

**Preliminary
Amphibian and Reptile Survey
of the
Sioux District of the
Custer National Forest: 1994**



A Report to:

USDA Forest Service

Custer National Forest
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ABSTRACT

A total of 53 surveys and several additional sightings were made in the Sioux District of the Custer National Forest (Sioux-CNF) between June and October, 1994. Most surveys were performed by 1 or 2 individuals in ponds, lakes, seeps, streams or other wetlands. 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. Localized areas across the district were covered in the survey.

Seven amphibians have been reported from the Sioux-CNF: Tiger Salamander (*Ambystoma tigrinum*), Great Plains Toad (*Bufo cognatus*), Woodhouse's Toad (*Bufo woodhousii*), Northern Chorus Frog (*Pseudacris triseriata*), Plains Spadefoot (*Scaphiopus bombifrons*), Bullfrog (*Rana catesbeiana*), and Northern Leopard Frog (*Rana pipiens*). The Northern Leopard Frog was the most widespread amphibian throughout the District. Northern Leopard Frogs are nearly extirpated from western Montana, and anecdotal evidence indicates a decline elsewhere in Montana (except in the southeastern corner). It should be carefully watched for and all sightings of breeding locations reported. The Western Chorus Frog and Tiger Salamander were commonly found in the ranges in South Dakota, but appeared less common in Montana; however, this may be an artifact of the timing and intensity of the sampling in Montana. A single Plains Spadefoot was found in the Ekalaka Hills and an historic record exists from the Long Pines. The Great Plains Toad and Woodhouse's Toad are known historically from the Sioux-CNF, but was not seen during surveys in 1994. The introduced Bullfrog is also known historically from the Sioux-CNF, but were not seen during surveys in 1994. Bullfrogs have been implicated in some native amphibian and reptile declines; therefore, loss of this exotic would be good news.

Eleven reptiles have been reported from near the Sioux-CNF, but only six have definite records from on the Forest: the Painted Turtle (*Chrysemys picta*), Sagebrush Lizard (*Sceloporus graciosus*), Racer (*Coluber constrictor*), Gopher Snake (*Pituophis catenifer*), Plains Garter Snake (*Thamnophis radix*), and Western Rattlesnake (*Crotalus viridis*). Not enough information is available to comment on the status of any of these species in the area. The Sagebrush Lizard is a USFWS Candidate (C-2) and was found in the Chalk Buttes. The Snapping Turtle (*Chelydra serpentina*) is present in rivers, creeks and ponds at lower elevations and has been found about 10 miles WSW of the Long Pines. It could also occur on the Sioux-CNF. The following have been recorded in the area and may eventually be found on Sioux-CNF lands: Short-horned Lizard (*Phrynosoma douglasi*), Western Hognose Snake (*Heterodon nasicus*), Milk Snake (*Lampropeltis triangulum*), Western Terrestrial Garter Snake (*Thamnophis elegans*), and Common Garter Snake (*Thamnophis sirtalis*).

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Museum records were received from: American Museum of Natural History, Academy of Natural Science, Brigham 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 South Dakota, United States National Museum of Natural History, University of Texas - Arlington, University of Texas - El Paso, and Peabody Museum - Yale. Most museum data were 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 1990, Yoffe 1992). Acid rain, ozone depletion, pollution by toxic chemicals and heavy metals, predation and/or competition by exotic species, habitat alteration, climatic changes, disease, immune system problems, and combinations of several of these factors have all been suggested as possible causes (Corn and Fogelman 1984, Phillips 1990, Yoffe 1992).

Bass have been introduced into waters on or near the Sioux District of the Custer National Forest (Sioux-CNF) 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). Preliminary data indicate that 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. The U.S. Fish and Wildlife Service now lists the Western Toad (*Bufo boreas*) as a Candidate (C-2) species in Colorado, Wyoming and New Mexico. Apparent declines have recently been reported in northern Idaho (C. Peterson pers. comm.), northwestern Montana (Werner and Reichel 1994), Yellowstone National Park (Peterson *et al.* 1992), Wyoming, and Colorado (Carey 1993). Heavy grazing in and around breeding waters may negatively impact amphibians and reptiles living in riparian areas by: 1) eliminating emergent vegetation necessary for egg and larvae survival; 2) lowering water quality, especially causing high siltation levels; and 3) soil compaction and trampling of turtle eggs. Additionally "improving" seeps and springs for livestock watering may make them unavailable to breeding amphibians.

The U.S. Fish and Wildlife Service lists two Montana amphibians and two reptiles as Category 2 candidate species: the Spotted Frog (*Rana pretiosa*), Tailed Frog (*Ascaphus truei*), Short-horned Lizard (*Phrynosoma douglasi brevirostra*) 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, and Wood Frog (*Rana sylvatica*)] and 7 reptiles [Snapping Turtle (*Chelydra serpentina*), Spiny Softshell (*Apalone spinifera*), Short-horned Lizard, Sagebrush Lizard, Western Hognose Snake (*Heterodon nasicus*), Smooth Green Snake (*Opheodrys vernalis*), and Milk Snake (*Lampropeltis triangulum*)] as Species of Special Concern in the state. The Northern Leopard Frog and Western Toad (*Bufo boreas*) are being considered for addition to the list. Six of these species, the Northern Leopard Frog, Snapping Turtle, Short-horned Lizard, Sagebrush Lizard, Western Hognose Snake, and Milk Snake occur, or potentially occur, on the Sioux-CNF.

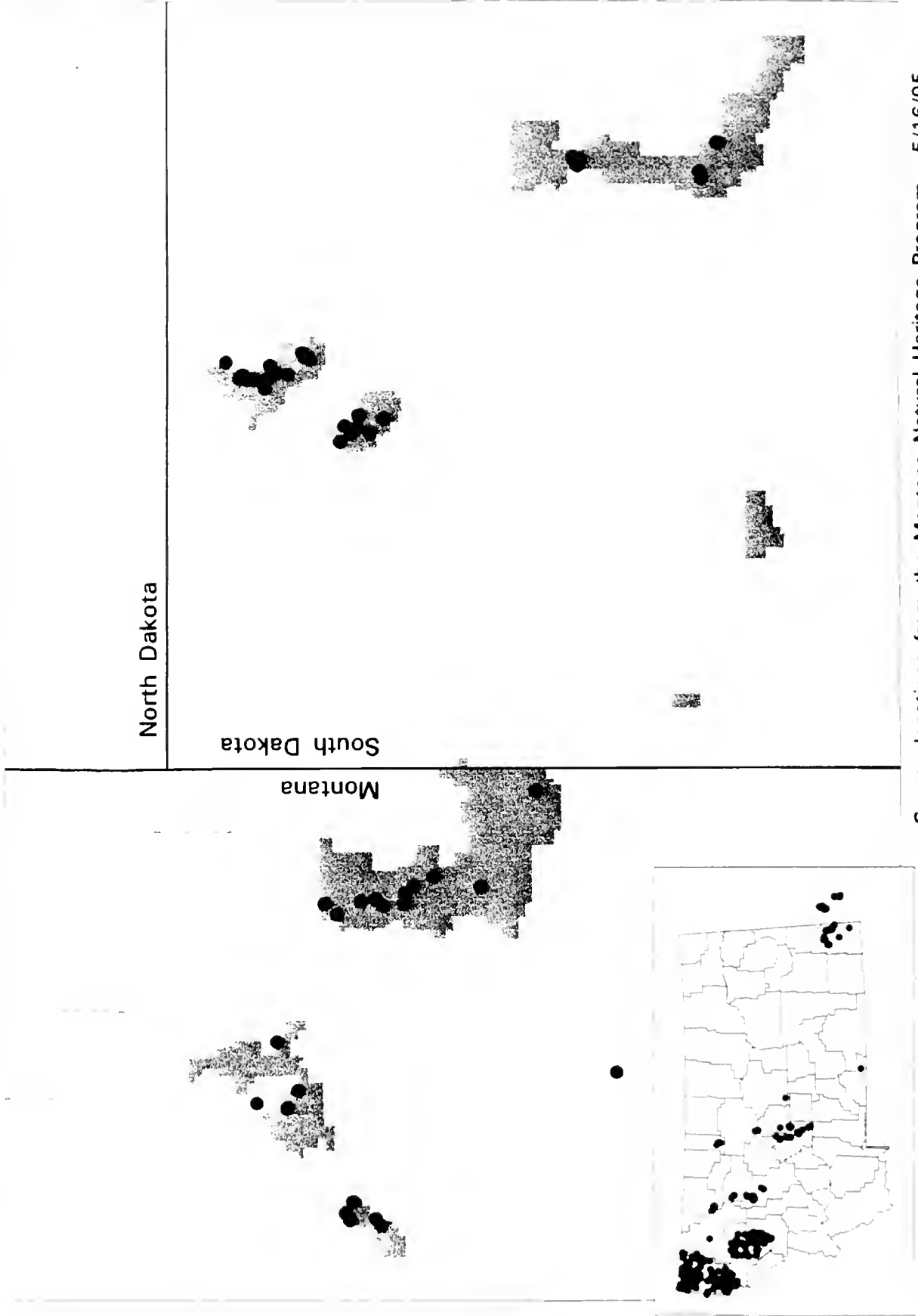
METHODS AND MATERIALS

Historic locations of amphibians and reptiles were recorded from the literature (see Bibliography) and museum specimen records; however, museum records only included Montana, not South Dakota. Records were received from over 20 major museums in North America. Location and other information was then entered into a database and digitized. Records from the Museum of Vertebrate Zoology, Berkeley, California, have not yet been received.

Survey sites were chosen based on three criteria: 1) High priority areas as determined by the CNF; 2) Location of streams, seeps and wetlands on topographic maps; and 3) accessibility of the wetlands by roads or hiking trails. Based on the above, 2-6 sites were chosen daily for surveys. Surveys were done in the following areas: Chalk Buttes, Ekalaka Hills, Long Pines, North Cave Hills, South Cave Hills, and Slim Buttes. Ten minutes - 2.5 hours 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 are deposited at the Idaho State University Museum. Water temperature, air temperature, and a general description of the area 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.

Locations of Herp Surveys on or near the Sioux District, Custer National Forest



Survey locations from the Montana Natural Heritage Program, 5/16/95

RESULTS AND DISCUSSION

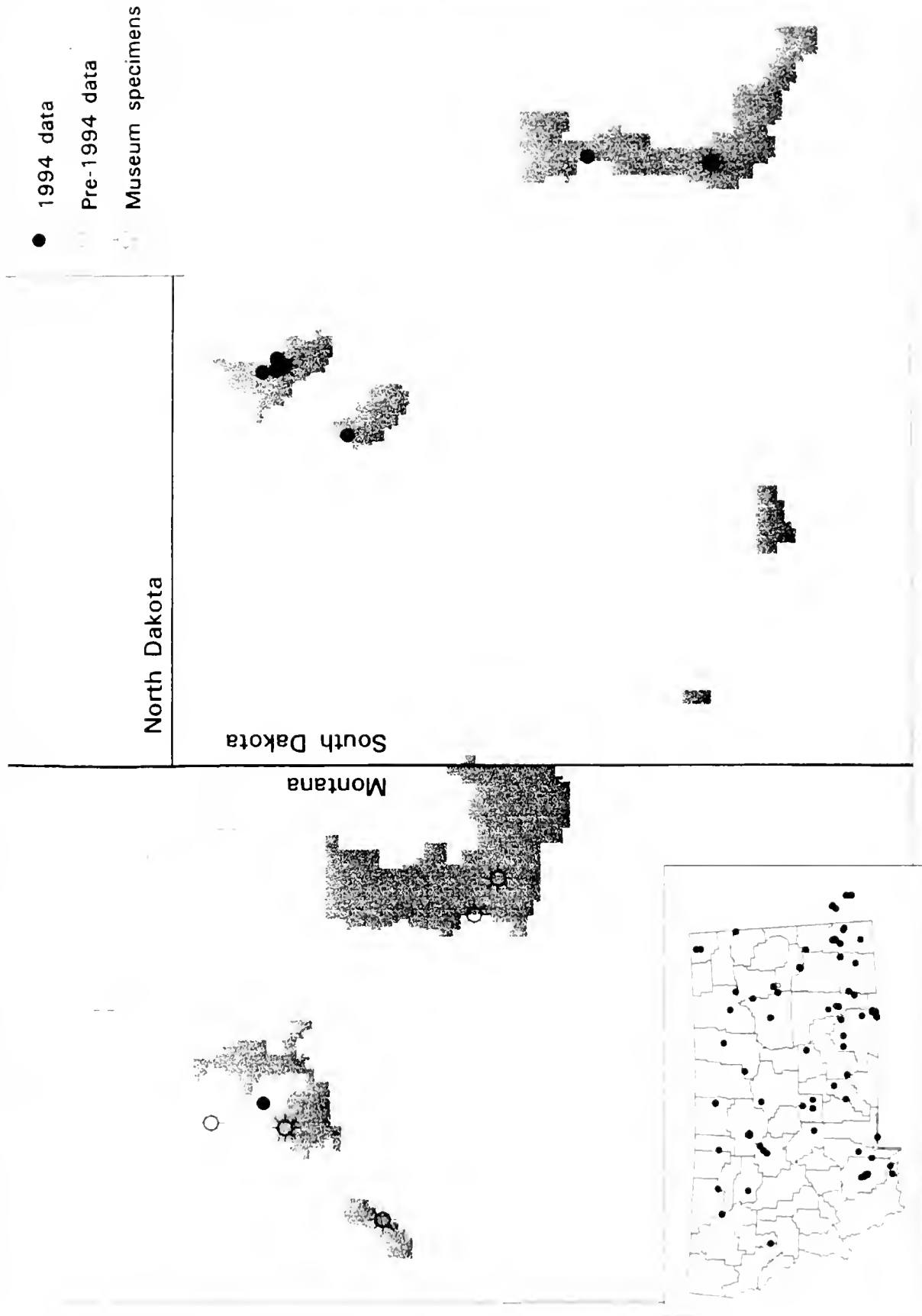
A total of 53 sites were surveyed of which 31 had one or more amphibian or reptile species present (Figure 1, Appendices 2 and 3). Although no species were found at 22 sites, their absence may have been due to the time of day, weather conditions, or other factors at the time of sampling. With two exceptions, all of the sites were on Sioux-CNF land.

In addition to the 53 surveys, there were a number of sightings (i.e. road kills, chance observations) for which data are available and the sightings considered reliable. Location data from surveys, chance encounters, and historic records (from the literature and museum specimens) are listed in Appendix 4. The survey and sighting data, in addition to any historical records, were used in constructing the enclosed distribution maps; statewide inset maps for each species are based on sight and specimen records, both recent and historic. Most historic data came from two surveys, one in 1916 by the U.S. Biological Survey with specimens housed at the U.S. National Museum (Smithsonian); and the other by the University of Kansas in 1970 with specimens housed in its Museum of Natural History.

No recent publications or reports on reptiles or amphibians concentrate on any area on the Sioux-CNF; the fauna of Harding County was discussed in general terms by Visher (1914). Based on museum specimens, publications which have recorded species in or near the Forest, and from personal accounts, seven amphibians (Tiger Salamander, Great Plains Toad, Woodhouse's Toad, Western Chorus Frog, Plains Spadefoot, Bullfrog, Northern Leopard Frog) and six reptiles (Painted Turtle, Sagebrush Lizard, Racer, Gopher Snake, Plains Garter Snake, Western Rattlesnake) have been reported on the Sioux-CNF. An additional five reptiles (Snapping Turtle, Short-horned Lizard, Western Hognose Snake, Western Terrestrial Garter Snake, Common Garter Snake) could potentially be found there. Four amphibian and six reptile species were actually observed during the study. A USFWS Category 2 Candidate, the Sagebrush Lizard, is reported here for the first time in the Sioux-CNF. The following results are presented as a species summary for the Sioux District as a whole, followed by specific information on each mountain range within the district.

