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Preliminary
Amphibian and Reptile Survey
of the
Helena National Forest: 1995

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A Report to:

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Submitted by

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March 1996

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ABSTRACT

A total of 44 surveys and several additional sightings were made in the Helena National Forest (HNF) between May and August 1995. Localized areas across the entire forest were covered in the survey. Surveys of ponds, lakes, seeps, streams or other wetlands, made by 1 or 2 individuals. Each survey took 10-150 person-minutes and consisted of a thorough search of the wetland perimeter and netting of near shore aquatic habitats for adults, eggs, larvae, and tadpoles. Stream sampling was done by hand and dipnet. Seeps were checked by rolling over rocks and logs in and near wet areas. In addition to surveys, sightings were made from road kills, vocal identifications, or fortuitous sightings by other reliable individuals.

Four amphibians are present on the HNF: Long-toed Salamander (*Ambystoma macrodactylum*), Tailed Frog (*Ascaphus truei*), Western Toad (*Bufo boreas*), and Spotted Frog (*Rana pretiosa*). The Spotted Frog was the most widespread amphibian throughout the forest. The Tailed Frog has been reported from a single location on the Lincoln District. Long-toed Salamanders were found throughout the main Rocky Mountain chain and in the Elkhorn Mountains. The Western Toad was found in very few locations on the HNF in 1995, all in the main Rocky Mountain chain. Historically it has been reported in the Big Belt Mountains; however it was not found there during our surveys. This is consistent with the apparent region-wide declines in this species. Four other prairie-inhabiting amphibians have been reported in the area, though in some cases well away from HNF lands; these include the Western Chorus Frog (*Pseudacris triseriata*), Woodhouse's Toad (*Bufo woodhousii*), Plains Spadefoot (*Scaphiopus bombifrons*), and Northern Leopard Frog (*Rana pipiens*). The Western Chorus Frog is common in prairie ponds to the north and east of HNF lands; two reports were received for the Helena National Forest, but need confirmation. A tadpole reported to be a Woodhouse's Toad is present at the Montana State University Museum; given the difficulty in identifying toad tadpoles and distance from known sites, this should be treated as hypothetical until verified. The Plains Spadefoot is known from the Helena Valley, but has yet to be found in the HNF. A report was received of a Northern Leopard Frog from the vicinity of McDonald Pass; given the distance from other known locations and unusual habitat, this report should be treated as hypothetical until verified. The Northern Leopard Frog was also reported historically from several prairie areas, outside and at lower elevations than HNF lands. The Deepdale Fishing Access Site had frogs as recently as 1994, however three surveys in 1995 failed to relocate them. Northern Leopard Frogs are nearly extirpated from western Montana, and recent evidence indicates a decline elsewhere in Montana (except perhaps the southeast corner).

Ten reptiles have been reported from near the HNF, but only three have been definitely reported from on the forest: the Racer (*Coluber constrictor*), Western Terrestrial Garter Snake (*Thamnophis elegans*) and Common Garter Snake (*Thamnophis sirtalis*). All were reported in the main Rocky Mountains. The Racer and Western Terrestrial Garter Snake also were found in the Big Belt Mountains and there is a record of the Common Garter Snake from the Elkhorn Mountains. The following reptiles have been reported in the area and may eventually be found on lower elevation HNF lands: Painted Turtle (*Chrysemys picta*), Spiny Softshell (*Trionyx spinifera*), Short-horned Lizard (*Phrynosoma douglasi*), Rubber Boa (*Charina bottae*), Milk Snake (*Lampropeltis triangulum*), Gopher Snake (*Pituophis catenifer*), and Western Rattlesnake

(*Crotalus viridis*). The Painted Turtle has been recorded just off the HNF on the east side of the Elkhorn Mountains. The Spiny Softshell is present in large rivers at lower elevations; it has been reported from Canyon Ferry Reservoir, but there is no recent confirmation. Both the Short-horned Lizard and Milk Snake are present in the area near Three Forks, south of the HNF. The Rubber Boa has been recorded just off the HNF south of Helena and near Granite Butte; it surely occurs on the HNF. The Gopher Snake has been reported from the intermountain valleys, as close as ¼ mile from the HNF. The Western Rattlesnake also has been recorded just off the HNF; with several records at lower elevations, it probably will eventually be found on the HNF lands.

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Museum records were received from: American Museum of Natural History, Academy of Natural Science, Bingham Young University, California Academy of Science, Carnegie Museum, University of Puget Sound Museum, Field Museum of Natural History, Glacier National Park Museum, Illinois Natural History Survey, University of Kansas, Los Angeles County Museum, Louisiana State University Museum of Zoology, Museum of Comparative Zoology - Harvard, Milwaukee Public Museum, Montana State University Museum, Michigan State University Museum, North Carolina State Museum of Natural History, Northern Louisiana University Museum, University of Colorado Museum, University of Georgia Museum of Natural History, University of Idaho Museum, University of Michigan Museum, University of Montana Museum, University of South Dakota, United States National Museum of Natural History, University of Texas - Arlington, University of Texas - El Paso, Peabody Museum - Yale, University of California-Berkeley Museum of Vertebrate Zoology, and Mid-continental Ecological Sciences Center at University of New Mexico Museum of Southwestern Biology. Much of the museum data was received with the help of Dr. Charles Peterson, Idaho State University, Pocatello.

INTRODUCTION

Many amphibians are apparently declining in the western U.S. and world-wide (Corn and Fogelman 1984, Phillips 1994, Yoffe 1992). Acid rain, ozone depletion, pollution by toxic chemicals and heavy metals, predation and/or competition by exotic species, habitat alteration, climate change, disease, immune system problems, and some combination of these factors have all been suggested as possible causes (Blaustein et al. 1994a, 1994b; Corn and Fogelman 1984; Phillips 1994; Yoffe 1992).

Bass and non-native trout have been introduced into waters on or near the Helena National Forest (HNF) and have been implicated in declines of native amphibian populations in some areas. Past forestry practices and large scale logging continue to be detrimental to resident herpetofauna (Bury *et al.* 1991). The Tailed Frog (*Ascaphus truei*), present on the HNF, is thought to be one of the most sensitive indicators of stream-side and aquatic community health in forested landscapes (R. B. Bury, pers. comm.). Preliminary data indicate the Northern Leopard Frog (*Rana pipiens*) has disappeared over much of its former range in western Montana and is declining in at least some areas of eastern Montana (Hendricks and Reichel in review; Reichel 1995a, 1995b; Werner and Reichel 1994, 1996). The US Fish and Wildlife Service now lists the Western Toad (*Bufo boreas*) as a Candidate (C-1) species in Colorado, Wyoming and New Mexico. Apparent declines have recently been reported in northern Idaho (C. Peterson pers. comm.), northwest Montana (Reichel and Flath 1995; Werner and Plumber 1995; Werner and Reichel 1994, 1996), Yellowstone National Park (Koch and Peterson 1995), Wyoming, and Colorado (Carey 1993).

The U.S. Fish and Wildlife Service listed two Montana amphibians and two reptiles as Candidate (C2) species: the Spotted Frog (*Rana pretiosa*), Tailed Frog, Short-horned Lizard (*Phrynosoma douglasi*) and Northern Sagebrush Lizard (*Sceloporus graciosus graciosus*). The U.S. Forest Service Region 1 lists the Coeur d'Alene Salamander (*Plethodon idahoensis*) as "Sensitive" and is considering adding several other amphibians. The Montana Natural Heritage Program and the Montana Department of Fish, Wildlife and Parks list 6 amphibians [Coeur d'Alene Salamander, Idaho Giant Salamander (*Dicamptodon aterrimus*), Tailed Frog, Canadian Toad (*Bufo hemiophrys*), Spotted Frog, Wood Frog (*Rana sylvatica*)] and 7 reptiles [Snapping Turtle (*Chelydra serpentina*), Spiny Softshell (*Trionyx spiniferus*), Short-horned Lizard, Sagebrush Lizard, Western Hognose Snake (*Heterodon nasicus*), Smooth Green Snake (*Opheodrys vernalis*), Milk Snake (*Lampropeltis triangulum*)] as species of special concern in the state. The Northern Leopard Frog and Western Toad are being considered for addition to the species of special concern list; currently they are on the watch list. Seven of these species, the Tailed Frog, Western Toad, Spotted Frog, Northern Leopard Frog, Spiny Softshell, Short-horned Lizard, and Milk Snake occur or potentially occur on the HNF.

METHODS AND MATERIALS

Historic locations of amphibians and reptiles were recorded from literature (see Bibliography) and museum specimen records. Records were received from over 20 major museum collections in North America (see Acknowledgments). Locations derived from these sources have been entered into a database and digitized.

Survey sites were chosen based on 4 criteria: 1) high priority sites as determined by the HNF; 2) location of streams, seeps and wetlands on topographic maps; 3) accessibility of the wetlands by roads or hiking trails; and 4) conversations with district biologists regarding stream-seep-wetland locations. Based on the above, 2-8 sites were chosen daily for surveys. A total of 10-150 person-minutes were spent at each site, depending upon the size of the area and what was found. Initially, the entire shoreline, or a major part thereof, was searched by walking slowly along the edge and up into the surrounding vegetation, including rolling over rocks and logs. At regular intervals, the aquatic habitat was sampled for tadpoles or larvae using dipnets. If the initial sampling showed amphibian/reptile species present, further effort was expended in order to get some idea of abundance and distribution.

An attempt was made to capture at least the first few individuals of a species seen at a survey site. The species name was recorded along with developmental stage and sex (if possible); the animals were then released. Representative samples of the more common species in an area were preserved for permanent museum records and will be deposited at the Idaho State University Museum. Water temperature, air temperature, pH, a general description of the area, and other parameters were recorded. Standard data sheets used during this project are given in Appendix 1; the amphibian survey data sheet was developed by U.S. Fish and Wildlife Service and is used extensively by a variety of researchers in the western U.S. Much site-specific data was gathered during these surveys; not all data has been analyzed or is presented in this report, but is available from the Montana Natural Heritage Program.

Natural Heritage Program species status ranking definitions and explanations are given in Appendix 6.

RESULTS AND DISCUSSION

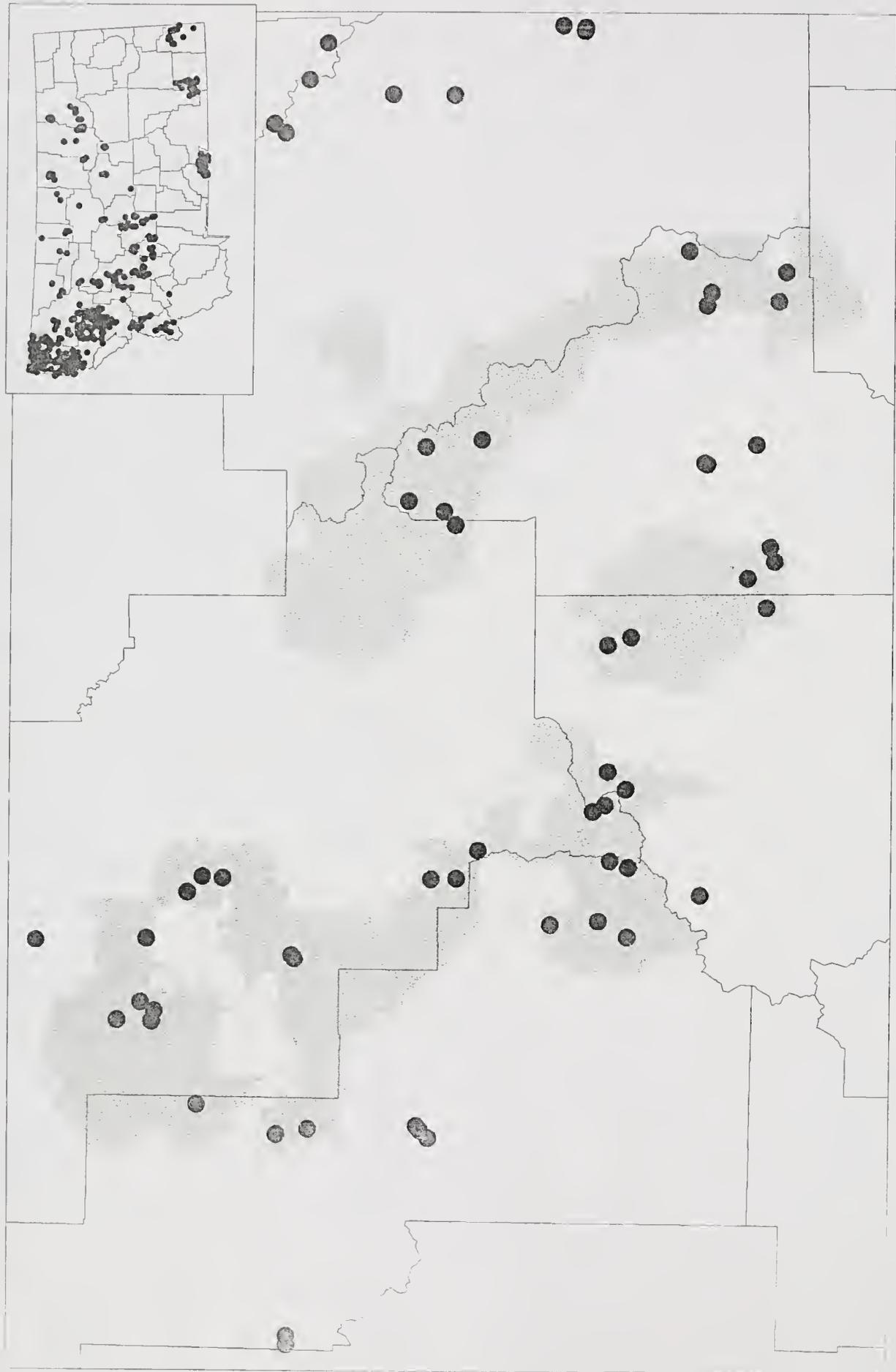
A total of 47 sites were surveyed of which 29 had one or more amphibian or reptile species present (Figure 1, Appendices 2 and 3); one site was surveyed two times. Although no species were found at 18 sites, their absence may have been due to the time of day, weather conditions, or other factors at the time of sampling. With three exceptions, all of the sites were on HNF land.

In addition to the 48 surveys, there were a number of sightings (i.e. road kills, chance observations) for which data are available and the sightings considered reliable. Species location data from surveys, chance encounters, and historic records (from the literature and museum specimens) are listed in Appendix 4. Distribution maps were created using survey and sighting data and historical records; inset statewide maps for each species are based on sight and specimen records, both recent and historic.

No previous publications or reports on reptiles or amphibians concentrate on the HNF area. Based on museum specimens, publications, surveys and incidental observations, four amphibians and three reptiles have been located on the HNF; an additional four amphibians and seven reptiles may eventually be found to occur there. Three amphibian and one reptile species were actually observed during the study. The following results are presented as individual species summaries for the Forest as a whole, followed by specific information on each mountain range.

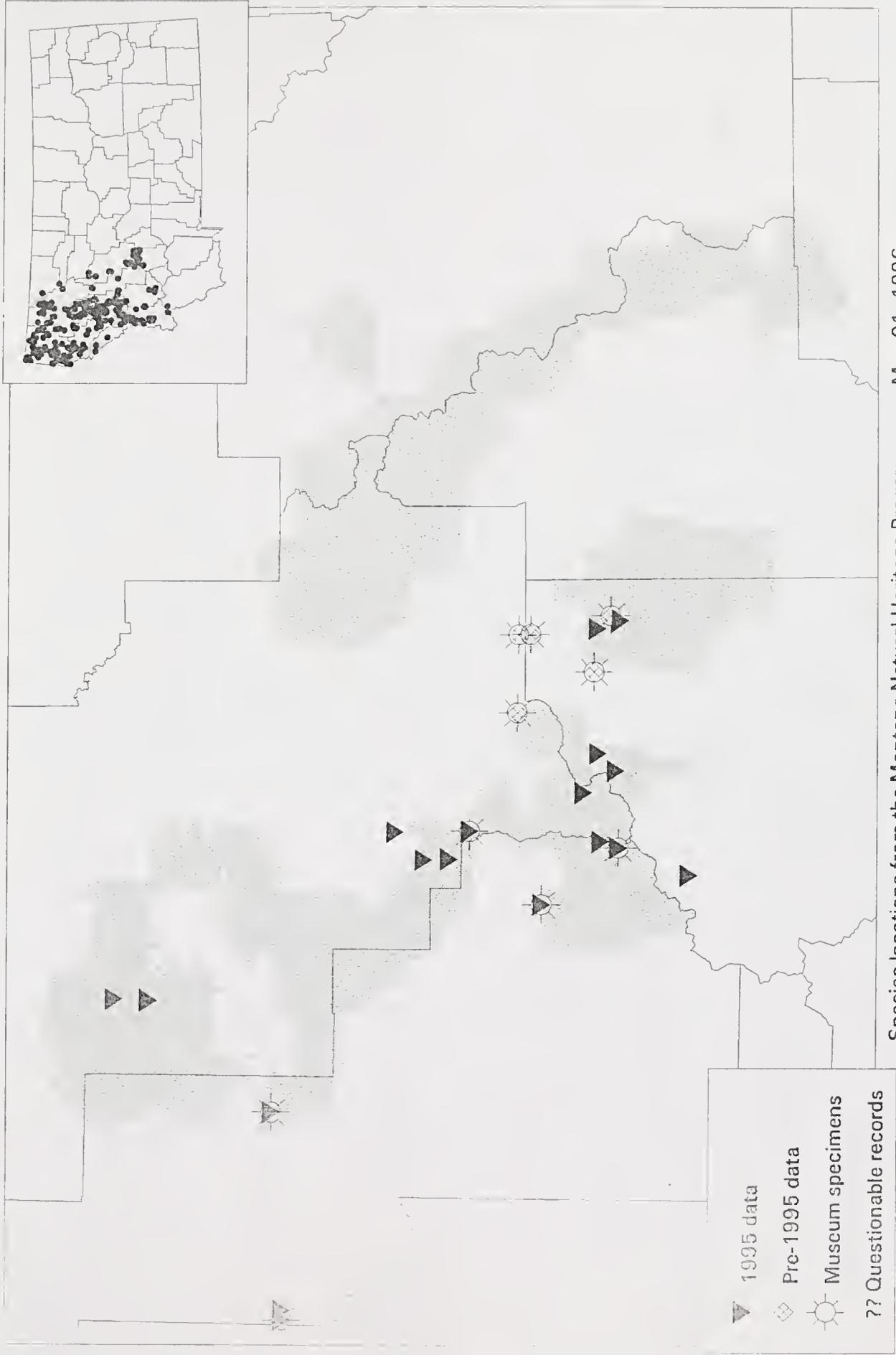
In the following species accounts, the section on "Similar Species" covers species only which are known or suspected to occur in Montana; outside Montana other confusing species may occur which are not covered in this report. Photos of all Montana amphibians and reptiles may be found in Reichel and Flath (1995). Keys to amphibian eggs (Livezey and Wright 1947) and tadpoles (Altig 1970) are available in the literature, but are difficult to use, and for many species are not satisfactory for field identification.

Survey locations on or near the Helena National Forest, Montana



Survey locations from the Montana Natural Heritage Program, May 01, 1996

Occurrences of Long-toed Salamander on or near the Helena National Forest, Montana



Species locations from the Montana Natural Heritage Program, May 01, 1996

Species known to be present on the Helena National Forest

Long-toed Salamander (*Ambystoma macrodactylum*)

Description: Adults are dark gray to black with an irregular (and sometimes broken) green to yellow stripe down the middle of the back. Adult snout-vent length varies from 2 to 3.25". All salamanders have smooth moist skin without scales.

Eggs and Larvae: Egg masses are typically laid in small clusters of 5-100 eggs but may be laid singly (Nussbaum *et al.* 1983); egg masses are typically attached to underwater vegetation or submerged branches. Within the clear gelatinous eggs, the embryos are somewhat light-colored, while frog and toad embryos are dark (except in Tailed Frogs).

Larval Long-toed Salamanders are typically brown- or gray-colored, are found in ponds, have three external gills, and are relatively small (<1.75" snout-vent) and slender. They are distinguished from Tiger Salamander larvae by the 9-13 gill rakers on the inside of the 3rd gill arch (17-22 rakers on the Tiger Salamander); they are also smaller and lack the large head and mouth.

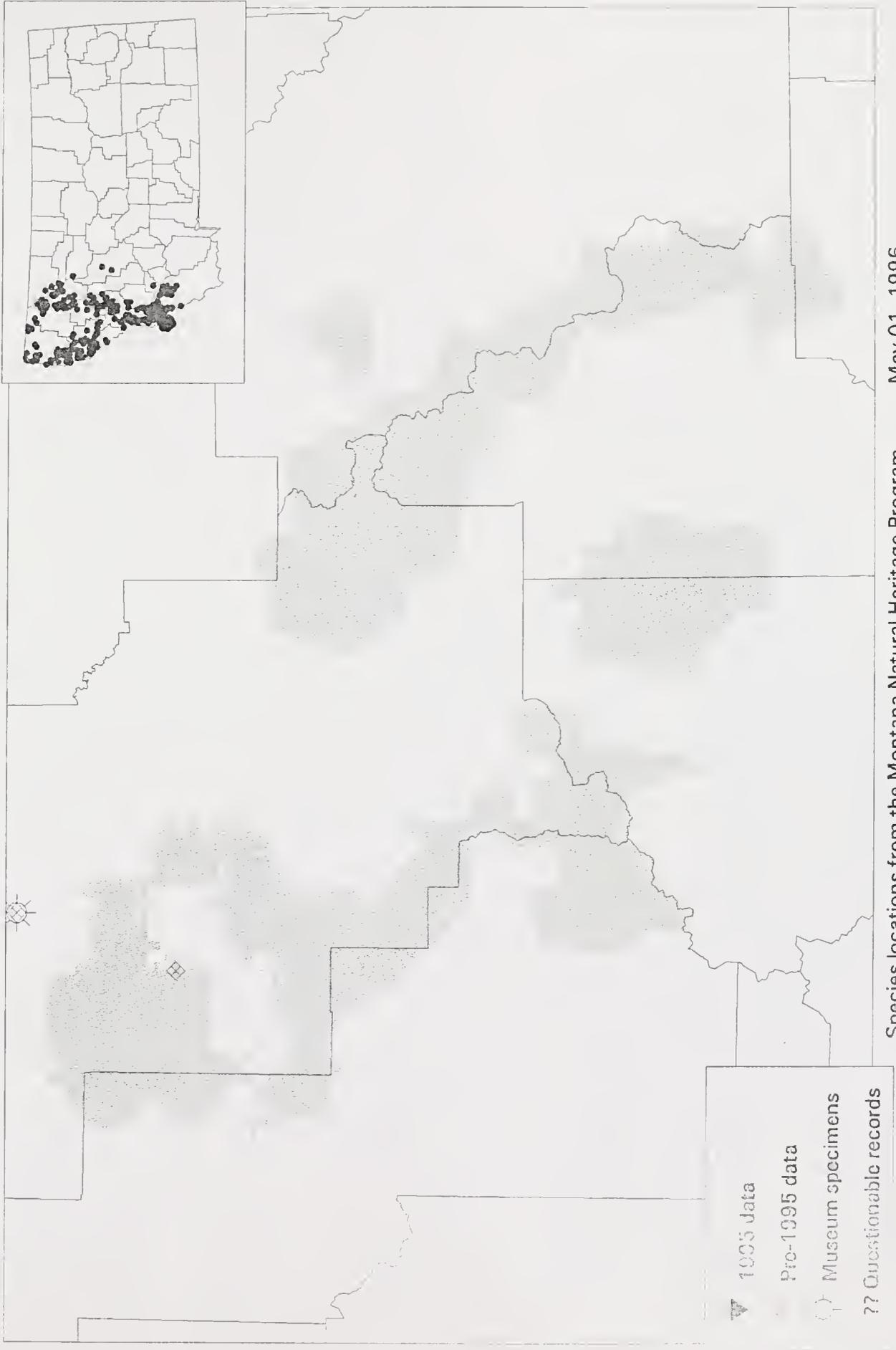
Similar species: Adult Long-toed Salamanders can be distinguished from Coeur d'Alene Salamanders by the longest toe on the hind foot which is longer than the sole and a yellow throat patch. Long-toed Salamanders lack a groove running vertically from nostril to mouth.

