A SURVEY OF THE ST. MARIES AND SANDPOINT RANGER DISTRICTS, PANHANDLE NATIONAL FOREST, FOR THE COEUR D'ALENE SALAMANDER (PLETHODON IDAHOENSIS).

by

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ABSTRACT

During May of 1992, a field survey was conducted to document the distribution of the Coeur d'Alene Salamander (Plethodon idahoensis) on the St. Maries and Sandpoint Ranger Districts of the Panhandle National Forest. Twenty-four new sites of occurrence were recorded on the St. Maries District along Big Creek and in the Marble Creek drainage; the historic locality southwest of Emida was searched unsuccessfully. On the Sandpoint District, no new sites of occurrence were found, and P. idahoensis was not encountered on Wellington Creek, the district's only historic locality. Weather that limits surface appearance by the salamander occurred through most of the study. Areas in which P. idahoensis might be found during more favorable conditions are reported.

TABLE OF CONTENTS

INTRODUCTION

The Coeur d'Alene Salamander (Plethodon idahoensis) is the only lungless salamander (Plethodontidae) known from the northern Rocky Mountains (Nussbaum et al. 1983). This unique, terrestrial amphibian occurs in southeastern British Columbia, northwestern Montana, and northern Idaho as far south as the Selway River. Drainages of the Kootenai, Clark Fork, St. Joe, and North Fork of the Clearwater Rivers contain most known localities (Wilson et al., in review; Holmberg et al.. 1984). The salamander may be most readily encountered during periods of wet weather when ground temperatures exceed 6°C. At other times this species occupies underground refugia, and seems to favor interstitial spaces and crevices in rocky microhabitat. It is often found associated with seepages or streams (Groves and Cassirer 1989; Wilson and Larsen 1988; Wilson, unpublished data).

Plethodon idahoensis is classified as a Species of Special Concern by the Idaho Department of Fish and Game, and as a Sensitive Species by both the Idaho office of the Bureau of Land Management and the U. S. Forest Service in Region 1 (Groves 1988). Because of state and federal interest in its distribution and status, P. idahoensis has been the subject of a series of field surveys in Idaho and Montana (Diller and Wallace 1985; Wilson and Simon 1987, 1988; Groves 1988, 1989; Groves and Cassirer 1989; Wilson 1990, 1991) that have expanded the species' known range, and

filled gaps between historic localities. The present study is a continuation of these efforts and has involved a field survey for P. idahoensis on the St. Maries and Sandpoint Ranger Districts, Panhandle National Forest.

The salamander was first encountered on the St. Maries Ranger District on 17 October 1955 by Phillip Dumas, who collected an "adult female..-under a small rock in a seepage on a fresh roadcut on U. S. 95 Alternate, five and one half miles southwest of Emida" (Dumas 1957). In the recent past, this area has been searched unsuccessfully by Craig Groves and others, prompting concern that the salamander colony here is extinct (Groves 1988). The Emida site was the only P. idahoensis locality known from the St. Maries River drainage until 1989, when a colony of salamanders was discovered near Clarkia (Groves and Cassirer 1989).

The St. Joe River drainage contains most known P. idahoensis localities on the St. Maries Ranger District. The first recorded discovery of the salamander on District lands in this drainage was by Brian Miller, then a graduate student at Washington State University, who collected an individual somewhere along Big Creek in 1985 (B. Miller, pers. comm. 1985). Evelyn Wilson and I subsequently found the salamander at four places on Big Creek; these places are described in this report. Between 1985 and 1991 ten sites of occurrence were found along the St. Joe River within the District's boundaries by Richard Wallace, Craig Groves, and

myself (Groves 1988, Wilson 1991). Groves (1988) also discovered a site on Marble Creek.

The only known P. idahoensis locality on the Sandpoint Ranger District is Wellington Creek. Kenneth Teberg discovered the salamander here in the late sixties, but the drainage has been searched unsuccessfully in recent years by Groves and others (Brodie 1970, Groves 1988). As with the historic site near Emida, there is speculation that salamanders at this locality have been extirpated (Groves 1988).

The purpose of the present study has been to document more fully the distribution of P. idahoensis on both the St. Maries and Sandpoint Ranger Districts. To accomplish this I searched as many sections of the two districts as possible (Appendix 1), and made new attempts to find the salamander at the Emida and Wellington Creek localities. At all sites of occurrence, I recorded microhabitat data intended for the Conservation Data Center database. This information may be used for future comparisons, should some type of monitoring program (Groves 1989) be established for the salamander.

Poor weather through most of this study may have limited my ability to find P. idahoensis (see below). For this reason I am reporting areas and specific sites that could possibly be inhabited by the salamander, though they were searched without success. These are places with: 1) rocky microhabitat similar to what exists in known P. idahoensis localities, and 2) some proximity to regions that contain

known localities. Because these areas might be profitably searched in the future under favorable climatic conditions, they may merit some protection from human disturbance until the salamander's presence or absence in them can be established.

METHODS

Field work was conducted from 16 May to 29 May 1992. Because P. idahoensis is nocturnally surface-active in wet microhabitat (Wilson and Larsen 1988), I flagged wet sites by day, and returned at night to search with a flashlight. In areas without road access, and at sites that were superficially dry, I searched during the day by digging, raking litter and bryophyte mat, displacing wood and rocky material, and prying fractured rock.

