

Elevation of surveyed sites ranged from 1,146 m (3,760 ft) at the Tower Creek sloughs at the northern end of the study area, to 2,926 m (9,600 ft) at Merriam Lake in the Lost River Range (Table 3). All pH readings were neutral to basic, ranging from 7.2 in a pond in the Cow Creek drainage near the Ramsey Mountain Road turnoff, to 9.7 in a pond at Spring Hill. Columbia Spotted Frogs were found almost across the entire pH range encountered, 7.2 to 9.3. Conductivity was lowest (1 $\mu\text{S}/\text{cm}$) in the upper reaches of Trail Creek, in the Lemhi RA's Trail Creek ACEC, and highest in the Tower Creek sloughs (280 $\mu\text{S}/\text{cm}$). Water temperatures were lowest in Trail Creek (4 C), and highest in ephemeral ponds near the mouth of Hot Springs Creek (29 C) where Pacific Treefrog tadpoles were found.

Long-toed Salamander (*Ambystoma macrodactylum*)

Museum records document Long-toed Salamanders collected only from areas outside the study area, in the Sawtooth Mountains in Custer County, and at Corn Lake north of the confluence of the Middle Fork and Main Salmon Rivers in Lemhi County (NIHD). Nussbaum et al. (1983) show a single record from northwestern Lemhi county (probably the Corn Lake observation). P.J. Smith (USFS, Challis RD, pers. commun.) reported Long-toed Salamander larvae within the study area in a small pond along Highway 93 about 2-3 km south of Poison Creek. Additionally, he has encountered both larvae and adults in a pond along the Big Hill Road west of Challis, just outside the western border of the study area. BLM seasonal personnel reported Long-toed Salamander larvae near Basin Creek and Trail Creek ACEC in Lemhi county in 1995. And local teacher and rancher, Judy Madsen, reported Long-toed Salamanders along the Salmon River north of Challis (Appendix Ia).

Found in a wide range of habitats throughout northern and central Idaho (Nussbaum et al. 1983), we encountered Long-toed Salamanders (larvae only) at 3 surveyed sites: one a permanent pond adjacent to Eighteenmile Creek which drains into the Lemhi River, the other two sites were ephemeral ponds near the abandoned South Butte Mine near Clayton (Fig. 5, Appendix II-V). Salamander larvae co-occurred with adult Columbia Spotted Frogs at the Eighteenmile Creek pond and occurred alone at the two South Butte Mine ponds. All ponds were fishless nor did we detect other amphibian predators such as Western Terrestrial Garter Snakes. Interestingly, we did not find salamanders or other amphibians at a permanent fishless pond near the occupied ponds at South Butte Mine.

Tailed Frog (*Ascaphus truei*)

Tailed Frogs are tied to swift mountain streams, usually with a forest overstory. Nussbaum et al. (1983) report 2 records of Tailed Frogs in Lemhi county but we are not aware of any confirmed occurrence of Tailed Frogs in the study area. Tailed Frogs were

encountered in Bayhorse Creek below Bayhorse Lake on the Yankee Fork RD (Churchwell 1996), several kilometers from the study area boundary (Fig. 6). P.J. Smith reported an adult male killed on the road along Freeman Creek, northeast of Salmon (Appendix I). Other undocumented reports exist. There is a report of Tailed Frogs in Lemhi RA's Trail Creek ACEC but we were unable to find who reported it or any documentation. Nor did we find Tailed Frogs there in September, 1997 (Appendix IV). We searched streams in the Lost River Mountains, and drainages of the Pahsimeroi and Lemhi Rivers yet didn't detect Tailed Frogs. Tailed Frogs are common in streams in the Middle Fork Salmon River drainage west of the study area (Duncan et al. unpublished data), and have been found in the upper drainages of the Salmon River near Stanley (Churchwell 1996). Adults feed at night and hide under rocks or other stream debris during the day; tadpoles usually are attached on the underside of rocks in swift streams, so these frogs are difficult to detect. Therefore, despite the lack of observation records, Tailed Frogs may occur within the study area.

Western Toad (*Bufo boreas*)

The oldest record we obtained was a toad collected in 1895 in the Sawtooth's from "White's Warm Springs." Within the study area, a toad was collected from Peterson Creek between Lemhi and Leadore in 1944 (Fig. 7, Appendix I). Nussbaum et al. (1983) report Western Toads in Custer and Lemhi counties but not Butte county. P.J. Smith (USFS, Challis RD, pers. commun.), who grew up in Salmon, reported that prior to 1965, toads were common in Salmon. He remembers seeing as many toads as he did spotted frogs. Helen Ulmschneider (BLM, Lemhi RA, pers. commun.) reported adult Western Toads found in a spring box for several years at Raindrop Springs (Appendix I).

In the Challis RA, Western Toad observations mostly come from an area centered in the Road Creek drainage (i.e., Horse Basin, Corral Creek, Bear Creek, Sage Creek) (Fig. 7). We found toads only at one survey site, a pond in the Bear Creek drainage (Appendix IV). These were metamorphs found with Columbia Spotted Frogs and Western Terrestrial Garter Snakes. No fish were present although Jerry Gregson (BLM, Challis RA, pers. commun.) reported that efforts were made to stock this pond with fish in the 1950s or 1960s.

Western Toads use a variety of habitats, from wetlands to sagebrush to forest. Immature toads emerging from their natal ponds may appear like swarms of grasshoppers then disappear completely within a few days, hiding under ground in small mammal burrows, crevices, etc.