In the following species accounts, sections on "Similar Species" cover only those species which are known or suspected to occur in Montana and northwestern South Dakota; 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).

Occurrences of *Ambystoma tigrinum* on or near the Sioux District, Custer National Forest



Species known to be present on the Sioux District of the Custer National Forest

Tiger Salamander (*Ambystoma tigrinum*)

Description: Adults have a smooth moist skin without scales and the color pattern is highly variable; usually the background color is dark, with lighter blotches of yellow, tan or green. The adult is large and heavy-bodied with a snout-vent length of 3-6". Adult Tiger Salamanders can be separated from other Montana species by: 1) their large sized and heavy body; and 2) two prominent tubercles on the bottom of each hind foot.

Eggs and Larvae: Egg masses are typically laid in small clusters of 5-120, but may be laid singly (Nussbaum *et al.* 1983, Leonard *et al.* 1993). They are usually attached to vegetation and placed 2"-10" below the surface of the water (Hammerson 1982a). Larval Tiger Salamanders are typically pale green or brown-colored, though those living in bentonite clay ponds may be nearly white. They are found in lakes and ponds, have external gills, and are relatively large (0.75-4" snout-vent) and heavy-bodied.

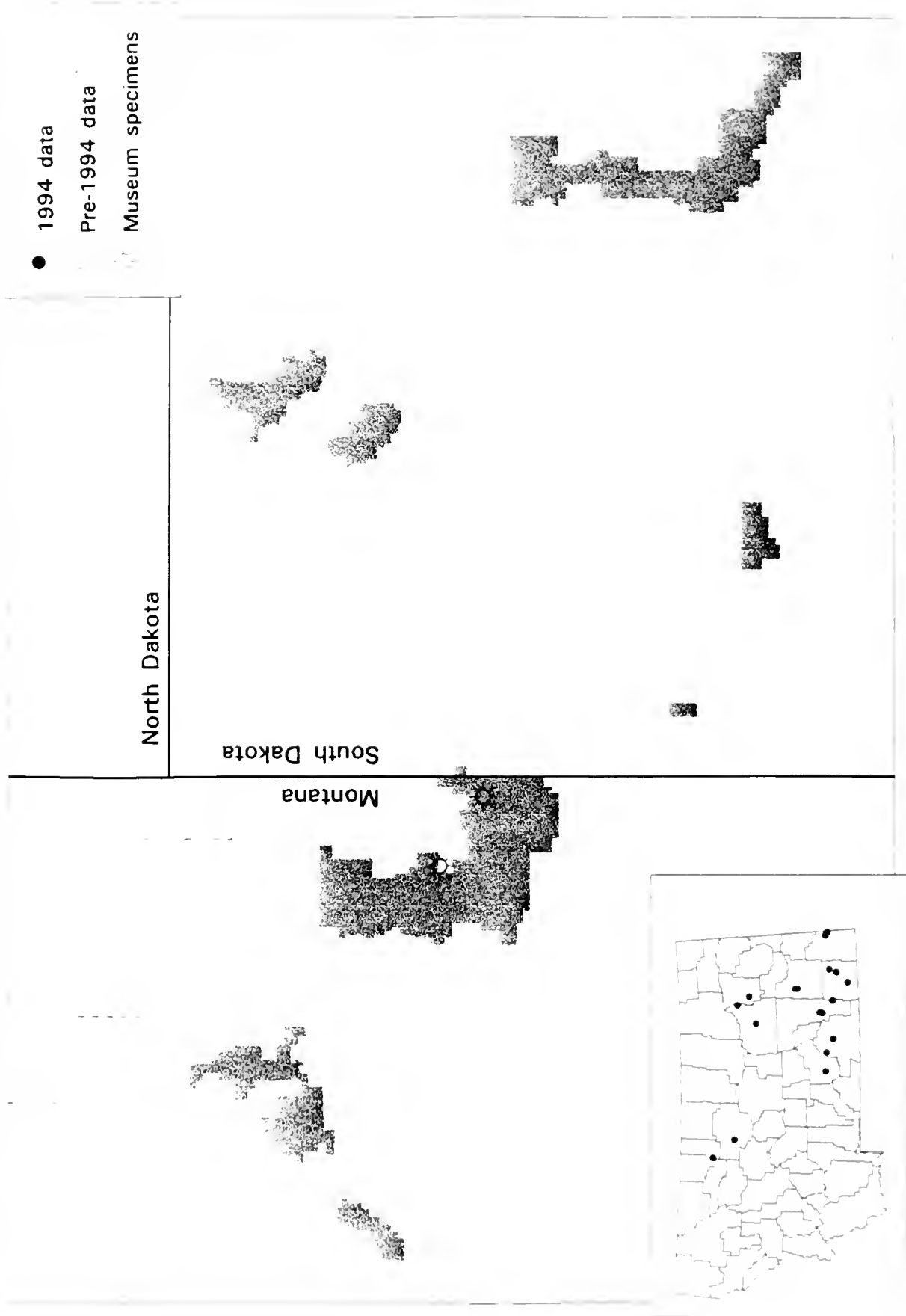
Similar species: None in the Sioux-CNF. Adult Tiger Salamanders have two prominent tubercles on the bottom of each hind foot which Idaho Giant Salamanders lack. Idaho Giant Salamanders also have a more marbled color pattern and a very large head.

Habitat and Habits: Tiger Salamanders in Montana and South Dakota are primarily associated with prairie or agricultural habitats in eastern Montana. On the Sioux-CNF they are also found in wooded draws and ponderosa pine forests. They breed in ponds or lakes, usually those without fish present. In arid areas, they may also be found in springs, intermittent streams, and stock ponds. Larvae found in our June surveys were mid- to large-sized. They were not found at any locations in September surveys; they had apparently already transformed. In Blue Lake, Madison County, Montana, eggs were laid from early June to mid-August, hatched in about 2 weeks, and metamorphosis occurred after more than a year (Micken 1968, 1971). In Colorado and Wyoming egg laying takes place from mid-March to mid-August (Hammerson 1982a, Baxter and Stone 1985). Following breeding, adults may either remain in the pond or move to upland areas and live in burrows of their own or in those of other animals. Eggs hatch in 2-5 weeks in Colorado and metamorphosis occurs after 2-24 months (Hammerson 1982a). In some locations, such as Blue Lake in Madison County, larval salamanders never transform, but rather become sexually mature and breed while still retaining external gills. This process is referred to as neoteny and these salamanders are often referred to as "axolotls" or "water dogs." Neoteny may be rare on the Sioux-CNF since none were found in September-October surveys.

Surveying: Larvae and eggs may be seen in ponds during the day and may be sampled with a dipnet. Migrations of hundreds or thousands of newly transformed adults are occasionally seen in mid-late summer or early fall. During the breeding season, adults are often seen moving to or away from the water or breeding in it. Pitfall and minnow traps may be used at this time to capture adults. Throughout the rest of the summer adults are difficult to find; using pitfall traps or driving roads on warm rainy nights may be the best techniques then.

Status: The most common salamander in eastern Montana. They are known from all Units in the Sioux-CNF except the Short Pine Hills and should be considered common on the District. Montana Natural Heritage Program rank: G5 S5.

Occurrences of *Bufo cognatus* on or near the Sioux District, Custer National Forest



Species locations from the Montana Natural Heritage Program, 5/16/95

Great Plains Toad (*Bufo cognatus*)

Description: Adults have dry skin with small warts. The coloration is dominated by a number of large, dark, somewhat symmetrical spots surrounded by light edges on the back. The dorsal background color is gray, light brown or olive green. The Great Plains Toad has converging v-shaped 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. The pupils are horizontal. The adult has two black tubercles on the hind feet and a body length of 2-3.5".

Eggs and Tadpoles: Similar to the Western Toad.

Similar species: Other Montana toads lack the somewhat symmetrical spotted pattern on the back. **NOTE:** It is very difficult to distinguish among the four Montana toad species in recently transformed toadlets.

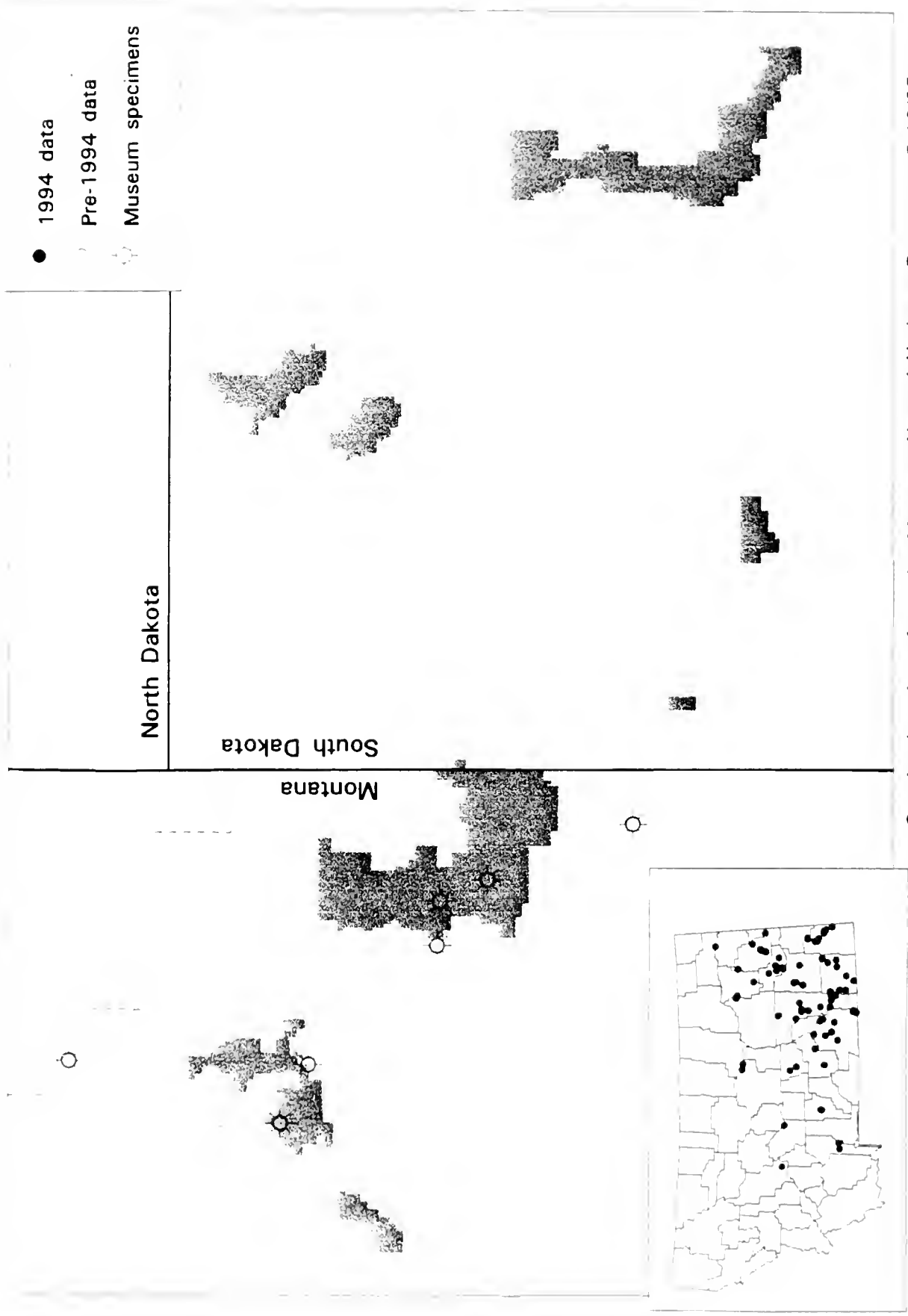
Habitat and Habits: Adults may favor higher elevation grasslands than Woodhouse's Toad which favors floodplains (Bragg 1940, Timkin and Dunlap 1965, Black 1970). They have also been found in agricultural areas, open Ponderosa pine forests and savannahs in southeastern Montana (Black 1970). They are most active on nights following heavy rains (Hammerson 1982a). They normally breed in temporary ponds resulting from heavy rains or irrigation runoff or reservoirs with much fluctuation (Bragg 1940, Hammerson 1982a). In Montana breeding apparently occurs from May to July (Black 1970). Females lay strings of eggs which hatch after 2-3 days (Hammerson 1982a). Young typically metamorphose after about 1.5 months, though this has been reported to occur in as few as 17 days (Hahn 1968, Hammerson 1982a). They spend much of the year underground and emerge in response to warm rains.

Surveying: Adults may be located by using their loud, identifying calls on warm (>60° F) nights following heavy rains (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: Occurs in localized areas in eastern Montana, with large gaps in its known range. Its geographic and habitat relationships with other toads in Montana are not well known. It was not found during our 1994 surveys on the Sioux-CNF, but historic museum records exist from the Long Pines; it was reported from "just west of the North Cave Hills" and "near the Slim Buttes" by Visher (1914). It should be watched for at low elevations in prairie or shrub-steppe habitat on the Sioux-CNF. Any located on the Sioux-CNF should be well-documented with a description written at the time indicating how this species was differentiated from other toads present in Montana.

Montana Natural Heritage Program rank: G5 S4.

Occurrences of *Bufo woodhousii* on or near the Sioux District, Custer National Forest



Species locations from the Montana Natural Heritage Program, 5/16/95

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. It 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 the Western Toad.

Similar species: Western Toad lacks cranial crests. 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 post-orbital crest and post-orbital crest broken or absent.

NOTE: It is very difficult to distinguish among the four Montana toad species in recently transformed toadlets.

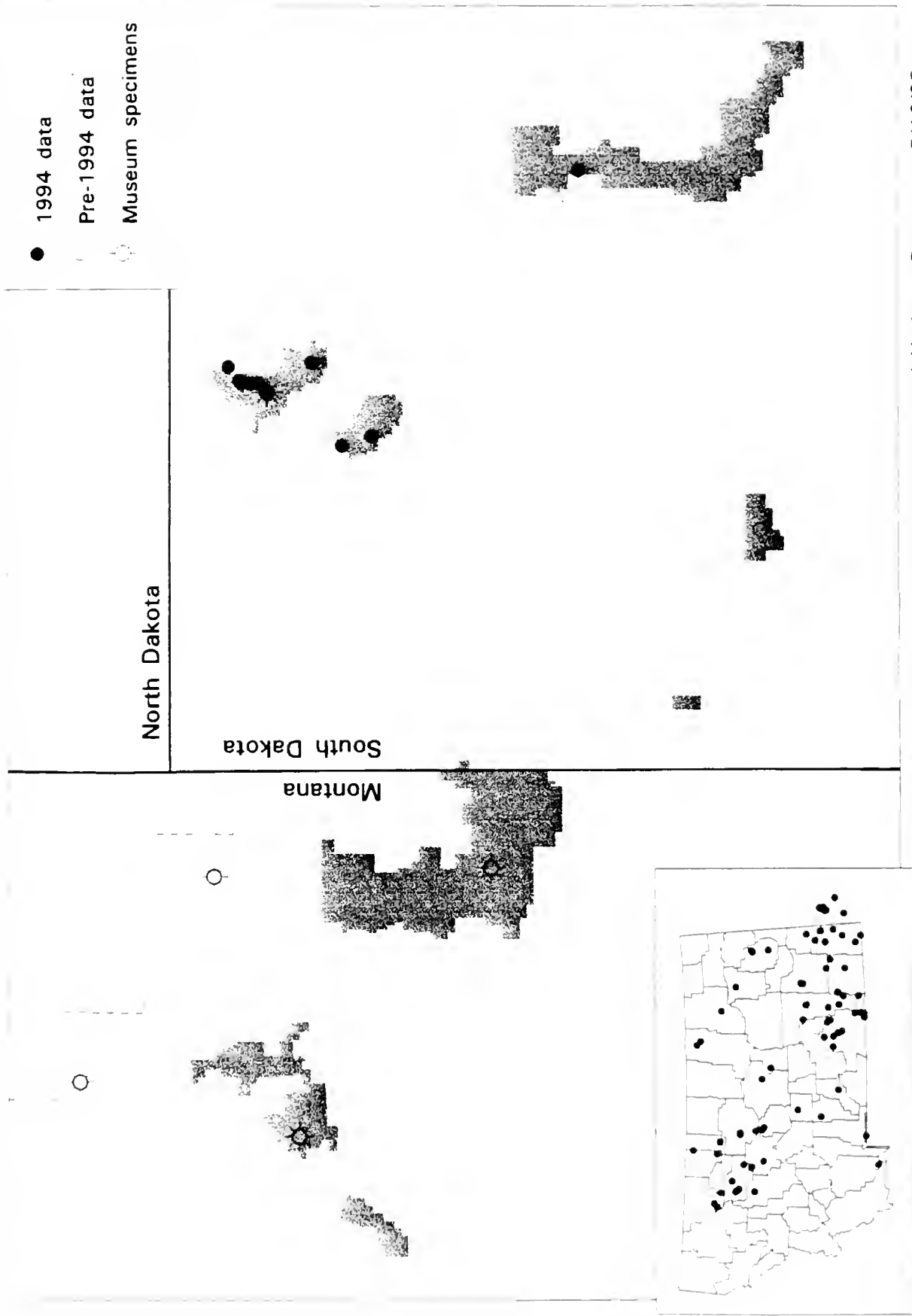
Habitat and Habits: The adults are partially terrestrial but often found near water. They are usually found in irrigated agricultural areas and floodplains, versus the upland areas used by Great Plains Toads (Bragg 1940, Timkin and Dunlap 1965, Black 1970). They are most active at night, although they may at times be found out 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: It was not found during our 1994 surveys on the Sioux-CNF. Historic locations are known from the Ekalaka Hills and Long Pines in Montana and it was reported (as *B. americanus*) from Harding County by Visser (1914) who called it "quite plentiful especially around buildings." Woodhouse's Toad is relatively common in southeastern Montana; however, its status elsewhere in the state is unclear. Its geographic and habitat relationships with other toads in Montana are not well known. It should be watched for particularly in prairie or shrub-steppe habitat on the Sioux-CNF. Any located on the Sioux-CNF should be well documented with a description written at the time indicating how this species was differentiated from other toads present in Montana.

