Distribution, Relative Abundance, and Habitat Associations of Amphibians and Reptiles on Craig Mountain, Idaho

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SUMMARY

The primary goal of this project was to determine the distribution, abundance and habitat associations of the amphibian and reptile species on Craig Mountain (CM), Idaho. This study is important because little was known about the amphibian and reptile species in the Craig Mountain area and concern about the local and global decline of amphibian populations. Craig Mountain is a very good area to monitor because it contains almost 50% of the total amphibian and reptile species that occur in Idaho.

The Craig Mountain topography is characterized by a high elevation, coniferous and wet meadow "plateau" at 5100 ft. (1555 m) with steep elevational breaks down to the Snake and Salmon Rivers at 800 ft. (244 m). Because of the many habitat associations and ecological diversity of the amphibian and reptile species on the CM, we used a variety of sampling techniques. These included drift fences with pitfall and funnel traps, visual surveys of ponds and streams, road driving, visual terrestrial searches, and calling surveys.

The most important amphibian and reptile findings from the project include:

1. We found 17 species of amphibians and reptiles on CM . There were seven new Nez Perce County and six new Lewis County records.

2. Five amphibian species and five reptile species, such as the Spotted Frog and Common Garter Snake, were found to occur at the higher elevation habitat.

3. Five species of amphibians and nine species of reptiles, such as the Spadefoot and Western Rattlesnake, were found at the warmer, drier low elevation sites.

4. Spotted Frogs and Long-toed salamanders were the most abundant breeding amphibians at the upper elevation and were closely associated in breeding ponds. Spotted Frogs and Long-toed Salamanders bred in ponds with emergent vegetation. Long-toed Salamanders also bred in slow moving areas of creeks.

5. Western Toads were the most abundant breeding amphibian along the Snake and Salmon Rivers.

6. At low elevation habitat along the Snake River, populations of Spotted Frog tadpoles were found in two temporary ponds in July 1995.

7. Western Toads and Bullfrogs were the only amphibians found breeding in ponds with fish. Only adult Spotted Frog were in these ponds.

8. Amphibian and reptile species of concern include: Tailed Frog (USDI-FWS Category 2 Candidate Species for T & E Species Status, BLM sensitive species), Ringneck Snake (IDFG Species of Special Concern and BLM sensitive species), and Spotted Frog (C2 candidate species).

9. One adult and two juvenile Bullfrogs (an introduced species) were found along the Salmon River.

10. Two isolated Tailed Frog populations with many individuals were found in old-growth Grand Fir habitat with cold water and 75-90% canopy coverage.

11. The number of amphibian sites (including human-influenced ponds) has probably increased because of the building of roads through meadows and draws.

12. The information gained from this project will aid land mangers in preserving amphibian and reptile biodiversity in the Northwest. Our recommendations for future activities include:

A. Continue to survey pond and wetland sites for breeding amphibians. Also, continue monitoring the two Tailed Frog populations (Eagle and South Fork Captain John Creek).

B. Bullfrogs should be eliminated from Craig Mountain when observed. They are an introduced species that has the capability of altering native amphibian populations.

INTRODUCTION

The main objective of this project was to obtain information concerning the amphibian and reptile populations on Craig Mountain. Up until 1992 Craig Mountain has been private property, so we knew little about the distribution and relative abundance of amphibians and reptiles within this area. Information concerning the distribution, relative abundance, and habitat associations of amphibian and reptile species on Craig Mountain is important for four main reasons. First, such information is needed to properly manage amphibian populations, especially sensitive species, such as the Spotted Frog (*Rana pretiosa*), Tailed Frog (*Ascaphus truei*) and Ringneck Snake (*Diadophis punctatus*), which are found on Craig Mountain. Second, information about amphibians is important because of the decline in many populations of true frogs and true toads in western North America. Third, some amphibians are very sensitive to pollutants, and may serve as indicators of environmental quality (e.g., riparian areas) (Wake and Morowitz 1990). Finally, data gathered from this project are of value in testing and refining the Idaho Gap Analysis models for amphibian and reptiles.

The specific objectives of this study were to: (1) determine the distribution of amphibians and reptiles, (2) estimate the relative abundance of amphibians and reptiles, (3) determine the habitat associations of amphibian and reptiles, and (4) identify potential sites for long-term monitoring of amphibian populations. To accomplish these objectives, we gathered distribution, relative abundance, and habitat data using a variety of sampling techniques during the spring and summer of 1994 and 1995. We used many sampling techniques because the amphibian and reptile species there are diverse in their ecological requirements. For example,

visual surveys for pond dwelling amphibians are not the best technique for locating grassland snakes.

METHODS

Sources of information

By including information from several sources, wildlife surveys can be strengthened. To determine the distribution, relative abundance and habitat relationships of amphibians and reptiles on Craig Mountain, we utilized the following information.

1. Published accounts - We searched published literature for accounts indicating which species might have occurred on CM (e.g., Nussbaum, Brodie and Storm 1983, and Stebbins 1985).

2. Museum records - We searched the Northern Intermountain Herpetological Database at the Idaho Museum of Natural History for amphibian and reptile specimens collected from CM. This computerized database was generated from information requested from over 100 North American museums and Natural History collections. There were no museum records for Craig Mountain before the study.

3. Additional observations - We interviewed individuals familiar with Craig Mountain for their observations of amphibians and reptiles. These individuals included Idaho Department of Fish and Game (IDFG) personnel, land owners, and recreational users. We also utilized incidental observations collected in 1993 by an IDFG wildlife biologist. For IDFG personnel, we conducted workshops on identifying amphibian and reptile species to increase the accuracy of contributed observations.

4.) Field surveys - during the spring and summer of 1994 and 1995, we conducted field surveys for amphibians and reptiles on Craig Mountain. Field surveys yield the most information concerning habitat associations and animal abundances, and allow for the collection of valuable incidental and anecdotal information (e.g., observation of predation or potential hibernation sites) (Clark et al., 1993). Craig Mountain has not been previously described in literature, so field surveys were especially important.

Study Area

Craig Mountain consists of about 60,000 acres (21,900 hectares) and is located approximately 12 miles (19 km) south of Lewiston, Idaho (Figure 1). It is bordered by the Snake River and Hells' Canyon Recreational Area to the west and the Salmon River to the south (Figure 2). Craig Mountain is characterized by a high elevation "plateau" 5100 ft. (1555 m) of Grand Fir (*Abies grandis*) and Douglas

Fir (*Pseudotsuga menziesiei*) with wet meadows of *Carex* and *Juncus spp.* dispersed throughout the area. The elevation drops steeply into breaks of native and exotic grasslands and coniferous and riparian draws. The steep breaks end at the Snake and Salmon Rivers at 800 ft. (274 m), which is the lowest elevational area of CM. The riverine habitat is characterized as a rocky grassland with hills that rise to meet the basaltic cliffs and talus slopes.

Craig Mountain was purchased by the Bonneville Power Administration (BPA) in 1992 as partial mitigation for wildlife habitat losses associated with the construction of Dworshak Reservoir on the North Fork of the Clearwater River. According to agreements made between BPA, IDFG, and the Nez Perce Tribe, wildlife managers are identifying mitigation activities and developing monitoring plans to evaluate the effects of these proposed mitigation activities.

Site Selection

Survey site selections varied temporally and spatially depending on the individual sampling technique. For amphibian breeding surveys, we sampled all ponds we could locate. Streams with appropriate habitat were surveyed for Tailed Frogs. To determine other CM creeks to survey (i.e, Deer and Maloney Creek), we studied aerial photos and talked with biologists familiar with CM. Creeks with some canopy cover were given priority for surveying over open, dry or grazed creeks. The 1994 drift fence design and locations were primarily selected for trapping small mammals, so reptile success rate was low (see Cassirer 1995). But, Long-toed salamanders, Western Toads and Spotted Frogs were successfully trapped in pitfalls in the wet meadow habitats. In 1995, for our drift fence and funnel trap arrays, we chose representative lower elevation habitats (riparian and talus-grassland). Along the Salmon River, at our habitat choice was limited because traps could not be exposed for fear of vandalism. Large *Carex* wetlands were chosen for night calling surveys because of the quality of the habitat for treefrogs and road logistics. Along the upper elevation, major roads were driven for night road surveys, in conjunction with calling surveys. All drivable roads at the lower elevation habitat were sampled. In the

late spring, it was necessary to walk the Snake River Road instead of driving because the annual grasses were too high to see over. The areas chosen for the 1995 terrestrial surveys were dependent on road logistics and accessibility. Also, to survey underrepresented areas, especially the steep grassland breaks.

Sampling Techniques

The amphibian and reptile species on Craig Mountain occupy diverse ecological habitats (ponds, streams, meadows, grasslands). Because of this diversity, no single sampling technique is effective for all species. Consequently, we used a variety of techniques, including: (1) visual searches of potential breeding sites in still or slow-moving water; (2) searching streams for amphibians, especially Tailed Frogs (*Ascaphus truei*) and Idaho Giant Salamanders (*Dicamptodon aterrimus*), (3) using drift fences (with pitfall and funnel traps) and coverboards; (4) visual surveys of terrestrial and grassland reptile species in rocky and talus areas, (5) nighttime road driving; (6) calling surveys at night; and (7) incidental observations (Figures 3a and 3b).

Amphibian Breeding Site Surveys

In 1994, we surveyed 53 potential breeding sites. We were able to locate these by using personal observations, USGS topographic maps, recommendations from IDFG personnel, U.S. Fish and Wildlife Service (USFWS) National Inventory Wetland maps, and draft Idaho Gap Analysis maps for amphibians and reptiles. We defined a potential breeding site as a body of water that either had amphibians breeding, and/or dimensions of at least $1m^2$. If a feature did not have its own name, we gave it our own name

In 1995, we revisited 51 out of the 53 wetlands located in 1994, and found three additional ponds. Out of the 54 ponds, 29 are human-influenced (e.g., roads cutting through wetlands), 7 are man-made (private ponds, reservoirs, and stock ponds) and 18 are natural. Almost 80% of the 55 ponds occur at elevations ranging from to 4100 to 5100 ft. (1250 - 1555 m). For the 1994 surveys, we sampled all wetland sites a minimum of two times, at least once in the spring (April or May) and once in the summer

(June or July). The number of sampling visits per site ranged from 2 to 9 visits, with an average of three visits. All breeding site sampling occurred between 0800 and 1700 hours. For 1995 surveys, all conditions were the same except the number of visits ranged from one to three (See Appendix A).

Physical description. During the first visit to a wetland site, we recorded locality data, elevation, and a drawing of the general terrain. At the time of each sampling, we recorded the weather conditions (air temperature, wind speed, precipitation, and percent cloud cover).

Most UTM coordinates were determined from topographic maps, except for a few measured with a Trimble Basic Plus GPS receiver (Trimble, Sunnyvale, CA). We determined coordinates to within +/- 5 m about 200 readings per site, differentially corrected (base files from McCall, Idaho) and then averaged.

Water chemistry. Also, during each visit to a locality, we measured the water temperature, pH and conductivity. Water temperature was measured no more than 1 m from shore, at a depth of 1 cm for approximately two minutes using a mercury thermometer. Water pH was measured with a Phep+ pocket pH meter (Forestry Suppliers, Jackson, Mississippi) which had a resolution of 0.2 pH. Conductivity was measured using a DiSt 3 ATC pocket dissolved solid tester (range 10-1990µS, accuracy ±2%) (Forestry Suppliers, Jackson, Mississippi). Both meters were calibrated every 3 to 4 days with standardized chemical solutions. Water chemistry data for certain dates are unavailable because of some technical difficulties with the equipment.

Biological Description. During each visit to a wetland area, we recorded information concerning the dominant vegetation type(s), the percentage of emergent vegetation, evidence of grazing or other human activities, and the presence of potential predators for amphibians (e.g., snakes, fish or birds) and UTM coordinates taken at the north edge of each site. We described each site using a standard form developed by Dr. Paul Stephen Corn of the National Biological Service (Figure 4).

The principal sampling technique for amphibians consisted of timed visual searches. We walked in the water and/or along the shores of ponds, along the banks of streams, and through other

wetlands. Because adult Spotted Frogs can scare easily, we would slowly approach a pond, while looking for basking frogs along the shore. We counted the total number of egg masses found, all the individuals seen, and categorized them as adults, juveniles, recent metamorphs, or larvae. In the case of large numbers of larvae or metamorphs, we only estimated their numbers. Occasionally, tadpoles or egg masses were unidentifiable, so we allowed them to develop in captivity until identification was verified. We also listened for the advertisement calls of adult anurans during the surveys.

Stream Surveys

In 1994 we surveyed sections of five permanent streams that occur on Craig Mountain, including two streams in which fish biologists found Tailed Frogs in 1993. The streams we surveyed for amphibians included: (1) Captain John Creek- from NW of Benton Meadows south; (2) West Fork Deer Creek- from Benton Meadows to Deer Creek confluence at Larabee Meadows; (3) Eagle Creek- two sections: where the creek runs parallel with Zaza Road, and where the creek meets Eagle Creek Road, heading west for approximately 2 miles; (4) China Creek- Salmon River Rd., north for one mile; and (5) Wapshilla Creek- from Wapshilla ranch north for 1 mile. We visited these sites 1-2 times each, from May through August of 1994.

Similar to the pond surveys, we collected associated data. These data included location (UTM coordinates) and a description of physical characteristics and habitat. We recorded some of the plants and animals present, and potential amphibian predators, such as fish, snakes, and birds. We also collected weather data as we did for the amphibian pond breeding surveys.

We visually searched for amphibians by walking through the stream looking into the water and under stream banks. The South Fork of Captain John Creek and the lower section of Eagle Creek have a rocky substrate and cold water. We searched these areas for adult Tailed Frogs (*Ascaphus truei*) and their tadpoles by turning over rocks while holding a dipnet downstream from the rocks. Tadpoles were fairly easy to spot in pools. We would stop at each pool and visually estimate the number of tadpoles and

measure a few of the tadpoles. All adult Tailed Frogs were measured and counted, whereas tadpole numbers were only estimated because of their large number. Specific location of the tadpoles and adults were not recorded with a GPS unit because the dense canopy coverage limited satellite reception. However, the UTM coordinates of the beginning and ending locations of streams searched where frogs were recorded from topographic maps.

The remaining creeks on the mountain were not considered Tailed Frog habitat because of their soil substrate, canopy coverage and/or habitat characteristics. We searched these streams by walking up the middle of the creek (when possible) and listening for adult frogs jump, and looking for Long-toed Salamander or Spotted Frog egg masses and/or tadpoles.

In 1995, we surveyed reaches of lower Deer Creek, Maloney Creek, Cottonwood Creek and Corral Creek. Sampling methods were similar to the 1994 surveys (See Appendix B).

Pitfall and Funnel Trapping, Coverboards

In 1994, IDFG biologists placed drift fences with pitfall traps in five habitat types: grassland (Idaho fescue - blue bunch wheat grass), white alder riparian, wet meadow, Douglas fir, and grassland invaded by yellow-star thistle. The drift fence and pitfall traps were primarily designed for small mammals and later modified for amphibians and reptiles. There were pitfall traps at all 15 sites (3 replicates for each habitat type) and two triad trapping arrays per site. The arms of the triads began 3 m from the center of the triad, and each arm had two #10 coffee cans buried on each end that served as the pitfall trap. UTM coordinates were determined for each site with a Trimble Basic+ GPS receiver. For each site, microhabitat variables (plant species, cover, distance to water, etc.) were measured once in July. Pitfall sampling for amphibians and reptiles were conducted from April 20 - May 12, 1994, traps were checked every 2-3 days.

After closing the pitfall traps, we attached funnel traps to 10 of the 15 sites (2 replicates per 5 habitat types). Both trapping arrays at each habitat site were used. We constructed funnel traps with fine

enough hardware cloth (1/8") to prevent the escape of small snakes. One 91 x 61 cm piece of hardware cloth yields one trap body (61 x 55 cm), one funnel (41 x 36 cm) and a door (15 x 23 cm). Two additional funnels measuring 41 x 37 cm were cut from pieces of hardware cloth (91 x 37 cm). We rolled the 61 x 55 cm pieces of hardware cloth into cylinders and fastened them together with 1/8" pop rivets. The 41 x 36 cm pieces were: rolled into funnels, pop riveted together, inserted into the ends of the trap bodies, and pop riveted into place. We then cut a doorway in the top of the trap and covered the edges with duct tape to prevent cutting ourselves or harming the animals when removing them from the trap. The door was secured to the trap body with wire. Hooks with rubber bands tied to the wire held the door shut. In the future, we would use elastic hair bands because they last much longer than rubberbands. A completed trap measures approximately 95 x 17 cm, varying slightly due to variations during assembly (Jonathan Beck pers. comm.). The traps were placed on the outside or inside end of the drift fence arms (3 per array, 6 traps per site).

In 1994, sampling was conducted from May 12 - July 8. We checked the traps every 3-4 days. In June, two portable drift fences (arms constructed of black plastic silt fencing) were on a Salmon River beach and along China Creek (riparian edge habitat). Each trapping array consisted of four arms (7.5 m in length) arranged in a cross pattern. A trap was placed at the outside edge of each arm and a 19 liter bucket in the center. We sampled these arrays from June 18 to July 31, 1994. Trapping was supplemented with coverboards (2' X 4' pieces of 3/8" plywood) placed in the center of one array per site. Two additional coverboards were placed at Benton Meadows near Large Pond and two more were placed in a rocky grassland habitat near the Salmon River Road.

In 1995, we set-up six portable drift fence arrays, using the same four-arm design as described above. The six arrays were placed in two habitat types, riparian and talus rocky-grassland. Three arrays were placed along the Snake River and three on the Salmon River. The Salmon River arrays were opened May 26, closed July 23, and checked every 3-4 days. Two of the Snake River arrays were opened June 15, and the other array was opened May 24. Because capture rate was low, we temporarily closed

all 3 arrays from July 10-20. We reopened the traps on July 20, and permanently closed them on July 29. The two remaining coverboards from 1994 (Benton Meadows, Salmon River) were also checked periodically (See Appendix C).

Road Driving

In 1994, on some spring days following a rain, Llewellyn drove many of the roads on Craig Mountain. These include: Waha Road, Soldiers Meadow Road, Deer Creek Road, 540 Road, Salmon River Road and a section of the Snake River Road between the mouth of Madden Creek and Billy Creek at night to observe and record amphibians and reptiles. In 1995, road driving was only conducted on the Snake River and Salmon River Roads (See Appendix D).

Calling Surveys

During night road driving surveys, Llewellyn would also stop at wetland and pond areas to listen for calling treefrogs. This was the most effective sampling technique for this species. An acoustic monitoring system (FrogLogger) was set-up at Benton Meadows in April to record calling frogs, but the tape recorder did not function properly because of the low temperatures. A Campbell Scientific CR 10 datalogger was placed at the Large Pond in Benton Meadows to measure air, soil, and water temperatures. We did not conduct calling surveys and road driving at the upper elevation habitat in the spring of 1995, but did conduct summer road drives several times along the Salmon River Road (See Appendix D).

Terrestrial Surveys

In 1995, we conducted several terrestrial surveys in areas not sampled in 1994. In particular, the grassland breaks along the Snake River and beach habitat along the rivers. Surveys entailed walking along a road or trail visually searching for animals and turning over rocks and logs. We

documented our start and end time, and note the animals encountered. Animal measurements were taken when possible (See Appendix D for data).

Incidental Observations

We compiled all incidental observations of amphibians and reptiles on Craig Mountain for the 1993, 1994 and 1995 field seasons. Frances Cassirer collected the 1993 observations from IDFG and Nature Conservancy personnel. Contributors of the 1994 and 1995 sightings included: IDFG, Lewis and Clark State College, and Idaho State University personnel (See Appendix E).

Mapping

We used PC ARC-INFO and Arc-View 2.1 for Windows (Environmental Systems Research Institute, Inc., Redlands, CA) to generate dot-distribution maps of the CM amphibian and reptile species observed during 1994 and 1995. We also generated a map to show the location of the 55 ponds and amphibian species found breeding in them, and maps showing the location of all amphibian and reptile sightings in 1993 and 1994. To obtain coordinates for the roads on these maps, we used a 36" x 48" CalComp 9500 digitizing table (CalComp, Scottsdale, AZ) and Sigmascan software (Jandel Scientific, Inc., San Rafael, CA).

Several steps were required to prepare maps of the amphibian and reptile observations from the 1994 and 1995 field surveys. While in the field, we marked the locations of pond locations on copies of USGS 7.5 minute series topographic maps (Frye Point, Waha, Rattlesnake Ridge, Hoover Point, Limekiln Rapids, Winchester West, and Wapshilla Creek). The maps were scanned in as 16-color halftone images at 180 dpi with normal sharpening, and saved as TIFF files. The TIFF files were then imported into Corel Draw 4.0 (Corel Corporation, Ottawa, Ontario, Canada). We added the site numbers and abbreviations for the amphibian and reptile species observed, and then printed the maps with an Epson Color Stylus printer at 360 dpi.

Statistical Analysis

The Fisher's Exact Test was used to test 2 x 2 contingency tables ($\alpha = 0.05$) (Zar 1984) for Western Toads, Spotted Frogs, Long-toed Salamanders, and Pacific Treefrogs, comparing their occurrence with four variables that might affect amphibian distributions. These variables included: (1) the presence or absence of fish, (2) occurrence in non-natural versus natural ponds, (3) ponds at high and low elevation levels and (4) species co-occurring together in ponds. This statistical test was used instead of Chi-square because many of the expected frequencies were less than 5 per cell. We also analyzed the species co-occurrence for just the 43 upper elevation ponds because only one amphibian species was found breeding at 90% of the low elevation riverine ponds (See Appendix F).

RESULTS AND DISCUSSION

Visual inspection of Stebbin's (1985) range maps indicate that 21 species of amphibians and reptiles possibly occur on or around the Craig Mountain area. Out of these 21 species, we found 17 species (7 amphibians, and 10 reptiles) (Table 1). This constitutes 47% of the total number of amphibians and reptiles that occur in Idaho. Three species of amphibian and one species of reptile that occur on CM are listed as Species of Special Concern (Conservation Data Center 1994). A diverse assemblage of vegetation types, and amphibian and reptile species are supported on Craig Mountain because of the wide elevational range in topography.

Distribution

Spatial Distribution

Because of the lack of relative habitat along the steep elevational breaks, amphibians were unevenly distributed with the majority occurring at the upper elevations. Specifically the Spotted Frog and Long-toed Salamander, which mostly occurred at these higher and cooler habitats. (Fig. 5). Arc-View dot-distribution

Salamander, which mostly occurred at these higher and cooler habitats. (Fig. 5). Arc-View dot-distribution maps for the seven amphibian species are shown in Figures 6-12. These maps do not represent complete animal distributions because some areas of CM were not surveyed, but they summarize our current knowledge of distribution of amphibians on Craig Mountain and will be useful for modeling potential distributions.

Long-toed Salamanders (*Ambystoma macrodactylum*) were also found breeding above 4100 ft.(1250 m) in the cooler forest-wet meadow habitat ($P < .05$) (Table 6). They also co-occurred at 95% of these sites with Spotted Frogs (Table 4). Besides breeding in ponds, Long-toed Salamander eggs and larvae were distributed in oxbows and slow moving areas of Captain John Creek and Upper Eagle Creek (near the town of Zaza).

Some amphibian species were more limited in their distribution on CM, such as the Great Basin Spadefoot (*Spea intermontana*). In June 1994, a road-kill adult spadefoot was found along the Salmon River Road. Within the same vicinity along the Salmon River, three Bullfrogs (*Rana catesbiana*) were found in the Peninsula Pond (See Appendix A). One juvenile was found in June 1994, and one adult and juvenile in August 1995. In two heavily shaded streams on Craig Mountain, a population of Tailed-Frogs were found in each stream. One of the frog populations was observed for about a half-mile along Eagle Creek (off Eagle Creek Rd.). The other Tailed Frog population was located in a pristine area on the South Fork of Captain John Creek (off Madden Road).

The Western Toad (*Bufo boreas*) was found to be the amphibian species most diverse in its breeding requirements. Eggs and tadpoles were found in ponds along the Snake and Salmon Rivers, upper elevation ponds, and at Soldiers Meadow Reservoir. Three additional sightings of adult toads were made in 1995 along Maloney Creek, Lower Deer Creek, and Webb Creek. Also in 1995, toad tadpoles were located at the South Section 27 Pond in Lewis County. This is a new county record for Lewis County. The South Section 27 Pond is a productive permanent pond with four breeding amphibian species and two species of garter snake present.

From the 1994 calling surveys, we found that Pacific Treefrogs (*Pseudacris regilla*) occur in many of the wet meadows at the upper elevation habitat . We found eggs and tadpoles only above 3600 ft. (1096 m) but

heard calling treefrogs along the Snake River at 900 ft. (274 m). In 1995, we located 10 new treefrog breeding sites at Benton Meadows and Larabee Meadows. We found no significance for treefrogs preferring the upper elevation habitat compared to the grassland breaks and riverine habitat, but may be due to small sample size.

In 1994, Spotted Frogs (*Rana pretiosa*) were only found breeding in ponds at elevations above 4100 ft (1200 m) ($N = 23$, $P < .05$) (Table 6). In late July of 1995, while doing visual encounter surveys, two ponds with Spotted Frog tadpoles were located along the side channel of Limekiln Rapids on the Snake River. One pond had approximately 50 and the other 200 tadpoles, respectively. This sighting was not expected by us, nor predicted by Gap Analysis models. Data, pictures, and voucher specimens of the Snake River tadpoles are located at the Idaho Museum of Natural History at Idaho State University. In creeks, adult Spotted Frogs were found in Lower Deer, Eagle, Captain John, and Maloney Creek. We hypothesize that Spotted Frogs use these creeks for foraging, resting, and dispersing but not breeding because of the lack of appropriate habitat.

Because of the rocky habitat and warm temperatures, the distribution of most reptiles were closely associated with habitat below 2000 ft. (610 m) (Figure 13). Dot-distribution maps for the reptile species are shown on Figures 14-23. Racers (*Coluber constrictor*), and Gopher Snakes (*Pituophis catenifer*) were found up to 4000 ft. (1220 m) on Wapshilla Ridge and down to 800 ft. (610 m) along the rivers. The Western Terrestrial Garter Snake (*Thamnophis elegans*) was found in high elevation ponds and along the Snake and Salmon Rivers. Even though we suspect that Common Garter Snakes (*Thamnophis sirtalis*) occur along both rivers, we only found them at elevations above 3200 ft. (976 m), and closely associated with water. Rubber Boas (*Charina bottae*) were found at elevations ranging from 2440-4200 ft (744-1280 m). We also suspect that they occur along the Snake River on Craig Mountain, because of their presence directly across from Craig Mountain, on the west side of the river (personal communication, Hells Canyon National Recreation Area). In 1994, a Night Snake (*Hypsiglena torquata*) was found along the Salmon River while doing visual encounter surveys. In 1995, we located two more Night Snakes along the Salmon River. These are new records for CM and have expanded the range of this species. These sightings suggest that the Night Snake also occurs in Hells Canyon. A Ringneck Snake (*Diadophis punctatus*) was reported in 1993 by an IDFG biological technician.

The snake was sighted in a grassy talus slope along the Salmon River, but the sighting is unconfirmed. Despite our efforts, we did not locate this species in 1994 or 1995. We speculate that the Ringneck Snake occurs along the Snake River of CM because of the three sightings along on the west side of the Snake River (personal communication, Hells Canyon National Recreation Area). The west side river sightings of both the Rubber Boa and Ringneck Snake occurred at the USFS, Hells Canyon National Recreation Area station along the Oregon and Washington border of the Snake River.

Temporal Distribution

Amphibian species distribution and activity varied with time as wetland habitats changed during the spring and summer. Yearly variation of precipitation also influenced the distribution of amphibians. For example, 1995 was a wetter year than 1994, so water in the ponds remained higher, later into the summer. Usually at the upper elevation, April and May were peak months for locating amphibian egg masses and tadpoles in ponds and wetlands. June and July were peak months to find breeding amphibians at the lower elevation ponds.

Long-toed Salamanders. From what we observed, Long-toed Salamanders were the earliest amphibians to breed, with the majority of eggs being laid between April 1 to May 1 (Figure 24). In the Pullman, Washington area they have been known to breed as early as February (Paul Verrell, pers. comm.). Egg masses were found in Eagle Creek in early June 1994 (water temperature = 16°C). Larvae were found from May through July (Figure 25). Overall, adult Long-toed Salamanders were found from April 3 through May 20.

Western Toads. In 1994, all Western Toad eggs at the upper elevation sites were laid by May 6. In comparison, egg masses were found from June 16 to July 12 in the riverine ponds. In 1995, egg masses at the upper elevation were laid around the same time as 1994, but not along the river ponds. We did not observe toad tadpoles or adults along the Salmon and Snake River until the water level receded in mid-July (Figs. 26 and 27). We noticed in 1995 that within a few days of the river ponds being formed, eggs were laid or adults were observed (Fig. 28).

Pacific Treefrogs. The majority of treefrog egg masses and tadpoles were found in April and May at the upper elevation. We observed no egg masses along the riverine habitat. Adult treefrogs were observed only in April for both years surveyed (Fig. 29). No calling surveys were conducted in 1995, so all of the calling data is for 1994. Treefrogs were heard calling in early April at Benton Meadows both in 1994 and 1995, and in 1994 at Deer Creek and Kruze Meadows (Fig. 30). They were also heard calling in early June 1994 along the Snake River between Captain John and Billy Creek.

Spotted Frogs. Spotted Frogs were also early breeders on Craig Mountain (Figure 31). All egg masses were located in palustrine-type ponds from early April to early May. Adult frogs could be located throughout the spring and summer (Figure 32), and their distribution changed as the summer progressed. In June of 1994, the upper elevation temporary ponds dried up and Spotted Frogs began to concentrate at several of the permanent ponds (e.g., Robert's Spring, Large Frye Point, and Benton Meadows Large Pond). During the 1995 season, most of the temporary ponds remained full throughout June because of the increased precipitation. We observed more temporary "roadside" ponds in spring of 1995 than of 1994, so it is possible that Spotted Frogs were distributed wider on the mountain because of the increased habitat.

Reptiles - Along the lower elevation areas, reptiles could be seen more in late spring and early summer than late summer. As summer temperatures increased along the rivers and grassland breaks, reptiles became harder to locate. In contrast, we could find garter snakes and Rubber Boas in August at the upper elevation riparian areas. The air temperature during the summer in the upper elevation habitat hardly every reaches above 90° F (34° C), compared to the lower elevation riverine habitat which has been known to reach up to 115° F (46° C) (personal observation).

Relative Abundance

Long-toed Salamanders. Long-toed Salamanders (LTS) were the only salamander located, and were fairly abundant on Craig Mountain. Their abundance was tied to temporary ponds and slow moving creeks at the upper elevation habitat. In 1994, we found LTS breeding in 23 ponds and six sites in two creeks. All but

three adult salamander observations were from pitfall traps in wet meadows. Out of these three, two were found under a coverboard put out in 1993 at the Benton Meadows ponds. The other salamander was found under a log in the water at Benton Meadows Large (BML) Pond. In 1995 while doing terrestrial surveys, IDFG's non-game biologists located 19 adult salamanders between April 13, and May 8. Out of the five adult salamanders observed at the BML Pond, four were located underneath the same coverboard.

During the entire 1995 field season, 29 LTS breeding sites were found on Craig Mountain. Long-toed Salamanders bred in large quantities (>500 egg masses) at Benton Meadows Large Pond. The salamanders laid hundreds of egg masses across the barbed wire that was strung across the width of the pond. The wire increased the surface area for egg attachment. In early June of 1995 at Robert's Spring Pond, a large LTS larvae with legs was caught while dipnetting. Because this larvae was too large to have hatched in 1995, we believe that it overwintered as a larvae.

Western Toads. Adult Western Toads were more abundant along the riverine ponds than at the upper elevation ponds. On June 16, 1994, at the Peninsula Beach Pond along the Snake River, we counted 33 adult toads during peak breeding season. In 1995 at the same pond, it was not until July 23 that we located 15 adult toads during peak breeding. At the upper elevation ponds, we never saw more than five adults at one time.

Pacific Treefrogs. Pacific Treefrogs were locally abundant in the wet meadows at the upper elevation. In 1994, six breeding ponds and three adult treefrogs were observed or heard vocally during pond surveys. In 1995, a total of ten breeding ponds and 16 adults were either seen or heard at ponds. Also, at one unknown roadside pond and three known ponds, treefrog tadpoles were present that were not present in 1994. More temporary ponds were formed in 1995 because of the large amount of precipitation. Our pond surveys at Larabee Meadows and Benton Meadows suggest that treefrogs are locally common in most of the wet meadows on CM.

Spotted Frogs. The the most commonly observed amphibian species on Craig Mountain was the Spotted Frog (Figure 33). This is not to say that Spotted Frogs were the most abundant amphibian, just that we were able to observe more Spotted Frogs. In 1994, over 280 Spotted Frog adults and 23 pond breeding sites

were found at the upper elevation sites. Only adult Spotted Frogs were seen at Captain John, Deer, and Eagle Creek. In 1995, 166 Spotted Frog adults and 25 breeding sites were located. At the Channel Pond at Benton Meadows, the number of Spotted Frog egg masses was significantly less in 1995 than in 1994 (50 and 18 respectively). We cannot conclude whether this decrease was caused from a reduced number of breeding adults or environmental factors.

Reptiles. Racers were the most abundant reptile observed along the lower elevation river habitats, with Western Rattlesnakes being the second most encountered snake (Fig. 34). Western Terrestrial Garter Snakes were the most abundant snake at the higher elevation sites. Most sightings of Western Terrestrial and Common Garter snakes were in or around ponds that had *Carex* surrounding the waters edge. We also saw seven Western Terrestrial Garter Snakes while doing stream surveys along Upper Eagle Creek and South Fork Captain John Creek and along the edges of both the Snake and Salmon River. Three Night Snakes were found along the Salmon River.

Survey Technique Evaluation

The most effective survey technique for finding amphibians and reptiles was terrestrial surveys in appropriate habitat and time (Table 2). Pitfall traps in wet meadows were successful in trapping adult and juvenile Long-toed Salamanders and adult Western Toads and a couple of Spotted Frogs. The 1994 metal flashing drift fences with funnel traps only caught one Racer. This could possibly be due to trapping design. The trap placement in the five habitat types was chosen primarily for small mammals, so suitability for reptiles was questionable. We also had initial problems with trap construction. In June of 1994, two portable drift fences (Night Snake and China Ck arrays) were placed where we thought reptiles would occur, and we succeeded in catching three species of snakes and two juvenile fence lizards. The Night Snake trap array along the Salmon River beach was near a Western Toad breeding pond and caught 10 adult toads as they traveled along the beach. Calling surveys at night were most effective for hearing treefrogs in wet meadows, and night road driving turned up many Western Toads in early spring. It was possible to see adult

Western Toads while doing visual searches around ponds, but timing was critical. Within a year, it was easier to locate adult toads along the rivers than at the upper elevation ponds because of their breeding synchronization with the receding water levels and pond formation. Once the river ponds formed, toads would almost immediately begin to gather. Upper elevation ponds were more variable because there was no environmental cue by which toads would use to begin breeding. The timing from pond to pond was variable, so the chance of observing adults was not as favorable.

Coverboards were a successful technique for finding salamanders and fence lizards, if they are put in appropriate places and allowed to "season" for a year. The extra year may allow a microenvironment to be created underneath the board that new boards do not have. For example, in 1994 we placed two new coverboards at Benton Meadows, but only found salamanders under the 1993 coverboard. In 1995, salamanders were found under the coverboards put out in 1993 and 1994 at Benton Meadows.

Amphibian Habitat Relationships

Wetland Associations

During the 1994-1995 surveys, we located a total of 54 ponds on Craig Mountain (Figure 35). Topographic maps for all of the ponds showing their location and the species breeding are located in Figures 37-51. All of the ponds are above 4100 ft. (1,414 m) except for 13 that are along the Snake and Salmon Rivers. At the South Section 27 Pond and Benton Meadows Large Pond, a pair of ducks were present both summers. The S. Section 27 Pond also had several red-winged blackbirds nesting in the cattails both summers.

We classified the aquatic sites into four wetland types (riverine ponds, meadow ponds, forest ponds and streams) and graphed the number of amphibian breeding sites found for each wetland type (Figure 36). Wet meadows and forest ponds had the most diverse amphibian assemblage, with the four species of pond-dwelling amphibians breeding in them. According to the wetland classification scheme designed by Cowardin et. al., (1979), which recognizes three distinct wetland systems (i.e., palustrine, lacustrine, and riverine), the majority of the ponds were palustrine (Appendix A).

Conductivity, pH and water temperature readings were taken throughout the spring and summer in all ponds. No relationship was found to exist between amphibians choosing breeding sites and the chemical readings or the water temperature, but we noted that these readings increased as the summer progressed and water levels decreased.

Long-toed Salamanders. These salamanders typically chose ponds to breed in that had emergent vegetation or structures to attached their eggs (n=31). Only once in both years of sampling did we observe LTS eggs laid like a string of pearls in the Benton Meadows Channel Pond. We are positive of their identification because we took back several eggs and hatched them. In 1994, Long-toed Salamanders eggs were also found in four oxbows and slow moving areas of Captain John Creek and five areas in Upper Eagle Creek near the ghost town of Zaza. When we found the Eagle Creek eggs in June they were still developing. The water temperature was only 16° C and habitat was shady, with 80-95% canopy coverage. The cool environmental conditions must have slowed down larval development.

Long-toed salamanders were more likely to be found breeding in human-influenced ponds compared to natural ponds ($P < .05$) (Table 7). Natural ponds at the upper elevation habitats, were either associated with wet meadows or are attached to a creek system. These habitats did not have shallow areas and/or emergent vegetation for egg mass attachment.

Tailed Frogs Tailed frogs were found in two mountain streams (Eagle Creek and S. Fork Captain John Creek). These streams were the only streams that had a cobble substrate, high canopy coverage of Grand Fir, and cold running water. We found over 50 adults and over 100 tadpoles in Eagle Creek. We noticed that Tailed frog numbers dwindled when the substrate changed from a predominantly rocky to a substrate to a heavy gray-colored clay with few small cobbles. The South Fork of Captain John Creek also had over 100 tadpoles and over 10 adult frogs. The frog population on this creek ended at a 15 m high waterfall.

Western Toads Western Toads were the most diverse amphibian in their breeding habitat. They were the most abundant amphibian that bred in the lower elevation riverine ponds. Toads were found breeding in a natural pond that is part of a tributary of Deer Creek. Egg masses were also found in the slow

moving oxbows and shallow areas of this same creek (< 15 cm deep). The habitat is a wet, open meadow system with the vegetation mainly consisting of sedges and grasses.

In 1994, egg-masses and tadpoles were found in China Creek Mudhole Pond, a small temporary pond (1 m^2), approximately 1/4 mi. from the Salmon River. It was formed when a rut in the road filled with water when a small area of China Creek overflowed. China Creek is a tributary of the Salmon River, so it may provide a corridor for traveling toads. Egg masses were laid on the shallow mud bottom with grass and small sedges bordering the pond. In 1995, we observed no water in this pond (rut).

From our observations, toads were more likely to be found in natural ponds compared to human-influenced and man-made ponds ($P < .05$) (Table 7). This could be attributed the high number of toads breeding at the riverine ponds.

Because of water fluctuations along the Snake and Salmon Rivers, Western Toad eggs were not observed until early June and mid-July. On three occasions between June 16 and July 22, 1994 while surveying the Snake and Salmon River, we found over 20 male toads in four ponds. The males either rested quietly at the water's surface or swam vigorously toward other males. They were giving frequent bird-like twittering calls, which seemed to be in response to nearness or actual touching by another male during the breeding time (Nussbaum, Brodie and Storm 1983). Only once did we observe a pair of toads amplexing at the upper elevation ponds even though we visited these ponds more than the lower ponds.

Pacific Treefrogs We located six treefrog breeding sites in human-influenced ponds and one site in a shallow mudhole near Zaza (Culvert Pond). Adult frogs were difficult to find, but tadpoles were easily found, especially in small ponds. For 1994 and 1995, the Redbird Road Pond had a large population (>1000) of treefrog tadpoles co-occurring with Long-toed Salamanders, and Common and Western Terrestrial Garter Snakes. We found no statistical significance for treefrogs using one type of pond over the other to breed. We did hear over 10 treefrogs calling in wet meadows, but it is unknown whether they were actively breeding or not.

Spotted Frogs Spotted Frogs were found breeding in only palustrine-type ponds. These ponds ranged in diameter from 1-m^2 to approximately 100-m^2. Most of the ponds were created by human activities that include development of springs to create ponds, and damming or alteration of streams by roads and culverts (Cassirer 1995). Spotted frogs were not found breeding in ponds that either had no emergent vegetation, were populated with fish, or did not have a shallow shoreline for eggs to develop. Only adults were present in these types of habitats. A *Carex* wet-meadow system did have one egg mass but it was located closest to the road near the culvert where clean water flowed in, and cows did not have access. This meadow is heavily grazed. There is a pond in this meadow but no amphibians were found to be breeding in it. It is abundant with algae and the substrate is dark and muddy, but has the potential of being a productive pond.

In 1994, Spotted frogs were more likely to be found in human-influenced ponds than natural ponds ($P<.05$) (Table 8). In July of 1995, we located two natural ponds in the Limekiln Rapids side channel of the Snake River. Each pond had 100-300 Spotted Frog tadpoles. These two ponds are part of a series of ponds that form when the Snake River recedes, thereby creating a large side channel. As the channel recedes, it leaves ponds dispersed throughout the length. This was a surprising observation because it was not predicted by us or the Gap Analysis models. We considered the elevation too low for Spotted Frogs.

Reptile Habitat Relationships

Craig Mountain is diverse in elevation and habitat, and consequently provides habitat for many species of reptiles. The warmer low elevation habitat (i.e., grassland, columnar basalt cliffs, riparian draws, and hackberry trees) attract certain animals, whereas the upper elevation habitat (coniferous forest complex, wet meadows) attract others. Still, some species occur over the entire range of elevations. For example, with the CM reptiles, fence lizards, rattlesnakes, Night Snakes and a Ringneck Snake were observed only in the lower habitat, in comparison to Common Garter Snakes and Rubber Boas which were observed only at the upper elevation habitat. Interestingly, Racers and Gopher Snakes and Western Terrestrial Garter Snakes

were seen along Wapshilla Ridge at 5000 ft. (1524 m) down to the Snake and Salmon Rivers. Western Skinks could be found along the rivers and on talus slopes in the riparian draws of the grassland breaks around 3200 ft. (976 m). Racers were mostly observed moving in grassland-type habitats.

The individual habitats that the 10 reptile species inhabit also varied. For example, the two lizard species found on Craig Mountain were observed in different habitats. Western Fence Lizards were usually found basking on rocks or pieces of driftwood along the Salmon River beaches. In comparison, Western Skinks were more secretive and frequently found under rocks on talus slopes. A skink was also caught in a 1994 pitfall trap along Madden Creek Road, in a yellow-star thistle and balsamroot habitat.

While visually searching the Salmon River beaches we found three snake species (Night Snake, Gopher Snake and Western Rattlesnake) hiding under driftwood. On a cool, cloudy morning in June 1994 on a Salmon River beach, a Night Snake was found underneath a small piece of driftwood.

In 1995 along the Salmon River, two more Night Snakes were located. One was underneath a piece of driftwood on the beach. The habitat characteristics are the same as the previous sighting in 1994 and approximately 0.5 mile (800 m) from the 1994 sighting. The other Night Snake was caught in the funnel trap along the Salmon River. The drift fence array was located in an annual grassland and basalt talus-slope hills area, approximately 200 ft. (60 m) from the river.

In 1993, a Ringneck Snake was sighted in a rocky, brushy slope along the Salmon River Road, approximately 200 feet from the beach.

For both years of drift fence and funnel trap data in riparian areas along the lower elevation, we caught Racers, Gopher Snake Western Rattlesnakes, and fence lizards. In the drier more open habitat along the rivers we caught Racers, a Night Snake, Western Rattlesnakes, fence lizards, Gopher Snakes, and Western Toads.

Amphibians and Fish

While doing visual surveys at ponds and wetlands, we recorded the presence or absence of fish. We observed that several of the ponds at the upper elevation (Webb Creek, Soldiers Meadow, and Larabee Dam) and most of the ponds in the riverine habitat were inhabited by fish. Western Toads were the only amphibian we observed breeding in upper and lower elevation ponds with fish (Figure 52). Two non-breeding juveniles and one adult Bullfrog were also found in a small channel (Peninsula Pond) along the Salmon River that was inhabited by carp. Our statistical analysis for all ponds showed that Western Toads were more likely to be found in ponds with fish than without fish ($P < .05$) (Table 8). Previous studies (Voris and Bacon 1966), have shown that *Bufo* tadpoles may be distasteful to fish predators.

From our observations, Spotted Frogs and Long-toed Salamanders were more likely to be found breeding in ponds without fish than in ponds with fish ($P<.05$) (Table 8). At some of the aquatic sites with fish, only adult Spotted Frogs were located. These sites included: Webb Creek Pond, Larabee Dam, Eagle Creek and lower Deer Creek. We found no statistical difference in Pacific Treefrogs favoring ponds with or without fish. It is noteworthy that Spotted Frogs and Long-toed Salamanders were found breeding in the adjoining wet meadow of Larabee Dam. This area was inaccessible to fish.

Co-occurrence

Because the occurrence of one species of amphibian may influence the occurrence of other amphibian species, we examined the relationships among pond dwelling amphibian species. We calculated the number and percentage of sites at which zero to four species were detected (Clark et al. 1993). To determine the probability of finding a particular species at a specific site (based on the presence of another species), we calculated the probabilities of species co-occurrences for 1994 and 1995 (Table 3). The numbers include ponds with breeding as well as just adult amphibian sightings. For example, Table 3 indicates that if Spotted Frogs were found at a specific site, there would be a high probability (83%) of finding a Long-toed Salamander and a low probability (12%) of finding a Western Toad.

SUMMARY AND CONCLUSIONS

1. Amphibians and reptiles were unevenly distributed throughout Craig Mountain, with most amphibian species (5 out of 7) occurring at the higher elevations and most reptiles (7 out of 9) occurring at the lower elevations.

2. The Great Basin Spadefoot and Night Snake are two new records for Craig Mountain. The sightings of these species suggest that they also occur in Hells Canyon and along the lower Snake River.

3. Two temporary ponds with Spotted Frog tadpoles were located at Limekiln Rapids along the Snake River. This is a new and unexpected observation because of the low elevation and the habitat type.

4. The peak amphibian breeding months at the upper elevation aquatic sites occur in April and May. Peak breeding at the low riverine ponds occur in June and July.

5. Long-toed Salamanders were the most abundant breeding amphibian and Western Terrestrial Garter Snakes the most abundant reptile at high elevation sites. Western Toads were the most common amphibian and Racers the most common reptile at the low elevation.

6. Out of all of the survey techniques employed in 1994 and 1995, visual searches were the most successful technique in detecting most amphibians and reptiles.

7. Western Toads were the most widespread breeding amphibian within the elevation levels and within wetland-types.

8. Western Toads were also the only pond dwelling amphibian found breeding with fish.

Future Monitoring and Management Recommendations

Craig Mountain is a large and diverse habitat full of wet meadows dispersed throughout the open forest. Many species of amphibians of reptiles occur in this area, some of them sensitive or species of special concern. To better understand species distributions and habitat requirements more thoroughly, it will be important to gather long-term data. Long-term monitoring and surveys are the main tools we have for assuring the existence of amphibians and reptiles in the future.

1.) Monitoring the Bullfrog population along the Salmon River will be important because it is an exotic species and a predator on native amphibians. The current population of Bullfrogs on CM may be low enough that with continual monitoring, expansion of the population could be curtailed. In addition, an unlimited bag limit on hunting Bullfrogs might also help control the population.

2.) Do not introduce fish into ponds that are important breeding grounds for amphibians (i.e., Robert's Spring). Fish introductions have been correlated with the extermination of native amphibians in the Northwest. Spotted Frogs, Long-toed Salamanders, and Pacific Treefrogs were found breeding in 1994 and 1995 in Robert's Spring. If fish are introduced into this pond, these species will most likely disappear because of their vulnerability to predation by fish..

One alternative would be to create adjacent wetlands that are shallow enough for amphibians to breed in, but fish cannot access. An example is Larabee Dam and its adjacent wetland (Dam-1 pond). In this pond, Spotted Frogs and Long-toed Salamanders were successful in breeding because the fish in Larabee Dam could not get to this small pond. The *Carex* was dense enough and water level low enough that fish were excluded.

3.) Monitor the Western Toad population in the upper elevation ponds. Upper elevation ponds could be vulnerable to environmental or anthropogenic changes. The monitoring would be done in conjunction with the yearly amphibian breeding surveys.

4.) Due to the time constraints and large study area, it would be impossible to survey all of the upper of the upper elevation ponds every spring. There are approximately 44 ponds along the upper elevation area These could be broken up into three groups and surveys rotated every year. Ideally, surveys should be conducted at least once a week from April 1 through May 15.

5.) Protect the isolated populations of Tailed Frogs, especially South Fork of Caption John Creek. Because this population is isolated, recolonization would be unlikely. In addition, it would be beneficial to restrict activities that have the capability of altering the habitat (i.e., increase siltation, nutrients, and water temperature), and reducing habitat quality for Tailed Frogs.

6.) If any future stream surveys are conducted, document any new Tailed Frog or Idaho Giant Salamander sighting. The more information we have on the status of Tailed Frogs on Craig Mountain, the better we can manage this former C2 species.

7.) Grazing does not seem to be a large concern for the health of most of the ponds. There is one privately owned meadow that has the potential to be good amphibian breeding habitat, but cows actively graze the meadow and cause the water in the pond to be polluted. A potential project to see would be to fence off the pond to cows and document the recolonization of breeding amphibians. Adult Spotted Frogs have been seen in the adjacent wet meadows, but appropriate habitat is lacking.

8) Sightings of Night Snakes, a Ringneck Snake, and a Great Basin Spadefoot Toad were first time observations on CM. Therefore, it will be important to document any additional sightings of these rare species.

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TABLES

COMMON NAME	SCIENTIFIC NAME	STATUS	ELEVATION	DISTRIBUTION	ESTIMATED ABUNDANCE	VOUCHER	SUCCESSFUL SAMPLING TECHNIQUES *
Present							
Long-toed Salamander	*Ambystoma macrodactylum*		Upper	Widespread	Abundant	specimen, photo	search,pitfall, coverboard
Tailed Frog	*Ascaphus truei*	C2	Upper	Limited	Abundant	specimen, photo	search, incidental
Western Toad	*Bufo boreas*	SSC C, BLM S	Upper & Lower	Widespread	Abundant	specimen, photo	search, night driving, pitfall, funnel, incidental
Great Basin Spadefoot	*Spea intermontana*		Lower	Limited	Rare	specimen	incidental
Pacific Treefrog	*Pseudacris regilla*		Upper & Lower	Widespread	Common	specimen, photo	calling, search
Bullfrog	*Rana catesbiana*		Lower	Limited	Rare	specimen	search
Spotted Frog	*Rana pretiosa*	C2, BLM S	Upper & Lower	Widespread	Abundant	specimen, photo	search, incidental, pitfall
Western Fence Lizard	*Sceloporus occidentalis*		Lower	Widespread	Common	specimen, photo	search, incidental, funnel, coverboard
Western Skink	*Eumeces skiltonianus*		Upper & Lower	Limited	Uncommon	specimen, photo	search, pitfall
Rubber Boa	*Charina bottae*		Upper	Limited	Uncommon	photo	night driving
Racer	*Coluber constrictor*		Upper &Lower	Widespread	Common	specimen, photo	search, incidental, funnel
Ringneck Snake	*Diadophis punctatus*	SSC C, BLM S	Lower	Limited	Rare	observation	incidental
Night Snake	*Hypsiglena torquata*		Lower	Limited	Uncommon	specimen, photo	search, funnel
Gopher Snake	*Pituophis catenifer*		Upper & Lower	Widespread	Common	photo	search, incidental, funnel
Western Terrestrial Garter Snake	*Thamnophis elegans*		Upper & Lower	Widespread	Common	specimen, photo	search, incidental
Common Garter Snake	*Thamnophis sirtalis*		Upper	Widespread	Uncommon	specimen, photo	search
Western Rattlesnake	*Crotalus viridis*		Lower	Widespread	Common	photo	search, incidental, funnel
Possible							
Idaho Giant Salamander	*Dicamptodon aterrimus*						* Ranked from high to low success
Woodhouse's Toad	*Bufo woodhousei*						
Painted Turtle	*Chrysemys picta*						
Short-horned Lizard	*Phrynosoma douglassii*						

IDFG Species of Special Concern
- SSC A = Priority Species
- SSC B = Peripheral Species
- SSC C = Undetermined Status Species

C2 = USDI USFWS Category 2 Candidate Species for T & E Species Status

BLM = USDI Bureau of Land Mangement
- S = Sensitive Species

Upper elevation = above 2500 ft.
Lower elevation = below 2500 ft.

Widespread = >10 sites
Limited = < 10 sites

Abundant = > 30 animals found
Common = between 6-30 animals found
Uncommon = < 6 animals found
Rare = Only 1 animal found

Table 1. Species checklist for Craig Mountain

Amphibians and Reptiles Observed by Sampling Technique

Amphibians

SAMPLING TECHNIQUE	AMMA	ASTR	BUBO	SPIN	PSRE	RACA	RAPR
Breeding Surveys	10, 19	0	92, 50	1, 0	3, 4	1, 2	270, 160
Incidental Observ.	2, 0	0	31, 2	0	1, 0	0	4, 3
Pitfall Traps (1994)	30, 0	0	3, 0	0	0	0	3, 0
Funnel Traps	1, 0	0	8, 5	0	0	0	0
Road Driving-night	0, 0	0	15, 4	0	0	0	0
Stream Surveys	2, 3	50, 0	1, 1	0	0	0	2, 3
Calling Surveys (1994)	0	0	0	0	>19	0	1
TOTAL (1994, 1995)	45, 22	50, 0	150, 62	1, 0	23, 4	1, 2	280, 166

Reptiles

SAMPLING TECHNIQUE	SCOC	EUSK	CHBO	COCO	HYTO	PICA	THEL	THSI	CRVI
Breeding Surveys	0	0	0	0	0	0	49, 10	6, 3	0
Incidental Observ.	13, 10	12, 0	0, 4	25, 7	1, 2	14, 1	17, 8	1, 1	14, 3
Pitfall Traps (1994)	0	1	0	0	0	0	0	0	0
Funnel Traps	2, 6	0	0	4, 13	0, 1	1, 2	0	0	2, 1
Road Driving-night	0	0	3, 0	5, 0	0	0	0	0	2, 0
Stream Surveys	0	0	0	0	0	0	3, 0	0	0
Calling Surveys	0	0	0	0	0	0	0	0	0
TOTAL (1994, 1995)	15, 16	13, 0	3, 4	34, 20	1, 3	15, 3	69, 18	7, 4	18, 4

Table 2. Number of adult amphibian and reptile species detected from the 1994 and 1995 surveys. One unconfirmed sighting of a Ringneck Snake was reported in 1993 .