Data collected at each site of occurrence are reported as follows: elevation in feet, measured with an altimeter; aspect in degrees, measured with a magnetic compass; slope in degrees, measured with a clinometer; and percent overhead cover, estimated with a spherical densiometer (Lemmon 1956). I am reporting distances estimated with an odometer to 0.01 mile, and have marked the approximate position of each site of occurrence on U. S. G. S. topographic maps (Figures 1-6).

During this study, no new visits were made to the St. Joe River localities west of Marble Creek on the St. Maries Ranger District. Information on these sites has been reported by Groves (1988) and myself (Wilson 1991).

RESULTS AND DISCUSSION

The location of each site at which I encountered P. idahoensis is reported here without attempt to define the areal extent of individual salamander colonies or populations. Some of the sites are so close to one another that together they may be regarded as single localities. I found the salamander in 29 places on the St. Maries Ranger District in the Big Creek and Marble Creek drainages. No new sites were found in the Sandpoint Ranger district, and searches at the historic Emida and Wellington Creek localities were unsuccessful.

Twenty-four of the places at which I found the salamander are apparently new localities. All have rocky substrates and involve stream headwaters or seepages. Eight places characterized below as "rock outcrops" were only slightly damp, indicating they may dry during the summer. The following is a list of places in which P. idahoensis was encountered.

Big Creek

1. Fracture seepage on FR 537, 0.11 mile north of Cameron Creek. T46N, R3E, S7. Figure 1A. Elevation 2640, Aspect 202, Slope 90, Cover 71. 21 May, night search. Two adult salamanders found at the base of a rockface, 8°C. Locality discovered in 1988.
2. Rock outcrop on FR 537, 0.10 mile north of Cabin Creek. T46N, R3E, S7. Figure 1B. Elevation 2640, Aspect 328, Slope 46, Cover 90. 22 May, day search. One immature

salamander found in rubble at the base of a rockface, 11°C.

3. Rock outcrop on FR 537, 0.19 mile south of Cabin Creek. T46N, R3E, S18. Figure 1C. Elevation 2600, Aspect 275, Slope 42, Cover 36. 22 May, day search. Two immature salamanders found in rubble at the base of a rockface, 11°C.
4. Rock outcrop on FR 537, 0.72 mile north of Flag Creek. T46N, R3E, S18. Figure 1D. Elevation 2600, Aspect 320, Slope 60, Cover' 26. 22 May, day search. One immature salamander found under a rock, 30 feet from a bridge over Big Creek, 11°C.
5. Stream over talus on FR 537, 0.39 mile north of Flag Creek. T46N, R3E, S18. Figure 1E. Elevation 2550, Aspect 95, Slope 52, Cover 77. 21 May, night search. Two adult salamanders found at the base of a rockface, 9°C.
6. Fracture seepage on FR 537, 0.24 mile north of Flag Creek. T46N, R3E, S18. Figure IF. Elevation 2550, Aspect 104, Slope 80, Cover 82. 21 May, night search. Four adult salamanders found at the base of a rockface, 9°C. Locality discovered in 1988.
7. Rock outcrop on FR 537, 1.04 miles north of Jumbo Creek. T46N, R3E, S19. Figure 1G. Elevation 2500, Aspect 282, Slope 68, Cover 44. 22 May, day search. One immature salamander found by prying open a rock crevice, 11°C.

8. Fracture seepage on FR 537, 0.75 mile north of Jumbo Creek. T46N, R3E, S19. Figure 1H. Elevation 2470, Aspect 256, Slope 56, Cover 39. 21 May, night search. One adult salamander found on a rockface, 8°C. Locality discovered in 1986.
9. Rock outcrop on FR 537, 0.54 mile north of Jumbo Creek. T46N, R3E, S19. Figure 1I. Elevation 2440, Aspect 230, Slope 54, Cover 19. 22 May, day search. One immature salamander found in rubble at the base of a rockface, 10°C.
10. Rock outcrop on FR 537, 0.50 mile north of Jumbo Creek. T46N, R3E, S19. Figure 1J. Elevation 2440, Aspect 246, Slope 72, Cover 38. 22 May, day search. One immature salamander found under bryophyte mat at the base of a rockface, 11°C.
11. Fracture seepage on FR 537, 0.06 mile south of Jumbo Creek. T46N, R3E, S30. Figure 1K. Elevation 2420, Aspect 316, Slope 70, Cover 80. 21 May, night search. Three adult salamanders found on a rockface, 8°C.
12. Rock outcrop on FR 537, 0.10 mile south of East Fork Big Creek. Aspect 338, Slope 52, Cover 44. 21 May, day search. One immature salamander found in rock fragments mixed with soil, 11°C.
13. Rock outcrop on FR 537, 0.40 mile south of East Fork Big Creek.. T46N, R3E, S30. Figure 2B. Elevation 2340, Aspect 320, Slope 64, Cover 100. 21 May, day search.

One immature salamander found in rock fragments mixed with soil, 10°C.

14. Fracture seepage on FR 537, 0.77 mile south of East Fork Big Creek. T46N, R3E, S31. Figure 2C. Elevation 2320, Aspect 336, Slope 66, Cover 64. 21 May, day search. Immature salamanders found in rock fragments mixed with soil, 100C. Locality discovered in 1991.

