

Bureau of Land Management  
Coos Bay District  
2008  
Forest Carnivore Survey

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Prepared by:

K.H. Hewitt Forest Resources

## Table of Contents

<b>Project Background.....</b>	<b>3</b>
<b>Methodology.....</b>	<b>3</b>
<b>Materials.....</b>	<b>4</b>
<b>Survey Areas.....</b>	<b>4</b>
<b>Mapped Locations.....</b>	<b>5</b>
<b>Sample Unit Events.....</b>	<b>10</b>
<b>Sample Unit Summary.....</b>	<b>16</b>
<b>Study Summary.....</b>	<b>18</b>
<b>Appendix.....</b>	<b>21</b>

## Project Background

The Bureau of Land Management, Coos Bay District conducted surveys for forest carnivores in the fall and winter of 2008. These surveys were performed under contract by K. H. Hewitt Forest Resources, an environmental consulting firm in the Pacific Northwest. Surveys were conducted on lands administered by the Bureau of Land Management in the Oregon Coast Range in Douglas County in the vicinity of Scottsburg, Oregon. Surveys were focused in three sub-watersheds including Wasson Creek, Little Mill Creek and Upper Camp Creek. The focus of the survey was to determine the presence of the Pacific Fisher (*Martes pennanti*) and the American Marten (*Martes Americana*).

Forest Carnivore populations were sampled using the accepted survey protocol, General Technical Report PSW GTR-157 American Marten, Fisher, Lynx and Wolverine: Survey Methods for Their Detection by William J. Zielinski and Thomas E. Kucera (1995). The full text of this protocol is available from [www.fs.fed.us/psw/publications/documents/gtr-157](http://www.fs.fed.us/psw/publications/documents/gtr-157) .

A total of 11 sample areas (each four square miles in size), were established in suitable habitat for forest carnivores. Two camera stations (a minimum distance of one mile apart), were installed in each sample area to monitor the presence and activity of forest carnivores. Cameras function with motion sensors and were baited to attract carnivores to the sites. The camera stations were maintained to insure continuous operation for a minimum of 28 days.

## Methodology

Each of the 11 sample areas were first analyzed using aerial photos to assess the abundance and distribution of suitable mature forest habitat. Field reconnaissance was then performed using the existing transportation system to assess habitat suitability based upon stand age, stand size and overall stand conditions.

Individual camera locations were considered based upon a minimum separation distance of one mile in conjunction with habitat suitability characteristics. Camera locations were further considered based upon topographic features such as sub-watershed position and slope position. An effort was made to place cameras in a variety of locations including riparian areas, mid-slope and upper-slope sites. Camera stations were further considered to reflect a broad range of suitable habitat types and forest plant associations. Finally, specific camera placements were considered to incorporate micro-site conditions such as the confluence of riparian areas, concentrations of down woody material and topographic features that would create logical travel corridors.

Cameras and sensors were placed on trees at approximately 2 meters and 1 meter above ground level respectively. Bait bags were attached to trees approximately 3-4 meters from the camera at a height of 2.5 meters. Vegetation around the camera sites was cut to provide a more open field of view. Sites were labeled with a site number that would be captured on the photographs.

Cameras were monitored after installation in the first few days to insure functionality and successful operation. Cameras were then monitored on at least a weekly basis to monitor activity events, check film, add bait and replace film and batteries. Sites were monitored and maintained to insure continuous operation of the cameras for a minimum of 28 days.

## Materials

Olympus 35mm AF-1 Mini, Infinity Mini DLX cameras were used in conjunction with Trailmaster 500 dual sensor infrared monitors. Monitors were attached to trees using nylon straps. Cameras were attached to trees using small mounting tripods. Camera and monitor were connected using provided 25' electrical cables. Monitors were set with time and date and programmed to function 24 hours a day and record events on a 2 minute interval.

A variety of baits were utilized as attractants at each camera site. Bait was acquired from two local butcher shops and a fish processing plant. Bait included beef, pork, chicken, turkey, sausage, salmon, rock fish and tuna. Bait was packaged in the field in cotton pillow cases, nylon produce bags as well as being tied or directly nailed to the bait trees.