1994 Amphibian Co-occurrence Table

Species	Spotted Frog	Long-toed Salamander	Western Toad	Chorus Frog
Spotted Frog [23]	X	0.91 (21/23)	0.17 (4/23)	0.22 (5/23)
Long-toed Salamander [23]	0.91 (21/23)	X	0.09 (2/23)	0.17 (4/23)
Western Toad [16]	0.25 (4/16)	0.13 (2/16)	X	0.13 (2/16)
Pacific Treefrog [9]	0.56 (5/9)	0.44 (4/9)	0.22 (2/9)	X

1995 Amphibian Co-occurrence Table

Species	Spotted Frog	Long-toed Salamander	Western Toad	Pacific Treefrog
Spotted Frog [31]	X	0.76 (25/31)	0.13 (4/31)	0.39 (12/31)
Long-toed Salamander [28]	0.86 (24/28)	X	0.04 (1/28)	0.04 (1/28)
Western Toad [13]	0.31 (4/13)	0.08 (2/13)	X	0.08 (1/13)
Pacific Treefrog [13]	0.92 (12/13)	0.85 (11/13)	0.08 (1/13)	X

Table 3. This table represents the probability of species co-occurrence based on results from the 1994 and 1995 surveys. Numbers in parentheses in the row headings indicate the total number of sites where that particular species occurred. Reading across the rows, the numbers in the individual cells represent the probability of co-occurrence between two species based on the number of sites where the species in that row occurs.

Amphibian Species Interactions	Western Toad and LT Salamander	Western Toad and Pacific Treefrog	Western Toad and Spotted Frog
1994 N= 43 ponds, .05, df= 1	P = 0.0165 Negative correlation	P =1.00 No significance	P = 0.7041 No significance
1995 N= 55 ponds, .05, df=1	P = 0.3364 No significance	P = 0.6233 No significance	P = 0.1441 No signifcance

Table 4. Fisher's Exact Test, summary of 2x2 contingency tables of 1994 and 1995 data showing the association of amphibian species co-occurring in ponds. (See Appendix F for full contingency tables.)

Amphibian Species Interactions	LT Salamander and Pacific Treefrog	LT Salamander and Spotted Frog	Pacific Treefrog and Spotted Frog
1994 N= 53 ponds, .05, df = 1	P = 1.00 No significance	P = 0.00005 positive correlation	P = 0.1417 No significance
1995 N= 55 ponds, .05, df= 1	P = 0.0151 positive correlation	P = 0.0005 positive correlation	P = 0.0683 No significance

Table 5. Fisher's Exact Test, summary of 2x2 contingency tables of 1994 and 1995 data showing the association of amphibian species their co-occurrence in ponds. (See Appendix F for full contingency tables)

Natural vs human-influenced ponds	**Long-toed Salamander** (n = 23, 28)	**Western Toad** (n = 16, 13)	**Pacific Treefrog** (n = 9, 13)	**Spotted Frog** (n = 23, 31)
1994 N= 53 ponds, 0.05, df= 1	P = 0.0328 prefers h-influenced	P = 0.0023 prefers natural	P = 1.00 No significance	P = 0.0328 prefers h-influenced
1995 N= 55 ponds, 0.05, df=1	P = 0.0001 prefers h-influenced	P = 0.0014 prefers natural	P = 0.3026 No significance	P = 0.0014 prefers h-influenced

Table 6. Fisher's Exact Test, summary of 2x2 contingency tables from 1994 and 1995 data. This table shows the association of amphibian species and their occurrence at natural vs human-influenced ponds. (See Appendix F for full contingency tables).

Upper vs Lower elevation ponds	**Long-toed Salamander** (n = 23, 28)	**Western Toad** (n = 16, 13)	**Pacific Treefrog** (n = 9, 13)	**Spotted Frog** (n = 23, 31)
1994 N= 53 ponds, .05, df = 1	P = 0.0029 prefers upper ponds	P = 0.00002 prefers lower ponds	P = 0.1805 No significance	P = 0.0029 prefers upper ponds
1995 N= 55 ponds, .05, df= 1	P = 0.001 prefers upper ponds	P = 0.0001 prefers lower ponds	P = 0.0924 No significance	P = 0.0063 prefers upper ponds

Table 7. Fisher's Exact Test, summary of 2x2 contingency tables from 1994 and 1995 data. This table shows the association of amphibian species and their occurrence at Upper vs Lower elevation ponds. (See Appendix F for full tables.)

Ponds with and without fish	Long-toed Salamander (n = 23, 28)	Western Toad (n = 16, 13)	Pacific Treefrog (n = 9, 13)	Spotted Frog (n = 23, 31)
1994 N= 53 ponds, .05, df = 1	P = 0.0002 negative correlation	P = 0.00008 positive correlation	P = 0.0924 No significance	P = 0.0252 negative correlation
1995 N= 55 ponds, .05, df= 1	P = 0.000005 negative correlation	P = 0.000008 positive correlation	P = 0.0245 No significance	P = 0.0004 negative correlation

Table 8. Fisher's Exact Test, summary of 2x2 contingency tables of 1994 and 1995 data showing the association of amphibian species co-occurring in ponds with and without warm water fish. (See Appendix F for full contingency tables.)

FIGURES

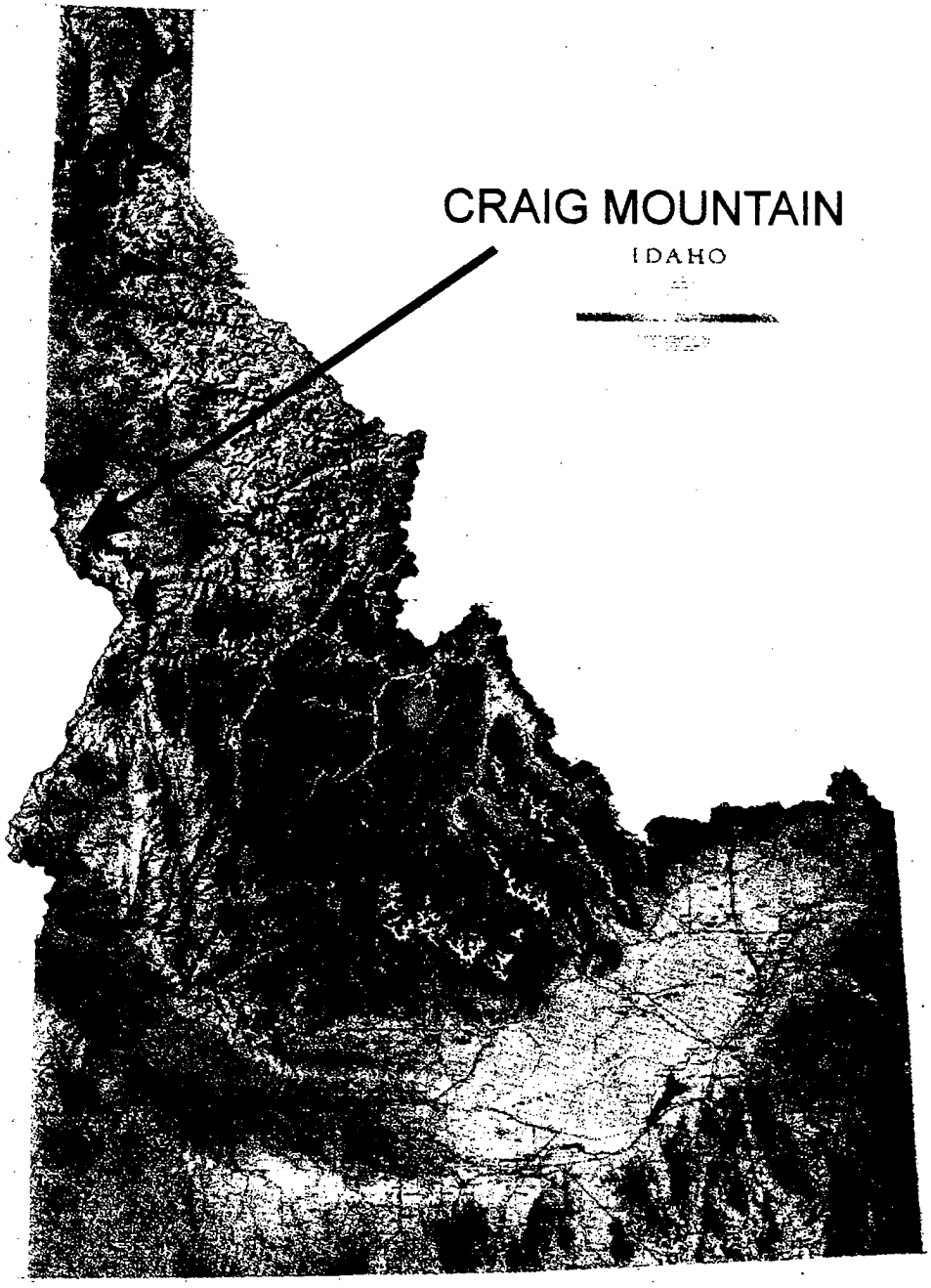


Figure 1. Map of Idaho (Idaho Atlas and Gazetteer 1992)

Craig Mountain, Idaho

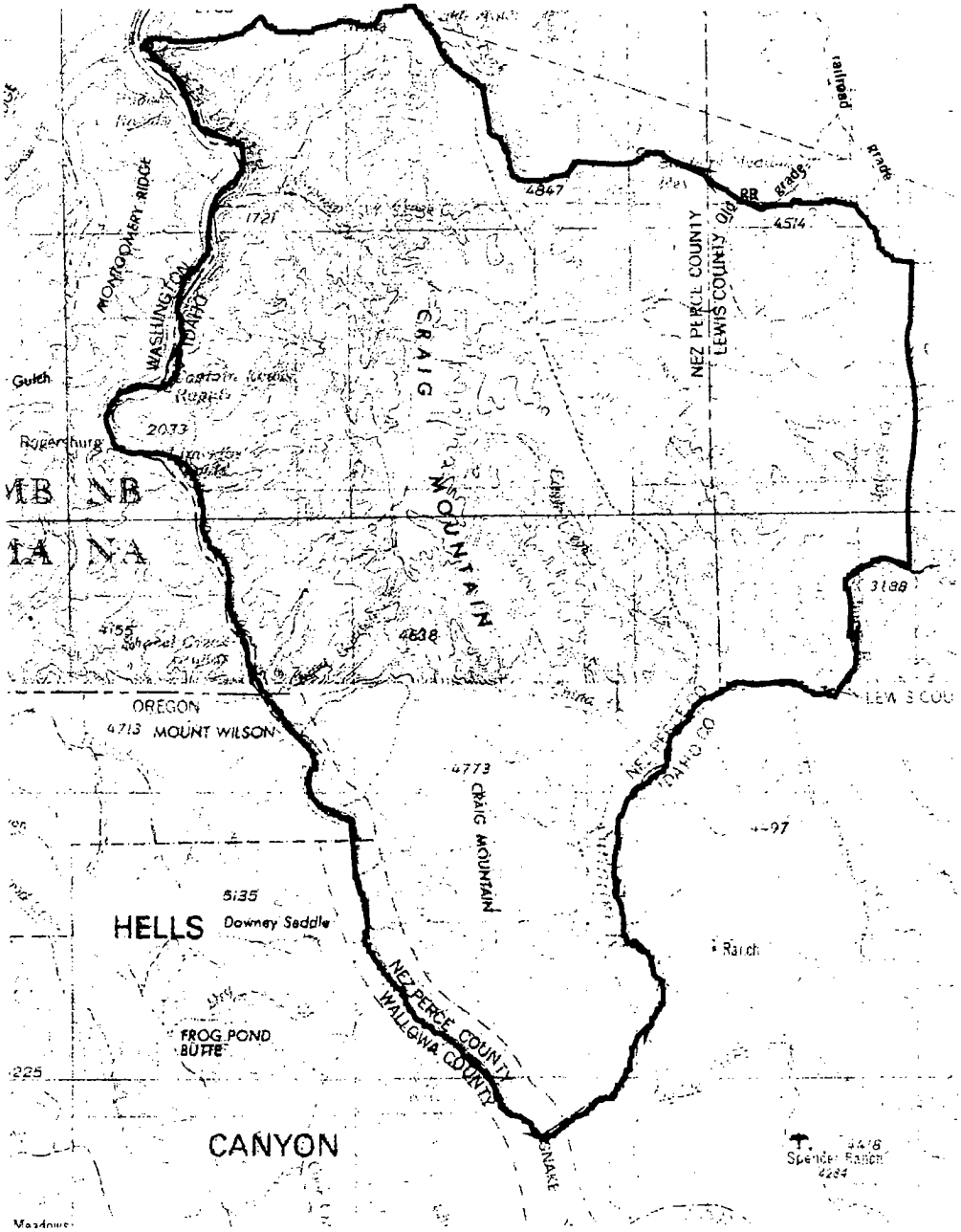


Figure 2. Map of Craig Mountain at a 1:250,000 inch scale. USGS Grangeville and Pullman quadrangle maps, revised 1979.

Incidental Observation Sites

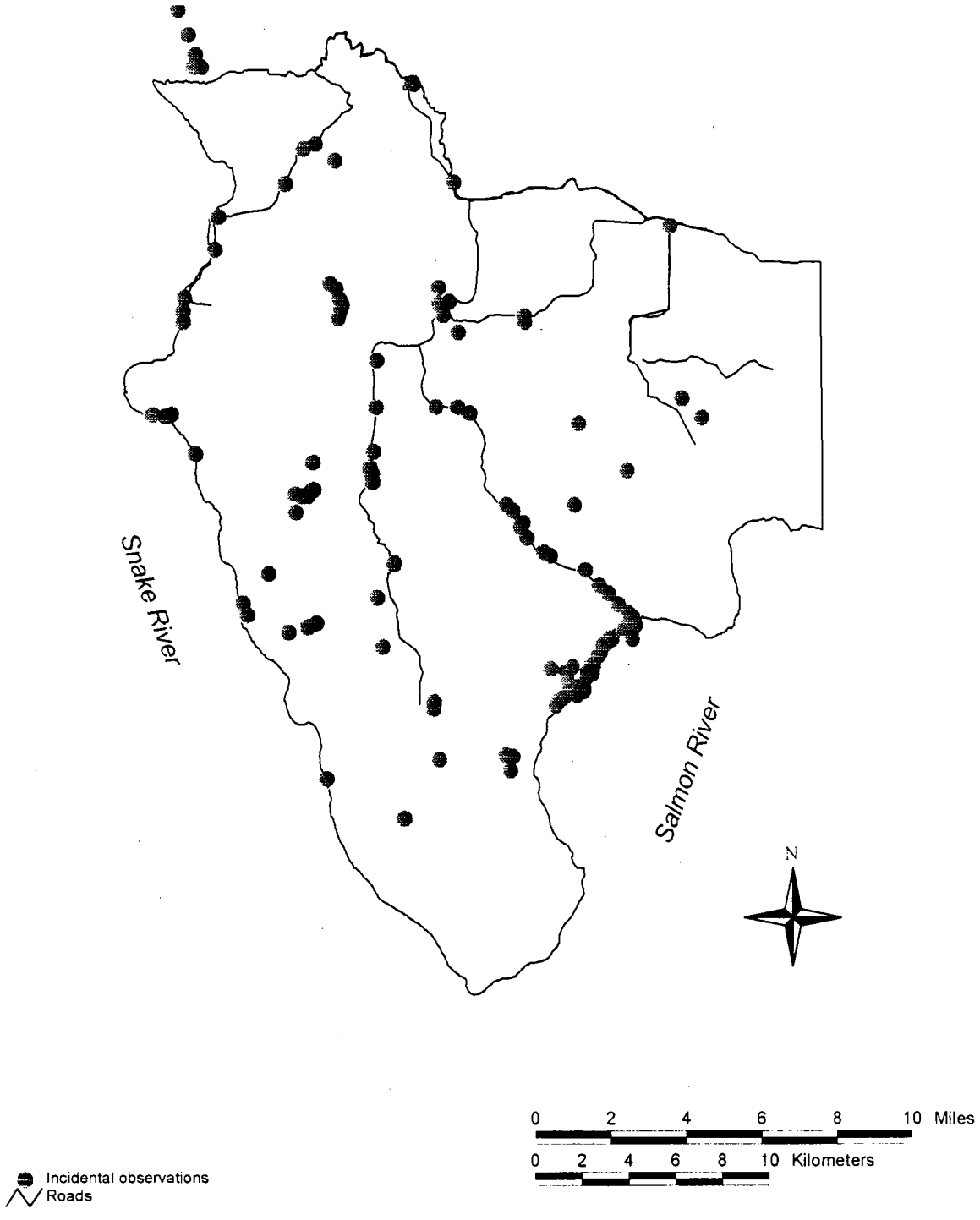


Figure 3b. Map showing the 153 incidental observation sites gathered from the 1993, 1994, and 1995 data.

Incidental Observation Sites

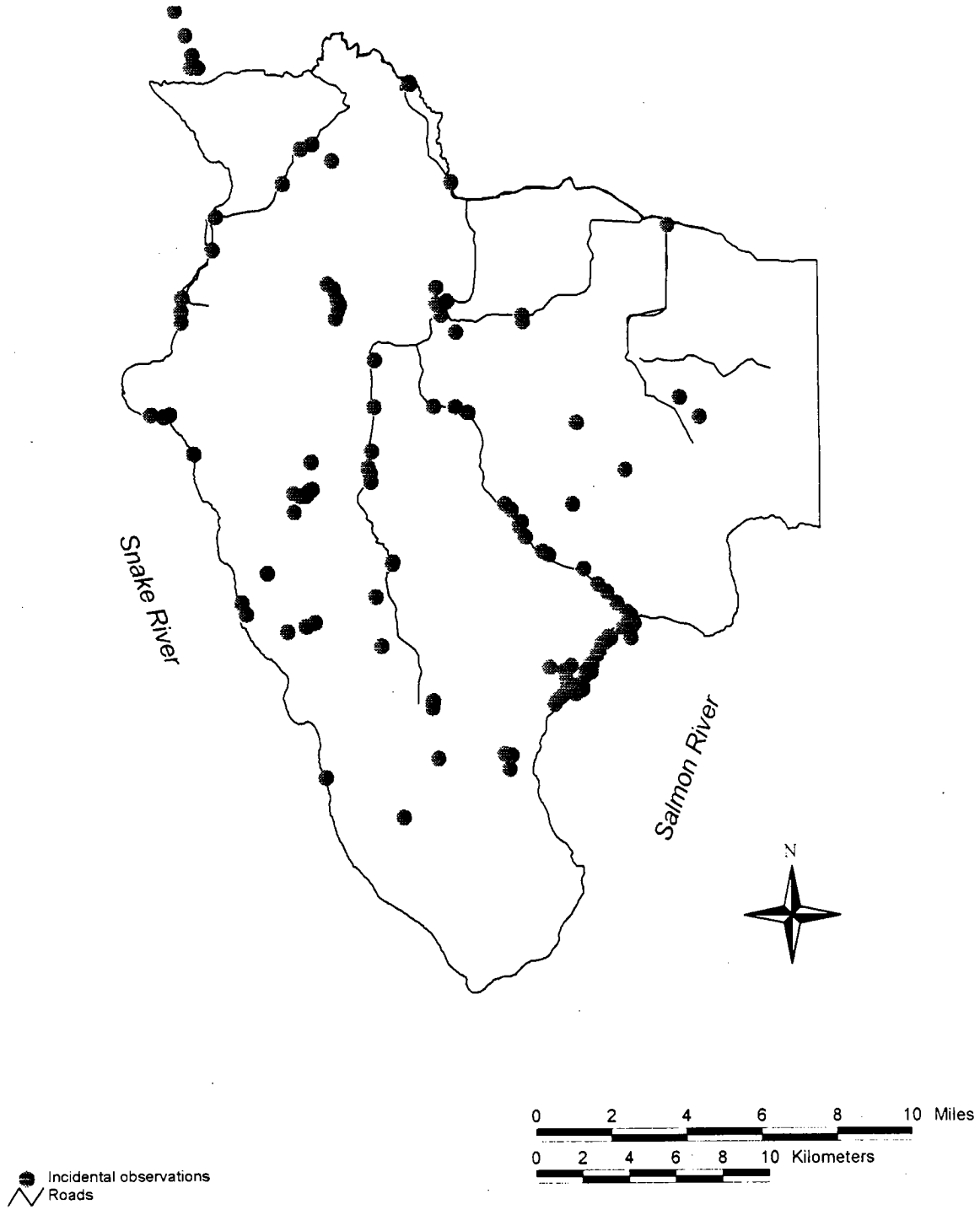


Figure 3b. Map showing the 153 incidental observation sites gathered from the 1993, 1994, and 1995 data.

AMPHIBIAN SURVEY DATA SHEET - US FISH & WILDLIFE SERVICE, 4512 McMURRY AVE, FT. COLLINS, CO 80525-3400

(ver. 2/7/92)

DATE	BEGIN TIME	END TIME	OBSERVERS

LOCALITY

STATE	COUNTY	MAP NAME	OWNER	ELEVATION (circle scale) M FT

T	R	S	SECTION DESCRIPTION	UTM ZONE	NORTHING (or LAT)	EASTING (or LON)

AMPHIBIAN AND/OR GARTER SNAKE SPECIES PRESENT (INDICATE NUMBERS IN CATEGORIES IF POSSIBLE)

CIRCLE METHOD AND INDICATE IF VOUCHER SPECIMEN WAS COLLECTED

SPECIES	ADULTS/JUVENILES	CALLING?	TADPOLES/LARVAE	EGG MASSES	METHOD(S)
		Y N			VISUAL/AURAL ID DIP NET/SEINE HAND COLLECTED TRAPPED VOUCHER COLLECTED? YES NO
		Y N			VISUAL/AURAL ID DIP NET/SEINE HAND COLLECTED TRAPPED VOUCHER COLLECTED? YES NO
		Y N			VISUAL/AURAL ID DIP NET/SEINE HAND COLLECTED TRAPPED VOUCHER COLLECTED? YES NO
		Y N			VISUAL/AURAL ID DIP NET/SEINE HAND COLLECTED TRAPPED VOUCHER COLLECTED? YES NO
		Y N			VISUAL/AURAL ID DIP NET/SEINE HAND COLLECTED TRAPPED VOUCHER COLLECTED? YES NO

FISH PRESENT? YES ??? NO	FISH SPECIES:		
ENTIRE SITE SEARCHED? YES NO	IF NO, INDICATE AREA	METERS OF SHORELINE / M² OF HABITAT	

PHYSICAL AND CHEMICAL ENVIRONMENT (CHEMISTRY VARIABLES OPTIONAL - USE EXTRA SPACES FOR ADDITIONAL MEASUREMENTS)

WEATHER: CLEAR	OVERCAST	RAIN	SNOW	WIND: CALM	LIGHT	STRONG

AIR TEMP °C °F (circle scale)	WATER TEMP °C °F (circle scale)	COLOR: CLEAR	STAINED	TURBIDITY: CLEAR	CLOUDY

pH	ANC			

SITE DESCRIPTIONS - (SKETCH SITE AND PUT ADDITIONAL COMMENTS ON BACK OF SHEET)
OMIT THIS SECTION IF DATA HAVE BEEN COLLECTED ON A PREVIOUS VISIT

ORIGIN: NATURAL	MAN-MADE	DRAINAGE: PERMANENT	OCCASIONAL	NONE

DESCRIPTION: PERMANENT LAKE/POND	TEMPORARY LAKE/POND	MARSH/BOG	STREAM	SPRING/SEEP	ACTIVE BEAVER POND	INACTIVE BEAVER POND

SITE LENGTH (M)	SITE WIDTH (M)	MAXIMUM DEPTH:	< 1 M	1 - 2 M	> 2 M

STREAM ORDER	1	2	3	4	5 +

PRIMARY SUBSTRATE:	SILT/MUD	SAND/GRAVEL	COBBLE	BOULDER/BEDROCK	OTHER

% OF POND LAKE MARGIN WITH EMERGENT VEGETATION:	0	1 - 25	25 - 50	> 50

EMERGENT VEGETATION SPECIES (LIST IN ORDER OF ABUNDANCE)				

NORTH SHORELINE CHARACTERS:	SHALLOWS PRESENT	SHALLOWS ABSENT	EMERGENT VEG PRESENT	EMERGENT VEG ABSENT

DISTANCE (M) TO FOREST EDGE	FOREST TREE SPECIES:			

Figure 4.

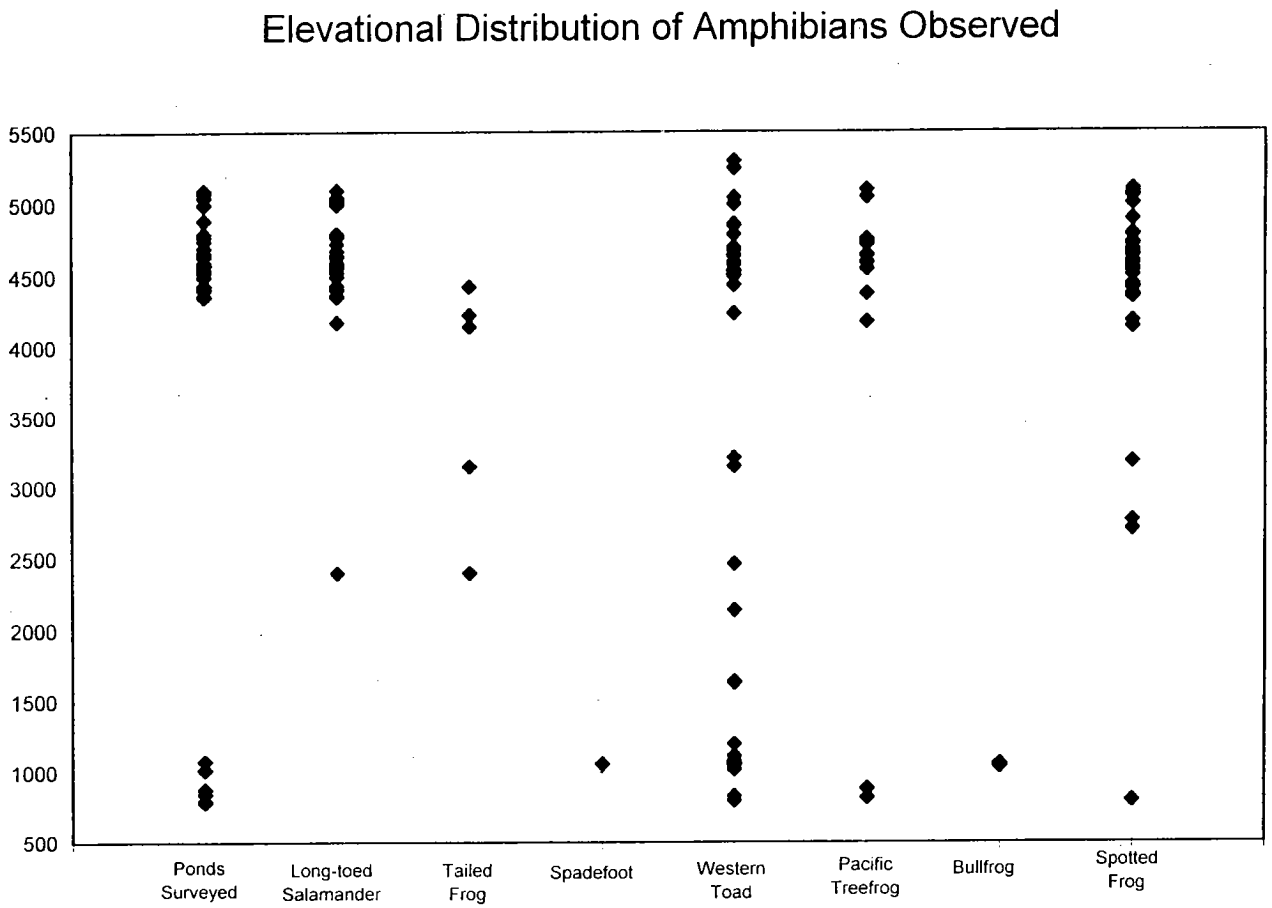


Figure 5. Elevational distribution of amphibians that we located on Craig Mountain in 1993, 1994, and 1995.

Long-toed Salamander

Ambystoma macrodactylum

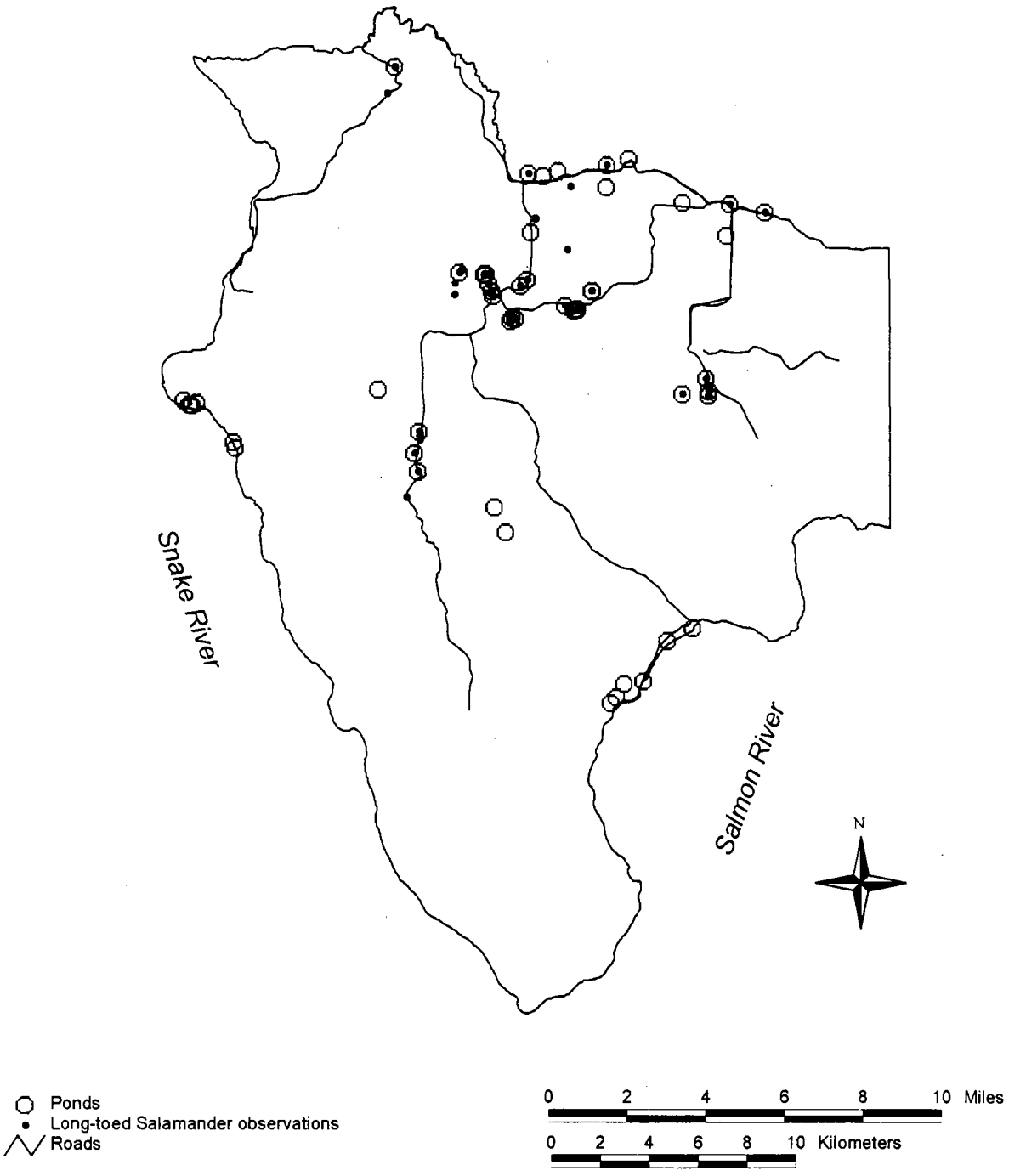


Figure 6. Long-toed Salamander dot-distribution map (surveys and incidental observations).

Tailed Frog

Ascaphus truei

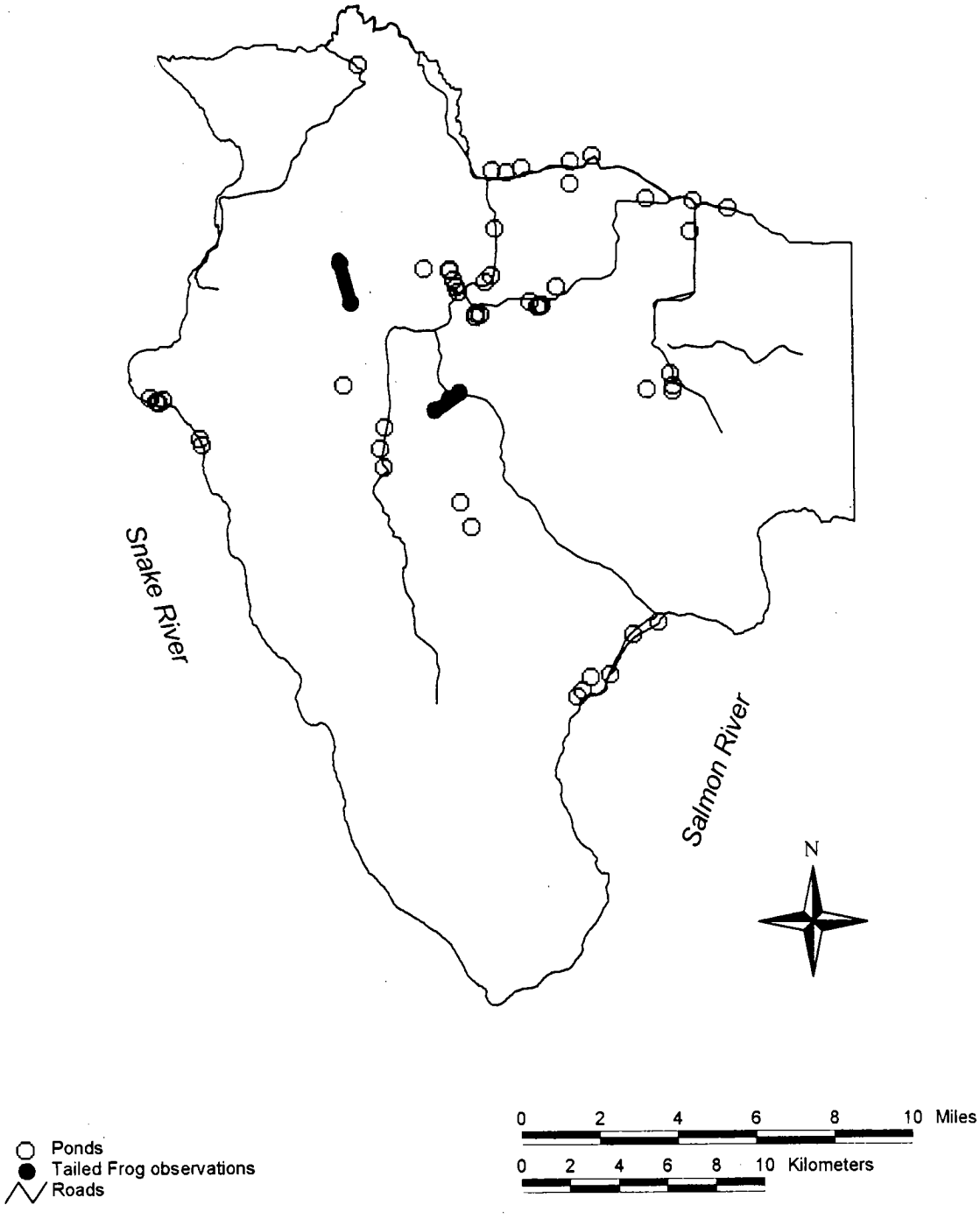


Figure 7. Tailed Frog dot-distribution map (surveys and incidental observations).

Spadefoot

Spea intermontana

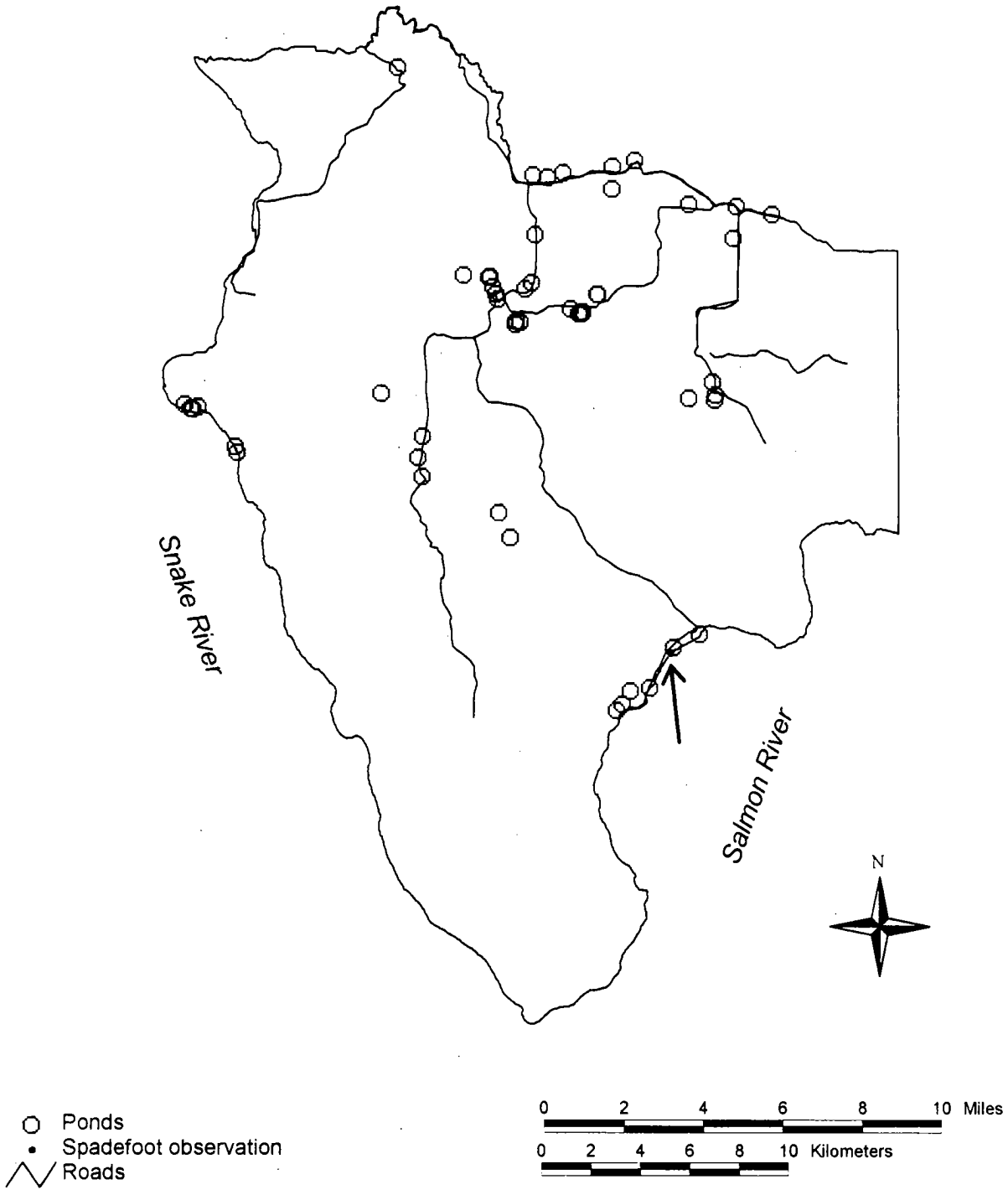


Figure 8. Spadefoot dot-distribution map (surveys and incidental observations). One dead individual was located on the Salmon River Road.

Western Toad

Bufo boreas

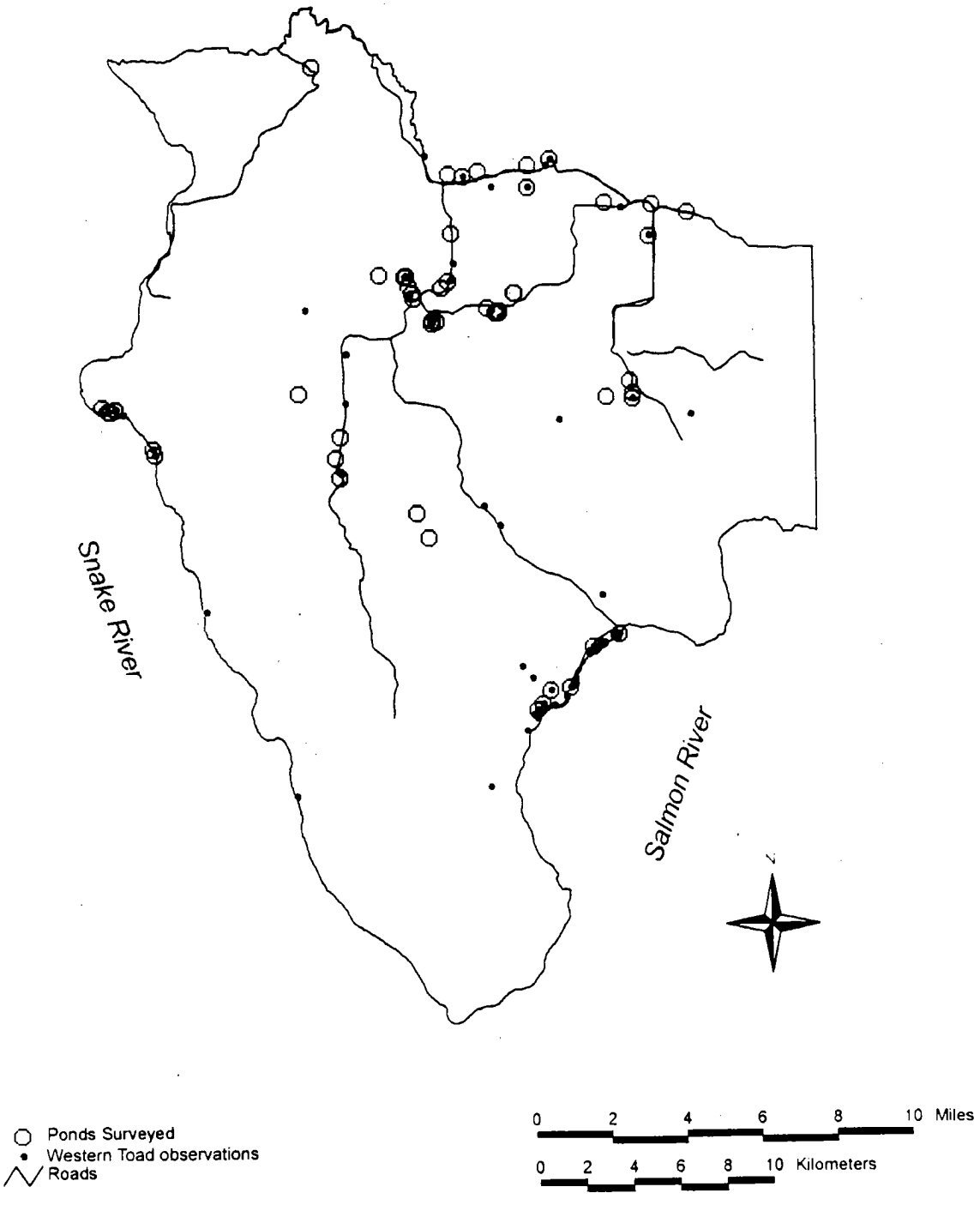


Figure 9. Western Toad dot-distribution map (surveys and incidental observations) from Craig Mountain, Idaho.

Pacific Treefrog

Pseudacris regilla

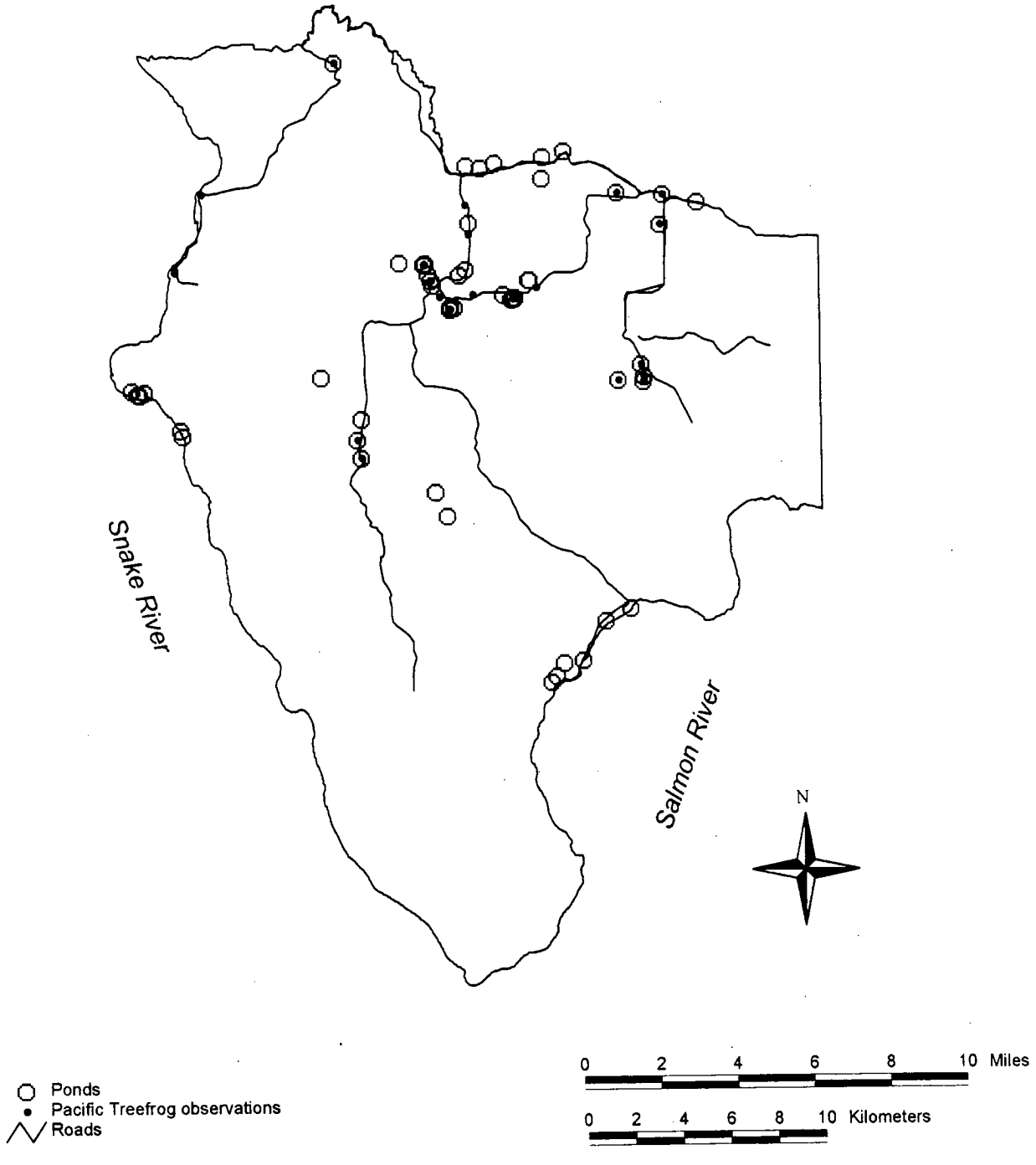


Figure 10. Pacific Treefrog dot-distribution map (surveys and incidental observations).

Bullfrog

Rana catesbiana

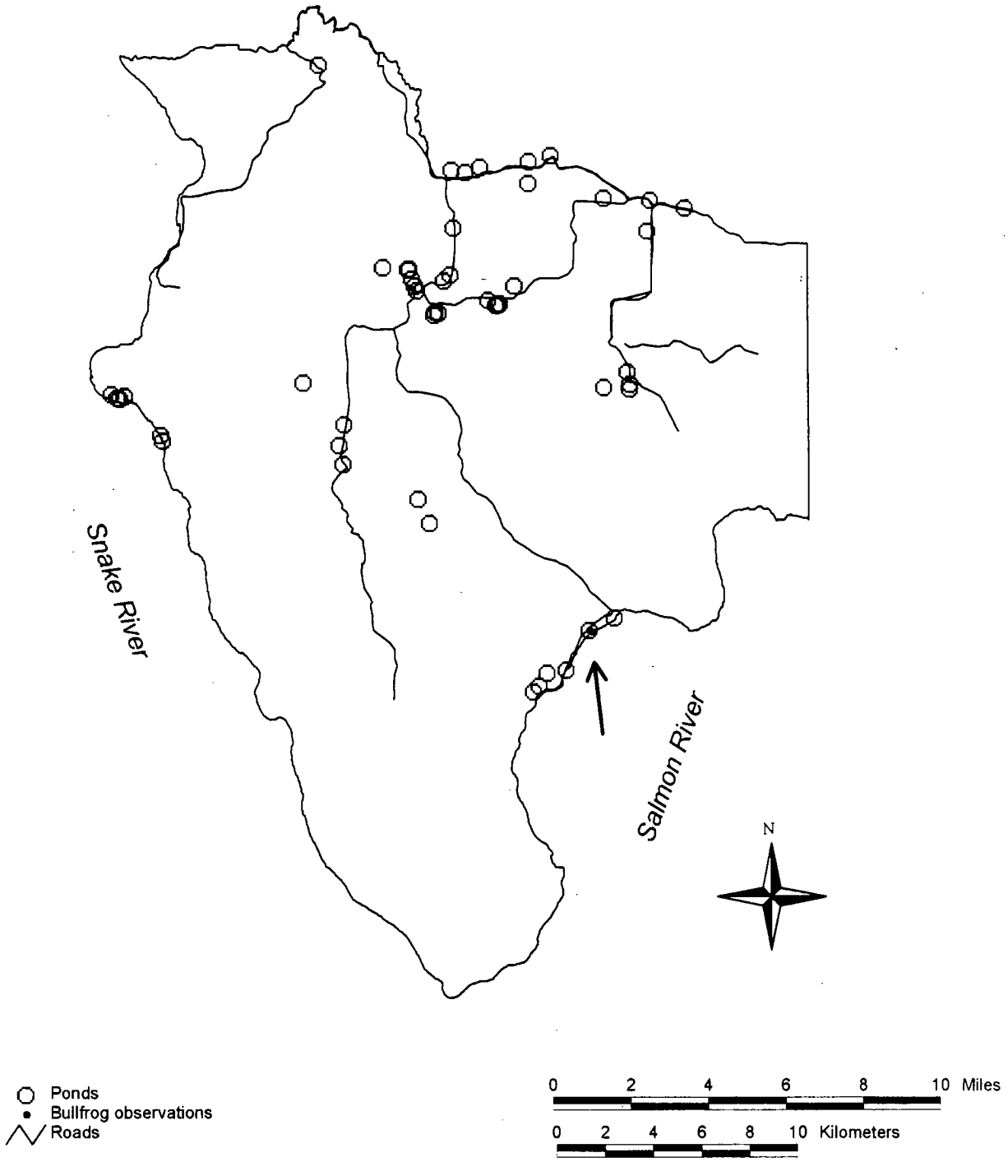


Figure 11. Bullfrog dot-distribution map surveys and incidental observations). Three individuals were found at this location.

Spotted Frog

Rana pretiosa

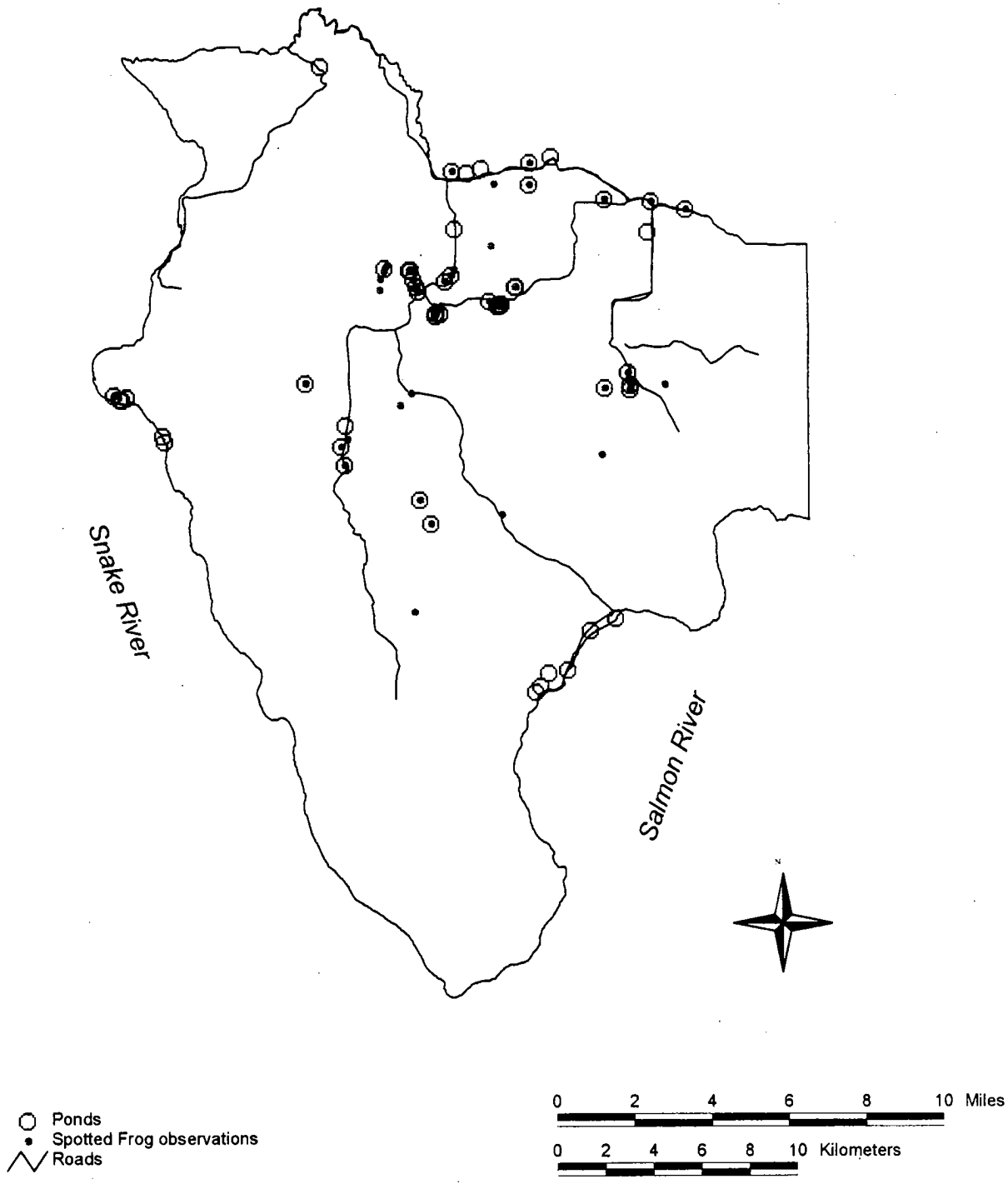


Figure 12. Spotted Frog dot-distribution map (surveys and incidental observations).