Marble Creek drainage

15. Rock outcrop on FR 321, 0.50 mile south of FR 396. T45N, R3E, S25.' Figure 3C. Elevation 2480, Aspect 360, Slope 58, Cover 36. 22 May, day search. One adult and three immature salamanders found in rubble at the base of a rockface, 12°C.
16. Fracture seepage on FR 321, 0.87 mile south of FR 396. T45N, R3E, S25. Figure 3B. Elevation 2520, Aspect 100, Slope 32, Cover 95. 22 May, day search. Two immature salamanders found in rubble at the base of a rockface near the mouth of a tunnel, 10°C.
17. Fracture seepage on FR 321, 1.31 mile south of FR 396. Groves (1988) Marble Creek site. Figure 3A. 22 May, day search. One immature salamander found in rubble at the base of. a rockface, 12°C.
18. Fracture seepage on FR 396, 3.87 miles east of FR 321. T45N, R4E, S32. Figure 4. Elevation 3440, Aspect 243, Slope 44, Cover 34. 20 May, day search. One immature salamander found in rock fragments below culvert, 13°C.

19. Fracture seepage on FR 321, 1.76 miles north of Donkey Creek. T45N, R3E, S34. Figure 5A. Elevation 2800, Aspect 140, Slope 70, Cover 42. 21 May, night search. Two adult salamanders found at the base of a rockface, 8°C.
20. Fracture seepage on FR 321, 1.26 miles north of Donkey Creek. T45N, R3E, S34. Figure 5B. Elevation 2800, Aspect 115, Slope 90, Cover 90. 21 May, night search. One adult salamander found on rockface, 8°C.
21. Fracture seepage on FR 321, 1.07 miles north of Donkey Creek. T45N, R3E, S34. Figure 5C. Elevation 2800, Aspect 140, Slope 55, Cover 62. 22 May, day search. One immature salamander found in rubble at the base of a rockface, 11°C.
22. Fracture seepage on FR 321, 0.86 mile north of Donkey Creek. T45N, R3E, S34. Figure 5D. Elevation 2800, Aspect 190, Slope 54, Cover 83. 22 May, day search. One immature salamander found in rubble at the base of a rockface, 11°C.
23. Fracture seepage on FR 321, 0.65 mile north of Donkey Creek. T45N, R3E, S34. Figure 5E. Elevation 2800, Aspect 140, Slope 80, Cover 65. 22 May, day search. One adult salamander seen in crevice, 11°C.
24. Fracture seepage on FR 321, 0.54 mile north of Donkey Creek. T45N, R3E, S34. Figure 5F. Elevation 2800, Aspect 82, Slope 50, Cover 93. 22 May, day search. One immature salamander found in riprap, 11°C.

25. Fracture seepage on FR 321, 0.11 mile north of Donkey Creek. T44N, R3E, S3. Figure 5G. Elevation 2840, Aspect 244, Slope 48, Cover 50. 22 May, day search. One immature salamander found in rock below culvert, 10°C.
26. Stream on FR 321, 0.84 mile south of Donkey Creek. T44N, R3E, S4. Figure 5H. Elevation 2880, Aspect 140, Slope 42, Cover 100. 22 May, day search. One immature salamander found in rock fragments, 10°C.
27. Stream on FR 321, 1.04 miles south of Donkey Creek. T44N, R3E, S4. 'Figure 5I. Elevation 2880, Aspect 200, Slope 50, Cover 75. 22 May, day search. One immature salamander found in rock fragments, 11°C.
28. Stream on FR 321, 1.06 miles south of Donkey Creek. T44N, R3E, S4. Figure 4. Elevation 2880, Aspect 180, Slope 30, Cover 100. 22 May, day search. One immature salamander found in rock fragments, 11°C.
29. Fracture seepage on FR 216, 3.44 miles east of FR 321. T44N, R3E, S27. Figure 6. Elevation 4400, Aspect 274, Slope 32, Cover 66. 22 May, day search. Two immature salamanders found beneath a rock slab, 9°C. This locality is the highest known for P. idahoensis, in the state of Idaho.

All of the places listed above were visited shortly after one of only two brief rainstorms that occurred during this study (19-20 May and 26-27 May), and success in finding salamanders at these sites was possibly facilitated by the

wet weather. Unfortunately, drought occurred throughout much of May, and at high elevations on the Sandpoint Ranger District substrate temperatures in many of the areas I searched were less than 6°C. Because such conditions inhibit surface activity of P. idahoensis, making it difficult to find, it is possible that the salamander actually occurs in areas I searched unsuccessfully.

This and previous studies indicate that P. idahoensis is fairly widespread in the St. Joe drainage (Groves 1988, Wilson 1991). Road closures prevented me from surveying Forest Service lands in the lower portions of the drainage, but the salamander has been found as far west as Ahrs Gulch (Groves 1988); it seems likely that other localities will eventually be discovered in this region. Within the St. Joe drainage I observed potential P. idahoensis microhabitat in the following areas: Boulder Creek and tributaries, Homestead Creek and tributaries, Hobo Creek and tributaries, Blackjack Creek, the east bank of Marble Creek opposite FR 321, and Big Creek along banks opposite FR 573.