Habitat and Habits: Long-toed Salamanders are found in a wide variety of habitats from sagebrush to nearly alpine. They breed in ponds or lakes (very rarely in slow moving streams), usually those without fish present; on the HNF they were found in temporary and permanent ponds/lakes and inactive beaver ponds. Adults go to the breeding ponds immediately after snow-melt and are usually the earliest breeding amphibians in western Montana. In the Pacific Northwest, eggs hatch in 3-6 weeks and metamorphosis occurs after 2-14 months (Nussbaum *et al.* 1983, Leonard *et al.* 1993). Long-toed Salamanders were found in 14 locations on the HNF. The earliest surveys on 15-25 May 1995 found only egg masses, from newly laid to nearly ready to hatch. July surveys found primarily small larva, however, a pond near the head of Austin Creek had 2 small larva and 1 juvenile which appeared nearly fully transformed; this would indicate at least some larva overwinter and transform when over a year old. At an oxbow on the Blackfoot River a single transforming juvenile was found on 25 August, showing transformation may take only one season at lower elevation sites. Individuals were found in the Rocky Mountains and the Elkhorn Mountains from 4350 - 7050 ft. elevation. Spotted Frogs co-occurred at all sites and Western Toads at 2 sites.

Surveying: Larvae can readily be seen in ponds during the day and sampled with a dipnet; egg masses are somewhat harder to see. During the breeding season, adults may also be seen in the water, particularly during night surveys. During the rest of the spring, summer and fall, adults may occasionally be found in and under logs on the forest floor. Metamorphosed individuals are active at night, particularly when it is warm and rainy; they may be captured at this time by either night searches or pitfall traps.

Status: The Long-toed Salamander is the most common salamander in western Montana. The Long-toed Salamander is also common on the HNF in the Rocky Mountains. The Long-toed Salamander is also found in the northwestern part of the Elkhorns, the farthest east reported

Occurrences of Tailed Frog on or near the Helena National Forest, Montana



location in its range. The Elkhorns are the only isolated mountain range east of the Continental Divide where this species is found. However, none were found in the southern Elkhorns or Big Belt Mountains. In the Lewis and Clark National Forest (L&CNF) it was found to be very local in distribution east of the Continental Divide and was not found in the isolated ranges to the east (Reichel 1995a). Given the unique position of the Elkhorn populations more surveys should be done to better understand and document the distribution there.

Montana Natural Heritage Program rank: G5 S5.

Tailed Frog (*Ascaphus truei*)

Description: Adults are gray or brown with gray, brown, or occasionally yellow blotches; the skin has a distinctly bumpy texture. The adult has a snout-vent length of 1.5-2" and lacks a tympanum. The outer toe of the hind foot is broader than the other toes. The male has a bulbous "tail" which acts as a penis.

Eggs and Larvae: Approximately 50 eggs are laid in rosary-like strings attached to the underside of rocks. The tadpole (up to 2" long) is unique in that it has a large mouth modified into a sucker; the color is quite variable.

Similar species: No other frog or toad has the outer toe of the hind foot broader than the other toes; all other frogs and toads have a tympanum behind each eye.

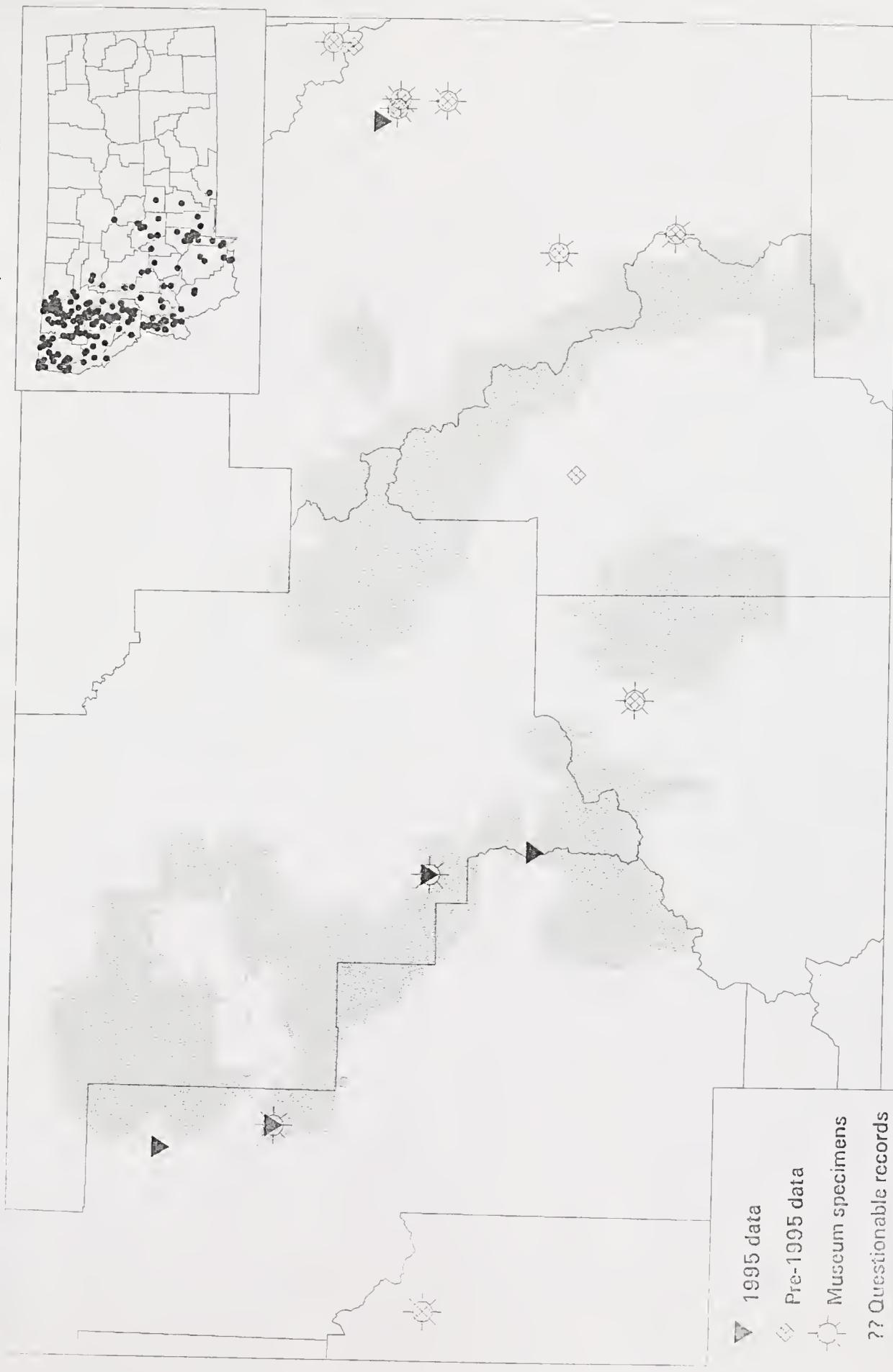
Habitat and Habits: Tailed Frogs are found in and along small, swift, cold mountain streams. In the Cascade Mountains of Washington and Oregon, the Tailed Frog appears to be very sensitive to siltation and frequently disappears in and downstream from clearcuts and water diversions (Bury, pers. comm.). Preliminary findings do not indicate that this is the case in Montana. Eggs are laid during the late summer and take approximately 4 weeks to hatch. Tadpoles take 1-4 years to metamorphose, depending on water temperature (Nussbaum *et al.* 1983; Metter 1967). Sexual maturity in Montana is attained at ages 6-7, (Daugherty and Sheldon 1982) which is the latest age for sexual maturity of any North American amphibian.

Surveying: Tadpoles are frequently found while electro-shocking fish. They may also be found by turning over rocks in rapid water with a net held just downstream. Adults are best found by walking up streams starting 30-60 minutes after dark.

Status: The Tailed Frog on the HNF is known from a single observation from the late 1960s on a "tributary of Copper Creek" (Franz 1971). While Tailed Frogs should be considered a species with a very localized distribution on the HNF, it may be more common and widespread in suitable habitat than is currently known. It should be looked for throughout the Forest, especially to the south and east of the currently known location. East of the Continental Divide on the L&CNF it was also found to be very local in distribution (Reichel 1995a). It seem doubtful that the Tailed Frog is found in the Elkhorn Mountains given the intensity of surveys (A. Harper, pers. comm.), and the surveyors specifically watching for the species, during the summer of 1995. It is common and widespread in northwestern Montana (Reichel and Flath 1995, Werner and Reichel 1994, 1996). Previously it was a USFWS Candidate species (C-2). We would recommend that all sightings of this species be reported.

Montana Natural Heritage Program rank: G5 S3S4.

Occurrences of Western Toad on or near the Helena National Forest, Montana



▼ 1995 data
◇ Pre-1995 data
☼ Museum specimens
?? Questionable records

Species locations from the Montana Natural Heritage Program, May 01, 1996

Western Toad (*Bufo boreas*)

Description: Adults are colored with a gray, brown, or olive-green mottling and a prominent white or yellowish line down the center of the back; very young transformed toads typically lack the dorsal line, and the warts are often red-brown in color. The pupils are horizontal. The adult has a body length of 2.5-5". There are no cranial crests and the skin is relatively dry with many warts and glands present.

Eggs and Larvae: Eggs are laid in long, clear, double strings, and each has a black embryo. Tadpoles are typically jet black, while all mid- to large-sized frog tadpoles in Montana are green or bronze (except for some Tailed Frogs); very small frog tadpoles are also black.

Similar species: Other Montana toads have cranial crests between their eyes. The Plains Spadefoot has one tubercle on the sole of the hind feet, a vertical pupil, and smoother skin.

NOTE: It is very difficult to distinguish among the four Montana toad species eggs, larvae, and recently-transformed toadlets.

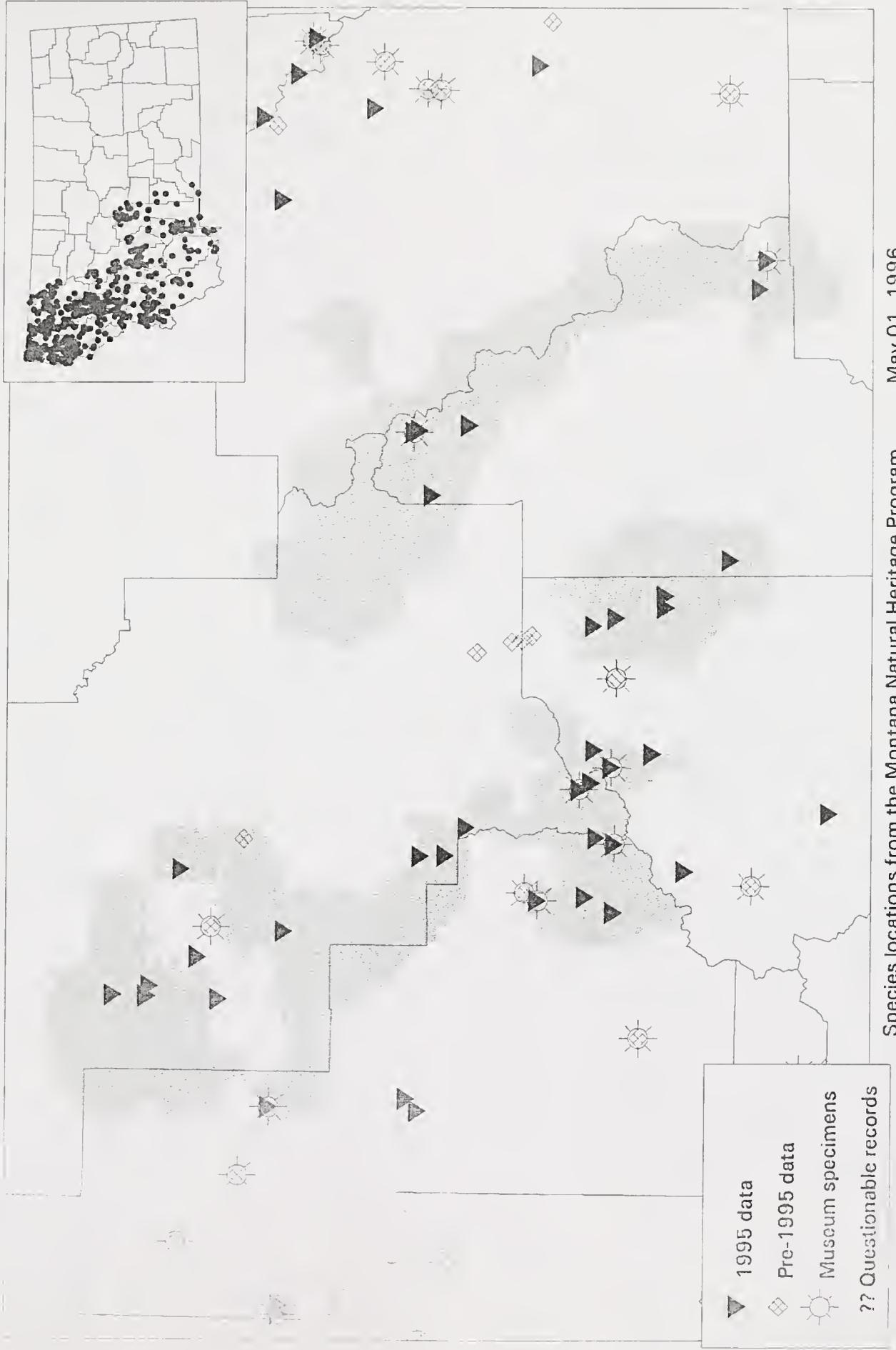
Habitat and Habits: Adults are largely terrestrial and found in a variety of habitats from valley bottoms to high elevations; they breed in lakes, ponds, and slow streams with a preference for shallow areas with mud bottoms. Breeding and egg laying in Montana usually takes place 1-3 months after snow-melt, from April at lower elevations to July at higher sites. Tadpoles are typically 2-3 months old at metamorphosis in Montana, depending on water temperature (Black 1970). Following metamorphosis, hundreds of small toads, many with the tails still present, can be found on the shores of breeding ponds. Western Toads were reported breeding from only two locations on the HNF in 1995. We found thousands of ½ grown tadpoles in a pond near Dog Creek on 11 July 1995 and 3 metamorphs on an oxbow along the Blackfoot River on 25 August.

Surveying: Tadpoles are easily seen in ponds during the day and can be sampled with a dipnet. During the breeding season, adults may be seen in the water but at other times are found in more terrestrial habitats.

Status: Tadpoles and metamorphs of the Western Toad were observed at only two sites during the 1995 survey in the HNF (Appendix 2, 3). No adults were seen during our surveys however, B. Spettigue (pers. comm.) saw one adult near McDonald Pass (Appendix 4). None were seen in the Elkhorn or Big Belt Mountains, although historic records exist for sites in or near both (Appendix 3,4). The rarity of this species on the HNF and lack of recent sightings in the eastern ranges is of concern. During 1994 we found no Western Toads in the Little Belt, Highwood, or Crazy Mountain of the L&CNF although historic records exist for all three ranges; additionally only a single breeding site was located on the main Rocky Mountains of the L&CNF (Reichel 1995a). Brunson (1952) regarded the Western Toad as one of the most common batrachians (frogs and toads) in western Montana. Black (1970) supported its common occurrence not only in the west but in many counties east of the continental divide. The Western Toad has declined from the most common anuran in western Montana, to a relatively rare one in the state in the past 25 years (Reichel and Flath 1995, Werner and Plumber 1995, Werner and Reichel 1994, 1996).

The U.S. Fish and Wildlife Service now lists this species as a Candidate (C-1) species in Colorado, Wyoming, and New Mexico. Apparent declines have recently been reported in northern Idaho (C. Peterson pers. comm.), Yellowstone National Park (Koch and Peterson

Occurrences of Spotted Frog on or near the Helena National Forest, Montana



1995, Peterson *et al.* 1992), Wyoming, and Colorado (Carey 1993). We would recommend that all sightings of this species be reported and that a monitoring program be set up for this species.

Montana Natural Heritage Program rank: G4 S3S4.

Spotted Frog (*Rana pretiosa*)

Description: The adult has a snout-vent length of 2-4". Adults are dark to light brown, gray, or olive green with dark spots (frequently with lighter centers) found on the back, sides and legs. The number and pattern of spotting is quite variable. The back and sides are often covered with small bumps. The underside of the legs is bright red, salmon, or orange; this bright color may extend up to the chin or be replaced by a light, mottled gray on the chin, chest, and/or belly. In younger subadults, bright leg color is often lacking and instead a light, lemon-colored wash is present. In these subadults there is often a dark mask present, with a light jaw stripe extending to the shoulder; both the mask and jaw stripe may be less obvious in larger, older animals.

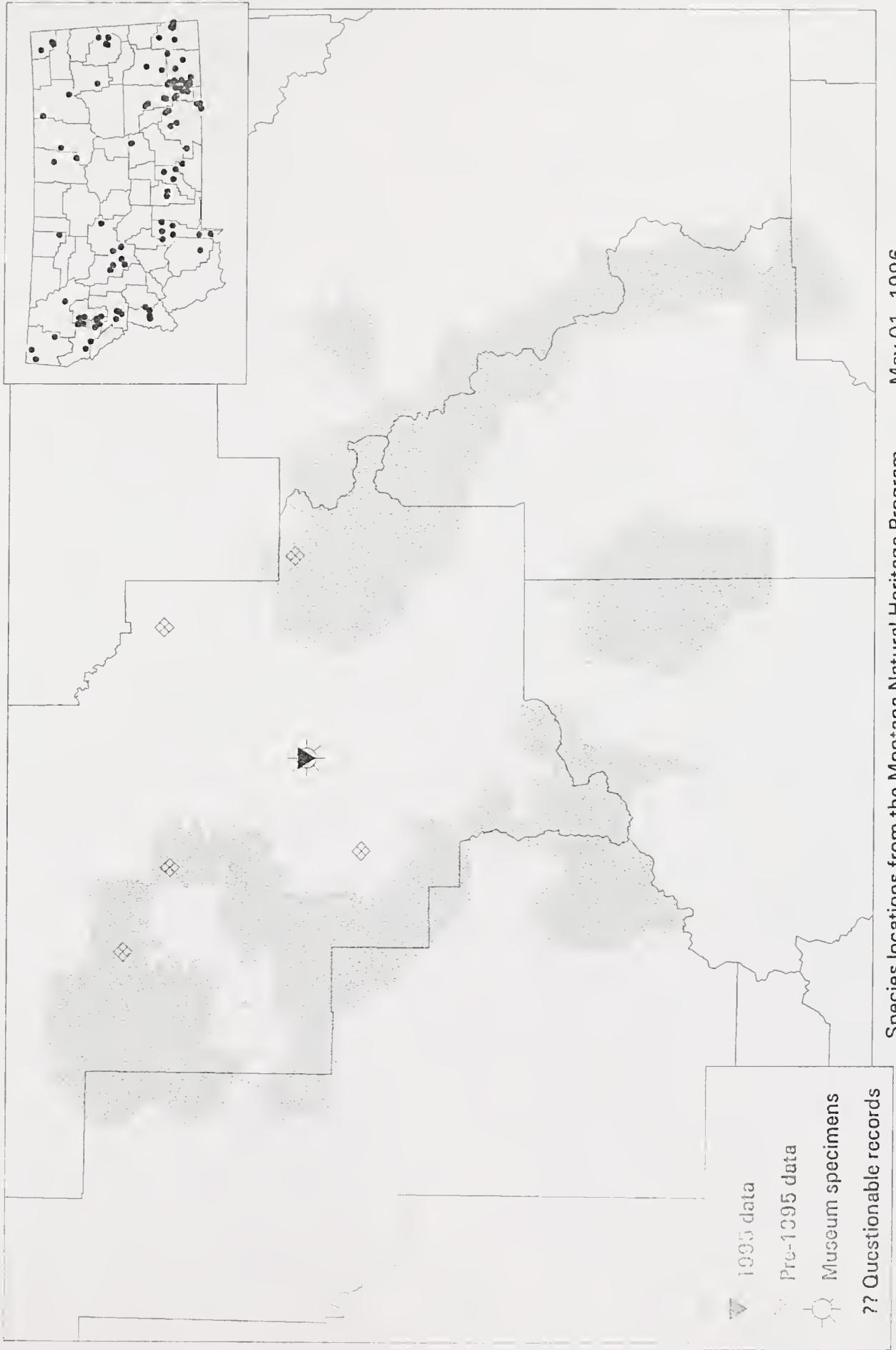
Eggs and Tadpoles: Eggs are laid in large, globular masses of 150-500 at the surface of the water. The tadpoles are dark green to brown on top with some gold flecking whereas the underside has an iridescent bronze or silver color. Total length of tadpoles may reach 3"; the eyes are located on top of the head.

Similar species: The bright-colored pigment on the undersides of the adult's legs distinguish this species from all other frogs in Montana. Younger individuals, without colored legs, may usually be distinguished from other frogs by a combination of: 1) dorsal spots usually present but not surrounded by light-colored halos; 2) dorsolateral folds present; 3) toes without pads at the tips; and 4) a pale gray, (rather than white) belly.

Habitat and Habits: Spotted Frogs are regularly found at the water's edge in openings within forest habitats. Wetlands in or near treeline are also used, but populations are uncommon in the large, open intermountain valleys. Eggs hatch in 2-3 weeks and tadpoles take 2-14 months to metamorphose, depending on water temperature (Nussbaum *et al.* 1983, Turner 1958). Breeding takes place in lakes, ponds (temporary and permanent), springs, and occasionally backwaters or beaver ponds in streams. All the egg masses in a particular pond are often found in the same location at the margin of the pond; therefore, the eggs are susceptible to drying up if pond levels recede substantially before hatching. Young and adult frogs often disperse into marsh and forest habitats but are not usually found far from open water. The Spotted Frog was commonly found throughout the HNF from just above the prairie edge at 4350 to 7050 ft. elevation near timberline. Individuals were found in every type of wetland habitat, although numbers varied widely from one to 50 or more per site. Eggs were found on the first surveys on 15 May 95 at two locations in the Elkhorns and as late as 25 May (last spring surveys). Hatching tadpoles were seen on 17 May 95 in the Big Belts; mid-large tadpoles were present during July surveys and only metamorphs were seen by late August. The largest group of egg masses I have seen was found on 20 May in an old beaver pond on a tributary of Beaver Creek (Appendix 2); I estimated 120 egg masses were present covering an area about 6 X 8 ft.

Surveying: Adults, tadpoles, and eggs are easily seen in and along the water during the day and

Occurrences of Racer on or near the Helena National Forest, Montana



can be sampled with a dipnet; adults may also be captured by hand. Many adults may leave the breeding ponds following egg laying and move to nearby feeding areas for the summer. Tadpoles are difficult to distinguish from those of the Northern Leopard Frog in areas where the two species may overlap.

Status: The most common frog on the HNF and in western Montana. It was observed in all areas surveyed on the HNF, and occurred in all 28 sites where any amphibian was species found. However, it appeared to be much less common in the Big Belt Mountains than the Elkhorns or main Rocky Mountains. The species was previously a U.S. Fish and Wildlife Service Category 2 Candidate species in Montana; elsewhere in its range it is listed as a C-1, with Threatened/Endangered status warranted but precluded by work on higher priority species (U.S. Fish and Wildlife Service 1993). While significant declines are known from the southern end of the range (Nevada, southern Idaho, Utah) and are also apparent in coastal Washington (McAllister *et al.* 1993), Oregon, and California, recent (as yet unpublished) research indicates that those populations are actually different species.

Montana Natural Heritage Program rank: G4 S4.

Racer (*Coluber constrictor*)

Description: A slender, but moderately long snake, the Racer ranges from 20-65 inches in length.

Adult coloration is uniform across the dorsal side but it can vary from a greenish-gray to brown or blue. The ventral side is whitish to pale yellow, the latter color extending onto the upper lip scales and nasal region. The eyes are relatively large. The scales are smooth and the nostril is bordered by two scales.