Montana Natural Heritage Program rank: G5 S4.

Occurrences of *Pseudacris triseriata* on or near the Sioux District, Custer 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 and are not present near the CNF. Recently metamorphosed Ranid frogs could be confused with this species, but the coloration differs and the tiny toe pads are lacking.

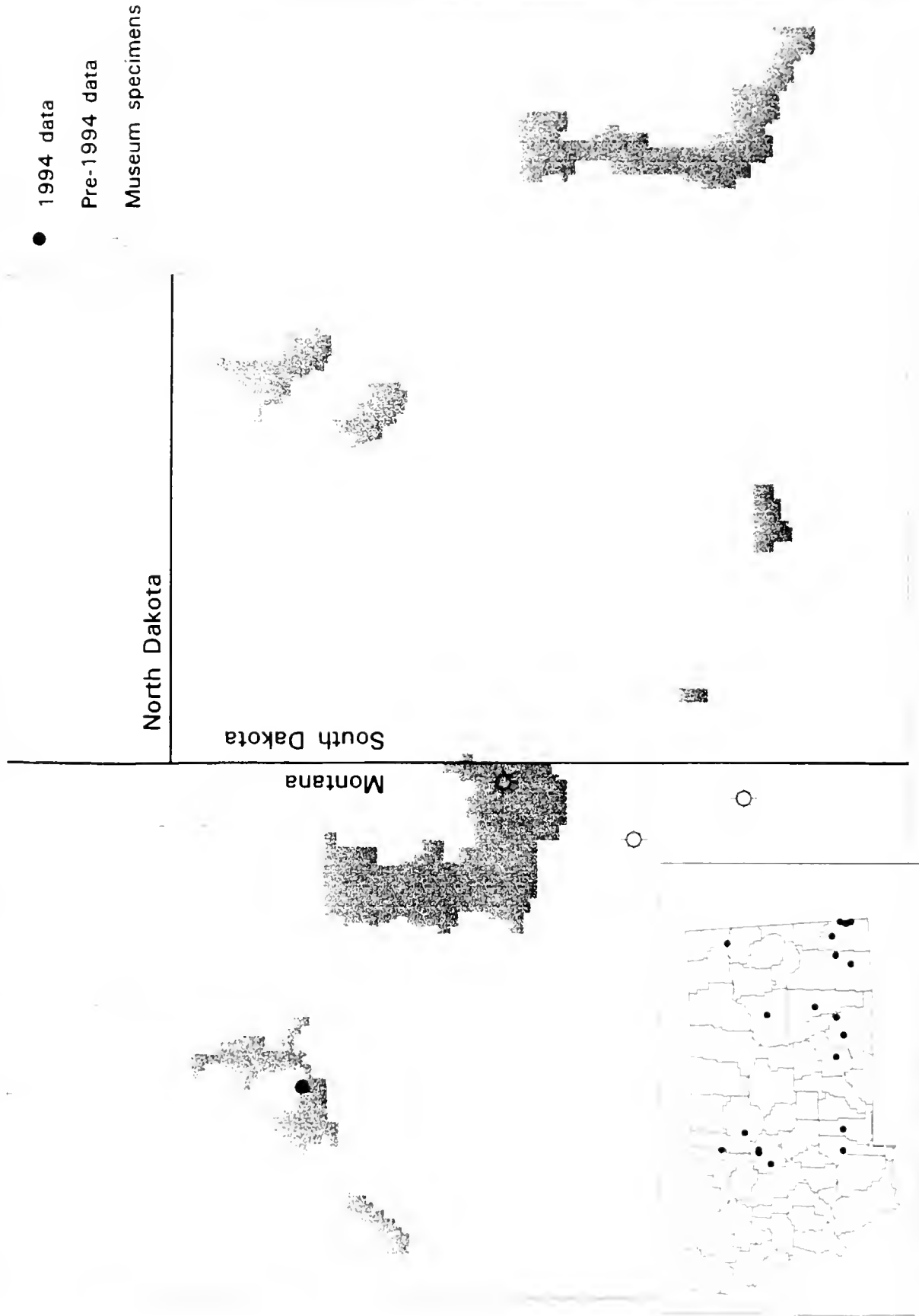
Habitat and Habits: Western Chorus Frogs are regularly found in the water only during the breeding period in spring. Their presence is obvious during this time due to their call which is given frequently at night and sporadically throughout the day. Calls were rarely heard during the surveys of the Sioux-CNF; it seems apparent that breeding had finished by the time we surveyed in mid-June. 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. Small to mid-sized tadpoles were present at three sites during our mid-June survey, and had apparently metamorphosed by the September survey (Appendix 2,3). 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. Probably common throughout the Sioux-CNF; we recorded them from the North Cave Hills, South Cave Hills, and Long Pines in South Dakota. Historic records exist from Montana in the Long Pines and Ekalaka Hills (Appendix 4) and the East Short Pine Hills (Visher 1914).

Montana Natural Heritage Program rank: G5 S5.

Occurrences of *Scaphiopus bombifrons* on or near the Sioux District, Custer National Forest



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.

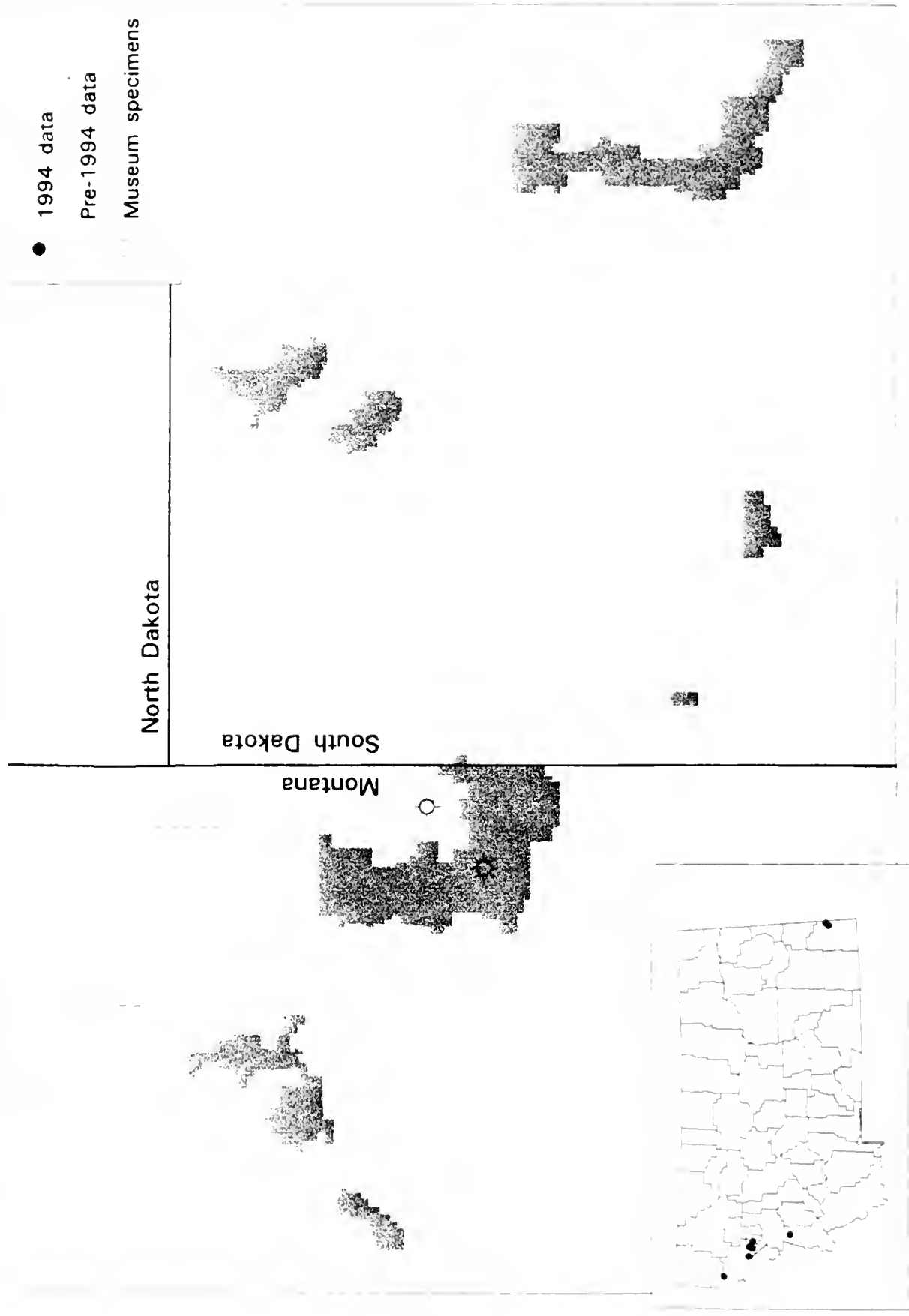
Habitat and Habits: Adults are found in grassland and sagebrush areas, particularly in areas with sandy or loose soil (Wheeler and Wheeler 1966, Hammerson 1982a, Baxter and Stone 1985). Except during breeding, they are seldom found in the water. They are primarily nocturnal and emerge from their burrows 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° F (Hammerson 1982a). 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 was found at a single location in the Ekalaka Hills during our 1994 survey; there is also an historic location from the Long Pines (Appendix 4). It is locally common in eastern Montana, but there are large gaps in the known range. It should be watched for in prairie or shrub-steppe habitat on the Sioux-CNF. Any located on the Sioux-CNF should be well-documented.

Montana Natural Heritage Program rank: G5 S4?

Occurrences of *Rana catesbeiana* on or near the Sioux District, Custer National Forest



Species locations from the Montana Natural Heritage Program, 5/16/95

Bullfrog (*Rana catesbeiana*)

Description: The largest of North American frogs, adult Bullfrogs may reach 8 inches in body length. The skin is smooth. Adults are usually pale to dark green or brownish green with darker spots or blotches. There are a series of black bands across the legs. The underside is cream to yellowish with gray mottling. No dorso-lateral folds are present, however there is a prominent ridge running from the eye over the tympanum to the shoulder. Males have extensive yellow pigment on the underside, especially in the throat region, and swollen thumbs. The diameter of the tympanum is larger than the diameter of the eye in males but about the same size in females.

Eggs and Tadpoles: Egg masses are a 1-2 egg thick film of thousands of eggs and may reach several feet across. Tadpoles may reach 4.5" in total length and are olive green with numerous black spots dorsally; the belly is white to creamy with varying amounts of dark mottling.

Similar species: Other Montana Ranid frogs have dorso-lateral folds.

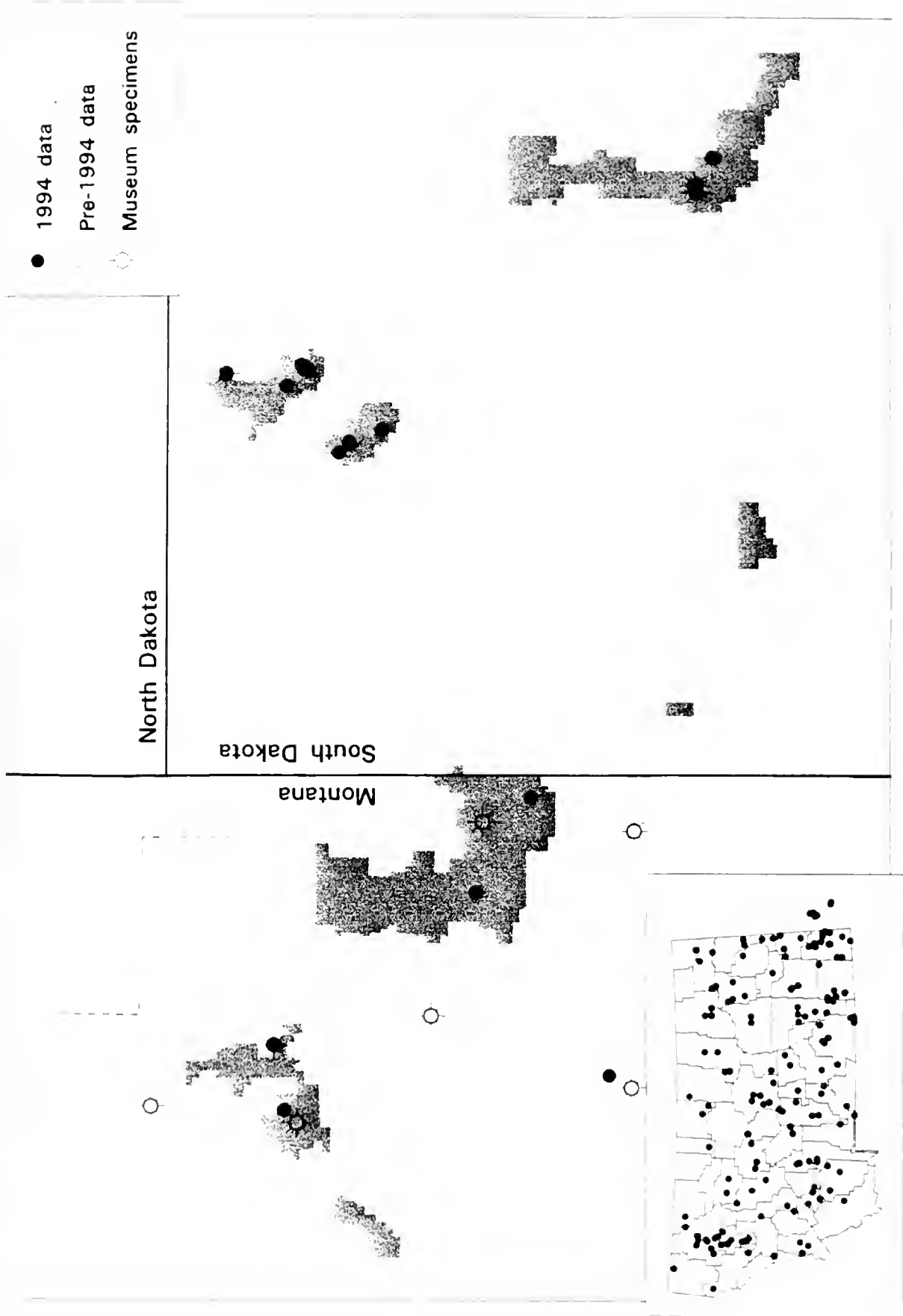
Habitat and Habits: Bullfrogs are rarely seen far from the water's edge and are usually in the water. They are associated with larger bodies of quiet water such as ponds, lakes or backwaters of streams, usually with extensive emergent vegetation such as cattails or reeds. They emerge in the spring only after air and water temperatures have warmed considerably and insect populations are beginning to proliferate. Breeding takes place in June when males attract females to their territory by a series of very deep, loud "brr-umps." The large mass of eggs tend to float on the surface when first laid, but sink into the water prior to hatching (Hammerson 1982a, Nussbaum *et al.* 1983). Tadpoles over-winter in the Pacific Northwest, transforming during their second summer (Nussbaum *et al.* 1983, Leonard *et al.* 1993). The bullfrog is a voracious feeder, eating anything smaller than itself, including ducklings, fish, mice, frogs, and small turtles. Bullfrogs have been implicated in extirpations of native frogs and turtles, and declines in waterfowl production (Hammerson 1982b, Leonard *et al.* 1993).