I also found potential microhabitat in the St. Maries River drainage, but virtually all my searches there were conducted during drought. The recent discovery of the Clarkia locality indicates the salamander may occur more widely in the St. Maries drainage than the re
previous studies (Groves 1988) would indic
areas should be searched during more weath
encountered: rock outcrops on

St. Maries River, upstream from Keeler Creek; rock outcrops on FR 498 at Hidden Creek; Log Creek and tributaries; East Fork Emerald Creek and tributaries from Hoodoo Summit to Garnet Gulch; East Fork Charley Creek and tributaries; a talus field above FR 1456, 5 miles from the road's end; gulches above and below State Highway 6, within 0.6 mile northeast of Emida Summit; and Willow Creek northeast of East Dennis Peak.

Willow Creek was not searched during this study, but the Willow Creek drainage apparently contains the historic locality near Emida. This stream may locally be the best place to search for P. idahoensis, as the area around Highway 6 has been greatly disturbed. Dumas (1992, pers. comm.) found the salamander above the highway in the "second or third gulch" encountered, driving toward Emida from Emida Summit. Substrates in the site were rocky and there was a small intermittent stream. I visited the area on 18 May and 20 May. I searched above and below the road within 0.6 mile of the summit but found fairly dry conditions everywhere I looked. It appears that road work and possibly logging have changed this area considerably since the discovery of the salamander.

I visited the Wellington Creek locality on 27 and 28. May. Teberg (1992, pers. comm.) does not recall many details of his collection here. Apparently he traveled westerly on a logging road away from Lightening Creek and found the salamander "in a cascade area above the road in a

stream coming from the south". I searched areas along the South Fork of Wellington Creek from the mainstem to a crossing of FR 1006A. This road is washed out at the mainstem and poor access made it impractical to search the stream at night. Moreover, substrate temperatures along Wellington Creek and its tributaries were between 5°C and 6°C during my visit, decreasing the likelihood of finding P. idahoensis under surface debris.

Although surrounding slopes have been extensively logged, the stream's margins are relatively undisturbed. There are some exposures of bedrock, and rocky debris consisting mostly of boulders is buried beneath soil and forest litter. In many places along the stream this debris appears to be fairly deep, and the potential exists for the underground space required by the salamander. I have found P. idahoensis, in similar settings near Coeur d'Alene Lake, in the Selway River drainage, and on Sweathouse Creek in the Bitterroot Mountains. There is little material that can be moved' while looking for salamanders in these places, making favorable weather extremely important during a search.

My inability to find P. idahoensis, on the Sandpoint Ranger District is similar to the experiences of previous searchers in the region (Groves 1988). However, given the occurrence of the salamander on Wellington Creek, and nearby localities along the Clark Fork River and in the Callahan Creek drainage (Wilson and Simon, 1988), it seems likely that other sites of occurrence will eventually be discovered

on the District. The best looking microhabitat I encountered was at the following places: the east bank of Johnson Creek above FR 278, 0.3 mile north of Johnson Creek Campground; talus fields above FR 278, east of Granite Road; Granite Creek on FR 278; Grouse Creek below Grouse Creek Falls; talus fields south of the FR 419 road closure (near milepost 5); fracture seepages on FR 419 between Quartz and Rattle Creeks; and Wellington Creek.

ACKNOWLEDGEMENTS

Evelyn Wilson Worked with me in the field. I am grateful for information provided by Ken Teberg, Phillip Dumas, Harry Green, and Craig Groves. Thanks to Craig Groves, Dave Roberts, and especially Dan Svingen, for initiating and supporting this study.

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Figure 1. Marble Creek 7.5′ topo.