## Survey Areas

### Upper Camp Creek

<u>Sample Area/Camera #</u>	<u>Legal Description</u>	<u>NAD 83 GPS Coordinates</u>
Site A – 1	T23S-R9W-13.01	0442646 / 4825407
Site A – 2	T23S-R9W-14.01	0439729 / 4825512
Site B – 1	T23S-R8W-19.01	0442888 / 4822743
Site B – 2	T23S-R6W-18.01	0444452 / 4824272
Site C – 1	T23S-R8W-30.01	0444552 / 4821742
Site C – 2	T23S-R8W-29.01	0446321 / 4820536
Site D – 1	T23S-R9W-26.01	0440936 / 4821317
Site D – 2	T23S-R9W-24.01	0441332 / 4822691
Site E – 1	T 23S-R9W-20.01	0436934 / 4821850
Site E – 2	T23S-R9W-27.01	0438712 / 4820582

### Little Mill Creek

<u>Sample Area/Camera #</u>	<u>Legal Description</u>	<u>NAD 83 GPS Coordinates</u>
Site A – 1	T22S-R10W-11.01	0432100 / 4836128
Site A – 2	T22S-R10W- 1.01	0432382 / 4837775
Site B – 1	T22S-R9W- 5.01	0436127 / 4837710
Site B – 2	T22S-R9W- 7.01	0434793 / 4836305

### Wasson Creek

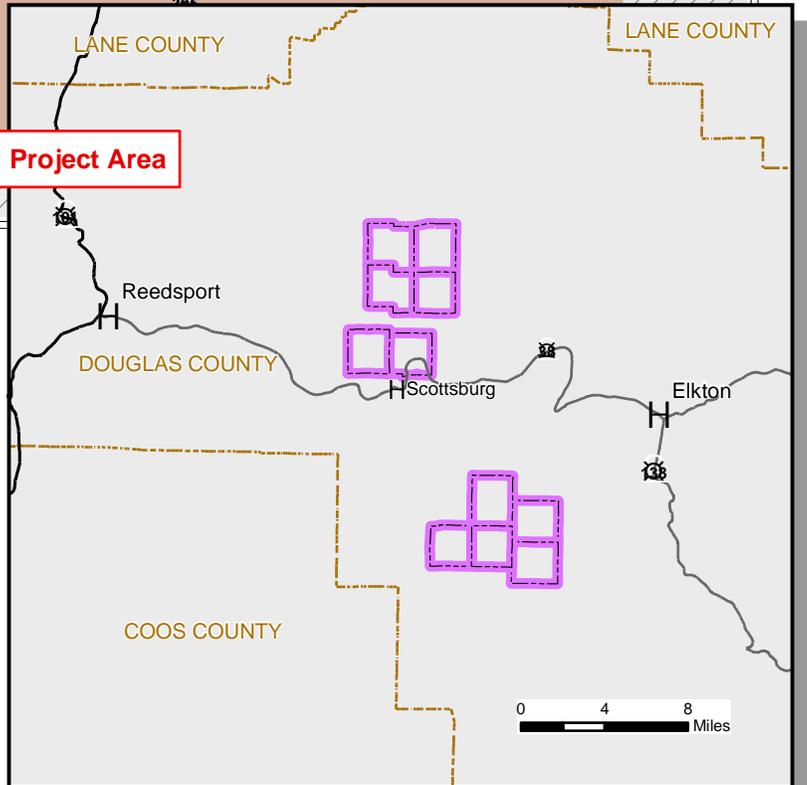
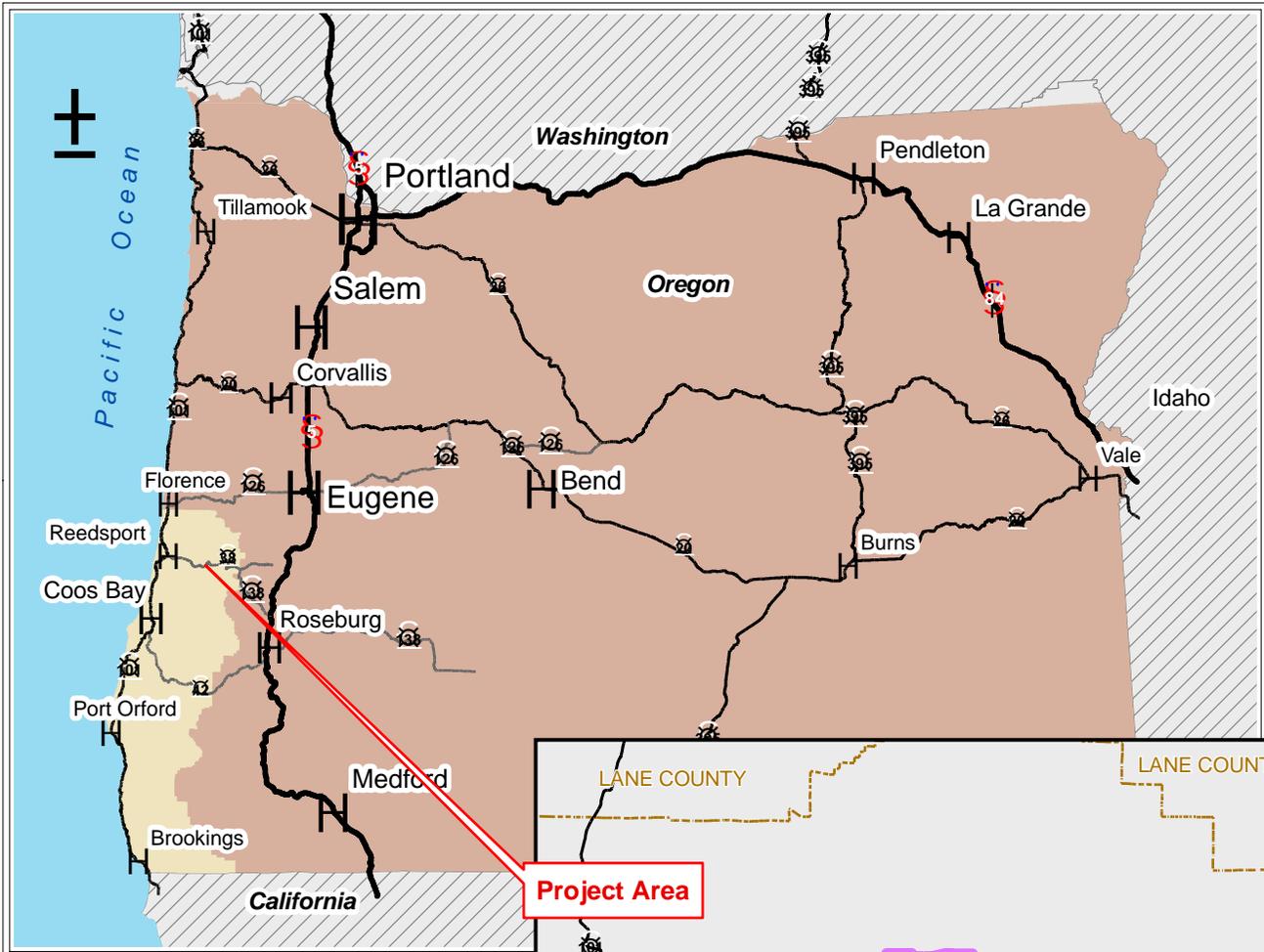
<u>Sample Area/Camera #</u>	<u>Legal Description</u>	<u>NAD 83 GPS Coordinates</u>
Site A – 1	T21S-R9W-7.01	0434519 / 4845320
Site A – 2	T21S-R10W-13.01	0433500 / 4843670
Site B – 1	T21S-R9W-17.01	0435913 / 4844307
Site B – 2	T21S-R9W-9.01	0437700 / 4846317
Site C – 1	T21S-R9W-20.01	0436136 / 4842956
Site C – 2	T21S-R9W-29.01	0436121 / 4840344
Site D – 1	T21S-R9W-19.01	0433511 / 4843186
Site D – 2	T21S-R10W-24.01	0433872 / 4841461