Surveying: Both tadpoles and adults can be easily detected visually or sampled by using a dipnet; both may be found from spring through fall. Capture success of adults is enhanced by night sampling using a headlamp, as they are very wary and do not allow close approach during the day. Eggs are also easy to detect when laid in the early summer.

Status: Bullfrogs are native to the eastern and central U.S. and have been introduced to the western states. There are two historic records from 1970 in the Long Pines (Appendix 4). They were introduced into western Montana prior to the 1960's, but the date when they were first brought to southeastern Montana is unknown. Bullfrogs were not recorded on our surveys; however, the specific sites of the 1970 collections were not re-surveyed. They should be watched for in ponds, lakes, or slow streams on the Sioux-CNF. Any located on the Sioux-CNF should be well-documented.

Montana Natural Heritage Program rank: G5 SE4

Occurrences of *Rana pipiens* on or near the Sioux District, Custer National Forest



Species locations from the Montana Natural Heritage Program, 5/16/95

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. Tadpoles were large by the time of the June surveys and metamorphosed prior to the surveys in September. I estimate breeding probably occurred in April during 1994, but the sample size is small. In Colorado, eggs hatch in 4-15 days and tadpoles take 8-15 weeks to metamorphose, depending on water temperature (Hammerson 1982a).

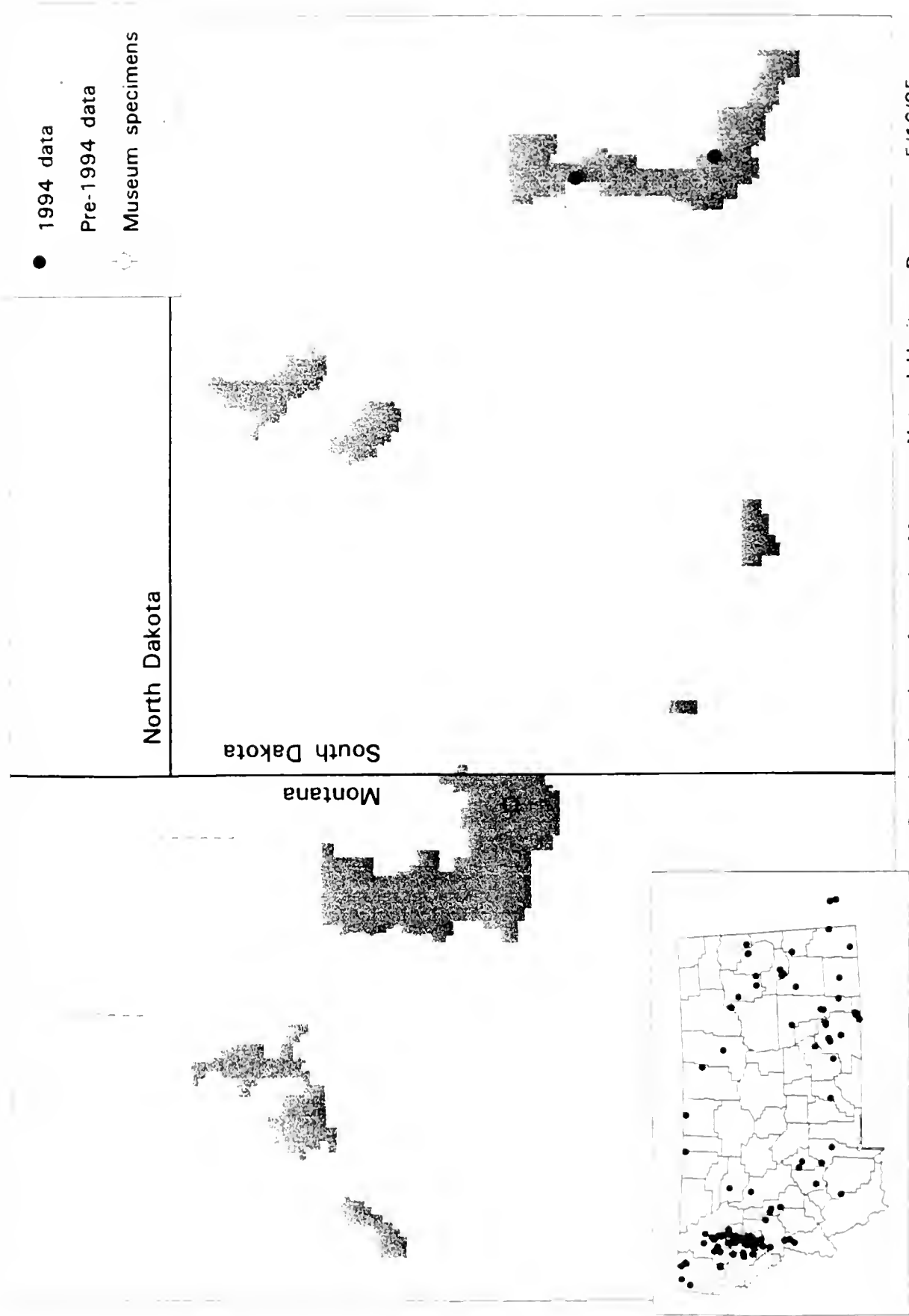
Surveying: Both adults, tadpoles, and eggs are easily seen in and along the water during the day and can be sampled with a dipnet; adults may also be captured by hand. At very low densities adults may be difficult to find and may be detected using a call recorder. Tadpoles are difficult to tell from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

Status: Northern Leopard Frogs are now absent from many areas in North America where they were common a few decades ago. Widespread extinctions are known from Alberta (Koonz 1993), Wyoming, Colorado (Hammerson 1982b, Corn and Fogelman 1984), Idaho (Groves and Peterson 1992), Washington, and Oregon (Leonard *et al.* 1994). 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).

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 (Werner and Plummer 1995, Werner and Reichel 1994). Its status is uncertain in central and northeastern Montana, and it appears that only localized populations are present on the western edge of the plains (Reichel 1995). It is still abundant and widespread in southeastern Montana and northwestern South Dakota on the Sioux-CNF; however, only 5 breeding sites were located (Appendix 3). Visher (1914) called it abundant in Harding County. Whether this was the result of surveying too late, or of very poor reproductive success, is unknown. Given its dramatic declines elsewhere in Montana and other states and provinces, breeding sites should be documented and a long-term monitoring program begun.

Montana Natural Heritage Program rank: G4 S4.

Occurrences of *Chrysemys picta* on or near the Sioux District, Custer National Forest



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 in adults.

Similar Species: None.

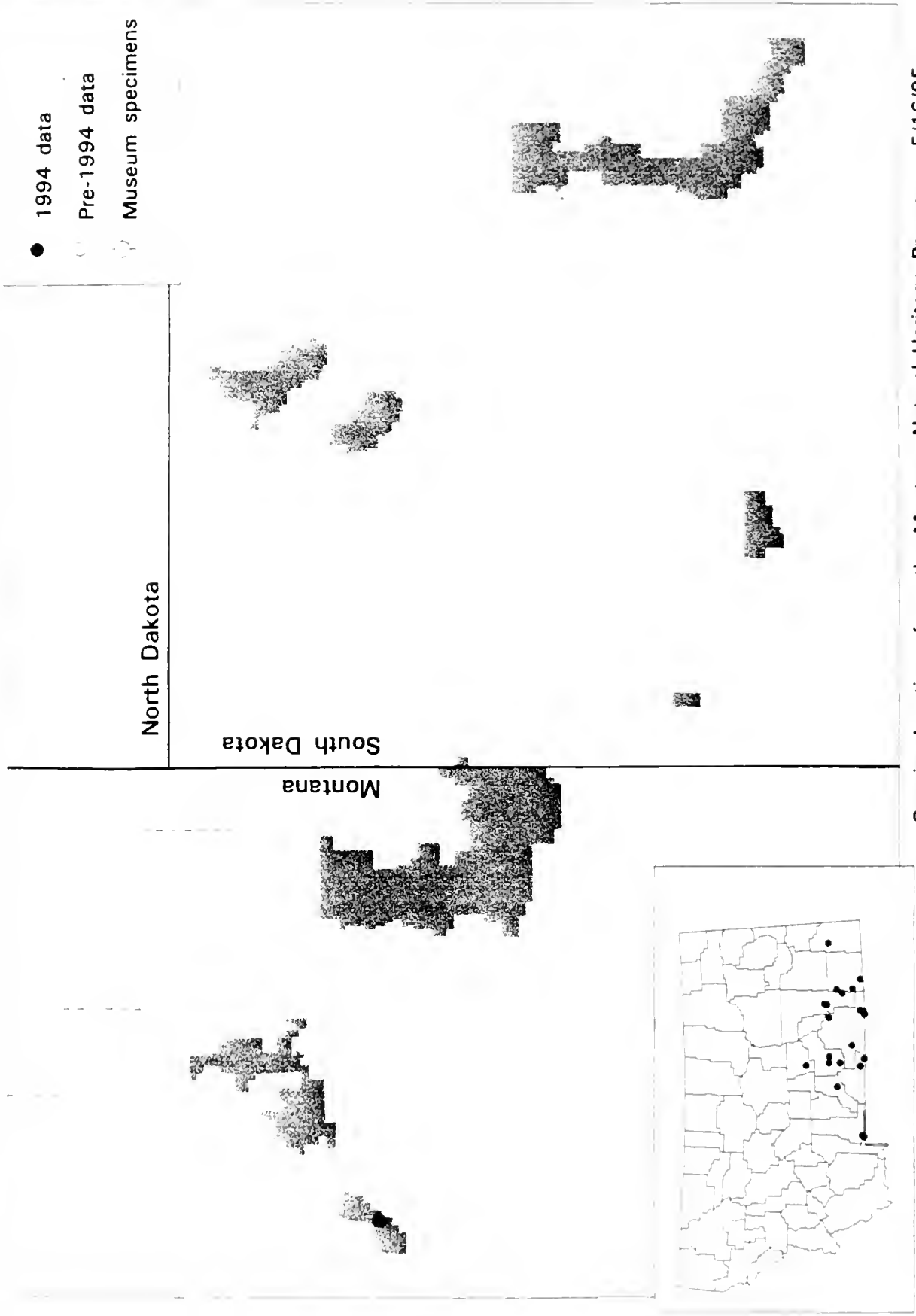
Habitat and Habits: Painted Turtles are active during the day and are rarely seen far from ponds, lakes, or the slow-moving water of streams. Painted Turtles observed during this survey were in a pond and reservoir. Adults are primarily herbivorous, feeding on a variety of aquatic plants, but will also 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 in search of 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 located at two sites in Slim Buttes on the Sioux-CNF, and an historic record is known from the Long Pines. Visser (1914) said they were "plentiful in streams" in Harding County. There has been some concern about Painted Turtle populations nationally, and whether declines have occurred in Montana is unknown. It should be watched for on the Sioux-CNF, and any animals located should be documented.

Montana Natural Heritage Program Rank: G5 S5.

Occurrences of *Sceloporus graciosus* on or near the Sioux District, Custer National Forest



Sagebrush Lizard (*Sceloporus graciosus*)

Description: The Sagebrush Lizard is small (1.5 - 2.5" body length) and narrow-bodied. The color pattern in adults consists of alternating dark and light stripes running down the back. The colors are typically brown, gray, and cream. Males have mottled blue throat patches and bright blue belly patches, while females are white or yellow below (Censky 1986). The body and tail scales appear somewhat spiny.

Eggs and young: There are 2-7 tough, white leathery eggs in a clutch, averaging about 7.5 X 12 mm (Nussbaum *et al.* 1983). Body length of hatchlings is about 25 mm, and coloration is similar to adults.

Similar species: The Western Skink has smooth, shiny scales on the body and tail; the Short-horned Lizard has a wide body.

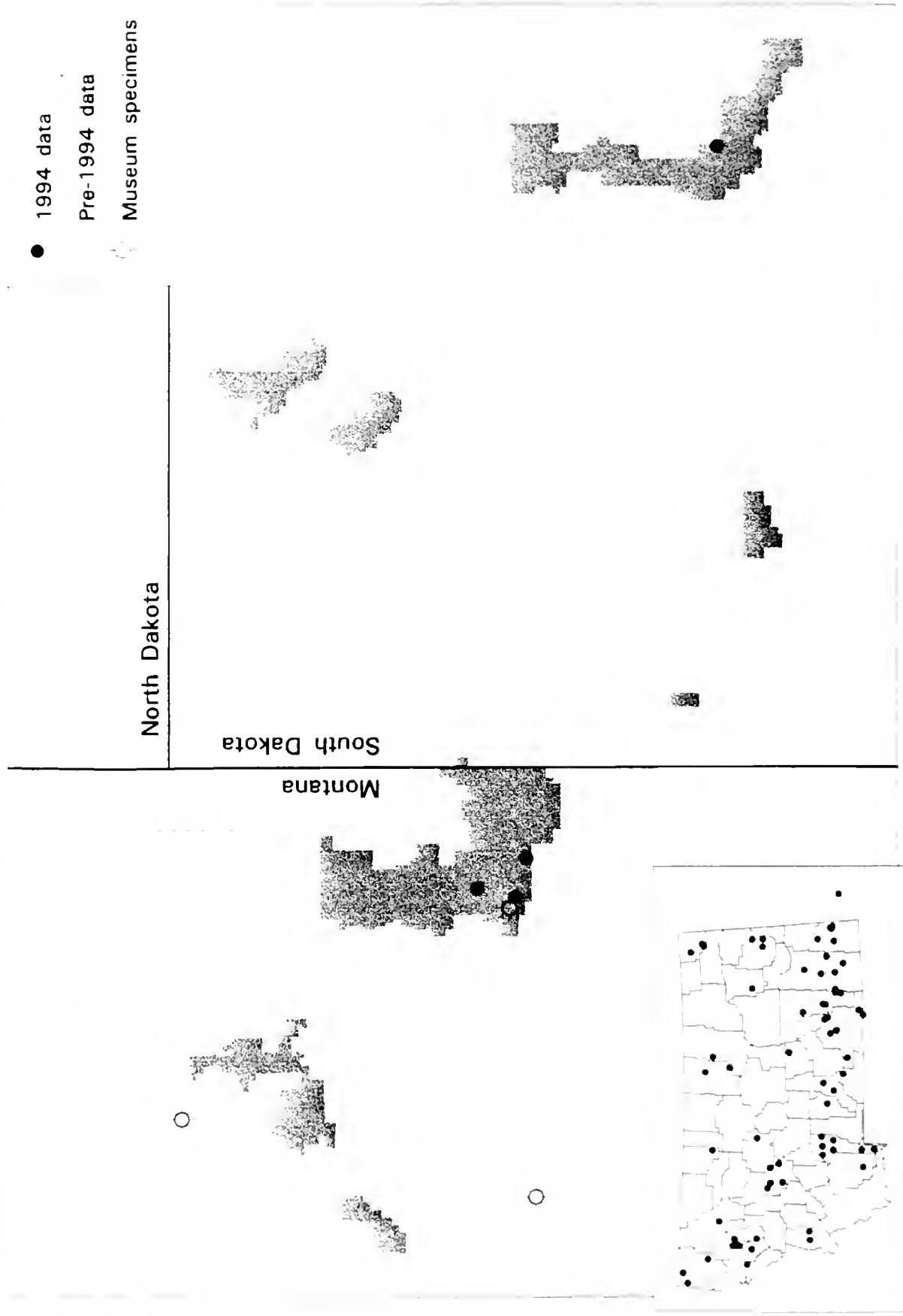
Habitat and Habits: Sagebrush Lizards are found primarily in sagebrush areas, but also occur in open forests and brush lands; they are found in both areas of fine soils and rocky outcrops (Hammerson 1982a, Baxter and Stone 1985, Nussbaum *et al.* 1983). In the Yellowstone area, they are found near thermal features (Mueller 1969). They are active during the day, with peaks of activity around 10 a.m. and 4:30-5:30 p.m. (Hammerson 1982a). Females lay eggs in loose or sandy soil in early summer; the young hatch in late summer. They feed primarily on insects and other arthropods.