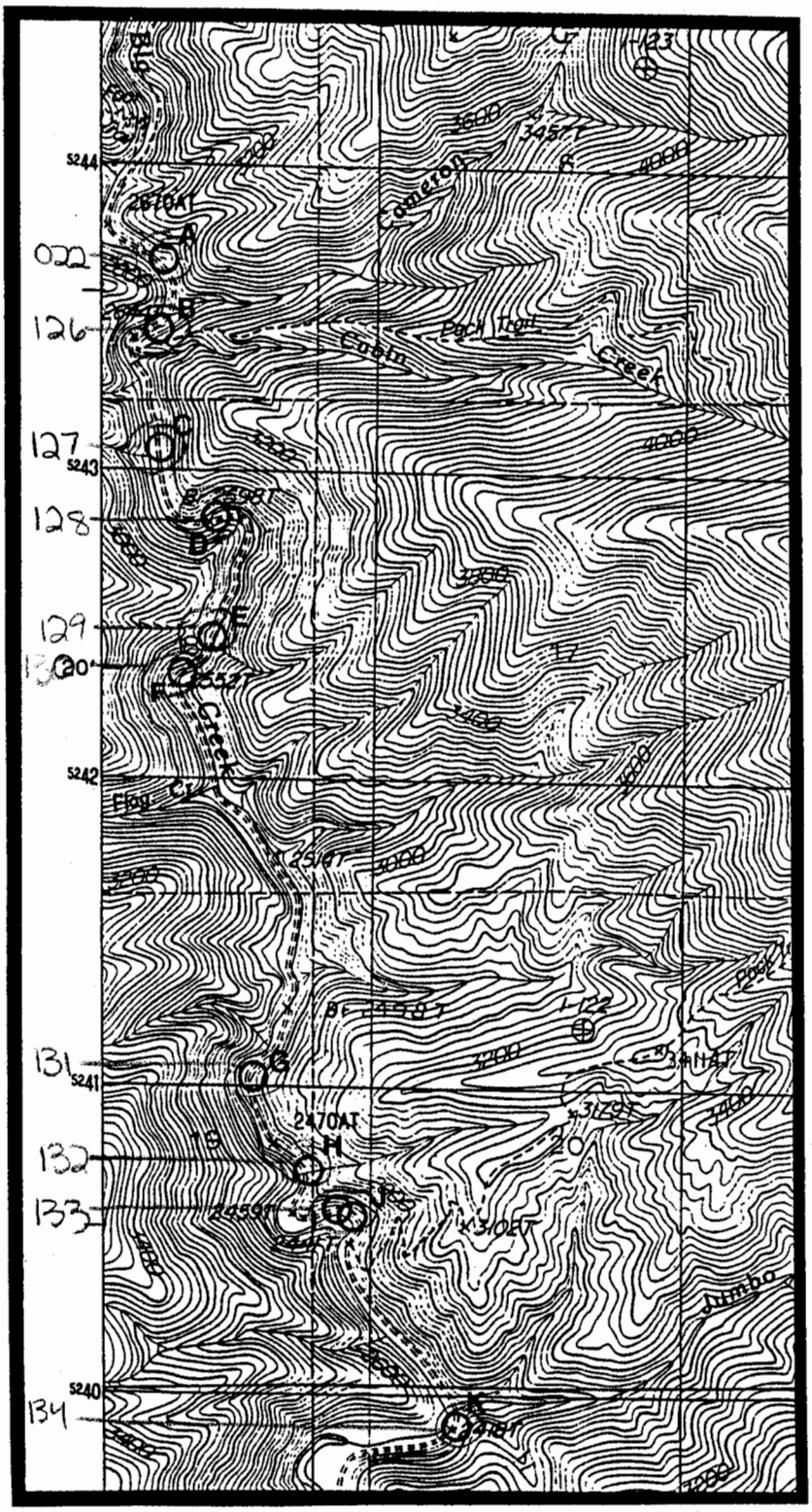


Figure 2. Marble Creek 7.5′ topo.

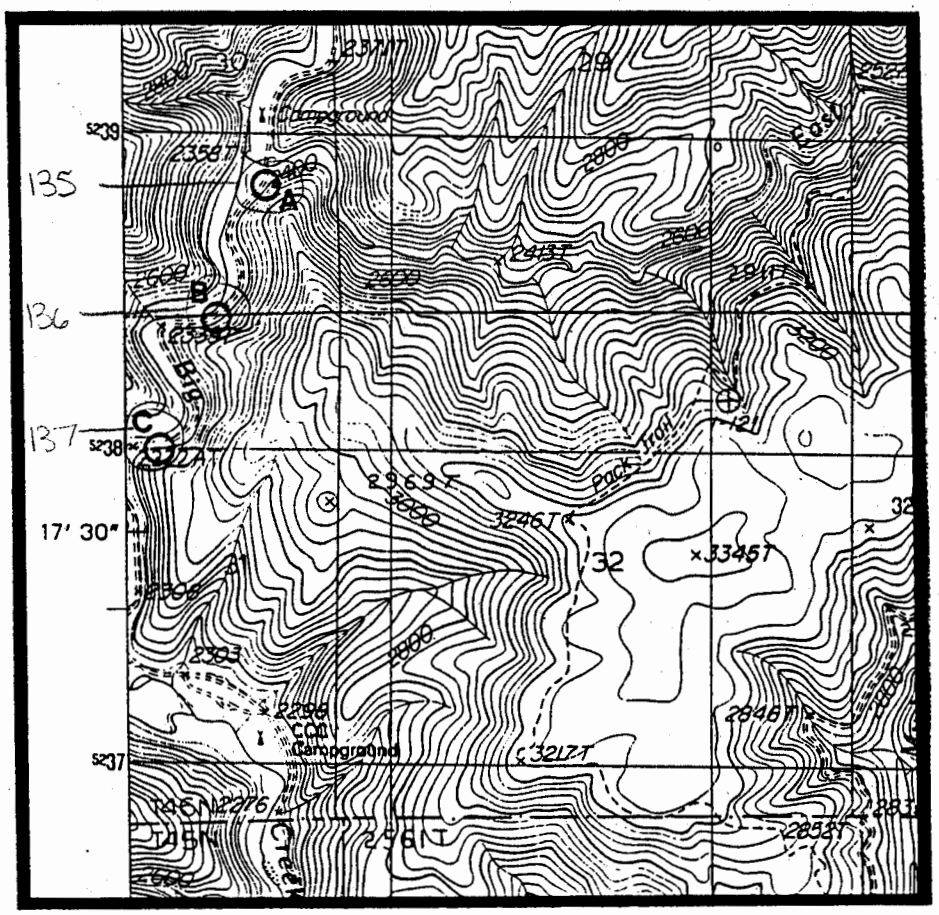


Figure 3. Marble Mountain 7.5′ topo.