Young: Snakes (up to about 20") have a much different coloration than the adults consisting of a series of dorsal brown blotches edged with black which run the length of the animal; a row of blotches is also found on each side of the animal extending onto the ventral side.

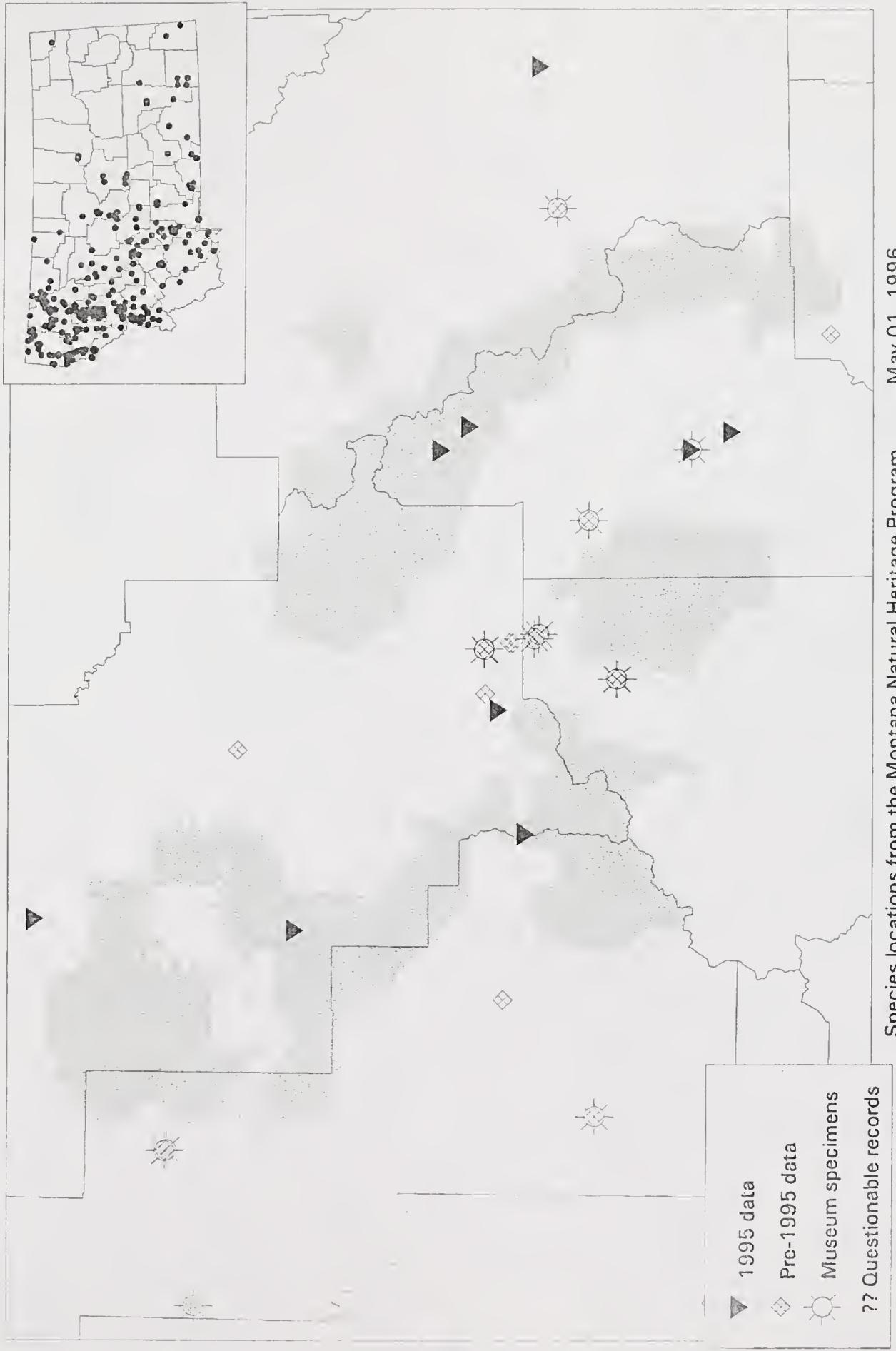
Similar species: Young Gopher Snakes may be distinguished by the keeled rather than smooth scales of the young Racer. Young Western Hognose Snakes have an upturned nose. Smooth Green Snakes are smaller and colored bright grass-green and whitish below; their nostrils are centered in single scales. Also see Rubber Boa.

Habitat and Habits: The Racer is associated with open habitats, either in shortgrass, shrub-steppe, or forested areas (Hammerson 1982a, Baxter and Stone 1985). It is often found near water and rocks. The Racer is an extremely fast and agile snake. A clutch of perhaps 3-7 eggs is laid in the summer (Stebbins 1985). It preys on insects and small vertebrates such as mice and frogs.

Surveying: They may be surveyed for by slowly walking through appropriate habitat on warm, sunny days and carefully watching for them; this technique is moderately effective for the Racer. However, as with many lizards and snakes, they may easily be missed. Carefully documented incidental observations may provide the best clues to their distribution. They may be also taken in funnel traps with drift fences. Mark-recapture methods offer the best opportunity for determining population status.

Status: The Racer was not seen in this survey, however, Davis (1963) has a map of this species which shows records apparently on the HNF. A more recent sighting was made just off the

Occurrences of Western Terrestrial Garter Snake on or near the Helena National Forest, Montana



Seiben Ranch below the Forest. They would be expected to occur on the HNF at low to mid-elevations; given the poor accuracy of the Davis (1963) map, any sightings should be documented. Of particular interest would be documentation of any denning sites located.
Montana Natural Heritage Program Rank: G5 S5.

Western Terrestrial Garter Snake (*Thamnophis elegans*)

Description: Adult Western Terrestrial (or Wandering) Garter Snakes are smaller in body size than the Common Garter Snake, their length varying from 18-43". Three yellow longitudinal stripes are present (one dorsal, two lateral on the 2nd and 3rd scale rows), but the dorsal stripe is much narrower than that of the Common Garter Snake. A distinctive feature of the Western Terrestrial Garter Snake is a series of alternating black spots which run the length of the body between, and somewhat on, the yellow stripes. The background color between the stripes is a dusky gray, green or brown. compared to the black or occasionally dark green found in the Common Garter Snake. The ventral surface has a series of dark black/brown blotches which may cover most of the surface. All black, presumably melanistic, individuals are occasionally found near Townsend. The dorsal scales are keeled and there are normally 8 upper labial scales.

Young: The coloration of young snakes is similar to that of the adults; young are live-born.

Similar species: See Common Garter Snake.

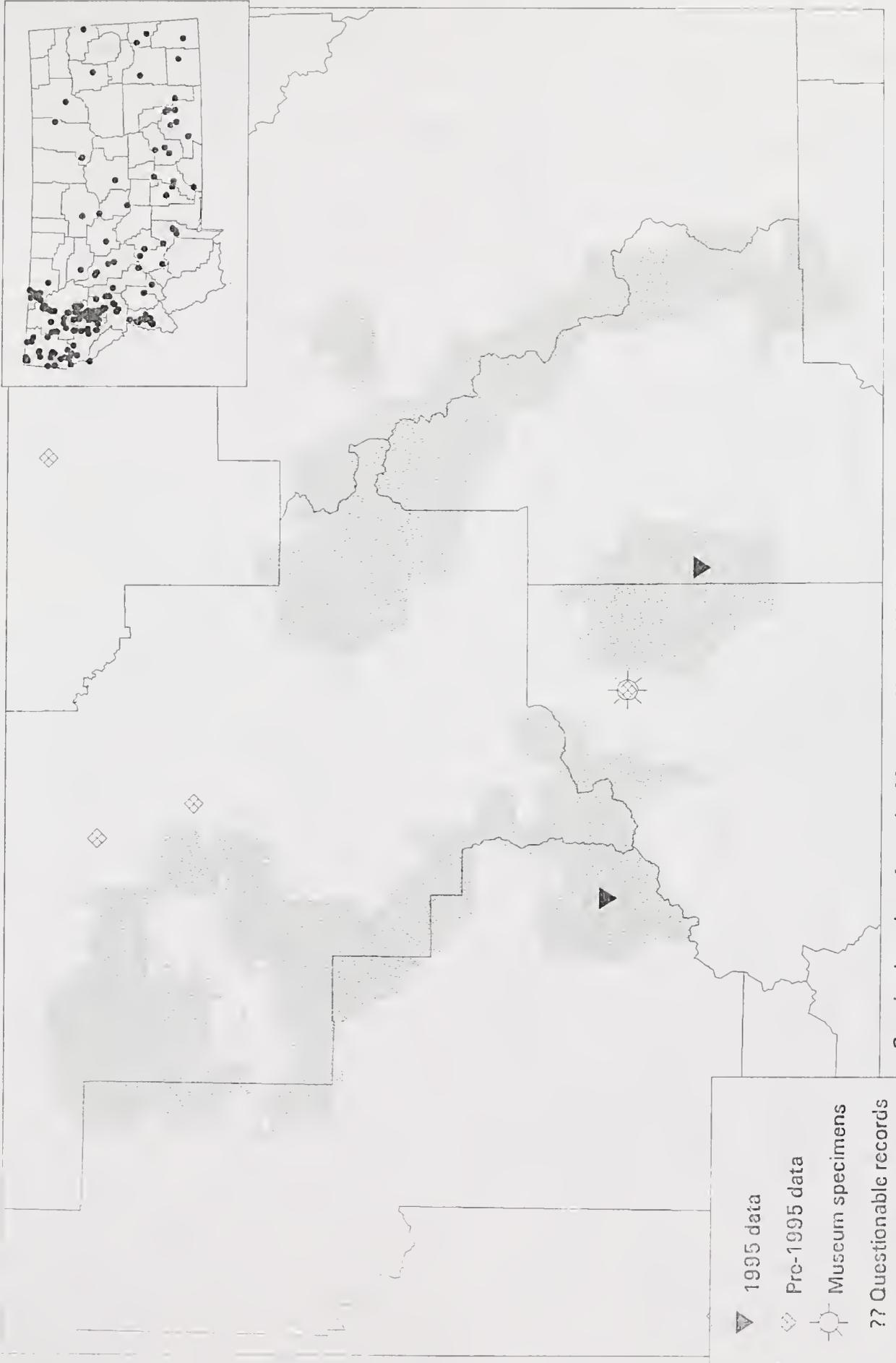
Habitat and Habits: The habitat and habits of the Western Terrestrial Garter Snake are similar to the Common Garter Snake, i.e., they are found in most habitats but are particularly common around wetlands. In the HNF area the species was found between 3450 ft in the valley bottom and 6200 ft near McDonald Pass, but probably occurs higher. Females give birth to 4-19 young during the summer (Stebbins 1985).

Surveying: Timed sight surveys may be conducted around wetlands and riparian feeding areas or at denning areas where higher concentrations of garter snakes occur; clear mornings are the best survey times. Much distributional information may come from recording incidental sightings. More intensive research may be done using funnel traps in combination with drift fences. More intensive research and survey projects may use mark-recapture or radiotelemetry techniques.

Status: Western Terrestrial Garter Snakes were found in the main Rocky Mountains and Big Belt Mountains on the HNF; there are also historic locations just off the forest at the base of the Elkhorn Mountains. Given the small number of recent records from throughout the area, all records should be documented until the distribution is better understood; of particular interest would be documentation of denning sites. Sightings of *elegans* from the Elkhorn Mountains should be documented to confirm their presence in that range.

Montana Natural Heritage Program Rank: G5 S5.

Occurrences of Common Garter Snake on or near the Helena National Forest, Montana



Species locations from the Montana Natural Heritage Program, May 01, 1996

Common Garter Snake (*Thamnophis sirtalis*)

Description: The Common Garter Snake consists of two color phases in western Montana, both ranging from 18-52" in length. Both phases have three yellow longitudinal stripes: one located dorsally and one on each side on the 2nd and 3rd scale rows above the belly scales. Between the yellow stripes is a black (or dark green) background, broken with red spots in one color phase but lacking red in the other. Ventral coloration varies from yellow to bluish, and some individuals of the red-sided color phase have small black spots on the edge of the ventral scales. The dorsal scales are keeled, and normally there are 7 upper labial scales.

Young: The coloration of young snakes is similar to that of the adults; young are live-born.

Similar species: The Western Terrestrial Garter Snake has black spots overlapping the dorsal yellow stripe; the background color between stripes tends to be paler dusky green, gray or brown. The Plains Garter Snake has the side yellow stripe on the 3rd and 4th scale rows above the belly scales and the dorsal stripe is often orange or red.

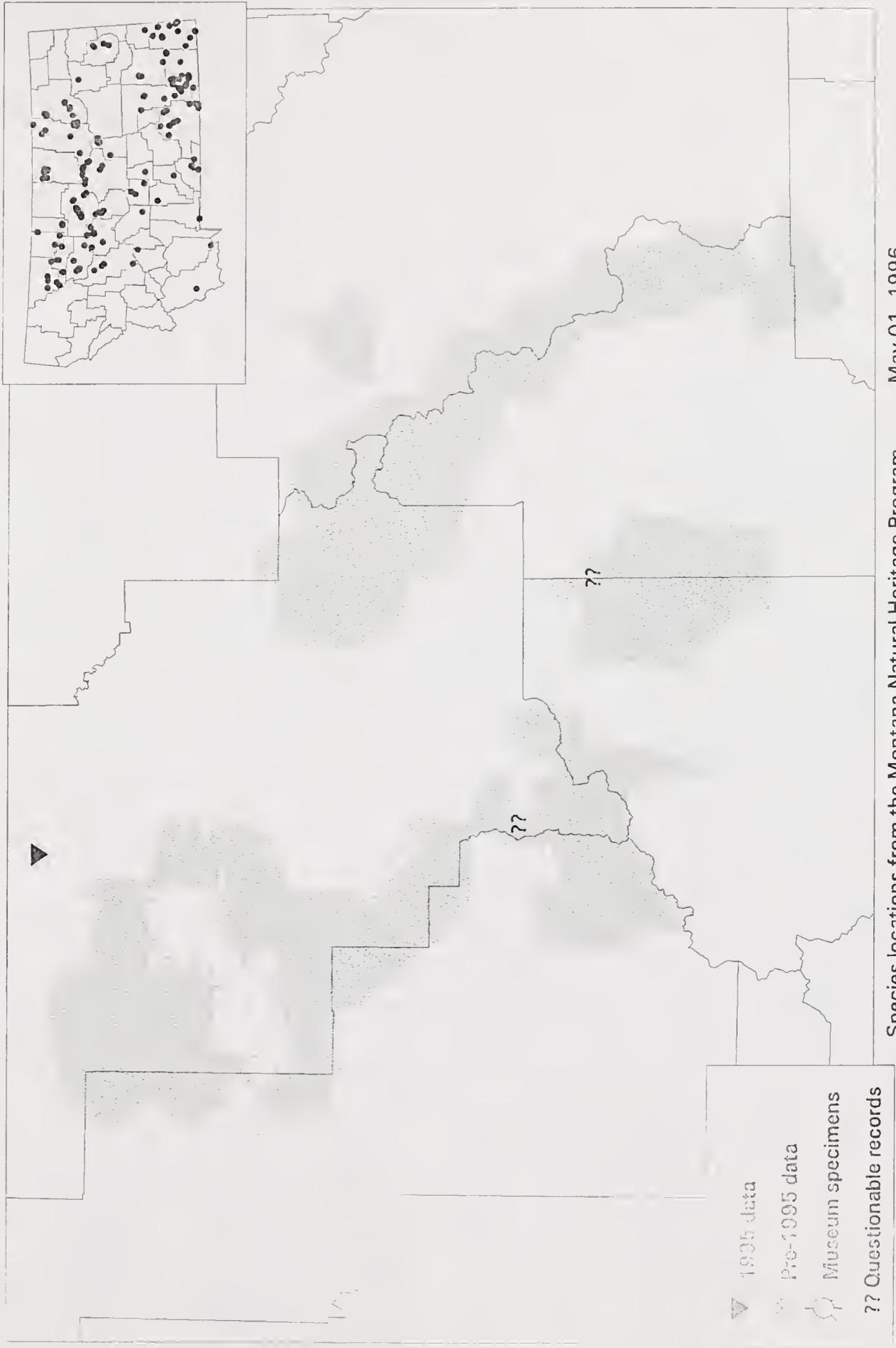
Habitat and Habits: Garter snakes are found in all forest habitats but are more common at lower elevations around marsh-bog-pond situations, where they prey on young fish, frogs, toads, mice and invertebrates. They are sometimes confused with water snakes because of their frequent aquatic exploits, but there are no true water snakes in Montana. Typical of most garter snakes, they emit a noxious secretion when handled and can be aggressive when disturbed. The Common Garter Snake was reported at two locations in 1995, both about 5600 feet, on the HNF by A. Harper and S. Hendrickson; historically they have also been found at low elevations in the intermountain valleys. Garter snakes eat a variety of vertebrates and invertebrates, with the Common Garter Snake concentrating more on amphibians than the Western Terrestrial Garter Snake. The Common Garter Snake is a live-bearer giving birth to 12-18 young during the summer in Colorado (Hammerson 1982a).

Surveying: Timed-sight surveys may be conducted around wetlands and riparian feeding areas or at denning areas where higher concentrations of garter snakes occur; clear mornings are the best survey times. Much distributional information may come from recording incidental sightings. More intensive research may be done using funnel traps in combination with drift fences. More intensive research and survey projects may use mark-recapture or radiotelemetry techniques.

Status: Common Garter Snakes were found in the Rocky Mountains and Elkhorn Mountains on the HNF. There is also a historic record of them from the valley between the two locations. Given the small number of records from throughout the area, all records should be documented until the distribution is better understood; of particular interest would be documentation of denning sites. Sightings of *sirtalis* from the Big Belt Mountains and Rocky Mountains north of McDonald Pass should be documented to confirm their presence in those areas. Only the red-sided color phase has been observed in this area, however the color phase lacking red spots should be watched for. The Common Garter Snake is much less abundant than the Western Terrestrial Garter Snake in this area, as it is currently in northwestern Montana.

Montana Natural Heritage Program Rank: G5 S4.

Occurrences of Western Chorus Frog on or near the Helena National Forest, Montana



Species locations from the Montana Natural Heritage Program, May 01, 1996

Species Potentially Present on the Helena National Forest

Western Chorus Frog (*Pseudacris triseriata*)

Description: Adults are very small (0.75-1.5") and have tiny, almost unnoticeable toe pads.

They have a dark line extending from the snout through the eye to the groin. Basic coloration is quite variable with the background color being green, brown, gray, or reddish. Typically 3-5 dark longitudinal stripes are present on the head and back which may be broken up into spots on some individuals.

Eggs and Tadpoles: Eggs are laid in small clusters of 10-100, usually less than 1" across and attached to submerged vegetation (Wheeler and Wheeler 1966, Baxter and Stone 1985).

Individual eggs are about 1 mm in diameter. Tadpoles are brown/bronze and the eyes are located on the sides of the head.

Similar species: Pacific Chorus Frogs (*Pseudacris regilla*) have obvious toe pads and an eye stripe ending at the shoulder. Recently metamorphosed Ranid frogs could be confused with this species but the coloration differs and the tiny toe pads are lacking (often visible only with a magnifying glass on small chorus frogs).

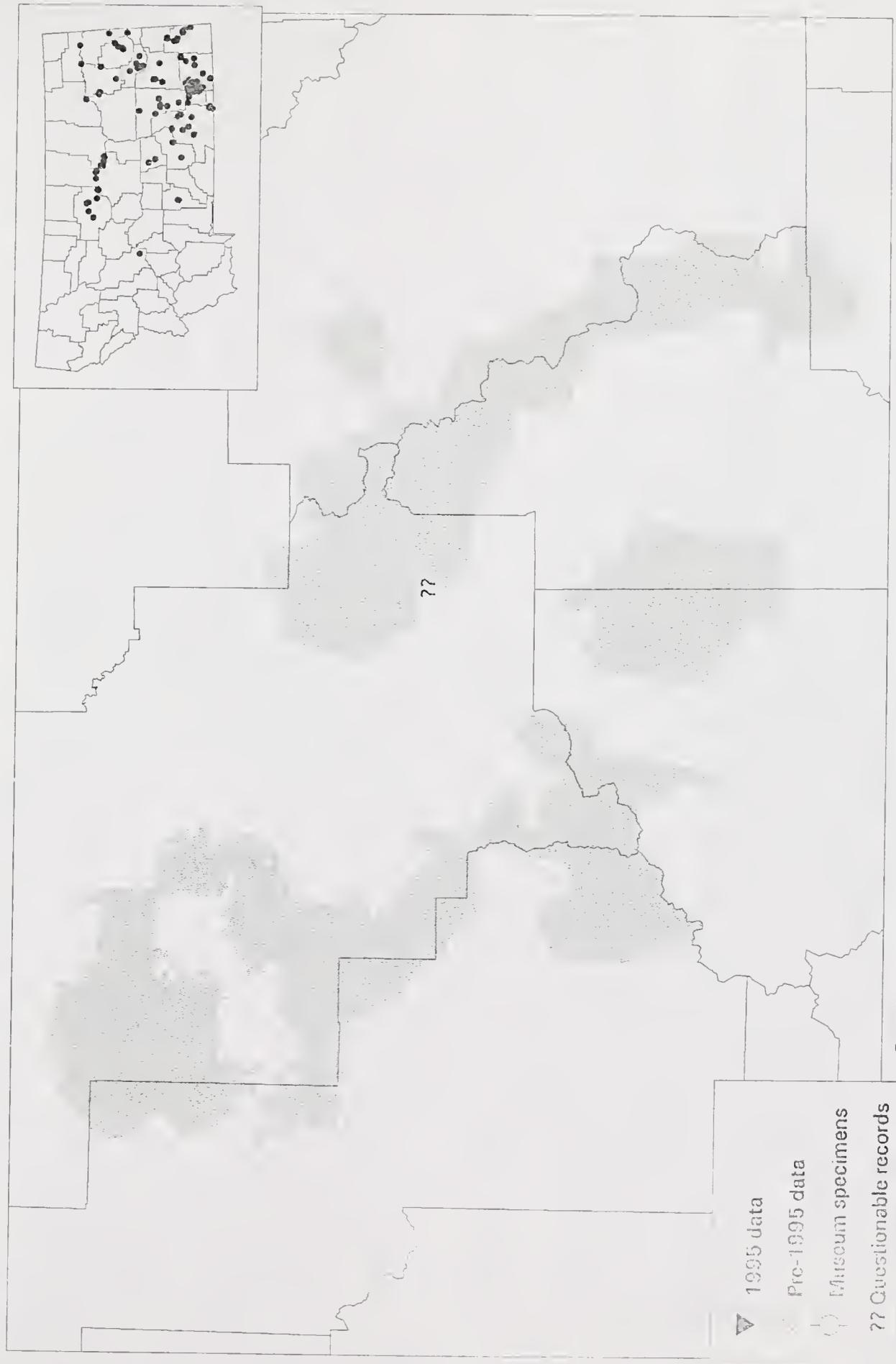
Habitat and Habits: Western Chorus Frogs are regularly found in the water only during the breeding period in spring. Their presence is obvious during this time due to their call which is given frequently at night and sporadically throughout the day. Following breeding, these frogs move into adjacent uplands and are rarely seen. In eastern Montana they breed in temporary ponds and small lakes surrounded by prairie; in some locations in Montana they are also found in open forested habitats. Eggs hatch in about 2 weeks and tadpoles are about 2 months old at metamorphosis (Wheeler and Wheeler 1966, Nussbaum *et al.* 1983).

Surveying: Adults are easily surveyed for, using their calls for identification during the breeding season in the spring and early summer. During the breeding season, adults may also be seen in the water, but their small size and habit of freezing or diving when disturbed makes observation difficult; night surveys may be more productive. Egg masses are difficult to find. Tadpoles may be seen in ponds during the day and can be sampled with a dipnet.