Surveying: They may be surveyed for by slowly walking through appropriate habitat on warm, sunny days and carefully watching for them; this technique is very effective for the Sagebrush Lizard. However, as with many lizards and snakes, they may easily be missed if conditions are not correct. Carefully-documented incidental observations provide excellent clues to their distribution. They may be captured with a pole and noose or may be also taken in funnel traps with drift fences. Mark-recapture methods offer the best opportunity for determining population status.

Status: The subspecies in Montana (*S. g. graciosus*) is a U.S. Fish and Wildlife Service Category 2 Candidate species (USFWS 1994). It is locally common in southern Montana, from Yellowstone Park eastward to at least Chalk Butte in Carter County. On the Sioux-CNF, no historic records exist, and our single record from Chalk Butte is the eastern-most record from Montana. They are known from the western border of South Dakota south of Harding County (C. R. Peterson pers. comm.), and two disjunct populations are known from the western edge of North Dakota (Censky 1986). This Candidate species should be watched for on the Sioux-CNF, and any animals located should be documented.

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

Occurrences of Coluber constrictor on or near the Sioux District, Custer National Forest



Species locations from the Montana Natural Heritage Program, 5/16/95

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. The Rubber Boa has very small eyes and is very slow and docile.

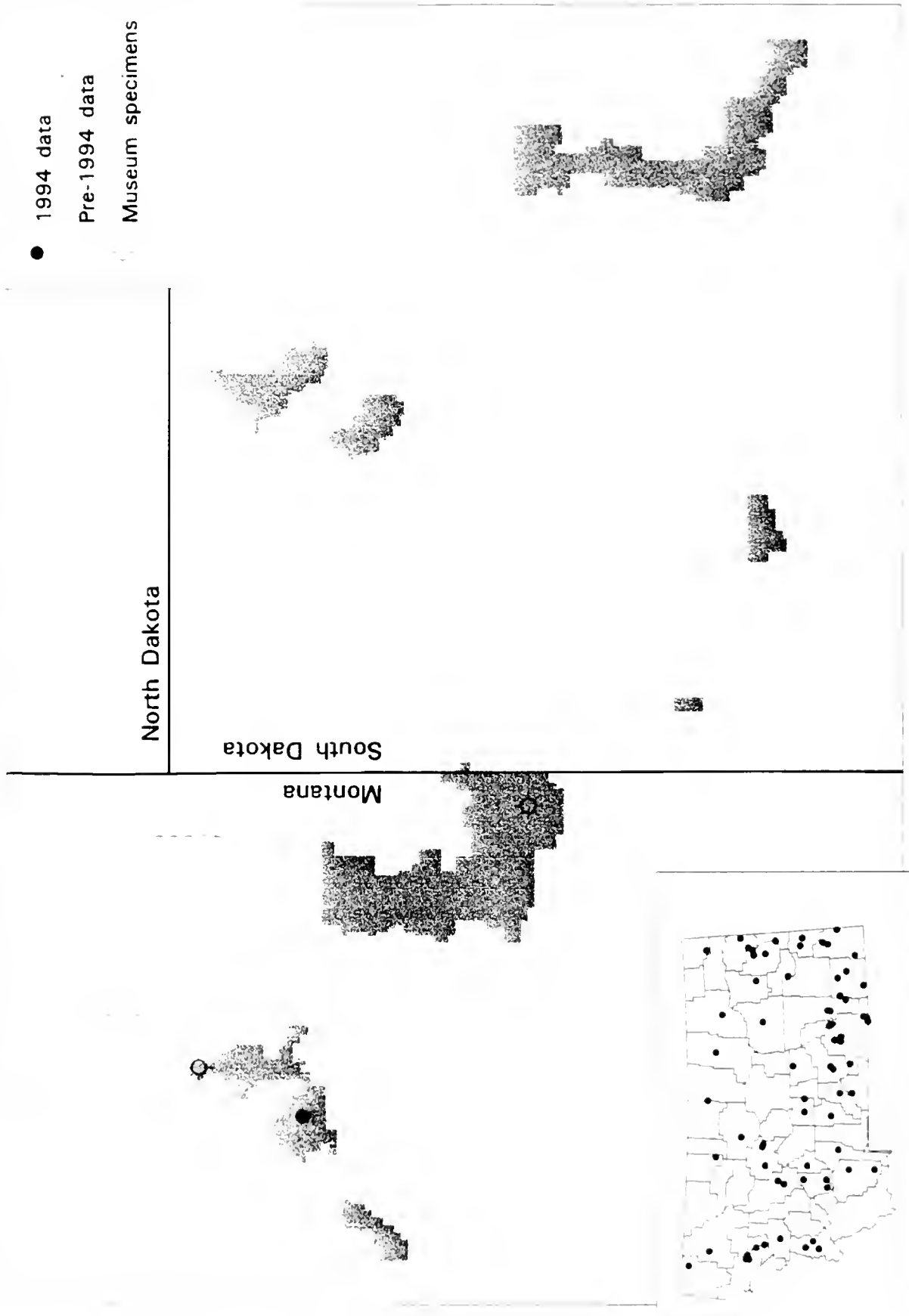
Habitat and Habits: The Racer is associated with more open habitats either in shortgrass, shrub-steppe, or forested areas (Hammerson 1982a, Baxter and Stone 1985). It is often found near water and rocks. The Racer is an extremely fast and agile snake. A clutch of perhaps 3-7 eggs is laid in the summer (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 is a relatively common snake throughout much of Montana. It was seen at three locations in the Long Pines and once at Slim Buttes during this survey. There are historic records from north and south of Chalk Buttes and the Ekalaka Hills. They probably occur on all units of the Sioux-CNF and Visher (1914) said it was "occasional on the plains" in Harding County; 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 *Pituophis catenifer* on or near the Sioux District, Custer National Forest



Species locations from the Montana Natural Heritage Program, 5/16/95

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 from 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.

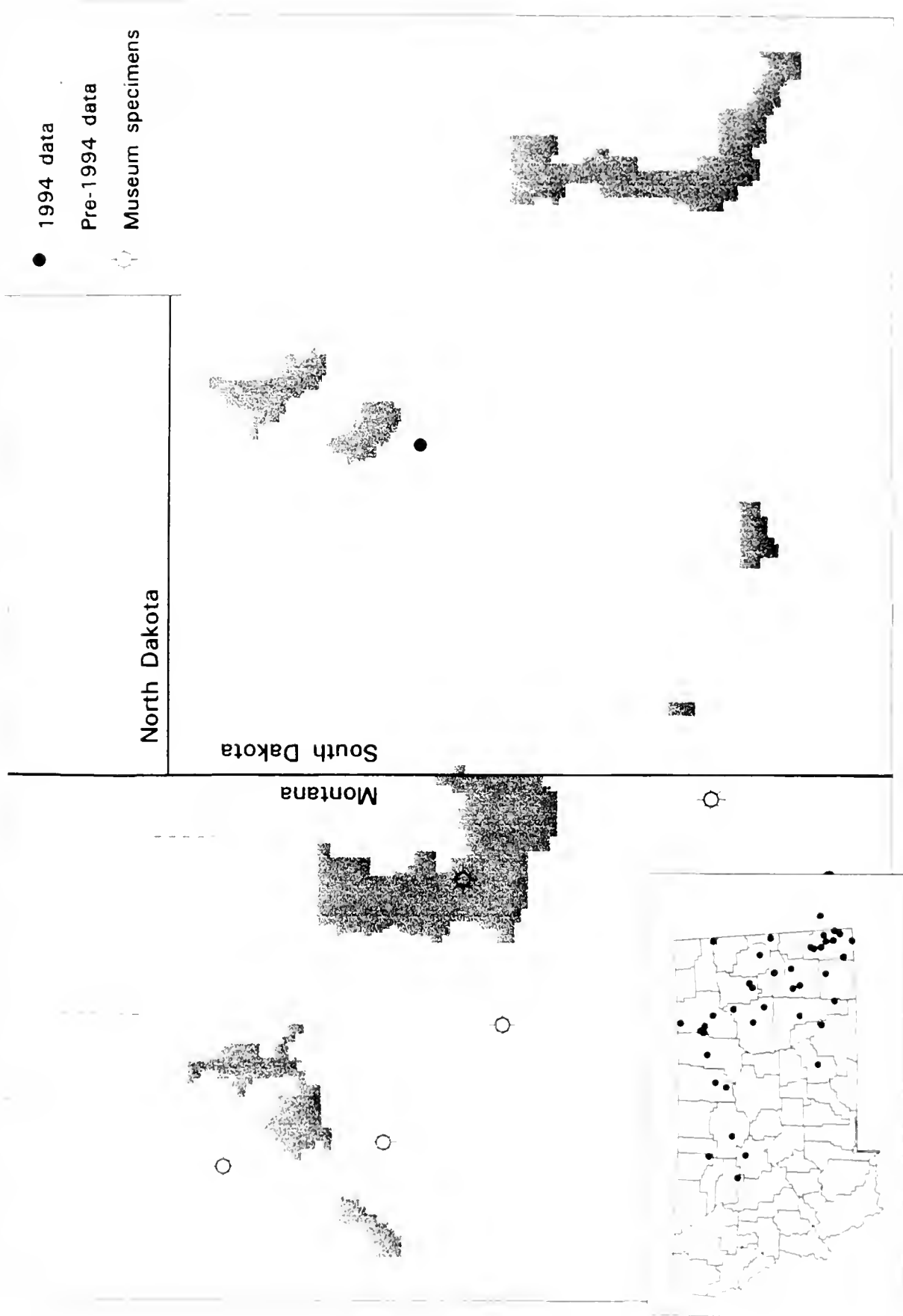
Habitat and Habits: Gopher Snakes are associated with dry, arid habitats, including grassland, shrub-steppe, and open pine forest. They feed on rodents, rabbits, ground-dwelling birds, and to a lesser extent on frogs and toads found around stock ponds and other wetlands. They have a habit of hissing 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 seen once in the Ekalaka Hills during this survey and there are historic records from the Ekalaka Hills and Long Pines on the Sioux-CNF. They probably occur on all units of the Sioux-CNF and Visher (1914) said it was the most abundant snake in Harding County; 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 *Thamnophis* radix on or near the Sioux District, Custer National Forest



Plains Garter Snake (*Thamnophis radix*)

Description: The Plains Garter Snake ranges from 16-42" in length and has a dorsal background color of olive, brown, or black. It has a prominent orange or yellow dorsal stripe and a greenish-yellow stripe on each side located on the 3rd and 4th scale rows above the belly scales. It typically has black vertical bars on the upper lips.

Young: Young are live-born and resemble adults.

Similar species: The other garter snakes found in Montana have the lateral yellow lines on the 2nd and 3rd scale rows above the belly scales.

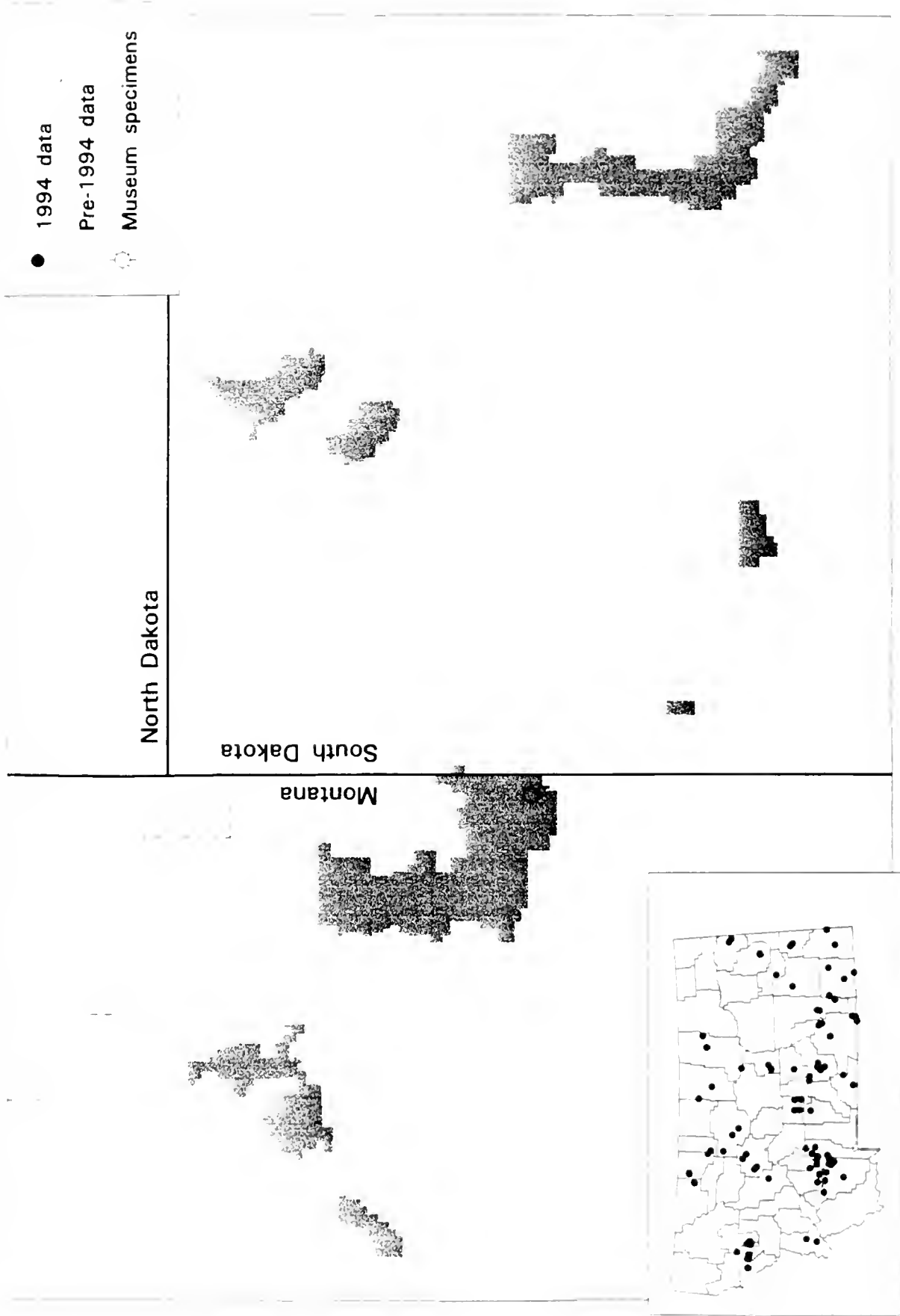
Habitat and Habits: Plains Garter Snakes are found in prairie habitats but are most common around wetland areas, where they feed around permanent and semi-permanent water bodies. Fish, frogs, toads, mice and invertebrates are the most common food items in the diet of the Plains Garter Snake (Hammerson 1982a, Baxter and Stone 1985). Typical of most garter snakes, they emit a noxious secretion when handled and can be aggressive when disturbed. The Plains Garter Snake is a live-bearer, giving birth to 9-21 young during mid- to late-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 may be 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: Found over much of eastern Montana. Its status is unclear due to confusion in the identification of the 3 garter snakes which occur there. The only location of the Plains Garter Snake from on the Sioux-CNF is an historic record from the Long Pines (Appendix 4). We found one just south of the South Cave Hills during our surveys of the Sioux-CNF; it has also been recorded historically from areas near CNF lands in Montana. It should be watched for in the Sioux-CNF and any sightings should be well-documented with a description written at the time of observation including how *radix* was distinguished from the other garter snakes. Of particular interest would be documentation of any denning sites located.