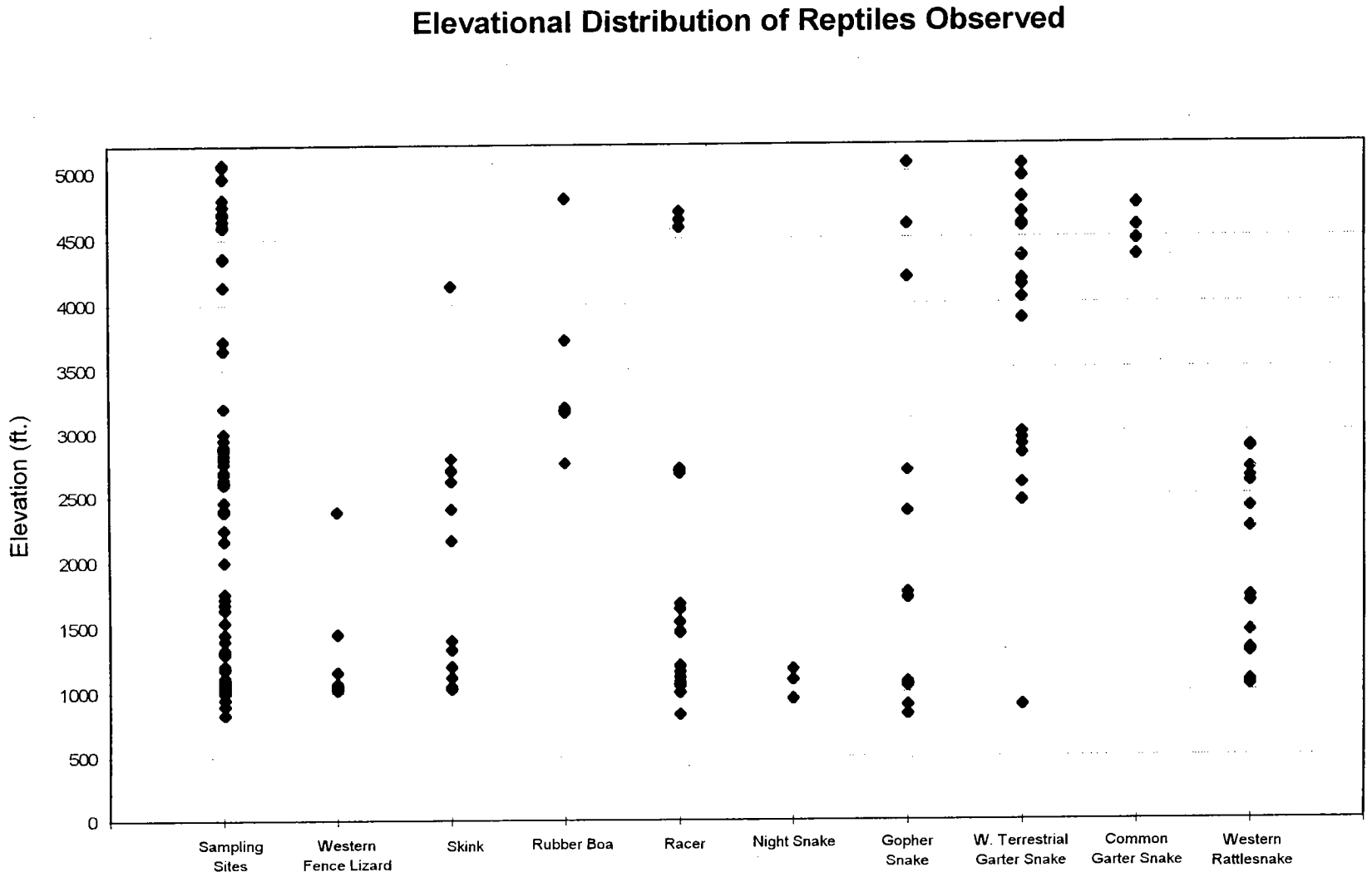


Figure 13. Elevational distribution of reptile species observed from all sampling techniques for 1993, 1994, and 1995.

Western Fence Lizard

Sceloporus occidentalis

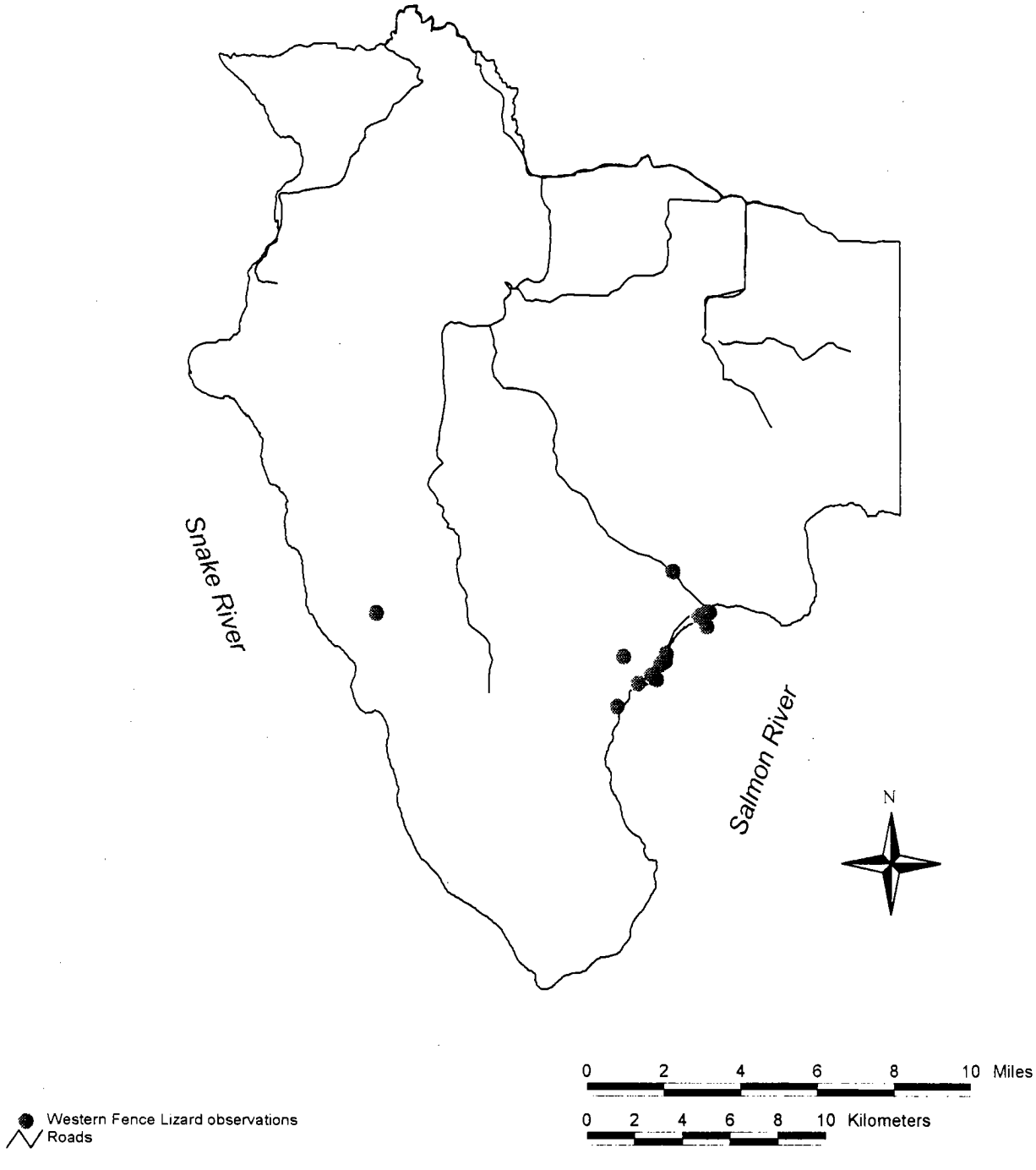


Figure 14. Western Fence Lizard dot-distribution map (surveys and incidental observations).

Western Skink

Eumeces skiltonianus

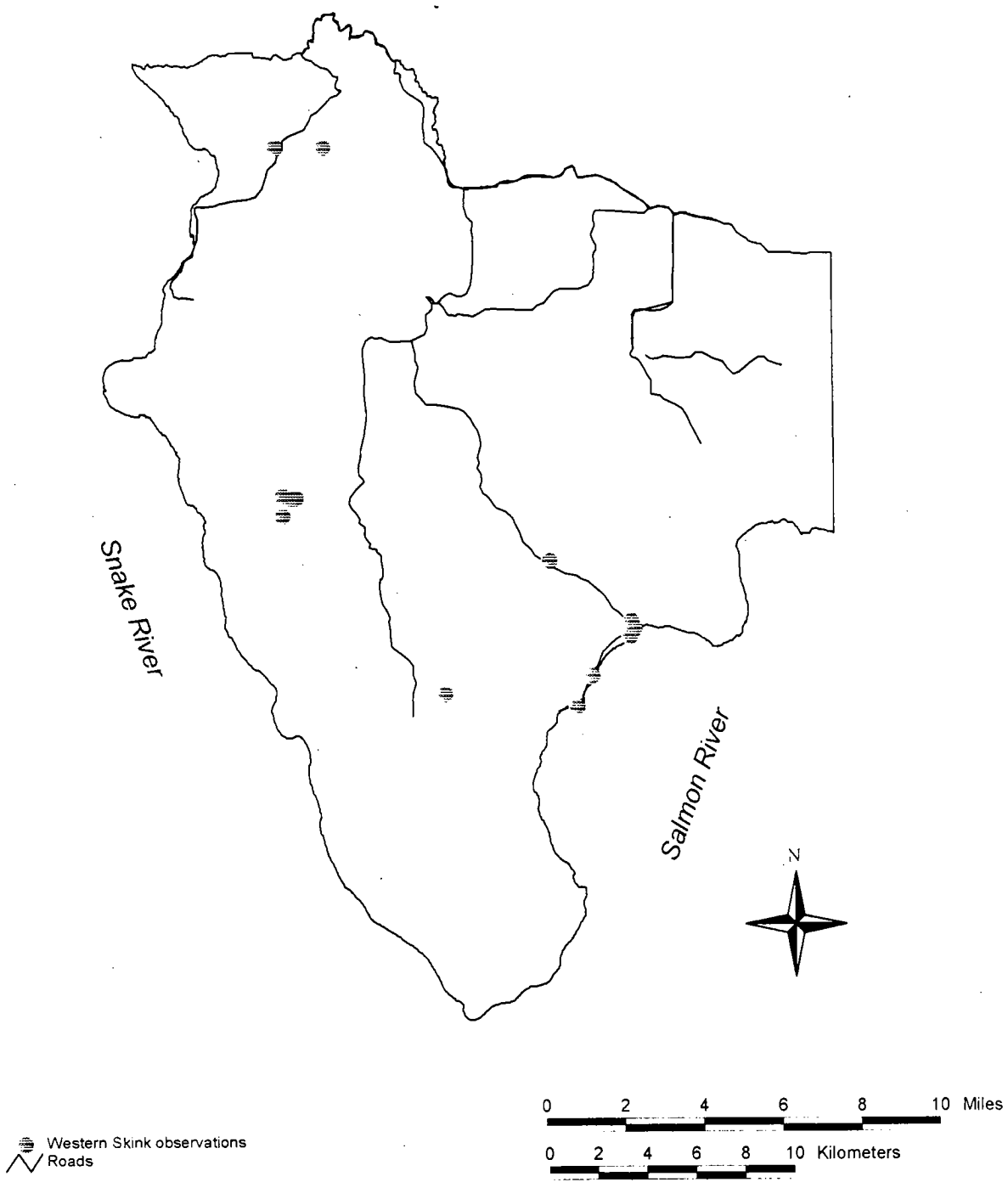


Figure 15. Western Skink dot-distribution map (surveys and incidental observations).

Rubber Boa

Charina bottae

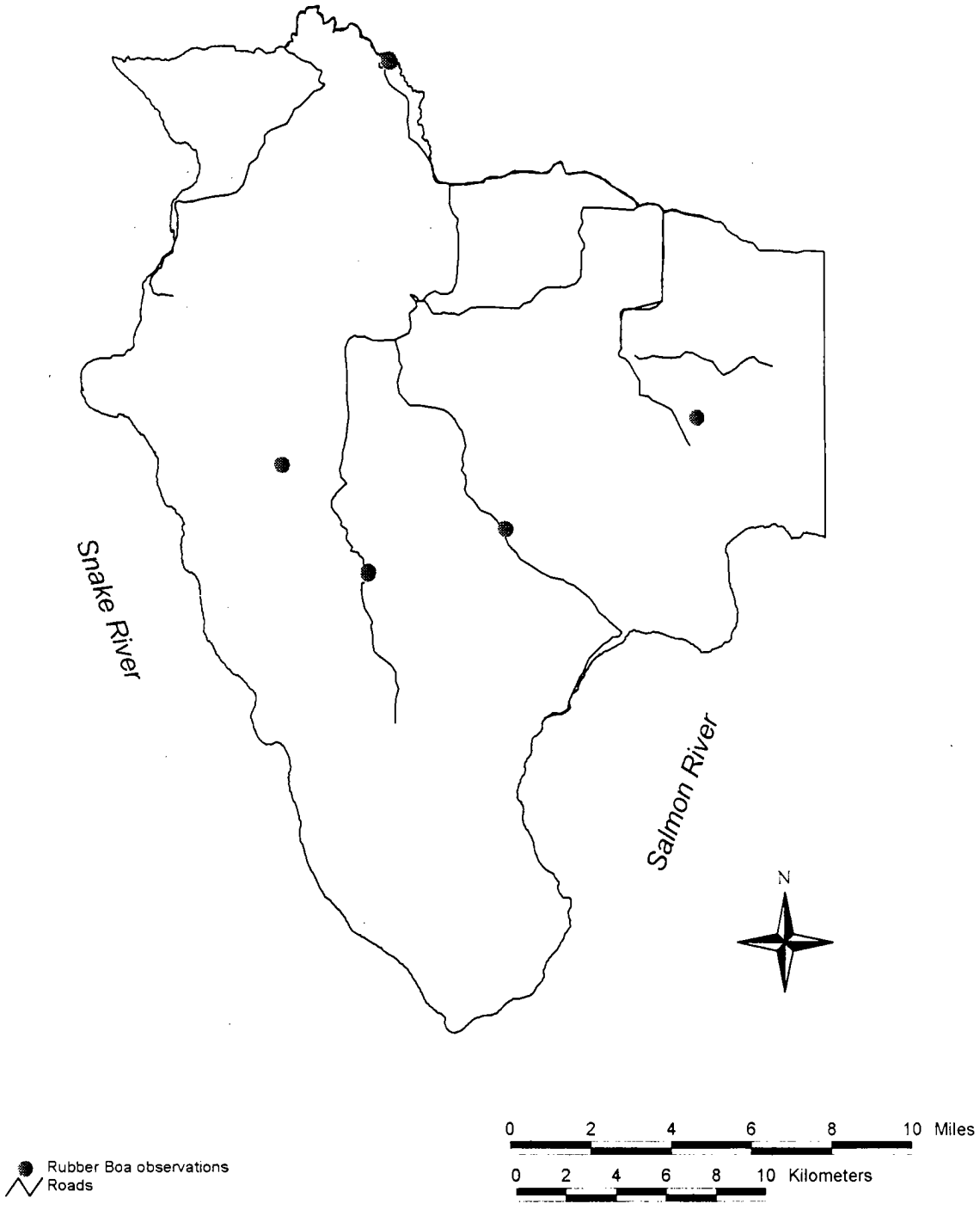


Figure 16. Rubber Boa dot-distribution map (surveys and incidental observations).

Racer

Coluber constrictor

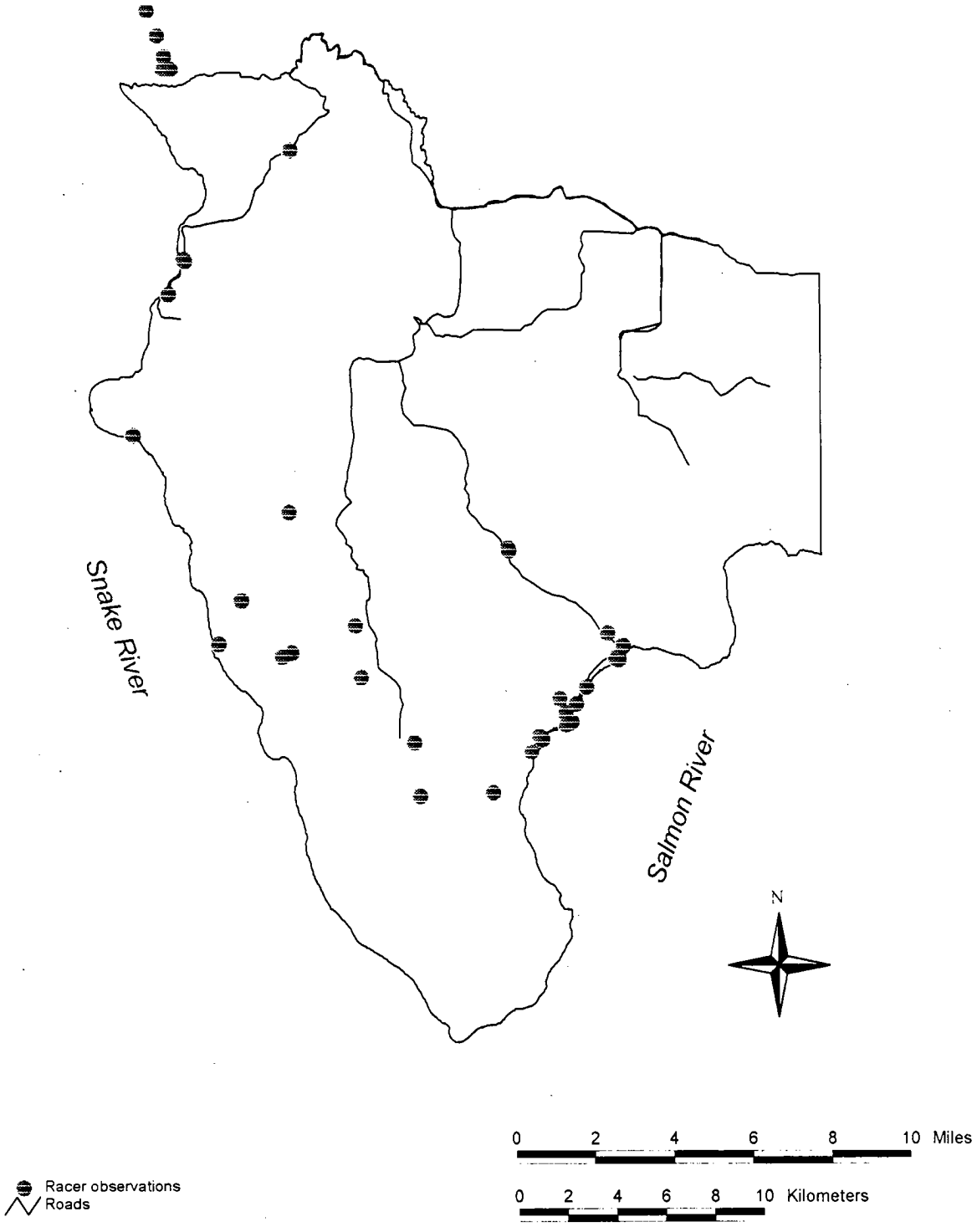


Figure 17. Racer dot-distribution map (surveys and incidental observations).

Ringneck Snake

Diadophis punctatus

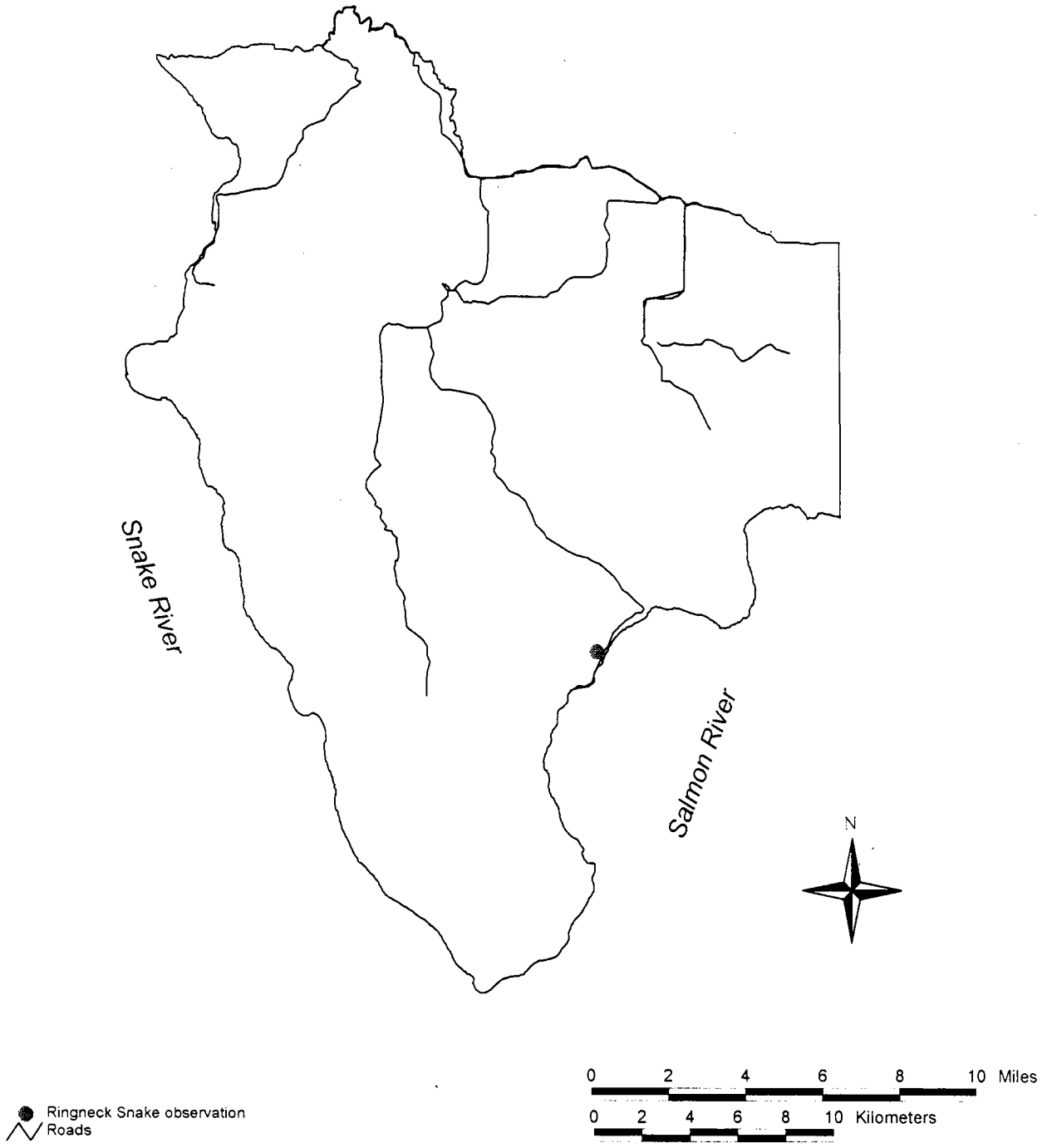


Figure 18. Ringneck Snake dot-distribution map (surveys and incidental observations). This record is for a 1994 unconfirmed sighting from an IDFG biological technician.

Night Snake

Hypsiglena torquata

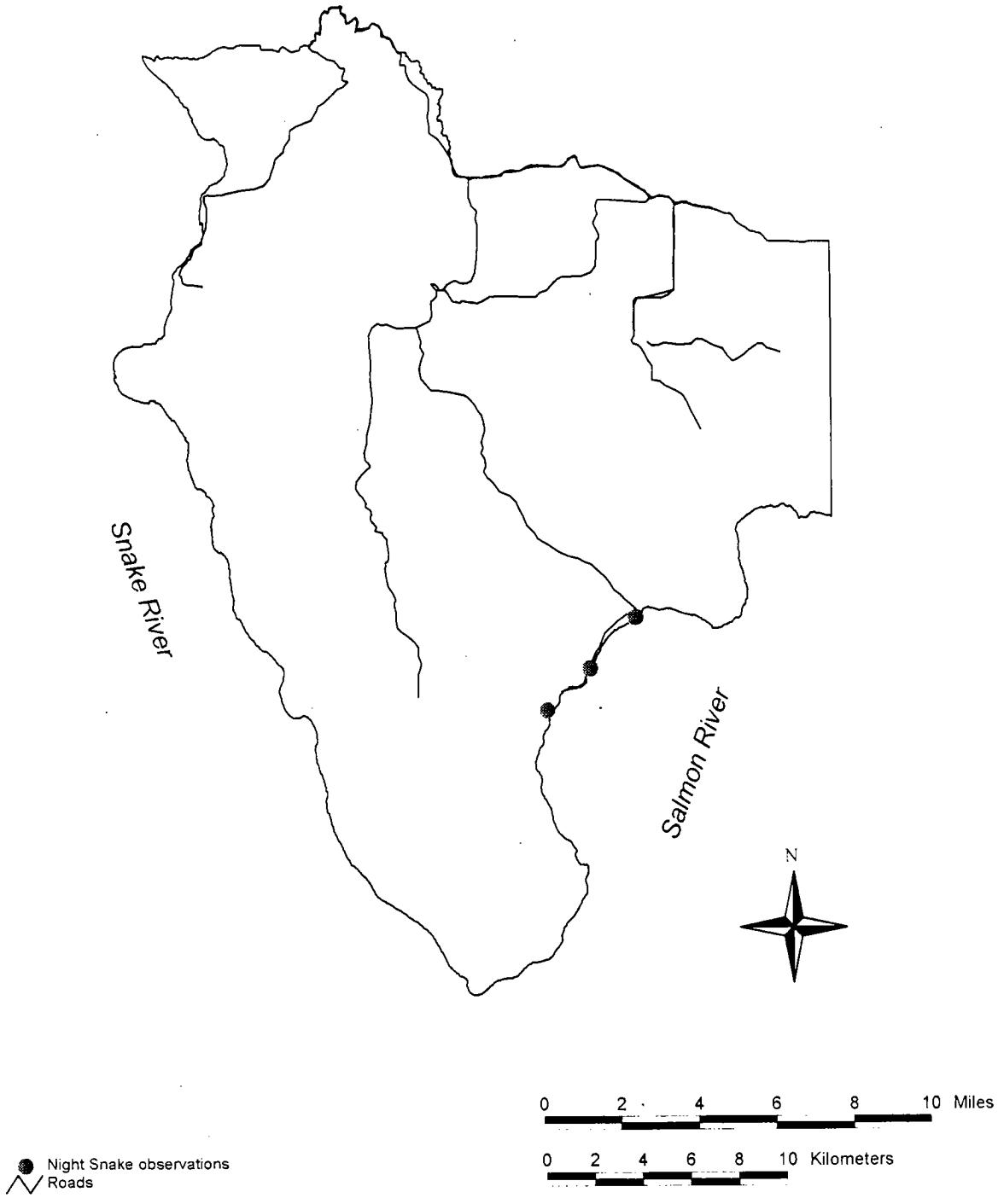


Figure 19. Night Snake dot-distribution map (surveys and incidental observations).

Gopher Snake

Pituophis catenifer

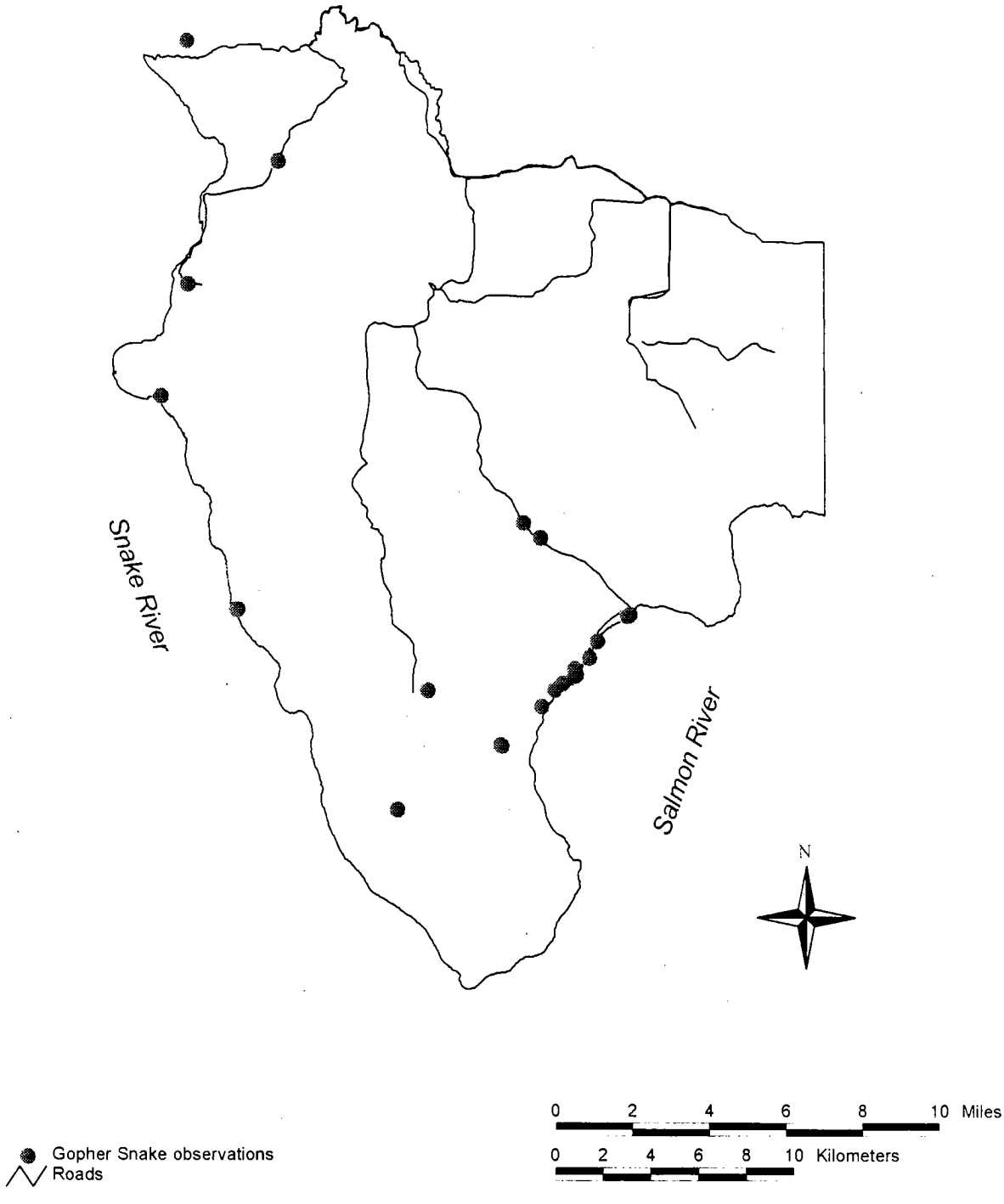


Figure 20. Gopher Snake dot-distribution map (surveys and incidental observations).

Western Terrestrial Garter Snake

Thamnophis Elegans

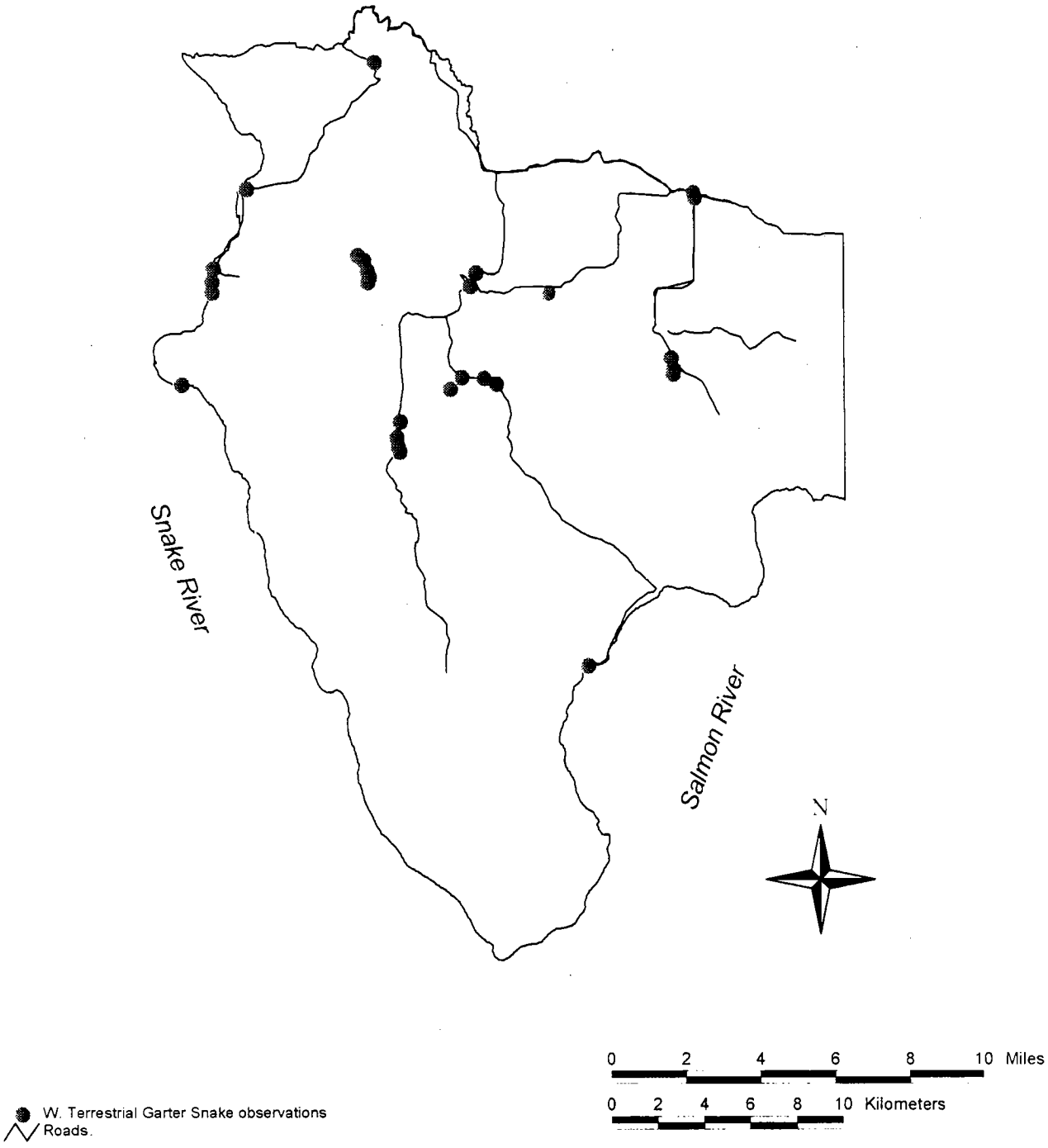


Figure 21. Western Terrestrial Garter Snake dot-distribution map (surveys and incidental observations).

Common Garter Snake

Thamnophis sirtalis

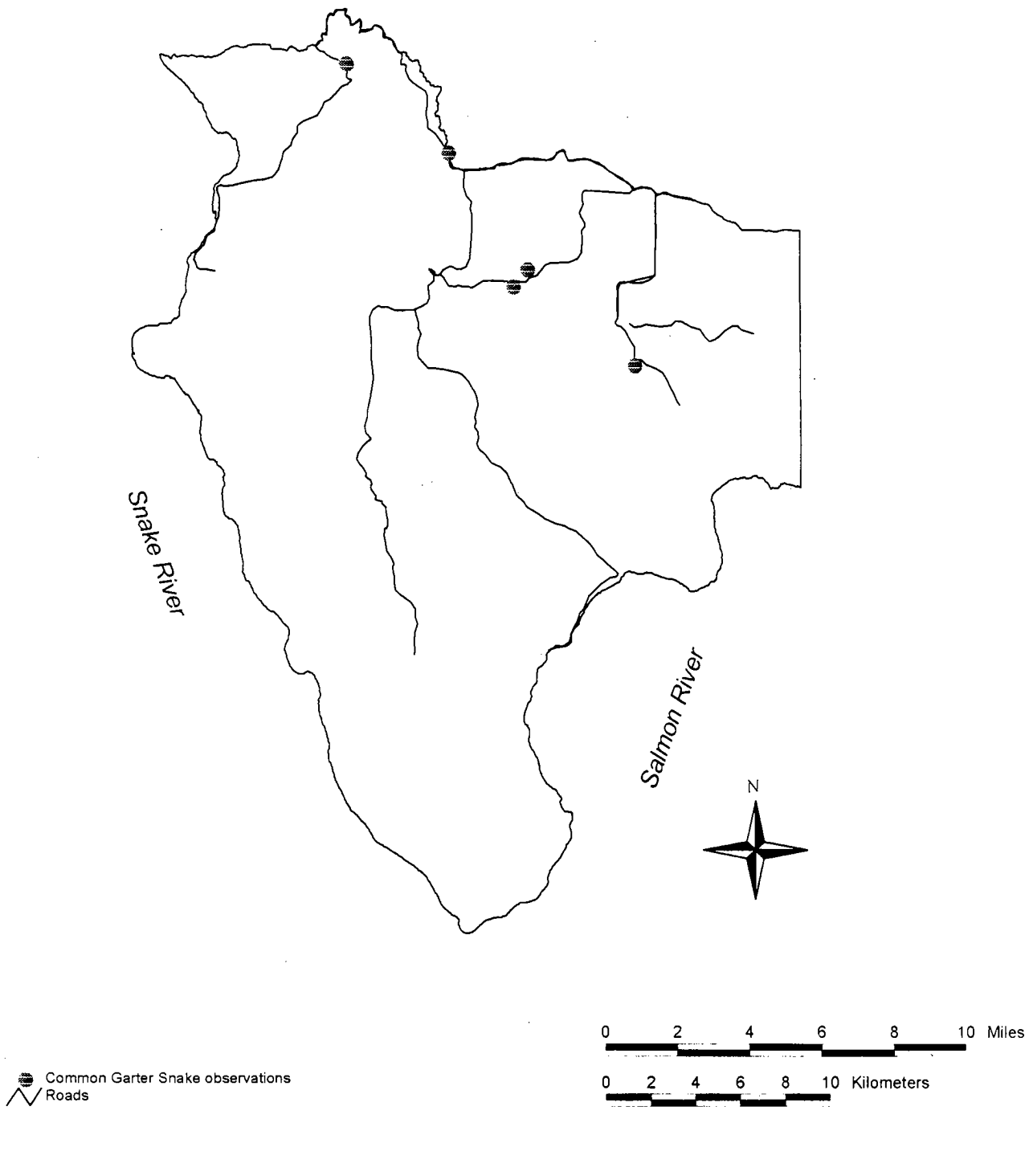


Figure 22. Common Garter Snake dot-distribution map (surveys and incidental observations).

Western Rattlesnake

Crotalus viridis

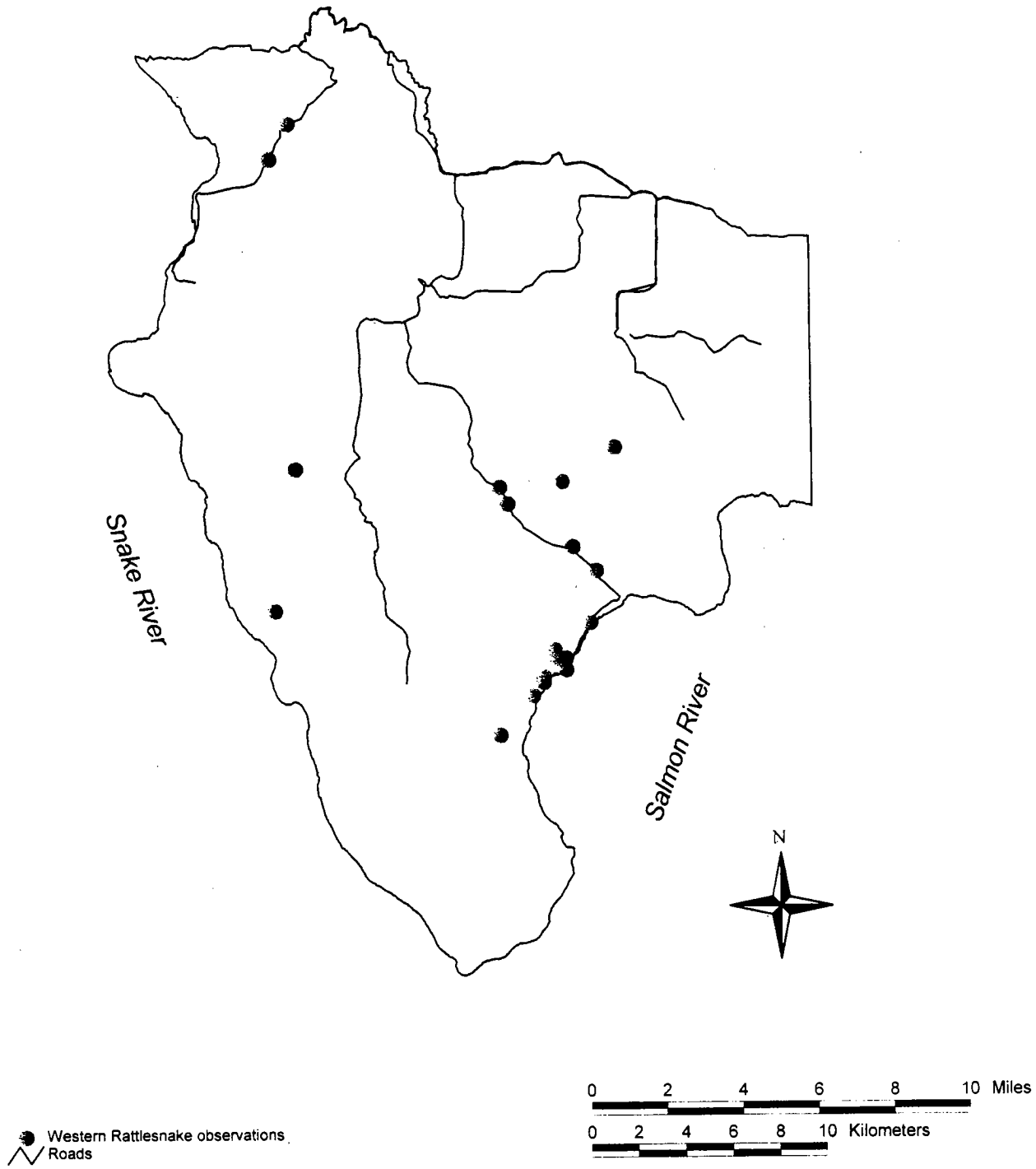
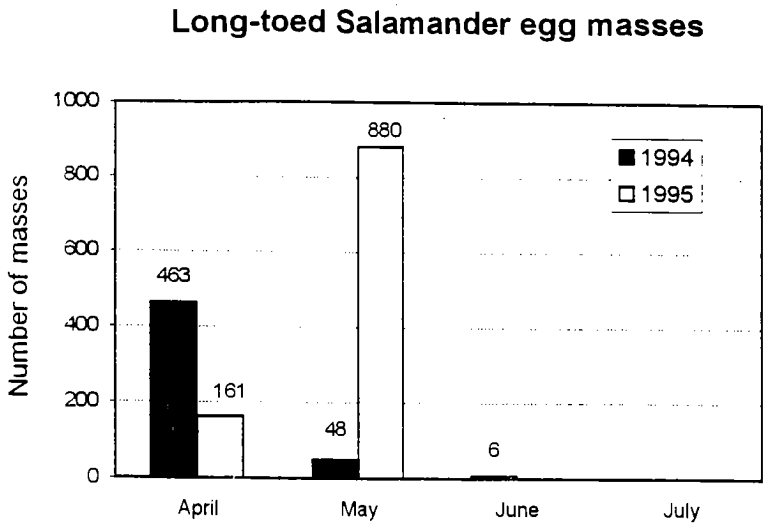


Figure 23. Western Rattlesnake dot-distribution map (surveys and incidental observations).



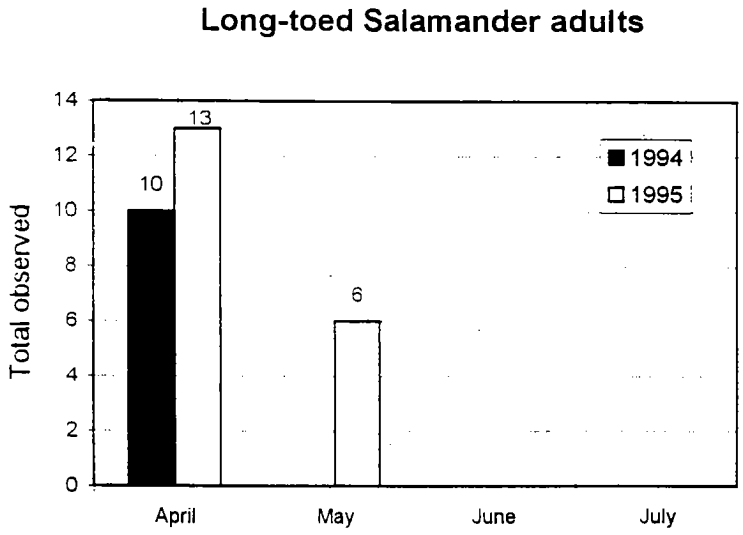
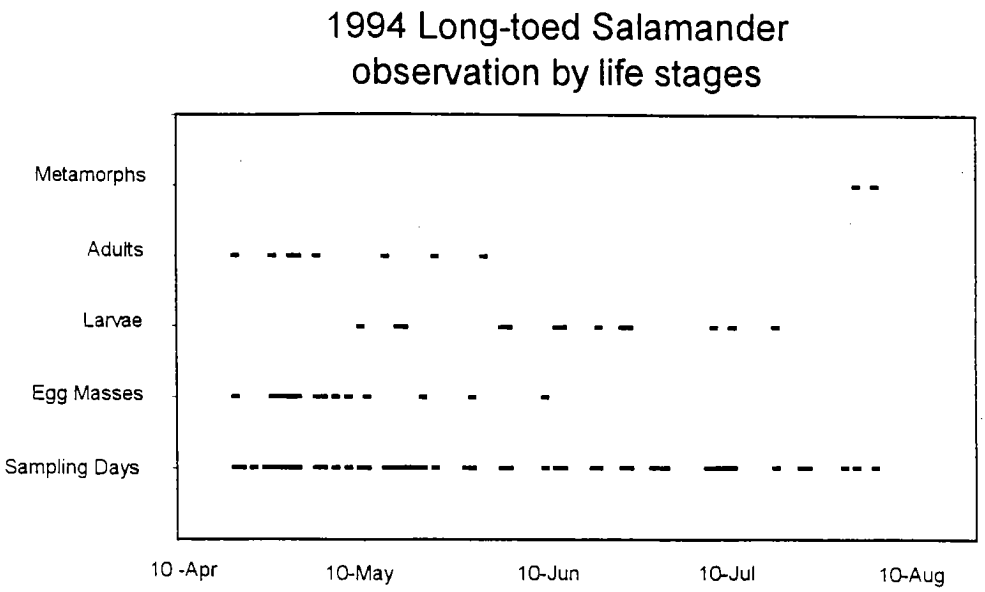


Figure 24. Total number of Long-toed Salamanders observed in ponds during the 1994 and 1995 field season.



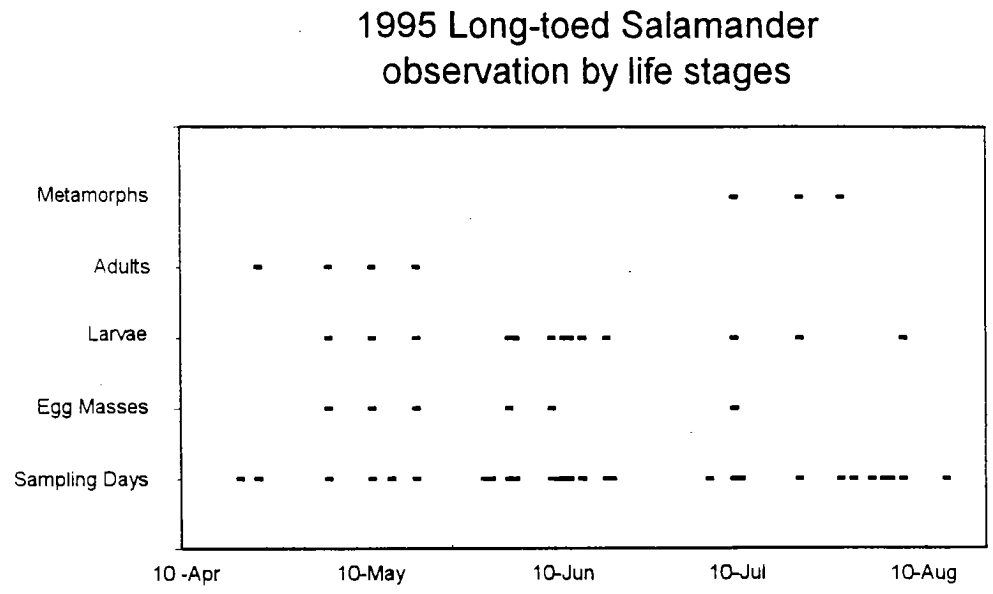
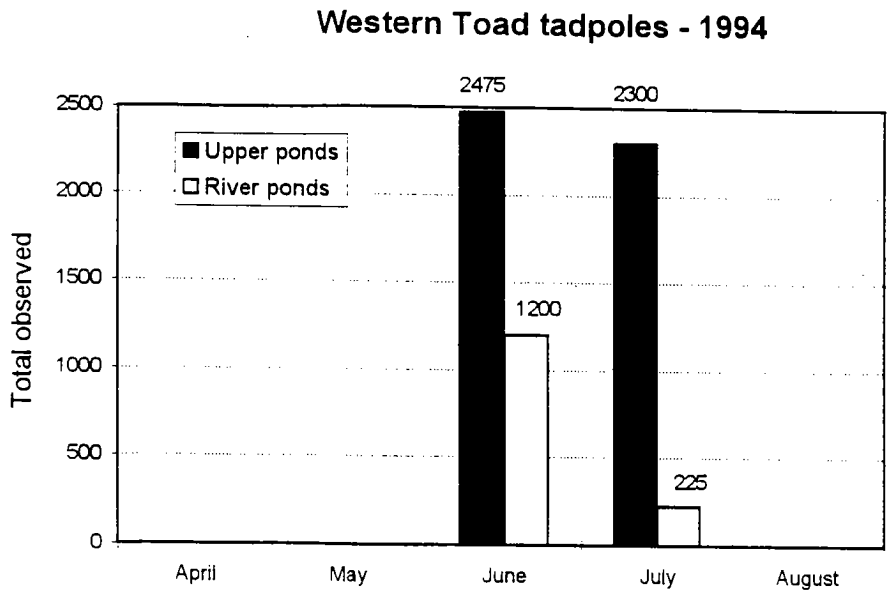


Figure 25. Observation of different life stages of Long-toed Salamanders during the 1994 and 1995 field season.



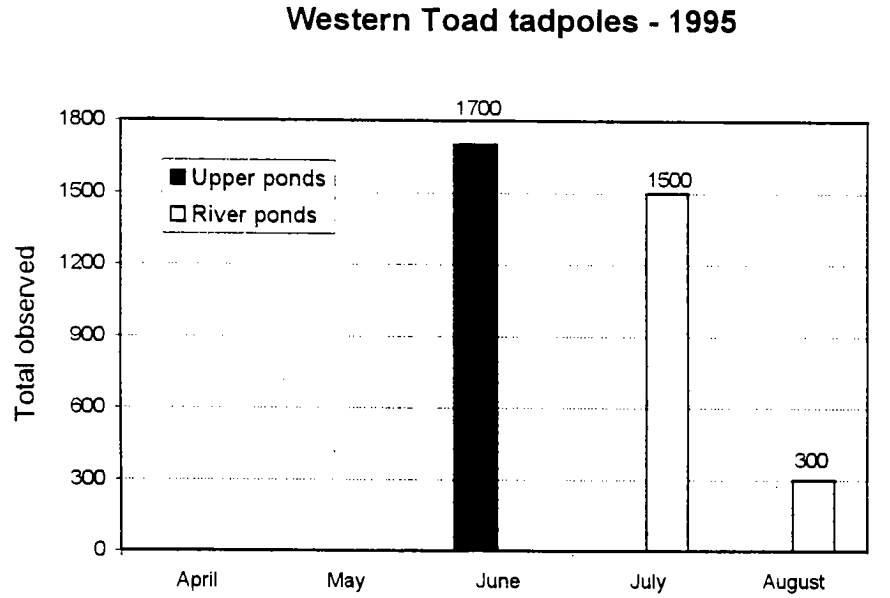
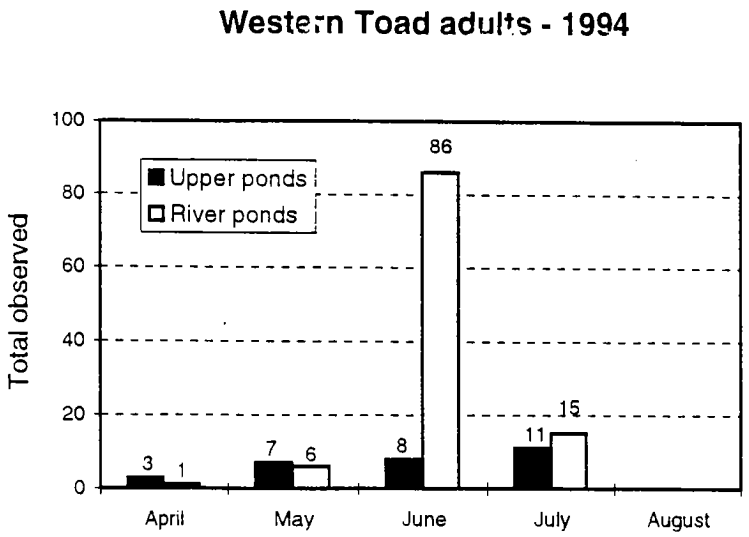


Figure 26. Total number of Western Toad tadpoles observed from the 1994 and 1995 field season.



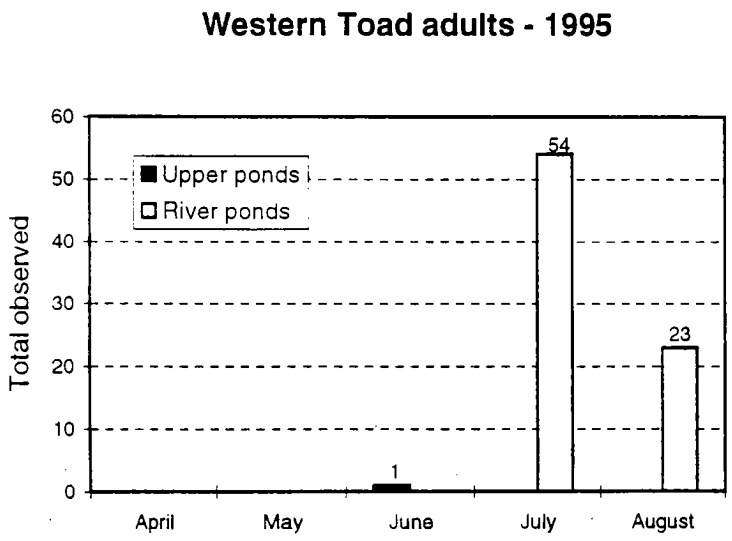
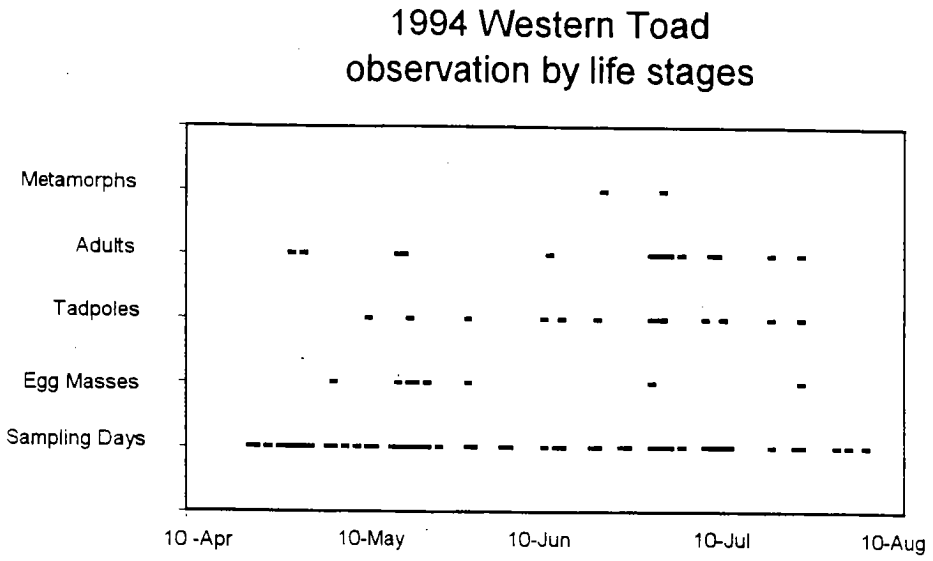


Figure 27. Total number of Western Toads observed from the 1994 and 1995 field surveys. The Western Toads along the rivers bred later in 1995 because of the high water levels until the end of June.