## Mapped Locations

# VICINITY MAP

## FY08 Forest Carnivore Survey Contract

### COOS BAY DISTRICT BLM



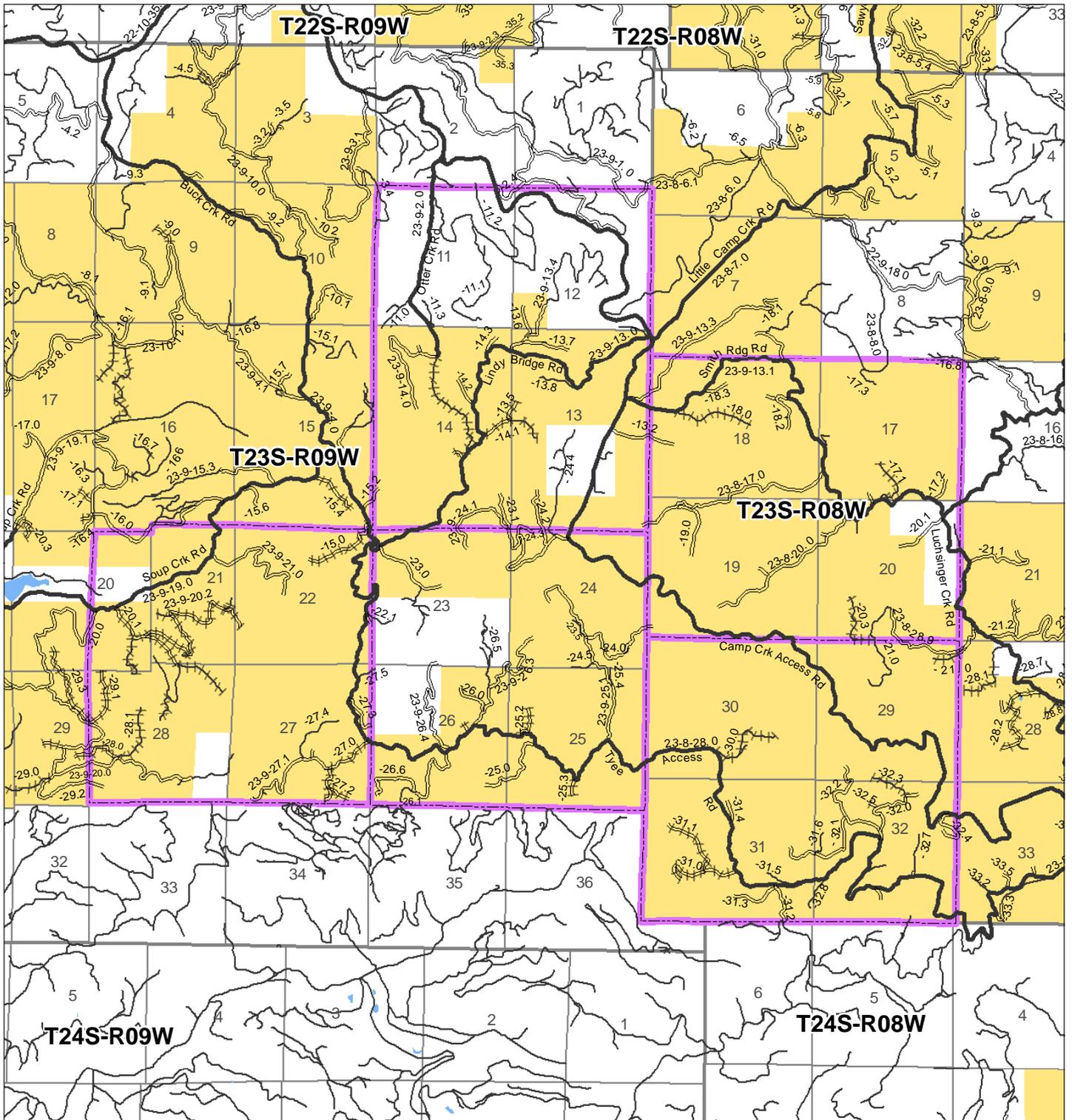
**United States Department of the Interior  
Bureau of Land Management**

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website: [www.blm.gov/or/districts/coosbay](http://www.blm.gov/or/districts/coosbay)