Montana Natural Heritage Program Rank: G5 S4.

Occurrences of *Crotalus viridis* on or near the Sioux District, Custer National Forest



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.

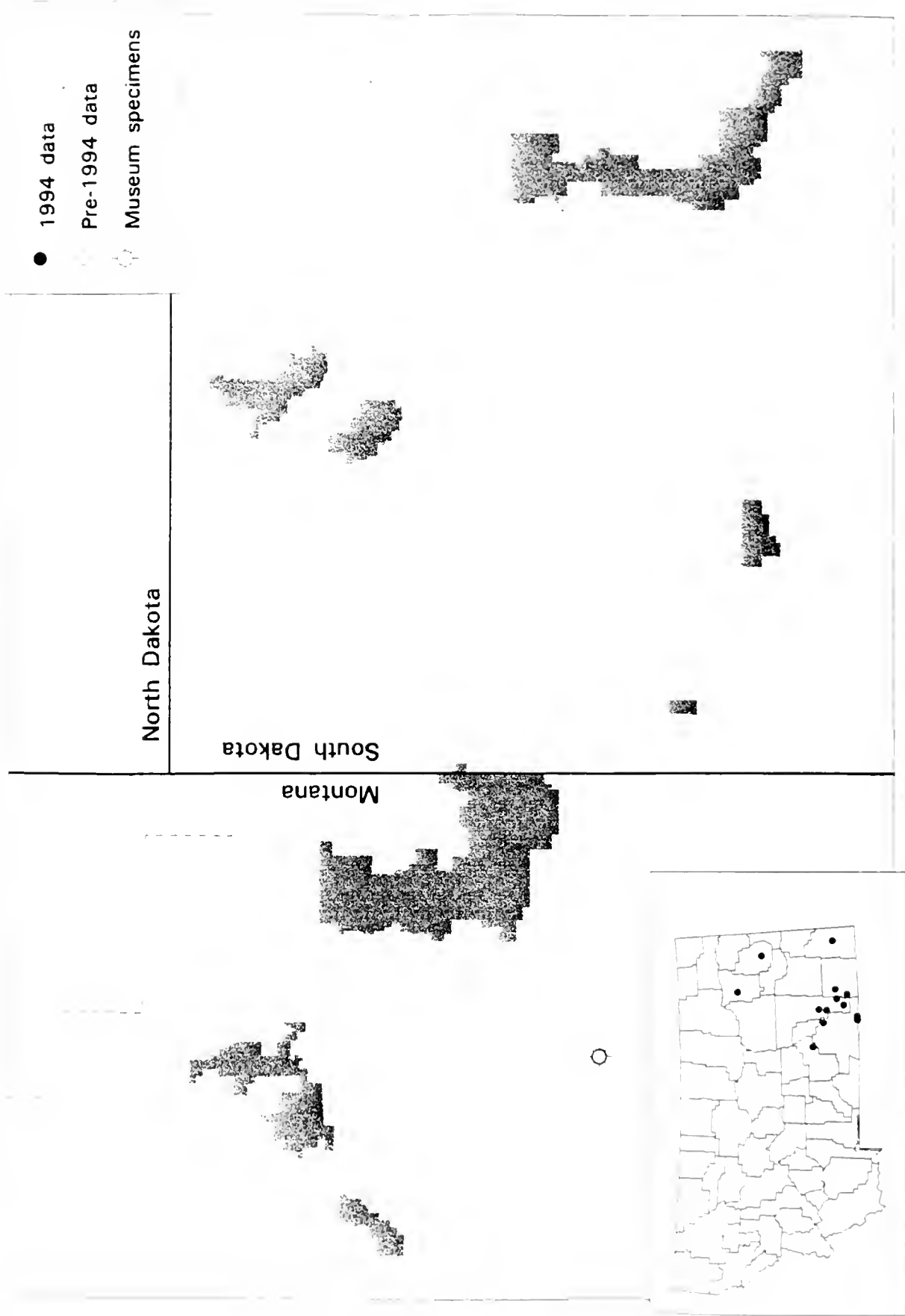
Habitat and Habits: The Western Rattlesnake is an inhabitant of more open and arid country, but it is also found in Ponderosa pine stands or mixed-grass coniferous forests. It is more likely to be encountered on south-facing slopes and areas of rock outcrops. It is feared due to its poisonous bite and therefore often needlessly killed. 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 at 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. Females give birth to 4-21 young in Colorado during the summer (Hammerson 1982a).

Surveying: Walk-through surveys on warm sunny days are probably among the best methods for determining presence/absence; 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 Sioux-CNF during our surveys but is known historically from the Long Pines (Appendix 4), and Visser (1914) considered it locally common in Harding County. 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 other Units of the Sioux-CNF; of particular interest would be documentation of any denning sites located.

Montana Natural Heritage Program Rank: G5 S4.

Occurrences of *Chelydra serpentina* on or near the Sioux District, Custer National Forest



Species Potentially Present on the Custer National Forest

Snapping Turtle (*Chelydra serpentina*)

Description: The Snapping Turtle appears too large for its shell. The upper shell is olive-gray, or brown to black with the posterior edge very serrated; it has three low keels with protrusions positioned on each scute (a scale-like plate on the shell). The much-reduced lower shell is cream-colored. A long, keeled tail and warty tubercles on the head and neck are distinguishing characteristics. Males average about 10-20% larger than females, and have the anal opening posterior to the rim of the upper shell (Ernst *et al.* 1994). Most adults range from 13-30 pounds in Montana; the largest known Montana specimen was a 47-pound male (Reichel and Flath 1995).

Eggs and Young: The spherical, white, tough-shelled eggs are about 23-33 mm in diameter (Ernst *et al.* 1994). They typically number 20-40 per clutch (Ernst *et al.* 1994). Coloration of young turtles is similar to adults and the upper shell is 24-31 mm long.

Similar Species: Spiny Softshells do not have scutes on the shell. Painted Turtles are smaller and more colorful.

Habits and Habitat: Snapping Turtles occur in stock ponds, reservoirs, sloughs, backwaters, rivers, and irrigation ditches. They prefer waters with a soft mud or sand bottom, and much aquatic vegetation or debris (Ernst *et al.* 1994). They do occasionally move overland, but are found doing so less frequently than Painted Turtles. Food is mostly animal matter, consisting of anything that can be caught, including small birds. While it is nocturnal in southern areas, in the north it is most active in the morning and evening (Ernst *et al.* 1994). Adult females first breed at 12-19 years of age in Michigan and Ontario (Ernst *et al.* 1994). Eggs are laid in nests excavated in sandy or gravelly areas or muskrat houses in late spring or early summer. Sex is determined by the temperature of incubation (Ernst *et al.* 1994). Hibernation is in soft bottoms, under cut-banks, or among submerged roots. Snapping Turtles have a reputation for an evil temper, and are quick to bite. They can be handled safely if carried by the tail with the upper shell *away* from the captor.

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. 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 and Distribution: Snapping Turtles occur in the Yellowstone River below Billings, the Missouri River below Ft. Benton, and all tributaries with suitable water. They also occur in water bodies that can be reached by a short trek across land. Irrigation ditches have undoubtedly aided their distribution. Records from western Montana are probably the result of translocation by humans. One historic location is near the Sioux-CNF on Boxelder Creek. Visher (1914) says it is "fairly frequent in water holes." It should be watched for, particularly at lower elevations in ponds and streams on the Sioux-CNF, and any animals located should be documented.

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

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.

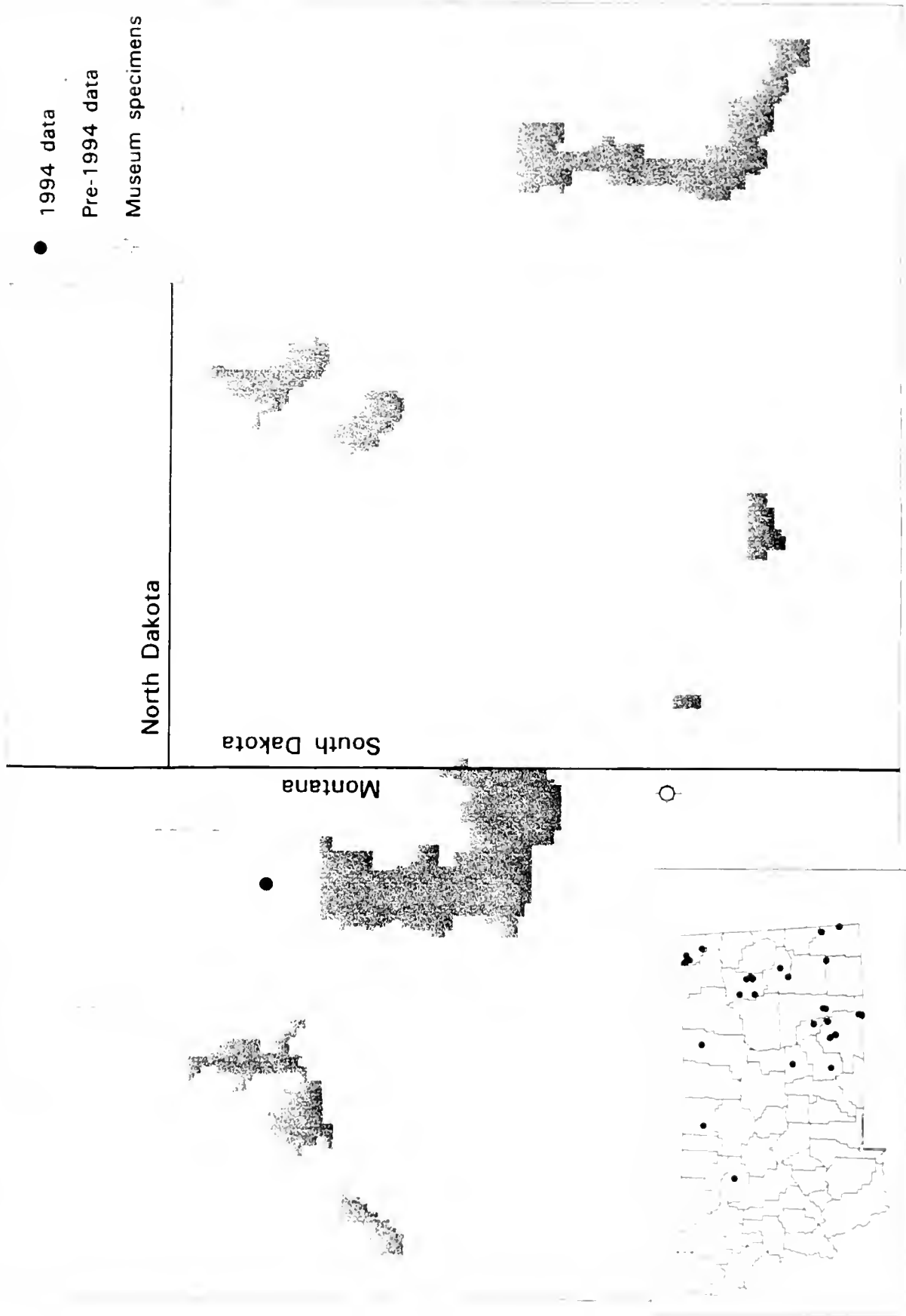
Habitat and Habits: The Short-horned lizard is found in a variety of habitats, including dry open forests, grasslands, and sagebrush; the soil is usually loose or sandy. In firmer soil situations, it may use the burrows of other animals. It is active during the day, typically with the peak of activity 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. This species may be vulnerable to collecting for the pet trade and agricultural conversion of native habitats. It has not been found in the vicinity of the Sioux-CNF, however one would expect it to be present in localized areas. Visher (1914) reported it as "quite common... though large sections seem to be without them" in Harding County. It should be watched for in open pine, prairie, or shrub-steppe habitat with loose or sandy soils on the Sioux-CNF; all sightings should be documented.

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

Occurrences of *Heterodon nasicus* on or near the Sioux District, Custer National Forest



Species locations from the Montana Natural Heritage Program, 5/16/95

Western Hognose Snake (*Heterodon nasicus*)

Description: The Western Hognose Snake is a mid-sized, heavy-bodied snake reaching 32". The dorsal ground color is yellowish- to grayish-brown, with 3 rows of darker brown to black blotches running down the back. The belly is dark gray to black, sometimes checkered. Its nose has a keel on the top and is upturned.

Eggs and Young: Clutches have 7-15 eggs which are white and elliptical, with thin, papery shells; length averages 32.5 mm (26-38 mm) and width 18 mm (14-23 mm). Young are 139-197 mm at hatching and are similar in color and pattern to adults (Platt 1969).

Similar Species: No other Montana snake has a keeled nose. Coloration is similar to both the Gopher Snake, Western Rattlesnake and juvenile Racer.

Habits and Habitat: The Western Hognose Snake is found on the plains of eastern Montana. It seems to prefer arid areas, farmlands and floodplains, and particularly areas of gravelly or sandy, loose soil. The keeled or shovel-like nose is thought to help it to dig down to its food, which it finds by smell. Apparently toads are its preferred food, though frogs, insects, and other small animals are also eaten (Platt 1969). It is active primarily during the daylight hours. Little is known of reproduction in Montana. It is likely that a female will only breed every other year in Montana.