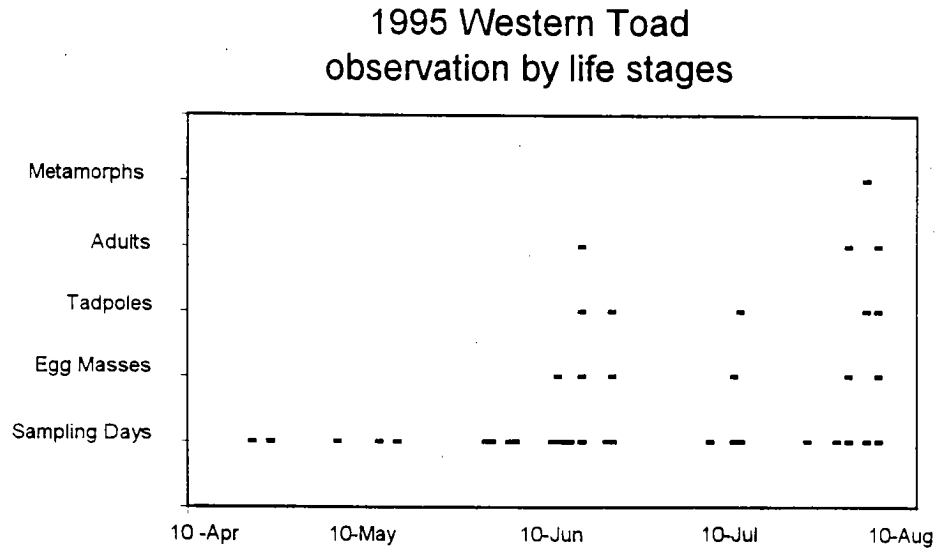


Figure 28. Observation of different life stages of Western Toads during the 1994 and 1995 field season.

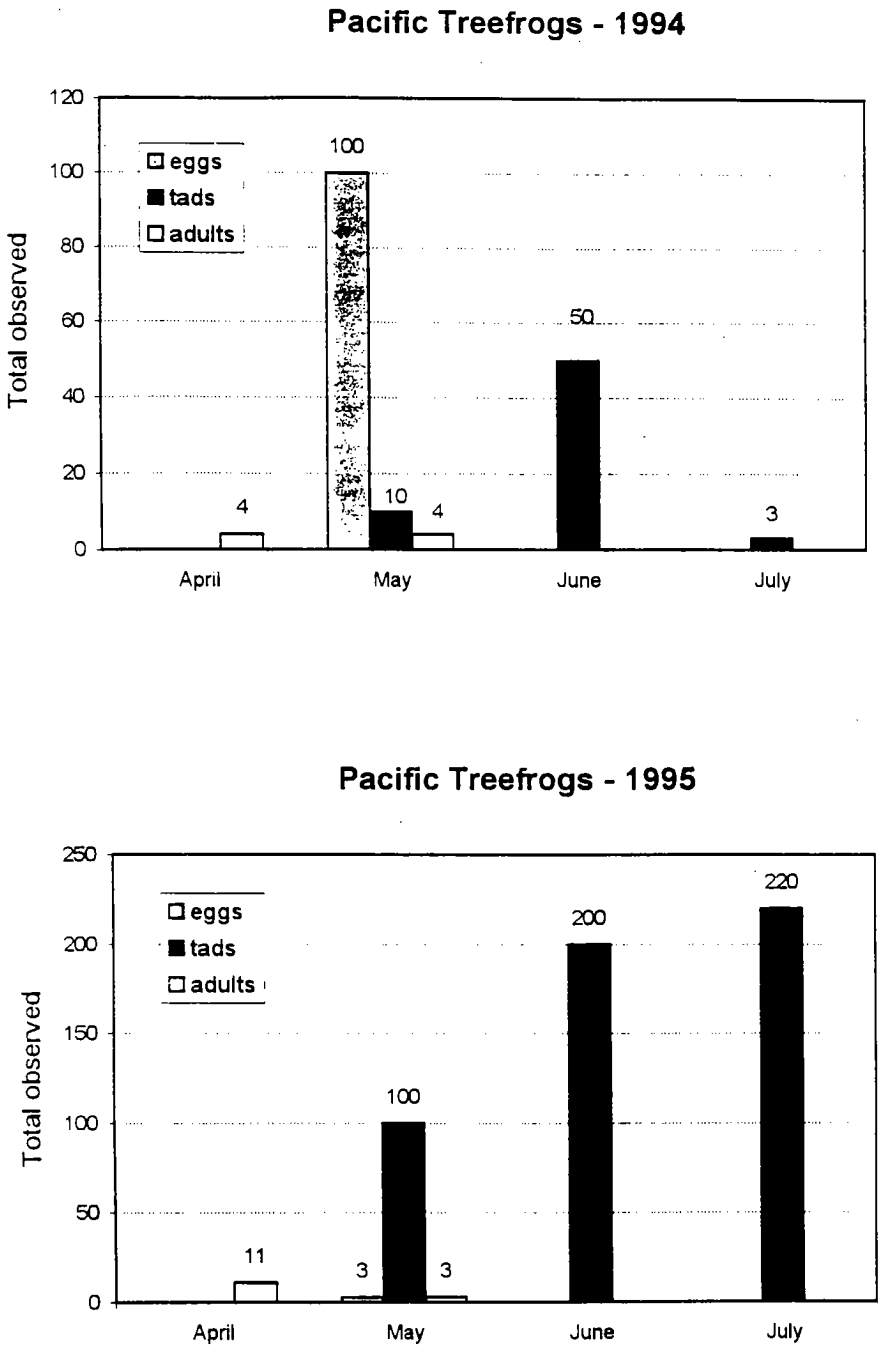
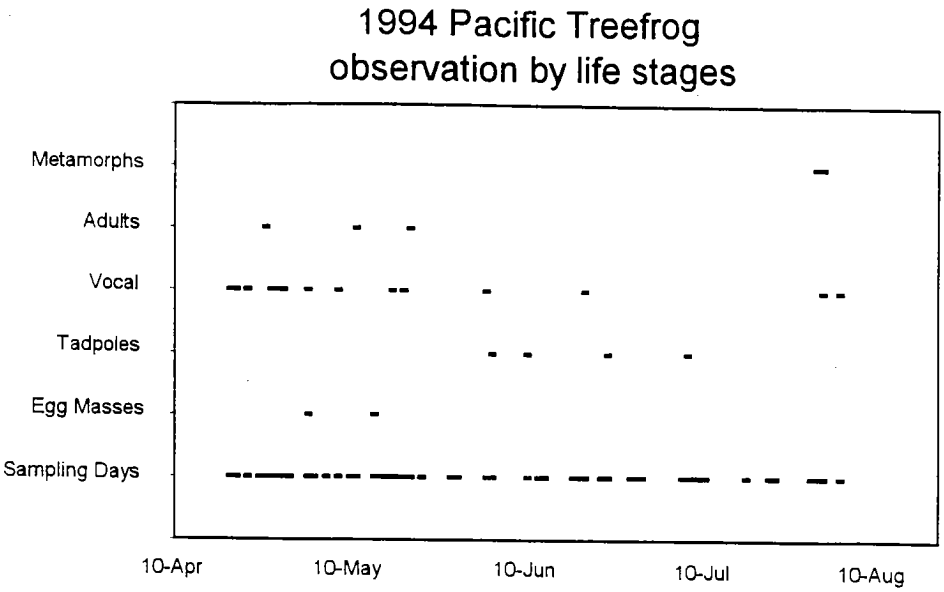


Figure 29. Total number of Pacific treefrogs observed during the 1994 and 1995 field surveys. Calling treefrogs are included with adults.



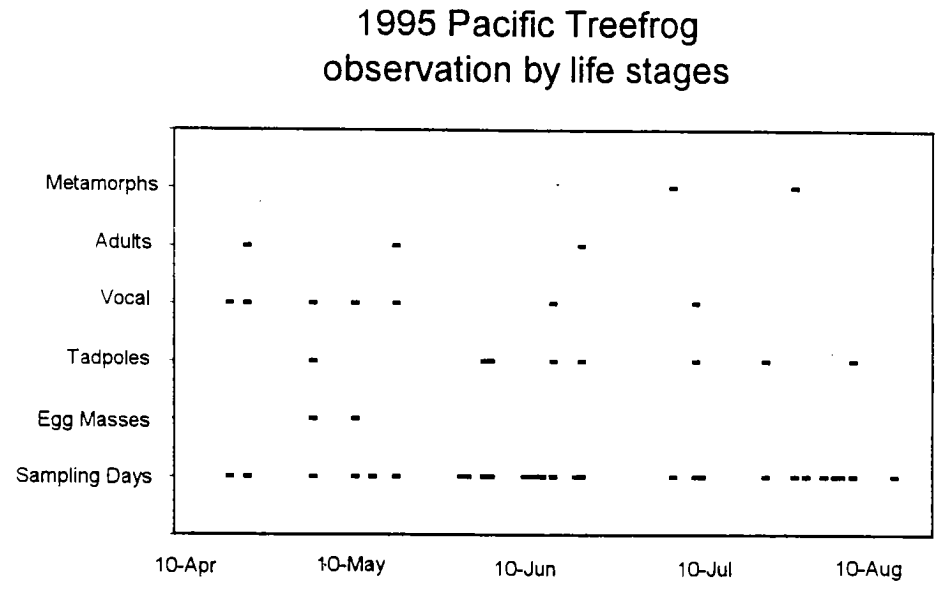
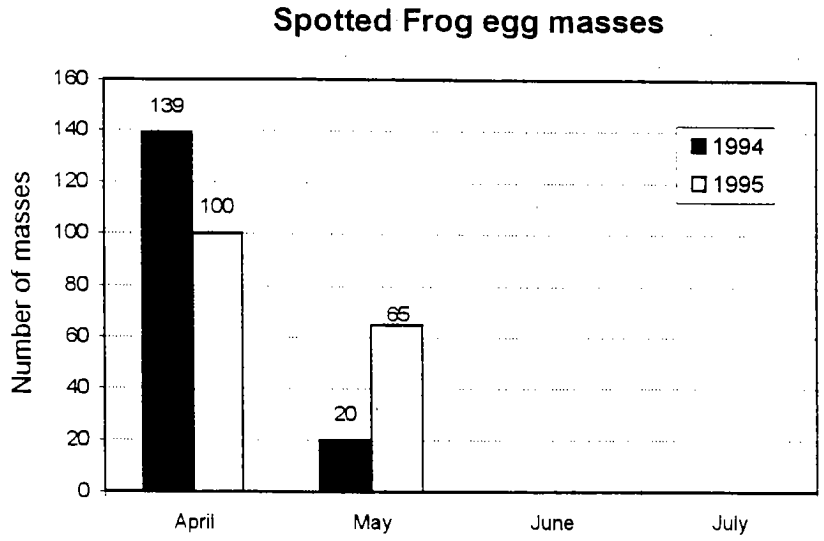


Figure 30. Observation of different life stages of Pacific Treefrogs during the 1994 and 1995 field season.



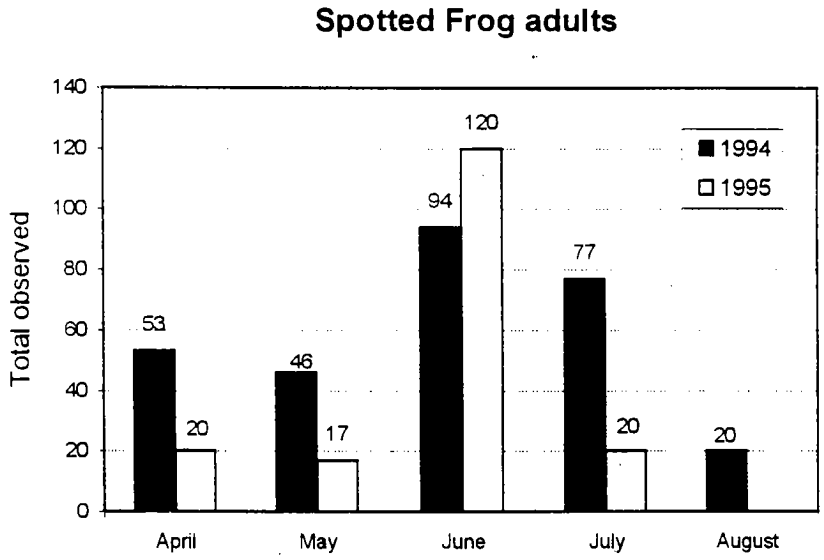
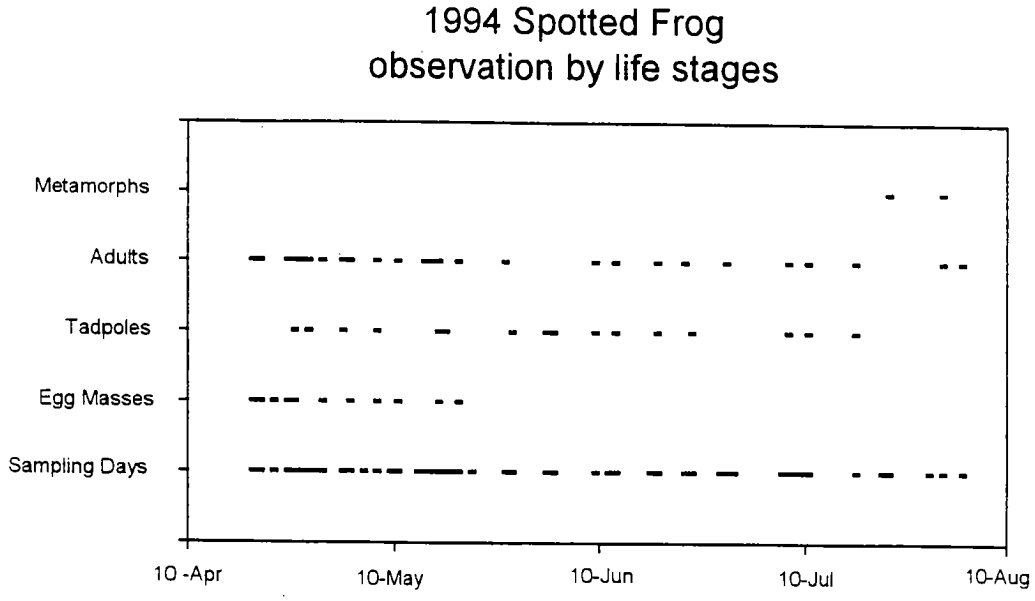


Figure 31. Total number of Spotted Frog adults and egg masses observed during the 1994 and 1995 field surveys.



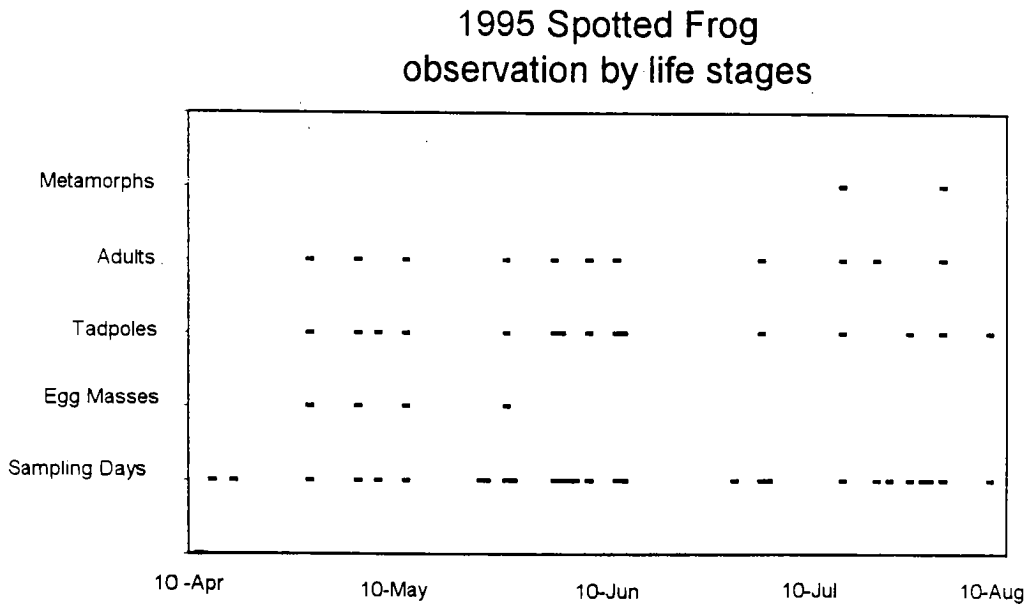
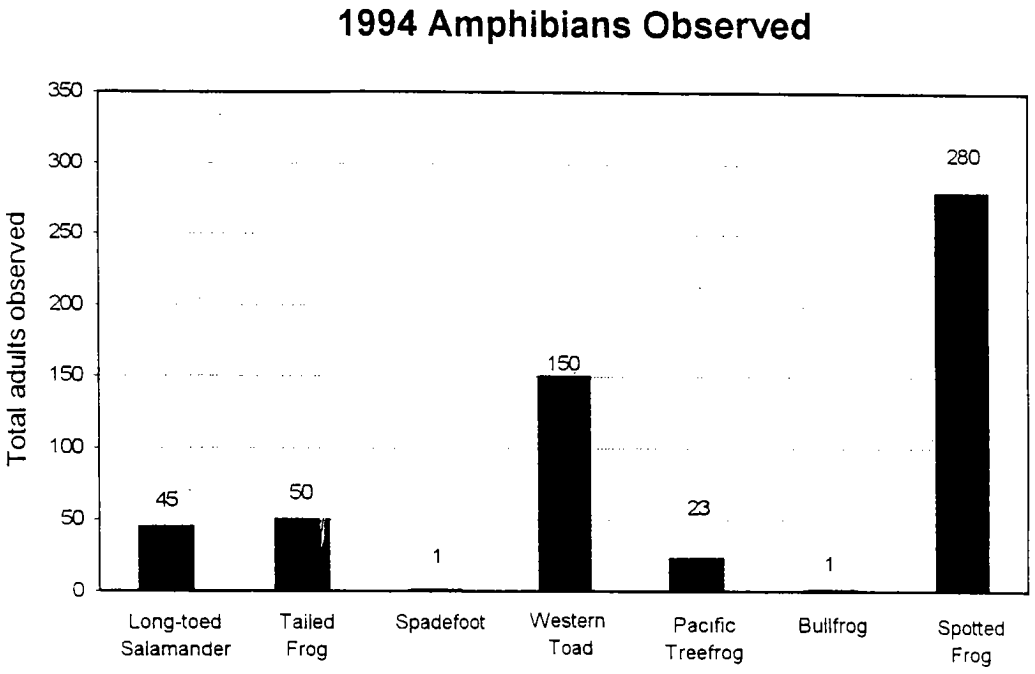


Figure 32. Observation by life stages of Spotted Frogs during the 1994 and 1995 field season.



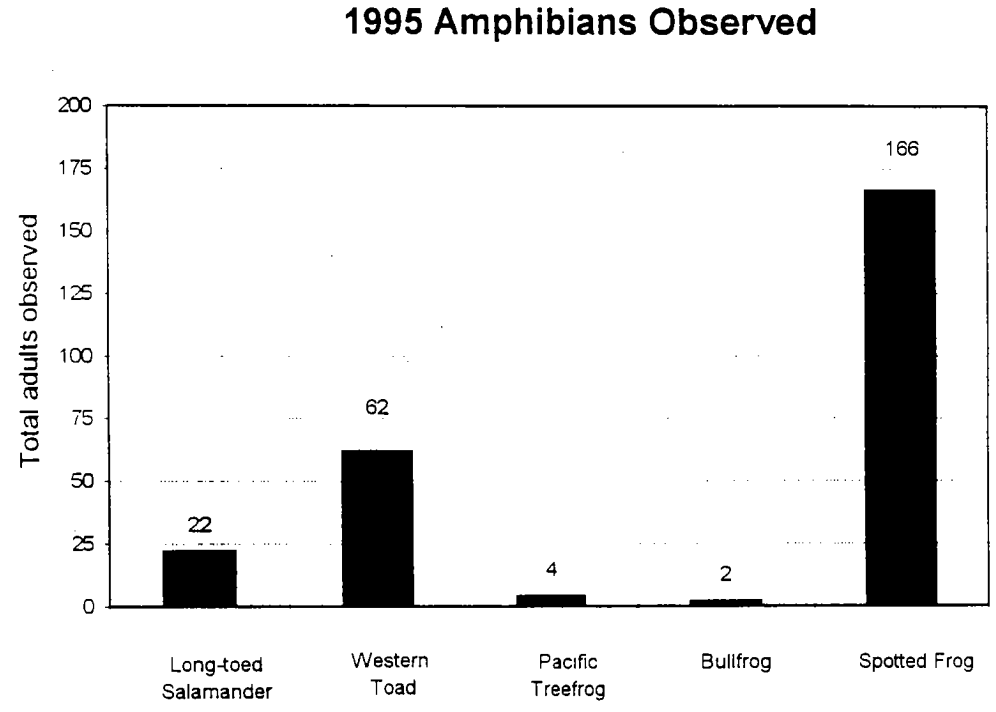


Figure 33. Total abundance of amphibian adults observed during April through August for 1994 and 1995. The 1994 Long-toed Salamander total includes 13 animals from pitfall traps.

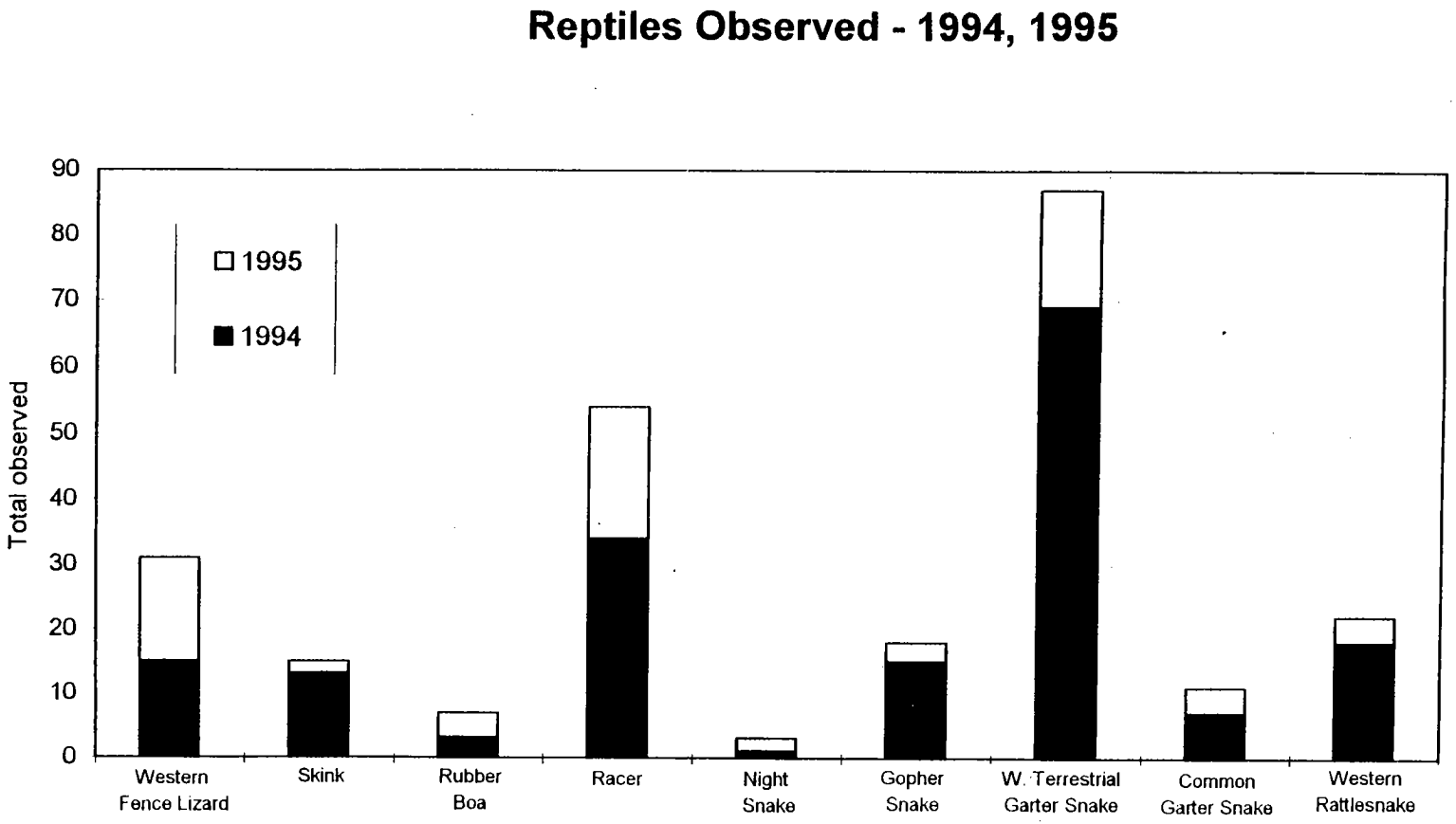


Figure 34. Total abundance of adult reptile species observed from April through early August of 1994 and 1995.

Location of Ponds Surveyed

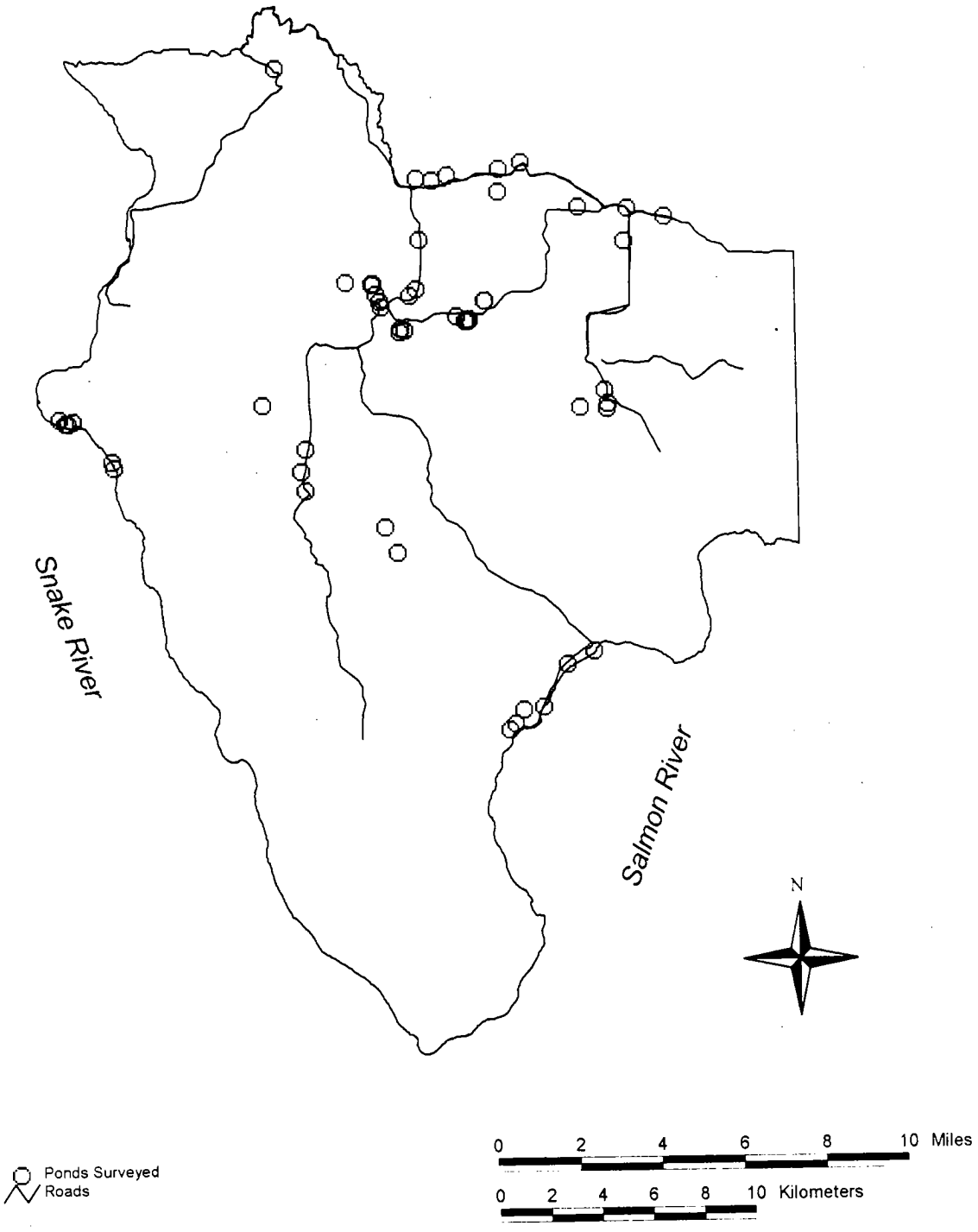


Figure 35. Location of all ponds surveyed during the 1994 and 1995 field seasons.

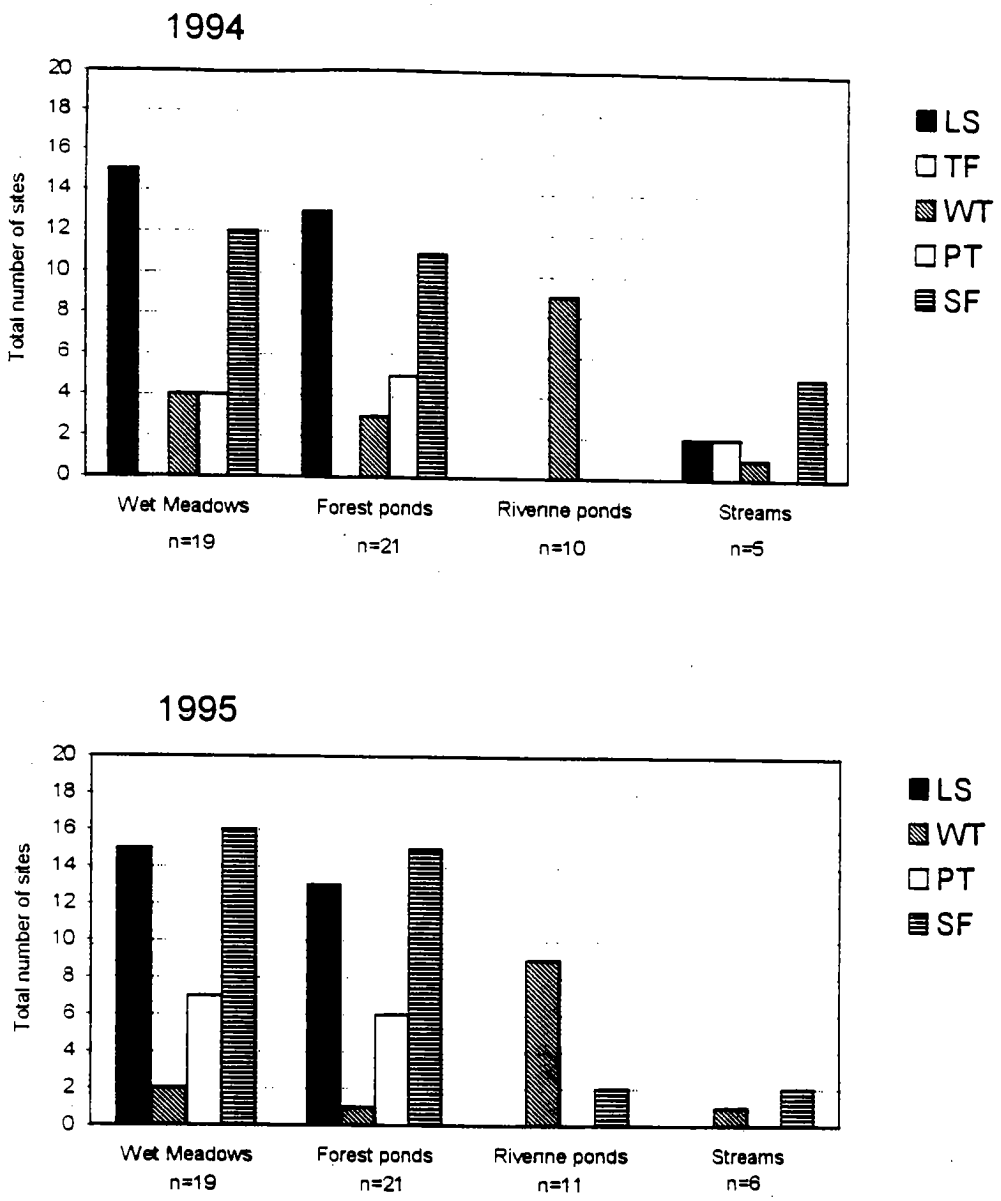


Figure 36. All of the surveyed ponds and wetlands were broken up into three categories depending on the habitat characteristics. Included are the streams surveyed. The bars represent the total number of sites a species was observed. All SF observations in streams were only non-breeding adults.

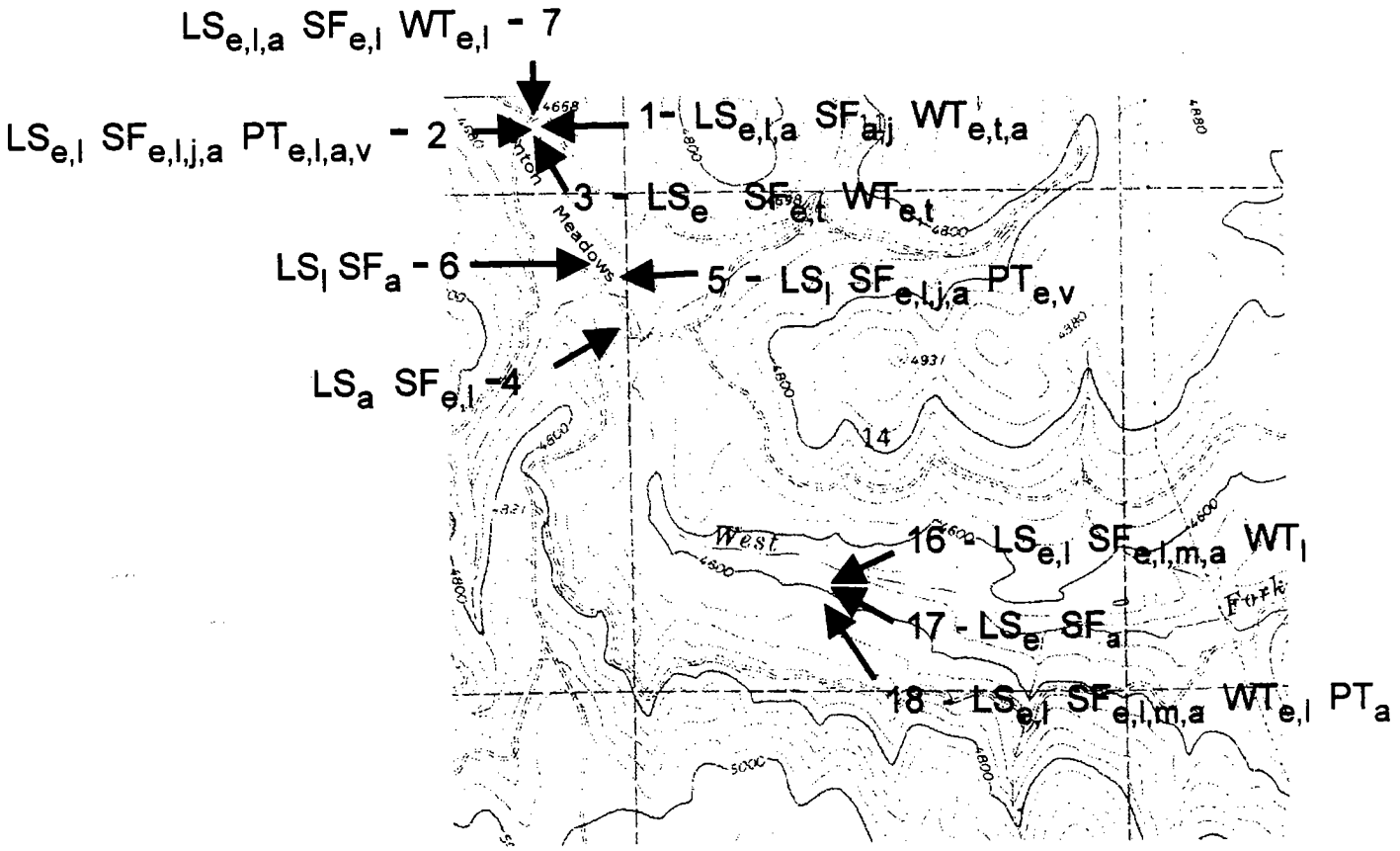
LS = Long-toed Salamander
TF = Tailed Frog
WT = Western Toad
PT = Pacific Treefrog
SF = Spotted Frog

Site descriptions, Benton Meadows and West Larabee Meadows, Figure 37

Site No.	Wetland Name	Owner	Origin	Type	Species Breeding	Remarks
1	Benton Meadows Large pond	IDFG	man-made	permanent pond	SF, LS, WT PT, TG	Steep banks, no shallows. Good tadpole dispersal area from connecting ponds
2	Benton Meadows Small pond	IDFG	human-influenced	temporary pond	SF, LS, PT	Fills in with veg. by early summer. Observed several adult treefrogs in 1995.
3	Benton Meadows Channel pond	IDFG	human-influenced	temporary pond	SF, LS, WT	Dries up by late spring. Shallow mud bottom.
4	Benton Meadows By the gate pond	IDFG	human-influenced	temporary pond	SF, LS	
5	Benton Meadows By the trailer pond	IDFG	human-influenced	temporary pond	SF, LS, PT	Offshoot from Deer Ck. in a wet carex meadow
6	Benton Meadows By the fence pond	IDFG	human-influenced	permanent pond	SF, LS	Water level constant all summer; part of the meadow
7	Benton Meadows Across the road pond	IDFG	human-influenced	temporary pond	SF, LS, WT	
16	W. Larabee Meadows Spring pond	private	man-made	permanent pond	SF, LS, WT	This pond is 50 ft. downhill from the Upper pond. Outlet is Deer Ck.
17	W. Larabee Meadows Road Ditch pond	private	human-influenced	temporary pond	LS	
18	W. Larabee Meadows Upper Pond	private	man-made	permanent pond	SF, LS, PT WT	Pond was formed when a dam was built below a natural spring. Fish could be present.

Frye Point, Idaho

Benton and W. Larabee Meadows



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WT = Western (Boreal) Toad
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SF = Spotted Frog
TG = Western Terrestrial Garter Snake
CG= Common Garter Snake

a = adult(s)
c = calling
e = eggs
l = larvae or tadpoles
m = metamorphs (amphibian)
j = juveniles

Figure 37. Location of ponds and the amphibians and reptiles found from the 1994 and 1995 surveys. The map was scanned from the Waha Quadrangle, 7.5 minute series (Topographic) 1968 map. Capital letters indicate species. Small case letters indicate life stage. See legend above.

Site descriptions, Benton and East Larabee Meadows, Figure 38

Site No.	Wetland Name	Owner	Origin	Type	Species Breeding	Remarks
8	E. Larabee Meadows Small Pond	Nez Perce Tribe	human-influenced	temporary pond	SF, LS	Pond dries up early. Larvae do not survive to metamorph.
9	E. Larabee Meadows Pinecone pond	Nez Perce Tribe	human-influenced	temporary pond	SF, LS, PT	Ponds 8-12 and 15, are a series that connect to Deer Ck.
10	E. Larabee Meadows Thumb pond	Nez Perce Tribe	human-influenced	temporary pond	SF, LS, PT CG, WG	
11	E. Larabee Meadows Road ditch pond	IDFG	human-influenced	temporary pond	SF, LS	
12	E. Larabee Meadows Elbow pond	IDFG	human-influenced	temporary pond	SF, LS	
13	Larabee Dam	IDFG	man-made	permanent pond		Fish present, many crayfish. Only 1-adult SF observed in 1994
14	E. Larabee Meadows Dam 1 pond	IDFG	natural	temporary pond	SF, LS CG, WG	A pond within the *Carex* meadow that feeds Larabee Dam.
15	E. Larabee Meadows Pond by cabin	IDFG	human-influenced	temporary pond	SF, LS, PT	

Frye Point, Idaho

East Larabee Meadows

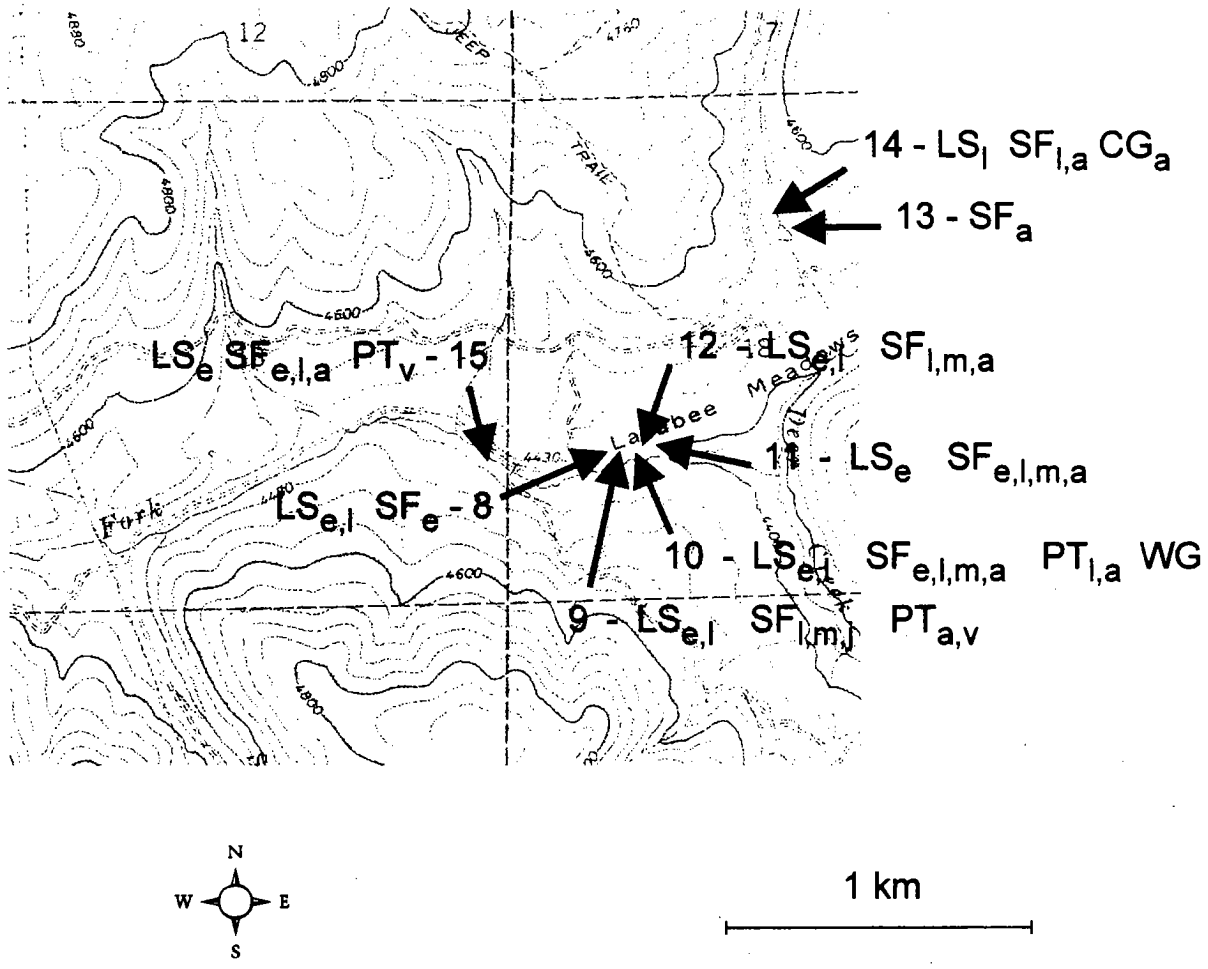

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Figure 38. Location of ponds and the amphibians and reptiles found from 1994 and 1995 surveys. The map was scanned from the Frye Point Quadrangle, 7.5 minute series (Topographic) 1986 map. Capital letters indicate species. Small case letters indicate life stage. See legend above.

Site descriptions, Frye Point, Road 540 vicinity map, Figure 38a

Site No.	Wetland Name	Owner	Origin	Type	Species Breeding	Remarks
30	Orgy pond	private	human-influenced	semi-perm. pond	SF, LS	Pond is part of a stream that runs parallel to the 540 Rd. Roads intersecting this water create ponds.
31	Road 540 pond	private	human-influenced	temporary pond		2-LS eggs in 1994. 1-adult SF
44	Moose pond	private	human-influenced	permanent pond	SF, LS WG	Many crayfish. Mud bottom. this pond is part of the same hydrological complex as pond #30.

Frye Point, Idaho
Road 540 Ponds

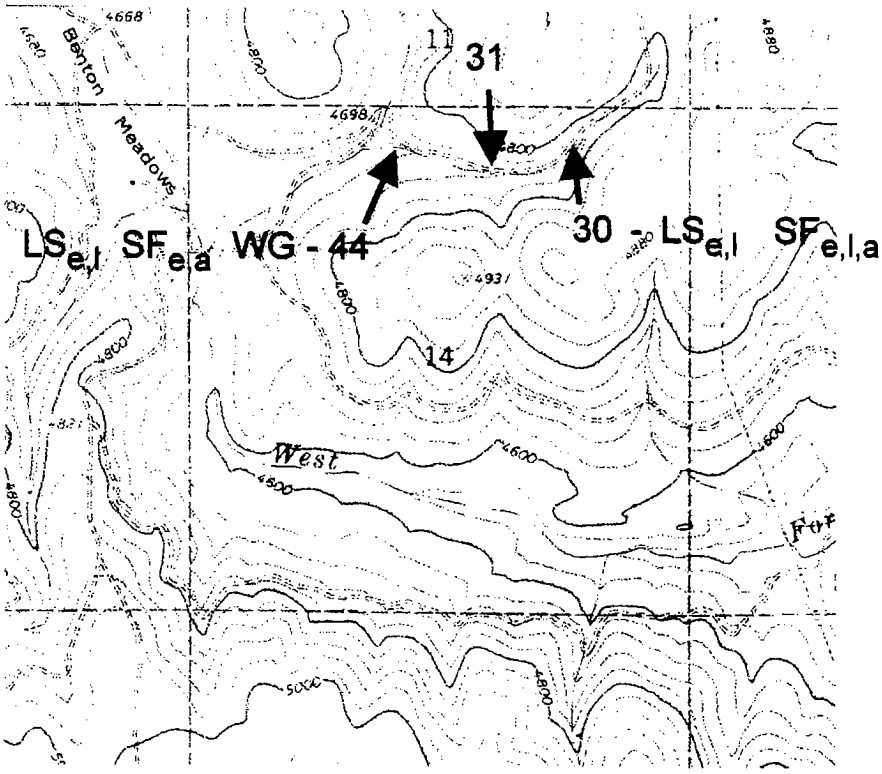

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Figure 38a. Location of ponds and the amphibians and reptiles found from the 1994 and 1995 surveys. The map was scanned from the Frye Point Quadrangle, 7.5 minute series (Topographic) 1986 map. Capital letters indicate species. Small case letters indicate life stage. See legend above.

Site descriptions, Hoover Point, Lewis County vicinity map, Figure 39

Site No.	Wetland Name	Owner	Origin	Type	Species Breeding	Remarks
19	South Section 27 pond	Nez Perce Tribe	human-influenced	permanent	SF, LS, PT, WT, CG, WG	2-pr. Redwing blackbirds and 1-pr. ducks nesting; BUBO found in 1995. Cows present.
20	Middle Section 27 pond	Nez Perce Tribe	human-influenced	temporary	SF, LS, PT WG	Cows present.
21	North Section 27 pond	Nez Perce Tribe	human-influenced	temporary	SF, LS, PT	Large, fairly shallow pond. Fills in with *Juncus* by late summer
22	New Pond- Lewis County	Nez Perce Tribe	human-influenced	temporary	SF, LS, PT, CG, WG	A productive pond in an open forest habitat. Cows present.

Hoover Point, Idaho
Lewis County

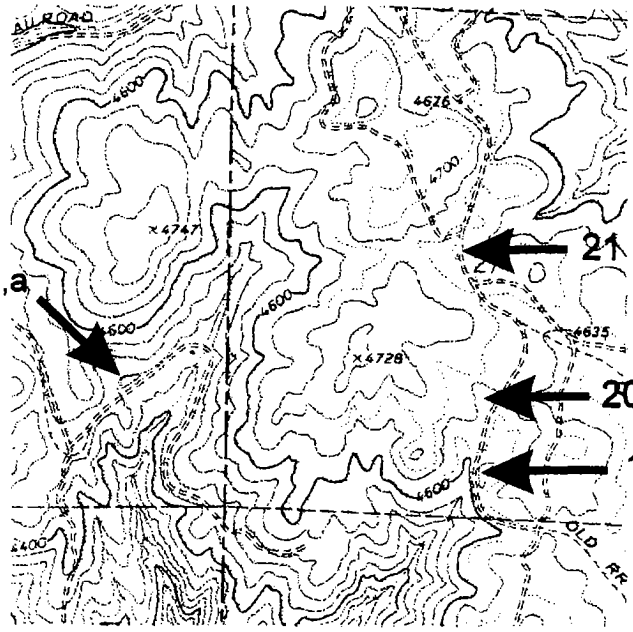

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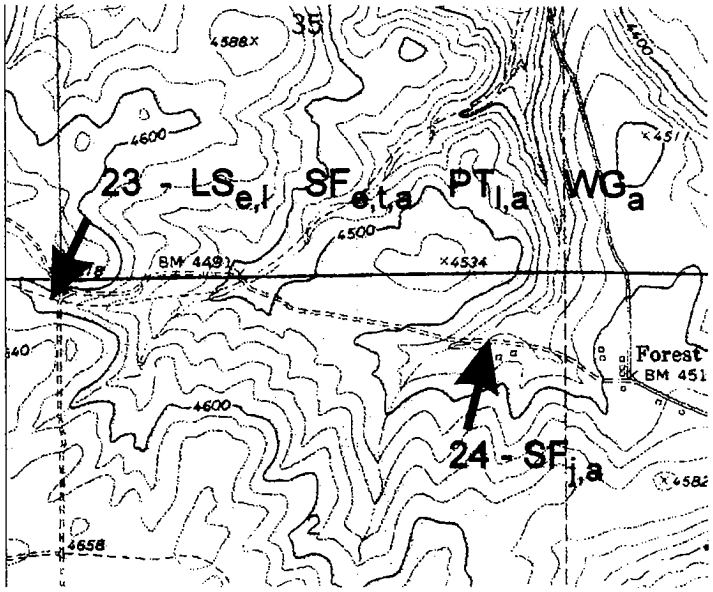
Figure 39. Location of ponds and the amphibians and reptiles found from the 1994 and 1995 surveys. The map was scanned from the Hoover Point Quadrangle, 7.5 minute series (Topographic) 1967 map. Capital letters indicate species. Small case letters indicate life stage.

Site descriptions, East of Soldiers Meadow vicinity, Figure 40

Site No.	Wetland Name	Owner	Origin	Type	Species Breeding	Remarks
23	At the "Y" pond	private	human-influenced	permanent	SF, LS, PT WG	Small *Carex* meadow surrounds most of the pond. Water level recedes little during summer.
24	Forest pond	private	human-influenced	permanent	LS	Pond built around 1991. Rocky substrate. Fairly constant water level.

Winchester West, Idaho

SE Section



1 km

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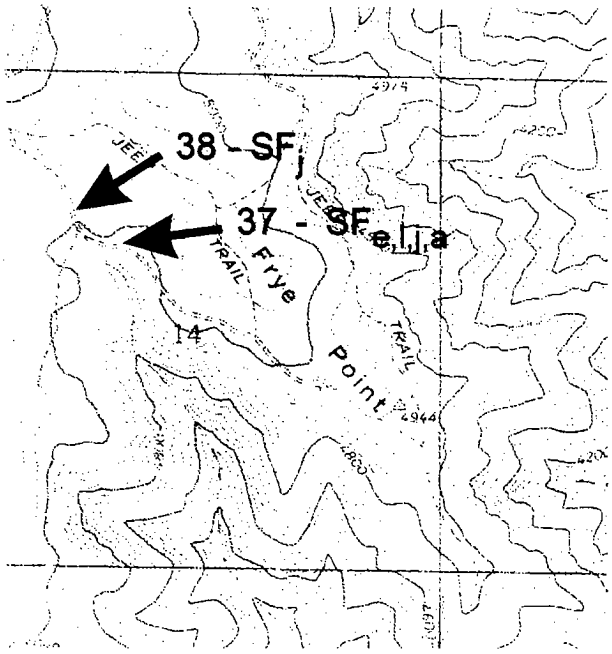
Figure 40. Location of ponds and the amphibians and reptiles found from the 1994 and 1995 surveys. The map was scanned from the Winchester West Quadrangle, 7.5 minute series (Topographic) 1968 map. Capital letters indicate species. Small case letters indicate life stage. See legend above.

Site descriptions, Zaza vicinity map, Figure 41

Site No.	Wetland Name	Owner	Origin	Type	Species Breeding	Remarks
27	Robert's Spring pond	IDFG	man-made	permanent pond	SF. LS. PT. WG	Attracts many SF in late summer. 1- LS larvae found overwintering in 1995. An important breeding area for amphibians
28	Headwaters of Eagle Creek	IDFG	natural	small stream	LS	A small stream that drains into Eagle Creek. LS breeding behind logs, out of the current. Water temp. in that area was 4 C degrees higher.
29	Culvert Pond	IDFG	human-influenced	temporary pond	SF. LS. PT	Pond evaporates by mid-summer, but it depends amt. of precipitation. Pond is formed by a small drainage into Eagle Creek.

Frye Point, Idaho

Frye Point



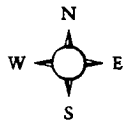


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Figure 45. Location of ponds and the amphibians and reptiles found from 1994 and 1995 surveys. The map was scanned from the Frye Point Quadrangle, 7.5 minute series (Topographic) 1968 map. Capital letters indicate species. Small case letters indicate life stage. See legend above.

Site descriptions, Soldiers Meadows vicinity map, Figure 46

Site No.	Wetland Name	Owner	Origin	Type	Species Breeding	Remarks
35	Cattleguard pond	private	human-influenced	permanent pond	SF, LS	Pond keeps water until late summer. Marshy wetlands surround 1/3 of perimeter. Pond has potential for improvement. Hundreds of SF tadpoles were present.
39	Soldiers Meadow Reservoir	private	man-made	permanent pond	WT	Thousands of WT along west shore Submergent vegetation provides some protection. Fish present.
40	Webb Creek pool	IDFG	human-influenced	permanent pond		

Winchester West, Idaho

Soldiers Meadow

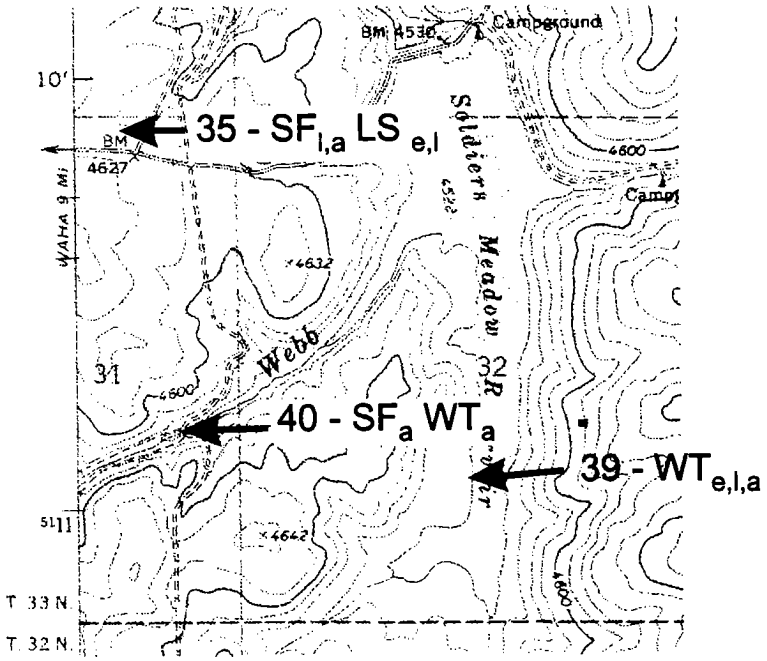

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Figure 46. Location of ponds and the amphibians and reptiles found from the 1994 and 1995 surveys, The map was scanned from the Winchester West Quadrangle, 7.5 minute series (Topographic) 1986 map. Capital letters indicate species. Small case letters indicate life stage. See legend above.