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

# FY08 Forest Carnivore Survey Project Area

## Upper Camp Creek



0 0.5 1 2

Miles

1 inch equals 1 mile

K

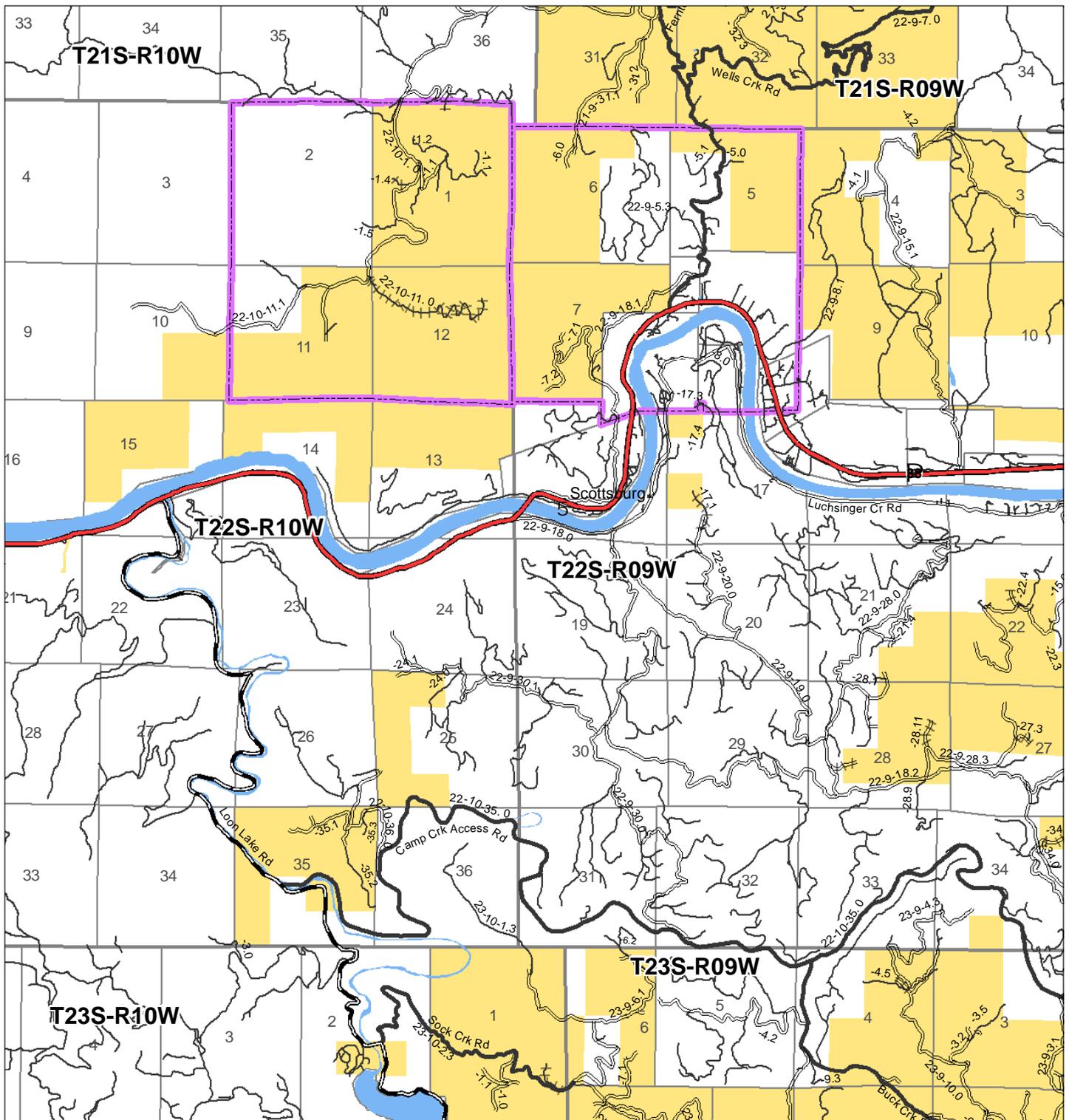
### Legend

- Project Area
- BLM Administered Land
- Private or Other Land
- Highway
- County Road
- Paved Road
- Gravel Road
- Natural/Unk Surface Road
- Closed Road