Status: Common throughout the prairies of eastern Montana. Two reports of Western Chorus Frogs were received for the HNF. One report was from the vicinity of McDonald Pass and the other from a cow pond in the upper Jackson Creek drainage of the Elkhorn Mountains (Appendix 4); given the distance from other known locations and unusual habitat, these report should be treated as hypothetical until verified. It seems possible that Western Chorus Frogs will eventually be verified from the lower elevations of the HNF. The most likely locations would be the extreme northeastern portion of the main Rocky Mountains east of Lincoln, the east side of the Big Belts, or the Dry Range.

Montana Natural Heritage Program rank: G5 S5.

Occurrences of Woodhouse's Toad on or near the Helena National Forest, Montana



Species locations from the Montana Natural Heritage Program, May 01, 1996

Woodhouse's Toad (*Bufo woodhousii*)

Description: Adults have dry skin with small warts, and are gray, brown, or olive-green with paler mottling or spots. A prominent white or yellowish line runs down the center of the back; very young transformed toads typically lack the dorsal line, and the warts are often red-brown in color. Woodhouse's Toad has parallel cranial crests between the eyes and post-orbital crests connecting to them at a right angle behind the eyes; the post-orbital crests typically touch the parotoid glands. If a lump-like boss is present on the snout, it does not extend back between the eyes. The pupils are horizontal. The adult has two black tubercles on the hind feet and a body length of 2.5-4".

Eggs and Tadpoles: Similar to those of the Western Toad.

Similar species: The Western Toad lacks cranial crests. The Great Plains Toad has large, white-bordered, dark, dorsal blotches. The Canadian Toad has a lump between the eyes; frequently the parotoid gland is separated from the post-orbital crest which may be broken or absent.

NOTE: It is very difficult to distinguish among the four Montana toad species eggs, larvae, and recently-transformed toadlets.

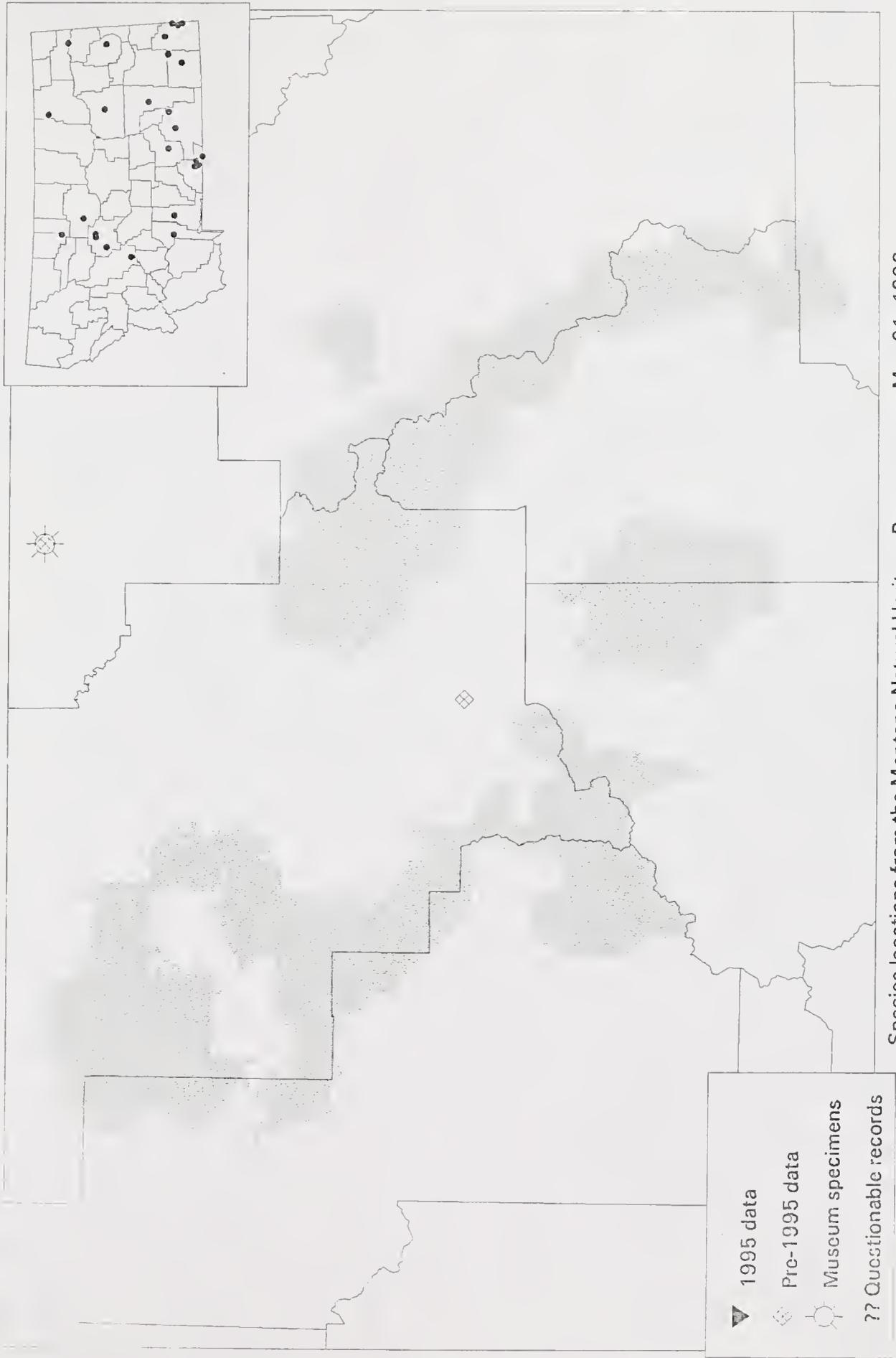
Habitat and Habits: Adults are partially terrestrial but often found near water. They are usually found in irrigated agricultural areas and flood plains, rather than the more upland areas used by Great Plains Toads (Bragg 1940, Timkin and Dunlap 1965, Black 1970). They are most active at night, although they may at times be found feeding during the day (Hammerson 1982a). They typically breed in permanent lakes, ponds, reservoirs, and slow streams, with a preference for shallow areas with mud bottoms (Black 1970, Hammerson 1982a, Baxter and Stone 1985). Breeding and egg laying is spread out over the spring and early summer, with known dates from Montana ranging from 4 May to 1 July (Black 1970).

Surveying: Adults may easily be found by using their loud calls for identification on warm (>54° F) nights; calling peaks during the first few hours after sunset (Hammerson 1982a). "Road hunting" on warm nights may also be effective. Eggs and tadpoles are seen in ponds during the day and can be sampled with a dipnet; however, identification of toad eggs and tadpoles is difficult or impossible in the field.

Status: Woodhouse's Toad is relatively common in southeastern Montana, however, its status elsewhere in the state is unclear. A tadpole, reported as Woodhouse's Toad, present in the Montana State University Museum was collected at the mouth of Trout Creek on the Missouri River in 1948; it should be treated as hypothetical, until verified, given the difficulty identifying *Bufo* tadpoles and the long distance to the nearest record. Geographic and habitat relationships with other toads in Montana are not well known. It should be watched for at low elevations in prairie or shrub-steppe habitat on the HNF; it could occur along the Missouri River. Any located on the HNF should be well documented with a description indicating how the species was differentiated.

Montana Natural Heritage Program rank: G5 S4.

Occurrences of Plains Spadefoot on or near the Helena National Forest, Montana



Plains Spadefoot (*Scaphiopus [=Spea] bombifrons*)

Description: Adults are colored gray or brown with darker mottling on the back and a white belly. Some individuals have indistinct longitudinal streaking. The pupils of the Plains Spadefoot are vertically elliptical and there is a high, hard lump between the eyes. Its skin is less warty than true toads. The adult has a single tubercle on the hind feet and has a body length of less than 2.5".

Eggs and Tadpoles: Oval egg masses of 10-250 eggs are attached to underwater plants or debris. Tadpoles are mottled sooty and olive-yellow above and paler below with gold metallic flecking over all; iris is gold.

Similar species: Other Montana frogs and toads have round or horizontally elliptical pupils.

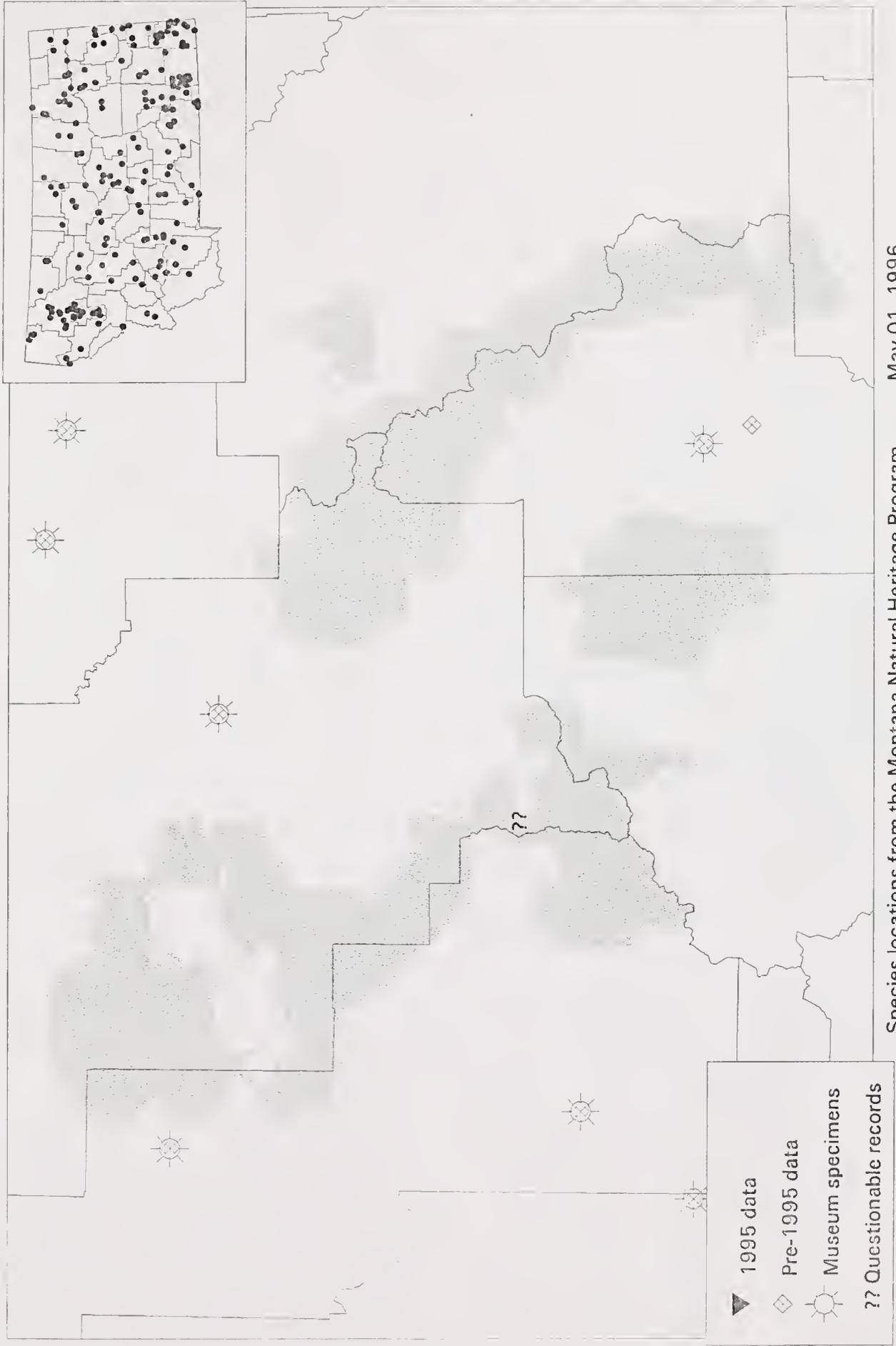
Habitat and Habits: Adults are found in grassland and sagebrush areas, particularly in areas with sandy or loose soil (Wheeler and Wheeler 1966, Hammerson 1982a, Baxter and Stone 1985). Except during breeding, they are seldom found in the water. They are primarily nocturnal and emerge from their burrows only following heavy rains. They breed in shallow temporary pools usually following heavy spring or summer rains (Hammerson 1982a). Males call loudly, with groups being heard for up to a mile. Eggs hatch after 2-3 days and tadpoles transform in 6-10 weeks (Wheeler and Wheeler 1966, Hammerson 1982a).

Surveying: Adults may be easily found by using their calls for identification when breeding at night or by "road hunting" on warm, rainy nights. Calling normally takes place only when the temperature is $>50^{\circ}$ F (Hammerson 1982). Tadpoles are seen in ponds during the day and can be sampled with a dipnet. Surveying is complicated by the long time periods which this species spends underground, especially during droughts.

Status: The Plains Spadefoot is not known from HNF lands; the nearest record is from Helena in 1988. Locally common in eastern Montana; there are large gaps in the known range. It should be watched for at low elevations in prairie or shrub-steppe habitat on the HNF. Any located on the HNF should be well-documented.

Montana Natural Heritage Program rank: G5 S4?

Occurrences of Northern Leopard Frog on or near the Helena National Forest, Montana



Northern Leopard Frog (*Rana pipiens*)

Description: Adults are brown or green with large, dark spots surrounded by light-colored halos on the sides and back. The dorso-lateral folds (ridges along the sides of the back) are usually lighter in color than the surrounding background. The under-side is typically white, but may be cream-colored or yellowish. The adult has a body length of 2-5". Newly transformed froglets may lack spots and are about 1" in length (Leonard *et al.* 1993).

Eggs and Tadpoles: Eggs are laid in 2-5" globular masses composed of hundreds to thousands of eggs (Hammerson 1982a, Nussbaum *et al.* 1983). The tadpoles are brown to dark brown on top with some metallic flecking, whereas the underside is often nearly transparent (Nussbaum *et al.* 1983). Total length of tadpoles may reach more than 3"; the eyes are located on top of the head.

Similar species: None, although some newly-transformed froglets may lack spots, which makes them extremely difficult to distinguish from Spotted and Wood Frogs.

Habitat and Habits: Northern Leopard Frogs are found in or near water in non-forested habitats. Vegetation is typically dense, as in a cattail marsh or dense sedge-meadow. Breeding takes place in lakes, ponds (temporary and permanent), springs, and occasionally backwaters or beaver ponds in streams. In Colorado, eggs hatch in 4-15 days and tadpoles take 8-15 weeks to metamorphose, depending on water temperature (Hammerson 1982a).

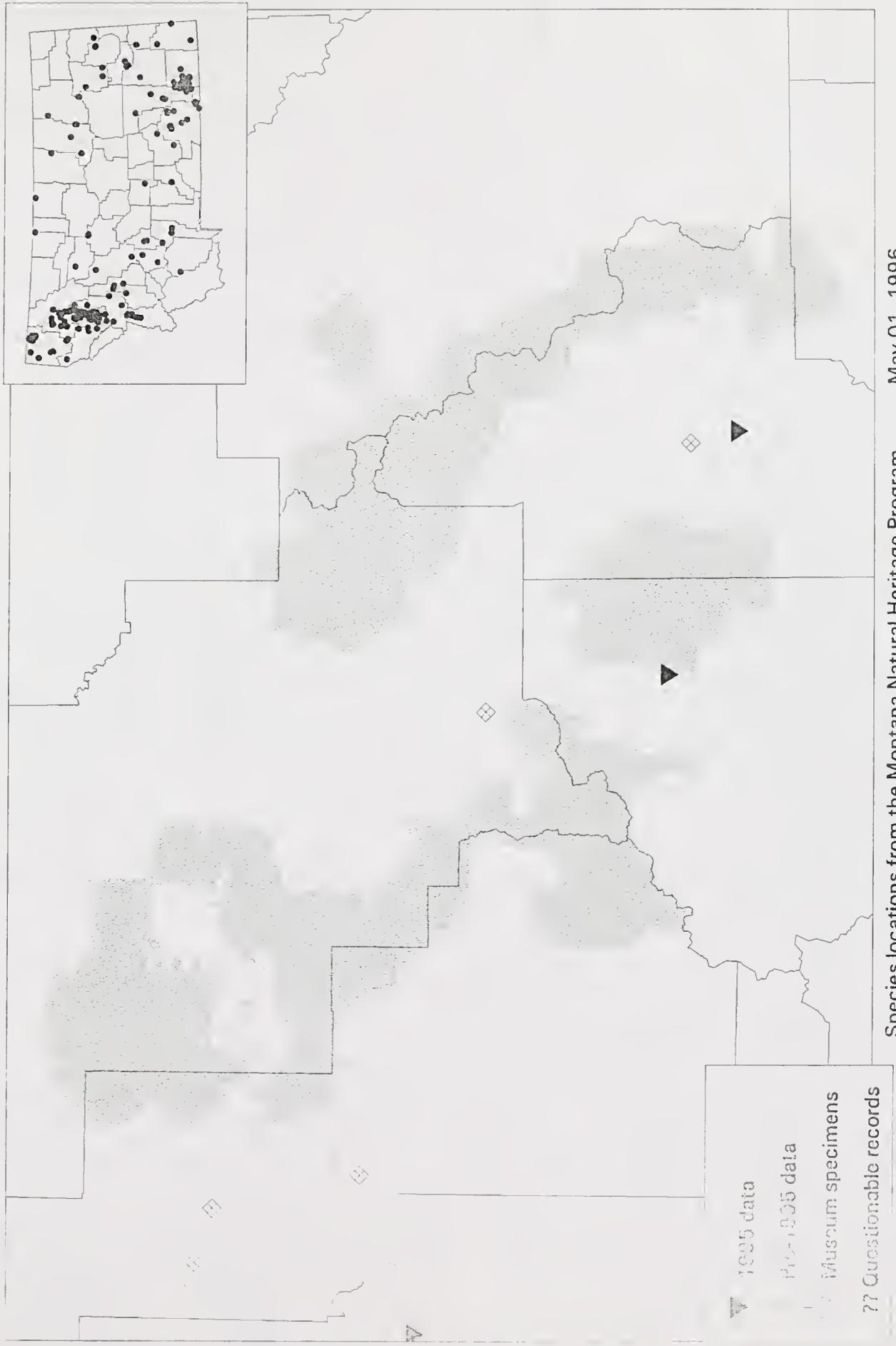
Surveying: Both adults, tadpoles, and eggs are easily seen in and along the water during the day and can be sampled with a dipnet; adults may also be captured by hand. At very low densities adults may be difficult to find and may be detected using a call recorder. Tadpoles are difficult to tell from those of the Spotted Frog in areas where the two species may overlap.

Status: Historically, the Northern Leopard Frog was widespread in Montana but it now appears to be extinct throughout much of the western part of the state. It is still common and widespread in the southeastern corner of the state, but it may be declining in central and northeastern Montana. It appears that only localized populations are present on the western edge of the plains. A single report of this frog is known from the HNF; an observation of one was made near McDonald Pass in 1994. Given the recent declines in this species and the unusual habitat, this record should be treated as hypothetical until verified. Several other records exist from near HNF lands at lower elevations. The most recent record was of a few individuals seen at the Deepdale Fishing Access south of Townsend in 1994; however, despite three surveys, none were seen in 1995. Due to its significant decline and lack of current reports from the HNF, all sightings of this species should be documented.

Northern Leopard Frogs are now absent from many other areas in North America where they were common a few decades ago. Widespread extinctions are known from Alberta (Koonz 1993), Wyoming (Koch and Peterson 1995), Colorado (Hammerson 1982b, Corn and Fogelman 1984), Idaho (Groves and Peterson 1992), Washington, and Oregon (Leonard *et al.* 1993). Bullfrog and fish introductions, acid rain, ozone depletion, immune system suppression, and "Postmetamorphic Death Syndrome" have all been suggested as causes for frog extirpations in other areas (Corn and Fogelman 1984, Hammerson 1982b, Carey 1993, Leonard *et al.* 1993).

Montana Natural Heritage Program rank: G4 S3S4.

Occurrences of Painted Turtle on or near the Helena National Forest, Montana



Species locations from the Montana Natural Heritage Program, May 01, 1996

Painted Turtle (*Chrysemys picta*)

Description: Adult Painted Turtles have a relatively flat dorsal shell, or carapace, the length of which may reach 9" in females and 7" in males. The background color of the shell may be dark brown, olive, or black. A series of short, irregular yellow lines are often scattered across the shell, and a red and black border forms the outer edge. The ventral shell, or plastron, is red with a centrally-located yellow and black blotch with edges flaring out along the border of the scutes. The edge of the plastron also has a series of black and yellow blotches. The head, neck, and legs are marked with yellow lines and a red spot appears behind the eye. Very dark colored individuals are occasionally found. Males are distinguished by longer front claws and longer tails with the anus posterior to the margin of the carapace (Ernst *et al.* 1994).

Eggs and Young: The elliptical, white, soft-shelled eggs are about 28-35 mm in length and 16-23 mm in width (Ernst *et al.* 1994). They typically number 6-23 per clutch. Coloration of young Painted Turtles is more vibrant and the shell is not quite as flattened as adults.

Similar Species: None.

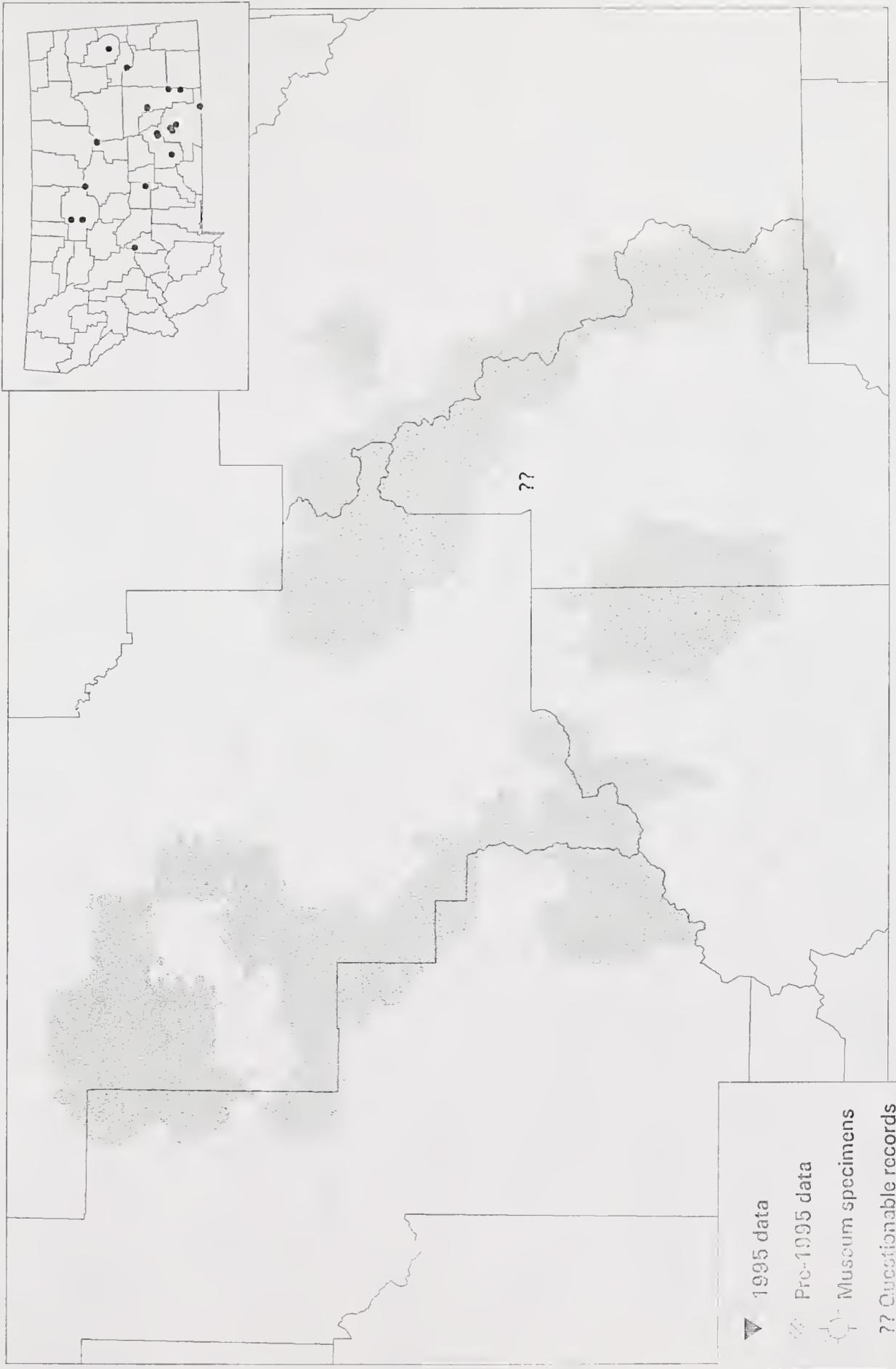
Habitat and Habits: Painted Turtles are active during the day and are rarely seen far from ponds, lakes, or the slow-moving water of streams. Adults are primarily herbivorous, feeding on a variety of aquatic plants, but will also scavenge on animal remains. Eggs are usually laid within 10-20 feet of the water's edge, although some individuals will travel up to 600 m seeking a suitable site. During egg-laying, the female excavates a hole with her hind feet and deposits the eggs, which are then covered by several inches of dirt. Predation on turtle eggs by raccoons, skunks, etc. is common, and shell fragments are evidence of such activity. Female Painted Turtles may lay more than one clutch of eggs each summer. Young borne of late egg depositions overwinter in the nest and do not emerge until the following spring (Ernst *et al.* 1994). Once females lay their eggs, they return to the pond, where they can often be seen basking on logs or rocks along with juveniles and males. Painted Turtles are sexually mature at 3-5 years of age and may live to be 30 years or older (Ernst *et al.* 1994).