Site descriptions, NW of Madden Corrals vicinity map, Figure 47

Site No.	Wetland Name	Owner	Origin	Type	Species Breeding	Remarks
43	S. Fork Captain John pond	IDFG	human-influenced	permanent pond	SF, LS	Small pond next to a marshy area created by a natural spring. Area is grazed by cattle.

Frye Point, Idaho

NW of Madden Corrals

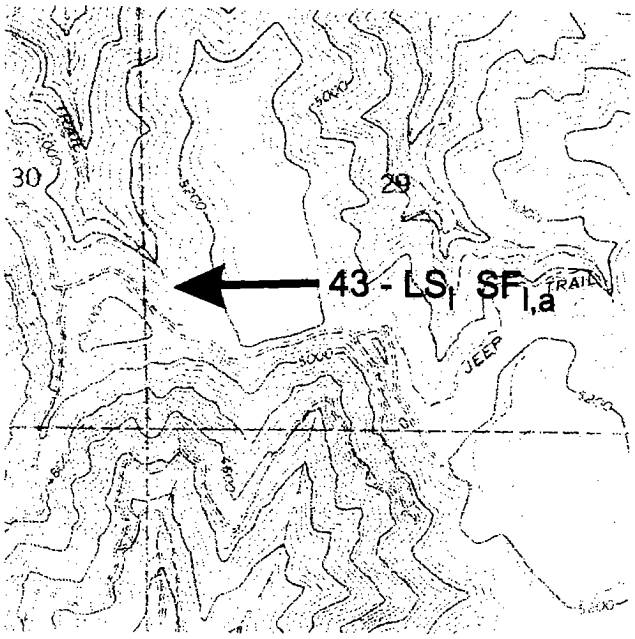

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Figure 47. Location of ponds and the amphibians and reptiles found from the 1994 and 1995 surveys. The map was scanned from the Frye Point Quadrangle, 7.5 minute series (Topographic) 1986 map. Capital letters indicate species. Small case letters indicate life stage. See legend above.

Site descriptions, Snake River - Limekiln Rapids vicinity map, Figure 48

Site No.	Wetland Name	Owner	Origin	Type	Species Breeding	Remarks
45	Limekiln Rapids-Riparian pond	IDFG	natural	temporary pond	SF, WT	Pond fairly deep with emergent vegetaion, woody debris and overhang of a hackberry tree.
46	Limekiln Rapids-Lg. Limekiln pond	IDFG	natural	temporary pond		Pond perimeter is columnar basalt rock. No emergent veg. or protected shallows.
47	Limekiln Rapids-Channel pond	IDFG	natural	temporary pond	SF, WT	1995 sighting of SF tadpoles.
48	Limekin Rapids-Carp pond	IDFG	natural	temporary pond	WT	Pond only present in 1994. the channel changes seasonally

All of these ponds are formed after the Snake River recedes. Carp adults and/or babies, and large-mouth bass can be present before the pond's access to the river is cut off..

Limekiln Rapids, Idaho-Wash.

Limekiln Rapids

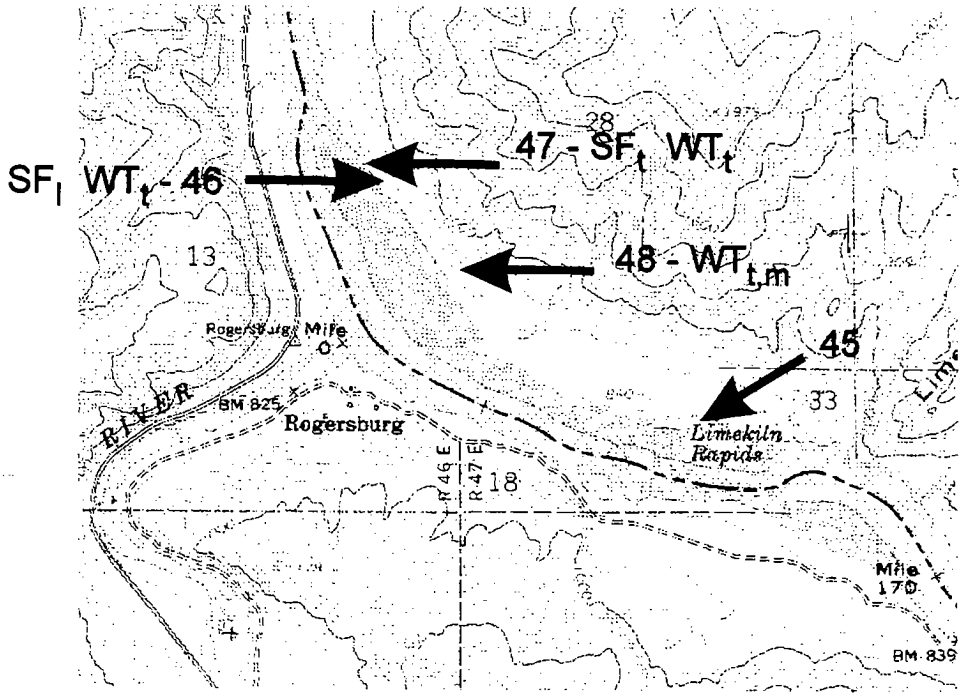

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Figure 48. Location of ponds and the amphibians and reptiles found from the 1994 and 1995 surveys. The map was scanned from the Limekiln Rapids Quadrangle, 7.5 minute series (Topographic) 1968 map. Capital letters indicate species. Small case letters indicate life stage. See legend above.

Site descriptions, Snake River - Chimney and Dough Creek vicinity map, Figure 49

Site No.	Wetland Name	Owner	Origin	Type	Species Breeding	Remarks
49	South Schilling pond	private	natural	temporary pond	WT	The size of these two ponds varies as water levels vary from the dams. Two breeding pulses of WT occurred in 1995
50	North Schilling pond	private	natural	temporary pond	WT	This pond is connected to the above pond small willow trees are the emergent vegetation that toads lay their eggs on.

All Snake River ponds are formed when the river recedes during the summer.

Limekiln Rapids, Idaho-Wash.

Dough & Chimney Creek

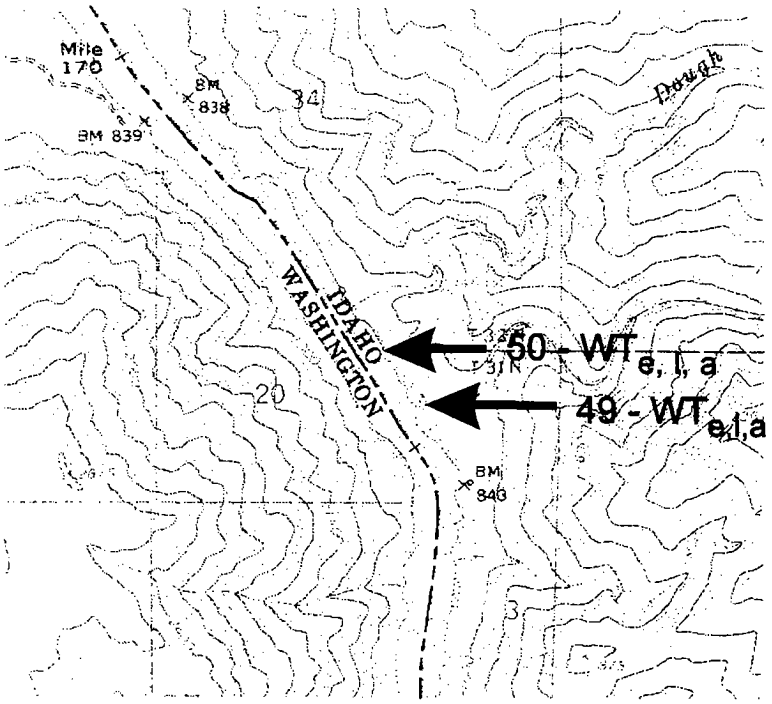

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Figure 49. Location of ponds and the amphibians and reptiles found from the 1994 and 1995 surveys. The map was scanned from the Limekiln Rapids Quadrangle, 7.5 minute series (Topographic) 1968 map. Capital letters indicate species. Small case letters indicate life stage. See legend above.

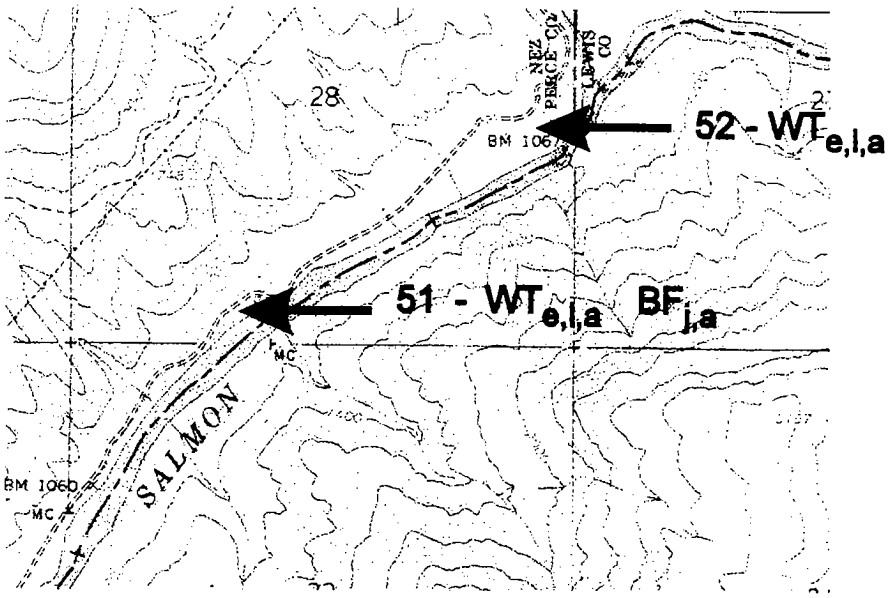
Site descriptions, Salmon River - near mouth of Deer Ck. vicinity map, Figure 50

Site No.	Wetland Name	Owner	Origin	Type	Species Breeding	Remarks
51	Peninsula pond	BLM	natural	temporary pond	WT, BF	1- juv. BF found in 1994; 1-juv., and 1-adult BF found in 1995
52	Nightsnake beach pond	IDFG	natural	temporary pond	WT	3/4 of the perimeter is columnar basalt rock. The remaining is connected to the Salmon River.

All Salmon River ponds are formed when the river recedes in the summer.

Rattlesnake Ridge, Idaho

N. Salmon River Area



LS = Long-toed Salamander
WT = Western (Boreal) Toad
PT = Pacific Treefrog
SF = Spotted Frog
WG = Western Terrestrial Garter Snake
CG = Common Garter Snake

a = adult(s)
c = calling
e = eggs
l = larvae or tadpoles
m = metamorphs (amphibian)
j = juveniles

Figure 50. Location of ponds and the amphibians and reptiles found from the 1994 and 1995 surveys. The map was scanned from the Rattlesnake Ridge Quadrangle, 7.5 minute series (Topographic) 1963 map. Capital letters indicate species. Small case letters indicate life stage. See legend above.

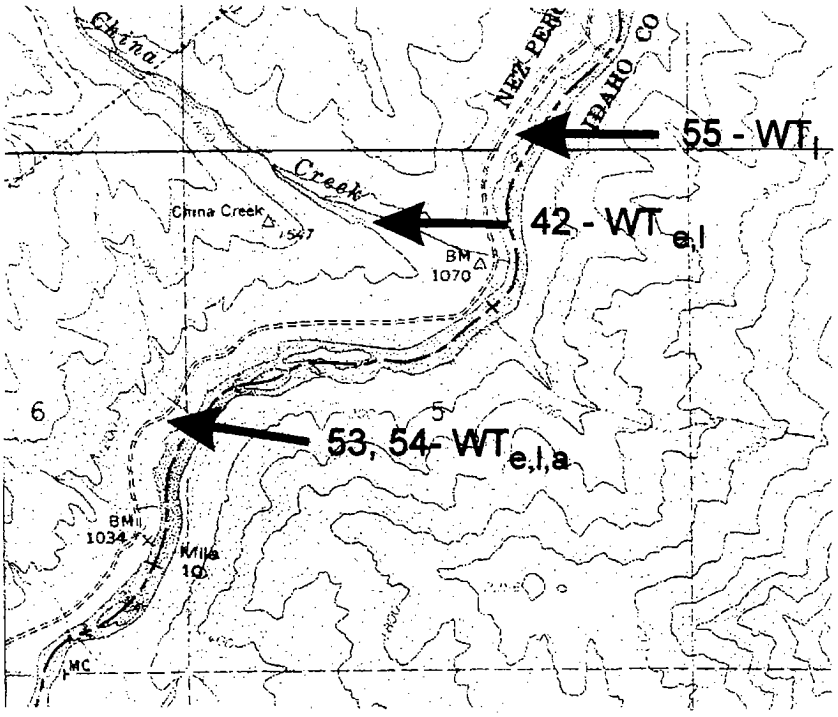
Site descriptions, Salmon River - China Creek vicinity map, Figure 51

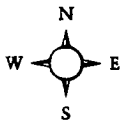
Site No.	Wetland Name	Owner	Origin	Type	Species Breeding	Remarks
42	China Creek mudhole pond	IDFG	natural	temporary pond	WT	Pond present only in 1994.
53	SE China Creek pool	BLM	natural	temporary pond	WT	53 & 54 were originally connected but separated when water evaporated. Tads moved between the two as water level of river varied.
54	SE China Creek pond	BLM	natural	temporary pond	WT	Ponds formed when water gets trapped behind sand or cobble bars.
55	N. China Creek pond	BLM	natural	temporary pond	WT	

All Salmon River ponds are formed when the river recedes in the summer.

Rattlesnake Ridge, Idaho

China Creek Area





1 km

LS = Long-toed Salamander
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Figure 51. Location of ponds and the amphibians and reptiles found from the 1994 and 1995 surveys. The map was scanned from the Rattlesnake Ridge Quadrangle, 7.5 minute series (Topographic) 1963 map. Capital letters indicate species. Small case letters indicate life stage. See legend above.

Co-occurrence of Amphibians and Fish

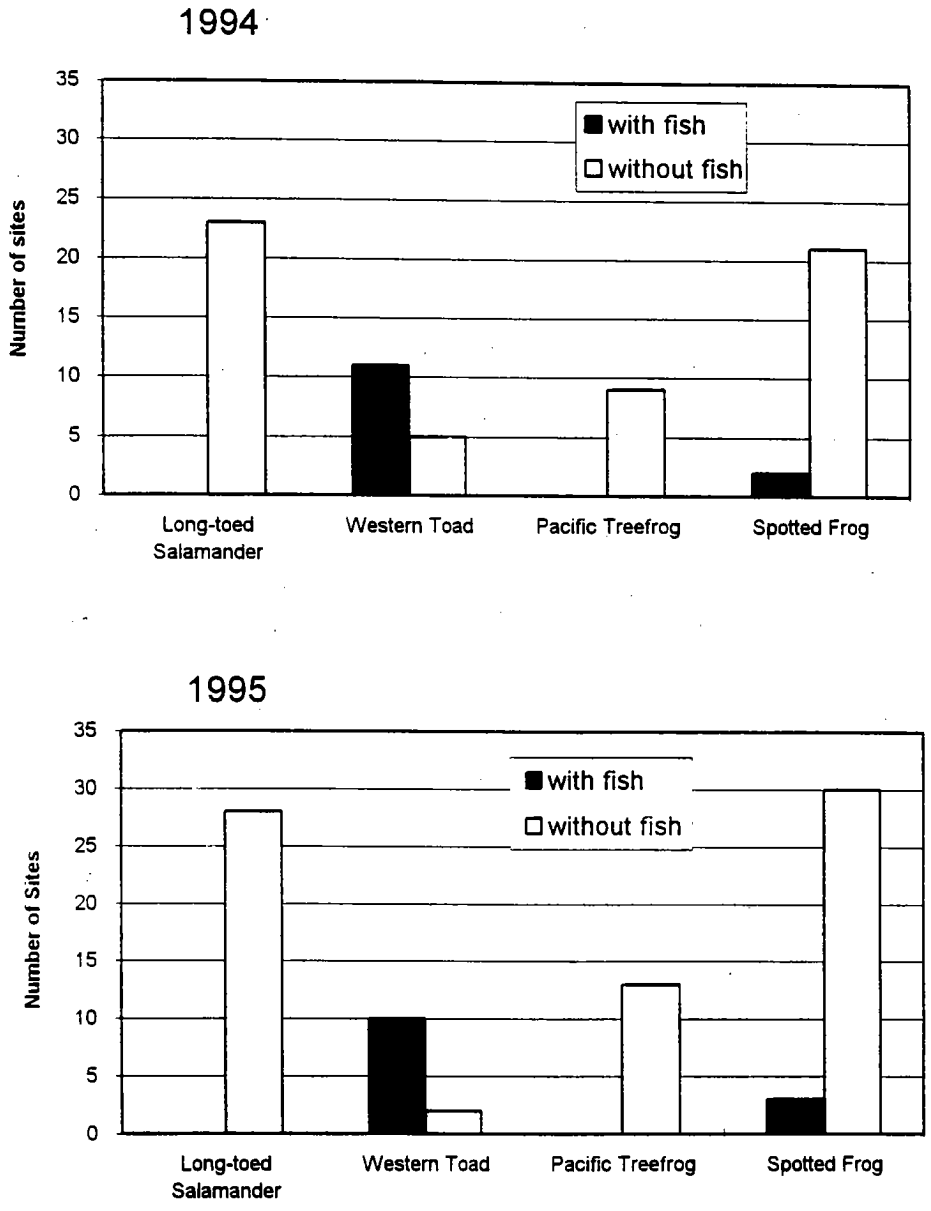


Figure 52. A comparison of the number of amphibian species who occurred in ponds with and without warm water fish. In 1994, only adult Spotted Frogs were observed in ponds with fish. In 1995, Spotted Frog tadpoles were located in a Snake River pond that we assumed to have fish because of its close proximity to the river.

Appendix A

1994 and 1995
Amphibian pond breeding surveys
and
List of ponds and species that occur

1994 Amphibian and Pond Surveys

Pond Name	DATE	BEGIN	END	OBSERVERS	COUNTY	TOPO	OWNER	ELEV. (ft.)	T	R	SEC.	UTM-N	UTM-E	SOURCE	AMMA EGGS	AMMA LARVAE
Benton Meadows-Large	4/10/94	1605	1654	Llewellyn;Peterson	N.P.	Frye pt.	IDFG	4640	32N	4W	10	5107873	514600	Trimble Basic+	50	
Benton Meadows-Large	4/15/94			LLewellyn	N.P.	Frye pt.	IDFG	4641	32N	4W	11	5107873	514600	Trimble Basic+		
Benton Meadows-Large	4/16/94			LLewellyn	N.P.	Frye pt.	IDFG	4642	32N	4W	12	5107873	514600	Trimble Basic+	>40	
Benton Meadows-Large	5/05/94			LLewellyn	N.P.	Frye pt.	IDFG	4643	32N	4W	13	5107873	514600	Trimble Basic+		2
Benton Meadows-Large	5/06/94	1730		LLewellyn	N.P.	Frye pt.	IDFG	4644	32N	4W	14	5107873	514600	Trimble Basic+		
Benton Meadows-Large	5/30/94			LLewellyn	N.P.	Frye pt.	IDFG	4645	32N	4W	15	5107873	514600	Trimble Basic+		
Benton Meadows-Large	6/02/94			LLewellyn	N.P.	Frye pt.	IDFG	4646	32N	4W	16	5107873	514600	Trimble Basic+		
Benton Meadows-Large	6/12/94	1430		LLewellyn	N.P.	Frye pt.	IDFG	4647	32N	4W	17	5107873	514600	Trimble Basic+		
Benton Meadows-Large	6/30/94			LLewellyn	N.P.	Frye pt.	IDFG	4648	32N	4W	18	5107873	514600	Trimble Basic+		
Benton Meadows-Small	4/10/94	1605	1654	Llewellyn;Peterson	N.P.	Frye pt.	IDFG	4649	32N	4W	10	5107846	514578	Trimble Basic+		
Benton Meadows-Small	4/11/94			LLewellyn	N.P.	Frye pt.	IDFG	4650	32N	4W	10	5107846	514578	Trimble Basic+		
Benton Meadows-Small	4/13/94			LLewellyn	N.P.	Frye pt.	IDFG	4651	32N	4W	10	5107846	514578	Trimble Basic+		
Benton Meadows-Small	4/15/94			LLewellyn	N.P.	Frye pt.	IDFG	4652	32N	4W	10	5107846	514578	Trimble Basic+		
Benton Meadows-Small	4/16/94			LLewellyn	N.P.	Frye pt.	IDFG	4653	32N	4W	10	5107846	514578	Trimble Basic+		
Benton Meadows-Small	4/23/94			LLewellyn	N.P.	Frye pt.	IDFG	4654	32N	4W	10	5107846	514578	Trimble Basic+		
Benton Meadows-Small	4/30/94			LLewellyn	N.P.	Frye pt.	IDFG	4655	32N	4W	10	5107846	514578	Trimble Basic+		
Benton Meadows-Small	6/02/94			LLewellyn	N.P.	Frye pt.	IDFG	4656	32N	4W	10	5107846	514578	Trimble Basic+		
Benton Meadows-Small	6/12/94			LLewellyn	N.P.	Frye pt.	IDFG	4657	32N	4W	10	5107846	514578	Trimble Basic+		
Benton Meadows-Small	6/30/94			LLewellyn	N.P.	Frye pt.	IDFG	4658	32N	4W	10	5107846	514578	Trimble Basic+		
Benton Meadows-Channel	4/13/94	1015	1040	Llewellyn	N.P.	Frye pt.	IDFG	4659	32N	4W	10	5107858	514585	Trimble Basic+		
Benton Meadows-Channel	4/16/94			Llewellyn	N.P.	Frye pt.	IDFG	4660	32N	4W	10	5107858	514585	Trimble Basic+		
Benton Meadows-Channel	4/23/94			Llewellyn	N.P.	Frye pt.	IDFG	4661	32N	4W	10	5107858	514585	Trimble Basic+	>5	
Benton Meadows-Channel	4/30/94			Llewellyn	N.P.	Frye pt.	IDFG	4662	32N	4W	10	5107858	514585	Trimble Basic+	hatching	
Benton Meadows-Channel	5/08/94			Llewellyn	N.P.	Frye pt.	IDFG	4663	32N	4W	10	5107858	514585	Trimble Basic+		
Benton Meadows-By the Gate	4/16/94	1545	1625	Llewellyn	N.P.	Frye pt.	IDFG	4664	32N	4W	15	5106980	514935	Topo Map	>10	
Benton Meadows-By the Gate	4/28/94			Llewellyn	N.P.	Frye pt.	IDFG	4665	32N	4W	15	5106980	514935	Topo Map		
Benton Meadows-By the Gate	5/23/94			Llewellyn	N.P.	Frye pt.	IDFG	4666	32N	4W	15	5106980	514935	Topo Map		
Benton Meadows-By the Gate	6/01/94			Llewellyn	N.P.	Frye pt.	IDFG	4667	32N	4W	15	5106980	514935	Topo Map		
Benton Mdws-By the Trailer	4/10/94			Llewellyn	N.P.	Frye pt.	IDFG	4668	32N	4W	15	5107190	514875	Topo Map		
Benton Mdws-By the Trailer	4/20/94			Llewellyn	N.P.	Frye pt.	IDFG	4669	32N	4W	15	5107190	514875	Topo Map	>10	
Benton Mdws-By the Trailer	5/04/94			Llewellyn	N.P.	Frye pt.	IDFG	4670	32N	4W	15	5107190	514875	Topo Map		
Benton Mdws-By the Trailer	5/06/94	1810		Llewellyn	N.P.	Frye pt.	IDFG	4671	32N	4W	15	5107190	514875	Topo Map		
Benton Mdws-By the Trailer	5/09/94			Llewellyn	N.P.	Frye pt.	IDFG	4672	32N	4W	15	5107190	514875	Topo Map		
Benton Mdws-By the Trailer	5/23/94	1340	1413	Llewellyn	N.P.	Frye pt.	IDFG	4673	32N	4W	15	5107190	514875	Topo Map		>50
Benton Mdws-By the Fence	4/18/94	1642	1711	Llewellyn	N.P.	Frye pt.	IDFG	4674	32N	4W	15	5107472	514747	Trimble Basic+	>5	
Benton Mdws-By the Fence	6/01/94			Llewellyn	N.P.	Frye pt.	IDFG	4675	32N	4W	15	5107472	514747	Trimble Basic+		present
Benton Mdws-By the Fence	6/30/94			Llewellyn	N.P.	Frye pt.	IDFG	4676	32N	4W	15	5107472	514747	Trimble Basic+		>10
Benton Mdws-Across the Rd.	6/02/94			Llewellyn	N.P.	Frye pt.	IDFG	4677	32N	4w	15	5107886	514629	Trimble Basic+		>6
Benton Mdws-Across the Rd.	6/12/94			Llewellyn	N.P.	Frye pt.	IDFG	4678	32N	4w	15	5107886	514629	Trimble Basic+		>5
Benton Mdws-Across the Rd.	6/30/94			Llewellyn	N.P.	Frye pt.	IDFG	4679	32N	4w	15	5107886	514629	Trimble Basic+		
E.Larabee Mdws-Small	4/16/94	1015	1058	Llewellyn	N.P.	Frye pt.	IDFG	4360	32N	3W	18	5106400	518212	Trimble Basic+	2-4	
E.Larabee Mdws-Small	4/28/94			Llewellyn	N.P.	Frye pt.	IDFG	4360	32N	3W	18	5106400	518212	Trimble Basic+		
E.Larabee Mdws-Small	7/07/94			Llewellyn	N.P.	Frye pt.	IDFG	4360	32N	3W	18	5106400	518212	Trimble Basic+		
E.Larabee Mdws-Pinecone	4/28/94	1238	1310	Llewellyn	N.P.	Frye pt.	IDFG	4420	32N	3W	18	5106429	518285	Trimble Basic+	>13	
E.Larabee Mdws-Pinecone	7/07/94			Llewellyn	N.P.	Frye pt.	IDFG	4421	32N	3W	18	5106429	518285	Trimble Basic+		
E.Larabee Mdws-Thumb	4/16/94	1104	1151	Llewellyn	N.P.	Frye pt.	IDFG	4360	32N	3W	18	5106442	518333	Trimble Basic+		
E.Larabee Mdws-Thumb	4/23/94			Llewellyn	N.P.	Frye pt.	IDFG	4361	32N	3W	18	5106442	518333	Trimble Basic+		
E.Larabee Mdws-Thumb	4/28/94			Llewellyn	N.P.	Frye pt.	IDFG	4362	32N	3W	18	5106442	518333	Trimble Basic+	>10	

Pond Name	DATE	AMMA ADULTS	RAPR EGGS	RAPR TADS	RAPR JUV.	RAPR ADULTS	BUBO EGGS	BUBO TADS	BUBO ADULTS	PSRE EGGS	PSRE TADS	PSRE ADULTS	PSRE VOCAL	THEL	THSI	SPIN	RACA
Benton Meadows-Large	4/10/94	3				1-amplex.	E	T									
Benton Meadows-Large	4/15/94					1,1-amplex.											
Benton Meadows-Large	4/16/94	2															
Benton Meadows-Large	5/05/94					2	>12		1pr.amplex.								
Benton Meadows-Large	5/06/94					1			2pr.amplex.								
Benton Meadows-Large	5/30/94					1pr.amplex.		>100									
Benton Meadows-Large	6/02/94					11											
Benton Meadows-Large	6/12/94					33											
Benton Meadows-Large	6/30/94				>10	>60											
Benton Meadows-Small	4/10/94			T	J	3						A					
Benton Meadows-Small	4/11/94		7														
Benton Meadows-Small	4/13/94		2														
Benton Meadows-Small	4/15/94		12														
Benton Meadows-Small	4/16/94		47			10						1					
Benton Meadows-Small	4/23/94			hatching													
Benton Meadows-Small	4/30/94																
Benton Meadows-Small	6/02/94				4	2											
Benton Meadows-Small	6/12/94																
Benton Meadows-Small	6/30/94																
Benton Meadows-Channel	4/13/94																
Benton Meadows-Channel	4/16/94		13														
Benton Meadows-Channel	4/23/94						>5										
Benton Meadows-Channel	4/30/94							hatching									
Benton Meadows-Channel	5/08/94			>300			>25										
Benton Meadows-By the Gate	4/16/94		3			1											
Benton Meadows-By the Gate	4/28/94		3	>25		2											
Benton Meadows-By the Gate	5/23/94			>100													
Benton Meadows-By the Gate	6/01/94																
Benton Mdws-By the Trailer	4/10/94											vocal					
Benton Mdws-By the Trailer	4/20/94					1											
Benton Mdws-By the Trailer	5/04/94									2							
Benton Mdws-By the Trailer	5/06/94				4												
Benton Mdws-By the Trailer	5/09/94											vocal					
Benton Mdws-By the Trailer	5/23/94		2	>300								4/16					
Benton Mdws-By the Fence	4/18/94					2											
Benton Mdws-By the Fence	6/01/94																
Benton Mdws-By the Fence	6/30/94																
Benton Mdws-Across the Rd.	6/02/94			>200		4		>175									
Benton Mdws-Across the Rd.	6/12/94																
Benton Mdws-Across the Rd.	6/30/94																
E.Larabee Mdws-Small	4/16/94		2														
E.Larabee Mdws-Small	4/28/94			>50													
E.Larabee Mdws-Small	7/07/94																
E.Larabee Mdws-Pinecone	4/28/94		4	>200	2												
E.Larabee Mdws-Pinecone	7/07/94			>5													
E.Larabee Mdws-Thumb	4/16/94		3	>4										2			
E.Larabee Mdws-Thumb	4/23/94																
E.Larabee Mdws-Thumb	4/28/94			>200													

Pond Name	DATE	WEATHER	WIND	AIR C	WATER C	pH	COND. m. siemens	COLOR	TURBID.	ORIGIN	DRAINAGE	WETLAND	DESCRIPT	LNGTH	WIDTH
Benton Meadows-Large	4/10/94	ovcast	light	7.2	11.4	6.4	60	clear	cloudy	man-made	W.Fork Deer Ck.	Palustrine	perm.pond	109	75
Benton Meadows-Large	4/15/94									man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
Benton Meadows-Large	4/16/94									man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
Benton Meadows-Large	5/05/94									man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
Benton Meadows-Large	5/06/94									man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
Benton Meadows-Large	5/30/94									man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
Benton Meadows-Large	6/02/94									man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
Benton Meadows-Large	6/12/94					8.2	60			man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
Benton Meadows-Large	6/30/94			32	29	8.9	80			man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
Benton Meadows-Small	4/10/94	ovcast	light	7.4	11.4	6.8	80	clear	cloudy	man-made	W.Fork Deer Ck.	Palustrine	temp.pond	60	36
Benton Meadows-Small	4/11/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Meadows-Small	4/13/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Meadows-Small	4/15/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Meadows-Small	4/16/94			15.2	15.7	6.8	80			man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Meadows-Small	4/23/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Meadows-Small	4/30/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Meadows-Small	6/02/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Meadows-Small	6/12/94					7.4	90			man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Meadows-Small	6/30/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Meadows-Channel	4/13/94	ovcast	calm	7.2		6.6		clear	clear	man-made	W.Fork Deer Ck.	Palustrine	temp.pond	12	5
Benton Meadows-Channel	4/16/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Meadows-Channel	4/23/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Meadows-Channel	4/30/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Meadows-Channel	5/08/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Meadows-By the Gate	4/16/94	clear	calm		13.6	7.2	80	clear	clear	man-made	na	Palustrine	temp.pond	42	10
Benton Meadows-By the Gate	4/28/94									man-made	na	Palustrine	temp.pond		
Benton Meadows-By the Gate	5/23/94									man-made	na	Palustrine	temp.pond		
Benton Meadows-By the Gate	6/01/94									man-made	na	Palustrine	temp.pond		
Benton Mdws-By the Trailer	4/10/94									man-made	na	Palustrine	temp.pond		
Benton Mdws-By the Trailer	4/20/94									man-made	na	Palustrine	temp.pond		
Benton Mdws-By the Trailer	5/04/94									man-made	na	Palustrine	temp.pond		
Benton Mdws-By the Trailer	5/06/94									man-made	na	Palustrine	temp.pond		
Benton Mdws-By the Trailer	5/09/94									man-made	na	Palustrine	temp.pond		
Benton Mdws-By the Trailer	5/23/94	clear	calm	20.2	18.6	6.5	60	clear	clear	natural	W.Fork Deer Ck.	Palustrine	temp.pond	40	9
Benton Mdws-By the Fence	4/18/94	ovcast	calm	7.8		7.2		clear	clear	natural	W.Fork Deer Ck.	Palustrine	perm.pond	10	8
Benton Mdws-By the Fence	6/01/94									natural	W.Fork Deer Ck.	Palustrine	perm.pond		
Benton Mdws-By the Fence	6/30/94			32	24	7.9	110			natural	W.Fork Deer Ck.	Palustrine	perm.pond		
Benton Mdws-Across the Rd.	6/02/94	Clear	calm			6.5	70	clear	clear	man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Mdws-Across the Rd.	6/12/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
Benton Mdws-Across the Rd.	6/30/94				31	9.7	90			man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
E.Larabee Mdws-Small	4/16/94	clear	light	23	16.3	6.9	40	clear	clear	man-made	W.Fork Deer Ck.	Palustrine	temp.pond	18	10
E.Larabee Mdws-Small	4/28/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
E.Larabee Mdws-Small	7/07/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
E.Larabee Mdws-Pinecone	4/28/94	clear	light	14.6	17.8	7.2	60	clear	clear	man-made	W.Fork Deer Ck.	Palustrine	temp.pond	12	10
E.Larabee Mdws-Pinecone	7/07/94			24		7.5	70			man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
E.Larabee Mdws-Thumb	4/16/94	clear	light					clear	clear	man-made	W.Fork Deer Ck.	Palustrine	temp.pond	25	7
E.Larabee Mdws-Thumb	4/23/94			23	19.1	7.1	60			man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
E.Larabee Mdws-Thumb	4/28/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		

1994 Amphibian and Pond Surve

Pond Name	DATE	MAX.DEPTH	SUBSTRATE	%E.V.	SHALLOWS?	FOREST?
Benton Meadows-Large	4/10/94	1-2 M	SILT/MUD	1-25	ABSENT	100M
Benton Meadows-Large	4/15/94					
Benton Meadows-Large	4/16/94					
Benton Meadows-Large	5/05/94					
Benton Meadows-Large	5/06/94					
Benton Meadows-Large	5/30/94					
Benton Meadows-Large	6/02/94					
Benton Meadows-Large	6/12/94					
Benton Meadows-Large	6/30/94					
Benton Meadows-Small	4/10/94	<1m	silt/mud	>50	present	100m
Benton Meadows-Small	4/11/94					
Benton Meadows-Small	4/13/94					
Benton Meadows-Small	4/15/94					
Benton Meadows-Small	4/16/94					
Benton Meadows-Small	4/23/94					
Benton Meadows-Small	4/30/94					
Benton Meadows-Small	6/02/94					
Benton Meadows-Small	6/12/94					
Benton Meadows-Small	6/30/94					
Benton Meadows-Channel	4/13/94	<1m	silt/mud	0	present	100m
Benton Meadows-Channel	4/16/94					
Benton Meadows-Channel	4/23/94					
Benton Meadows-Channel	4/30/94					
Benton Meadows-Channel	5/08/94					
Benton Meadows-By the Gate	4/16/94	<1m	silt/mud	0	absent	100
Benton Meadows-By the Gate	4/28/94					
Benton Meadows-By the Gate	5/23/94					
Benton Meadows-By the Gate	6/01/94					
Benton Mdws-By the Trailer	4/10/94					
Benton Mdws-By the Trailer	4/20/94					
Benton Mdws-By the Trailer	5/04/94					
Benton Mdws-By the Trailer	5/06/94					
Benton Mdws-By the Trailer	5/09/94					
Benton Mdws-By the Trailer	5/23/94	<1m	silt/mud	>50	present	200
Benton Mdws-By the Fence	4/18/94	<1m	silt/mud	>50	absent	50
Benton Mdws-By the Fence	6/01/94					
Benton Mdws-By the Fence	6/30/94					
Benton Mdws-Across the Rd.	6/02/94		silt/mud	>50	present	100m
Benton Mdws-Across the Rd.	6/12/94					
Benton Mdws-Across the Rd.	6/30/94					
E.Larabee Mdws-Small	4/16/94	<1m	silt/mud	0	absent	125
E.Larabee Mdws-Small	4/28/94					
E.Larabee Mdws-Small	7/07/94					
E.Larabee Mdws-Pinecone	4/28/94	<1m	silt/mud	1-25	present	300
E.Larabee Mdws-Pinecone	7/07/94					
E.Larabee Mdws-Thumb	4/16/94	<1m	silt/mud	0	absent	150
E.Larabee Mdws-Thumb	4/23/94					
E.Larabee Mdws-Thumb	4/28/94					

Pond Name	DATE	BEGIN	END	OBSERVERS	COUNTY	TOPO	OWNER	ELEV. (ft.)	T	R	SEC.	UTM-N	UTM-E	SOURCE	AMMA EGGS	AMMA LARVAE
E.Larabee Mdws-Thumb	7/07/94			Llewellyn	N.P.	Frye pt.	IDFG	4363	32N	3W	18	5106442	518333	Trimble Basic+		>4
E.Larabee Mdws-Thumb	7/12/94			Llewellyn	N.P.	Frye pt.	IDFG	4364	32N	3W	18	5106442	518333	Trimble Basic+		
E.Larabee Mdws-Rd. Ditch	4/16/94	1154	1238	Llewellyn	N.P.	Frye pt.	IDFG	4360	32N	3W	18	5106473	518379	Trimble Basic+		
E.Larabee Mdws-Rd. Ditch	4/28/94			Llewellyn	N.P.	Frye pt.	IDFG	4361	32N	3W	18	5106473	518379	Trimble Basic+	>200	
E.Larabee Mdws-Rd. Ditch	7/07/94			Llewellyn	N.P.	Frye pt.	IDFG	4362	32N	3W	18	5106473	518379	Trimble Basic+		
E.Larabee Mdws-Elbow	4/28/94	1329	1408	Llewellyn	N.P.	Frye pt.	IDFG	4370	32N	3W	18	5106451	518319	Trimble Basic+	>5	
E.Larabee Mdws-Elbow	7/07/94			Llewellyn	N.P.	Frye pt.	IDFG	4371	32N	3W	18	5106451	518319	Trimble Basic+		>10
E.Larabee Meadows-Dam	4/16/94	1320	1353	Llewellyn	N.P.	Frye pt.	priv.	4500	32N	3W	18	5107212	518990	Trimble Basic+		
E.Larabee Meadows-Dam	7/07/94	1310		Llewellyn	N.P.	Frye pt.	priv.	4501	32N	3W	18	5107212	518990	Trimble Basic+		
E.Larabee Mdws-Dam1	7/07/94	1325	1353	Llewellyn	N.P.	Frye pt.	priv.	4500	32N	3W	18	5107212	518957	Trimble Basic+		>10
E.Larabee Mdws-Pond by Cabin	4/28/94	1115	1150	Llewellyn	N.P.	Frye pt.	priv.	4440	32N	3W	13	5106608	517878	Trimble Basic+	E	
E.Larabee Mdws-Pond by Cabin	7/07/94	1100		Llewellyn	N.P.	Frye pt.	priv.	4441	32N	3W	13	5106608	517878	Trimble Basic+		
W.Larabee Mdws-Spring	4/17/94	1150	1300	Llewellyn	N.P.	Frye pt.	priv.	4530	32N	4W	14	5106110	515690	Topo Map	>8	
W.Larabee Mdws-Spring	5/10/94	1144	1216	Llewellyn	N.P.	Frye pt.	priv.	4531	32N	4W	14	5106110	515690	Topo Map		
W.Larabee Mdws-Spring	7/07/94			Llewellyn	N.P.	Frye pt.	priv.	4532	32N	4W	14	5106110	515690	Topo Map		
W.Larabee Mdws-Ditch	4/17/94	1100	1143	Llewellyn	N.P.	Frye pt.	priv.	4580	32N	4W	14	5106070	515845	Topo Map		
W.Larabee Mdws-Ditch	5/10/94	1220	1241	Llewellyn	N.P.	Frye pt.	priv.	4581	32N	4W	14	5106070	515845	Topo Map	12	
W.Larabee Mdws-Ditch	7/07/94			Llewellyn	N.P.	Frye pt.	priv.	4582	32N	4W	14	5106070	515845	Topo Map		
W.Larabee Mdws-Upper	4/17/94	1013	1057	Llewellyn	N.P.	Frye pt.	priv.	4650	32N	4W	14	5105985	515650	Topo Map	E	
W.Larabee Mdws-Upper	5/10/94	1245	1324	Llewellyn	N.P.	Frye pt.	priv.	4651	32N	4W	14	5105985	515650	Topo Map		
W.Larabee Mdws-Upper	7/07/94			Llewellyn	N.P.	Frye pt.	priv.	4652	32N	4W	14	5105985	515650	Topo Map		
Lewis Co.-South Sec.27	4/24/94	1215	1254	Llewellyn	Lewis	Hoover	N.P.	4580	32N	3W	27	5102990	523720	Trimble Basic+	>2	
Lewis Co.-South Sec.27	6/27/94			Llewellyn;Singer	Lewis	Hoover	N.P.	4581	32N	3W	27	5102990	523720	Trimble Basic+		
Lewis Co.-South Sec.27	7/20/94	1100	1220	Llewellyn;Rabe	Lewis	Hoover	N.P.	4582	32N	3W	27	5102990	523720	Trimble Basic+		
Lewis Co.-Middle Sec.27	4/24/94	1138	1213	Llewellyn	Lewis	Hoover	N.P.	4600	32N	3W	27	5103185	523745	Trimble Basic+	10	
Lewis Co.-Middle Sec.27	6/27/94			Llewellyn;Singer	Lewis	Hoover	N.P.	4601	32N	3W	27	5103185	523745	Trimble Basic+		>20
Lewis Co.-Middle Sec.27	7/20/94	1228	1315	Llewellyn;Rabe	Lewis	Hoover	N.P.	4602	32N	3W	27	5103185	523745	Trimble Basic+		>25
Lewis Co.-North Sec. 27	4/24/94	1257	1354	Llewellyn	Lewis	Hoover	N.P.	4580	32N	3W	27	5103690	523629	Trimble Basic+	10	
Lewis Co.-North Sec. 27	6/27/94	1428		Llewellyn;Singer	Lewis	Hoover	N.P.	4581	32N	3W	27	5103690	523629	Trimble Basic+		>10
Lewis Co.-North Sec. 27	7/20/94	1320		Llewellyn;Rabe	Lewis	Hoover	N.P.	4582	32N	3W	27	5103690	523629	Trimble Basic+		metamorphs
Lewis Co.-At the Y	4/23/94	1426	1530	Llewellyn	Lewis	Hoover	priv.	4590	32N	3W	3	5110799	524589	Trimble Basic+	>15	
Lewis Co.-At the Y	6/08/94	1120		Llewellyn	Lewis	Hoover	priv.	4591	32N	3W	4	5110799	524589	Trimble Basic+		>30
Lewis Co.-At the Y	6/27/94			Llewellyn;Singer	Lewis	Hoover	priv.	4592	32N	3W	5	5110799	524589	Trimble Basic+		
Lewis Co.-Forest Pond	4/23/94	1051	1135	Llewellyn	Lewis	Hoover	priv.	4410	32N	3W	2	5110485	526030	Topo Map		
Lewis Co.-Forest Pond	4/28/94			Llewellyn	Lewis	Hoover	priv.	4411	32N	3W	2	5110485	526030	Topo Map		
Lewis Co.-Forest Pond	6/08/94	937	955	Llewellyn	Lewis	Hoover	priv.	4412	32N	3W	2	5110485	526030	Topo Map		
Lewis Co.-Lg.Deer Ck.Trib.	5/07/94	1008	1025	Llewellyn	Lewis	Win.West	priv.	4600	32N	3W	3	5109518	524454	Trimble Basic+		
Lewis Co.-Lg.Deer Ck.Trib.	6/08/94	1015		Llewellyn	Lewis	Win.West	priv.	4601	32N	3W	3	5109518	524454	Trimble Basic+		
Lewis Co.-Lg.Deer Ck.Trib.	7/20/94	1358		Llewellyn;Rabe	Lewis	Win.West	priv.	4602	32N	3W	3	5109518	524454	Trimble Basic+		
Lewis Co.-Sm.Deer Ck. Trib.	5/07/94	1026	1130	Llewellyn	Lewis	Win.West	priv.	4600	32N	3W	3	5109541	524452	Trimble Basic+		
Lewis Co.-Sm.Deer Ck. Trib.	6/08/94	1015		Llewellyn	Lewis	Win.West	priv.	4601	32N	3W	3	5109541	524452	Trimble Basic+		
Lewis Co.-Sm.Deer Ck. Trib.	7/20/94	1430		Llewellyn;Rabe	Lewis	Win.West	priv.	4602	32N	3W	3	5109541	524452	Trimble Basic+		
Zaza Rd.-Roberts Spring	4/19/94	842	915	Llewellyn	N.P.	Frye Pt.	IDFG	5050	31N	4W	4	5099828	511902	Trimble Basic+	20	
Zaza Rd.-Roberts Spring	4/26/94			Llewellyn	N.P.	Frye Pt.	IDFG	5051	31N	4W	4	5099828	511902	Trimble Basic+	30 more	
Zaza Rd.-Roberts Spring	5/01/94	1632		Llewellyn	N.P	Frye Pt.	IDFG	5052	31N	4W	4	5099828	511902	Trimble Basic+	>10 more	
Zaza Rd.-Roberts Spring	6/13/94			Llewellyn	N.P.	Frye Pt.	IDFG	5053	31N	4W	4	5099828	511902	Trimble Basic+		>10
Zaza Rd.- Hdwaters Eagle Ck	5/30/94	1653	1735	Llewellyn	N.P.	Frye Pt.	IDFG	5100	32N	4W	33	5101458	511933	Trimble Basic+	6	
Zaza Rd.- Hdwaters Eagle Ck	6/13/94			Llewellyn	N.P.	Frye Pt.	IDFG	5101	32N	4W	33	5101458	511933	Trimble Basic+	6	5

1994 Amphibian and Pond Surve

Pond Name	DATE	AMMA ADULTS	RAPR EGGS	RAPR TADS	RAPR JUV.	RAPR ADULTS	BUBO EGGS	BUBO TADS	BUBO ADULTS	PSRE EGGS	PSRE TADS	PSRE ADULTS	PSRE VOCAL	THEL	THSI	SPIN	RACA
E.Larabee Mdws-Thumb	7/07/94													3	1		
E.Larabee Mdws-Thumb	7/12/94													2	1		
E.Larabee Mdws-Rd. Ditch	4/16/94				3	2											
E.Larabee Mdws-Rd. Ditch	4/28/94				3												
E.Larabee Mdws-Rd. Ditch	7/07/94																
E.Larabee Mdws-Elbow	4/28/94				3	2											
E.Larabee Mdws-Elbow	7/07/94			>30													
E.Larabee Meadows-Dam	4/16/94																
E.Larabee Meadows-Dam	7/07/94					2											
E.Larabee Mdws-Dam1	7/07/94			4											1		
E.Larabee Mdws-Pond by Cabin	4/28/94		>9	>500		4							V				
E.Larabee Mdws-Pond by Cabin	7/07/94																
W.Larabee Mdws-Spring	4/17/94					6	E	T									
W.Larabee Mdws-Spring	5/10/94		10			5											
W.Larabee Mdws-Spring	7/07/94			>100				>100									
W.Larabee Mdws-Ditch	4/17/94					A											
W.Larabee Mdws-Ditch	5/10/94																
W.Larabee Mdws-Ditch	7/07/94																
W.Larabee Mdws-Upper	4/17/94					1-amplex.											
W.Larabee Mdws-Upper	5/10/94				>250	11	>12					1					
W.Larabee Mdws-Upper	7/07/94			>200		4		>200									
Lewis Co.-South Sec.27	4/24/94		19	T		7											
Lewis Co.-South Sec.27	6/27/94				>3	>14								1-yg	3		
Lewis Co.-South Sec.27	7/20/94			metamorph		>7					metamorph			1			
Lewis Co.-Middle Sec.27	4/24/94																
Lewis Co.-Middle Sec.27	6/27/94				1	1								6-yg.			
Lewis Co.-Middle Sec.27	7/20/94																
Lewis Co.-North Sec. 27	4/24/94																
Lewis Co.-North Sec. 27	6/27/94			>10	1						>20			5-yg.			
Lewis Co.-North Sec. 27	7/20/94													6-yg			
Lewis Co.-At the Y	4/23/94		5			2				>5		1		3-4 Ad.			
Lewis Co.-At the Y	6/08/94			>200		4											
Lewis Co.-At the Y	6/27/94																
Lewis Co.-Forest Pond	4/23/94					1											
Lewis Co.-Forest Pond	4/28/94																
Lewis Co.-Forest Pond	6/08/94				2	7											
Lewis Co.-Lg.Deer Ck.Trib.	5/07/94																
Lewis Co.-Lg.Deer Ck.Trib.	6/08/94																
Lewis Co.-Lg.Deer Ck.Trib.	7/20/94																
Lewis Co.-Sm.Deer Ck. Trib.	5/07/94						>18	>500			T						
Lewis Co.-Sm.Deer Ck. Trib.	6/08/94							>150									
Lewis Co.-Sm.Deer Ck. Trib.	7/20/94																
Zaza Rd.-Roberts Spring	4/19/94	5				2-dead								Y			
Zaza Rd.-Roberts Spring	4/26/94																
Zaza Rd.-Roberts Spring	5/01/94		4			2							1				
Zaza Rd.-Roberts Spring	6/13/94			>50							>30						
Zaza Rd.- Hdwaters Eagle Ck	5/30/94					A											
Zaza Rd.- Hdwaters Eagle Ck	6/13/94																

Pond Name	DATE	WEATHER	WIND	AIR C	WATER C	pH	COND. m. siemens	COLOR	TURBID.	ORIGIN	DRAINAGE	WETLAND	DESCRIPT	LNGTH	WIDTH
E.Larabee Mdws-Thumb	7/07/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
E.Larabee Mdws-Thumb	7/12/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
E.Larabee Mdws-Rd. Ditch	4/16/94	ovcast	light	23	13.9		40	clear	clear	man-made	W.Fork Deer Ck.	Palustrine	temp.pond	150	12
E.Larabee Mdws-Rd. Ditch	4/28/94				17.5	7.4	50			man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
E.Larabee Mdws-Rd. Ditch	7/07/94									man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
E.Larabee Mdws-Elbow	4/28/94	clear	calm	14.6	17.3	7	60	clear	clear	man-made	W.Fork Deer Ck.	Palustrine	temp.pond	60	5
E.Larabee Mdws-Elbow	7/07/94				24.5	8.3	70			man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
E.Larabee Meadows-Dam	4/16/94	ovcast	light	20.5	7.4	8.5	30	clear	clear	man-made	W.Fork Deer Ck.	Lacustrine	perm.pond	100	48
E.Larabee Meadows-Dam	7/07/94				19	8.7	60			man-made	W.Fork Deer Ck.	Lacustrine	perm.pond		
E.Larabee Mdws-Dam1	7/07/94	clear	light			7.7	90	clear	clear	natural	none	Palustrine	temp.pond	20	6
E.Larabee Mdws-Pond by Cabin	4/28/94	clear	light	14.6	14	7.7	80	clear	clear	man-made	W.Fork Deer Ck.	Palustrine	temp.pond	60	20
E.Larabee Mdws-Pond by Cabin	7/07/94			24	22.5	7.5	40			man-made	W.Fork Deer Ck.	Palustrine	temp.pond		
W.Larabee Mdws-Spring	4/17/94	ovcast	calm	22	9.1	6.8	30	clear	clear	man-made	W.Fork Deer Ck.	Palustrine	perm.pond	35	100
W.Larabee Mdws-Spring	5/10/94	clear	calm	23.2	16.4	6.8	40			man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
W.Larabee Mdws-Spring	7/07/94				23	7.8	60			man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
W.Larabee Mdws-Ditch	4/17/94	ovcast	calm	22	13.4	6.8	30	clear	clear	man-made	W.Fork Deer Ck.	Palustrine	perm.pond	90	15
W.Larabee Mdws-Ditch	5/10/94	clear	calm	23.2	16.4	6.8	40			man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
W.Larabee Mdws-Ditch	7/07/94					8.3	60			man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
W.Larabee Mdws-Upper	4/17/94	ovcast	calm	21.4	12.1		40	clear	clear	man-made	W.Fork Deer Ck.	Palustrine	perm.pond	50	35
W.Larabee Mdws-Upper	5/10/94	clear	calm	23.2	21.4	8.1	40			man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
W.Larabee Mdws-Upper	7/07/94					11.6	60			man-made	W.Fork Deer Ck.	Palustrine	perm.pond		
Lewis Co.-South Sec.27	4/24/94	ovcast	calm	11.6	13.8	9.3	100	clear	clear	man-made	na	Palustrine	perm.pond	25	15
Lewis Co.-South Sec.27	6/27/94									man-made	na	Palustrine	perm.pond		
Lewis Co.-South Sec.27	7/20/94									man-made	na	Palustrine	perm.pond		
Lewis Co.-Middle Sec.27	4/24/94	ovcast	calm	11.4	15.8	8.6	160	clear	clear	man-made	na	Palustrine	temp. pond	150	75
Lewis Co.-Middle Sec.27	6/27/94					8.6	200			man-made	na	Palustrine	temp. pond		
Lewis Co.-Middle Sec.27	7/20/94									man-made	na	Palustrine	temp. pond		
Lewis Co.-North Sec. 27	4/24/94	ovcast	calm	12.8	14.3	8.6	130	clear	clear	man-made	na	Palustrine	temp. pond	100	60
Lewis Co.-North Sec. 27	6/27/94					8.6	230			man-made	na	Palustrine	temp. pond		
Lewis Co.-North Sec. 27	7/20/94									man-made	na	Palustrine	temp. pond		
Lewis Co.-At the Y	4/23/94	clear	light	13.6	16.3	5.8	60	clear	clear	man-made	na	Palustrine	perm.pond	25	15
Lewis Co.-At the Y	6/08/94				12.7	7.5	80			man-made	na	Palustrine	perm.pond		
Lewis Co.-At the Y	6/27/94									man-made	na	Palustrine	perm.pond		
Lewis Co.-Forest Pond	4/23/94	clear	light	12.4	18.1	8.2	40	clear	cloudy	man-made		Palustrine	perm.pond	95	35
Lewis Co.-Forest Pond	4/28/94									man-made		Palustrine	perm.pond		
Lewis Co.-Forest Pond	6/08/94				13.2	8.3	60			man-made		Palustrine	perm.pond		
Lewis Co.-Lg.Deer Ck.Trib.	5/07/94	clear	clear	19.4	20.2	6.9	90	clear	cloudy	natural	Deer Creek	Palustrine	temp.pond	18	5
Lewis Co.-Lg.Deer Ck.Trib.	6/08/94				15.6	8.2	80			natural		Palustrine	temp.pond		
Lewis Co.-Lg.Deer Ck.Trib.	7/20/94									natural		Palustrine	temp.pond		
Lewis Co.-Sm.Deer Ck. Trib.	5/07/94	light	light	24.8	15.2	6.8	60	clear	clear	natural	Deer Creek	Palustrine	temp.pond	15	8
Lewis Co.-Sm.Deer Ck. Trib.	6/08/94				15.4	8.5	80			natural	Deer Creek	Palustrine	temp.pond		
Lewis Co.-Sm.Deer Ck. Trib.	7/20/94									natural	Deer Creek	Palustrine	temp.pond		
Zaza Rd.-Roberts Spring	4/19/94	clear	light		10.7	6.1	45	clear	clear	man-made	Eagle Ck.	Palustrine	perm.pond	55	38
Zaza Rd.-Roberts Spring	4/26/94									man-made	Eagle Ck.	Palustrine	perm.pond		
Zaza Rd.-Roberts Spring	5/01/94									man-made	Eagle Ck.	Palustrine	perm.pond		
Zaza Rd.-Roberts Spring	6/13/94									man-made	Eagle Ck.	Palustrine	perm.pond		
Zaza Rd.- Hdwaters Eagle Ck	5/30/94	clear	light	17.2				clear	clear	natural	Eagle Ck.	Palustrine	stream		
Zaza Rd.- Hdwaters Eagle Ck	6/13/94				10					natural	Eagle Ck.	Palustrine	stream		