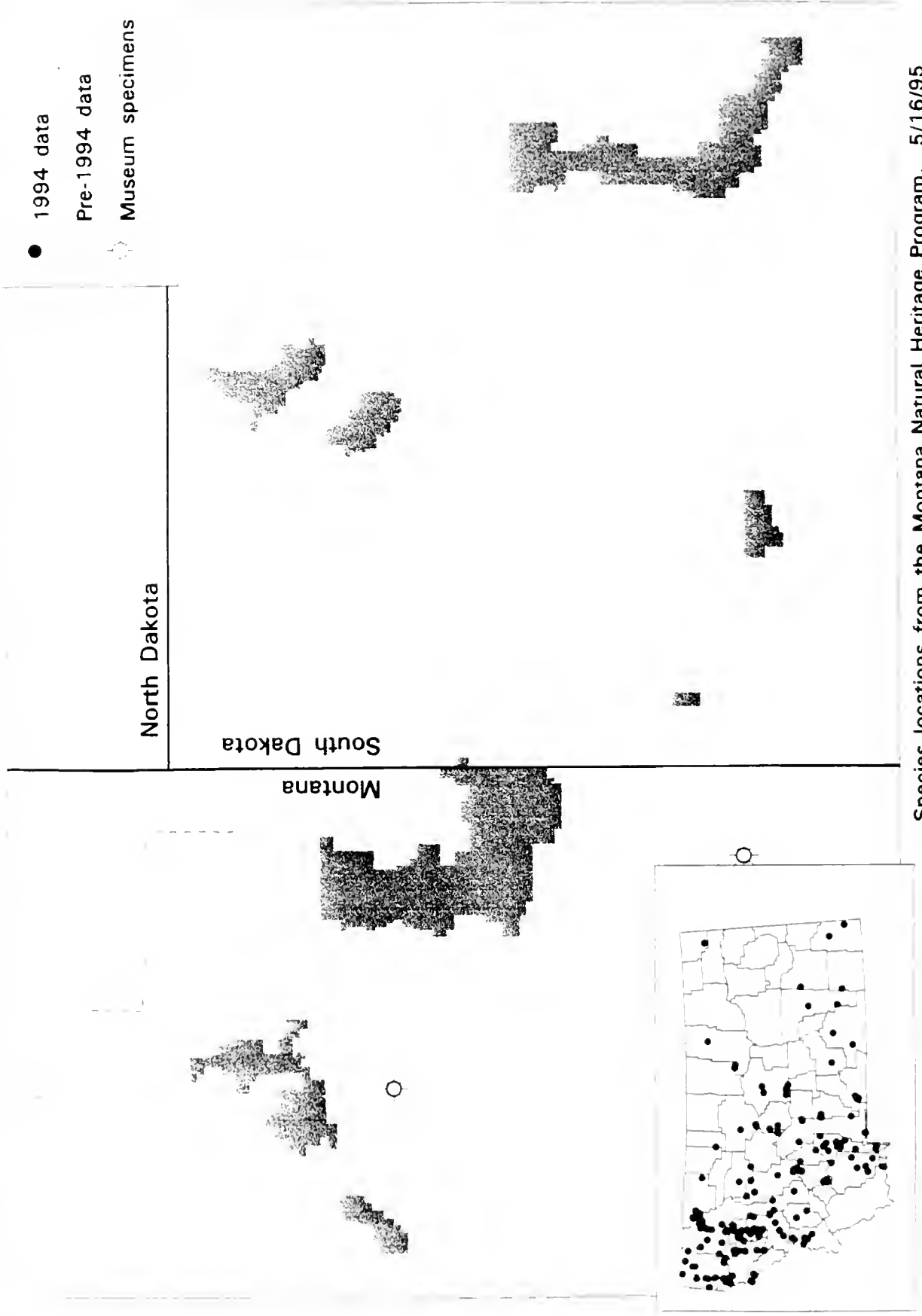
The Hognose is famous for its behavior in the face of a threat. At first it will puff up its neck, as does a cobra, and hiss and strike at its enemy. However, this is all a bluff; very rarely will it actually bite. If this threatening strategy does not work, it will pretend to die. It appears to go into convulsions, writhing on the ground, sticking its mouth in the dirt, and eventually rolling on its back and going into a trance that makes it appear to be dead. If turned right-side-up, it will roll back over and continue its deception. If left alone for a few minutes, it will right itself and continue on its way. The initial aggressive display and basic rattlesnake-like coloration cause many to be killed needlessly by people who mistakenly believe it to be venomous.

Surveying: They may be surveyed for by slowly walking through appropriate habitat and carefully watching for them; conducting surveys on warm, sunny days enhances sampling success. 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 pitfall or funnel traps with drift fences. Mark-recapture methods offer the best opportunity for determining population status.

Status: They were not found on the Sioux-CNF during this survey, however one was found a few miles north of the Long Pines near Mill Iron, and there is an historic record south of the Long Pines. Visher (1914) reports them as "fairly frequent on the sandy portions of the floodplains" in Harding County. They may occur on the Sioux-CNF, particularly in sandy or loose soil areas. They should be watched for on the Sioux-CNF; any sightings should be documented. We have relatively few reports of the Western Hognose Snake from Montana. It is collected for the pet trade, and populations may be vulnerable to commercial collectors. Additionally, since toads are its preferred food, any decline in toad populations would be expected to negatively impact Western Hognose Snakes. Of particular interest would be documentation of any denning sites located.

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

Occurrences of *Thamnophis elegans* on or near the Sioux District, Custer National Forest



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), 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 tends to be more gray compared to the dark brown found in the Common Garter Snake. The ventral surface has a series of dark black/brown blotches which may cover most of the surface. 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 and Plains Garter Snakes.

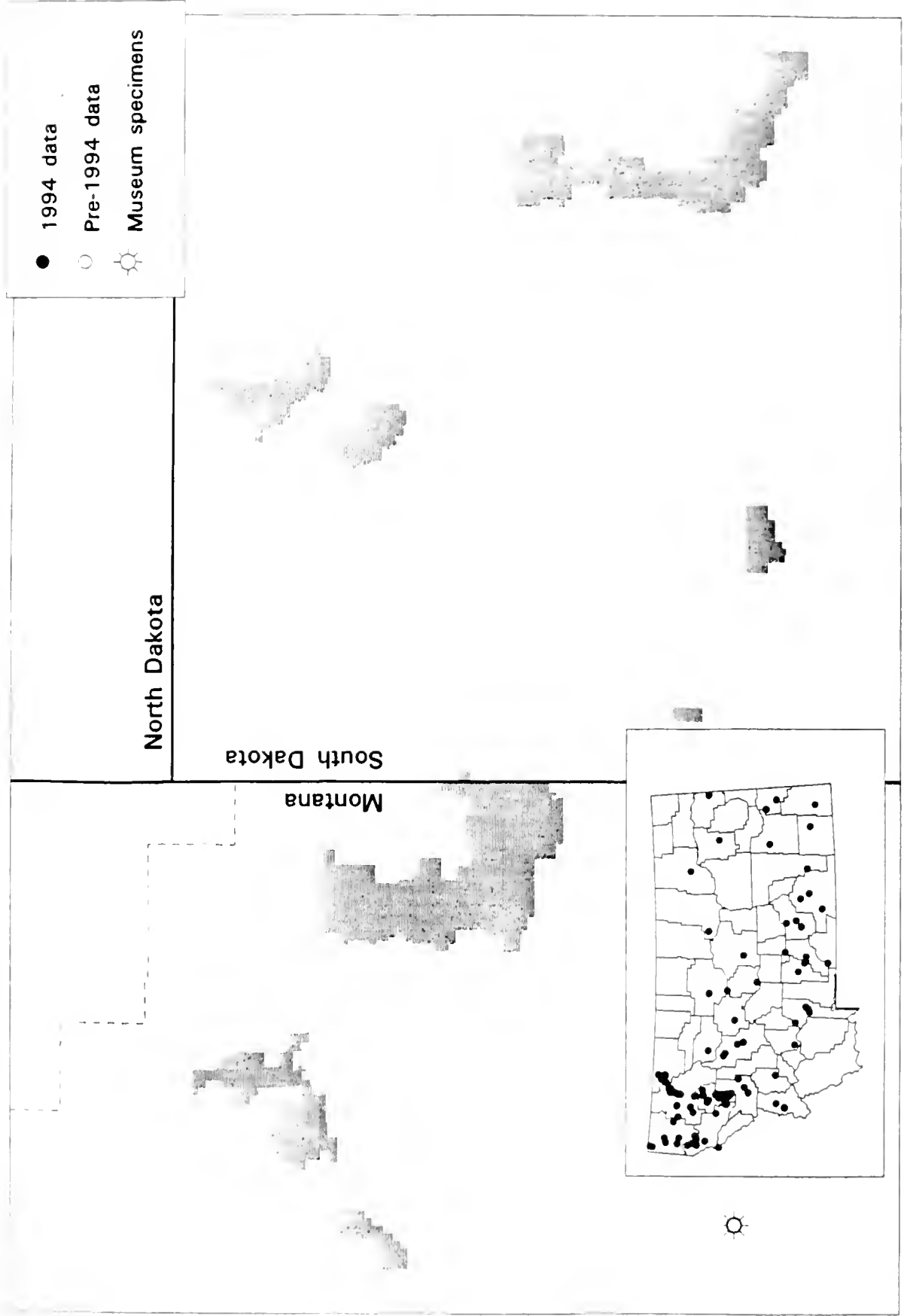
Habitat and Habits: The habitat and habits of the Western Terrestrial Garter Snake are similar to the Common Garter Snake (i.e., they are found in most habitats but are particularly common around wetlands). On the Sioux-CNF, the species was found between 5000 ft and 6000 ft but probably occurs much lower and 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 best for surveys. 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 are not known from the Sioux-CNF. There is an historic record of them from about 10 miles south of the Long Pines (Appendix 4). All records of garter snakes should be documented until the distribution of the three species is better understood; of particular interest would be documentation of denning sites.

Montana Natural Heritage Program Rank: G5 S5.

Occurrences of *Thamnophis sirtalis* on or near the Sioux District, Custer National Forest



Common Garter Snake (*Thamnophis sirtalis*)

Description: The Common Garter Snake consists of two color phases in western Montana, and ranges from 18-52" in length. Both phases have three yellow longitudinal stripes: one located dorsally and one on each side. Between the yellow stripes is a black stripe broken with red spots in one color phase but lacking red in the other. The form lacking red spots is not known from eastern Montana, but may be present there and should be watched for. 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 brownish. 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; in reality 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. 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 are not known from the Sioux-CNF. There is an historic record of them from about 20 miles south of Chalk Butte (Appendix 4). All records of garter snakes should be documented until the distribution of the three species is better understood; of particular interest would be documentation of denning sites.

Montana Natural Heritage Program Rank: G5 S5.

Montana Units Information

Chalk Buttes: The Chalk Buttes were not surveyed during our June trip, and the September surveys were done on a cool windy day. Several areas were surveyed for plants during good weather, yet the botanist recorded herps; thus this was the most poorly surveyed Unit. Only a single reptile was found during our survey of this area, the Sagebrush Lizard, a U.S. Fish and Wildlife Service Category 2 species. This is the eastern-most location in Montana and it is not known from Harding County, South Dakota. The only other species known to be present is the Tiger Salamander, known from an historic record (Appendix 4).

Given the low numbers of locations for any amphibians or reptiles on Chalk Butte, all sightings of any species should be recorded. The Sagebrush Lizard population could be considered as a long-term monitoring site since it is a Candidate species and this is the only Unit where the species was found.

Ekalaka Hills: Five species of amphibians and one species of reptile are known from the Ekalaka Hills. The Tiger Salamander was found just outside USFS lands and is known historically from on the Unit. The Plains Spadefoot was reported for the first time from the Ekalaka Hills during our surveys, while the Northern Leopard frog was found both during our surveys and historically on the Unit. Both Woodhouse's Toad and the Western Chorus Frog are known historically from the Unit, but were not seen or heard during our surveys; it seems likely that the timing of the surveys was slightly late to hear calling males. The Gopher Snake was both reported historically and found during our surveys in the Ekalaka Hills. Most historic information was collected by the National Biological Survey in 1916. Given the meager information available from this range, all sightings of amphibians and reptiles are of interest from this range and should be recorded. Baseline distribution information, particularly for species not yet recorded and for breeding sites of known species, is necessary before monitoring sites are chosen.

Long Pines: This range has the best historical data available from any Unit in Montana, most of which was collected by the University of Kansas in 1970. All amphibians (7 species) known from the Sioux-CNF are known from Long Pines. Northern Leopard Frogs appeared to be common in this range, though few breeding sites were located during our surveys. Tiger Salamanders, Great Plains Toads, Woodhouse's Toads, Western Chorus Frogs, Plains Spadefoots, and Bullfrogs have been collected historically, but were not located during our surveys.

All reptiles except the Sagebrush Lizard (5 species) known from the Sioux-CNF are known from Long Pines. Racers appeared to be common in this range; three were located during our surveys. Painted Turtles, Gopher Snakes, Plains Garter Snakes, and Western Rattlesnakes, have been collected historically but were not located during our surveys.

Given the little current information available from this range and the many species known from historic records which were not relocated, all sightings of amphibians and reptiles are of interest and should be recorded. Even for Northern Leopard Frogs, any breeding locations found

should be recorded. The historic sites for all amphibians, particularly Northern Leopard Frogs and Bullfrogs, should be re-surveyed. Such baseline distribution information is necessary before monitoring sites are chosen.

South Dakota Unit Information

Information from these Units is not as complete due to lack of access to museum records from South Dakota; collection of this data alone would be a major project and was not part of the study plan. The following information is based on our survey and Visher (1914) for historical perspective. It is likely that most of the species known from the Montana Units will eventually be found in the South Dakota Units.

North Cave Hills: Three species of amphibians were found on this Unit: Tiger Salamander, Western Chorus Frog, and Northern Leopard Frog. Tiger Salamanders were found in most large ponds or reservoirs surveyed in June; they had apparently transformed and left the ponds by September. Both frogs appear widespread, although only one Northern Leopard Frog breeding site was located. Given the meager information available from this range, all sightings of amphibians (except perhaps Western Chorus Frogs) and reptiles are of interest and should be recorded.

Baseline distribution information, particularly for species not yet recorded and for breeding sites of known species, is necessary before monitoring sites are chosen. However, Ash Tree Reservoir, Schleichart Reservoir, and the ephemeral pond at Fuller Pass should be examined more closely as possible sites; if they are found to have two or more species breeding in them in some years, they would make good candidates.

South Cave Hills: Three species of amphibians were also found on this Unit: Tiger Salamander, Western Chorus Frog, and Northern Leopard Frog. Tiger Salamanders were found at a single site in June and had transformed and left the reservoir by September. Both frogs may be widespread although no Northern Leopard Frog breeding sites were located. The Plains Garter Snake was found just to the south of the Unit. Given the meager information available from this range all sightings of amphibians (particularly breeding ponds) and reptiles are of interest and should be recorded.

Baseline distribution information, particularly for species not yet recorded and for breeding sites of known species, is necessary before monitoring sites are chosen. Notably, Dry Creek Reservoir had all three species recorded, is easy to access, and may make a good candidate.

Slim Buttes: Three species of amphibians and two species of reptiles were found on this Unit: Tiger Salamander, Western Chorus Frog, Northern Leopard Frog, Painted Turtle, and Racer. Tiger Salamanders were found at two sites in June. Both frogs may be widespread, although only two breeding sites were located for each species. The Painted Turtle was found at two locations, although the northern site at Reva Pass was a single individual in a very small pond that probably dries up in the summer. Given the meager information available from this range all sightings of amphibians (particularly breeding ponds) and reptiles are of interest and should be

recorded.

Baseline distribution information, particularly for species not yet recorded and for breeding sites of known species, is necessary before monitoring sites are chosen. Notably, the main Road Draw Springs Reservoir and Rabbit Creek Reservoir had two or more species recorded, are easy to access, and may make good candidates; however both are relatively large and, if used, the exact survey area should be carefully delineated.

Short Pine Hills: No herp surveys were done in these units in 1994. There is a single historic record for the Western Chorus Frog (Visher 1914). Given the total lack of information available from this range, all sightings of amphibians and reptiles are of interest and should be recorded.

RECOMMENDATIONS

Surveys and Research

- 1) All incidental sightings of amphibians and reptiles from the Sioux-CNF should be recorded and forwarded to the Montana Natural Heritage Program. A half-day training session for biologists (including seasonal employees) and other interested field people in spring would raise awareness of this data need and provide the training needed for accurate identification of animals observed: barring this, Reichel and Flath (1995) have photos of all adult species potentially present on the District. Certainly all incidental sightings of reptiles should be recorded; this is the most efficient way to get data on most of these species. The Sagebrush Lizard and Short-horned Lizard are now U.S. Fish and Wildlife Service Category 2 Candidates.
- 2) Due to the time constraints, the large area covered, and poor weather in the 1994 survey, it should not be regarded as a definitive index of all the amphibians and reptiles or their distribution on the Sioux-CNF. 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 Northern Leopard Frog breeding sites; B) re-surveying all historic amphibian sites; C) gathering additional distribution information on Sagebrush Lizards from Chalk Butte; D) determining if the Sagebrush Lizard is present in other ranges; and E) sandy soil areas for Short-horned Lizards.
- 3) When more breeding locations for amphibians are known, 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: Tiger Salamander, Western Chorus Frog, Northern Leopard Frog, Painted Turtle, and Plains Garter Snake. Particular attention needs to be given to any toad or Bullfrog breeding sites found.
- 4) Life history and ecology of the amphibians in Montana is poorly known for most species. Long-term monitoring will give us information on timing of and habitat requirements needed for successful breeding.
- 5) Sightings on Sioux-CNF lands of the Snapping Turtle, Short-horned Lizard, Western Hognose Snake, Western Terrestrial Garter Snake, and Common Garter Snake would represent first-time occurrences; thus it is important to document and record such data. Preferably, either photos should be taken or, if appropriate, a specimen collected; at the very least, a description should be written at the time of the observation.