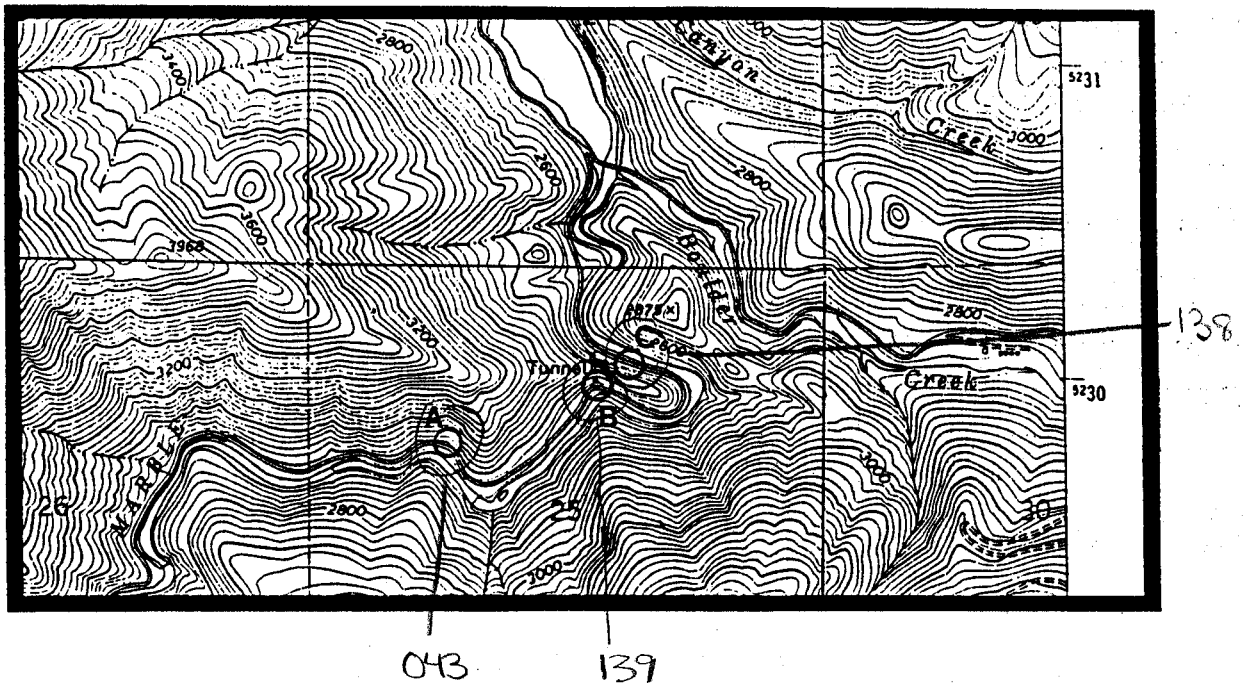


Figure 4. Hoyt Mountain 7.5′ topo.

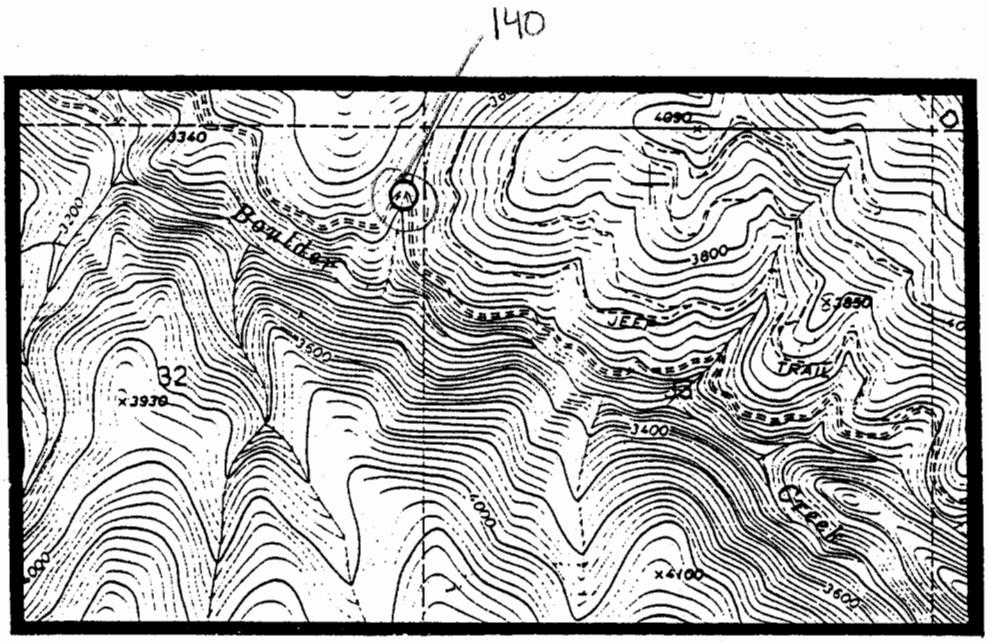


Figure 5. Marble Mountain 7.5′ topo.