Pond Name	DATE	MAX.DEPTH	SUBSTRATE	%E.V.	SHALLOWS?	FOREST?
E.Larabee Mdws-Thumb	7/07/94					
E.Larabee Mdws-Thumb	7/12/94					
E.Larabee Mdws-Rd. Ditch	4/16/94	<1m	silt/mud	25-50	absent	100
E.Larabee Mdws-Rd. Ditch	4/28/94					
E.Larabee Mdws-Rd. Ditch	7/07/94					
E.Larabee Mdws-Elbow	4/28/94	<1m	silt/mud	1-25	present	30
E.Larabee Mdws-Elbow	7/07/94					
E.Larabee Meadows-Dam	4/16/94	>2m	silt/mud	>50	present	20
E.Larabee Meadows-Dam	7/07/94					
E.Larabee Mdws-Dam1	7/07/94	8	silt/mud	>50	yes	150
E.Larabee Mdws-Pond by Cabin	4/28/94	<1m				
E.Larabee Mdws-Pond by Cabin	7/07/94					
W.Larabee Mdws-Spring	4/17/94	>2m	silt/mud	25-50	absent	10
W.Larabee Mdws-Spring	5/10/94					
W.Larabee Mdws-Spring	7/07/94					
W.Larabee Mdws-Ditch	4/17/94	<1m	silt/mud	25-50	absent	10
W.Larabee Mdws-Ditch	5/10/94					
W.Larabee Mdws-Ditch	7/07/94					
W.Larabee Mdws-Upper	4/17/94	1-2m	silt/mud	>50	present	8
W.Larabee Mdws-Upper	5/10/94					
W.Larabee Mdws-Upper	7/07/94					
Lewis Co.-South Sec.27	4/24/94	>2m	silt/mud	25-50	present	12
Lewis Co.-South Sec.27	6/27/94					
Lewis Co.-South Sec.27	7/20/94					
Lewis Co.-Middle Sec.27	4/24/94	<1m	silt/mud	1-25	absent	18
Lewis Co.-Middle Sec.27	6/27/94					
Lewis Co.-Middle Sec.27	7/20/94					
Lewis Co.-North Sec. 27	4/24/94	1-2m	silt/mud	1-25	present	14
Lewis Co.-North Sec. 27	6/27/94					
Lewis Co.-North Sec. 27	7/20/94					
Lewis Co.-At the Y	4/23/94	<1m	silt/mud	>50	present	14m
Lewis Co.-At the Y	6/08/94					
Lewis Co.-At the Y	6/27/94					
Lewis Co.-Forest Pond	4/23/94	<1m	rock/cobble	1-25	absent	20
Lewis Co.-Forest Pond	4/28/94					
Lewis Co.-Forest Pond	6/08/94					
Lewis Co.-Lg.Deer Ck.Trib.	5/07/94	<1m	silt/mud	<1m	present	
Lewis Co.-Lg.Deer Ck.Trib.	6/08/94					
Lewis Co.-Lg.Deer Ck.Trib.	7/20/94					
Lewis Co.-Sm.Deer Ck. Trib.	5/07/94	<1m	silt/mud	<1m	present	
Lewis Co.-Sm.Deer Ck. Trib.	6/08/94					
Lewis Co.-Sm.Deer Ck. Trib.	7/20/94					
Zaza Rd.-Roberts Spring	4/19/94	1-2m	silt/mud	1-25	absent	
Zaza Rd.-Roberts Spring	4/26/94					
Zaza Rd.-Roberts Spring	5/01/94					
Zaza Rd.-Roberts Spring	6/13/94					
Zaza Rd.- Hdwaters Eagle Ck	5/30/94	<1m	silt/mud	<25	present	50
Zaza Rd.- Hdwaters Eagle Ck	6/13/94					

Pond Name	DATE	BEGIN	END	OBSERVERS	COUNTY	TOPO	OWNER	ELEV. (ft.)	T	R	SEC.	UTM-N	UTM-E	SOURCE	AMMA EGGS	AMMA LARVAE
Zaza Rd.- Hdwaters Eagle Ck	6/30/94			Llewellyn	N.P.	Frye Pt.	IDFG	5102	32N	4W	33	5101458	511933	Trimble Basic+		8
Zaza Rd.-Culvert/Eagle Trib.	5/30/94	1745	1830	Llewellyn	N.P.	Frye Pt.	IDFG	5100	32N	4W	4	5100587	511748	Trimble Basic+		
Zaza Rd.-Culvert/Eagle Trib.	6/13/94			Llewellyn	N.P.	Frye Pt.	IDFG	5101	32N	4W	4	5100587	511748	Trimble Basic+		20
Zaza Rd.-Orgy Pond	4/18/94	1405	1430	Llewellyn;Garrett	N.P.	Frye Pt.	IDFG	4640	32N	4W	14	5107662	516315	Trimble Basic+	1	
Zaza Rd.-Orgy Pond	4/28/94			Llewellyn	N.P.	Frye Pt.	IDFG	4641	32N	4W	14	5107662	516315	Trimble Basic+	7	
Zaza Rd.-Orgy Pond	5/07/94	905		Llewellyn	N.P.	Frye Pt.	IDFG	4642	32N	4W	14	5107662	516315	Trimble Basic+		
Zaza Rd.-Orgy Pond	7/20/94			Llewellyn	N.P.	Frye Pt.	IDFG	4643	32N	4W	14	5107662	516315	Trimble Basic+		>50
Zaza Rd.-Road Ditch-540	4/18/94	1142	1203	Llewellyn;Garrett	N.P.	Waha	IDFG	4650	33N	4W		5109594	516456	Trimble Basic+	>8	
Zaza Rd.-Road Ditch-540	5/09/94			Llewellyn	N.P.	Waha	IDFG	4650	33N	4W		5109594	516456	Trimble Basic+		
Deer Ck. Meadow	5/07/94	1147	1230	Llewellyn	N.P.	Win.West	priv.	4550	33N	3W	33	5110864	522665	Trimble Basic+		
Deer Ck. Meadow	6/08/94			Llewellyn	N.P.	Win.West	priv.	4551	33N	3W	33	5110864	522665	Trimble Basic+		
Deer Ck. Meadow	7/12/94			Llewellyn	N.P	Win.West	priv.	4552	33N	3W	33	5110864	522665	Trimble Basic+		
Cattail Pond	4/28/94	1627	1707	Llewellyn	N.P.	Waha	priv.	4780	33N	4W	36	5111982	516368	Trimble Basic+		
Cattail Pond	5/24/94	1532		Llewellyn	N.P.	Waha	priv.	4781	33N	4W	36	5111982	516368	Trimble Basic+		>5
RD575-62 MILE	4/18/94	1225	1304	Llewellyn;Garrett	N.P.	Waha	priv.	4780	33N	4W	36	5112103	517571	Trimble Basic+		
Cattleguard	5/07/94	1240	1317	Llewellyn	N.P.	Win.West	priv.	4635	33N	3W	31	5112360	519577	Trimble Basic+		>3
Cattleguard	6/08/94			Llewellyn	N.P.	Win.West	priv.	4636	33N	3W	31	5112360	519577	Trimble Basic+		>4
Red Bird Road	4/13/94	1121	1153	Llewellyn	N.P.	Waha	IDFG	4180	33N	4W	17	5116281	510917	Trimble Basic+		L
Red Bird Road	5/12/94			Llewellyn	N.P.	Waha	IDFG	4181	33N	4W	17	5116281	510917	Trimble Basic+		
Red Bird Road	5/24/94	1413	1413	Llewellyn	N.P.	Waha	IDFG	4182	33N	4W	17	5116281	510917	Trimble Basic+		>50
Lg. Frye Point	5/01/94	1344	1407	Llewellyn	N.P.	Frye Pt.	IDFG	4890	31N	4W	14	5097393	515459	Trimble Basic+		
Lg. Frye Point	6/30/94			Llewellyn	N.P.	Frye Pt.	IDFG	4891	31N	4W	14	5097393	515459	Trimble Basic+		
Sm. Frye Point	5/01/94	1500	1531	Llewellyn	N.P.	Frye Pt.	IDFG	5000	31N	4W	14	5098390	514995	Topo Map		
Sm. Frye Point	6/30/94			Llewellyn	N.P.	Frye Pt.	IDFG	5001	31N	4W	14	5098390	514995	Topo Map		
Soldiers Meadow	6/02/94	900	1330	Llewellyn	N.P.	Win.West	priv.	4440	33N	3W	32	5112607	520465	Trimble Basic+		
Soldiers Meadow	6/30/94	1100	1145	Singer	N.P.	Win.West	priv.	4441	33N	3W	32	5112607	520465	Trimble Basic+		
Webb Creek	6/02/94	1215	1345	Llewellyn	N.P.	Win.West	IDFG	4890	33N	3W	31	5111458	519550	Trimble Basic+		
Webb Creek	6/08/94			Llewellyn	N.P.	Win.West	IDFG	4891	33N	3W	31	5111458	519550	Trimble Basic+		
Webb Creek	6/30/94	1225	1250	Singer	N.P.	Win.West	IDFG	4892	33N	3W	31	5111458	519550	Trimble Basic+		
Headwater Capt. John	5/18/94	1605	1654	Llewellyn	N.P.	Frye Pt.	IDFG	4800	32N	4W	10	5107932	513560	Trimble Basic+	>20	
Headwater Capt. John	6/07/94			Llewellyn	N.P.	Frye Pt.	IDFG	4801	32N	4W	10	5107932	513560	Trimble Basic+		
Headwater Capt. John	7/18/94			Llewellyn	N.P.	Frye Pt.	IDFG	4802	32N	4W	10	5107932	513560	Trimble Basic+		
China Ck. Mudhole	5/17/94	1420	1443	Llewellyn	N.P.	Ratt Ridge	IDFG	1080	30N	3W	5	5091242	520308	Trimble Basic+		
China Ck. Mudhole	6/08/94			Llewellyn	N.P.	Ratt Ridge	IDFG	1081	30N	3W	5	5091242	520308	Trimble Basic+		
China Ck. Mudhole	6/17/94			Llewellyn	N.P.	Ratt Ridge	IDFG	1082	30N	3W	5	5091242	520308	Trimble Basic+		
China Ck. Mudhole	6/27/94			Llewellyn	N.P.	Ratt Ridge	IDFG	1083	30N	3W	5	5091242	520308	Trimble Basic+		
S. Fork Capt. John	6/30/94	1133	1220	Llewellyn	N.P.	Frye Pt.	IDFG	5080	32N	4W	29	5103186	510268	Trimble Basic+		L
S. Fork Capt. John	7/18/94			Llewellyn	N.P.	Frye Pt.	IDFG	5081	32N	4W	29	5103186	510268	Trimble Basic+		
Moose Creek	7/20/94	1634	1700	Llewellyn;Rabe	N.P.	Waha	N.P.					5107407	516047	Trimble Basic+		>10
Moose Creek	7/23/94	1003	1030	Llewellyn	N.P.	Waha	N.P.					5107407	516047	Trimble Basic+		present
Snake River-S.Lg.Limekiln	6/19/94	1036	1057	Llewellyn	N.P.	Limekiln	IDFG	800	47E	7N	28	5102495	502700	Topo Map		
Snake River-S.Lg.Limekiln	7/12/94	1215	1257	Llewellyn	N.P.	Limekiln	IDFG	801	47E	7N	28	5102495	502700	Topo Map		
Snake River-Limekiln/channel	7/12/94	1023	1112	Llewellyn;Peterson	N.P.	Limekiln	IDFG	800	47E	7N	28	5102526	502599	Trimble Navigator		
Snake River-N.Limekiln(carp)	6/19/94	1545	1617	Llewellyn	N.P.	Limekiln	IDFG	800	46E	7N	33	5102600	502900	Topo Map		
Snake River-N.Limekiln(carp)	7/12/94	1545	1617	Llewellyn	N.P.	Limekiln	IDFG	801	46E	7N	33	5102600	502900	Topo Map		
Snake River-S.Chimney(basalt)	6/19/94	1450	1530	Llewellyn;Peter	N.P.	Limekiln	priv.	800	31N	7E	34	5100768	504468	Trible Navigator		
Snake River-S.Chimney(basalt)	7/12/94	1320	1353	Llewellyn	N.P.	Limekiln	priv.	801	31N	7E	34	5100768	504468	Trible Navigator		
Snake River-N.Chimney	6/19/94	1450	1530	Llewellyn	N.P.	Limekiln	priv	800	32N	7E	3	5101005	504395	Topo Map		

1994 Amphibian and Pond Surve

Pond Name	DATE	AMMA ADULTS	RAPR EGGS	RAPR TADS	RAPR JUV.	RAPR ADULTS	BUBO EGGS	BUBO TADS	BUBO ADULTS	PSRE EGGS	PSRE TADS	PSRE ADULTS	PSRE VOCAL	THEL	THSI	SPIN	RACA
Zaza Rd.- Hdwaters Eagle Ck	6/30/94																
Zaza Rd.-Culvert/Eagle Trib.	5/30/94			>50							>10						
Zaza Rd.-Culvert/Eagle Trib.	6/13/94			50							10						
Zaza Rd.-Orgy Pond	4/18/94			T		3;1-ampex pr											
Zaza Rd.-Orgy Pond	4/28/94		7														
Zaza Rd.-Orgy Pond	5/07/94																
Zaza Rd.-Orgy Pond	7/20/94			>100													
Zaza Rd.-Road Ditch-540	4/18/94																
Zaza Rd.-Road Ditch-540	5/09/94																
Deer Ck. Meadow	5/07/94		1	100		A							V				
Deer Ck. Meadow	6/08/94							>300									
Deer Ck. Meadow	7/12/94			>50-meta													
Cattail Pond	4/28/94																
Cattail Pond	5/24/94			>400	8												
RD575-62 MILE	4/18/94			T		A											
Cattleguard	5/07/94		3	12		1											
Cattleguard	6/08/94			>400	1	3											
Red Bird Road	4/13/94										T	A		8			
Red Bird Road	5/12/94																
Red Bird Road	5/24/94									>1000	>1000			14-yg			
Lg. Frye Point	5/01/94				>7	>9											
Lg. Frye Point	6/30/94			>300	>7	>7											
Sm. Frye Point	5/01/94				1												
Sm. Frye Point	6/30/94																
Soldiers Meadow	6/02/94							>2000									
Soldiers Meadow	6/30/94																
Webb Creek	6/02/94					1											
Webb Creek	6/08/94					2											
Webb Creek	6/30/94																
Headwater Capt. John	5/18/94			T		1											
Headwater Capt. John	6/07/94																
Headwater Capt. John	7/18/94																
China Ck. Mudhole	5/17/94						2-4	>100									
China Ck. Mudhole	6/08/94																
China Ck. Mudhole	6/17/94							all there									
China Ck. Mudhole	6/27/94							no tads									
S. Fork Capt. John	6/30/94			>50		1											
S. Fork Capt. John	7/18/94																
Moose Creek	7/20/94					4											
Moose Creek	7/23/94					3											
Snake River-S.Lg.Limekiln	6/19/94																
Snake River-S.Lg.Limekiln	7/12/94																
Snake River-Limekiln/channel	7/12/94							5									
Snake River-N.Limekiln(carp)	6/19/94							>200									
Snake River-N.Limekiln(carp)	7/12/94																
Snake River-S.Chimney(basalt)	6/19/94							>200	>30								
Snake River-S.Chimney(basalt)	7/12/94																
Snake River-N.Chimney	6/19/94								3								

Pond Name	DATE	WEATHER	WIND	AIR C	WATER C	pH	COND. m. siemens	COLOR	TURBID.	ORIGIN	DRAINAGE	WETLAND	DESCRIPT	LNGTH	WIDTH
Zaza Rd.- Hdwaters Eagle Ck	6/30/94				28	8.9	140			natural	Eagle Ck.	Palustrine	stream		
Zaza Rd.-Culvert/Eagle Trib.	5/30/94	clear	calm	17	16.2	6.7	70	clear	clear	man-made	Eagle Ck.	Palustrine	temp.pond	30	10
Zaza Rd.-Culvert/Eagle Trib.	6/13/94									man-made	Eagle Ck.	Palustrine	temp.pond		
Zaza Rd.-Orgy Pond	4/18/94	ovcast	calm	21.8	14.2	9	30	clear	clear	man-made	Kruze Meadows	Palustrine	perm.pond	120	30
Zaza Rd.-Orgy Pond	4/28/94									man-made	Kruze Meadows	Palustrine	perm.pond		
Zaza Rd.-Orgy Pond	5/07/94			19.4	7.6	6.7	60			man-made	Kruze Meadows	Palustrine	perm.pond		
Zaza Rd.-Orgy Pond	7/20/94									man-made	Kruze Meadows	Palustrine	perm.pond		
Zaza Rd.-Road Ditch-540	4/18/94	clear	calm	24	13		50	clear	clear	man-made	Kruze Meadows	Palustrine	temp.pond	20	20
Zaza Rd.-Road Ditch-540	5/09/94									man-made	Kruze Meadows	Palustrine	temp.pond		
Deer Ck. Meadow	5/07/94	clear	light		13.6	6.3	60	clear	cloudy	natural	Trib. of Deer Ck.	Palustrine	perm. creek	250	75
Deer Ck. Meadow	6/08/94			24.8						natural	Trib. of Deer Ck.	Palustrine	perm. creek		
Deer Ck. Meadow	7/12/94									natural	Trib. of Deer Ck.	Palustrine	perm. creek		
Cattail Pond	4/28/94	clear	calm	14.2	16	7.6	40	clear	clear	man-made		Palustrine	perm.pond	110	100
Cattail Pond	5/24/94			24.7	24.2	7.6	60			man-made		Palustrine	perm.pond		
RD575-62 MILE	4/18/94	clear	calm	14		8.9		clear	clear	man-made		Palustrine	temp.pond	20	20
Cattleguard	5/07/94	clear	light	24.2	22.6	6.6	60	clear	cloudy	man-made		Palustrine	perm.pond	80	30
Cattleguard	6/08/94				17.6	8	60			man-made		Palustrine	perm.pond		
Red Bird Road	4/13/94	ovcast	calm	12.8	14.2	7.1	90	clear	clear	man-made		Palustrine	perm.pond	60	35
Red Bird Road	5/12/94									man-made		Palustrine	perm.pond		
Red Bird Road	5/24/94			23.2	26.1	7.4	100			man-made		Palustrine	perm.pond		
Lg. Frye Point	5/01/94	hazy	light	13.6	16.9	6.8	50	clear	clear	man-made		Palustrine	perm.pond	50	25
Lg. Frye Point	6/30/94			34	24.5	7.8	60			man-made		Palustrine	perm.pond		
Sm. Frye Point	5/01/94	hazy	light	13.6	17.2	6.4	50	clear	clear	man-made		Palustrine	perm.pond		
Sm. Frye Point	6/30/94									man-made		Palustrine	perm.pond		
Soldiers Meadow	6/02/94	clear	calm			9.1	70	clear	clear	man-made		Lacustrine	perm.lake	4500	2000
Soldiers Meadow	6/30/94			30	24					man-made			perm.lake		
Webb Creek	6/02/94	clear	light	19.2	10.1	8.4	60	clear	clear	man-made	Webb Ck.		perm.pool	200	28
Webb Creek	6/08/94									man-made	Webb Ck.		perm.pool		
Webb Creek	6/30/94			28.5	20					man-made	Webb Ck.		perm.pool		
Headwater Capt. John	5/18/94	ovcast	calm					clear	clear	man-made	Capt.John Ck		perm.pool	100	28
Headwater Capt. John	6/07/94									man-made	Capt.John Ck		perm.pool		
Headwater Capt. John	7/18/94									man-made	Capt.John Ck		perm.pool		
China Ck. Mudhole	5/17/94	clear	calm					clear	clear	man-made		Palustrine	temp.pond	1m	2.5m
China Ck. Mudhole	6/08/94				16	9	20			man-made		Palustrine	temp.pond		
China Ck. Mudhole	6/17/94									man-made		Palustrine	temp.pond		
China Ck. Mudhole	6/27/94									man-made		Palustrine	temp.pond		
S. Fork Capt. John	6/30/94	clear	calm	27.5	18	8.1	100	clear	clear	man-made	NA	Palustrine	perm.pond	18	15
S. Fork Capt. John	7/18/94									man-made		Palustrine	perm.pond		
Moose Creek	7/20/94	clear	calm			7.6	90	clear	cloudy	man-made	W.Fork Deer Ck.	Palustrine	perm.pond	120	80
Moose Creek	7/23/94									man-made		Palustrine	perm.pond		
Snake River-S.Lg.Limekiln	6/19/94	clear	calm					clear	clear	natural	Snake River	riverine	perm.pond	130	28
Snake River-S.Lg.Limekiln	7/12/94	clear	calm	33	29	11.9	340	clear	clear	natural	Snake River		perm.pond		
Snake River-Limekiln/channel	7/12/94	clear	calm	29	27	12.2	420	clear	clear	natural	Snake River	Riverine	perm.pond	50	45
Snake River-N.Limekiln(carp)	6/19/94	clear	calm	35	24	12	330	clear	clear	natural	Snake River	Riverine	perm.pond	800	150
Snake River-N.Limekiln(carp)	7/12/94	clear	calm					clear	clear	natural	Snake River	Riverine	perm.pond		
Snake River-S.Chimney(basalt)	6/19/94	clear	calm	35	27	11.9	310	clear	clear	natural	Snake River	Riverine	perm.pond	60	20
Snake River-S.Chimney(basalt)	7/12/94	clear	calm					clear	clear	natural	Snake River	Riverine	perm.pond		
Snake River-N.Chimney	6/19/94	clear	calm	35	27	11.8	320	clear	clear	natural	Snake River	Riverine	perm.pond	60	18

Pond Name	DATE	MAX.DEPTH	SUBSTRATE	%E.V.	SHALLOWS?	FOREST?
Zaza Rd.- Hdwaters Eagle Ck	6/30/94					
Zaza Rd.-Culvert/Eagle Trib.	5/30/94	<1m	silt/mud	>50	present	100
Zaza Rd.-Culvert/Eagle Trib.	6/13/94					
Zaza Rd.-Orgy Pond	4/18/94	1-2m	silt/mud	25-50	absent	5
Zaza Rd.-Orgy Pond	4/28/94					
Zaza Rd.-Orgy Pond	5/07/94					
Zaza Rd.-Orgy Pond	7/20/94					
Zaza Rd.-Road Ditch-540	4/18/94	<1m	silt/mud	0	absent	40
Zaza Rd.-Road Ditch-540	5/09/94					
Deer Ck. Meadow	5/07/94	<1m	silt/mud	>50	absent	100
Deer Ck. Meadow	6/08/94					
Deer Ck. Meadow	7/12/94					
Cattail Pond	4/28/94	1-2m	silt/mud	25-50	present	20
Cattail Pond	5/24/94					
RD575-62 MILE	4/18/94	<1m	silt/mud	0	absent	40
Cattleguard	5/07/94	<1m	silt\mud	>50	present	30m
Cattleguard	6/08/94					
Red Bird Road	4/13/94	1-2m	silt/mud	>50	present	300
Red Bird Road	5/12/94					
Red Bird Road	5/24/94					
Lg. Frye Point	5/01/94	<1m	silt/mud	>50	present	na
Lg. Frye Point	6/30/94					
Sm. Frye Point	5/01/94					
Sm. Frye Point	6/30/94					
Soldiers Meadow	6/02/94	>2m	silt/mud	1-25	present	18
Soldiers Meadow	6/30/94					
Webb Creek	6/02/94	1-2m	silt/mud	>50	absent	6
Webb Creek	6/08/94					
Webb Creek	6/30/94					
Headwater Capt. John	5/18/94	<1m	silt/mud	25-50	present	10
Headwater Capt. John	6/07/94					
Headwater Capt. John	7/18/94					
China Ck. Mudhole	5/17/94	<1m	silt\mud	0	absent	15
China Ck. Mudhole	6/08/94					
China Ck. Mudhole	6/17/94					
China Ck. Mudhole	6/27/94					
S. Fork Capt. John	6/30/94	<1m	silt/mud	>50	present	5
S. Fork Capt. John	7/18/94					
Moose Creek	7/20/94	>2m	silt/mud	>50	absent	20
Moose Creek	7/23/94					
Snake River-S.Lg.Limekiln	6/19/94	<1m	sand/cobb	25-50	absent	10
Snake River-S.Lg.Limekiln	7/12/94					
Snake River-Limekiln/channel	7/12/94	<1m	sand/cobb	>50	present	na
Snake River-N.Limekiln(carp)	6/19/94	>2m	sand/boul	1-25	absent	na
Snake River-N.Limekiln(carp)	7/12/94					
Snake River-S.Chimney(basalt)	6/19/94	<1m	sand	0	absent	na
Snake River-S.Chimney(basalt)	7/12/94					
Snake River-N.Chimney	6/19/94	<1m	sand	1-25	absent	na

Pond Name	DATE	BEGIN	END	OBSERVERS	COUNTY	TOPO	OWNER	ELEV. (ft.)	T	R	SEC.	UTM-N	UTM-E	SOURCE	AMMA EGGS	AMMA LARVAE
Snake River-N.Chimney	7/12/94	1354	1512	Llewellyn	N.P.	Limekiln	priv	801	32N	7E	3	5101005	504395	Topo Map		
Salmon River-Peninsula Beach	6/17/94	1445	1513	Llewellyn;Peterson	N.P.	Ratt. Ridge	IDFG	450	31N	3W	28	5093005	522050	Trimble Navigator		
Salmon River-Peninsula Beach	6/18/94				N.P.	Ratt. Ridge	IDFG	451	31N	3W	28	5093005	522050	Trimble Navigator		
Salmon River-Peninsula Beach	6/28/94				N.P.	Ratt. Ridge	IDFG	452	31N	3W	28	5093005	522050	Trimble Navigator		
Salmon River-Nightsnake Beach	6/18/94	1554	1634	Llewellyn;Peterson	N.P.	Ratt. Ridge	IDFG	450	31N	3W	28	5093527	523100	Trimble Navigator		
Salmon River-Nightsnake Beach	6/26/94			Llewellyn	N.P.	Ratt. Ridge	IDFG	451	31N	3W	28	5093527	523100	Trimble Navigator		
Salmon River-S.End Beach Pool	6/29/94	840	905	Llewellyn	N.P.	Ratt. Ridge	IDFG	1020	30N	3W	5	5090456	519761	Trimble Basic+		
Salmon River-S.End Beach Pool					N.P.	Ratt. Ridge	IDFG	1021	30N	3W	5	5090456	519761	Trimble Basic+		
Salmon River-S.End Beach Pond	6/29/94	810	835	Llewellyn	N.P.	Ratt. Ridge	IDFG	1020	30N	3W	5	5090700	519988	Trimble Basic+		
Salmon River-S.End Beach Pond					N.P.	Ratt. Ridge	IDFG	1021	30N	3W	5	5090700	519988	Trimble Basic+		
Salmon River-N.China Ck.Pond	7/11/94	1315	1350	Llewellyn	N.P.	Ratt. Ridge	IDFG	1020	31N	3W	32	5091360	521095	Trimble Basic+		

1994 Amphibian and Pond Surve

Pond Name	DATE	AMMA ADULTS	RAPR EGGS	RAPR TADS	RAPR JUV.	RAPR ADULTS	BUBO EGGS	BUBO TADS	BUBO ADULTS	PSRE EGGS	PSRE TADS	PSRE ADULTS	PSRE VOCAL	THEL	THSI	SPIN	RACA
Snake River-N.Chimney	7/12/94																
Salmon River-Peninsula Beach	6/17/94						8		30;1-amplex.								
Salmon River-Peninsula Beach	6/18/94							>100	6							1	1-juv.
Salmon River-Peninsula Beach	6/28/94																
Salmon River-Nightsnake Beach	6/18/94						>6		>10								
Salmon River-Nightsnake Beach	6/26/94							>500									
Salmon River-S.End Beach Pool	6/29/94							>300									
Salmon River-S.End Beach Pool																	
Salmon River-S.End Beach Pond	6/29/94							>200									
Salmon River-S.End Beach Pond																	
Salmon River-N.China Ck.Pond	7/11/94																

Pond Name	DATE	WEATHER	WIND	AIR C	WATER C	pH	COND. m. siemens	COLOR	TURBID.	ORIGIN	DRAINAGE	WETLAND	DESCRIPT	LNGTH	WIDTH
Snake River-N.Chimney	7/12/94	clear	calm					clear	clear	natural	Snake River	Riverine	perm.pond		
Salmon River-Peninsula Beach	6/17/94	clear	calm	24.6	25			clear	clear	natural	Salmon River	Riverine	temp.pond	250	45
Salmon River-Peninsula Beach	6/18/94	clear	calm					clear	clear	natural	Salmon River	Riverine	temp.pond		
Salmon River-Peninsula Beach	6/28/94	clear	calm			8.9	110	clear	clear	natural	Salmon River	Riverine	temp.pond		
Salmon River-Nightsnake Beach	6/18/94	clear	calm		19.4	8.7	80	clear	clear	natural	Salmon River	Riverine	temp. pool	150	35
Salmon River-Nightsnake Beach	6/26/94	clear	calm					clear	clear	natural	Salmon River	Riverine	temp. pool		
Salmon River-S.End Beach Pool	6/29/94	clear	calm	80F		8.8	100	clear	clear	natural	Salmon River	Riverine	perm.pond		
Salmon River-S.End Beach Pool		clear	calm					clear	clear	natural	Salmon River	Riverine	perm.pond		
Salmon River-S.End Beach Pond	6/29/94	clear	calm	80F		8.9	130	clear	clear	natural	Salmon River	Riverine	temp.pond	38	26
Salmon River-S.End Beach Pond		clear	calm					clear	clear	natural	Salmon River	Riverine	temp.pond		
Salmon River-N.China Ck.Pond	7/11/94	clear	calm	35		10.2	120	clear	clear	natural	Salmon River	Riverine	temp.pond	30	22

Pond Name	DATE	MAX.DEPTH	SUBSTRATE	%E.V.	SHALLOWS?	FOREST?
Snake River-N.Chimney	7/12/94					
Salmon River-Peninsula Beach	6/17/94	>2m	silt/sand	25-50	present	NA
Salmon River-Peninsula Beach	6/18/94					
Salmon River-Peninsula Beach	6/28/94					
Salmon River-Nightsnake Beach	6/18/94	>2m	silt/sand	25-50	present	NA
Salmon River-Nightsnake Beach	6/26/94					
Salmon River-S.End Beach Pool	6/29/94	<1m	sand/cobb	<25	present	NA
Salmon River-S.End Beach Pool						
Salmon River-S.End Beach Pond	6/29/94	<1m	sand/cobb	<25	present	NA
Salmon River-S.End Beach Pond						
Salmon River-N.China Ck.Pond	7/11/94	<1m	sand/cobb	1-25	present	na

1995 Pond Breeding Surveys

	DATE	BEGIN	END	OBSERVERS	AMMA EGGS	AMMA LARVAE	AMMA ADULTS	RAPR EGGS	RAPR TADS	RAPR JUV.	RAPR ADULTS	BUBO EGGS
Benton Mdws-Large	4/13	717	719	Cassirer			2					
Benton Mdws-Large	4/24	1444	1503	Cassirer,Handen	>100		2	1			1	
Benton Mdws-Large	5/1	1400	1415	Handen,Ritter	>200							
Benton Mdws-Large	5/8	1055	1120	Handen	>100	>100	1					
Benton Mdws-Large	5/31	930	945	Llewellyn		25			>50			
Benton Mdws-Large												
Benton Mdws-Large												
Benton Mdws-Large												
Benton Mdws-Small	4/13	715	717	Cassirer				8				
Benton Mdws-Small	4/24	1447	1457	Cassirer	1			11			1	
Benton Mdws-Small	5/1	1427	1435	Handen,Ritter	3			5	>300			
Benton Mdws-Small	5/8	1159	1213	Handen	3			2-new	>500		10	
Benton Mdws-Small	5/31	946	953	Llewellyn					50-big			
Benton Mdws-Small												
Benton Mdws-Small												
Benton Mdws-Channel	4/13	710	712	Cassirer				9				
Benton Mdws-Channel	4/24	1514	1520	Cassirer				18				
Benton Mdws-Channel	5/1	1416	1423	Handen,Ritter				13	20			
Benton Mdws-Channel	5/8	1134	1143	Handen	2			1-new	>100			
Benton Mdws-Channel	5/31	954	955	Llewellyn								
Benton Mdws-Channel									>300			>25
Benton Mdws-By the Gate	4/13	710	712	Cassirer				7				
Benton Mdws-By the Gate	4/24	1332	1337	Cassirer,Handen			1	8			2	
Benton Mdws-By the Gate	5/1	1300	1310	Handen,Ritter			1	6				
Benton Mdws-By the Gate	5/8	938	949	Handen					>200		1	
Benton Mdws-By the Trailer	4/13	735	737	Cassirer				3				
Benton Mdws-By the Trailer	4/24	1412	1428	Cassirer,Handen	2			8			1	
Benton Mdws-By the Trailer	5/1	1340	1347	Handen,Ritter	4	4		5				
Benton Mdws-By the Trailer	5/8	1009	1033	Handen		50		4				
Benton Mdws-By the Trailer	6/04	1431	1442	Llewellyn					<100			
Benton Mdws-By the Trailer												
Benton Mdws-By the Fence	5/31	930	940	Llewellyn		>15						
Benton Mdws-By the Fence												
Benton Mdws-By the Fence												
Benton Mdws-Across the Rd.	4/13	712	715	Cassirer				9				
Benton Mdws-Across the Rd.	4/24	1508	1515	Handen,Ritter	2		2	3				
Benton Mdws-Across the Rd.	5/1	1439	1448	Handen,Ritter	5			2	500			
Benton Mdws-Across the Rd.	5/8	1230	1240	Handen					500			
E.Larabee Mdws-Small	4/24	1717	1720	Cassirer,Handen		>20						
E.Larabee Mdws-Small	5/01	1137	1145	Handen,Ritter								
E.Larabee Mdws-Small												
E.Larabee Mdws-Pinecone	4/24	1700	1711	Cassirer,Handen	4			1	>100			
E.Larabee Mdws-Pinecone	5/01	1148	1201	Handen,Ritter	1	5		1-fungus	>200			
E.Larabee Mdws-Pinecone	6/04	1200	1210	Llewellyn					8			
E.Larabee Mdws-Thumb	4/24	1652	1658	Cassirer,Handen	6							

1995 Pond Breeding Surveys

	BUBO TADS	BUBO ADULTS	PSRE EGGS	PSRE TADS	PSRE ADULTS	PSRE VOCAL	THEL	THSI	WEATHER	WIND	AIR	WATER	COLOR
Benton Mdws-Large									snow	light	35 F		clear
Benton Mdws-Large									pt cloud	calm	11	16	
Benton Mdws-Large									rain	light	6	10	
Benton Mdws-Large					1	V			pt.cloud	light	12	14	clear
Benton Mdws-Large									clear	calm	75 F		clear
Benton Mdws-Large													
Benton Mdws-Large													
Benton Mdws-Large													
Benton Mdws-Small									snow	light	35 F		clear
Benton Mdws-Small						V							
Benton Mdws-Small									rain	light	6		
Benton Mdws-Small					1								
Benton Mdws-Small									clear	calm	75F		clear
Benton Mdws-Small													
Benton Mdws-Small													
Benton Mdws-Channel									snow	light	35 F		clear
Benton Mdws-Channel									pt.cloud	light	11	18	clear
Benton Mdws-Channel									rain	light	6	12	
Benton Mdws-Channel									ovcast	light	14	17	
Benton Mdws-Channel									clear	warm	65 F		
Benton Mdws-Channel													
Benton Mdws-By the Gate									snow	light	35 F		clear
Benton Mdws-By the Gate									clear	light	16.5	20	clear
Benton Mdws-By the Gate									ovcast	light	7	9	clear
Benton Mdws-By the Gate									clear	light	9	10	clear
Benton Mdws-By the Trailer									snow	light	35 F		clear
Benton Mdws-By the Trailer											15	16	clear
Benton Mdws-By the Trailer			2						rain	light	7	7	
Benton Mdws-By the Trailer									pt.cloud	light	10	12.5	
Benton Mdws-By the Trailer					vocal								
Benton Mdws-By the Trailer													
Benton Mdws-By the Fence									clear	calm	70		clear
Benton Mdws-By the Fence													
Benton Mdws-By the Fence													
Benton Mdws-Across the Rd.									snow	light	35F		clear
Benton Mdws-Across the Rd.			? 1						pt cloud	light	11C	13	
Benton Mdws-Across the Rd.									ovcast	light	6	9	
Benton Mdws-Across the Rd.			3						pt.cloud	light	17.5	12	clear
E.Larabee Mdws-Small									ovcast	light	12	22	clear
E.Larabee Mdws-Small									rain	light	9	10	clear
E.Larabee Mdws-Small													
E.Larabee Mdws-Pinecone					3	V			ovcast	light	12	20	
E.Larabee Mdws-Pinecone									rain	light	7		clear
E.Larabee Mdws-Pinecone									clear	light	70 F		clear
E.Larabee Mdws-Thumb									ovcast	light	12.5	18	

1995 Pond Breeding Surveys

	TURBID.	DESCRIPT	LENGTH (ft)	WIDTH (ft)	DEPTH	SUBSTRATE	COMMENTS
Benton Mdws-Large	cloudy	perm.pond				silt/mud	
Benton Mdws-Large			30	20	>2m		
Benton Mdws-Large			30	20			
Benton Mdws-Large	cloudy		30	20	>2m		
Benton Mdws-Large	cloudy		29	19			receded about 7" from the grass edge
Benton Mdws-Large							
Benton Mdws-Large							
Benton Mdws-Large							
Benton Mdws-Small	clear	temp.pond					
Benton Mdws-Small			8	4			
Benton Mdws-Small			8	4			
Benton Mdws-Small							
Benton Mdws-Small	clear		7	3			grass is very high, up to my waist
Benton Mdws-Small							
Benton Mdws-Small							
Benton Mdws-Channel	clear	temp.pond					
Benton Mdws-Channel	clear	temp.pond	12	5	<1m	silt/mud	
Benton Mdws-Channel			15	3			
Benton Mdws-Channel			15	3	<1m		
Benton Mdws-Channel			2	2			no standing water, grass growing in places
Benton Mdws-Channel							
Benton Mdws-By the Gate	clear	temp.pond				silt/mud	
Benton Mdws-By the Gate	clear	temp.pond	15	3			
Benton Mdws-By the Gate	clear	temp.pond	30	3	<1m		
Benton Mdws-By the Gate	clear	temp.pond	30	3	<1m		
Benton Mdws-By the Trailer	clear	temp.pond					
Benton Mdws-By the Trailer	clear	temp.pond					
Benton Mdws-By the Trailer			30	2			
Benton Mdws-By the Trailer			30	2			
Benton Mdws-By the Trailer							water is drying up fast
Benton Mdws-By the Trailer							
Benton Mdws-By the Fence	clear	perm.pond	15	9	6 in.		
Benton Mdws-By the Fence							
Benton Mdws-By the Fence							
Benton Mdws-Across the Rd.	clear	temp.pond					
Benton Mdws-Across the Rd.							
Benton Mdws-Across the Rd.							
Benton Mdws-Across the Rd.	clear		10	4			
E.Larabee Mdws-Small	clear	temp.pond	4	1	<1m	silt/mud	
E.Larabee Mdws-Small	clear		4	1			
E.Larabee Mdws-Small							
E.Larabee Mdws-Pinecone		temp.pond	9	8	<1m	silt/mud	
E.Larabee Mdws-Pinecone	clear	temp.pond	9	8	<1m		
E.Larabee Mdws-Pinecone	cloudy	temp.pond	7	7	<1m		algae bloom.
E.Larabee Mdws-Thumb		temp.pond	15	5	<1m	silt/mud	

1995 Pond Breeding Surveys

	DATE	BEGIN	END	OBSERVERS	AMMA EGGS	AMMA LARVAE	AMMA ADULTS	RAPR EGGS	RAPR TADS	RAPR JUV.	RAPR ADULTS	BUBO EGGS
E.Larabee Mdws-Thumb	5/01	1203	1210	Handen,Ritter		10			>500			
E.Larabee Mdws-Thumb	6/04	1229	1240	Llewellyn		3			>30			
E.Larabee Mdws-Rd. Ditch	4/24	1632	1642	Cassirer,Handen	3						1	
E.Larabee Mdws-Rd. Ditch	5/01	1232	1243	Handen,Ritter				1				
E.Larabee Mdws-Rd. Ditch	6/08	1222	1226	Llewellyn					10			
E.Larabee Mdws-Elbow	4/24	1644	1651	Cassirer,Handen	1							
E.Larabee Mdws-Elbow	5/01	1219	1229	Handen,Ritter	5-fungus	4						
E.Larabee Mdws-Elbow	6/08	1211	1220	Llewellyn		2			>50			
E.Larabee Meadows-Dam	6/08	1244	1252	Llewellyn								
E.Larabee Meadows-Dam											2	
E.Larabee Mdws-Dam1	6/08	1253	1303	Llewellyn					>20		2	
E.Larabee Mdws-Pond by Cabin	4/24	1610	1621	Cassirer,Handen	11			1				
E.Larabee Mdws-Pond by Cabin	5/01	1110	1131	Handen,Ritter	4				>500			
W.Larabee Mdws-Spring	6/01	1230	1305	Llewellyn		>20			>300		1	
W.Larabee Mdws-Spring												
W.Larabee Mdws-Ditch	6/01	1306	1328	Llewellyn								
W.Larabee Mdws-Ditch												
W.Larabee Mdws-Upper	6/01	1330	1342	Llewellyn	>50	>500			>500		9	
W.Larabee Mdws-Upper												
Lewis Co.-South Sec.27		1215	1254	Llewellyn								
Lewis Co.-South Sec.27	7/26			Llewellyn;Henderson						>3	>14	
Lewis Co.-Middle Sec.27		1138	1213	Llewellyn	10							
Lewis Co.-Middle Sec.27	7/26			Llewellyn;Henderson		>20				1	1	
Lewis Co.-North Sec. 27		1257	1354	Llewellyn	10							
Lewis Co.-North Sec. 27	7/26	1428		Llewellyn;Henderson		>10			>10	1		
Lewis Co.-At the Y	5/30	1452	1415	Llewellyn		>20			>100		2	
Lewis Co.-At the Y												
Lewis Co.-At the Y												
Lewis Co.-Forest Pond	5/30	1425	1440	Llewellyn						2	9	
Lewis Co.-Forest Pond												
Lewis Co.-Forest Pond												
Lewis Co.-Lg.Deer Ck.Trib.	5/07	1008	1025	Llewellyn								
Lewis Co.-Lg.Deer Ck.Trib.	6/08	1015										
Lewis Co.-Lg.Deer Ck.Trib.	7/20	1358										
Lewis Co.-Sm.Deer Ck. Trib.	5/07	1026	1130	Llewellyn								>18
Lewis Co.-Sm.Deer Ck. Trib.	6/08	1015										
Lewis Co.-Sm.Deer Ck. Trib.	7/20	1430										
Zaza Rd.-Roberts Spring	5/31	1643	1710	Llewellyn	>30	1-big			>100	40	3	
Zaza Rd.-Roberts Spring												
Zaza Rd.-Roberts Spring											2	

1995 Pond Breeding Surveys

	BUBO TADS	BUBO ADULTS	PSRE EGGS	PSRE TADS	PSRE ADULTS	PSRE VOCAL	THEL	THSI	WEATHER	WIND	AIR	WATER	COLOR
E.Larabee Mdws-Thumb					1				rain	light	8	8	
E.Larabee Mdws-Thumb				1				1	clear	light	70F		clear
E.Larabee Mdws-Rd. Ditch									ovcast	light	12	21	
E.Larabee Mdws-Rd. Ditch									rain	light	6	9	clear
E.Larabee Mdws-Rd. Ditch									clear	light	75 F		clear
E.Larabee Mdws-Elbow									ovcast	light	12	17	
E.Larabee Mdws-Elbow									rain	light	7	7	clear
E.Larabee Mdws-Elbow									clear	light	70 F		clear
E.Larabee Meadows-Dam									clear	light	70 F		clear
E.Larabee Meadows-Dam													
E.Larabee Mdws-Dam1									clear	light	70 F		clear
E.Larabee Mdws-Pond by Cabin									ovcast	light			
E.Larabee Mdws-Pond by Cabin									ovcast	light	6	9	
													clear
W.Larabee Mdws-Spring									clear	calm	85 F		clear
W.Larabee Mdws-Spring													
W.Larabee Mdws-Ditch									clear	calm	85 F		clear
W.Larabee Mdws-Ditch													
W.Larabee Mdws-Upper									clear	calm	85F		clear
W.Larabee Mdws-Upper													
													clear
Lewis Co.-South Sec.27													clear
Lewis Co.-South Sec.27							1-yg	3	clear	calm			clear
Lewis Co.-Middle Sec.27											ovcast	calm	
Lewis Co.-Middle Sec.27							6-yg.						
Lewis Co.-North Sec. 27											ovcast	calm	
Lewis Co.-North Sec. 27				>20			5-yg.						
Lewis Co.-At the Y									clear	light			
Lewis Co.-At the Y													
Lewis Co.-At the Y													
Lewis Co.-Forest Pond									clear	light			
Lewis Co.-Forest Pond													
Lewis Co.-Forest Pond													
Lewis Co.-Lg.Deer Ck.Trib.											clear	clear	
Lewis Co.-Lg.Deer Ck.Trib.													
Lewis Co.-Lg.Deer Ck.Trib.													clear
Lewis Co.-Sm.Deer Ck. Trib.	>500			T							light	light	
Lewis Co.-Sm.Deer Ck. Trib.	>150												
Lewis Co.-Sm.Deer Ck. Trib.													
													clear
Zaza Rd.-Roberts Spring							Y				clear	light	
Zaza Rd.-Roberts Spring													
Zaza Rd.-Roberts Spring						1							

1995 Pond Breeding Surveys

	TURBID.	DESCRIPT	LENGTH (ft)	WIDTH (ft)	DEPTH	SUBSTRATE	COMMENTS
E.Larabee Mdws-Thumb		temp.pond	15	5	>1m		
E.Larabee Mdws-Thumb	clear	temp.pond	28	8	8"		
E.Larabee Mdws-Rd. Ditch		temp.pond	40	4	>1m	silt/mud	
E.Larabee Mdws-Rd. Ditch	cloudy	temp.pond	60	4	>1m	silt/mud	
E.Larabee Mdws-Rd. Ditch	cloudy	temp.pond	16	7	2.5"	silt/mud	water receded to just a puddle with tads in it.
E.Larabee Mdws-Elbow		temp.pond				silt/mud	
E.Larabee Mdws-Elbow	cloudy	temp.pond					
E.Larabee Mdws-Elbow	clear	temp.pond	35ft	7ft			
E.Larabee Meadows-Dam	clear	perm.pond	120ft	45ft		silt/cobble	2 crayfish
E.Larabee Meadows-Dam							
E.Larabee Mdws-Dam1	clear	temp.pond	17	6	4"	silt/mud	
E.Larabee Mdws-Pond by Cabin		temp.pond	60	20	<1m		
E.Larabee Mdws-Pond by Cabin		temp.pond	25	4	>1m		
	clear	?					
W.Larabee Mdws-Spring	clear	perm.pond	100	23	8"	silt/mud	much algae bloom
W.Larabee Mdws-Spring							
W.Larabee Mdws-Ditch	cloudy	temp.pond	28	9	4"	rock	much algae bloom
W.Larabee Mdws-Ditch							
W.Larabee Mdws-Upper	clear	perm.pond	100	25	12"	silt/mud	
W.Larabee Mdws-Upper							
	clear						
Lewis Co.-South Sec.27	clear	perm.pond					redwing blackbirds, 2-ducks
Lewis Co.-South Sec.27	clear				>1m		
Lewis Co.-Middle Sec.27		?	150	75	<1m	silt/mud	
Lewis Co.-Middle Sec.27							
Lewis Co.-North Sec. 27		?	100	60	1-2m	silt/mud	
Lewis Co.-North Sec. 27							
Lewis Co.-At the Y		perm.pond				silt/mud	
Lewis Co.-At the Y							
Lewis Co.-At the Y							
Lewis Co.-Forest Pond		perm.pond	30	20		rock/cobble	has an underground spring
Lewis Co.-Forest Pond							
Lewis Co.-Forest Pond							
Lewis Co.-Lg.Deer Ck.Trib.		temp.pond	18	5	<1m	silt/mud	
Lewis Co.-Lg.Deer Ck.Trib.							
Lewis Co.-Lg.Deer Ck.Trib.	clear						Completely dried-up
Lewis Co.-Sm.Deer Ck. Trib.		temp.pond	15	8	<1m	silt/mud	
Lewis Co.-Sm.Deer Ck. Trib.							
Lewis Co.-Sm.Deer Ck. Trib.							No amphibians
	clear						
Zaza Rd.-Roberts Spring		perm.pond	55	38	1-2m	silt/mud	much algae bloom this year
Zaza Rd.-Roberts Spring							
Zaza Rd.-Roberts Spring							

1995 Pond Breeding Surveys

	DATE	BEGIN	END	OBSERVERS	AMMA EGGS	AMMA LARVAE	AMMA ADULTS	RAPR EGGS	RAPR TADS	RAPR JUV.	RAPR ADULTS	BUBO EGGS
Zaza Rd.-Roberts Spring												
Zaza Rd.- Hdwaters Eagle Ck	5/30	1715	1724	Llewellyn	4							
Zaza Rd.- Hdwaters Eagle Ck												
Zaza Rd.- Hdwaters Eagle Ck												
Zaza Rd.-Culvert/Eagle Trib.	5/30	1730	1745	Llewellyn				1	>50		1	
Zaza Rd.-Culvert/Eagle Trib.												
Zaza Rd.-Orgy Pond	4/13	755	757	Cassirer								
Zaza Rd.-Orgy Pond	4/24	1146	1240	Cassirer,Handen	15		1	5			12	
Zaza Rd.-Orgy Pond	5/1	909	1011	Handen,Ritter	34			6				
Zaza Rd.-Orgy Pond	5/8	1355	1425	Handen	9							
Zaza Rd.-Orgy Pond	5/23	1412	1423	Llewellyn		3			25			
Zaza Rd.-Road Ditch-540	5/23	1142	1203	Llewellyn	3-fungus						1	
Zaza Rd.-Road Ditch-540												
DEER CK. MEADOW	6/04	1331	1404	Llewellyn					>18		5	
DEER CK. MEADOW												
DEER CK. MEADOW									>50-meta			
CATTAIL POND	5/30	1300	1340	Llewellyn		>500			>100		3	
CATTAIL POND												
RD575-62 MILE	5/30	1351	1400	Llewellyn								
CATTLEGUARD	5/30	1405	1420	Llewellyn					100		1	
CATTLEGUARD						>4			>400	1	3	
RED BIRD RD	5/24	1320	1330	Llewellyn		10						
RED BIRD RD	7/25			Llewellyn								
LG FRYE POINT	6/	1344	1407	Llewellyn					20	22		
LG FRYE POINT												
SM FRYE POINT	6/	1500	1531	Llewellyn								
SM FRYE POINT												
SOLDIERS MEADOW	6/04	1545	1605	Llewellyn								4
WEBB CREEK	6/04	1215	1345	Llewellyn								
HDWATER CAPT.JOHN		1605	1654	Llewellyn	>20				T		1	
CHINA CK. MUDHOLE	5/30	1400	1401	Llewellyn								
S.FORK CAPT.JOHN		1133	1220	Llewellyn		L			>50		1	
Moose Creek	4/24	1253	1323	Cassirer,Handen	17		5	4			1	
Moose Creek	5/1	1018	1054	Handen,Ritter	1	present	3A, 1Juv	3			3	
Moose Creek	5/8	1314	1344	Handen	1			3				
As of June 27, 1995 the ponds do not exist because the river waters are very high and have taken the beaches												
Snake River-S.Lg.Limekiln	7/23	water still flowing t		Llewellyn, Benker								
Snake River-S.Lg.Limekiln	8/02	water still flowing t		Llewellyn,Benker								
Snake River-N.Limekiln(carp)	7/23	oes not exist		Llewellyn,Benker								

1995 Pond Breeding Surveys

	BUBO TADS	BUBO ADULTS	PSRE EGGS	PSRE TADS	PSRE ADULTS	PSRE VOCAL	THEL	THSI	WEATHER	WIND	AIR	WATER	COLOR
Zaza Rd.-Roberts Spring				>30									clear
Zaza Rd.- Hdwaters Eagle Ck									clear	light	80F		
Zaza Rd.- Hdwaters Eagle Ck													
Zaza Rd.- Hdwaters Eagle Ck													clear
Zaza Rd.-Culvert/Eagle Trib.									clear	light			
Zaza Rd.-Culvert/Eagle Trib.													
Zaza Rd.-Orgy Pond									snow	light	35F		
Zaza Rd.-Orgy Pond									clear	calm	17	12	clear
Zaza Rd.-Orgy Pond									ovcast	light	6	5	clear
Zaza Rd.-Orgy Pond									pt.cloud	light	16	16	clear
Zaza Rd.-Orgy Pond													
Zaza Rd.-Road Ditch-540											clear	calm	
Zaza Rd.-Road Ditch-540													
DEER CK. MEADOW									clear	light	80F		clear
DEER CK. MEADOW													
DEER CK. MEADOW													clear
CATTAIL POND									clear	calm			
CATTAIL POND													clear
RD575-62 MILE									clear	calm			clear
CATTLEGUARD									clear	light			
CATTLEGUARD													clear
RED BIRD RD				>100			2	1	clear	calm			clear
RED BIRD RD				>200 back legs			4						
LG FRYE POINT									hazy	light			
LG FRYE POINT													clear
SM FRYE POINT									hazy	light			
SM FRYE POINT													clear
SOLDIERS MEADOW	>2000								pt.over	light	80F		clear
WEBB CREEK		1							pt.over	light	80F		clear
HDWATER CAPT.JOHN									ovcast	calm			
CHINA CK. MUDHOLE									clear	calm			
S.FORK CAPT.JOHN													
Moose Creek									clear	calm			clear
Moose Creek									ovcast	light	4	5	
Moose Creek									pt.cloud	light	14	13	
As of June 27, 1995 the ponds do n													
Snake River-S.Lg.Limekiln													
Snake River-S.Lg.Limekiln													
Snake River-N.Limekiln(carp)													

1995 Pond Breeding Surveys

	TURBID.	DESCRIPT	LENGTH (ft)	WIDTH (ft)	DEPTH	SUBSTRATE	COMMENTS
Zaza Rd.-Roberts Spring	clear						
Zaza Rd.- Hdwaters Eagle Ck		stream	20	8	<1m	silt/mud	
Zaza Rd.- Hdwaters Eagle Ck							
Zaza Rd.- Hdwaters Eagle Ck	clear						
Zaza Rd.-Culvert/Eagle Trib.		temp.pond	18	10	<1m	silt/mud	
Zaza Rd.-Culvert/Eagle Trib.							
Zaza Rd.-Orgy Pond		perm.pond			1-2m	silt/mud	
Zaza Rd.-Orgy Pond	pt.cloud	perm.pond	40	6			
Zaza Rd.-Orgy Pond	cloudy		40	5			
Zaza Rd.-Orgy Pond	cloudy		40	5			
Zaza Rd.-Orgy Pond							
Zaza Rd.-Road Ditch-540		temp.pond	25	18		silt/mud	can't believe all of the water in this pond
Zaza Rd.-Road Ditch-540							Pond drying up. Completely dry on 5/23
DEER CK. MEADOW	cloudy	perm.creek	130	7	9"	silt/mud	cows have mucked up the pond
DEER CK. MEADOW							
DEER CK. MEADOW	clear						
CATTAIL POND		perm.pond	110	100	1-2m	silt/mud	
CATTAIL POND	clear						
RD575-62 MILE	cloudy	temp.pond	20	20	<1m	silt/mud	Pond still has water in it.
CATTLEGUARD		perm.pond	80	30	<1m	silt\mud	
CATTLEGUARD	clear						very large tads, forming dorsal ridge
RED BIRD RD	clear	perm.pond	25	18		silt/mud	much algae bloom
RED BIRD RD							
LG FRYE POINT		perm.pond	50		<1m	silt/mud	
LG FRYE POINT	clear						
SM FRYE POINT							
SM FRYE POINT	clear						Dried up
SOLDIERS MEADOW	clear	perm.lake	large	long	deep	silt/mud	ake edge surrounded by submergent vegetatic
WEBB CREEK	clear	perm.pool	90	20	<1m	silt/mud	5 fish jumping. BUBO was on bank of Webb C
HDWATER CAPT.JOHN		perm.pool	100	28	<1m	silt/mud	
CHINA CK. MUDHOLE		temp.pond					No presence of pond.
S.FORK CAPT.JOHN							
Moose Creek	clear	perm.pond				silt/mud	female crayfish laying eggs in a Doritos bag
Moose Creek		perm.pond	40	15			
Moose Creek			40	15			
As of June 27, 1995 the ponds do n							
Snake River-S.Lg.Limekiln		perm.pond				silt/mud	
Snake River-S.Lg.Limekiln							
Snake River-N.Limekiln(carp)		perm.pond				sand/cobb	

1995 Pond Breeding Surveys

	DATE	BEGIN	END	OBSERVERS	AMMA EGGS	AMMA LARVAE	AMMA ADULTS	RAPR EGGS	RAPR TADS	RAPR JUV.	RAPR ADULTS	BUBO EGGS
Snake River-Limekiln (south)	7/23			Llewellyn,Benker					20-30			
Snake River-Limekiln (south)	8/02			Llewellyn,Benker					gone			
Snake River-Limekiln (north	8/02			Llewellyn,Benker					>200			
Snake River-S.Chimney(basalt)	7/23			Llewellyn,Benker								
Snake River-S.Chimney(basalt)	8/02			Llewellyn,Benker								
Snake River-N.Chimney	7/23	ll flowing through it		Llewellyn,Benker								
Snake River-N.Chimney	8/02	ll flowing through it		Llewellyn,Benker								
Salmon River-Peninsula Beach	7/24			Llewellyn,Boyle								5-10
Salmon River-Nightsnake Beach	7/18			Llewellyn								>10
Salmon River-Nightsnake Beach	7/23			Llewellyn,Boyle								>10
Salmon River-Nightsnake Beach	7/24			Llewellyn,Boyle								>12
Salmon River-S.End Beach Pool	6/30	ll flowing through it		Llewellyn								
Salmon River-S.End Beach Pool	7/24			Llewellyn,Boyle								
Salmon River-S.End Beach Pond	6/30	ll flowing through it		Llewellyn								
Salmon River-S.End Beach Pond	7/24			Llewellyn,Boyle								25-30

1995 Pond Breeding Surveys

	BUBO TADS	BUBO ADULTS	PSRE EGGS	PSRE TADS	PSRE ADULTS	PSRE VOCAL	THEL	THSI	WEATHER	WIND	AIR	WATER	COLOR
Snake River-Limekiln (south)	>100												
Snake River-Limekiln (south)	>100						1-baby						
Snake River-Limekiln (north	>200												
Snake River-S.Chimney(basalt)													
Snake River-S.Chimney(basalt)	>300												
Snake River-N.Chimney													
Snake River-N.Chimney													
Salmon River-Peninsula Beach		4;2-amplex pr.							1	1-juv.			
Salmon River-Nightsnake Beach		2 amplex pr.											
Salmon River-Nightsnake Beach	>500	11;1-amplex.											
Salmon River-Nightsnake Beach	>700	6											
Salmon River-S.End Beach Pool		1											
Salmon River-S.End Beach Pool						1-large							
Salmon River-S.End Beach Pond													
Salmon River-S.End Beach Pond	hatching	1											

1995 Pond Breeding Surveys

	TURBID.	DESCRIPT	LENGTH (ft)	WIDTH (ft)	DEPTH	SUBSTRATE	COMMENTS
Snake River-Limekiln (south)							
Snake River-Limekiln (south)							
Snake River-Limekiln (north							
Snake River-S.Chimney(basalt)		perm.pond				sand/cobb	
Snake River-S.Chimney(basalt)		perm.pond				sand/boul	
Snake River-N.Chimney							
Snake River-N.Chimney		perm.pond				sand	
Salmon River-Peninsula Beach							
Salmon River-Nightsnake Beach							
Salmon River-Nightsnake Beach		temp.pond				silt/sand	
Salmon River-Nightsnake Beach							
Salmon River-S.End Beach Pool							
Salmon River-S.End Beach Pool		temp. pool				silt/sand	
Salmon River-S.End Beach Pond							
Salmon River-S.End Beach Pond		perm.pond				sand/cobb	

List of all the ponds and species found in them.