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

# FY08 Forest Carnivore Survey Project Area

## Little Mill Creek



0 0.5 1 2

Miles

1 inch equals 1 mile

K

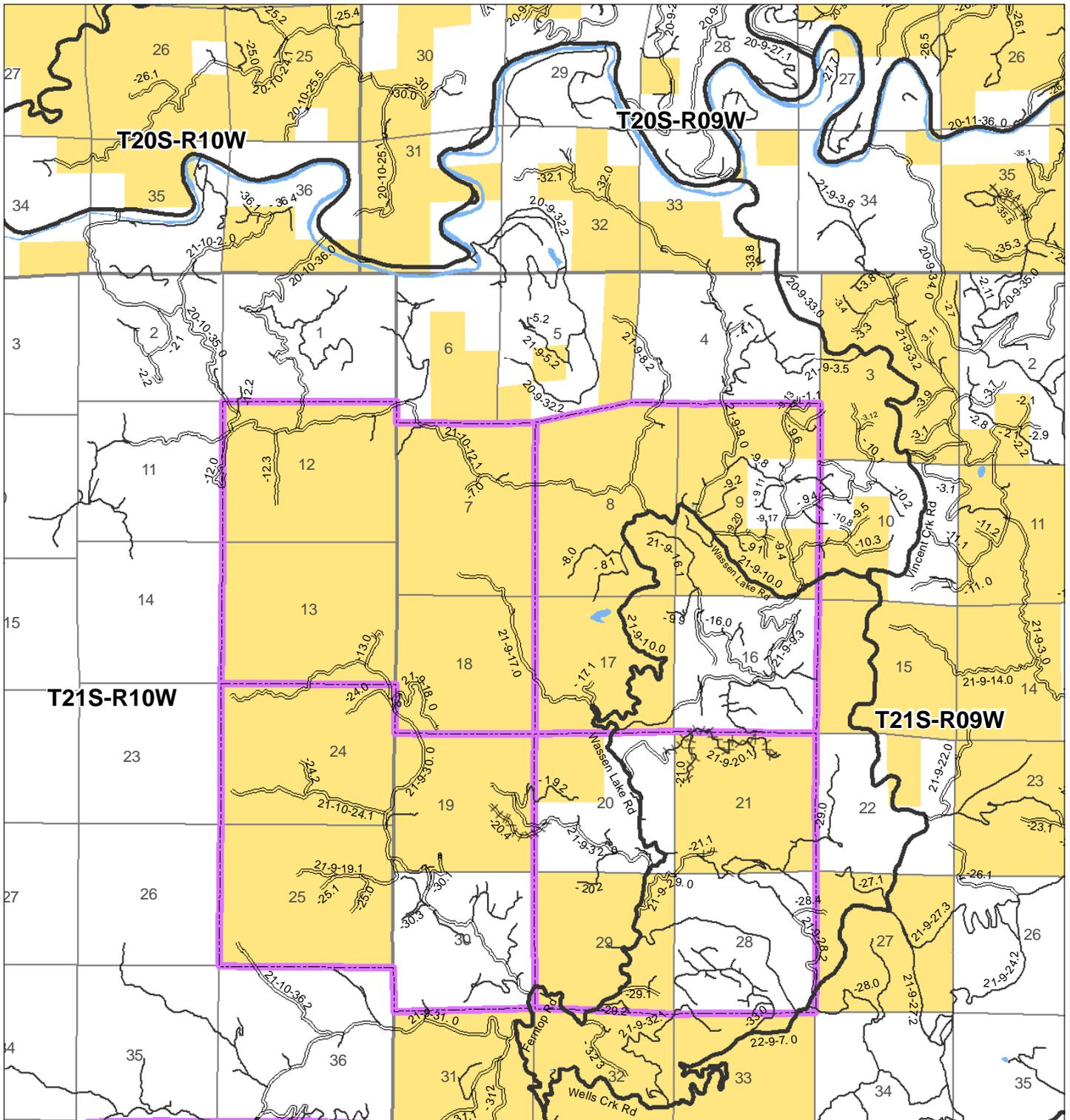
### Legend

- Project Area
- BLM Administered Land
- Private or Other Land
- Highway
- County Road
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## Wasson Creek



0 0.5 1 2

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### Legend

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## Sample Unit Events

### Upper Camp Creek Survey Area

Site: Upper Camp Creek A-1

Camera: T-23S-R9W-13.01

Habitat: Mature PSME/TSHE with POMU and BENE. Site located in lower slope position adjacent to blow down patch.

Operation Days: 28 days (11/1-11/29).

Animal Events: None.

Site: Upper Camp Creek A-2

Camera: T23S-R9W-14.01

Habitat: Mature TSHE with dense ALRU and ACMA, plus POMU and RUSP. Located in lower slope site along riparian area.

Operation Days: 28 days (11/1-11/29).

Animal Events: None.

Site: Upper Camp Creek B-1

Camera: T23S-R8W-19.01

Habitat: Mature PSME/TSHE/THPL/ACMA with POMU. Site located in mid-lower slope along small riparian area below small waterfall.

Operation Days: 30 days (11/1-12/1).

Animal Events: Raccoon- 6.

Site: Upper Camp Creek B-2

Camera: T23S-R8W-18.01

Habitat: Mature PSME/TSHE with RHMA and POMU. Located on mid-slope site in upper drainage area.

Operation Days: 34 days (11/1-12/5).

Animal Events: Mouse- 2, Spotted Skunk- 12, Flying Squirrel- 1.

Site: Upper Camp Creek C-1

Camera: T23S-R8W-30.01

Habitat: Old growth TSHE with POMU. A mid-slope site located on a small bench with abundant down woody debris.

Operation Days: 40 days (11/1-12/10).

Animal Events: Deer- 1.

Site: Upper Camp Creek C-2

Camera: T23S-R8W-29.01

Habitat: Old growth PSME/THPL with POMU. Site located in step drainage in lower slope area at confluence of two creeks.

Operation Days: 33 days (11/2-12/2) cumulative total.