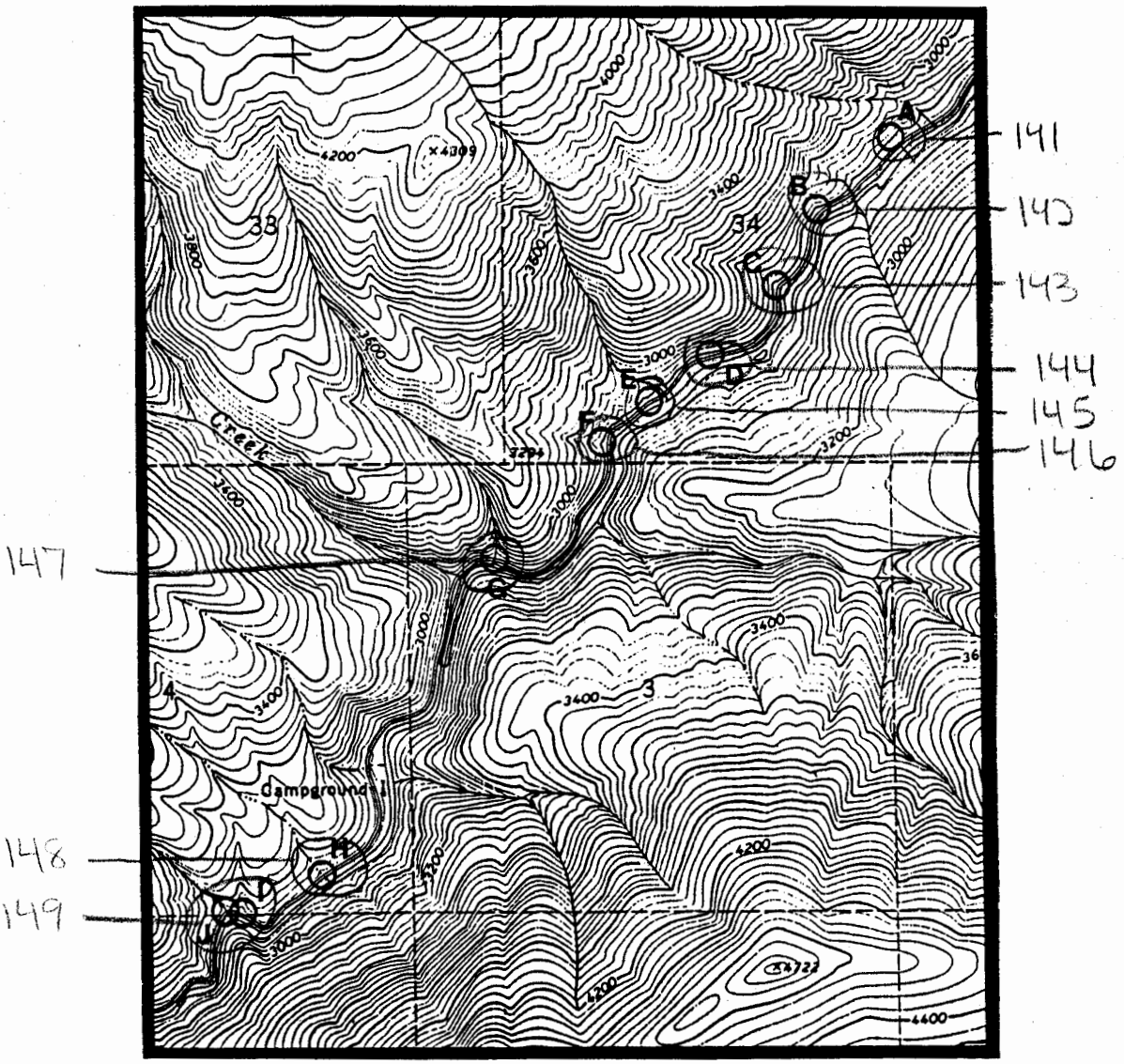
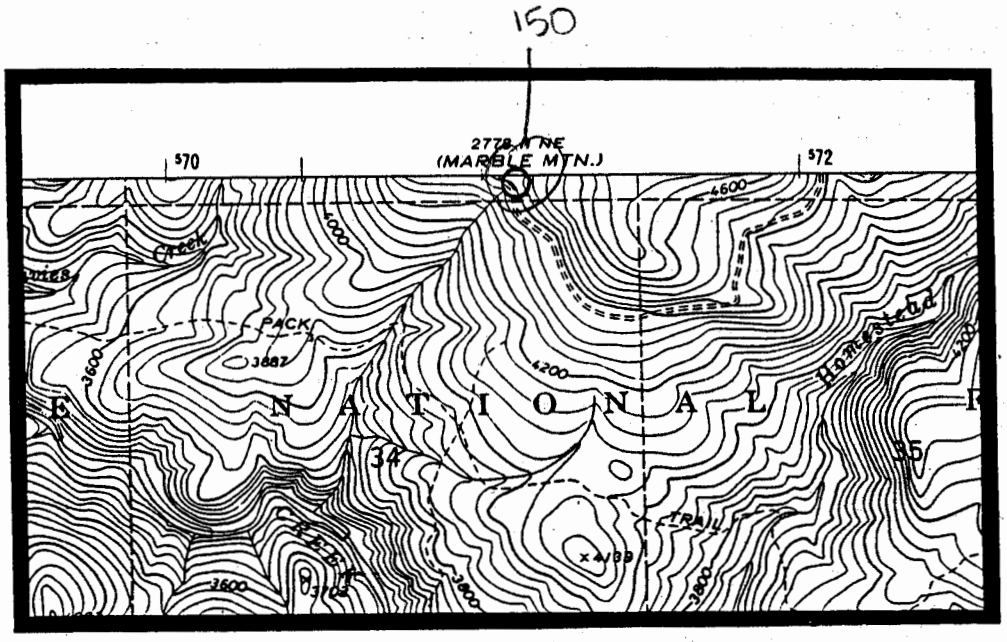


Figure 6. Grandmother Mountain 7.5′ topo.