Surveying: Although various turtle traps can be used for surveys, visual identification is suitable for presence/absence studies since the three turtle species in Montana are easily distinguished. Basking peaks at different times during the day, depending on season and location; in the northern states and Canada it generally peaks in the morning. Surveys should be done on sunny days with a pair of binoculars. During cold or cloudy weather, turtles tend to remain underwater for long periods and can be missed on a walk-through survey.

Status: Painted Turtles are locally quite common in Montana at lower elevations. They were not found on the HNF. However they are known from lower elevation areas on the plains adjacent to the forest, and were reported within ¼ mile of the forest boundary by A. Harper and S. Hendrickson (pers. comm.) in the western Elkhorn Mountains. They probably occur on the HNF at low elevations; any sightings should be documented. There has been some concern about Painted Turtle populations nationally; whether declines have occurred in Montana is unknown

Montana Natural Heritage Program Rank: G5 S5.

Occurrences of Spiny Softshell on or near the Helena National Forest, Montana



Spiny Softshell (*Trionyx spiniferus*) (= *Apalone spinifera*)

Description: Spiny Soft-shells have flexible, leathery shells. The carapace is olive-gray, marked with dark spots. The plastron is white or light cream-colored. Female carapace length is up to 18 inches or more, whereas males are typically 6-8 inches. The nostrils are terminal, allowing this turtle to remain entirely beneath the surface and take air through its "snorkel."
Eggs and Young: The nest is a flask-shaped excavation containing 4-39 (typically 12-18) hard-shelled, spherical, white eggs. The individual eggs range in size from 24-32 mm in diameter and average about 28 mm. Hatchlings resemble adults and are 30-40 mm in shell length (Ernst *et al.* 1994).

Similar Species: None.

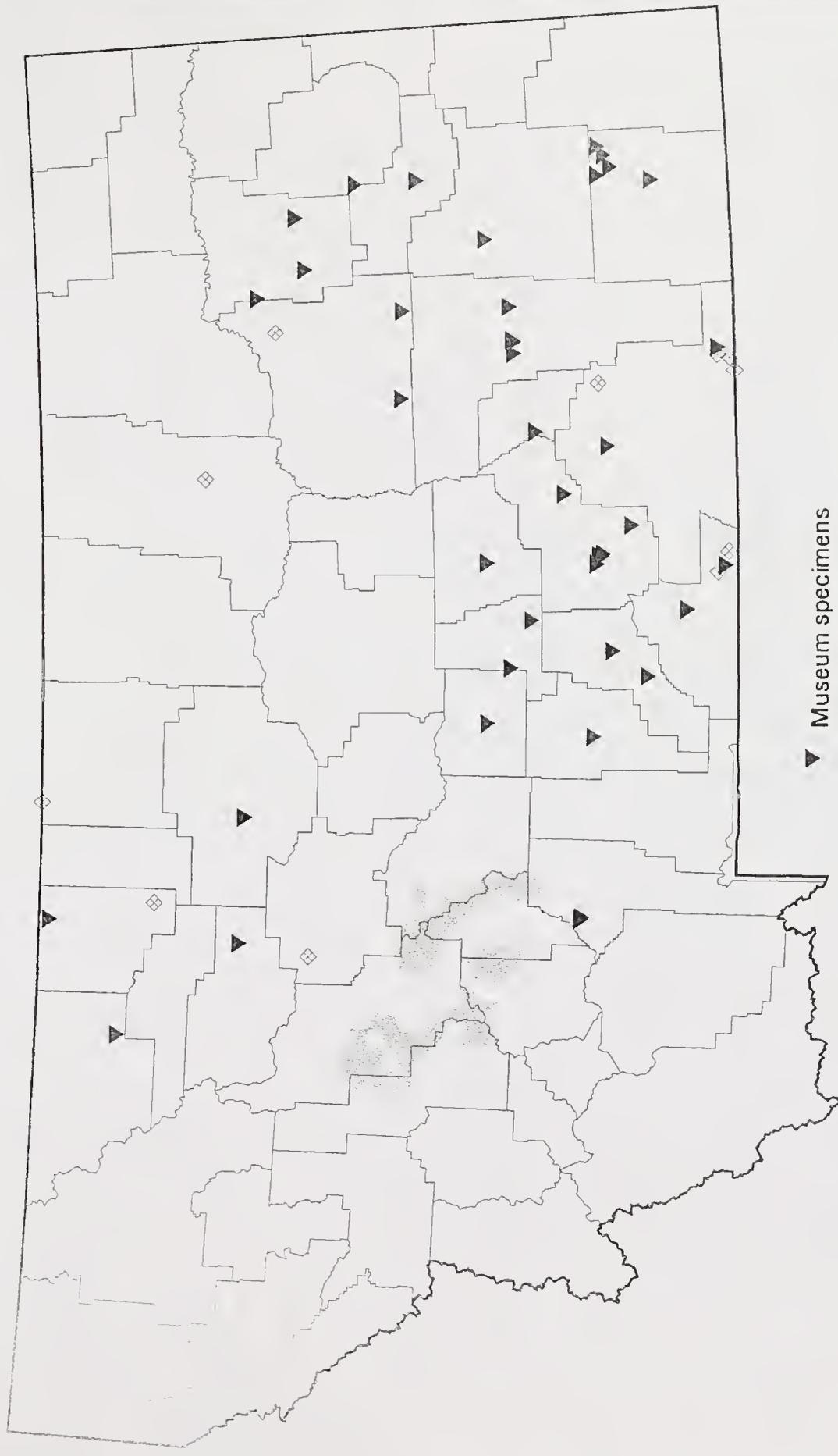
Habits and Habitat: Spiny Softshells are active during the day. This highly aquatic turtle is found in rivers or their connecting backwaters with muddy or sandy bottoms. Unlike other Montana turtles, they do not move overland from one water body to another. Mud and sand banks and bars are used for both basking and nesting. Hibernation takes place beneath the water, usually beneath 5-10 cm of bottom substrate (Ernst *et al.* 1994). The retracted head and neck combines with the profile of the shell to produce a wedge shape, which allows this turtle to escape by literally diving into the bottom mud. If necessary, additional strokes of the legs will completely bury it in the substrate, hidden from view. Food items include fish, crayfish, frogs, toads, aquatic insects, and carrion. Spiny Soft-shells have a surprisingly long, agile neck and can inflict a painful bite. They can be safely handled by grasping the shell on each side between the front and rear legs with the head pointing *away* from the captor.

Surveying: Although various turtle traps can be used for surveys, visual identification is suitable since the three turtle species in Montana are easily distinguished. A pair of binoculars is helpful and surveys should be done on warm sunny days; basking seldom takes place before 10:00 a.m. (Ernst *et al.* 1994). During cold or cloudy weather, turtles tend to remain underwater for long periods and can be missed on a walk-through survey. Care should be taken to watch for the snorkel-like nostrils projecting just above the surface of the water.

Status and Distribution: Found mainly in the Yellowstone and Missouri Rivers and their major tributaries. These populations may be separated from each other and are believed to be disjunct from the population in South Dakota (Ernst *et al.* 1994); they have not been reported from North Dakota (Wheeler and Wheeler 1966). The Missouri River population is known from the tail of Fort Peck Reservoir upstream to the first dam above, and from most of the Mussellshell River; their presence on other tributaries is presently unknown. A specimen was reported by Black (1970) from Canyon Ferry Reservoir, however, no museum has reported having one, nor have recent biologists in the area reported them here; it should be treated as hypothetical given the long distance to the nearest record. Any located on the HNF should be documented and reported. Considered a Species of Special Concern in Montana.

Montana Natural Heritage Program Rank: G5 S3. Species of Special Concern.

Distribution of Short-horned Lizard in Montana



Species locations from the Montana Natural Heritage Program, May 17, 1996

Short-horned Lizard (*Phrynosoma douglasi*)

Description: The Short-horned lizard has a broad, somewhat flattened body and relatively short limbs and tail. It is generally tan to gray with dark and light spots and blotches; the belly is white. There is a distinctive line of pointed scales along each side, and the head has short, blunt "horns" pointing backward. Adult lizards range from 1.7 - 5.5" in length.

Young: Young are live-born and resemble small adults.

Similar species: None.

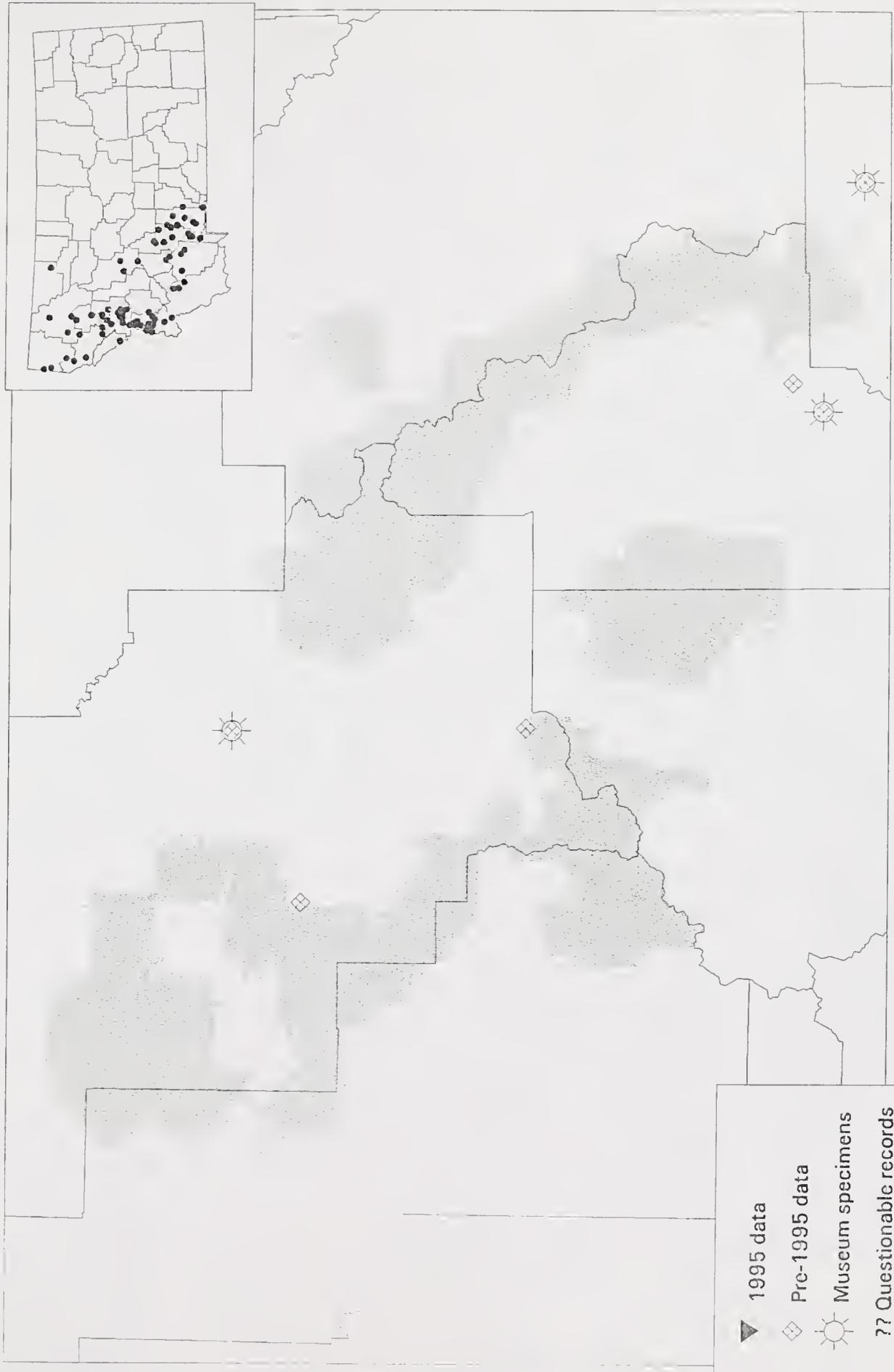
Habitat and Habits: The Short-horned lizard is found in a variety of habitats, including dry open forests, grasslands, and sagebrush; the soil is usually loose or sandy. In firmer soil situations, it may use the burrows of other animals. It is active during the day, typically with the peak of activity in mid-late morning. A Short-horned Lizard may squirt blood from its eyes when disturbed. Little is known about reproduction in this part of the range; young are born in late summer. Ants are the primary food of the species.

Surveying: They may be surveyed for by slowly walking through appropriate habitat and watching carefully for them; look carefully near ant mounds; this technique has low success with Short-horned Lizards however. As with many lizards and snakes, they are easily missed. Carefully documented incidental observations may provide the best clues to their distribution. They may be also taken in pitfall or funnel traps in combination with drift fences.

Status: The Short-horned Lizard subspecies found in Montana (*P. d. brevirostra*) is currently a U.S. Fish and Wildlife Service Category 2 Candidate species (U.S. Fish and Wildlife Service 1994). It is widely distributed (but apparently localized) in eastern Montana. There are no records from the Helena National Forest, but there are records from the Three Forks area to the south (Reichel and Flath 1995). The most likely places to find this species would be in near the south ends of the Big Belt and Elkhorn Mountains at low elevations. This species may be vulnerable to collecting for the pet trade and agricultural conversion of native habitats. It should be watched for in open pine, prairie, or shrub-steppe habitat with loose or sandy soils; all sightings should be documented.

Montana Natural Heritage Program Rank: G5 S4. A Species of Special Concern.

Occurrences of Rubber Boa on or near the Helena National Forest, Montana



Species locations from the Montana Natural Heritage Program, May 01, 1996

Rubber Boa (*Charina bottae*)

Description: The Rubber Boa looks and feels like rubber, hence its name. It is a small snake (14-33" length), stout, and uniformly-colored either brown or green on the dorsal side. The ventral surface is cream to tan in color. The scales are small and smooth, except for those on the head which are enlarged. The tail is short and blunt and the eyes are very small. It is a very slow moving snake which can easily be caught if detected.

Young: Rubber Boas are born alive and young are more tan (or even pinkish) than the adults on both the dorsal and ventral surfaces.

Similar species: The Racer is much quicker and more active, has larger eyes, and a thin, tapered (not blunt) tail.

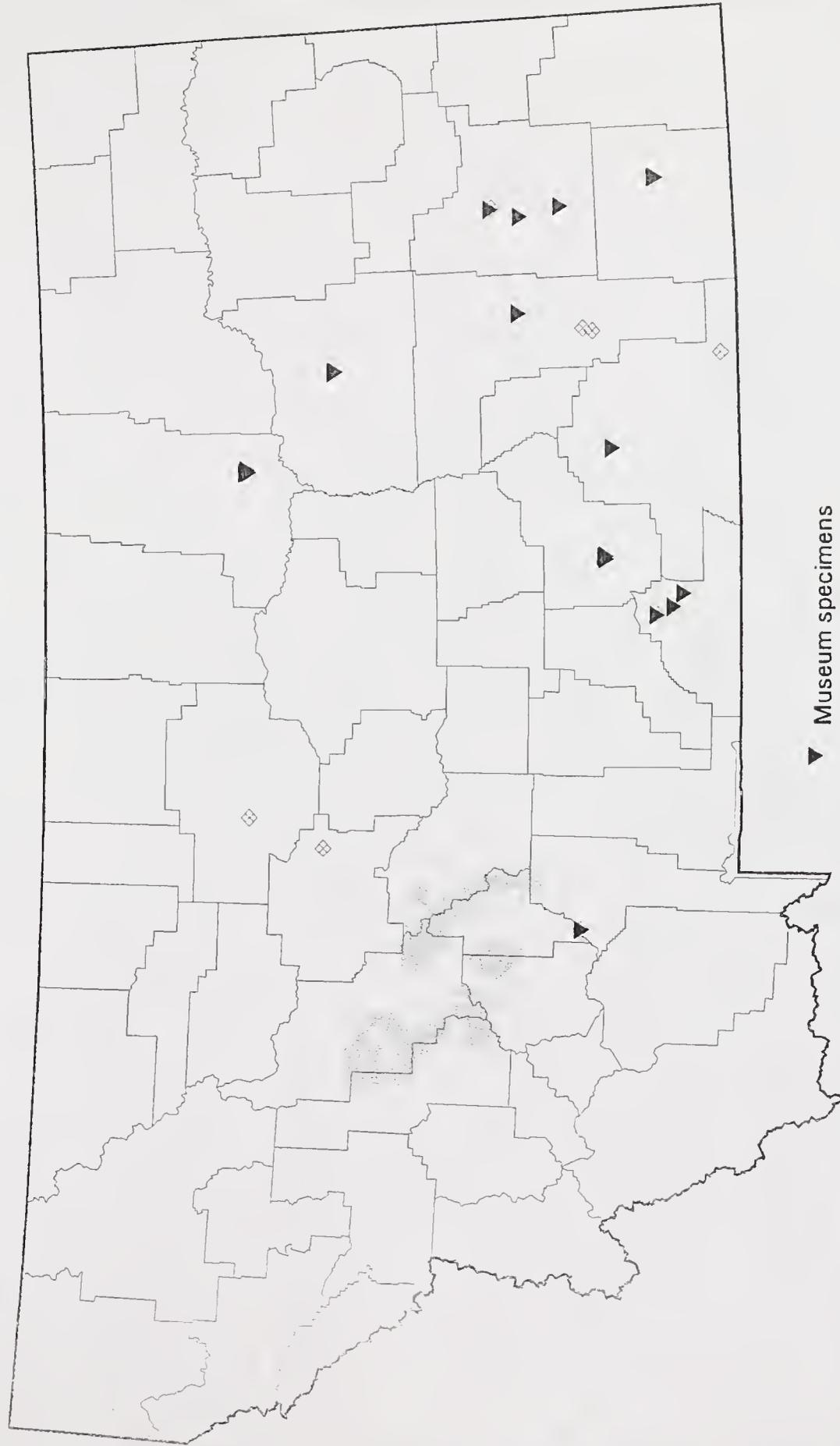
Habitat and Habits: The Rubber Boa is a secretive, slow-moving, docile snake, usually found under logs and rocks in either moist or dry forest habitats, but rarely in marsh or bog situations. Denning locations are typically in areas with fractured rock on south facing slopes; recent data indicates it rarely moves more than a short distances from its den (Peterson pers. comm). Occasionally this snake is seen sunning itself on a road, trail, or open area, but it is primarily nocturnal. Feeding is primarily on small mice, but also on shrews, salamanders, snakes and lizards. Two to eight young are born alive in late summer or early fall.

Surveying: There are no practical methods for surveying other than systematic searches of a given area rolling over rocks, logs, etc. Driving roads at night, particularly after a rain when the temperature is $> 10^{\circ}$ C, may be more effective, especially on roads which follow a stream. Previous sightings are of value in locating general areas of activity and denning sites. Funnel traps may be effective.

Status: Sightings of Rubber Boas are infrequent, but they are widely distributed and probably common throughout western Montana. They were not found during this survey, nor are there historic records of their presence definitely located on the HNF. However, a record from Grizzly Gulch in 1994 may have been on the forest. They probably occur throughout the Rocky Mountains of the HNF at low to mid-elevations. They should be watched for on the HNF; any sightings should be documented. Of particular interest would be any reports of this species from the Elkhorn or Big Belt Mountains or documentation of any denning sites located.

Montana Natural Heritage Program Rank: G5 S4.

Distribution of Milk Snake in Montana



Milk Snake (*Lampropeltis triangulum*)

Description: The Milk Snake is a slender and medium-sized snake (to 42 inches in length or more), with smooth scales. It has a highly recognizable series of red to orange saddles or rings that are bordered by black bands and separated by white or yellow bands. Width of dark and light bands can vary widely. The subspecies in Montana (*L. t. gentilis*) tends to be paler, with orange bands replacing red, and a light belly with few or no black spots.

Similar species: None in Montana.

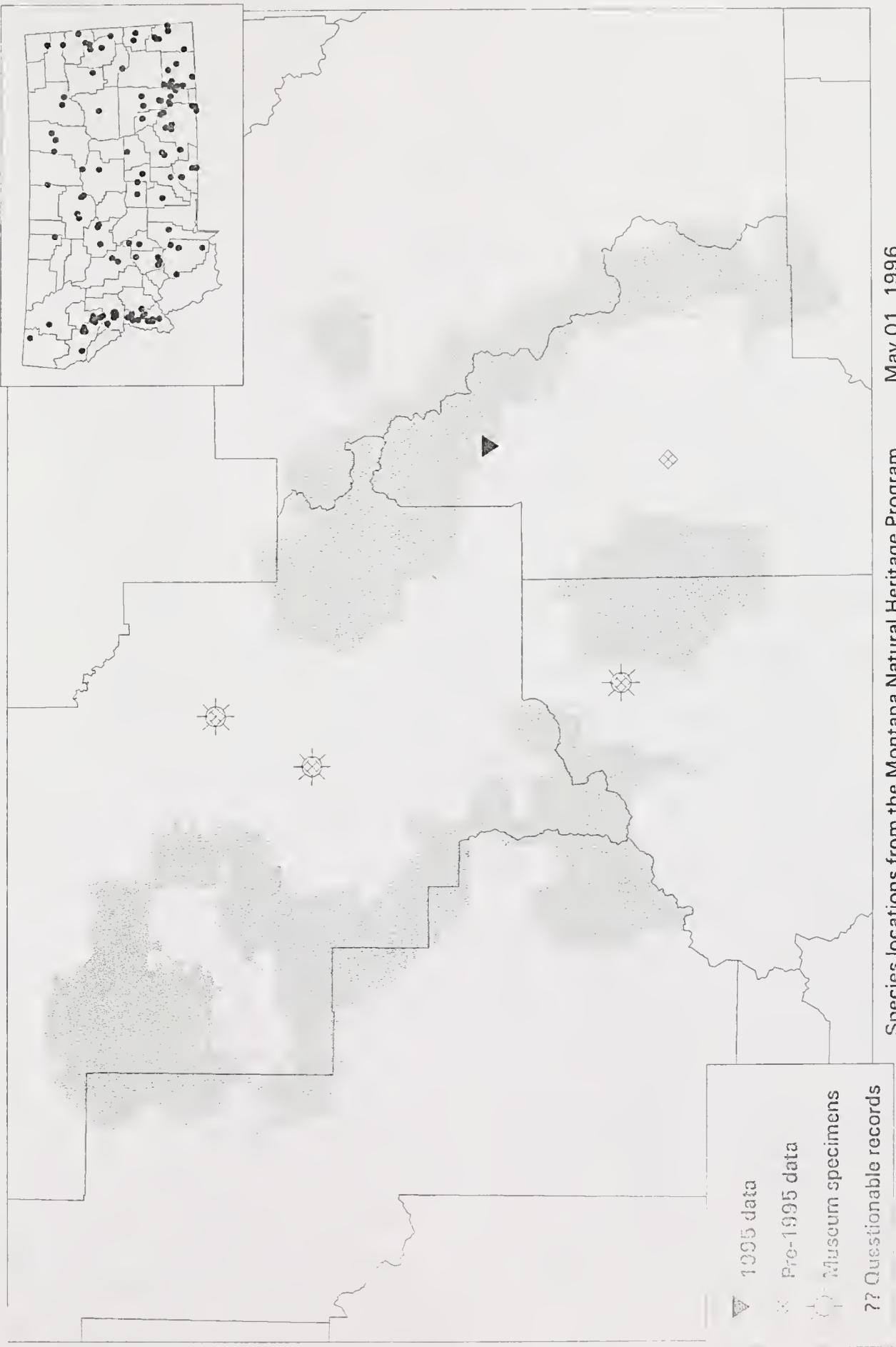
Habitat and Habits: Little is known of Milk Snakes in Montana because only a few have been reported. In Wyoming and elsewhere they are usually found near cliffs, talus, outcrops, and rocky hillsides in forested and open country. They can be found in or under rotten logs. Milk Snakes are secretive and most active at night. They eat a variety of vertebrates, including other snakes, lizards, eggs, small mammals, and sometimes invertebrates such as earthworms and insects. Eggs are laid in mid-summer. Milk Snakes sometimes vibrate their tails when disturbed. Their name stems from an old tale alleging that these snakes milk cows.