Animal Events: Mouse- 3.

Site: Upper Camp Creek D-1

Camera: T23S-R9W-26.01

Habitat: Mature PSME/TSHE with ACMA and POMU. Located in upper slope site with large root wad.

Operation Days: 32 days (10/31-12/1).

Animal Events: Spotted Skunk- 3.

Site: Upper Camp Creek D-2

Camera: T23S-R9W-24.01

Habitat: Mature PSME/THPL/TSHE with POMU. Site located on lower slope riparian area at confluence of two drainage areas.

Operation Days: 40 days (10/31-12/10).

Animal Events: Mouse- 18, Spotted Skunk- 8.

Site: Upper Camp Creek E-1

Camera: T23S-R9W-20.01

Habitat: Mature PSME with ACMA, ALRU and POMU. Site located on lower slope riparian area with abundant down large woody debris.

Operation Days: 29 days ((10/31-11/29).

Animal Events: None.

Site: Upper Camp Creek E-2

Camera: T23S-R9W-27.01

Habitat: Mature PSME/TSHE with RHMA. Site located at base of large rock outcrop area on upper slope.

Operation Days: 31 days (10/31-12/1).

Animal Events: Mouse- 2, Spotted Skunk- 50.

### **Little Mill Creek Survey Area**

Site: Little Mill Creek A-1

Camera: T22S-R10W-11.01

Habitat: Mature PSME with ACMA, ALRU and POMU. Site located in upper mid-slope area of drainage.

Operation Days: 35 days (11/31-1/4).

Animal Events: Bobcat- 5, Deer- 1, Spotted Skunk- 52.

Site: Little Mill Creek A-2

Camera: T22S-R10W-1.01

Habitat: Mature PSME/TSHE with ALRU, GASH and POMU. Site located on small ridge big game travel corridor at mid-slope area.

Operation Days: 35 days (11/30-1/4).

Animal Events: None.

Site: Little Mill Creek B-1

Camera: T22S-R9W-5.01

Habitat: Mature PSME with ACMA, TSHE and THPL second story and POMU and ACCI. Camera located in riparian area at confluence of two drainages.

Operation Days: 31 days (11/30-12/31).

Animal Events: Bobcat- 12, Spotted Skunk- 14.

Site: Little Mill Creek B-2

Camera: T22S-R9W-7.01

Habitat: Mature PSME with large ACMA, ALRU and dense POMU. Mid-slope site location in somewhat open stand with down hardwoods in area

Operation Days: 31 days ((11/30-12/31).

Animal Events: None.

### **Wasson Creek Survey Area**

Site: Wasson Creek A-1

Camera: T21S-R9W-7.01

Habitat: Large ACMA with ALRU. Site located in riparian flood plain with active beaver dams.

Operation Days: 28 days (11/1-12/31).

Animal Events: Bobcat- 4.

Site: Wasson Creek A-2

Camera: T21S-R10W-13.01

Habitat: Old growth PSME/TSHE with POMU and RUSP. Site located on bench between two small sub-drainage areas.

Operation Days: 28 days (11/2-1/1).

Animal Events: Deer- 1, Mouse- 1, Spotted Skunk- 1.

Site: Wasson Creek B-1

Camera: T21S-R9W-17.01

Habitat: Mature PSME/TSHE with POMU, ACCI and RHMA. Site located 200 meters from lake  
on small bench between two small sub-drainage areas.

Operation Days: 35 days (12/2-1/6).

Animal Events: Bobcat- 1, Raccoon- 15, Spotted Skunk- 28.

Site: Wasson Creek B-2

Camera: T21S-R9W-9.01

Habitat: Old growth TSHE/PSME with ACMA, THPL, POMU and RUSP. Site located in lower  
Slope area at confluence of two drainages.

Operation Days: 28 days (12/2-12/31).

Animal Events: Opossum- 3.

Site: Wasson Creek C-1

Camera: T21S-R9W-20.01

Habitat: Mature PSME/TSHE with POMU on upper slope site.

Operation Days: 28 days (11/2-11/20).

Animal Events: None.

Site: Wasson Creek C-2

Camera: T21S-R9W-29.01

Habitat: Mature TSHE with abundant ALRU and POMU and RUSP. Site located on mid-slope area above small creek.

Operation Days: 30 days (11/2-12/2).

Animal Events: Spotted Skunk- 6, Flying Squirrel-4, Opossum- 1, Bear- 1.

Site: Wasson Creek D-1

Camera: T21S-R9W-24.01

Habitat: Mature PSME/TSHE with POMU and RHMA located in up-slope area.