Appendix 1. Areas searched unsuccessfully. Amphibians encountered during searches are listed.

Sandpoint Ranger District

1. FR 332; tributary of West Fork Gold Creek 1.1 mi from FR 2707.
2. West Fork Gold Creek on FR 2707.
3. FR 1078; tributary of Gold Creek 1 mi from FR 278.
4. North Fork Gold Creek on FR 278.
5. South Twin Creek on FR 278.
6. Tumbledown Creek on FR 1050.
7. FR 1050; stream 1.74 mi from FR 278.
8. FR 278; talus field 0.5 mi east of Granite Road.
9. Granite Creek on FR 278.
10. FR 203; streams 4.22 mi and 4.87 mi from South Cabinet Road.
11. Johnson Creek N of FR 278, 0.3 mi N of Johnson Creek Campground.
12. Johnson Creek on FR 1018.
13. Trestle Creek S of FR 275, near milepost 3.
14. Trestle Creek on FR 1082.
15. FR 275; 4 seepages between milepost 3 and FR 1082.
16. FR 275; 7 seepages between FR 1082 and milepost 9.
17. FR 419; talus 4.38 mi and 4.7 mi from Clark Fork Main Street.
18. FR 419; series of seepages 4.0 mi from Clark Fork Main Street.

19. FR 419; 4 seepages between Quartz Creek and Rattle Creek.
20. FR 473; seepage 0.13 mi from FR 419.
21. FR 489; stream 1.50 mi from FR 419.
22. South Fork Wellington Creek between Wellington Creek mainstem and the crossing of FR 1006A. Ascaphus truei.
23. Grouse Creek Falls.
24. Wiley Creek on FR 280.
25. Flume Creek and Grouse Creek S of FR 280.
26. FR 231; seepage 0.15 mi S of Jerry Creek.
27. Jerry Creek and Pack River E of FR 231.
28. FR 231; seepage 0.35 mi N of Jerry Creek.
29. Homestead Creek W of FR 231.
30. FR 231; seepage 1.10 mi N of Homestead Creek.
31. Zuni Creek on FR 231.
32. FR 231; stream near milepost 18.
33. Pack River on Trail 279.
34. Cocolalla Creek S of FR 630 near points 1 mi and 2 mi from FR 230.
35. Cocolalla Creek and Tributary S of FR 630, 3.30 mi from FR 230.

St. Maries Ranger District

36. FR 532; rock outcrop 0.10 mi N of Big Creek Bridge upstream from Flag Creek.
37. Cameron Creek on FR 532.
38. Cabin Creek on FR 532. Dicamptodon ensatus (atterimus).

39. FR 532; rock outcrop 0.14 mi N of Flag Creek.
40. FR 532; rock outcrop 0.50 mi S of Flag Creek.
41. FR 532; rock outcrop 0.81 mi N of FR 347.
42. FR 532; seepage 0.34 mi N of FR 347.
43. FR 321; seepage at intersection of FH 50.
44. FR 321; rock outcrops 2.35 mi and 3.60 mi from FH 50.
45. FR 321; 5 seepages 4.20 mi to 5.47 mi from FH 50.
46. FR 321; seepage 0.41 mi N of Donkey Creek.
47. FR 321; 3 seepages 0.23 mi to 1.43 mi S of Donkey Creek.
48. FR 278; seepages 1.89 mi and 2.39 mi from FR 321.
49. FR 216; stream 4.79 mi from FR 321.
50. FR 1903; stream and seepage 1.54 mi from FR 321.
51. FR 3357; stream 1.7 mi from FR 321.
52. FR 447; seepage 3.7 mi from State Highway 3.
53. FR 447; 2 streams and 3 seepages between Shorty's Dig and Strom Gulch.
54. Strom Gulch on FR 1489. Dicamptodon ensatus (atterimus).
55. FR 447; seepage at FR 1489 intersection.
56. Hidden Creek on FR 489.
57. FR 3904; 3 streams from FR 498 to 4.0 mi.
58. FR 3934; 3 rock outcrops between Latah County line and Keeler Creek.
59. FR 1491; 2 streams and 1 seepage from FR 1451 to 6.1 mi.
60. FR 1947; 4 streams between the two FR 1955 intersections.
61. FR 299; 4 streams and 1 seepage from FR 3748 to 2.91 mi.

62. Seepage on St. Maries River in Section 26, T45N, R2W.
63. St. Maries River Access Road in Section 26, T45N, R2W; stream 1.35 mi from Flat Creek Road.
64. FR 1487; 3 streams from West Fork Road to 6.50 mi.
65. FR 1487; seepage 6.06 mi from West Fork Road.
66. FR 1450; rock outcrops 0.42 mi and 1.09 mi from FR 361.
67. FR 1450; 4 streams from FR 361 mi to 1.65 mi.
68. State Highway 6; rock outcrop 0.12 mi NE of FR 377 intersection.
69. State Highway 6; 4 gulches from FR 377 intersection NE to 0.59 mi.
70. FR 396; 2 streams and 1 seepage from FR 321 to 4.90 mi.

Submitted by: Craig R. Groves

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME

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