Pacific Treefrog (*Pseudacris [=Hyla] regilla*)

Treefrogs during non-breeding periods are terrestrial with enlarged toe pads adapted for climbing into low shrubs. During the breeding period they are associated

with still water -- ponds, marshes, lakes, and irrigation ditches. These frogs are commonly heard calling around Salmon during spring and early summer, and sometimes in the fall. Surprisingly, we found no documented reports of their presence in the study area. P.J. Smith observed these frogs during the 1970s and 1980s around Salmon but noted that they were not common. Yet during Fall, 1997, Pacific Treefrogs were found commonly outside and inside the BLM office in Salmon (Loren Anderson, Lemhi RA, pers. commun.).

We recorded Pacific Treefrogs calling east of the Salmon Airport in the sedge and tule marsh bordering Hot Springs Creek, and found tadpoles in ephemeral ponds on the greasewood flats a few hundred meters west (Fig. 8, Appendix IV). We also found tadpoles at Morgan Bar Recreation Area north of Salmon. Calling frogs are reported from the valley surrounding Salmon and up the Lemhi River valley beyond Tendoy. Teachers from Mackay also reported to us that there are frogs calling near Mackay but we haven't determined that these are treefrogs. Also, a student at Challis Middle School reported finding a "tree frog" in Challis. The indication is that tree frogs have increased in abundance in recent years, possibly associated with larger areas of irrigation. O'Siggins (1995) reported Pacific Treefrogs from 5 ponds on the Salmon National Forest, north and west of our study area.

Columbia Spotted Frog (*Rana luteiventris* [=pretiosa])

(Note: Spotted frogs have recently been split into 2 species, the Columbia Spotted Frog [*R. luteiventris*] and the Oregon spotted frog [*R. pretiosa*] [Green et al. 1997]. Our species is *R. luteiventris*). These frogs typically are associated with marshy ponds, lakes, slow-moving streams, and stream overflow areas. Historic records and our surveys (detected at 14 survey sites and numerous incidental observations) found spotted frogs to be the most common amphibian within the study area. We did not find them in the Lost River Range and there are large expanses where they apparently don't occur (Fig. 9).

Studies of lakes in the Bighorn Crags and in the Sawtooth Mountains show that spotted frog populations don't reproduce well when fish are present (Munger et al. 1997, Pilliod and Peterson 1997). We did find tadpoles and adult frogs in Chilly Slough CA and Birch Creek CA where fish are abundant. Tadpoles were in overflow pools or very dense algae mats, which apparently provide sufficient protection from fish predation. We also found adult frogs with fish in a pond on Hyde Creek. These frogs were in protected shallows except one that swam to deeper water on our approach. This frog was quickly eaten by a fish.

Whiskey Springs, a part of the Chilly Slough CA, may contain an important hibernaculum for spotted frogs. Jerry Gregson (BLM, Challis RA, pers. commun.) reported dozens of frogs gathered around boiling sand springs there in mid-October, 1996 (Appendix I).

Painted Turtle (*Chrysemys picta*)

We were surprised to receive reports of turtles and turtle shells in the study area. There are no documented records of turtles in east central Idaho. There are Painted Turtle populations in northern Idaho with introduced populations along the eastern and western borders of southern portions of the state (IDFG 1994), a considerable distance from our study area.

Local reports indicate that turtles have been observed near Carmen for as long as 40 years. These reports all indicate localization in ponds and sloughs along the Salmon River near Carmen. We did encounter several Painted Turtles in a single pond north of Carmen (Fig. 10, Appendix IV). The turtles were distinctly different in size, indicating different age classes. Apparently this species was introduced as much as a half century ago and is now naturalized north of Salmon. We don't know of any other reports of turtles from other areas within our survey area or in east central Idaho.

Short-horned Lizard (*Phrynosoma douglassi*)

Short-horned Lizards are found principally in sagebrush desert in sandy or loose soils associated with ants, their major food. Nussbaum et al. (1983) report Short-horned Lizards from Custer and Lemhi counties. Museum records for the study area all come from the upper Pahsimeroi valley (Fig. 11, Appendix I). There also are numerous records in the Arco area (NIHD). Short-horned Lizards can be found at high elevations (Nussbaum et al. 1983); one was found in the Eighteenmile Creek drainage at 2800 m elevation (P.J. Smith, pers. commun.) We found an adult near the Sheep Creek drainage on the north side of Willow Creek Summit, which is an area BLM personnel had reported seeing them in the past. Helen Ulmschneider (BLM, Lemhi RA) encountered several Short-horned Lizards in the Birch Creek Valley near Mud Creek and one just west of Leadore. There are other undocumented reports of Short-horned Lizards scattered throughout the study area. The species appears to be widespread but seldom encountered.

Sagebrush Lizard (*Sceloporus graciosus*)

This species has a similar range as the Short-horned Lizard in Idaho, occupying similar sagebrush habitat although they also can be found in dry, open, low-elevation woodland. Nussbaum et al. (1983) show them inhabiting both Custer and Lemhi counties. Museum records show this species occurring from south of Challis to north of Salmon in the study area. School children in Challis report that Sagebrush Lizards or "blue-bellies" commonly are caught near town. We encountered this species at several locations in greasewood and sagebrush habitat (Fig. 12, Appendix I).