Operation Days: 29 days (11/2-11/30).

Animal Events: Spotted Skunk- 1.

Site: Wasson Creek D-2

Camera: T21S-R10W-19.01

Habitat: Old growth PSME/TSHE with POMU. Site located on lower slope 100 meters from steep riparian area.

Operation Days: 40 days (11/2-12/12).

Animal Events: Spotted Skunk- 19, Mouse- 90, Deer- 2.

## Sample Units Summary

### Upper Camp Creek Animal Events Summary:

	Bear	Bobcat	Deer	Flying Squirrel	Mouse	Opossum	Spotted Skunk	Raccoon
A-1								
A-2								
B-1								6
B-2				6	2		12	
C-1	1							
C-2					3			
D-1							3	
D-2					18		8	
E-1								
E-2					2		50	
<b>Totals</b>	1			6	25		73	6

### Little Mill Creek Animal Events Summary:

	Bear	Bobcat	Deer	Flying Squirrel	Mouse	Opossum	Spotted Skunk	Raccoon
A-1		5	1				52	
A-2								
B-1		12					14	
B-2								
<b>Totals</b>		17	1				66	

**Wasson Creek Animal Events Summary:**

	Bear	Bobcat	Deer	Flying Squirrel	Mouse	Opossum	Spotted Skunk	Raccoon
A-1		4						
A-2			1		1		1	
B-1		1					28	15
B-2						3		
C-1								
C-2	1			4		1	6	
D-1							1	
D-2			2		90		19	
<b>Totals</b>	1	5	3	4	91	4	55	15

**Total Animal Events Summary:**

	Bear	Bobcat	Deer	Flying Squirrel	Mouse	Opossum	Spotted Skunk	Raccoon
<b>Camp Creek</b>			1	1	25		73	6
<b>Mill Creek</b>		17	1				66	
<b>Wasson Creek</b>	1	5	3	4	91	4	55	15
<b>Totals</b>	1	22	5	5	116	4	194	21
<b>Frequency</b>	.003	.06	.01	.01	.32	.01	.53	.06

## Study Summary

The carnivore survey commenced on October 31, 2008 and was completed on January 6, 2009. Cameras were in operation for a cumulative total of over 616 days. A total of 368 animal events were photo documented for an average of .6 animal events per day. Animal events recorded included photo documentation for bear, bobcat, deer, mice, opossum, spotted skunk and raccoon.

Spotted skunk events were by far the most common consisting of 53 % of all recorded events. The skunks were quick to locate the bait stations and were generally the first species to be documented on the active stations. Mice photos were also abundant but numbers were biased somewhat by a high number of photos recorded on camera site Wasson D-2, T21S-R10W-24.01. Bobcats were fairly active in the northern survey areas of Wasson Creek and Little Mill Creek where four of the six survey areas recorded the presence of bobcats. One bear was also documented in the Wasson Creek area where the sensor and camera incurred damage and had to be replaced.

In general the cameras functioned adequately on the sites. There were a few events where moving of falling vegetation likely triggered events. For example, cameras placed in early fall near Big Leaf Maple trees likely had photos triggered by large amounts of deciduous leaves falling. Occasionally the cameras would only partially feed the film resulting in split photographs where the sides of the images were inverted. One camera had a couple of zoom malfunctions where the field of view was automatically altered for the subsequent frame. Weather also effected photograph clarity on some events where the field of view was obscured by dense fog, rain or snow. Total survey days was adjusted accordingly these sites where slight malfunctions occurred. New digital photography technology available today would likely limit these minor delays and also improve overall photo quality while simultaneously reducing overall survey costs.

While no Pacific Fisher or American Marten were located during the survey it is valuable to document and analyze this effort in conjunction with other survey efforts and population centers across the ranges of the species. While negative results are not as rewarding they are none the less important in developing a greater understanding for the species, their ranges and habitat needs. Additional surveys across lands administered by the Bureau of Land Management are recommended to further augment the existing information and available data.

## Animal Photographs

## Appendix

### Summary of Plant Acronyms Used

PSME.....	Douglas Fir
TSHE.....	Western Hemlock
THPL.....	Western Red Cedar
ACMA.....	Big Leaf Maple
ALRU.....	Red Alder
ACCI.....	Vine Maple
POMU.....	Sword Fern
BENE.....	Oregon Grape
RHMA.....	Rhododendron
GASH.....	Salal
RUSP.....	Salmonberry