Bold letters represent new species found in 1995

SITE NO.	WETLAND NAME	RAPR	AMMA	BUBO	PSRE	THEL	THSI	SPIN	RACA
1	Benton Mdws. Large	A,J	E,L,A	A,E	**A,T,V**	**A**			
2	Benton Mdws. Small	E,T,J,A	**E,L**		**E,T**,A,V				
3	Benton Mdws. Channel	E,T	**E**	E,T					
4	Benton Mdws. By the gate	E,T	**A**						
5	Benton Mdws. By the trailer	E,T,J	L		E, **V**				
6	Benton Mdws. By the fence	A, **T**	L						
7	Benton Mdws. Across the Rd.		**E, L, A**	**E**, T					
8	E. Larabee Mdws Small	E	E, **L**						
9	E. Larabbe Mdws. Pinecone	T, M, J	E,L		**A, V**				
10	E. Larabee Mdws. Thumb	E, T, M, **A**	E,L		**A, T**	A	A		
11	E. Larabee Mdws. Road Ditch	**E, T,** J, **A**	E						
12	E. Larabee Mdws. Elbow	**T,** J ,M	**E,** L						
13	Larabee Dam	A							
14	Pond 1	T, **A**	L				A		
15	E. Larabee Mdws. Pond by Cabin	E, T, A	**E**		V				
16	W. Larabee Mdws Spring	E, T, A, M	**L**	T					
17	W. Larabee Mdws. Ditch	A	E						
18	W. Larabee Mdws. Upper	E, T, A, M	**E, L**	E,T	A				
19	Lewis Co. South Sec. 27	E, **T, J,** A	E, **L**	**T**	T	A	A		
20	Lewis Co. Middle Sec. 27	**T, J, A**	E,L		**T**	A			
21	Lewis Co. North Sec. 27	**T, J**	E,L		**T**	Y			
22	Lewis Co. New Pond	**M, A**	**L**		**M**	**A**	**A**		
23	At the Y Pond	E,T,A	E,L		**T**, A	A			
24	Forest Pond	J,A							
25	Lg.Deer Ck.Trib.								
26	Sm. Deer Ck. Trib.			E,T					
27	Roberts Spring	E,T,A	E,L		T, A, **V**	Y			
28	Hdwaters Eagle Ck		E,L						
29	Culvert-Eagle Trib.	**E,** T, **A**	**L**		T	**A**			
30	Orgy Pond	E,T,A	E, **L, A**						
31	Road Ditch - 540	A	E						
32	Deer Creek Mdw.	T, **A**			V				
33	Cattail Pond	E,T,A	E,L						
34	Rd. 575-62-mile								
35	Cattleguard Pond	T,A	E,L						
36	Red Bird Road		L		T,M	A	**A**		
37	Large Frye Point	E,J,A							
38	Sm. Frye Point	J		A,T					
39	Soldiers Meadow			**E**, T, A					
40	Webb Creek	A		**A**					
41	Hdwater. Capt. John	A	E, L						
42	China Ck. Mudhole			E,T					
44	Moose Pond	E, A	**E,** L, **A**			A			

SITE NO.	WETLAND NAME	RAPR	AMMA	BUBO	PSRE	THEL	THSI	SPIN	RACA
45	Snake River Lg.Limekiln								
46	Snake River Limekiln/Pond	**T**		T, **M**					
47	Snake River Limekiln/Riparian	**T**		**T**					
48	Snake River Limekiln-carp			T,M					
49	Snake River S.Schilling			**E**, T, A					
50	Snake River N.Schilling			E, T, A					
51	Salmon River Penin.Beach			E, T, A				A	J, **A**
52	Salmon River Nightsnake Beach			E, T, A					
53	Salmon River S. Beach pond			**E**, T				**A**	
54	Salmon River S. Beach pool			T					

Cowardin et. al.,
Wetland Classification

Wetland Name	System	Class	Subclass	Water Regime
Benton Mdws-Large	Palustrine	Emergent Wetland	persistant	permanently flooded
Benton Mdws-Small	Palustrine	Emergent Wetland	persistant	seasonally flooded
Benton Mdws-Channel	Palustrine	Emergent Wetland	persistant	seasonally flooded
Benton Mdws-By the Gate	Palustrine	Emergent Wetland	persistant	seasonally flooded
Benton Mdws-By the Trailer	Palustrine	Emergent Wetland	persistant	seasonally flooded
Benton Mdws-By the Fence	Palustrine	Emergent Wetland	persistant	semi-permanently flooded
Benton Mdws-Across the Rd.	Palustrine	Emergent Wetland	persistant	semi-permanently flooded
E.Larabee Mdws-Small	Palustrine	Emergent Wetland	persistant	seasonally flooded
E.Larabee Mdws-Pinecone	Palustrine	Emergent Wetland	persistant	seasonally flooded
E.Larabee Mdws-Thumb	Palustrine	Emergent Wetland	persistant	seasonally flooded
E.Larabee Mdws-Rd. Ditch	Palustrine	Emergent Wetland	persistant	seasonally flooded
E.Larabee Mdws-Elbow	Palustrine	Emergent Wetland	persistant	seasonally flooded
E.Larabee Meadows-Dam	Lacustrine			permanently flooded
E.Larabee Mdws-Dam1	Palustrine	Emergent Wetland	persistant	semi-permanently flooded
E.Larabee Mdws-Pond by Cabin	Palustrine	Emergent Wetland	persistant	seasonally flooded
W.Larabee Mdws-Spring	Palustrine	Emergent Wetland	persistant	permanently flooded
W.Larabee Mdws-Ditch	Palustrine	Emergent Wetland	persistant	seasonally flooded
W.Larabee Mdws-Upper	Palustrine	Emergent Wetland	persistant	permanently flooded
Lewis Co.-South Sec.27	Palustrine	Emergent Wetland	persistant	permanently flooded
Lewis Co.-Middle Sec.27	Palustrine	Emergent Wetland	persistant	seasonally flooded
Lewis Co.-North Sec. 27	Palustrine	Emergent Wetland	persistant	seasonally flooded
Lewis Co. New Pond	Palustrine	Emergent Wetland	persistant	seasonally flooded
Lewis Co.-At the Y	Palustrine	Emergent Wetland	persistant	intermittently exposed
Lewis Co.-Forest Pond	Palustrine	Emergent Wetland	persistant	permanently flooded
Lewis Co.-Lg.Deer Ck.Trib.	Palustrine	Emergent Wetland		seasonally flooded
Lewis Co.-Sm.Deer Ck. Trib.	Palustrine	Emergent Wetland		seasonally flooded
Zaza Rd.-Roberts Spring	Palustrine	Emergent Wetland	persistant	permanently flooded
Zaza Rd.-Hdwaters Eagle Ck	Palustrine	Emergent Wetland		intermittently exposed
Zaza Rd.-Culvert/Eagle Trib.	Palustrine	Emergent Wetland	persistant	seasonally flooded
Zaza Rd.-Orgy Pond	Palustrine	Emergent Wetland	persistant	seasonally flooded
Zaza Rd.-Road Ditch-540	Palustrine	Emergent Wetland	persistant	seasonally flooded
DEER CK. MEADOW	Palustrine	Emergent Wetland		intermittently exposed
CATTAIL POND	Palustrine	Emergent Wetland	persistant	intermittently exposed
RD575-62 MILE	Palustrine	Emergent Wetland	persistant	temporarily flooded
CATTLEGUARD	Palustrine	Emergent Wetland	persistant	intermittently exposed
RED BIRD RD	Palustrine	Emergent Wetland	persistant	semipermanently flooded
LG FRYE POINT	Palustrine	Emergent Wetland	persistant	seasonally flooded
SM FRYE POINT	Palustrine	Emergent Wetland	persistant	seasonally flooded
SOLDIERS MEADOW	Lacustrine			permanently flooded
WEBB CREEK	Palustrine	Emergent Wetland		permanently flooded
HDWATER CAPT.JOHN	Palustrine	Emergent Wetland	persistant	seasonally flooded
CHINA CK. MUDHOLE	Palustrine	Emergent Wetland	persistant	temporarily flooded
S.FORK CAPT.JOHN	Palustrine	Emergent Wetland		semipermanently flooded
MOOSE POND	Palustrine	Emergent Wetland	persistant	intermittently exposed
Snake River-S.Lg.Limekiln	Palustrine			seasonally flooded-tidal
Snake River-Limekiln/channel	Palustrine			seasonally flooded-tidal
Snake River-Limekiln\carp	Palustrine			seasonally flooded-tidal

Wetland Name	System	Class	Subclass	Water Regime
Snake River-S.Chimney(basalt)	Palustrine			seasonally flooded-tidal
Snake River-N. Chimney	Palustrine			seasonally flooded-tidal
Salmon River-Peninsula Beach	Palustrine			
Salmon River-Nightsnake Beach	Palustrine			
Salmon River-S.End Beach Pool	Palustrine			
Salmon River-S.End Beach Pond	Palustrine			
Salmon River-N.China Ck.Pond	Palustrine			

Appendix B

1994 and 1995
Stream survey data

1994 Stream surveys

	Date	start	end	Observers	time	Species	# found	Life stage	TL	Habitat
									(cm)	
Capt.John Creek	5/19/94	1020								
Capt.John Creek	5/19/94				1023	RAPR	2-Adult			grassy-semiforest
Capt.John Creek	5/19/94				1045	AMMA	3-4	egg masses		marshy;sm.mdw confluence
S.Fork Capt.John Ck	7/19/94	1120	1530	Llewellyn,Mancuso						
S.Fork Capt.John Ck	7/19/94	1144								
S.Fork Capt.John Ck	7/19/94				1144	ASTR	1-Tad	4-legs+tail,hopping		Riffle and a sm. pool
S.Fork Capt.John Ck	7/19/94				1311	ASTR	2-tad	4-legs+tail	5.2	3 cascading riffles w/ sm. pools
S.Fork Capt.John Ck	7/19/94					ASTR	1-tad	4-legs+tail	5.8	
S.Fork Capt.John Ck	7/19/94					ASTR	1-tad		5.3	
S.Fork Capt.John Ck	7/19/94					ASTR	1-tad	4-legs, hopping	4.9	
S.Fork Capt.John Ck	7/19/94				1345	ASTR	2-tad	4-legs, hopping	5.3	20ft and 30ft. upstream;riffles
S.Fork Capt.John Ck	7/19/94				1433	ASTR	1-Adult		2.8	smooth riffle/pool; 3-4% slope
S.Fork Capt.John Ck	7/19/94					ASTR	tads		4	
S.Fork Capt.John Ck	7/19/94					ASTR	tads		2.8	
S.Fork Capt.John Ck	7/19/94					ASTR	tads		4.3	
S.Fork Capt.John Ck	7/19/94					ASTR	tads		4.4	
S.Fork Capt.John Ck	7/19/94					ASTR	tads		4.4	
S.Fork Capt.John Ck	7/19/94					ASTR	tads		4	
S.Fork Capt.John Ck	7/19/94					ASTR	5-tads	starting back legs	4.4	pool just above the others
S.Fork Capt.John Ck	7/19/94					ASTR	4-10 tads	in every pool		sm. cascade riffles..pools..riffles
S.Fork Capt.John Ck	7/19/94					ASTR	2-Adult		3.2	
S.Fork Capt.John Ck	7/19/94								4	sitting on a ledge just above pool
S.Fork Capt.John Ck	7/19/94					ASTR	1-Adult		3.5	in riffle just below lg. waterfall
S.Fork Capt.John Ck	7/19/94						3-tads		2.1	same
S.Fork Capt.John Ck	7/19/94								4.1	
S.Fork Capt. John	7/19/94					BUBO	1-juv.		5.8	moss ledge at the lg. waterfall
Eagle Ck.-E.C.Rd	5/18/94	900	1450	Llewellyn						
Eagle Ck.-E.C.Rd	7/21/94	1115	1730	Llewellyn;Lance		ASTR	1-tad	no legs	4	
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-Adult			in little cave under tree branch on bank

1994 Stream surv

	Canopy	Substrate	Overstory	Understory	Herbaceous	width	length
	Coverage					(ft.)	(ft)
Capt.John Creek							
Capt.John Creek	10%						
Capt.John Creek	0	mud	0%		carex		
						4 ft.	
S.Fork Capt.John Ck							
S.Fork Capt.John Ck							
S.Fork Capt.John Ck	10-50%	5% gradient,DWM	Grand fir	yg. Grand fir	twinberry,moss	5ft.	
S.Fork Capt.John Ck	60%	cobble-sm. boulder	Grand fir	yg. Grand fir	twinberry,moss		12-15ft
S.Fork Capt.John Ck							
S.Fork Capt.John Ck							
S.Fork Capt.John Ck							
S.Fork Capt.John Ck	60%	cobble	Grand fir	yg. Grand fir			
S.Fork Capt.John Ck	60%	cobble	Grand fir	yg. Grand fir	twinflower,moss	6ft.	
S.Fork Capt.John Ck							
S.Fork Capt.John Ck							
S.Fork Capt.John Ck							
S.Fork Capt.John Ck							
S.Fork Capt.John Ck							
S.Fork Capt.John Ck							
S.Fork Capt.John Ck		cobble	Grand fir				
S.Fork Capt.John Ck	80%	cobble	Grand fir	yg. Grand fir	twinflower,moss		3-4 ft.
S.Fork Capt.John Ck							
S.Fork Capt.John Ck	same						
S.Fork Capt.John Ck							
S.Fork Capt.John Ck							
S.Fork Capt.John Ck							
S.Fork Capt. John		cobble	Grand fir	yg. Grand fir	mosses		
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							

1994 Stream surveys

	Date	start	end	Observers	time	Species	# found	Life stage	TL	Habitat
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-tad	getting back legs	4.9	riffle
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-Adult		3.8	riffle
Eagle Ck.-E.C.Rd	7/21/94					ASTR	3-tads			slow moving riffle glide. DWM
Eagle Ck.-E.C.Rd	7/21/94					ASTR	5-tads	2 @ 2.1, 3.5, 3.5		glide just above the last pool
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-Adult		4.4	hiding in the rocks
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-Adult		4.7	
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-Adult		3.6	sitting on moss on creek bank (15C)
Eagle Ck.-E.C.Rd	7/21/94					ASTR	2-Adults	a pair	3.6	In a glide with all of the tads
Eagle Ck.-E.C.Rd	7/21/94								4	
Eagle Ck.-E.C.Rd	7/21/94					ASTR	>40-tads	with legs	5	
Eagle Ck.-E.C.Rd	7/21/94							leg buds	4.5	
Eagle Ck.-E.C.Rd	7/21/94								3.8	
Eagle Ck.-E.C.Rd	7/21/94								4.1	
Eagle Ck.-E.C.Rd	7/21/94								4.2	
Eagle Ck.-E.C.Rd	7/21/94								4.6	
Eagle Ck.-E.C.Rd	7/21/94					ASTR	>4 tads		2.8-3.5	
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-Adult		3.5	fast moving glide under a down tree
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-Adult		3.2	a fast glide;under rock bank on creek
Eagle Ck.-E.C.Rd	7/21/94					ASTR	3-Adult		3.7	sitting under a riffle
Eagle Ck.-E.C.Rd	7/21/94								3.8	shaded by DWM
Eagle Ck.-E.C.Rd	7/21/94								4.3	
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-Adult		3.6	in a crevice of a riffle
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-Adult		2.3	glide..riffle..riffle..glide
Eagle Ck.-E.C.Rd	7/21/94									Nice glides, not as many tads
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-Adult		4.2	meandering riffle/glide. part-sun
Eagle Ck.-E.C.Rd	7/21/94					ASTR	>15 tads			
Eagle Ck.-E.C.Rd	7/21/94					THEL			12-inch	At a tributary to the North
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-Adult		2.9	Riffle/glide
Eagle Ck.-E.C.Rd	7/21/94					ASTR	>5 tads			
Eagle Ck.-E.C.Rd	7/21/94									Creek opeening up;becoming braided
Eagle Ck.-E.C.Rd	7/21/94					RAPR	1-Adult			
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-Adult		3.2	180ft. W. of trib.
Eagle Ck.-E.C.Rd	7/21/94					ASTR	1-Adult		3.6	DWM shaded glide/pool;

1994 Stream surv

	Canopy	Substrate	Overstory	Understory	Herbaceous	width	length
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd			Grand fir	Alder riparian			15ft
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd	60%	cobble	Grand fir			13"	1-m
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd	90%	sm.boulders	Yg. Alders				
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd			Yg. Alders				18-ft.
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							
Eagle Ck.-E.C.Rd							

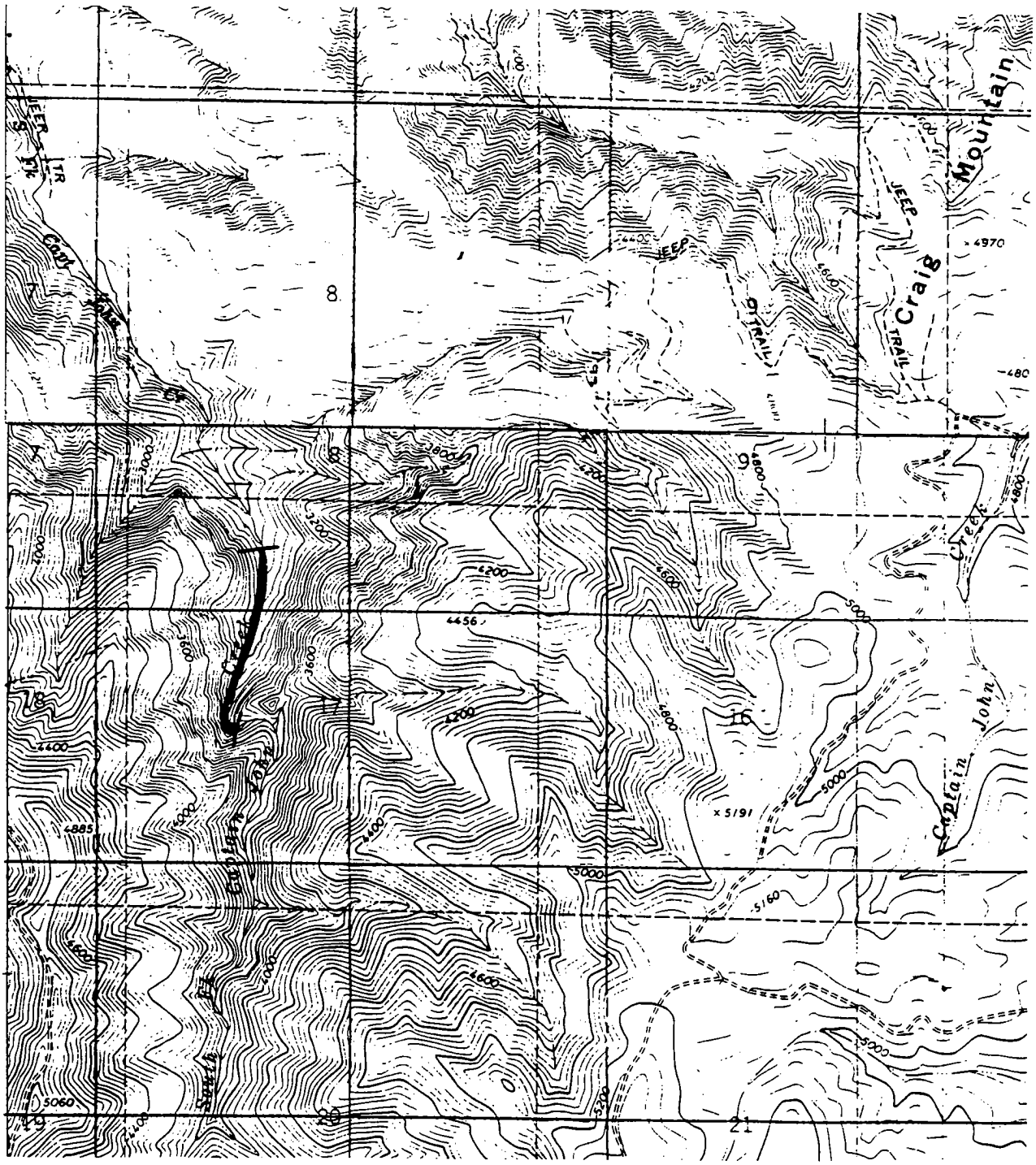
1994 Stream surveys

	Date	start	end	Observers	time	Species	# found	Life stage	TL	Habitat
Eagle Ck.-E.C.Rd	7/21/94					ASTR	9-Adult		3.4	Very nice pool/glide,short cascade riffle
									3.7	
Deer Ck. Meadow	5/07/94	1130	1235	Llewellyn					4.6	
									4.2	
									4.2	
China Ck.	5/31/94			Llewellyn;Singer					4.2	
									4.1	
Eagle Ck.-Zaza	6/03/94			Llewellyn					3.7	
Eagle Ck.-Zaza	6/30/94			Llewellyn;Singer					?	
						THEL	1-juv.		10 in.	
						ASTR	2-Adult		3.9	20-ft. upstream;Cascade riffle/glide
									2	
						ASTR	3-Adult		3.8	20 ft. upstream;cascade riffle
									3.4	
									3.7	
						ASTR	4-Adult		3.3	Pool; 10-ft. long
									3.5	
									4	
									4	
						ASTR	1-Adult		3.3	
							>2 tads			
						ASTR	2-Adults		3.8	
									3.5	
						THEL	1-juv.		13 in.	
						RAPR	1-Adult			
						ASTR	3-Adult			

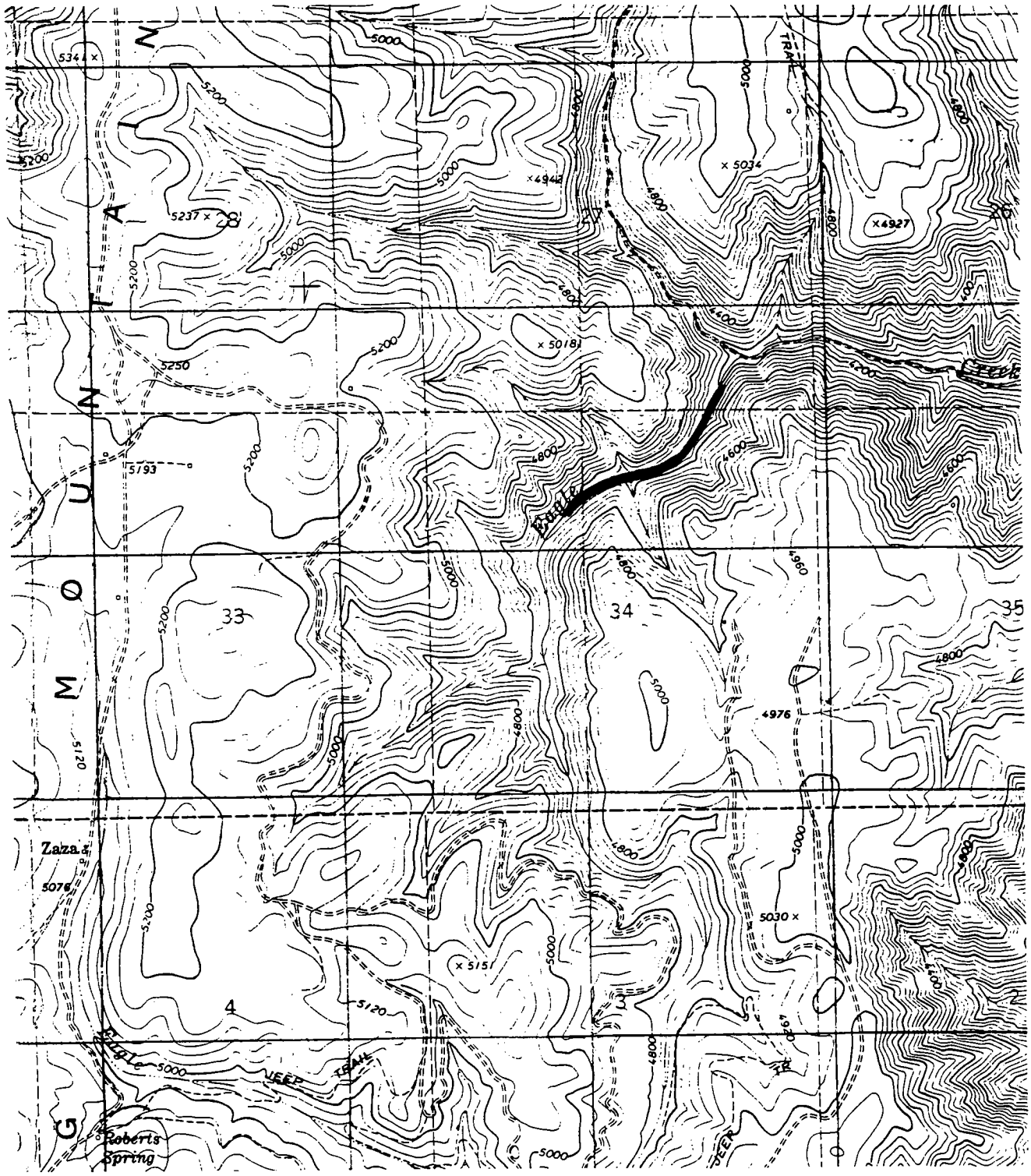
1994 Stream surv

	Canopy	Substrate	Overstory	Understory	Herbaceous	width	length
Eagle Ck.-E.C.Rd	60%	sm. boulder					
Deer Ck. Meadow							
China Ck.							
Eagle Ck.-Zaza							
Eagle Ck.-Zaza							

Location of Tailed Frogs on South Fork Captain John Creek



Location of Tailed Frogs
on Eagle Creek



1995 Stream Surveys

7/14/95 Deer Creek

start- 1400 end-1600
clear, calm, 80's.

Robin Llewellyn, J.J.Teare, Cindy Hanson, Charlie Anderson, Hallie Henderson drove down to an old homestead, the Platt Ranch, located at lower Deer Creek. We went down with a father and son who know the area and could possibly give me a little information about the stream. It took us 5 hours to drive there from Black Pine Campground because of the many downed trees.

We went exploring on the creek above the homestead. Because we didn't do a complete survey today, we will do one tomorrow. The creek is a series of very large boulder cascades and waterfalls. We stopped at the first waterfall and looked into a mine shaft. It was so cold inside the shaft that you could see your breath. Water temp was probably close to 6-10 C. We did not find any amphibians.

7/15/95 Deer Creek

start-0900 end-1330

Started the survey where the trail crosses Deer Creek, just upstream from the homestead. Canopy coverage ranges from 0-30% slope. Stream vegetation includes Red Alder, Cottonwood. There is Ponderosa Pine along the canyon borders, but not near the stream. **RAPR** sitting on a large rock in the middle of a partly-shady boulder riffle. Little splashes from the riffle above, would occasionally hit the frog. I took two pictures.

1300- Came to an large rock cliff that we can't get past. The area bottlenecks into rock cliffs. This area has large boulders and large cobbles for substrate, not much sand, pebbles or small rocks. Water is moving very fast. It is a constant cascading boulder riffle. No glides and only a couple of pools. The creek branches a couple times into smaller creeks, 100-200 ft. long.

We did not find any other amphibians or reptiles. A **CRVI** was seen on the road where the road crosses the creek. A **BUBO** was seen on the road that night, approx. 1/2 mile south of the IDFG gate.

1430- Starting a survey down a forested tributary of Deer Creek. Good canopy coverage 60-90%, but there is no water running. Large Douglas Fir trees, quite a few are downed covering the creek. Ground cover- Ribes, monkshood, and thimbleberry. Even at the mouth of the tributary, there is no running water. We walked a few hundred feet upstream Deer Creek, Doug Fir and Ponderosa Pine along the upper slopes, but not influencing the stream. Stream vegetation includes- Mock-orange, Red Alder and a Salix spp. The area flattens out and becomes more sandy and pebbles. It looks as though downstream from the tributary is steep and rocky. Canopy coverage of Deer Creek- 20-30%.

7/16/95 Deer Creek

Drove out of the Platt Ranch to check the upper part of Deer Creek

1100-1300 Parked on a dirt road that parallels the creek. Potlatch used to own this area, but now belongs to the Nez Perce. Cows and people have really trashed this area. It is a second growth coniferous upland with an open and flat riparian area. We parked and walked downstream turning over rocks and visually looking. Canopy coverage- 0-20%. Water flows at a constant riffle with pools formed after a small cascade riffle. Lots of crayfish. Water is slightly cloudy with a thin silt covering the rocks. A lot more sediment than downstream. The banks are gravely with small beaches. Stream width- 8-10 ft. There is a well worn foot path paralleling the stream. We walked this until the stream ended at a cliff at least 50 ft. high. We were not able to see the bottom of the falls.

1300 Drove to the top of another tributary on the East side of Deer Creek. According to the topographic map, it is the first one below the large waterfall. The area has been nuked by cows and logging. Canopy Coverage was 0%. Vegetation in the draw included Bracken Fern, Ribes and Rosa spp.
There is no running water, and all of the trees have been cut from the draw. We walked only a couple hundred feet down because of the condition of the habitat. The chance of finding a Tailed frog in there would be virtually impossible. Also, the aerial photo shows the draw having an open canopy coverage. On 8/04 we did not find the mouth of this tributary There was no good sign indicating were it came in.

8/04/95 Deer Creek

start- 1200 end- 1500
clear, no breeze, 90's.
water temp was a constant 24° C, until we got about 200 yards away from the large waterfall and it changed to 22°C.

We started at the tributary we stopped at last trip. From the mouth of this tributary, we walked upstream about 200 yds. from the first waterfall. Overall, the creek is a fairly constant riffle with shallow steps (>1 ft.) and small glides (1-5 fet. in length).
Canopy coverage ranges from 10-40% .

Substrate- lg. cobble and small boulder substrate. Over 80% of the rocks around small riffle-cascades and shallow glides are covered with mosses and jelly-like eggs?, plants? growing in areas where water is rushing past. Because this growth covers the rocks, it reduces the feeding habitat for tadpoles. I think the high water temperature and high sunlight exposure enhances stream vegetation to grow prolificly.

We encountered a huge log jam that could act as a fish barrier. It almost looks like a downed bridge and other trees got caught on it during high water. The barrier has been there quite a few years because a sand/silt beach has formed on the other side, and there is a height difference from each side of the jam of about 10 ft.

We did not encounter any fish until we crossed the log barrier. After that most pools would have 2-3 fish (from what we could see). Most pools ranged from 1-4 ft. Not including the plunge pools. A couple of these were probably 6-7 ft. deep.

There were two rainbow trout in a large pool actively biting at a live wasp helplessly floating on the top of the water. The pool was a slow-moving eddy and each fish was located on each side

of it. The wasp circled twice, and each time the fish jumped for the wasp and missed. We could not believe that these fish could miss such a large and brightly colored insect. Then the wasp got caught near some rocks in a back current and a crayfish grabbed the wasp. Fish ranged in sizes from 4-7 inches.

From the start, this stream was FULL of crayfish. They seemed to increase once the stream leveled out at the tributary and more sandy, shallow areas are formed. It seemed like 4 out of 5 large flat rocks I turned over had 1 or two crayfish. Largest- 5 inches, Smallest- 1 inch.
This stream does not look like a tailed-frog stream. It is too open, water temp too high and moss covered rocks. I also wonder if fish predate upon tailed frogs.

7/28/95 Maloney Creek

partly cloudy, partly sunny; temp.- 80's

This small creek runs in a valley similar looking to Deer Creek In fact it is the valley just east of Deer Creek The topography is rolling grasslands with Ponderosa and Doug Fir on the north side of the draws. Width- 3-6 ft. wide. Canopy coverage varies from 0-70%. The creek goes from open, to brushy, to tree covered. The area is leased to a family who ranges cattle there in the winter time. The creek descends about 600 ft. in a 1/2 mile.

8/08/95 Maloney Creek

90% overcast, light wind, air temp. 60's
It rained all day yesterday, it will probably rain today

1112- Starting about 1/8 mile below where the road crosses the stream. Conifers on the upper banks, vine-maple, cottonwood, thimbleberry vegetation along stream banks. Stream width approx. 3 ft. Rocky, small boulder substrate. Small boulder riffles. Habitat looks good, but we are not finding anything. Water temp.- 13° C

Creek overstory varies from extremely brushy (thimbleberry) to conifer/maple/ Some areas are so brushy we had to walk around. Canopy coverage varies from 0-90%. Average depth of riffles around 3 inches.
1210- Water temperature- 13° C.
Not many large rocks for Idaho Giant Salamanders to hide under. Silt on the bottom of the rocks. A lot of downed mossy logs. The stream goes completely underground for over 200 yds. Just upstream from where the stream re-emerges

BUBO- 6 inches long in a small pool, female. Water temp. 14°C. She was sitting in a small shallow area of the stream. There was 100% canopy coverage.

CHBO- dead on the edge of the road. 744 paces from the fence.

Appendix C

1994 and 1995
Trapping data

1994, 1995 Drift fence with funnel traps
1994 Drift fence with pitfall traps

1994 FUNNEL TRAP DATA

Trap Name	Open	Repaired	Closed	# trap days	5/20/94	6/15/94	6/16/94	6/20/94	6/28/94	7/06/94	7/08/94	7/11/94	7/14/94	7/22/94
WM-3 Benton Meadows	5/12	6/02	7/26	55	AMMA-A									
WM-2 Kruze Meadows	5/12	6/02	7/26	55										
DF-1 Pruitt Draw	5/13	6/03		54										
DF-1 Cottonwood Ck	5/13	6/03		54										
IF-2 Pruitt Draw	5/13	6/03		54										
IF-3 Wapshilla Ridge	5/13	6/03		54										
AL-1 Eagle Ck.	5/13	6/07		50		COCO-A								
AL-3 China Ck	5/13	6/28		71		BUBO-J								
YS-3 Eagle Creek	5/13	6/07		50										
YS-1 Madden Ck.	5/12	6/07		50										
Nightsnake Beach (portable)	6/18	-	7/31	44			SCOC-J		BUBO-A	4 BUBO-A. 1 BUBO-J 1-SCOC-J	BUBO-A			SCOC-J
China Creek (portable)	6/18	-	7/31	44				CRVI-A	COCO-A CRVI-J			COCO-A	PICA-A	

List of all amphibians and reptiles caught from permanent drift fence and portable drift fence funnel trap
SCOC = Western Fence Lizard, COCO = Racer, CRVI = Western Rattlesnake, PICA = Gopher Snake
AMMA = Long-toed Salamander, BUBO = Western Toad. J = juvenile, A = adult

1993, 1994 COVERBOARDS

Coverboard	Open	4/20	4/23	6/16
Salmon River	5/27/94			SCOC-J
China Ck.	5/27/94			
Benton Meadows				
upland, pond bank	4/18/94			
lowland, pond bank	4/18/94			
France's (1993)	4/01/93	AMMA-A	AMMA-A	

List of animals underneath the coverboards.

Captures of herpetofauna (n/100 trap nights) in pitfall traps in 4 vegetation types at Craig Mountain, 1993. (Cassirer, 1995)

Species	n	White alder (n=3) 960 TN $\bar{X}$ (*sd*)	Douglas-fir (n=3) 972 TN $\bar{X}$ (*sd*)	Idaho fescue (n=3) 908 TN $\bar{X}$	Wet meadow (n=3) 841 TN $\bar{X}$ (*sd*)	All types (n=4) 3681 TN $\bar{X}$ (*sd*)
Long-toed salamander (*Ambystoma macrodactylum*)	33	0	0.29 (*0.50*)	0	3.58 (*1.66*)	0.97 (*1.75*)
Western toad (*Bufo boreas*)	3	0.10 (*0.18*)	0	0	0.24 (*0.21*)	0.09 (*0.11*)
Western skink (*Eumeces skiltonius*)	2	0	0.21 (*0.37*)	0	0	0.05 (*0.11*)
Spotted Frog (*Rana pretiosa*)	4	0	0	0	0.24 (*0.21*)	0.06 (*0.12*)
$\bar{X}$ captures/100 TN	42	0.03(*0.05*)	0.88 (*1.42*)	0	1.02 (*1.71*)	0.48 (*0.54*)
No. species		1	2	0	3	4

Captures of herpetofauna (n/100 trap nights) in pitfall traps in 5 vegetation types at Craig Mountain, 1994. (Cassirer, 1995)

Species	n	White alder (n=3) 735 TN $\bar{X}$ (*sd*)	Douglas-fir (n=3) 792 TN $\bar{X}$ (*sd*)	Idaho fescue (n=3) 805 TN $\bar{X}$ (*sd*)	Wet meadow (n=3) 682 TN $\bar{X}$ (*sd*)	Yellow starthistle (n=3) 756 TN $\bar{X}$ (*sd*)	All types (n=4) 3770 TN $\bar{X}$ (*sd*)
Long-toed salamander (*Ambystoma macrodactylum*)	30	0	0	0	4.53 (*2.28*)	0.13 (*0.23*)	0.93 (*2.01*)
Western toad (*Bufo boreas*)	3	0	0	0	0.51 (*0.87*)	0	0.10 (*0.23*)
Western skink (*Eumeces skiltonius*)	1	0	0	0	0	0.13 (*0.23*)	0.03 (*0.06*)
Spotted Frog (*Rana pretiosa*)	3	0.13 (*0.22*)	0	0	0.47 (*0.51*)	0	0.12 (*0.20*)
$\bar{X}$ captures/100 TN	37	0.03(*0.07*)	0	0	1.38 (*2.11*)	0.07 (*0.08*)	0.30 (*0.61*)
No. species		1	0	0	3	2	4

1993 and 1994 Pitfall trapping data

Pitfall Traps	Elev.	UTM-E	UTM-N	10/3-11/1 1993	4/18-5/14 1994
DF-1 Wapshilla	4800	511425	5098802	3-AMMA	
DF-2 Pruitt draw	4140	515262	5091063	2-Juv.EUSK	
DF-3 Pruitt draw	4100	515813	5090527		
AL-1 Eagle Ck.	2700	518383	5097776		
AL-2 China Creek		519125	5092200	1-BUBO	1-RAPR
AL-3 China Creek		519552	5091725		
WM-1 Kruze Meadows		518066	5111472	14-AMMA 1-RAPR 1-BUBO	12-AMMA
WM-2 Kruze Meadows		517950	5108900	5-AMMA 1-RAPR	
WM-3 Benton Meadows	4650	514730	5107850	20-AMMA 4-BUBO 3-RAPR	13-AMMA 3-BUBO 2-RAPR
IF-1 Wapshilla Ck.	4600	514505	5090877		
IF-2 Wapshilla Ck.	4600	514700	5089528		
IF-3 Pruitt Draw	4200	515384	5091402		
YS-1 Madden Ck.	2300	510610	5115200		1-EUSK
YS-2 Madden Ck.	2800	510400	5113250		
YS-3 Eagle Ck.	2900	521106	5096637		

1995 Drift Fence with funnel trap data

Location	Habitat	Date	Time	Trap#	Species	Mass	SVL	TL	Observer(s)	Precip.	Cld.cover	Comments
						(g)	(cm)	(cm)				
Salmon River	T-2	5/31	1230	3	COCO	82			Llewellyn	0	0	
	T-2	5/31	1230	3	COCO	20		20 in.	Llewellyn	0	0	TL's are approximate
	T-1	5/31	1335	1	COCO	67		30 in.	Llewellyn	0	0	TL'sare approximate
Salmon River	T-2	6/8	1205	B	BUBO				Llewellyn	0		Adult, dead
	T-1	6/8	1225	B	BUBO				Llewellyn	0		Adult, dead
	R-1	6/8	1300	4	SCOC	7			Llewellyn	0		
Salmon River	R-1	6/13	1504	B	SCOC	6		13.2	Llewellyn	0		
Salmon River	R-1	6/21	1500	B	SCOC	5		11.4	Llewellyn	light	100	
	R-1	6/21	1500	B	SCOC	7		12.5	Llewellyn	light	100	
	T-2	6/21	1403	1	COCO		64.5	87.3	Llewellyn	on/off	100	
Salmon River	R-1	6/29	1445	1	PIME	170		90	Henderson			
	T-2	6/29	1615	3	PIME	69		66	Henderson	0	0	
	T-1	6/29	1645	1	COCO	68		72	Henderson	0	0	Dead female w/ 5 eggs
	T-1	6/29	1645	1	COCO				Henderson	0	0	small snake; found under trap
Salmon River	T-1	7/07	1530	B	BUBO	10			Henderson	0	2	a large toad
Salmon River	T-2	7/13	1300	B	SCOC	7		14	Llewellyn	0	60-100	muggy,
	T-2	7/13	1300	4	CRVI			18 in.	Llewellyn	0	60-100	muggy,
	T-1	7/13	1335	2	BUBO				Llewellyn	0	60-100	Dead inside the trap
	R-1	7/13	1405	3	SCOC	5		11.5	Llewellyn	0	60-100	muggy,
Salmon River	T-2	7/18	1155	3	HYTO	36	35.5	46	Llewellyn	0	0	temp. over 100. Aggressive
Salmon River	T-1	7/23	930	2	COCO	28		51.2	Llewellyn	0	0	temp. 90's
Snake River	R-2	6/5	1130	B	COCO	10	30	39	Anderson, Benker	100	100	juvenile
Snake River	water	6/27	945	3	COCO	129	51	68	Anderson,Benker	0	0	
Snake River	Iris	7/10	1600	4	COCO		61	79	Anderson	0	90	
Snake River	water	7/25	1345	1	COCO	80	54.5	73.6	Llewellyn	0	0	female
	water	7/25	1345	1	COCO				Llewellyn	0	0	dead, head caught in funnel
Snake River	water	7/29	1200	4	COCO	71			Llewellyn	0	0	got away before I could measure

Salmon River traps- opened 5/26, closed 7/23. Total days = 59
Snake River - Iris, Waterfall traps opened 6/15, closed 7/10. Reopened 7/20, closed 7/29. Total days = 34
Snake River- Riparian opened 5/24, closed 7/10. Reopened 7/20, closed 7/29. Total days = 56

Appendix D

1994
Road Driving
Calling surveys
and
1995 Terrestrial Surveys

1994 Road Driving and Calling Survey Data

Day	M	YR	START	END	ROAD OR ROUTE	OBSERVERS	TEMP. (C)	WIND	PRECIP.	SPP.	#	TL	MASS (g)	TIME	UTM-N	UTM-E	HABITAT
17	4	94	1953	2145	Larabee Meadows	R. Llewellyn	45 F	calm	0	BUBO	1			2036	5106240	518385	Road
17	4	94	1953	2145	Larabee Meadows	R. Llewellyn				HYRE	1			2048	5106900	519275	Meadow
17	4	94	1953	2145	Larabee Meadows	R. Llewellyn				BUBO	1			2114	5106400	515755	Road
17	4	94	1953	2145	Larabee Meadows	R. Llewellyn				HYRE	>3			2137	5106505	515223	Meadow
18	4	94	2045	2108	540 Rd. from BM	R. Llewellyn		light	light	HYRE	1			2103	5108975	516597	Meadow
18	4	94	2045	2108	540 Rd. from BM	R. Llewellyn				RAPR	1			2103	5107890	516415	Rd.540 Pond
19	4	94	1930	2200	575 Rd.& Sold. Mdws.	Llewellyn;Cassirer	5	light	0	HYRE	>3			2005	5111905	516950	Meadow
19	4	94	1930	2200	575 Rd.& Sold. Mdws.	Llewellyn;Cassirer				BUBO	1			2215	5110650	523298	
19	4	94	1930	2200	575 Rd.& Sold. Mdws.	Llewellyn;Cassirer				BUBO	1			2233	5112345	520275	
24	4	94	1955	2055	Larabee Meadows	Llewellyn	4	calm	100								
24	4	94	2055	2150	Soldiers Meadow	Llewellyn	4	calm	100								
10	5	94	1930	2110	540 Rd & Sold. Mdws.	Llewellyn	12	light	0	HYRE	>3			1918	5109120	516422	Meadow
10	5	94	1930	2110	540 Rd. & Sold. Mdws.	Llewellyn	12	light		HYRE	2			1940	5110355	516305	Meadow
31	5	94	2142	2442	Salmon River Road	Llewellyn; Singer	15.8	muggy	ovcast	BUBO	1			2153	5093005	522297	On Road
31	5	94	2142	2442	Salmon River Road	Llewellyn; Singer	15.8	muggy	ovcast	BUBO	1			2207	5095084	522395	On Road
31	5	94	2142	2442	Salmon River Road	Llewellyn; Singer	15.8	muggy	ovcast	BUBO	1			2213	5093105	522455	On Road
31	5	94	2142	2442	Salmon River Road	Llewellyn; Singer	15.8	muggy	ovcast	BUBO	1			2215	5093150	522505	On Road
31	5	94	2142	2442	Salmon River Road	Llewellyn; Singer	15.8	muggy	ovcast	BUBO	1			2217	5090950	520925	On Road
9	6	94	2034	120	Salmon River Road	Llewellyn;Singer	18	calm	clear	HYRE	1			2035	5107545	504190	Near river
9	6	94	2034	120	Salmon River Road	Llewellyn;Singer	18	calm	clear	HYRE	2			2043	5110800	505320	Near river
9	6	94	2034	120	Salmon River Road	Llewellyn;Singer	18	calm	clear	HYRE	3			2420	5107645	504195	SFCJ
20	6	94	2240	2309	540 Road	Llewellyn;Johnson	60F	calm	clear	BUBO	1			2251	5107705	516398	On Road
20	6	94	2240	2309	540 Road	Llewellyn;Johnson	60F	calm	clear	BUBO	1			2253	5108380	516510	On Road
20	6	94	2323	100	Salmon River Road	K. Singer	23	calm	clear	BUBO	1	11.5	110	1131	5093175	522400	On Road
20	6	94	2323	100	Salmon River Road	K. Singer	23	calm	clear	BUBO	1	10	107	1140	5092690	521860	On Road
20	6	94	2323	100	Salmon River Road	K. Singer	23	calm	clear	BUBO	1	9	23	2405	5091380	521160	On Road
20	6	94	2323	100	Salmon River Road	K. Singer	23	calm	clear	BUBO	1	10.2	110	2425	5090625	520450	On Road
20	6	94	2323	100	Salmon River Road	K. Singer	23	calm	clear	BUBO	1	11.5	134	2437	5090250	519775	On Road
22	6	94	250	313	Zaza Road	K. Singer	12	calm	clear	BUBO	1	9.8	76	250	5104770	512175	On Road
22	6	94	250	313	Zaza Road	K. Singer	12	calm	clear	BUBO	1	11	94	255	5102780	511860	On Road
23	6	94	2045	2250	Sold.Mdws...Zaza	Llewellyn	17	light	ovcast								
24	6	94	1910	1925	540, Waha Rd.	K. Singer		calm	clear	CHBO	1			1920	5116825	513250	On road
27	6	94			Zaza Road	K. Singer				BUBO	1				5099960	511950	
27	6	94			Zaza Road	K. Singer				BUBO	1				5100052	511860	

Day	M	YR	START	END	ROAD OR ROUTE	OBSERVERS	TEMP. (C)	WIND	PRECIP.	SPP.	#	TL	MASS (g)	TIME	UTM-N	UTM-E	HABITAT
28	6	94	2213		Salmon River Road	Llewellyn;Singer		calm	clear	BUBO	2			2232	5090518	520050	On road
28	6	94			Salmon River Road	Llewellyn;Singer		calm	ovcast.	BUBO	1	10.2	146	2240	5092895	522020	On road
6	7	94	2200	2318	540 Rd.and Waha Rd.	R. Llewellyn	40's	calm	clear	BUBO	1	9.2	102	2309	5112698	515400	On Road
8	7	94	2201	2246	540 Rd.and Waha Rd.	Llewellyn;Mancuso	40's	calm	clear	CHBO	1			2220	5116500	513755	On road
14	7	94			Salmon River Road	Bob Lantz		calm	clear	CRVI	1				5090395	519760	
14	7	94			Salmon River Road	Bob Lantz		calm	clear	CRVI	1				5090180	519755	
30	7	94			540 and Waha Rd	Llewellyn				CHBO	1				5100438	509446	On Road

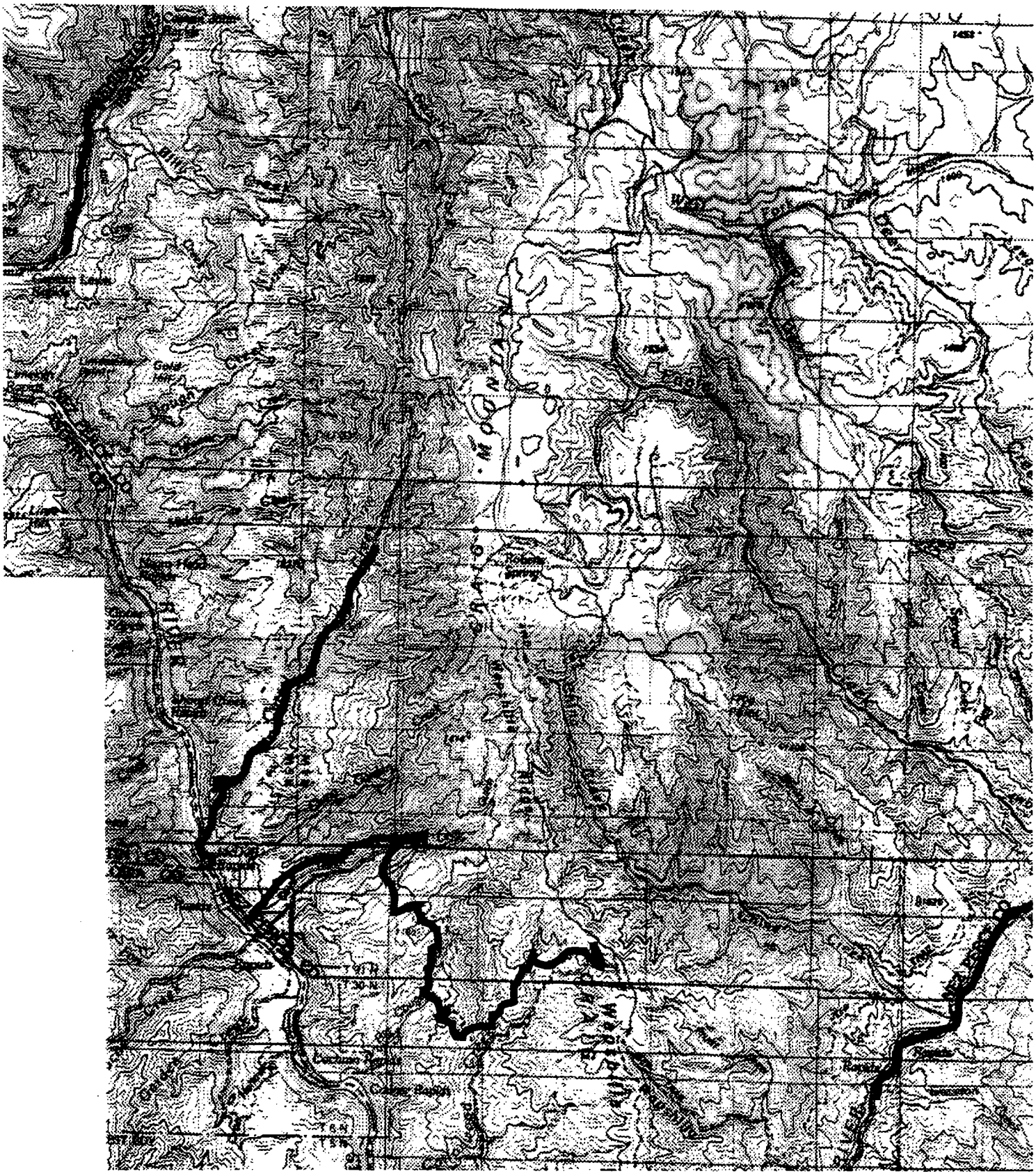
Terrestrial Surveys

Date 1995	Location	Station	Time start	Time end	Total survey time (2 x elapsed time)	Animals observed
13-Jun	Salmon River	1	1400	1415	30 min	
		2	1715	1800	90 min	2- W. Fence Lizards
14-Jun	Salmon River	1	830	850	40 min	
		2	930	1030	120 min	1- Racer
		3	1100	1130	60 min	1- Night Snake; 1- W. Fence Lizard
		4	1144	1225	90 min	2- fence lizards; 1- rattlesnake
		5	1315	1440	180 min	5- fence lizards
16-Jun	Snake River	1	920	1230	360 min	2- Racers; 2-W. Terrestrial Garter Snakes
27-Jun	Corral Creek	2	1540	1630	120 min	1- Racer
		3	1300	1430	180 min	1- rattlesnake
		4	1015	1140	180 min	
		5	900	1000	120 min	1- Racer
28-Jun	Cave Gulch		1430	1730	360 min	2- Racers; 1- attlesnake;
	Creek					1- fence lizard

Total: 1860 min. (31 hrs) 19 animals = 0.77 animals/hour

All surveys had 2 observers. The specific location of all stations are shown on topographic maps following this chart.

