrust Mountains and Utah High Plateaus and Mountains sections. This cumulative effects analysis area was selected because it represents the approximate area of influence resulting from the use of programmatic direction of this alternative.

Past use or Management

Past use or management has been highly variable throughout the State of Utah. It has included practices such as oil, gas and mining, timber harvest, livestock grazing, a variety of recreational uses; and many other special uses. These and other uses have had varying levels of impact on habitats for Regional sensitive plant species. Timber management and the roads associated with them have likely had the greatest effect to habitats for the sensitive plant species discussed in this document. Listed below is a brief discussion of past use or management regarding timber.

Past and present timber sales in the State of Utah have and will remove varying amounts of timber. Intensive timber management practices have occurred in ponderosa and lodgepole pine stands. Within

the spruce/fir and mixed conifer areas, only moderate harvesting has occurred. These areas have varying amounts of Regionally sensitive plant habitat remaining.

Average road densities from past timber harvest has left densities variable throughout the State. Road closures are an ongoing practice on most National Forests and are expected to continue.

Positive effects that will likely occur as a result of implementing the proposed action along with reasonably foreseeable future actions may be: 1) improved information at the landscape area level (as a result of the landscape assessments required in the proposed action), which will provide better site specific data to help avoid impacts to sensitive plant species, 2) improved stand health, which will reduce the need for multiple timber harvest entries for stand health purposes, 2) regulation of age and size class distribution, which will help support stand health, 3) sustainable progression of vegetation classes, including understory vegetation, and 4) management of open roads, which may likely have the greatest positive effect on sensitive plant species.

Strategies to retain old growth in past actions have not been strongly emphasized on National Forest System lands in Utah or in the Intermountain Region. This was partially due to the lack of a definition and information that Federal and State agencies had on old growth and old growth dependent and related wildlife species. Timber management has contributed to the loss of some old growth. Forest Plan guidance in Utah recommends varying amounts of old growth be retained, or managed for on National Forest System lands, if it exists. The proposed action would implement a strategy for the management of vegetation ages or structural stages (including old growth) at the landscape level to be carried out and maintained through time. Some areas will be deficient of large old trees due to the nature of how and where past events have occurred, such as catastrophic loss from beetle and/or fire, however, at the landscape level, old growth will be enhanced so that it may be managed and sustained through time. This will be beneficial to species such as the Brownie ladyslipper, which occurs in the duff layer in the spruce-fir and lodgepole pine communities.

A positive cumulative effect of the proposed action in the spruce/fir zone would be that it may slow down the catastrophic loss of large old trees (old growth) such as that occurring on the Dixie, Fishlake, and Manti-LaSal National Forests and that it establishes a long range strategy which maintains and enhances habitat components for sensitive species. Future management actions would attempt to sustain old growth characteristics throughout the state. This would likely lead to long-term positive effects to the sensitive plant species that grow in these conditions, such as Arizona willow and the Brownie ladyslipper.

Past, present, and reasonably foreseeable future timber management practices have likely impacted habitats which may support some plant species evaluated in this document. Effects from past livestock grazing has most likely degraded potentially suitable habitat for both for these species. Cumulatively, however, the proposed action would not add to this past habitat degradation.

The number of occurrences of Regionally sensitive plant species and the amount of suitable habitat that has been adversely affected by previous management activities and programs on private and federal lands has not been recorded from past activities. Given the magnitude of these activities during the past 100 years, it is likely that fire suppression, overgrazing, road construction, and timber management has degraded suitable habitat for the species being evaluated in this document. However, past, present, proposed, and reasonably foreseeable future actions should not cumulatively add adverse effects to any of the species evaluated within this document over the life of this amendment.

III. COMPLIANCE WITH MANAGEMENT DIRECTION

This Biological Evaluation process has served to review the effects to Regionally Sensitive plant species as a result of implementing the proposed action (Alternative F) on National Forest Systems lands in Utah. The effects from site-specific projects throughout the state will go through individual project level Biological Evaluations. The programmatic effects being analyzed in this evaluation are

not expected to cause any adverse impacts to the species being evaluated in this document. Adverse impacts that may affect the viability of the species evaluated in this document have been avoided.

IV. DETERMINATION

As a result of this Biological Evaluation and its requirements, it is my professional determination that implementation of the proposed action, (Alternative F) has the potential to impact individuals or habitat for all of the species being evaluated in this document, but will not likely contribute to a trend towards Federal listing or cause Federal listing or cause a loss of viability to the population or the species. Furthermore, site-specific analyses will be conducted on each proposed project in suitable or potentially suitable habitat. This will further ensure that site-specific projects will not contribute to a trend towards Federal listing or cause Federal listing or cause a loss of viability to the population or the species.

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