Surveying: Timed-sight surveys may be conducted around cliff bases and outcrops; turning over rocks in these areas may be very effective in May and early June (L. Vitt, pers. comm.). Most distributional information will likely come from recording incidental sightings.. More intensive research may be done using funnel traps in combination with drift fences. The most intensive research and survey projects may use mark-recapture or radio-telemetry techniques.

Status: Milk Snakes are very rare and local in Montana. There are no records from the Helena National Forest, but there are records from the Three Forks area to the south (Reichel and Flath 1995). The most likely places to find this species would be in rocky canyons on the south ends of the Big Belt and Elkhorn Mountains. The subspecies found in Montana is highly sought for the pet trade. All records of Milk Snakes should be fully documented; of particular interest would be documentation of denning sites.

Montana Natural Heritage Program Rank: G5 S2. A Species of Special Concern.

Occurrences of Gopher Snake on or near the Helena National Forest, Montana



Species locations from the Montana Natural Heritage Program, | May 01, 1996

Gopher Snake (*Pituophis catenifer* [=melanoleucus])

Description: Montana's largest snake, the adult Gopher Snake (also called Bullsnake or Pine Snake) can reach a total length of 7 feet, but most specimens seen in western Montana range between 3-5 feet. It is readily recognized by a series of large black to brown blotches which run down the back, and another series along the sides. The blotches, which are set on a yellow background, become more widely spaced and darker towards the tail. The dorsal scales are keeled. There is usually a black band on the head located in front of and extending below the eyes. The ventral coloration is yellow to white, often spotted with black, and the anal plate is undivided.

Eggs and Young: Gopher Snakes lay between 2-24 eggs during the summer months (Hammerson 1982a), and the young resemble the adults in coloration.

Similar species: Young Racers have a black border on dark blotches and the scales are not keeled. Young Western Hognose Snakes have an upturned nose. Western Rattlesnakes have a rattle on their tail and triangular shaped heads.

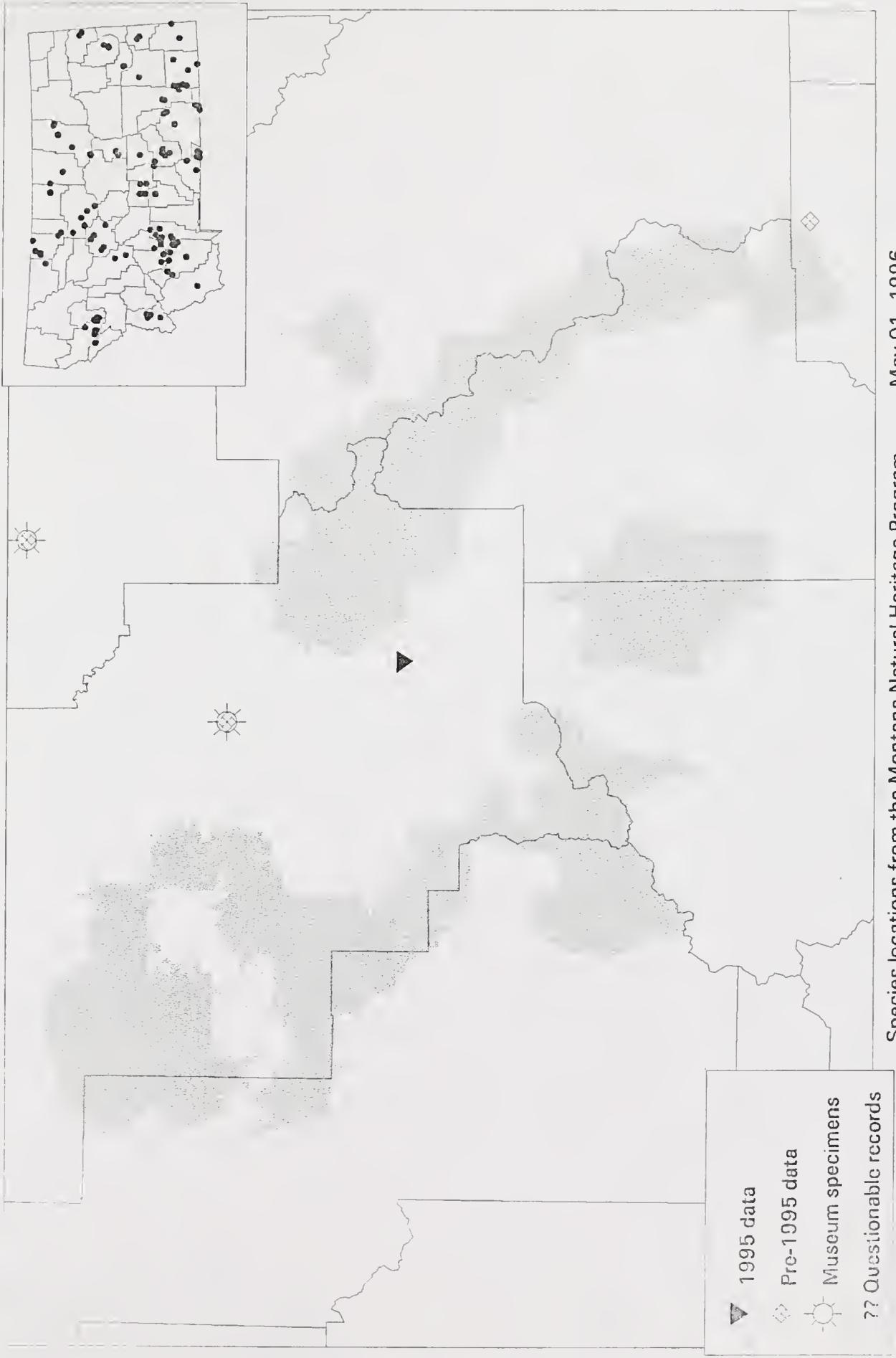
Habitat and Habits: Gopher Snakes are associated with dry, arid habitats including grassland, shrub-steppe, and open pine forest. They feed on rodents, rabbits and ground dwelling birds, and to a lesser extent on frogs, toads, etc., found around stock ponds and other wetlands. They have a habit of hissing and vibrating the tail when alarmed, often sounding like rattlesnakes. They occasionally climb trees, hence the common name "Pine Snake."

Surveying: Walk-through surveys, done on a regular basis in warm, sunny weather probably give the best results without resorting to trapping techniques. They are most easily found near dens in the spring and fall. Funnel trapping is effective and they may occasionally be found by night driving during the mid-summer. Data can be enhanced by mark-recapture techniques.

Status: The Gopher Snake was not seen in this survey nor are there historic records from the HNF. However they are known from lower elevation areas on the plains adjacent to the forest, and were reported within ¼ mile of the forest boundary by A. Harper and S. Hendrickson (pers. comm.) in the western Big Belt Mountains. They almost certainly occur on the HNF at low to mid-elevations; any sightings should be documented. Of particular interest would be documentation of any denning sites located.

Montana Natural Heritage Program Rank: G5 S5.

Occurrences of Western Rattlesnake on or near the Helena National Forest, Montana



Species locations from the Montana Natural Heritage Program, May 01, 1996

Western Rattlesnake (*Crotalus viridis*)

Description: Rattlesnakes have a heat-sensing pit located between the nostril and the eye. The fangs are hollow and hinged, allowing them to be folded back against the roof of the mouth. The head is triangular in shape and blunt-nosed. The eyes are slightly elevated. There are several white lines which run along the side of the head. Adult Western Rattlesnakes have a narrow neck but a stout body with total length ranging from 15-60 inches. The dorsal background color varies from pale green to brown with a series of brown or black blotches edged with a dark and then light line extending the length of the body. The blotches often merge into rings on the tail. There are also blotches on the sides of the body. The ventral side is pale yellow to white and without blotches. The scales are keeled. The tail ends in a rattle which helps to warn potential predators of the snake's presence. The young have the same color pattern, but are brighter in color than adults.

Similar species: No other snake in Montana has rattles, but see Racer, Gopher Snake and Western Hognose Snake which may have similar color patterns.

Habitat and Habits: The Western Rattlesnake is an inhabitant of more open and arid country but it is also found in Ponderosa pine stands or mixed grass-coniferous forests. It is more likely to be encountered on south-facing slopes and areas of rock outcrops. It is feared and often needlessly killed due to its poisonous bite. Rattlesnakes may den in large numbers, moving up to 7 miles out from the dens during the summer (Peterson, pers. comm.); den sites are most common in south-facing talus slopes. In Wyoming, it is found up to elevations of over 8500 feet (Baxter and Stone 1985). Rattlesnakes prey on a variety of animals including mice, ground squirrels, rabbits, amphibians, and other snakes. In Colorado, females give birth to 4-21 young during the summer (Hammerson 1982a).

Surveying: A walk-through survey on a warm sunny day is probably the best method for determining presence/absence; it is easiest to find near den sites in spring and fall. Funnel traps and night driving are both effective techniques. Mark-recapture methods can be used to determine more precise numbers.

Status: The Western Rattlesnake was not been found in the HNF but is known from lower elevation areas to the north, south, east and the valleys between the mountain ranges. It would most likely be encountered at lower elevations in open habitats. The habit of denning at traditional sites in large numbers makes rattlesnakes vulnerable to commercial collecting or simply killing by fearful people. Observations of Western Rattlesnakes should be reported to document the presence of this species on the HNF; of particular interest would be documentation of any denning sites located.

Montana Natural Heritage Program Rank: G5 S4.

Regional Information

Rocky Mountain chain: The Tailed frog was only reported from the main Rocky Mountain range of the HNF in the Lincoln District. It appears to be more localized on the HNF than in areas to the west and north. It is not known on the HNF to the south of the Blackfoot River. Electro-shocking fish surveys should be used to determine how widespread this species is; all incidental observations should be recorded.

Other species found during surveys, or for which historic locations are known, on the Rocky Mountains of the HNF include the: Long-toed Salamander, Western Toad, Spotted Frog, Racer, Western Terrestrial Garter Snake, and Common Garter Snake. All of these species are also present in the Elkhorn and/or the Big Belt Mountains. The Western Toad was only found breeding at two locations on the forest; this may be a function of the small amount of sampling or the apparent decline in much of western Montana. Both breeding locations should be considered for monitoring to see if Western Toads continue to breed at them and are successfully reaching metamorphosis. Substantial populations of the Spotted Frog were found throughout the range; it was more commonly encountered than any other amphibian or reptile, though ironically it is one of the two C-2 Candidate species present on the HNF. A beaver pond area on a tributary of Beaver Creek might be considered for long-term monitoring of Spotted Frogs and Long-toed Salamanders; it currently has very large populations of both species. Concerned citizens might be willing to participate in long-term surveys. The Racer was not found during our surveys; the only historic records for the Rocky Mountains on the HNF are from Davis (1963), which is a large-scale state map with dots which appear to fall on the Forest. The Western Terrestrial Garter Snake appears to be the most common reptile on the forest. It is perhaps 2-5 times as common as the Common Garter Snake, which may be undergoing a decline in Montana, Idaho, and elsewhere.

Given the low numbers of locations for any amphibians or reptiles on the HNF, all sightings of any species should be recorded. A possible exception would be for Spotted Frogs; however, breeding locations found should be recorded even for this species until more are known and mapped. Of particular interest would be records of the following species which have not yet been recorded on the Forest: Western Chorus Frog, Plains Spadefoot, Northern Leopard Frog, Painted Turtle, Rubber Boa, Gopher Snake, and Western Rattlesnake. All of these potentially present species, except the Rubber Boa, are most likely to be seen at low elevations in open habitat. Additionally, the reported sites for Northern Leopard Frog and Western Chorus Frog near McDonald Pass should be revisited.

Elkhorn Mountains: No species were restricted to the Elkhorn Mountains. The Long-toed Salamander is found in the northwestern part of the Elkhorns, the farthest east reported location in its range. The Elkhorns are the only isolated mountain range east of the Continental Divide where this species is found. Given this unique situation, the distribution should be carefully mapped.

Other species found during surveys, or for which historic locations are known, in the Elkhorn Mountains on the HNF include the Spotted Frog and Common Garter Snake. Both of these species are also present in the main Rocky and/or the Big Belt Mountains. Substantial

populations of the Spotted Frog were found throughout the range; it was more commonly encountered than any other amphibian or reptile, though ironically it is one of the two C-2 Candidate species present on the HNF. The Common Garter Snake is known from a single location.

The Western Toad was collected along Prickley Pear Creek in Jefferson County in 1951. Whether or not this was located on the HNF is unknown; it was not located during our surveys. Perhaps the best chance of finding the Milk Snake on the HNF occurs in the southeastern Elkhorns, given a known site to the south near Three Forks and its secretive habits. It seems doubtful that the Tailed Frog is found in the Elkhorn Mountains given the intensity of surveys (A. Harper, pers. comm.), and the surveyors specifically watching for the species, during the summer of 1995.

Given the meager information available from this range, and the Western Toad (known to be declining) recorded from historic records but not relocated, all sightings of amphibians and reptiles are of interest from this range and should be recorded. More baseline distribution information, particularly for species not yet recorded and breeding sites for known species, is necessary before monitoring sites are chosen.

Big Belt Mountains: The only species reported from the Big Belt Mountains on the HNF were the Spotted Frog, Racer, and Western Terrestrial Garter Snake. While Spotted Frogs appeared to be common and widespread in this range, they did appear more localized than in either the Elkhorns or main Rocky Mountains. The Racer was not found during our surveys; the only historic records for the Rocky Mountains on the HNF are from Davis (1963), which is a large-scale state map with dots which appear to fall on the Forest. The Western Terrestrial Garter Snake was found at two locations and is probably wide-spread in the range.

The Western Toad was collected historically just east of the HNF in the Big Belts, but was not located during our surveys. Perhaps the best chance of finding the Spiny Softshell or Woodhouse's Toad on the HNF occurs in the Missouri River; both have questionable historic records there. Given the meager information available from this range, and at least one species known from historic records but not relocated, all sightings of amphibians (except perhaps Spotted Frogs) and reptiles are of interest and should be recorded. Even for Spotted Frogs any breeding locations found should be recorded. Such baseline distribution information is necessary before monitoring sites are chosen.

Dry Range: No herps are known from this range; there are no historic specimen records and we did not survey in the range in 1995. Given the total lack of information available from this range, all sightings of amphibians and reptiles are of interest and should be recorded. Baseline distribution information is necessary before monitoring sites are chosen.

RECOMMENDATIONS

Surveys, Monitoring and Research

- 1) All incidental sightings of amphibians and reptiles from the HNF should be recorded and forwarded to the Natural Heritage Program, which is the central depository for amphibian survey and monitoring data from Montana in cooperation with the regional Declining Amphibian Task Force. For the Spotted Frog, only breeding locations are necessary to record. A half-day training session for biologists (including seasonal employees) and other interested field people in May would raise awareness of this data need, and provide the training required for accurate identification of animals observed.
- 2) Special efforts should be made to increase our knowledge of the range and biology of those species which are either uncommon (Tailed Frog, Western Toad) or for which no records exist within the Forest (Western Chorus Frog, Woodhouse's Toad, Plains Spadefoot, Northern Leopard Frog, Painted Turtle, Spiny Softshell, Short-horned Lizard, Rubber Boa, Milk Snake, Gopher Snake, and Prairie Rattlesnake). One of the most efficient ways of accomplishing these objectives is to encourage individuals to fill out incidental sighting reports and submit them to the Montana Natural Heritage Program for entry into the species database. Certainly all Tailed Frogs (larvae and adults) found during fisheries surveys should be recorded; this is the most efficient way to get data on this species.
- 3) Due to the time constraints and the large area covered in the 1995 survey, it should not be regarded as a definitive index of all the herptiles or their distribution on the HNF. The secretive habits of many amphibians and reptiles, and our lack of knowledge regarding their reproductive behavior makes it difficult to assess their overall status. We recommend that additional surveys be conducted, concentrating on: A) potential Western Toad and Northern Leopard Frog breeding sites; B) low-elevation, xeric habitats (including wetlands within this matrix) for reptiles and plains-dwelling amphibians; and C) gathering additional distribution information from the Big Belt, Elkhorn and Dry ranges.
- 4) Begin a monitoring program, surveying the two known Western Frog breeding sites, and the beaver pond on a tributary of Beaver Creek where large numbers of Spotted Frogs and Long-toed Salamanders breed. This should be a twice-yearly monitoring, once in late spring to determine if breeding took place and once in mid-late summer to check if larva are successfully transforming. Monitoring of Tailed Frogs could be done in conjunction with fish monitoring by electro-shocking, when sites are more well known. When more breeding locations for amphibians are known in the Elkhorns and Big Belts, long-term monitoring of typical marsh-pond habitats should be set up at several sites in order to evaluate relative numbers and breeding success of the more common species: Long-toed Salamander, Spotted Frog, Western Toad, Western Terrestrial Garter Snake, and Common Garter Snake. Particular attention needs to be given to any Western Toad and Northern Leopard Frog breeding sites found.

5) Life history and ecology of the amphibians in Montana is poorly known for most species. Long-term monitoring will provide information on timing of, and habitat requirements needed for, successful breeding.

6) We recommend that any areas that are under consideration for mining, road building, extensive logging operations, or other large-scale habitat altering activities be surveyed thoroughly for amphibian presence and breeding activity. Particular attention should be given documenting the presence of either Western Toads or Northern Leopard Frogs. This is particularly important for toads in higher elevation areas where the potential for UV damage is greater.

Management

1) With an increasing number of amphibian species declining for various reasons, it seems reasonable to pro-actively manage habitat to support them. While not all ways of preserving these species are currently known, several management activities could certainly negatively impact them. Without adequate breeding areas, amphibians cannot survive, and the types of water used is often species-specific.

- a) Fish stocking in currently fishless lakes and ponds in which amphibians breed should be carefully evaluated. Fish introductions are thought to be a major factor in frog declines in the Sierra Nevada Mountains and probably elsewhere as well (Hayes and Jennings 1986).
- b) When "improving" springs or seeps for livestock, leave a portion of the area suitable for amphibian reproduction. This could include a small fenced-off area above where water is diverted for storage in a watering tank.
- c) Springs, seeps, and both permanent and temporary ponds should be considered when analyzing effects of land management activities such as grazing, logging, and road building.

2) A critical component of the life cycle in snakes is the wintering den. Many species hibernate in large aggregations in traditionally-used sites. Often these hibernacula are used by several species, and mating for many species takes place at the den site. Snakes then move out for up to 7 miles for the summer, returning in the fall. These sites are typically in areas where snakes can get well down into an area of fractured rock on south-facing slopes, often near cliffs or in talus. While these sites are robust, road building or mining may nonetheless destroy them. Den sites should be protected and data relating to their locations kept where successive biologists have access to them.

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APPENDIX 1.

DATA SHEETS USED FOR

AMPHIBIAN AND REPTILE

SURVEYS AND OBSERVATIONS

AMPHIBIAN SURVEY DATA SHEET: INSTRUCTIONS This data sheet is designed to facilitate quick recording of data from field surveys of amphibians and their habitats. It appears complex and intimidating, but actually can be completed in a short amount of time after a minimum amount of training. Many variables require only the correct choice to be circled, and the remaining variables are numerical and easy to determine. The data sheet is divided into four sections, divided by double lines. Each section describes a cohesive set of variables. In addition to the back of the sheet includes a grid for a rough sketch of the site and space for additional comments. The map is optional, but the future value of the data is enhanced if it is supplied.

SECTION 1 - LOCALITY These data are essential. Many amphibian surveys have been hampered by the inability to relocate exact locations in the historical record. Some of this information can be completed in the office after the survey.

DATE: Use the format DD-MMM-YY (e.g., 05-APR-92).

BEGIN TIME: List the time survey of habitat for amphibians began in 24 hour format.

END TIME: List the time the survey ended in 24 hour format. (The total time (END TIME - BEGIN TIME) should reflect only the amount of time spent searching for amphibians. Total time plus number of observers may be used to assess relative abundance.)

OBSERVERS: List names or initials of all persons involved in searching.

LOCALITY: Describe the specific geographic location of the site. Use air distance in two directions (e.g., 5 km N and 7.5 km W) of a map landmark that likely will not change (distance from a large town or city is not all that helpful).

STATE: Use the 2-letter abbreviation.

COUNTY:

MAP NAME: List the name of the U.S.G.S. quadrangle or other map used to locate the site.

OWNER: List the public land manager (e.g., Roosevelt Nat. Forest or Rocky Mtn NP), or name of the owner if the site is on private land (listing the owner's name will make it clear that you did not trespass to survey the site).

ELEVATION: Circle the scale used; meters are preferred.

T: township

R: range

S: section

SECTION DESCRIPTION: Describe the location of the site within the section (e.g., SE ¼ or NE ¼ of SE ¼)

UTM ZONE, NORTHING, EASTING: Universal Transverse Mercator coordinates

are preferred over longitude and latitude. The UTM zone is listed on newer topographic maps. If you are using a map without the UTM grid, substitute latitude for Northing and longitude for Easting.

SECTION 2 - SPECIES DATA List all amphibian species observed. If garter snakes are seen, list them here also.

SPECIES: Use the scientific name. Convenient shorthand is to use a 4-letter code made up of the first 2 letters of the genus and species (e.g., *Rana sylvatica* would be RASY).

ADULTS/JUVENILES: Indicate presence with a check, but numbers seen are more valuable data

CALLING?: Circle Y if frogs are vocalizing in a breeding chorus, of if a breeding aggregation of species that don't call (e.g., *Bufo boreas*) is observed.

TADPOLES/LARVAE: Same as for adults/juveniles

EGG MASSES: Same as above. Numbers of egg masses are especially valuable data. If possible, describe the developmental stage of eggs in the space for additional notes on the back of the form.

METHOD: Circle how observations were made: **VISUAL/AURAL ID** - species identified without picking it up, either by sight or by recognition of the breeding call; **HAND COLLECTED** - animal was picked up and identified in the field (higher confidence than visual id); **DIP NET/SEINE** - the usual method of collection for larvae; **TRAPPED** - minnow-type traps are also used for larvae; **VOUCHER COLLECTED?** - circle yes or no (voucher specimens are recommended for every site, especially if identification is uncertain and for larvae). Indicate voucher status in addition to method used.

FISH PRESENT?: If yes, list species if you

can. Circle the question marks if you are not certain, but suspect that fish are present.

ENTIRE SITE SEARCHED?: If no, list either the meters of shoreline or the area (m²) of habitat (e.g., amount of wet meadow) searched.

SECTION 3 - PHYSICAL AND CHEMICAL DATA Water chemistry data are difficult to collect accurately without thorough planning and quality equipment; these data are optional. Weather data are important for determining the quality of the observations (e.g., was an absence of amphibians due to observations made during a blizzard?)