1995 Routes taken for Terrestrial Surveys



Appendix E

1993, 1994 and 1995
Incidental Observations

1993 and 1994 Incidental Observations

DAY	MO	YR	GENUS	SPECIES	LOCATION	DESCRIPTION OF ANIMAL	HABITAT DESCRIPTION
26	5	94	Coluber	constrictor	Wapshilla Ridge;2.3mi.N Pruitt Draw	Approx.2ft.long;sunning in road	Open forest,grasslnd,rocky slope
13	5	94	Crotalus	viridis	6.8mi from top of Eagle Ck.Rd.	Adult,dead;rattles removed	Alder riparian along Eagle Ck.Rd.
21	4	94	Crotalus	viridis	On First Ck.Rd.,off of Eagle Ck.Rd	Sunning in road;12in.long	Talus slope,south-facing
23	5	94	Crotalus	viridis	Madden Ck Rd;near Madden Ck	Large,3ft long;8 rattles	Riparian,shaded,20ft from water
12	4	94	Pituophis	catenifer	Salmon River Rd; 3/4mi W.China Ck	Road kill; 2.5ft long	Grassland
13	5	94	Coluber	constrictor	In grass between China Ck.& China Rd	light orange\brown;small	star thistle; alder riparian
31	5	94	Bufo	boreas	Salmon River Rd;1.8mi from China Ck.bridge	Adult;approx 4 in.long	grassld,hackberry,rose;100ft from H20
31	5	94	Bufo	boreas	Salmon River Rd;1.9mi from China Ck.bridge	Adult;approx.4 in.long;looked fat	grassld,rocky,hckbrry;100ft from river
31	5	94	Bufo	boreas	Salmon River Rd;1.95mi from China Ck bridge	Adult	grassld,rocky,hckberry;100ft from river
31	5	94	Bufo	boreas	Salmon River Rd;1.1mi from China ck bridge	Adult;approx 4in.long,2 wide	sandstone cliff(N);River 20ft below
31	5	94	Bufo	boreas	Salmon River Rd;0.1mi from China Ck. brdge	Adult;approx.4in long, 2in.wide	rocky grassland,<100ft. from river
16	4	94	Bufo	boreas	In grass by First Ck.off of Eagle Ck Rd	Adult	grassland,riparian, 30ft from water
13	5	94	Bufo	boreas	In a hole near Benton Meadows cabins	Adult	meadow and forest edge
19	4	94	Bufo	boreas	moving on Rd 575 at Soldiers Meadow	Adult	forest, lake edge
19	4	94	Bufo	boreas	Deer Ck Rd;.4mi from "Y'at Soldiers Meadow	Adult	meadow and forest edge
15	4	94	Bufo	boreas	Deer Ck. Rd.	Adult; Road kill	marsh/creek, forest;50ft from water
23	5	94	Eumeces	skiltonianus	On rocky slope above Madden creek	Juvenile, blue tail	SW aspect,30%slope, rocky talus slope
20	5	94	Ambystoma	macrodactylum	In Ag.canal through Kruze Meadows, Rd 540	larvae, 1-2 wks old	Area not covered w/algae;em.veg pres.
16	4	94	Rana	pretiosa	Sm.Ck that feeds into W.L.M.Road ditch pond	sm adult or juvenile	Carex, 18-24 in wide, running water
21	5	94	Pituophis	catenifer	Salmon River Rd before China Ck. bridge	Adult;1.5 ft long	Rocky grassland;40 ft. from river
21	5	94	Pituophis	catenifer	Eagle Ck.Road between First & Fourth Cks.	Adult; 2.5 ft.long	Riparian(W);Grassland(E)
30	7	93	Charina	bottae	Middle Corral Creek	Reddish,brown;approx.10in.long	Riparian
1	7	93	Eumeces	skiltonianus	Middle Corral Creek, near red barn		steep,rocky,bare slope
20	7	93	Bufo	boreas	Wapshilla Ridge	charcoal color;paratoid glands	open,rocky,grassy slope
15	7	93	Coluber	constrictor	Cave gulch/Cottonwood Ck ridge		steep,rocky hillside
21	6	93	Coluber	constrictor	Wapshilla ridge		grassy, forbs
17	6	93	Crotalus	viridis	Middle Corral Ck.		steep slope;rocky,grassy
8	6	93	Eumeces	skiltonianus	Middle Corral Creek	blue tl;5"lg;tan stripe above eye	bare rocky outcrop
28	6	93	Coluber	constrictor	Behind red barn on Corral Creek		yellowstar thistle
29	7	93	Eumeces	skiltonianus	Cuprina draw-Corral creek		rocky,AGSP bunchgrass community
24	5	94	Thamnophis	sirtalis	Rd 540; 0.1 mi.S. of Stagecoach Rd.	yllw dorsl stripe;red laterl stripes	open 2nd growth forest,grassy
17	8	93	Eumeces	skiltonianus	Middle Corral creek		dry, rocky AGSP bunchgrass
10	6	94	Pituophis	catenifer	Madden Ck. Rd; 04mi NE of Capt John Ck Rd	adult;80m long; WMA	rocky,grassland,hackberry
16	5	94	Pituophis	catenifer	Eagle Ck Rd.; 1.2m S. of Fourth Ck.	adult	yellow-star grassland; riparian
26	5	94	Pituophis	catenifer	Wapshilla Ck. Rd.	adult; 1m long,and very thick	grass/shrub with rocky areas
8	6	93	Crotalus	viridis	above Second Ck. off of Eagle Ck. Rd.	adult;very swollen abdomen	starthistle/talus
29	5	94	Eumeces	skiltonianus	Confluence of Salmon R.& Eagle Ck.	6-8" long;scaly with whiplike tail	rocky, basalt overlooking the water
18	6	94	Coluber	constrictor	Salmon River Area	SVL-66mm; TL-195mm; Mass-89g.	rocky/hack/grass
18	6	94	Coluber	constrictor	Eagle Ck. Rd., 1 mile from bottom	adult	riparian
20	6	94	Crotalus	viridis	Eagle Ck. Rd.; 5.9 miles from top	approx.80cm;thick w/6 rattles	alder,pine,grasses,east slope

1993 and 1994 Incidental

DAY	MO	YR	GENUS	SPECIES	ANIMALS BEHAVIOR	WEATHER	COUNTY	STATE	ELEV.	UTM E	UTM N
26	5	94	Coluber	constrictor	Slithered off after a min.	Hazy,overcast,muggy	Nez Perce	ID	4700 ft	512160	5094695
13	5	94	Crotalus	viridis	Dead	warm, partly cloudy	Nez Perce	ID	2600 ft	518270	5097700
21	4	94	Crotalus	viridis	lethargic,non-aggressive	overcast,warm	Nez Perce	ID	2870 ft	521000	5095900
23	5	94	Crotalus	viridis	moved under veg.after seeing me	hot,clear	Nez Perce	ID	2240 ft	509070	5113740
12	4	94	Pituophis	catenifer	Dead	overcast	Nez Perce	ID	1070 ft	519845	5090310
13	5	94	Coluber	constrictor	fast and quick movements	warm, partly cloudy	Nez Perce	ID	1460 ft	520445	5091765
31	5	94	Bufo	boreas	moving in grass,away from light	muggy,overcast,15c	Nez Perce	ID	1060 ft	522297	5093005
31	5	94	Bufo	boreas	slow,rapid breathing,slight kicking	muggy,overcast,15c	Nez Perce	ID	1060 ft	522395	5095084
31	5	94	Bufo	boreas	calm, slow to react to movements	muggy,overcast,15c	Nez Perce	ID	1060 ft	522455	5093105
31	5	94	Bufo	boreas	slow;rapid breathing;slight kicking	muggy, overcast,15c	Nez Perce	ID	1060 ft	522505	5093150
31	5	94	Bufo	boreas	calm, slowly hopped away	muggy, overcast,15c	Nez Perce	ID	1060 ft	520925	5090950
16	4	94	Bufo	boreas	sitting still in grass	slight overcast, warm	Nez Perce	ID	2460 ft	518300	5097865
13	5	94	Bufo	boreas	sitting still	clear, slightly warm	Nez Perce	ID	4500 ft	514770	5107155
19	4	94	Bufo	boreas	hopped to get away	clear, approx. 50F	Nez Perce	ID	4540 ft	520275	5112345
19	4	94	Bufo	boreas	sitting in road	clear, approx. 50F	Lewis	ID	4700 ft	523298	5110650
15	4	94	Bufo	boreas	very dead,flat and dry	clear, warm	Nez Perce	ID	4510 ft	518445	5106675
23	5	94	Eumeces	skiltonianus	ran from under a rock when lifted	hot, clear	Nez Perce	ID	2400 ft	508450	5113268
20	5	94	Ambystoma	macrodactylum	just sitting on bottom of canal	overcast	Nez Perce	ID	4680 ft	516650	5110170
16	4	94	Rana	pretiosa	hopped away from me	overcast, muggy, warm	Nez Perce	ID	4430 ft	518452	5106410
21	5	94	Pituophis	catenifer	Ran into grass when approached	partly overcast, warm	Nez Perce	ID	1060 ft	521645	5092350
21	5	94	Pituophis	catenifer	Hissed & coiled when approached	overcast,warm	Nez Perce	ID	2380 ft	518530	5097248
30	7	93	Charina	bottae			Nez Perce	ID		509446	5100438
1	7	93	Eumeces	skiltonianus			Nez Perce	ID		509006	5099000
20	7	93	Bufo	boreas			Nez Perce	ID	4240 ft	508765	5147500
15	7	93	Coluber	constrictor			Nez Perce	ID	4580 ft	512400	5092600
21	6	93	Coluber	constrictor			Nez Perce	ID	4360 ft	514780	5087805
17	6	93	Crotalus	viridis			Nez Perce	ID	2880 ft	509315	5099185
8	6	93	Eumeces	skiltonianus			Nez Perce	ID	2700 ft	509240	5099016
28	6	93	Coluber	constrictor			Nez Perce	ID		506520	5094345
29	7	93	Eumeces	skiltonianus			Nez Perce	ID	2840 ft	508690	5099092
24	5	94	Thamnophis	sirtalis	ran into veg.when approached	clear	Nez Perce	ID	4750ft	515455	5112360
17	8	93	Eumeces	skiltonianus			Nez Perce	ID	2620 ft	508700	5098300
10	6	94	Pituophis	catenifer	moved off after awhile.;non-aggress	clear,no wind;29	Nez Perce	ID	1400ft	507965	5111455
16	5	94	Pituophis	catenifer	crossing thr Rd. toward creek	overcast	Nez Perce	ID	900ft	519250	5096630
26	5	94	Pituophis	catenifer	sunning in road; coiled and hissed		Nez Perce	ID	4600ft	514580	5090260
8	6	93	Crotalus	viridis			Nez Perce	ID	2640ft	520550	5098650
29	5	94	Eumeces	skiltonianus	in the crevice among the rocks	part. cloudy; 70's	Nez Perce	ID	1120ft	523000	5093750
18	6	94	Coluber	constrictor	in the grass		Nez Perce	ID	1000ft	521131	5091565
18	6	94	Coluber	constrictor	sitting in road	clear, hot	Nez Perce	ID	1640ft	522412	5094437
20	6	94	Crotalus	viridis	On rd., did not rattle or hiss	sunny,26c	Nez Perce	ID	2710ft	517925	5098400

DAY	MO	YR	GENUS	SPECIES	OBSERVERS	COMMENTS
26	5	94	Coluber	constrictor	Llewellyn:Singer	
13	5	94	Crotalus	viridis	J.Raspone,D.	Could have been killed,or moved
21	4	94	Crotalus	viridis	R.Llewellyn	A possible den site nearby
23	5	94	Crotalus	viridis	R.Llewellyn	Only saw his back half; WMA
12	4	94	Pituophis	catenifer	Llewellyn,Cassirer	
13	5	94	Coluber	constrictor	J.Raspone,D.	
31	5	94	Bufo	boreas	Llewellyn:Singer	night survey
31	5	94	Bufo	boreas	Llewellyn:Singer	night survey
31	5	94	Bufo	boreas	Llewellyn:Singer	night survey
31	5	94	Bufo	boreas	Llewellyn:Singer	night survey
31	5	94	Bufo	boreas	Llewellyn:Singer	night survey
16	4	94	Bufo	boreas	R.Llewellyn	
13	5	94	Bufo	boreas	J.	
19	4	94	Bufo	boreas	R.Llewellyn	night survey
19	4	94	Bufo	boreas	Llewellyn;Cassirer	night survey
15	4	94	Bufo	boreas	R.Llewellyn	saw another toad, alive near the same area
23	5	94	Eumeces	skiltonianus	R.Llewellyn	WMA
20	5	94	Ambystoma	macrodactylum	R.Llewellyn	animals only present where no algae bloom
16	4	94	Rana	pretiosa	R.Llewellyn	upstream from Road ditch pond,W.Larabee
21	5	94	Pituophis	catenifer	R.Llewellyn	
21	5	94	Pituophis	catenifer	R.Llewellyn	
30	7	93	Charina	bottae	Middlestead,Citta	TNC
1	7	93	Eumeces	skiltonianus	J.Citta	address:ARC#103, Moscow,ID
20	7	93	Bufo	boreas	Wayment,Bishop	
15	7	93	Coluber	constrictor		
21	6	93	Coluber	constrictor	Wayment	
17	6	93	Crotalus	viridis	Citta,Middlestead	ARC #30,Moscow, ID
8	6	93	Eumeces	skiltonianus	Citta,Middlestead	
28	6	93	Coluber	constrictor	Citta	sighted 4 w/in 3 days, recorded only 1
29	7	93	Eumeces	skiltonianus	Citta,Middlestead	
24	5	94	Thamnophis	sirtalis	R.Llewellyn	
17	8	93	Eumeces	skiltonianus	L.Wetzstein	
10	6	94	Pituophis	catenifer	Llewellyn,Singer	photographed
16	5	94	Pituophis	catenifer	Llewellyn	
26	5	94	Pituophis	catenifer	C.Vogel	
8	6	93	Crotalus	viridis	Cassirer;Ritter	between stops 1&2 on bird transect #4
29	5	94	Eumeces	skiltonianus	J.Matthews	
18	6	94	Coluber	constrictor	B.Knapp	UTM from portable unit
18	6	94	Coluber	constrictor	C.Peterson	+-300m
20	6	94	Crotalus	viridis	K.Singer	

1993 and 1994 Incidental Observations

DAY	MO	YR	GENUS	SPECIES	LOCATION	DESCRIPTION OF ANIMAL	HABITAT DESCRIPTION
20	6	94	Bufo	boreas	Salmon River Rd.; 0.8mi from Eagle Ck.	TL-11.5cm, 110g	hack,grassland,sandy road
20	6	94	Bufo	boreas	Salmon River Rd.; 1.2 mi.from Eagle ck.	TL- 10cm, 107g.	hack,grassland,sandy road
21	6	94	Bufo	boreas	Salmon River Rd.;2.2mi from Eagle ck.	TL-9cm,23g;looked white,juv.	rock grassland;river 20ft away
21	6	94	Bufo	boreas	Salmon River Rd; 2.95mi. from Eagle ck.	TL-10.2cm, 110g	grassy mdw.,10%slope,H2O 80ft away
21	6	94	Bufo	boreas	Salmon River Rd;0.9mi W.of China Ck	TL-11.5cm,134 g.	hackberry,grassland,flat
21	6	94	Eumeces	skiltonianus	Salmon river beach; 0.2 mi W. China beach		sand,few hackberries
21	6	94	Eumeces	skiltonianus	Eagle Ck.Rd.;10.1mi from top of road		shady riparian,thick brush
21	6	94	Eumeces	skiltonianus	Eagle Ck. Rd; 7.6mi from top of road		riparian, thick brush
21	6	94	Pituophis	catenifer	Salmon River beach; 0.5mi W. of China Bch	TL- 79cm,SVL- 9.5cm,110.4g	sandy,rocky,thin line of drift
22	6	94	Bufo	boreas	Zaza Road; 2.6mi N. of Zaza	TL- 9.8cm, 76g	tall grass meadow, pine
22	6	94	Bufo	boreas	Zaza Road; 1.25 mi N. of Zaza	TL- 11.0cm, 94g	tall grass meadow, pine trees
27	6	94	Bufo	boreas	Zaza Rd;.6 mi S. of Zaza	TL- 10.2cm	tall grassy meadow,pine trees
24	6	94	Charina	bottae	Waha 540 Road		
16	6	94	Sceloporus	occidentalis	Salmon River coverboard #1	TL-118mm,SVL-52mm	rocky,grass,hackberry
16	6	94	Eumeces	skiltonianus	Salmon River	juvenile	RGH
16	6	94	Hypsiglena	torquata	Salmon River beach	TL-443mm, SVL-292mm, m-9g	sandy beach with driftwood
18	6	94	Rana	catesbiana	Salmon River; Peninsula Beach Pool		pool off of the river
18	6	94	Spea	intermontana	Salmon River Rd. by Pen.Beach Pool	adult	Road kill
23	4	94	Thamnophis	elegans	At the Y" Pond, off of Soldiers Meadow Rd.	adult	wet meadow with tall cares
20	4	94	Eumeces	skiltonianus	Madden Ck. Pitfall trap	juvenile	yellowstar
30	6	94	Thamnophis	elegans	Zaza Road	adult	lodgepole/fir forest
17	4	94	Bufo	boreas	Larabee Meaodws Road	adult	open forest, marshy draw
20	5	94	Ambystoma	macrodactylum	Benton Meadows pitfall trap	adult	wet meadow
11	5	94	Pseudacris	regilla	Upper Pond, W. Larabee Meadows	adult	pond
15	6	94	Coluber	constrictor	Salmon River Road	adult	rocky,hack,grassland
14	6	94	Crotalus	viridis	0 .5 mi N. of Wapshilla cabin	adult,fat	rocky,grassland
14	6	94	Coluber	constrictor	0.5 mi N. Wapshilla Cabin	adult, 18 in.long	thistle, rocky,grassland
14	6	94	Pituophis	catenifer	0.7 mi. N. of Wapshilla Cabin	adult, 2 ft. long	same as above
15	6	94	Rana	pretiosa	At the pool 2mi. down on EC Rd.	3 adults	creek, riparian
26	6	94	Thamnophis	elegans	At the pool 2mi. down on EC Rd.	juvenile	creek, riparian
14	6	94	Coluber	constrictor	Salmon River Rd; 1mi of W.China Ck.	adult; approx. 13in long	rocky grass, hackberry
14	6	94	Pituophis	catenifer	0.6 mi from Wapshilla Cabin	2-Adults, 1-Juvenile	rocky grassland
15	6	94	Coluber	constrictor	Next to AL-3 site on Fourth Ck.	adult;approx. 28in long	riparian, alder
24	5	94	Bufo	boreas	TNC, Corral Ck.	adult, very swollen abdomen	
3	6	94	Thamnophis	elegans	Eagle Ck.; 0.2mi N. of Zaza	young; approx.13in. long	marshy wet pool; riparian
3	6	94	Rana	pretiosa	Eagle Ck; 0.2 mi N. of Zaza	Adult	marshy wet pool; riparian
11	6	94	Thamnophis	elegans	Zaza Rd., 1mi NE of Benton Meadows	adult	open forest;w/in 200ft of creek
11	6	94	Thamnophis	elegans	2.2mi down Eagle Ck. Rd.	Adult	Riparian
16	6	94	Bufo	boreas	Salmon River beach	adult, male	On beach with driftwood
16	6	94	Sceloporus	occidentalis	AL-3, China Ck. array	TL-162mm; SVL-70mm	rocky, hackberry
16	6	94	Crotalus	viridis	Salmon River beach	approx.13in.long; 3 rattles	beach with rocks and driftwood

DAY	MO	YR	GENUS	SPECIES	ANIMALS BEHAVIOR	WEATHER	COUNTY	STATE	ELEV.	UTM E	UTM N
20	6	94	Bufo	boreas	scared,hopped into grass,puffed up	night;23c	Nez Perce	ID	1070ft	522400	5093175
20	6	94	Bufo	boreas	scared, hopped into grass,puffed up	night;22c	Nez Perce	ID	1070ft	521860	5092690
21	6	94	Bufo	boreas	calm and scared	night;24c	Nez Perce	ID	1070ft	521160	5091380
21	6	94	Bufo	boreas	calm and scared	night;23c	Nez Perce	ID	1070ft	520450	5090625
21	6	94	Bufo	boreas	jumpy	night;23c	Nez Perce	ID	1115ft	519775	5090250
21	6	94	Eumeces	skiltonianus	sunbathing, very quick	clear;23c	Nez Perce	ID	1030ft	520655	5090575
21	6	94	Eumeces	skiltonianus	ran across road	clear;29c	Nez Perce	ID	1400ft	522850	5094050
21	6	94	Eumeces	skiltonianus	ran across road	clear;39c	Nez Perce	ID	2160ft	519530	5096475
21	6	94	Pituophis	catenifer	under driftwood on beach	clear;30.5c	Nez Perce	ID	1060ft	520180	5090580
22	6	94	Bufo	boreas	hopping across rd.	clear;12.c	Nez Perce	ID	5300ft	512175	5104770
22	6	94	Bufo	boreas	vocalized; in road	lt.breeze;12c	Nez Perce	ID	5250ft	512130	5102780
27	6	94	Bufo	boreas			Nez Perce	ID	5045ft	511950	5099960
24	6	94	Charina	bottae	stretched out in Rd.	23c	Nez Perce	ID	3680ft	513250	5116825
16	6	94	Sceloporus	occidentalis	hidden under board	100% precip.;13.8c	Nez Perce	ID	1060ft	522801	5093431
16	6	94	Eumeces	skiltonianus	found under a rock	same	Nez Perce	ID	1050ft	522801	5093431
16	6	94	Hypsiglena	torquata	under sm.pieces of driftwood	same	Nez Perce	ID	950ft	522963	5093478
18	6	94	Rana	catesbiana	sitting on bank	clear,warm,24.6	Nez Perce	ID	1050ft	522050	5093005
18	6	94	Spea	intermontana		clear, warm	Nez Perce	ID	1050ft	521918	5092777
23	4	94	Thamnophis	elegans	in the carex		Lewis	ID	4590ft	524650	5110575
20	4	94	Eumeces	skiltonianus	dead in the pitfall trap		Nez Perce	ID	2800	510400	5113250
30	6	94	Thamnophis	elegans	sitting in road	clear, warm,28c	Nez Perce	ID	4800	511855	5100210
17	4	94	Bufo	boreas	Road kill		Nez Perce	ID	4510ft	518445	5106660
20	5	94	Ambystoma	macrodactylum	caught in the pitfall trap		Nez Perce	ID	4680ft	514780	5107870
11	5	94	Pseudacris	regilla	sitting in the pond		Nez Perce	ID	4650ft	515630	5105975
15	6	94	Coluber	constrictor	sitting in road	ovcast,18.8c	Nez Perce	ID	1120ft	522775	5093440
14	6	94	Crotalus	viridis	curled under piece of tree branch	ovcast,rainy,12.5	Nez Perce	ID	1720ft	517899	5087945
14	6	94	Coluber	constrictor	moving in the grass	same	Nez Perce	ID	1680ft	517748	5087945
14	6	94	Pituophis	catenifer	under a 3x6' board	same	Nez Perce	ID	1760ft	517600	5088000
15	6	94	Rana	pretiosa	in a pile of branches in the mud	part.ovcast, 13c	Nez Perce	ID	4140ft	514651	5102799
26	6	94	Thamnophis	elegans	Onthe bank edge	clear	Nez Perce	ID	4140ft	514651	5102799
14	6	94	Coluber	constrictor	moved across the road into grass	ovcast, warm	Nez Perce	ID	1080ft	521553	5092250
14	6	94	Pituophis	catenifer	under a 3x5' tin roof	rain,ovcast,12.5c	Nez Perce	ID	1720ft	517650	5087960
15	6	94	Coluber	constrictor	slithering fast into brush	ovcast, warm	Nez Perce	ID	2720ft	518350	5097835
24	5	94	Bufo	boreas	sitting inthe garden shed	sunny	Nez Perce	ID	1200ft	506465	5094455
3	6	94	Thamnophis	elegans	swimming through marshy stream are	ovcast; 12c	Nez Perce	ID	5060ft	512010	5100890
3	6	94	Rana	pretiosa	sitting in marshy grass	ovcast;12c	Nez Perce	ID	5060ft	512010	5100890
11	6	94	Thamnophis	elegans	Dead, road kill	ovcast, warm	Nez Perce	ID	4685ft	515250	5107280
11	6	94	Thamnophis	elegans	sitting in road	ovcast,warm	Nez Perce	ID	4040ft	515580	5102770
16	6	94	Bufo	boreas	sitting on beach	rain	Nez Perce	ID	1080ft	523033	5093404
16	6	94	Sceloporus	occidentalis	sitting on a large rock	sunny, warm	Nez Perce	ID	1450ft	519550	5091687
16	6	94	Crotalus	viridis	under rock pile	rain	Nez Perce	ID	1080ft	520711	5090711

DAY	MO	YR	GENUS	SPECIES	OBSERVERS	COMMENTS
20	6	94	Bufo	boreas	K.Singer	night drive
20	6	94	Bufo	boreas	K.Singer	night drive
21	6	94	Bufo	boreas	K.Singer	night drive
21	6	94	Bufo	boreas	K.Singer	night drive
21	6	94	Bufo	boreas	K.Singer	night drive
21	6	94	Eumeces	skiltonianus	K.Singer	
21	6	94	Eumeces	skiltonianus	K.Singer	
21	6	94	Eumeces	skiltonianus	K.Singer	
21	6	94	Pituophis	catenifer	K.Singer	
22	6	94	Bufo	boreas	K.Singer	night drive
22	6	94	Bufo	boreas	K.Singer	night drive
27	6	94	Bufo	boreas	K.Singer	night drive
24	6	94	Charina	bottae	K.Singer	around 1900 hours
16	6	94	Sceloporus	occidentalis	Llewellyn	voucher specimen
16	6	94	Eumeces	skiltonianus	Blackwelder	voucher specimen
16	6	94	Hypsiglena	torquata	B.Lantz	New species for this region;
18	6	94	Rana	catesbiana	Peterson	new species,;voucher specimen
18	6	94	Spea	intermontana	Llewellyn	new species; voucher specimen
23	4	94	Thamnophis	elegans	Llewellyn	voucher specimen
20	4	94	Eumeces	skiltonianus		voucher specimen, WMA
30	6	94	Thamnophis	elegans	Llewellyn	
17	4	94	Bufo	boreas	Llewellyn	
20	5	94	Ambystoma	macrodactylum	Llewellyn	voucher specimen
11	5	94	Pseudacris	regilla	Llewellyn	voucher specimen
15	6	94	Coluber	constrictor	Llewellyn:Singer	voucher specimen
14	6	94	Crotalus	viridis	Llewellyn:Singer	
14	6	94	Coluber	constrictor	Llewellyn:Singer	
14	6	94	Pituophis	catenifer	Llewellyn:Singer	
15	6	94	Rana	pretiosa	Llewellyn:Singer	
26	6	94	Thamnophis	elegans	Llewellyn;Singer	
14	6	94	Coluber	constrictor	Llewellyn:Singer	
14	6	94	Pituophis	catenifer	Llewellyn:Singer	
15	6	94	Coluber	constrictor	Llewellyn:Singer	
24	5	94	Bufo	boreas	C.Vogel	
3	6	94	Thamnophis	elegans	Llewellyn:Singer	
3	6	94	Rana	pretiosa	Llewellyn:Singer	
11	6	94	Thamnophis	elegans	Wozencraft	
11	6	94	Thamnophis	elegans	Llewellyn	
16	6	94	Bufo	boreas	Blackwelder	N-45 59.747; W-116 42.154
16	6	94	Sceloporus	occidentalis	Blackwelder	N-45 58.826; W 116.44.857,Air:17.6, Rock:25.4
16	6	94	Crotalus	viridis	B.Lantz	N-45 58.297; W-116 43.960

DAY	MO	YR	GENUS	SPECIES	LOCATION	DESCRIPTION OF ANIMAL	HABITAT DESCRIPTION
26	6	94	Coluber	constrictor	Madden Ck. Rd.;2mi. up from Capt. John	adult	rocky,grassland, hackberry
26	6	94	Bufo	boreas	Salmon River Rd, next to Penin. Beach	adult	rocky grassland,hackberry
27	6	94	Bufo	boreas	Eagle Ck. Rd, 6 mi. from the top	adult	riparian
28	6	94	Thamnophis	elegans	Eagle Ck. Rd.; Pool 2mi. from the top	yg. of the year,approx. 9in long	riparian
28	6	94	Sceloporus	occidentalis	Eagle Ck.Eagle Ck. Rd.		Riparian,grassland
28	6	94	Crotalus	viridis	China Ck.Rd.,just above the powerline	Lg.Adult;8 rattles;fat in the middle	rocky, grassland
28	6	94	Crotalus	viridis	China Ck. Rd.; 500ft above creek	Lg.Adult;>8rattles;very fat	rocky,grassland
29	6	94	Sceloporus	occidentalis	50ft. NW of S.End beach;Salmon River	adult	basalt, beach
27	6	94	Bufo	boreas	0.6 mi S. of Zaza on Zaza Rd.	Large, very fat	open forest
17	6	94	Sceloporus	occidentalis	Salmon River;E. end of N.S. beach	TL-91mm, SVL-71mm, M-11.5g,female	basalt, beach
17	6	94	Coluber	constrictor	Salmon River Rd;across from SRCB #1	Adult	small draw,RGH
17	6	94	Sceloporus	occidentalis	Salmon River Rd;across from SRCB #1	Adult	small draw, RGH
18	6	94	Bufo	boreas	Salmon River beach;W. of P.Pine beach	Adult	slack water,willows,sand bottom
18	6	94	Sceloporus	occidentalis	Salmon River beach	Adult;TL-92mm,SVL-67mm,M-12g	Rocky shore of river
18	6	94	Bufo	boreas	Salmon River beach	TL-78mm, SVL-70mm,	driftwood beach
25	6	94	Crotalus	viridis	Eagle Ck. Rd, 2 mi. from the bottom	Approx. 3ft long, 7-8 rattles	grassland/riparian
18	6	94	Coluber	constrictor	Eagle Ck Rd.; 1mi. from the bottom	Adult	riparian
20	6	94	Pituophis	catenifer	Lg.Pool; Limekiln Rapids;Snake River	Adult	rocky sandbar next to pool
20	6	94	Bufo	boreas	Snake River, Limestone pt. beach	Juvenile	In sm. stand of willows, next to beach
20	6	94	Coluber	constrictor	Snake River, Limestone Pt.beach	TL-770mm,TVL-209mm,M-55g	Insm. stsnd of willows,next to beach
20	6	94	Bufo	boreas	Snake River,Cottonwood Ck. beach		riparian/grassland
20	6	94	Bufo	boreas	Snake River:Chimney & Dough Ck.confluence	>30 Adults, >100tads	sandbar pond on beach
14	7	94	Thamnophis	elegans	S.Fork Capt. John Creek	Adult,fat,just ate	riparian
14	6	94	Thamnophis	elegans	S.Fork Capt. John Creek	yg.,approx.12in. long	riparian
19	7	94	Thamnophis	elegans	S.Fork Capt. John Creek	adult,approx.16in. long	riparian
19	7	94	Thamnophis	elegans	S.Fork Capt. John Creek	Adult; approx. 18 in. long	riparian
19	7	94	Thamnophis	elegans	S.Fork Capt. John Creek		riparian
19	7	94	Thamnophis	elegans	S.Fork Capt. John Creek		riparian
19	7	94	Bufo	boreas	S.Fork Capt. John Creek	juvenile; apprx. 6cm long	riparian; 40ft waterfall
19	7	94	Crotalus	viridis	Madden Ck.Rd.;1.4mi.N of Capt.John Ck. Rd	adult;approx.18in. long;4 rattles	riparian/grassland
22	7	94	Thamnophis	elegans	Eagle Ck.; 200ft above M.T.#2	Adult, approx. 16in. long	creek
14	7	94	Crotalus	viridis	Salmon River Rd.; 1mi. S of China Ck.	Lg Ad. 9 rattles; 2in. diam.3ft.long	rocky,hack,grassland
14	7	94	Crotalus	viridis	Salmon River Rd.;1.3mi south of China Ck.	lg.Ad. 6 rattles; 2ft. long	rocky,hack,grassland
17	7	94	Scelopoerus	occidentalis	On NightSnake Beach; Salmon river	Immature, approx. 4in.long	driftwood beach
22	6	94	Pituophis	catenifer	Wapshilla ridge above Frenchy Ck.		Open ridgetop; rocky,grasses,forbs
27	6	94	Thamnophis	elegans	Roberts Spring	yg. of the year	pond;emergant vegetation
27	6	94	Thamnophis	elegans	W.Fork Deer Ck.;across from Benton mdws.		wet meadow w/water
13	5	94	Coluber	constrictor	Upper Crowers Canyon;near Geyser WMA		S.Facing upper slopes;FEID comm.
13	5	94	Coluber	constrictor	Redbird Ck.& Crowers Canyon ridgetop		rocky outcrop along grassy ridgeline
13	5	94	Coluber	constrictor	0.3 mi S. mouth Redbird Ck., Snake River		steep rocky canyon grassland
20	5	94	Pituophis	catenifer	Upper Crowers Canyon	Large adult	Canyon grassland

DAY	MO	YR	GENUS	SPECIES	ANIMALS BEHAVIOR	WEATHER	COUNTY	STATE	ELEV.	UTM E	UTM N
26	6	94	Coluber	constrictor	sitting in road	sunny,warm	Nez Perce	ID	2280ft	509558	5113953
26	6	94	Bufo	boreas	Road kill		Nez Perce	ID	1080ft	522025	5092870
27	6	94	Bufo	boreas	Road kill		Nez Perce	ID	2140ft	517650	5098658
28	6	94	Thamnophis	elegans	sitting next to pool	clear,warm	Nez Perce	ID	4140ft	514651	5102799
28	6	94	Sceloporus	occidentalis	ran across road	clear, warm	Nez Perce	ID	2380ft	521610	5095235
28	6	94	Crotalus	viridis	sitting in road	clear;1830hrs	Nez Perce	ID	1320ft	520210	5091553
28	6	94	Crotalus	viridis	sitting in road	clear;1840hrs	Nez Perce	ID	1300ft	520245	5091180
29	6	94	Sceloporus	occidentalis	sitting on rocks	clear,hot	Nez Perce	ID	1060ft	520175	5090565
27	6	94	Bufo	boreas	sitting on road	warm	Nez Perce	ID	5000ft	511860	5100052
17	6	94	Sceloporus	occidentalis	sitting on rocks	clear,hot	Nez Perce	ID	1060ft	522937	5093399
17	6	94	Coluber	constrictor	moving through grass	clear,hot	Nez Perce	ID	1160ft	522754	5093416
17	6	94	Sceloporus	occidentalis	sitting on rock	clear,hot	Nez Perce	ID	1160ft	522754	5093416
18	6	94	Bufo	boreas	sitting on shore edge	clear, warm	Nez Perce	ID	1020ft	521295	5091722
18	6	94	Sceloporus	occidentalis	sunning on large rock	clear warm	Nez Perce	ID	1020ft	521306	5091505
18	6	94	Bufo	boreas	under board on beach	clear,warm	Nez Perce	ID	1020ft	521306	5091505
25	6	94	Crotalus	viridis	on the road	sunny, 80F	Nez Perce	ID	1460ft	522000	5094900
18	6	94	Coluber	constrictor	on the road	sunny, warm	Nez Perce	ID	1470ft	522412	5094437
20	6	94	Pituophis	catenifer	dead, near shore	sunny, hot	Nez Perce	ID	830ft	503445	5102470
20	6	94	Bufo	boreas	in the trees	sunny,hot	Nez Perce	ID	830ft	503187	5102380
20	6	94	Coluber	constrictor	in the trees	sunny,hot	Nez Perce	ID	830ft	503187	5102380
20	6	94	Bufo	boreas	footprints in the sand	sunny,hot	Nez Perce	ID	830ft	510001	5087000
20	6	94	Bufo	boreas	in the ponds	sunny,hot	Nez Perce	ID	830ft	504468	5100768
14	7	94	Thamnophis	elegans	on the road	sunny,hot	Nez Perce	ID	2460ft	510180	5108010
14	6	94	Thamnophis	elegans	in the creek edge vegetation	sunny,hot	Nez Perce	ID	2600ft	510438	5107800
19	7	94	Thamnophis	elegans	in the creek edge vegetation	sunny,hot	Nez Perce	ID	2830ft	510595	5107355
19	7	94	Thamnophis	elegans	in the creek edge vegetation	sunny, hot	Nez Perce	ID	3000ft	510625	5107248
19	7	94	Thamnophis	elegans	in the waters edge	sunny, hot	Nez Perce	ID	2990ft	510698	5107100
19	7	94	Thamnophis	elegans	in the creek edge vegetation	sunny,hot	Nez Perce	ID	2950ft	510615	5106853
19	7	94	Bufo	boreas	mossy rocks next to waterfall	sunny, warm	Nez Perce	ID	3210ft	510535	5106552
19	7	94	Crotalus	viridis	sitting on the road	sunny,warm	Nez Perce	ID	1680ft	508290	5112251
22	7	94	Thamnophis	elegans	on a downed tree that crosses the ck.	sunny,warm	Nez Perce	ID	3880ft	516115	5102520
14	7	94	Crotalus	viridis	on the road	night,warm	Nez Perce	ID	1080ft	519760	5090395
14	7	94	Crotalus	viridis	crossing the road	night,warm	Nez Perce	ID	1080ft	519755	5090180
17	7	94	Scelopoerus	occidentalis	sitting on rocks	sunny warm	Nez Perce	ID	1070ft	523070	5093545
22	6	94	Pituophis	catenifer	moving through grass		Nez Perce	ID	4200ft	513300	5085300
27	6	94	Thamnophis	elegans	in the waters edge	sunny,warm	Nez Perce	ID	4960ft	511975	5099605
27	6	94	Thamnophis	elegans	swimming in water next to emer.veg.	sunny warm	Nez Perce	ID	4580ft	515005	5106692
13	5	94	Coluber	constrictor	moving quickly through grass	sunny,warm	Nez Perce	ID	2700ft	504478	5117250
13	5	94	Coluber	constrictor	sunning on rocks	sunny,hot	Nez Perce	ID	2120ft	504180	5118590
13	5	94	Coluber	constrictor	moved quickly when spotted	sunny,hot	Nez Perce	ID	1200ft	503750	5119625
20	5	94	Pituophis	catenifer	assumed defensive posture	cool,pt.cld	Nez Perce	ID	2700ft	504478	5117250

DAY	MO	YR	GENUS	SPECIES	OBSERVERS	COMMENTS
26	6	94	Coluber	constrictor	Llewellyn	WMA
26	6	94	Bufo	boreas	Llewellyn	
27	6	94	Bufo	boreas	Llewellyn	
28	6	94	Thamnophis	elegans	Llewellyn:Singer	
28	6	94	Sceloporus	occidentalis	Llewellyn:Singer	A bird swooped down to nab it
28	6	94	Crotalus	viridis	Llewellyn:Singer	Almost stepped on it;
28	6	94	Crotalus	viridis	Llew:Singer	Startled it and it swung his head around
29	6	94	Sceloporus	occidentalis	Singer	Too quick; ran deep into rocks
27	6	94	Bufo	boreas	Singer	Night drive
17	6	94	Sceloporus	occidentalis	Blackwelder	+-300m
17	6	94	Coluber	constrictor	B.Knapp	+-100m
17	6	94	Sceloporus	occidentalis	Peterson	+-100m
18	6	94	Bufo	boreas	Llewellyn	
18	6	94	Sceloporus	occidentalis	Blackwelder	+-300m
18	6	94	Bufo	boreas	Blackwelder	Air-24.0, Under rock_22.2
25	6	94	Crotalus	viridis	J.Matthews	sluggish,slow in moving away:thermoregulating
18	6	94	Coluber	constrictor	Peterson	ran away when approached; +-300m
20	6	94	Pituophis	catenifer	Llewellyn	
20	6	94	Bufo	boreas	Llewellyn	+-100m
20	6	94	Coluber	constrictor	Llewellyn	+-100m
20	6	94	Bufo	boreas	Blackwelder	+-100m
20	6	94	Bufo	boreas	Llewellyn	2 breeding ponds
14	7	94	Thamnophis	elegans	M.Benker	
14	6	94	Thamnophis	elegans	M.Benker	
19	7	94	Thamnophis	elegans	M.Mancuso	
19	7	94	Thamnophis	elegans	Llew:Mancuso	
19	7	94	Thamnophis	elegans	Mancuso	
19	7	94	Thamnophis	elegans	Llew;Mancuso	
19	7	94	Bufo	boreas	Mancuso	
19	7	94	Crotalus	viridis	Llew;Mancuso	Took pictures
22	7	94	Thamnophis	elegans	Llewellyn	200ft. N. of M.T.#2
14	7	94	Crotalus	viridis	B.Lantz	Night drive;eating a baby rabbit
14	7	94	Crotalus	viridis	B.Lantz	Night drive
17	7	94	Scelopoerus	occidentalis	B.Lantz	5 lizards w/in 200yds of N.S. beach access rd.
22	6	94	Pituophis	catenifer	C.Bishop	
27	6	94	Thamnophis	elegans	Mancuso;Rabe	
27	6	94	Thamnophis	elegans	Mancuso;Rabe	
13	5	94	Coluber	constrictor	Mancuso	WMA
13	5	94	Coluber	constrictor	Mancuso	WMA
13	5	94	Coluber	constrictor	Mancuso	WMA
20	5	94	Pituophis	catenifer	Mancuso	WMA

1993 and 1994 Incidental Observations

DAY	MO	YR	GENUS	SPECIES	LOCATION	DESCRIPTION OF ANIMAL	HABITAT DESCRIPTION
20	5	94	Coluber	constrictor	Upper Crowers Canyon		Upper slope grassland
20	5	94	Coluber	constrictor	Upper Crowers Canyon		upper grassland slopes
21	6	94	Coluber	constrictor	Wapshilla Ridge		FEID grassland onridge
29	6	94	Bufo	boreas	Lower Wapshilla Ck, near Powerline Rd.	Large adult	Riparian
27	6	94	Rana	pretiosa	Confluence pool of Trib. of Eagle Ck.& EC		Wet meadow,creek
17	6	94	Pituophis	catenifer	Salmon River	Adult	beach with driftwood
17	6	94	Sceloporus	occidentalis	Base of Eagle Ck. Rd. near homestead		riparian/grassland
17	6	94	Coluber	constrictor	Base of Eagle Ck. Rd. near homestead	Adult	grassland
18	6	94	Sceloporus	occidentalis	Salmon River, beach next to P.Pine trees	fem;TL-750mm;TVL-98mm;M-17g	beach
18	6	94	Eumeces	skiltonianus	Salmon River;rocky slope	TL-155mm;SVL-68mm;M-7.5g	Rocky slope above beach;E/SE exposure
16	6	94	Pituophis	melanoleucus	Salmon River	TL-56.0;TVL-8.5:M-44g	Sandy,driftwood beach
16	6	94	Coluber	constrictor	Salmon River,China Ck. beach	female;TL-80cm,SVL-58.5cm,M-102g	Sandy beach
16	6	94	Sceloporus	occidentalis	Salmon River		Sandy,rocky beach
16	6	94	Sceloporus	occidentalis	Salmon River,China Ck. beach	Approx. 4in. long	Sandy beach
16	6	94	Coluber	constrictor	Salmon River,near nightsnake beach	Adult	Sandy,grassy beach
17	6	94	Coluber	constrictor	Salmon River,nightsnake beach	Adult	Sandy,driftwood beach
17	6	94	Sceloporus	occidentalis	Salmon River		sandy rocky beach

1993 and 1994 Incidental

DAY	MO	YR	GENUS	SPECIES	ANIMALS BEHAVIOR	WEATHER	COUNTY	STATE	ELEV.	UTM E	UTM N
20	5	94	Coluber	constrictor	moved quickly through grass	cool,pt.cld	Nez Perce	ID	2700ft	504410	5117210
20	5	94	Coluber	constrictor	caught mouse,dropped it and fled	cool,pt.cld.	Nez Perce	ID	2680ft	504730	5117210
21	6	94	Coluber	constrictor	moving slowly through grass	sunny,hot	Nez Perce	ID	4640ft	514550	5089960
29	6	94	Bufo	boreas	sitting in creek adjacent to canopy	sunny,hot	Nez Perce	ID	1630ft	517805	5087360
27	6	94	Rana	pretiosa	on the bank edge of water	sunny,hot	Nez Perce	ID	4180ft	514655	5102799
17	6	94	Pituophis	catenifer	under sm. pieces of driftwood	ovcast,cool	Nez Perce	ID	1070ft	522900	5093410
17	6	94	Sceloporus	occidentalis	sitting on fence	sunny,warm	Nez Perce	ID	1160ft	523020	5092945
17	6	94	Coluber	constrictor	Dead at site	sunny,warm	Nez Perce	ID	1160ft	523025	5093918
18	6	94	Sceloporus	occidentalis	under piece of thin plywood	sunny,warm	Nez Perce	ID	1070ft	521345	5091820
18	6	94	Eumeces	skiltonianus	Under a rock	sunny,warm	Nez Perce	ID	1200ft	521278	5091820
16	6	94	Pituophis	melanoleucus	under sm. pieces of driftwood	cool,ovcast	Nez Perce	ID	1070ft	523010	5093465
16	6	94	Coluber	constrictor	In a rock pile	cool,ovcast	Nez Perce	ID	1070ft	520955	5090810
16	6	94	Sceloporus	occidentalis	Under a rock pile	cool,ovcast	Nez Perce	ID	1070ft	522850	5093408
16	6	94	Sceloporus	occidentalis	Sitting on a rocky slope	cool,ovcst	Nez Perce	ID	1070ft	520935	5090750
16	6	94	Coluber	constrictor	moving through the grass	cool,ovcast	Nez Perce	ID	1070ft	5200711	5090711
17	6	94	Coluber	constrictor	moving quickly through grass	warm,sunny	Nez Perce	ID	1070ft	522855	5093360
17	6	94	Sceloporus	occidentalis	sitting on large rock	warm,sunny	Nez Perce	ID	1070ft	523145	5093555

1993 and 1994 Incidental

DAY	MO	YR	GENUS	SPECIES	OBSERVERS	COMMENTS
20	5	94	Coluber	constrictor	Mancuso	WMA
20	5	94	Coluber	constrictor	Mancuso	WMA
21	6	94	Coluber	constrictor	Mancuso;James	
29	6	94	Bufo	boreas	Mancuso	
27	6	94	Rana	pretiosa	Llewellyn:Singer	
17	6	94	Pituophis	catenifer	Llewellyn	
17	6	94	Sceloporus	occidentalis	Cassirer	
17	6	94	Coluber	constrictor	D.Gomez	Claw marks;raptor? Originated somewhere else?
18	6	94	Sceloporus	occidentalis	Llewellyn	
18	6	94	Eumeces	skiltonianus	B.Knapp	Air temp:23.4; Under rock:28.2
16	6	94	Pituophis	melanoleucus	K.Singer	
16	6	94	Coluber	constrictor	Blackwelder	Cloacal-31c,Air-20.8c,operative-30c;near shedding
16	6	94	Sceloporus	occidentalis	Llewellyn	30ft from the river
16	6	94	Sceloporus	occidentalis	K.Singer	20ft. from the water
16	6	94	Coluber	constrictor	Llewellyn	N-45 58.297; W-116 43.960
17	6	94	Coluber	constrictor	Llewellyn	ran away when approached
17	6	94	Sceloporus	occidentalis	Llewellyn	Air-22c, Rock-31.6c

1995 Incidental and new sightings

DAY	MO.	YR.	SPECIES	LOCATION	HABITAT	OBSERVERS
7	28	95	RAPR	Maloney Creek	Sitting in the road in a mud puddle	R.Llewellyn, H.Henderson
8	8	95	BUBO	Maloney Creek	Sitting in the creek, 80% shade	R.Llewellyn, H.Henderson
8	8	95	CHBO	Maloney Creek	next to the creek; riparian	R.Llewellyn, H.Henderson
7	15	95	BUBO	Deer Creek; 1/2 mile from the gate	Coniferous	R.Llewellyn, H.Henderson
7	15	95	RAPR	Deer Creek	Sitting on a rock in the creek; part-shade	R.Llewellyn, H.Henderson
7	15	95	CRVI	Deer Creek	In riparian area next to creek	R.Llewellyn, H.Henderson
6	12	95	CHBO	Fourth Creek off of Eagle Creek	Dry riparian, grassy, 40 ft. from creek	N.Schwartz, J.Teare
7	1	95	CHBO	8 miles south of Benton Meadows	high ridge, open grassy area	C. Handen
7	1	95	CHBO	8 miles south of Benton Meadows	high ridge, open grassy area	C. Handen
7	31	95	RAPR	Limekiln Rapids, Snake River	temp. pond off of the River channel	R.Llewellyn, M.Benker
7	20	95	RAPR	Limekiln Rapids, Snake River	another temp. pond off of the river channel	R.Llewellyn, M.Benker
5	17	95	THEL	Billy Ck.; Snake River	Along sandy beach with exposed rocks	C.Anderson
7	31	95	THEL	Limekiln Rapids, Snake River	Rocky, sandy channel next to River	R. Llewellyn
7	10	95	THEL	Along Madden Ck. Rd;. 1/4 mile from Snake River	Talus slope, poison ivy, next to irrigated meadow	C.Anderson
7	13	95	THEL	Salmon River	Large cobble shoreline with a sandy substrate	R.Llewellyn
7	18	95	HYTO	Salmon River; Funnel traps	Talus slope, yellowstar grassland	R.Llewellyn
6	14	95	HYTO	Salmon River;	Found under driftwood on the beach; sandy substrate	R.Llewellyn
6	29	95	BUBO	S.Sec. 27 Pond	Permanent pond	R.Llewellyn
4	29	95	AMMA	Pitfall trap along Madden Ck. Road	Arrowleaf balsamroot, starthistle, very steep S. aspect	C. Anderson
7	13	95	RACA	Peninsula Pond, Salmon River	Large river pool formed from water level decreasing	R. LLewellyn
7	13	95	RACA	Peninsula Pond, Salmon River	Large river pool formed from water level decreasing	R. LLewellyn

1995 Incidental and new sightings

DAY	MO.	YR.	SPECIES	LOCATION	UTM-E	UTM-N	ELEV.	COMMENTS
7	28	95	RAPR	Maloney Creek	525155	5103220	4180	3-4 animals
8	8	95	BUBO	Maloney Creek	526085	5102345	4100	Female sitting in the creek
8	8	95	CHBO	Maloney Creek	525980	5102390	4000	Dead along the road
7	15	95	BUBO	Deer Creek; 1/2 mile from the gate	520735	5102120	4800	Found at night along road; Adult
7	15	95	RAPR	Deer Creek	522540	5100300	2760	Sitting on rock in creek; Adult
7	15	95	CRVI	Deer Creek	522785	5100105	2580	Next to creek
6	12	95	CHBO	Fourth Creek off of Eagle Creek	518370	5097895	2760	TL-20 inches; in grass near creek
7	1	95	CHBO	8 miles south of Benton Meadows	512875	5096098	4800	2 animals found within 100 feet of each other
7	1	95	CHBO	8 miles south of Benton Meadows	512890	5096180	4800	Found 300 ft. S. from other CHBO
7	31	95	RAPR	Limekiln Rapids, Snake River	502365	5102680	800	
7	20	95	RAPR	Limekiln Rapids, Snake River	502365	5102680	800	
5	17	95	THEL	Billy Ck.; Snake River			800	Near the boat ramp along the river
7	31	95	THEL	Limekiln Rapids, Snake River	502650	5102450	800	TL-approx. 10 inches.; Near a temp. pond.
7	10	95	THEL	Along Madden Ck. Rd;. 1/4 mile from Snake River	505450	5110845	900	Sunning on road; TL- approx. 24 inches
7	13	95	THEL	Salmon River	520050	5090455	1100	TL- approx. 36 inches; Eating an adult toad
7	18	95	HYTO	Salmon River; Funnel traps	519090	5089580	1180	
6	14	95	HYTO	Salmon River;	521075	5091340	1100	
6	29	95	BUBO	S.Sec. 27 Pond	516960	5111900	4850	Tadpoles in 2 areas. A new sighting
4	29	95	AMMA	Pitfall trap along Madden Ck. Road	510610	5115200	2400	Seen from 4/29-5/14; Floating in flooded pitfall
7	13	95	RACA	Peninsula Pond, Salmon River	522145	5092950	1000	Adult sitting in the mud
7	13	95	RACA	Peninsula Pond, Salmon River	522145	5092950	1000	Juvenile sitting at bank edge

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