WEATHER, WIND: Indicate atmospheric conditions

AIR TEMPERATURE: Take at chest height in shade. The Celsius scale is preferred.

WATER TEMPERATURE: Take 1 meter from margin and at 2 cm depth, or where egg masses are observed.

COLOR: This is a qualitative assessment of whether the water clear or tea-colored from organic (humic) acids.

TURBIDITY: This is a qualitative assessment of whether the water clear or clouded from suspended particulate matter.

SECTION 4 - HABITAT DESCRIPTION These data are important for developing hypotheses to explain changes in abundance of amphibians. This section needs to be filled out only once for each site (a reasonable amphibian survey should include at least 2 - 3 visits to each site in one season).

ORIGIN: Decide whether the lake is a natural geologic formation or man-made. Bodies of water enlarged by a dam are problematic. List them as man-made, but add an explanation in the space for additional notes on the back of the form.

DRAINAGE: Circle whether the site has permanent drainage, no drainage, or

occasional drainage. Determining the potential for occasional drainage requires judgement. Look for clues in the topography and vegetation.

DESCRIPTION: Decide how best to describe the site. If there is evidence of past or present beaver activity, circle one of these choices in addition to your choice.

LENGTH, WIDTH: Record the maximum length and width of lakes and ponds. For streams, record the length and average width of the reach searched.

MAXIMUM DEPTH: Most times, you will not have access to a boat, so estimate depth (deep lakes are usually not important to amphibians).

STREAM ORDER: This is an index of stream size, and you will need a topographic map to determine it. First-order streams have no tributaries, second-order streams are formed by the confluence of two 1st-order streams, third-order streams are formed by the confluence of two 2nd-order streams, and so on.

PRIMARY SUBSTRATE: Circle the type that covers the majority of the bottom of the site.

EMERGENT VEGETATION: Circle the percentage of the margin of the site with emergent vegetation present, and list the dominant species. If you are botanically-disadvantaged, list the categories of the dominant species (e.g., cattail, sedges, etc.).

NORTH SHORELINE CHARACTERS: Describe the north shore of a lake or pond in terms of shallow water and emergent vegetation. This is important in evaluating quality of breeding habitat in some mountain locations

FOREST CHARACTERS: List the closest distance between the water and the surrounding forest, and list the most common tree species. Leave these fields blank if there is no forest. Describe other surrounding habitat types in the notes section on the back of the form.

AMPHIBIAN SURVEY DATA SHEET - US FISH & WILDLIFE SERVICE, 4512 McMURRY AVE, FT. COLLINS, CO 80526-3400

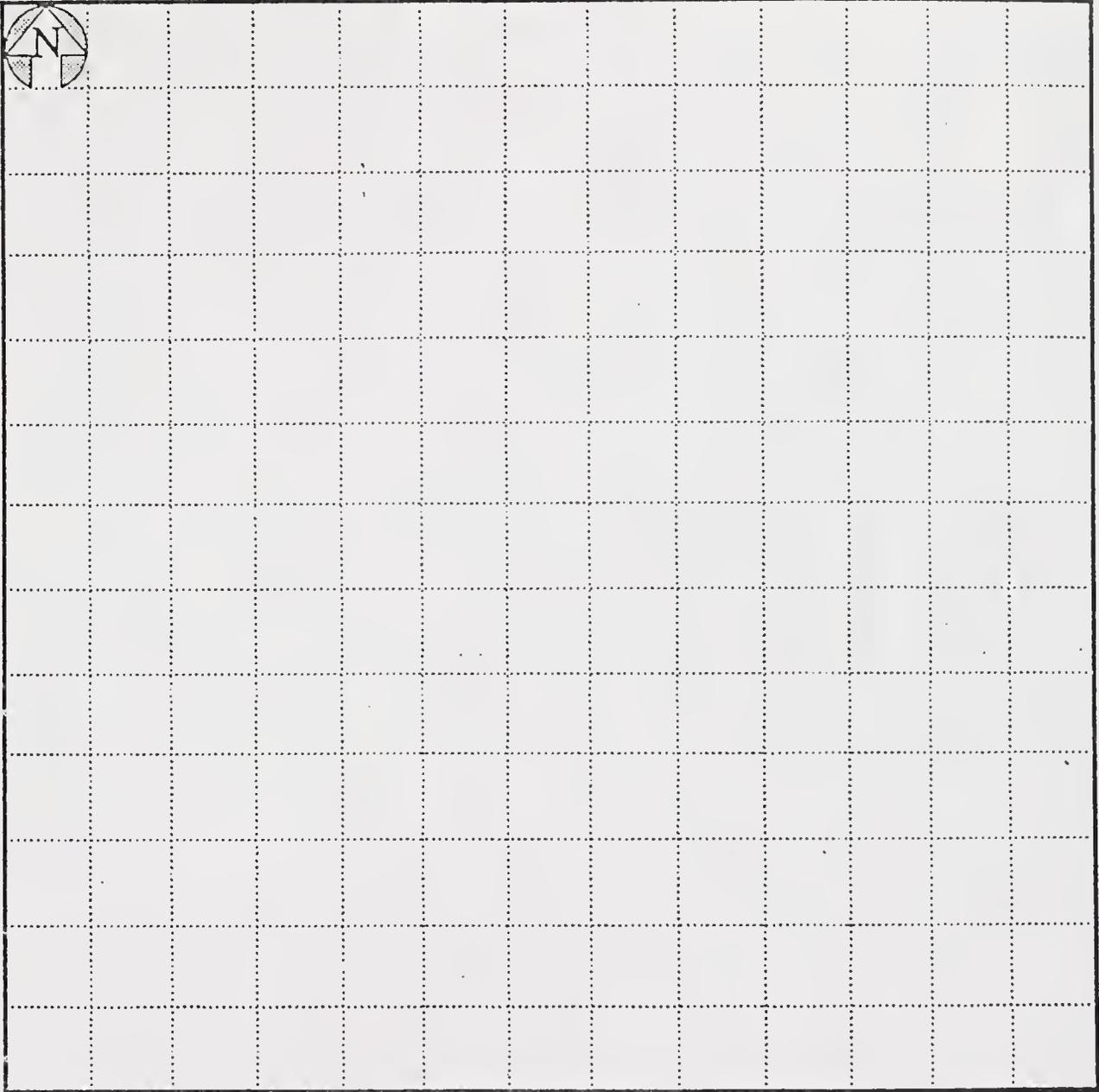
(circle choice for shaded variables; supply value for others)

(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 LONG)		
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:			
			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 M ² 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 (circle scale)		°C °F	WATER TEMP (circle scale)		°C °F	COLD:	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:						

ROUGH SKETCH OF SITE

GRID SPACING IS ____ METERS BETWEEN LINES



ADDITIONAL NOTES:

Miscellaneous Observation Form
 Montana Natural Heritage Program
 1515 E 6th Ave
 P.O. Box 201800
 Helena, MT 59620-1800

Observer _____
 Address _____
 Phone No. _____



INSTRUCTIONS: Please use this sheet to submit sight, call, or specimen records of any Montana amphibian or reptile species. Use a separate line for each species and site. On the back of the sheet include any additional comments or supporting information. Please provide as specific location information as possible, particularly for the following species of special concern: Coeur d'Alene Salamander, Idaho Giant Salamander, Tailed Frog, Canadian Toad, Wood Frog, Snapping Turtle, Spiny Softshell, Short-horned Lizard, Sagebrush Lizard, Western Hognose Snake, and Smooth Green Snake. Documentation is required for Idaho Giant Salamander and Wood Frog (photo, through description, verification by experienced observer, etc.). An identification guide is available in the May/June 1995 issue of Montana Outdoors (reprints available at the MT Nat. Heritage Prog.).

Species	Location	County	Township Range Section or UTM	Date Mo/Day/Yr	Time	# Adults	# Larvae
Example: Leopard Frog	McNab Pond	Carter	T01N R59E Sect 19 NE	5/20/94	8:30a	5	200
Example: Milk Snake	3.4 mi W, 1.2 mi N of Harlowton	Wheatland	5145200 N, 584700 E	8/15/94	11:15p	1	
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							

Comments: Include method of observation, measurements, documentation for species of special concern, disposition of specimens, weather, etc. Numbers correspond to those on the other side of this sheet. Use additional space or sheets if necessary.

Example: Sunny warm day, about 73°. Adults (3 seen; 2 heard calling only) at margin of ponds in cattails. Very small tadpoles seen; 1 egg mass still present.

Example: Found dead in the road in sagebrush flat near rimrocks; 24" long; Colored with bands of yellow / black / red / black / yellow...; deposited in MSU Museum

1.

2.

3.

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11.

Natural Heritage Rare Animal Species Reporting Form

This form is used to report a personal field sighting of a rare species tracked by the Montana Natural Heritage Program. It may also be used to summarize locational information from a published or unpublished report. Animal species tracked include those on the U.S. Fish and Wildlife Service Threatened, Endangered or Candidate Lists, the U.S. Forest Service Sensitive List, the Montana Department of Fish, Wildlife and Parks Species of Special Interest or Concern List, and the Heritage Program Animal Species of Special Concern List. The Heritage Program can provide a copy of the list upon request. For most bird species, only reports of confirmed breeding are requested.

In order for this form to be processed, the sections preceded by two asterisks (**) must be completed.

Send completed form to: Montana Natural Heritage Program, 1515 E 6th Ave., PO Box 201800, Helena MT 59620.

Scientific Name _____ **Common Name _____

Location:

Location Map: A mapped location of the occurrence should accompany this form. The ideal format is to locate the site on a photocopied section of a USGS 7.5 minute topo map; Forest Service, BLM, or other maps may be used. Be sure to provide the name of the map.

County: _____ Township: _____ Range: _____ Section: _____

****Directions to Site:** Describe in detail how to get to the site from a readily located permanent landmark such as a road intersection. _____

Biology/Habitat

****Date and Approximate Time of the Observation:** _____

**Number of Individuals Observed:

1-5 5-10 11-50 51-100 101-1000 > 1000

If possible, provide the exact number of individuals: _____

Life Stages Present: Check off the life stages observed or provide an estimate of the numbers of individuals for each life stage:

eggs _____ larvae _____ immature _____ adult female _____ adult male _____ adult, sex unknown _____

Comments: _____

Additional Status Information: What else was observed? Provide information on the behavior of the species particularly that which could indicate or confirm breeding at the site. For birds this could include singing males, carrying nest material/food, dependant young observed, entry of adults into possible nesting cavity, etc.

Associated Species: List any associated species such as predators, prey, food plants, host species, or additional rare species observed at the site.

** Required Field

Habitat Data: Describe the general area where the occurrence is located. List community types, dominant vegetation, and information on the physical environment such as substrate type, hydrology, moisture regime, slope, elevation, and aspect. Also, if possible, provide information on the surrounding land use and extent of additional suitable habitat.

Weather Conditions:

clear overcast calm windy

Describe temperature, precipitation, and other significant weather factors:

Conservation: Are there any natural or human threats to this occurrence? Please describe.

Ownership: If known, please provide landowner name, address and telephone number.

Information Source:

Name, Address, and Telephone Number (of person filing report)

**Does this information come from a field visit, a 2nd party observation, or a published or unpublished report?

Citation: For information taken from a published or unpublished report, please provide a copy of the cover page and pertinent portions of the report. If a copy cannot be provided, list below the author, date, title, publisher, and page numbers.

Voucher: Was the observation vouchered with a photograph? a specimen?

If possible, attach a copy of the photograph. If specimen voucher, please provide the collection # and name of the repository:

Identification: How was the species identification made? Was it based on a sighting, track, call, scat, road kill, etc.? Name the identification manual(s) used or expert(s) consulted. Were there identification problems?

Confirmation: Would you accompany a biologist to the site if needed? yes no

Additional Comments: (use additional sheets if needed)

APPENDIX 2.

SITES SURVEYED DURING 1995

AMPHIBIAN AND REPTILE SURVEYS

ON THE

HELENA NATIONAL FOREST

Appendix 2. Sites surveyed during 1995 amphibian and reptile surveys on the Helena National Forest.

Site	Location	Elevation	Date	Start Time
Rocky Mountains (Lincoln District)				
Alice Creek *	T16N R07W S34	5400	8/31/95	1240
Blackfoot River, old oxbow of	T13N R10W S04 NE ¼	4350	8/25/95	1642
Blackfoot River, marsh along upper	T15N R06W S20 NE ¼	5200	8/31/95	1138
Copper Creek, beaver pond near campgrounds of	T15N R08W S04 NW ¼	5350	5/24/95	1720
Copper Creek drainage, pond in middle	T15N R08W S05 NW ¼	5400	5/24/95	1255
Heart Lake, pond N of	T16N R08W S17 SW ¼	6430	5/25/95	1343
Indian Meadows *	T16N R08W S28, 33, 34	6000	5/25/95	1605
Mike Horse Reservoir *	T15N R06W S27 SW ¼	5560	8/30/95	1115
Poorman Creek	T13N R07W S8 SE ¼	5840	8/31/95	1825
Reservoir Lake *	T15N R10W S25 NW ¼	5480	8/31/95	1615
Sucker Creek, pond off the road on	T14N R08W S06 SE ¼	4747	8/31/95	1500
Willow Creek *	T14N R06W S03 SW ¼	5548	8/31/95	1020
Rocky Mountains (Helena District)				
Austin Creek, ponds on	T10N R06W S01 SW ¼	5180	7/11/95	1525
Beaver Creek, old beaver pond on tributary of	T09N R05W S34 SE ¼	5880	5/20/95	1550
Bryan Creek beaver pond	T08N R06W S11 NW ¼	6225	7/11/95	1100
Chessman Reservoir, pond 0.5 mi W of	T08N R05W S02, 03	6080	5/20/95	1500
Corral Gulch, old beaver pond in upper	T08N R04W S05 SW ¼	5640	5/20/95	1105
Dog Creek beaver ponds	T11N R06W S16 NE ¼	6040	7/11/95	1700
Lilly Lake	T09N R07W S11 SE ¼	5400	7/11/95	0930
Little Blackfoot River beaver pond #1	T08N R07W S02 NE ¼	5400	7/11/95	1310
Little Blackfoot River beaver pond #2	T08N R07W S15 SW ¼	6100	7/11/95	1400
Meadow Creek beaver ponds	T11N R06W S28 SE ¼	5840	7/11/95	1620
mine area pond	T08N R06W S15 SW ¼	7050	7/11/95	1205
Park Lake, large pond just below	T08N R05W S13 SE ¼	6540	5/20/95	1250
Park Lake, small pond just below	T08N R05W S13 SE ¼	6540	5/20/95	1220
Wilson Creek *	T13N R10W S22 NW ¼	5780	8/25/95	1625

* Sites with no herps found during survey

Appendix 2 (cont). Sites surveyed during 1995 amphibian and reptile surveys on the Helena National Forest.

Site	Location	Elevation	Date	Start Time
Elkhorn Mountains				
Crow Creek, South Fork	T06N R01W S17 N 1/2	5430	5/29/95	1645
Mill Creek headwaters	T08N R02W S08 NW 1/4	5080	5/15/95	1050
Norris Gulch *	T06N R01W S27	5440	5/29/95	1430
Slim Sam Creek beaver complex *	T06N R01W S26	4960	5/29/95	1500
Two Sam Spring *	T06N R02W S26 NE 1/4	7000	5/29/95	1315
Willard Creek, upper	T08N R02W S20 NE 1/4	5760	5/15/95	1310
Big Belt Mountains				
Avalanche Creek at Narytime Gulch	T11N R02E S09 NE 1/4	5440	7/12/95	1230
Deep Creek, small pond opposite of *	T07N R04E S27 NW 1/4	4780	5/17/95	1130
Deep Creek Picnic Area, NE of *	T07N R04E S26 SE 1/4	4880	5/17/95	1210
Deep Creek, at Castle Fork *	T07N R05E S21 NW 1/4	5500	5/17/95	1300
Dry Creek, upper beaver complex	T06N R04E S34 NE 1/4	5380	5/17/95	1500
Dry Creek, upper pond	T05N R05E S06 N 1/2	5760	5/17/95	1425
Springs Gulch, lake off of	T10N R02E S09 NE 1/4	5720	7/12/95	1538
Magpie Gulch, pond on lower *	T11N R01E S30 SE 1/4	4360	7/12/95	0955
Magpie Gulch, pond on middle	T11N R01E S20 SE 1/4	4600	7/12/95	1025
Magpie Gulch, pond on upper *	T11N R01E S04 NE 1/4	5200	7/12/95	1115
Miscellaneous				
Deepdale Fishing Access Site	T06N R02E S21 NW 1/4	3450	5/9/95	1532
" *	T06N R02E S21 NW 1/4	3450	5/29/95	1100
Indian Road Recreation Area *	T07N R02E S30 NW 1/4	3810	5/17/95	1020
Indian Road Recreation Area, pond S of *	T07N R02E S30	3800	5/29/95	1030

* Sites with no herps found during survey

APPENDIX 3.

AMPHIBIANS AND REPTILES

OBSERVED DURING SURVEYS OF THE

HELENA NATIONAL FOREST

IN 1995

Appendix 3. Amphibians and reptiles observed during surveys on or near the Helena National Forest in 1995.

Site	Person Hrs:min	Total number of adults/juv of each species observed ¹						
		AMMA	BUBO	RAPR	THEL	CHPI		
Rocky Mountains (Lincoln District)								
Blackfoot River, old oxbow of	1:18	*	3	53				
Blackfoot River, marsh along upper	0:52			5				
Copper Creek, beaver pond near campgrounds of	0:30			2				
Copper Creek drainage, pond in middle	0:35	*		1				
Heart Lake, pond N of	0:22	*		*				
Poorman Creek	0:20			8*				
Sucker Creek, pond off the road on	0:30			7				
Rocky Mountains (Helena District)								
Austin Creek, ponds on	0:30	1*		*				
Beaver Creek, old beaver pond on tributary of	0:30	*		8*				
Bryan Creek beaver pond	0:30	*		2*				
Chessman Reservoir, pond 0.5 mi W of	0:25			1*				
Corral Gulch, old beaver pond in upper	0:10	*		*				
Dog Creek beaver ponds	1:30	*	*	*				
Lilly Lake	1:00	*		4*				
Little Blackfoot River beaver pond #1	0:30			1				
Little Blackfoot River beaver pond #2	0:30			6*				
Meadow Creek beaver ponds	0:30	*		*				
mine area pond	0:50	*		7*				
Park Lake, large pond just below	0:50	*		*				
Park Lake, small pond just below	0:10			7*				

* denotes site with breeding, i.e. tadpoles, larvae, or eggs present

¹AMMA=*Ambystoma macrodactylum*; BUBO=*Bufo boreas*; RAPR=*Rana pretiosa*; THEL=*Thamnophis elegans*; CHPI=*Chrysemys picta*.

Appendix 3 (cont.). Amphibians and reptiles observed during surveys on or near the Helena National Forest in 1995.

Site	Person Hrs:min	Total number of adults/juv of each species observed ¹					
		AMMA	BUJO	RAPR	THEL	CHPI	
Elkhorn Mountains							
Crow Creek, South Fork	1:15			6			
Mill Creek headwaters	2:00	*		*			
Willard Creek, upper	1:00	*		*			
Big Belt Mountains							
Avalanche Creek at Narytime Gulch	0:50			13*			
Dry Creek, upper beaver complex	1:20			*			
Dry Creek, upper pond	0:10			*			
Springs Gulch, lake off of	1:24			15*	2		
Magpie Gulch, pond on middle	0:42			1			
Miscellaneous							
Deepdale Fishing Access Site	0:26					1	

* denotes site with breeding, i.e. tadpoles, larvae, or eggs present

¹AMMA=*Ambystoma macrodactylum*; BUJO=*Bufo boreas*; RAPR=*Rana pretiosa*; THEL=*Thamnophis elegans*; CHPI=*Chrysemys picta*.

APPENDIX 4.

AMPHIBIANS AND REPTILES

REPORTED FROM IN AND AROUND THE

HELENA NATIONAL FOREST

Natural Heritage Program 03/21/1996
 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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LONG-TOED SALAMANDER

Jefferson	.5 to 5 mil	4/28/1962	No	Museum Specimen 2 mi. S. of East Helena on branch McClellen Creek
Jefferson	.5 to 5 mil	4/28/1962	No	Museum Specimen S. of East Helena on Al Palmer Ranch
Jefferson	.5 to 5 mil	4/28/1962	Yes	Museum Specimen 2 mi. s. of East Helena on branch McClellen Creek
Jefferson	.5 to 5 mil	8/25/1959	No	Museum Specimen Horse trough off McClellen Creek
Jefferson	.5 to 5 mil	7/ /1972	No	Museum Specimen Near Clancy
Jefferson	<.5 mile.	5/15/1995	Yes	Observation Mill Creek headwaters
Jefferson	<.5 mile.	5/15/1995	Yes	Observation Upper Willard Creek
Jefferson	<.5 mile.	5/20/1995	Yes	Observation Old beaver pond in upper Corral Gulch.
Jefferson	<.5 mile.	5/20/1995	Yes	Observation Large pond just below Park Lake
Jefferson	<.5 mile.	9/ 6/1995	Yes	Observation Cliff Lake, Red Rock Drainage
Lewis & Clark	.5 to 5 mil	7/13/1983	No	Museum Specimen Upper Grizzly Gulch
Lewis & Clark	<.5 mile.	5/20/1995	Yes	Observation Old beaver pond on tributary of Beaver Creek
Lewis & Clark	<.5 mile.	5/24/1995	Yes	Observation Middle Copper Creek drainage in pond.
Lewis & Clark	<.5 mile.	5/25/1995	Yes	Observation Pond N. of Heart Lake
Lewis & Clark	<.5 mile.	7/11/1995	Yes	Museum Specimen Ponds on Austin Creek

County Precision Date Breed Data Type

LONG-TOED SALAMANDER (continued)

- Lewis & Clark <.5 mile. 7/11/1995 Yes Observation
Beaver ponds, Meadow Creek
- Lewis & Clark <.5 mile. 7/11/1995 Yes Observation
Dog Creek beaver ponds
- Lewis & Clark <.5 mile. 9/28/1995 No Observation
Marysville
- Powell <.5 mile. 7/11/1995 Yes Museum Specimen
Lilly Lake
- Powell <.5 mile. 7/11/1995 Yes Museum Specimen
Mine shaft pond
- Powell <.5 mile. 7/11/1995 Yes Observation
Bryan Creek Beaver Pond
- Powell <.5 mile. 8/23/1995 Yes Museum Specimen
Small pond off BLM road, Garnet Mountains
- Powell <.5 mile. 8/24/1995 Yes Observation
Lower Chamberlain Meadows ca. 3/4 down, Garnet Mountains
- Powell <.5 mile. 8/25/1995 Yes Museum Specimen
Old oxbow at Blackfoot River, 1 mi. SW of Blackfoot Canyon Campground

TAILED FROG

- Lewis & Clark 5 to 10 mil / /1966 No Observation
Tributary of Copper Creek, tributary of the Blackfoot River
- Lewis & Clark <.5 mile. 7/5/1994 Yes Museum Specimen
Falls Creek, crossing down to falls.

WESTERN TOAD

- Broadwater > 10 miles. / /1966 Yes Observation
Near Canyon Ferry Reservoir, small spring in open ponderosa pine.
- Cascade .5 to 5 mil / / 0 No Museum Specimen
Little Belt Mountains, 1.2 miles N. (Hwy 89) of Kings Hill Pass, 7200 ft.

Natural Heritage Program 03/21/1996
Montana Animal Atlas (Herpetile) Species Report

County Precision Date Breed Data Type

WESTERN TOAD (continued)

Cascade .5 to 5 mil / /1966 No Observation
Kings Hill, 7000 ft.

Granite .5 to 5 mil 7/11/1977 Yes Museum Specimen
¼ mi W of Bearmouth, rest area off I-90.

Jefferson .5 to 5 mil 8/7/1951 No Museum Specimen
Prickly Pear Creek

Lewis & Clark <.5 mile. 7/11/1995 Yes Museum Specimen
Dog Creek beaver ponds

Lewis & Clark .5 to 5 mil 5/25/1995 No Observation
McDonald Pass area

Meagher > 10 miles. 8/4/1899 No Museum Specimen
Deep Creek Canyon, Big Belt Mountains

Meagher > 10 miles. 8/23/1919 No Museum Specimen
Fort Logan, Camas Creek (4 mi S).

Meagher .5 to 5 mil 8/20/1951 No Museum Specimen
Sheep Creek near Jumping Creek Campgrounds

Meagher .5 to 5 mil 8/24/1951 Yes Museum Specimen
Adams Ranch, Sheep Creek

Meagher .5 to 5 mil 8/6/1958 No Museum Specimen
Lake Creek

Meagher <.5 mile. 6/26/1995 No Observation
Beaver ponds on Daniels Creek

Powell <.5 mile. 8/25/1995 Yes Museum Specimen
Old oxbow at Blackfoot River, 1 mi. SW of Blackfoot Canyon Campground

Powell .5 to 5 mil 7/9/1995 No Observation
30 mi. NW of Lincoln, Coopers Lake

WOODHOUSE'S TOAD

Lewis & Clark .5 to 5 mil 7/9/1948 No Museum Specimen
Mouth of Trout Creek, Missouri River

County Precision Date Breed Data Type

WESTERN CHORUS FROG

- Cascade 5 to 10 mil 6/7/1993 No Observation
Chestnut Valley Sand hills
- Jefferson <.5 mile. 8/20/1995 Yes Observation
Jefferson Creek, Elkhorn Mtns. In Cow Pond.
- Lewis & Clark <.5 mile. 5/21/1995 No Observation
Ca. 17 mi. S. of Augusta, on Wrangle Creek
- Lewis & Clark .5 to 5 mil 5/25/1995 No Observation
McDonald Pass area

PLAINS SPADEFOOT

- Cascade .5 to 5 mil 8/31/1948 No Museum Specimen
3 mi. S. of Cascade, Missouri River
- Lewis & Clark <.5 mile. 6/ /1988 No Observation
Dave Genter's house.

NORTHERN LEOPARD FROG

- Broadwater <.5 mile. 5/10/1993 No Observation
Deepdale FAS. Directly E. across channel from Deepdale BE nest
- Broadwater .5 to 5 mil 8/13/1899 Yes Museum Specimen
Townsend
- Cascade .5 to 5 mil 8/31/1948 No Museum Specimen
3 mi. S. of Cascade, Missouri River
- Cascade .5 to 5 mil 8/12/1954 No Museum Specimen
Spanish Coulee
- Granite .5 to 5 mil 7/27/1961 No Museum Specimen
Lake Albacaulis
- Lewis & Clark <.5 mile. 7/ /1993 No Observation
very small riparian ponds along Dearborn River
- Lewis & Clark .5 to 5 mil 8/11/1948 No Museum Specimen
Wolf Creek

Natural Heritage Program 03/21/1996
 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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SPOTTED FROG (continued)

Jefferson	< .5 mile.	9/6/1995	No	Observation Cliff Lake, Red Rock Drainage
Judith Basin	.5 to 5 mil	8/8/1944	No	Museum Specimen 12 miles S. of Neihart
Lewis & Clark	.5 to 5 mil	/ /1966	No	Observation 2.3 miles W. of Flasher Pass tributary of Blackfoot River
Lewis & Clark	< .5 mile.	9/3/1994	No	Observation Prickley Pear Creek just W. of Stansfield Lake.
Lewis & Clark	< .5 mile.	7/27/1975	No	Observation Pond, ca. 400 m from the main stack of East Helena Smelter.
Lewis & Clark	< .5 mile.	7/27/1975	No	Observation Ca. 1.6 km SSE from the East Helena Smelter in springs
Lewis & Clark	< .5 mile.	7/27/1975	No	Observation McClellan Creek Quarry Lake
Lewis & Clark	< .5 mile.	5/22/1994	No	Museum Specimen 7-Up Pete Proposed Gold Mine area on HWY 200, ca. 10 mi. E. of Lincoln.
Lewis & Clark	< .5 mile.	5/20/1995	Yes	Museum Specimen Old beaver pond on tributary of Beaver Creek
Lewis & Clark	< .5 mile.	5/20/1995	Yes	Observation Pond 0.5 mi. w. of Chessman Reservoir.
Lewis & Clark	< .5 mile.	5/24/1995	No	Observation Copper Creek beaver pond near campgrounds.
Lewis & Clark	< .5 mile.	5/24/1995	No	Observation Middle Copper Creek drainage in pond.
Lewis & Clark	< .5 mile.	5/25/1995	Yes	Observation Pond N. of Heart Lake
Lewis & Clark	< .5 mile.	7/11/1995	Yes	Observation Ponds on Austin Creek
Lewis & Clark	< .5 mile.	5/24/1995	No	Observation Copper Creek

Natural Heritage Program 03/21/1996
 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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SPOTTED FROG (continued)

Lewis & Clark	< .5 mile.	8/31/1995	Yes	Observation Poorman Creek, before road leaves creek
Lewis & Clark	< .5 mile.	8/31/1995	No	Observation Upper Blackfoot River marshes
Lewis & Clark	< .5 mile.	7/11/1995	Yes	Observation Beaver ponds, Meadow Creek
Lewis & Clark	< .5 mile.	7/11/1995	Yes	Observation Dog Creek beaver ponds
Lewis & Clark	< .5 mile.	6/27/1995	No	Observation S. of Park Lake
Meagher	.5 to 5 mil	6/1/1978	No	Museum Specimen Dry Fork of Musselshell River
Meagher	< .5 mile.	5/29/1994	Yes	Museum Specimen Crater Lake and ponds above, 5880 ft.
Meagher	< .5 mile.	7/8/1994	No	Observation W. fork Checkerboard Creek, Castle Mountains, 6200 ft.
Meagher	< .5 mile.	7/9/1994	No	Observation Onion Park, Little Belt Mountains, also sec. 5.
Meagher	.5 to 5 mil	8/6/1958	No	Museum Specimen Lake Creek
Meagher	.5 to 5 mil	5/13/1950	No	Museum Specimen Near Ringling Hot Well
Meagher	< .5 mile.	6/26/1995	No	Observation Irrigation ditch below Wolsey Creek on Sheep Creek
Meagher	< .5 mile.	8/3/1995	No	Observation N. Fork Eagle Creek
Meagher	< .5 mile.	8/15/1995	No	Observation E. Fork Grasshopper Creek
Meagher	< .5 mile.	8/30/1995	No	Observation Grasshopper Creek

Natural Heritage Program 03/21/1996
 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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SPOTTED FROG (continued)

Powell	.5 to 5 mil	7/21/1891	No	Museum Specimen Elliston, near Little Blackfoot River
Powell	.5 to 5 mil	7/22/1891	No	Museum Specimen Deer Lodge, Cottonwood Creek
Powell	.5 to 5 mil	// 0	No	Museum Specimen Ovando, N. of Camp Lake
Powell	.5 to 5 mil	// 0	No	Museum Specimen Browns Lake
Powell	< .5 mile.	7/11/1995	Yes	Museum Specimen Lilly Lake
Powell	< .5 mile.	7/11/1995	Yes	Observation Beaver pond, Little Blackfoot
Powell	< .5 mile.	7/11/1995	Yes	Museum Specimen Mine shaft pond
Powell	< .5 mile.	7/11/1995	No	Observation Mine shaft pond
Powell	< .5 mile.	7/11/1995	Yes	Observation Bryan Creek Beaver Pond
Powell	< .5 mile.	7/11/1995	No	Observation Little Blackfoot River Beaver Dam
Powell	< .5 mile.	8/23/1995	Yes	Museum Specimen Small pond off BLM road, Garnet Mountains
Powell	< .5 mile.	8/24/1995	Yes	Museum Specimen Lower Chamberlain Meadows ca. 3/4 down, Garnet Mountains
Powell	< .5 mile.	8/31/1995	No	Observation Pond off road, Sucker Creek
Powell	< .5 mile.	8/22/1995	No	Observation Cottonwood Meadow, Garnet Mountains
Powell	< .5 mile.	8/22/1995	No	Observation South side Old Baldy (mountain), Garnet Mountains

Natural Heritage Program 03/21/1996
Montana Animal Atlas (Herpetile) Species Report

County Precision Date Breed Data Type

SPOTTED FROG (continued)

Powell <.5 mile. 8/31/1995 No Observation
Pond off road, Sucker Creek

Powell <.5 mile. 8/25/1995 Yes Museum Specimen
Old oxbow at Blackfoot River, 1 mi. SW of Blackfoot Canyon Campground

PAINTED TURTLE

Broadwater <.5 mile. 5/ /1993 No Observation
Canyon Ferry WMA east side.

Broadwater 5 to 10 mil / / 0 No Specimen Reported
See map in Black 1970

Broadwater <.5 mile. 5/9/1995 No Observation
Deepdale fishing access

Granite .5 to 5 mil 6/ /1995 Yes Observation
In pond by rest area along I-90 near Bearmouth.

Jefferson <.5 mile. 7/26/1995 No Observation
Prickly Pear Road

Lewis & Clark <.5 mile. / /1994 Yes Observation
Spring Meadow Lake

Powell .5 to 5 mil 9/7/1994 No Observation
Lahrity Lake in Ovando Valley

Powell .5 to 5 mil 9/8/1994 No Observation
Evans Lake

Powell 5 to 10 mil / / 0 No Specimen Reported
See map in Black 1970

SPINY SOFTSHELL

Broadwater 5 to 10 mil / / 0 No Specimen Reported
Canyon Ferry Reservoir

Natural Heritage Program 03/21/1996
 Montana Animal Atlas (Herpetile) Species Report

County Precision Date Breed Data Type

RUBBER BOA

Broadwater 5 to 10 mil / / 0 No Specimen Reported
 See map in Davis 1963

Broadwater .5 to 5 mil 9/ /1957 No Museum Specimen
 Near Toston

Gallatin .5 to 5 mil 8/11/1959 No Museum Specimen
 Middle Fork 16 Mile Creek

Lewis & Clark 5 to 10 mil / / 0 No Specimen Reported
 See map in Davis 1963

Lewis & Clark .5 to 5 mil 3/ /1949 No Museum Specimen
 Worth Ranch, Canyon Creek

Lewis & Clark .5 to 5 mil / /1994 No Observation
 Grizzly Gulch SSW of Helena

RACER

Lewis & Clark 5 to 10 mil / / 0 No Specimen Reported
 See map in Davis 1963

Lewis & Clark 5 to 10 mil / / 0 No Specimen Reported
 See map in Davis 1963

Lewis & Clark 5 to 10 mil / / 0 No Specimen Reported
 See map in Davis 1963

Lewis & Clark 5 to 10 mil / / 0 No Specimen Reported
 See map in Davis 1963

Lewis & Clark 5 to 10 mil / / 0 No Specimen Reported
 See map in Davis 1963

Lewis & Clark < .5 mile. 5/20/1995 No Museum Specimen
 1.5 mi. ESE of Sieben Ranch

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GOPHER SNAKE

- Broadwater <.5 mile. 5/21/1994 No Observation
Hwy. 12 between Helena and Townsend
- Broadwater <.5 mile. 8/30/1995 No Observation
Whites Creek
- Cascade 5 to 10 mil 7/6/1993 No Observation
Chestnut Valley Sandhills
- Lewis & Clark .5 to 5 mil 10/15/1982 No Museum Specimen
Junction Sheep and Little Prickly Pear Creeks
- Lewis & Clark .5 to 5 mil 5/24/1941 No Museum Specimen
Wolf Creek
- Lewis & Clark .5 to 5 mil 7/28/1951 No Museum Specimen
Prickly Pear Creek

WESTERN TERRESTRIAL GARTER

- Broadwater .5 to 5 mil 9/ /1962 No Museum Specimen
W. of Winston
- Broadwater <.5 mile. 7/12/1995 No Observation
Lake off of Springs Gulch, Big Belt Mountains
- Broadwater <.5 mile. 5/29/1995 No Observation
Deepdale Fishing Access Site
- Broadwater <.5 mile. 7/12/1995 No Observation
FS RD 359 along Avalanche Creek between McGregor and Spilling Gulch
- Broadwater <.5 mile. 10/15/1995 No Museum Specimen
Indian Road Recreation Area, just N of Townsend
- Gallatin 5 to 10 mil / / 0 No Specimen Reported
See map in Davis 1963
- Granite 5 to 10 mil 10/31/1944 No Museum Specimen
Rock Creek
- Jefferson .5 to 5 mil 7/30/1951 No Museum Specimen
Prickly Pear Creek

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County	Precision	Date	Breed	Data Type
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WESTERN TERRESTRIAL GARTER (continued)

Jefferson	.5 to 5 mil	7/30/1951	No	Museum Specimen Prickley Pear
Jefferson	.5 to 5 mil	4/28/1962	No	Museum Specimen S. of East Helena on Al Palmer Ranch
Lewis & Clark	.5 to 5 mil	7/20/1891	No	Museum Specimen 12 miles E of Helena on McClellan Creek
Lewis & Clark	5 to 10 mil	/ / 0	No	Specimen Reported See map in Davis 1963
Lewis & Clark	<.5 mile.	7/27/1975	No	Observation Pond, ca. 400 m from the main stack of East Helena Smelter.
Lewis & Clark	<.5 mile.	7/27/1975	No	Observation Where Prickley Pear Creek flows along slag pile at East Helena Smelter.
Lewis & Clark	<.5 mile.	7/27/1975	No	Observation McClellan Creek Quarry Lake
Lewis & Clark	.5 to 5 mil	6/30/1949	No	Museum Specimen Prickly Pear Creek
Lewis & Clark	.5 to 5 mil	9/10/1951	No	Museum Specimen Prickley Pear Creek
Lewis & Clark	.5 to 5 mil	9/10/1951	No	Museum Specimen Prickley Pear Creek
Lewis & Clark	.5 to 5 mil	8/ /1994	Yes	Observation Little Prickly Pear Creek N. of Helena
Lewis & Clark	<.5 mile.	7/ 5/1995	No	Observation Helena
Lewis & Clark	<.5 mile.	8/20/1995	No	Observation Falls Creek
Lewis & Clark	.5 to 5 mil	5/25/1995	No	Observation McDonald Pass area
Madison	.5 to 5 mil	/ /1994	No	Observation Little Blackfoot River W. of Avon

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County	Precision	Date	Breed	Data Type
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WESTERN TERRESTRIAL GARTER (continued)

Meagher	5 to 10 mil	8/22/1919	No	Museum Specimen Fort Logan, Camas Creek, (4 mi S)
Meagher	< .5 mile.	8/30/1995	No	Observation Grasshopper Creek
Powell	> 10 miles.	7/31/1967	No	Museum Specimen North Fork of the Blackfoot River
Powell	> 10 miles.	7/3/1973	No	Museum Specimen North Fork of the Blackfoot River
Powell	< .5 mile.	6/ /1950	No	Specimen Reported Cottonwood Creek
Powell	.5 to 5 mil	6/6/1950	No	Museum Specimen 0.5 mi. above mouth of Cottonwood Creek
Powell	< .5 mile.	8/31/1995	No	Observation Road past Stemple Pass

COMMON GARTER SNAKE

Broadwater	< .5 mile.	9/25/1995	No	Observation Eureka Creek
Cascade	.5 to 5 mil	9/6/1994	No	Observation Schrammeck Lake
Lewis & Clark	5 to 10 mil	/ / 0	No	Specimen Reported See map in Davis 1963
Lewis & Clark	5 to 10 mil	/ / 0	No	Specimen Reported See map in Davis 1963
Lewis & Clark	5 to 10 mil	7/30/1951	No	Museum Specimen Prickly Pear Creek
Powell	.5 to 5 mil	/ /1994	No	Observation N. of Ovando
Powell	< .5 mile.	8/3/1995	No	Observation Ontario Creek

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County Precision Date Breed Data Type

WESTERN RATTLESNAKE

Cascade .5 to 5 mil / /1927 No Museum Specimen
Cascade

Gallatin 5 to 10 mil / / 0 No Specimen Reported
See map in Davis 1963

Lewis & Clark .5 to 5 mil 7/28/1949 No Museum Specimen
Wirth Ranch

Lewis & Clark < .5 mile. 8/ /1995 No Observation
Melony Bruhn's house

APPENDIX 5.

NOTES ON HARLEQUIN SURVEYS
AND EXAMINATION OF POTENTIAL
NORTHERN BOG LEMMING HABITAT
ON THE HELENA NATIONAL FOREST

Appendix 5. Notes on harlequin surveys and examination of potential northern bog lemming habitat on the Helena National Forest.

Northern Bog Lemmings. All sites surveyed for amphibians and reptiles were also examined for their potential suitability as northern bog lemming (*Synaptomys borealis*) habitat. None examined seemed suitable. Particular attention was given Indian Meadows, however no extensive moss mats were found. There may be small pockets of suitable habitat within this large wetland complex which were missed, as only about 4 hours were spent exploring the area, and the water level was very high. Summaries of current knowledge of Montana distribution and habitat is available (Reichel 1996, Reichel and Beckstrom 1994).

Harlequin Ducks were surveyed on the Landers Fork of the Blackfoot River, Copper Creek, and the East Fork of the North Fork Blackfoot River (Table A5.1). None were found on the Helena National Forest., however one pair was located near North Fork Falls, less than a mile below HNF lands on the Lolo NF. It seems likely that ducks will be found to use the East Fork of the North Fork on the HNF. It was surprising that no ducks were located on the Landers Fork given the apparently good habitat and lack of disturbance on that stream. I would recommend that 1-2 additional surveys during pair season (1 May to 1 June) be done before a final conclusion that ducks are not currently present is reached. The section above which we surveyed was not accessible; high water made crossing the river impossible and cliffs on both sides of the river made walking the river also impossible. It is unknown at this time if the section above is boatable and may be surveyed that way. Given the easy access to Copper Creek and the amount of the stream surveyed, it seems doubtful that this stream currently has harlequins present; I would not recommend resurveying it at this time without unless either: 1) harlequins ducks are reported in the Copper Creek-Landers Fork drainage; or 2) major land management activities are planned in the drainage. Statewide Harlequin survey data is currently being summarized and will be available soon (Reichel and Genter, in prep.), as will a Conservation Assessment and Strategy for the U.S. Rocky Mountains (Cassirer *et al.*, in review).

Table A5.1. Montana Marlequin Duck surveys on or near the Helena National Forest in 1995.

Drainage: Hydrologic Code	Upper end	Lower end	Date	kms	M	F	J	U	PR	Source Code
CUTBARI FORK RIVER DRAINAGE: 170102										
Blackfoot River Drainage: 17010203										
Blackfoot River, Lander's fork										
T14N R08W S07 SWSE	T14N, R08W, S12		25 May 1995	26						Reichel and Genter 1996
Blackfoot River, North Fork										
T17N R10W S15 MENW	T17N R10W S29 SE		26 May 1995	5					1	Reichel and Genter 1996
T17N R10W S2 NE	T17N R10W S15 NENW		28 May 1995	6					3	Reichel and Genter 1996
North Fork Blackfoot River, Dry Fork										
T17N R11W S13 NW	T17N R10W S31 NE		29 May 1995	8						Reichel and Genter 1996
North Fork Blackfoot River, East Fork										
T16W R09W S07 NW	T17 R10W S28 SW		27 May 1995	14					1	Reichel and Genter 1996
Copper Creek										
T15N R08W S05 NW	T15N R08W S36 SENW		24 May 1995	16						Reichel and Genter 1996

Appendix 6. Heritage program species ranking definitions.

Taxa are evaluated and ranked by the Heritage Program on the basis of their global (range-wide) status, and their state-wide status. These ranks are used to determine protection and data collection priorities, and are revised as new information becomes available.

A scale of 1 (critically imperiled) to 5 (demonstrably secure) is used for these ranks, and each species is assigned the appropriate combination of global and state ranks.

Example: common loon = G5 / S3 (i.e., species is demonstrably secure globally; in Montana is found within a restricted range).

Global and state ranks are assigned according to a standardized procedure used by all Natural Heritage Programs, and are defined below.

<u>Global/State Rank</u>	<u>Definition (G = Range-wide; S = Montana)</u>
G1 S1	Critically imperiled because of extreme rarity (5 or fewer occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction.
G2 S2	Imperiled because of rarity (6 to 20 occurrences), or because of other factors demonstrably making it very vulnerable to extinction throughout its range.
G3 S3	Either very rare and local throughout its range, or found locally (even abundantly at some of its locations) in a restricted range, or vulnerable to extinction throughout its range because of other factors; in the range of 21 to 100 occurrences.
G4 S4	Apparently secure, though it may be quite rare in parts of its range, especially at the periphery.
G5 S5	Demonstrably secure, though it may be quite rare in parts of its range, especially at the periphery.
GU SU	Possibly in peril, but status uncertain; more information needed.
GH SH	Historically known; may be rediscovered.
GX SX	Believed to be extinct; historical records only, continue search.

Other codes:

- A Accidental in the state; including species (usually birds or butterflies) recorded very infrequently, hundreds or thousands of miles outside their usual range.
- B A state rank modifier indicating breeding status for a migratory species.
Example: S1B,SZN -- breeding occurrences for the species are ranked S1 (critically imperiled) in the state, nonbreeding occurrences are not ranked in the state.
- E An exotic established in the state; may be native in nearby regions.
- HYB Element represents a hybrid of species.
- N A state rank modifier indicating non-breeding status for a migratory species.
Example: S1B,SZN -- breeding occurrences for the species are ranked S1 (critically imperiled) in the state, nonbreeding occurrences are not ranked in the state.
- P Indicates the element may potentially occur in the state.
- Q Taxonomic questions or problems involved, more information needed; appended to the global rank.
- R Reported in the state; but lacking documentation which would provide a basis for either accepting or rejecting the report.
- T Rank for a subspecific taxon (subspecies, variety, or population); appended to the global rank for the full species.
- Z Ranking not applicable.
- # A modifier to SX or SH; the species has been reintroduced but the population is not yet breeding and established.

USF&WS (USES A) Status: The codes in this column denote the categories defined in the U.S. Fish and Wildlife Service Notices of Review (1990, 1993, 1994), and indicate the status of a taxon with respect to the federal Endangered Species Act of 1973:

- E/SA Treat as endangered because of similarity of appearance.
- LE Endangered
- LT Threatened
- P Proposed E or T
- C1 Notice of Review, Category 1 (substantial biological information on file to support the appropriateness of proposing to list as endangered or threatened).

- C2 Notice of Review, Category 2 (current information indicates that proposing to list as endangered or threatened is possibly appropriate, but substantial biological information is not on file to support an immediate ruling).
- C2* Category 2, and the taxon is possibly extinct.
- 3A Taxa for which the USFWS has persuasive evidence of extinction.
- 3B Names that, on the basis of current taxonomic understanding, do not represent taxa meeting the Endangered Species Act's definition of "species."
- 3C Taxa that have proven to be more abundant or widespread than was previously believed, and/or those that are not subject to any identifiable threat.
- NL Not listed/no designation. (See note below.)
- XN Nonessential experimental population.

Note: A species can have more than one federal designation if the species' status varies within its range. In these instances the Montana designation is listed first.

Examples: bald eagle = LELT. Species is Listed Endangered in Montana; elsewhere in its range it may be Listed Threatened.

trumpeter swan = C2NL. Species is a Category 2 in Montana; elsewhere in its range it may not have USF&WS designation.

common tern = NLC2. Species has no USF&WS designation in Montana; elsewhere in its range it may be a Category 2.

USFS Status: The status of species in Montana as defined by the U.S. Forest Service manual (2670.22). These taxa are listed as such by the Regional Forester (Northern Region) on Montana National Forests.

State Status: These codes give the state legal status of vertebrates as listed in the 1989 Statutes of Montana for the Department of Fish, Wildlife and Parks.

- GA = game animal
- GF = game fish
- FB = fur bearing animal
- MB = migratory bird
- UB = upland game bird
- E = endangered
- NG = nongame wildlife
- P = protected species
- U = unprotected species

Management Status:

- CD = closed season
- RH = restricted harvest

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