Management

1) With an increasing number of amphibians 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 actions 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 the water is taken up and put into 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 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, often near cliffs or in talus slopes. 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 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., 5km 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, or 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 eggs 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 of the area (m') 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 confluences 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, 4612 McMURRY AVE, FT. COLLINS, CO 80626-3400

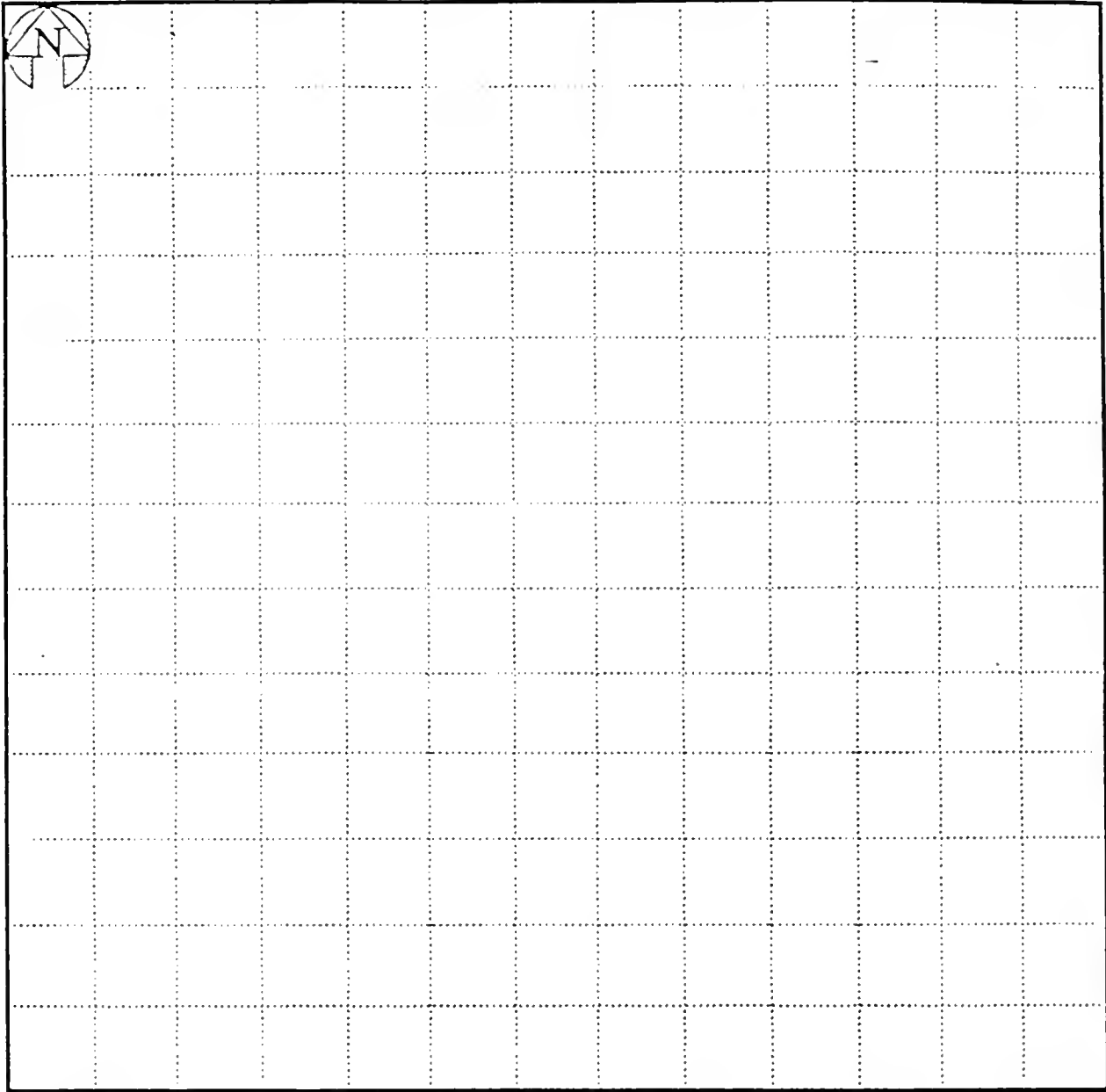
(circle choice for shaded variables; supply value for others)

(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 LON)					
AMPHIBIAN AND/OR GARTER SNAKE SPECIES PRESENT (INDICATE NUMBERS IN CATEGORIES IF POSSIBLE)						CIRCLE METHOD AND INDICATE IF VOUCHER SPECIMEN WAS COLLECTED							
SPECIES	ADULTS/JUVENILES		CALLING?		TADPOLES/LARVAE	EGG MASSES	METHOD:						
			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 MP 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	COLOR:	CLEAR	STAINED	TURBIDITY:	CLEAR	CLOUDY
pH		ANC											
SITE DESCRIPTIONS - (SKETCH SITE AND PUT ADDITIONAL COMMENTS ON BACK OF SHEET) OMIT THIS SECTION IF DATA HAVE BEEN COLLECTED ON A PREVIOUS VISIT													
ORIGIN:		NATURAL	MAN-MADE		DRAINAGE:		PERMANENT	OCCASIONAL	NONE				
DESCRIPTION:		PERMANENT LAKE/POND	TEMPORARY LAKE/POND	MARSH/BOG	STREAM	SPRING/SEEP	ACTIVE BEAVER POND	INACTIVE BEAVER POND					
SITE LENGTH (M)		SITE WIDTH (M)		MAXIMUM DEPTH:		< 1 M	1 - 2 M	> 2 M					
STREAM ORDER		1		2		3		4		5 +			
PRIMARY SUBSTRATE:		SILT/MUD		SAND/GRAVEL		COBBLE		BOULDER/BEDROCK		OTHER			
% OF POND LAKE MARGIN WITH EMERGENT VEGETATION:				0		1 - 25		25 - 50		> 50			
EMERGENT VEGETATION SPECIES (JUST 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
 PO 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 75°. 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.

4.

5.

6.

7.

8.

9.

10.

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)

** Required Field

APPENDIX 2.

SITES SURVEYED DURING 1993-94

AMPHIBIAN AND REPTILE SURVEYS

Appendix 2. Sites surveyed during 1994 amphibian and reptile surveys.

Site	Location	Elevation	Date	Start Time
CUSTER NATIONAL FOREST - SIOUX DISTRICT				
Chalk Buttes				
Bronco Sam Spring*	T01S R57E S15 NE	3760	30 Sep 94	1420
Foster Spring*	T01S R57E S21 SE	3750	30 Sep 94	1145
Michael Spring*	T01S R57E S16 NW	3390	30 Sep 94	1535
Mud Spring*	T01S R57E S28 NW4	3620	30 Sep 94	1050
spring*	T01S R57E S09 SE	3370	30 Sep 94	1505
Ekalaka Hills				
MacNab Pond	T01N R59E S19 NENE	3430	16 Jun 94	
MacNab Pond	T01N R59E S19 NENE	3430	17 Jun 94	1200
MacNab Pond*	T01N R59E S19 NENE	3430	30 Sep 94	0830
Russel Spring, N of at water tank	T01N R58E S27	3800	16 Jun 94	
Stagville Draw & Spring	T01N R58E S21 SW	3850	16 Jun 94	
Stock Reservoir	T01N R58E S09 SE	3580	16 Jun 94	
Long Pines				
Arpan Spring*	T01S R60E S01 SW	3300	01 Oct 94	1205
Boxelder Ck, 2.5 mi NE Ridgeway	T04S R59E S08	3280	17 Jun 94	1710
Halbert Spring*	T01S R61E S19 S1/2	3870	01 Oct 94	1450
Iron Spring and outflow*	T01S R61E S17 NW	3740	01 Oct 94	1320
Jack Spring*	T01S R61E S31 N1/2	3670	01 Oct 94	1530
Red Bluff Pond & Spring*	T01S R61E S06 N1/2	3200	01 Oct 94	1115
Section 32 Pond*	T01S R61E S32 NE	3630	01 Oct 94	1600
Section 20 Pond*	T01S R61E S20 NENW	3600	01 Oct 94	1415

* Sites with no herps found during survey

Appendix 2 (cont). Sites surveyed during 1993-94 amphibian and reptile surveys.

Site	Location	Elevation	Date	Start Time
Long Pines (cont)				
Speelmon Creek along FS 818	T02S R61E S28	3600	16 Jun 94	
Spring Canyon Spring & Reserv.*	T01S R61E S33 SW	3800	01 Oct 94	1630
Ward Spring #1*	T02S R61E S09 NW	3750	01 Oct 94	1525
Wickham Gulch & Springs	T03S R62E S16 NE	3400	16 Jun 94	
North Cave Hills				
Ash Tree Reservoir	T21N R05E S01 SW	3340	27 Sep 94	1410
C-T. Reservoir #2	T22N R05E S28 NENE	3340	16 Jun 94	1600
Cabin Spring Reservoir (lower)	T22N R05E S26 NESE	3110	16 Jun 94	1005
Cabin Spring Reservoir (upper)	T22N R05E S27 NWSW	3120	16 Jun 94	0955
Cobblestone Reservoir	T21N R05E S01 SW	3350	27 Sep 94	1450
Davis Draw Reservoir	T21N R05E S11 NE	3050	27 Sep 94	1520
Fuller Pass pond	T22N R05E S14 NWNW	3160	16 Jun 94	1145
Hime Spring*	T22N R05E S15 E1/4	3180	16 Jun 94	1405
Lone Tree Spring	T22N R05E S22 SWNE	3300	16 Jun 94	1510
Padalower Spring Reservoir	T22N R05E S26 SWNE	3100	15 Jun 94	1050
Picnic Springs	T22N R05E S15 NWNE	3220	16 Jun 94	1200
Plateau seep #1	T22N R05E S15 SWSE	3360	16 Jun 94	1445
Schleichart Reservoir (lower)	T22N R05E S34 SE	3000	27 Sep 94	1200

* Sites with no herps found during survey

Appendix 2 (cont). Sites surveyed during 1993-94 amphibian and reptile surveys.

Site	Location	Elevation	Date	Start Time
South Cave Hills				
Dry Creek Reservoir	T21N R04E S24 NW	3100	15 Jun 94	1115
Dry Creek Reservoir	T21N R04E S24 NW	3100	28 Sep 94	1230
Dry Creek Spring*	T21N R05E S30 SWNW	3200	15 Jun 94	1450
Casper Gulch Spring	T21N R04E S36 NENE	3210	29 Sep 94	0920
J.B. Clarkson Spring #1	T21N R04E S24 SESE	3100	15 Jun 94	1240
J C Spring*	T21N R05E S19 SW	3060	28 Sep 94	1345
Johnny Pocket Spring #1*	T21N S05E S29 SW	3080	28 Sep 94	1440
Johnny Pocket Spring #2*	T21N S05E S29 SW	3080	28 Sep 94	1430
McKenzie Spring	T20N S05E S06 NENE	3180	29 Sep 94	1030
Peterson Canyon Creek	T21N R04E S24 (&30)	3080	15 Jun 94	1200
Slim Buttes				
Rabbit Creek Reservoir	T17N R08E S32 NE	3180	14 Jun 94	1032
Red Cross Spring & Draw*	T18N R08E S7&8	3400	14 Jun 94	1300
Reva Gap, pond 0.1 mi NE of	T18N R08E S07 SESE	3280	14 Jun 94	1600
Reva Gap, pond 0.3 mi NE of*	T18N R08E S07 SE	3280	14 Jun 94	1730
Road Draw Spring #1	T17N R07E S25 NENW	3360	13 Jun 94	1900
Road Draw Spring Reserv. (main)	T17N R07E S25 NENE	3320	14 Jun 94	0925
Road Draw Spring Reserv. (upper)	T17N R07E S25 NWNE	3340	14 Jun 94	0837

* Sites with no herps found during survey

APPENDIX 3.

AMPHIBIANS AND REPTILES

OBSERVED DURING SURVEYS OF THE

SIOUX DISTRICT OF THE

CUSTER NATIONAL FOREST

IN 1994

Appendix 3. Amphibians and reptiles observed during surveys of the Sioux District of the Custer National Forest in 1994.

Site	Person Hrs:min	Total number of adults/juv of each species observed ¹					
			AMTI	PSTR	SCBO	RAPI	CHPI
CUSTER NATIONAL FOREST - SIOUX DISTRICT							
Ekalaka Hills							
MacNab Pond		1+					
MacNab Pond	1:05	7*					
Russel Spring, N of at water tank		1					
Stagville Draw & Spring		1*					
Stock Reservoir			*				
Long Pines							
Boxelder Ck, 2.5 mi NE Ridgeway	0:40	1					
Speelmon Creek along FS 818		1+					
Wickham Gulch & Springs		1+					
North Cave Hills							
Ash Tree Reservoir	0:35	20					
C-T. Reservoir #2	0:40		*				
Cabin Spring Reservoir (lower)	0:50		*				
Cabin Spring Reservoir (upper)	0:20		*				
Cobblestone Reservoir	0:10	3					
Davis Draw Reservoir	0:30	2	3				

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

¹ AMTI=*Ambystoma tigrinum*, PSTR=*Pseudacris triseriata*, SCBO=*Scaphiopus bombifrons*, RAPI=*Rana pipiens*, CHPI=*Chrysemys picta*, COCO=*Coluber constrictor*

Appendix 3 (cont). Amphibians and reptiles observed during surveys of the Sioux District of the Custer National Forest in 1994.

Site	Person Hrs:min	Total number of adults/juv of each species observed						
		AMTI	PSIR	SCBO	RAPI	CHPI	COCO	
North Cave Hills (cont)								
Fuller Pass pond	1:00		1			*		
Lone Tree Spring	0:10		*					
Padalower Spring Reservoir	1:30		*					
Picnic Springs	0:10		2					
Plateau seep #1	0:05		*					
Schleichart Reservoir (lower)	1:20					12		
South Cave Hills								
Dry Creek Reservoir	0:15		*					
Dry Creek Reservoir	0:30		1			1		
Casper Gulch Spring	0:40		2					
J.B. Clarkson Spring #1	0:10					1		
McKenzie Spring	0:40					1		
Peterson Canyon Creek	2:30					2		
Slim Buttes								
Rabbit Creek Reservoir	1:12					9+	7	1
Reva Gap, pond 0.1 mi NE of	2:30		*	3			1	
Road Draw Spring #1	1:20					5*		
Road Draw Sprg Reserv. (main)	1:26		*			14*		
Road Draw Spg Reserv. (upper)	1:06					7		

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

¹ AMTI=*Ambystoma tigrinum*, PSIR=*Pseudacris triseriata*, SCBO=*Scaphiopus bombifrons*, RAPI=*Rana pipiens*, CHPI=*Chrysemys picta*, COCO=*Coluber constrictor*

APPENDIX 4.

AMPHIBIANS AND REPTILES

REPORTED FROM IN AND AROUND THE

SIOUX DISTRICT OF THE

CUSTER NATIONAL FOREST

Appendix 4. Amphibians and reptiles reported from in and around the Sioux District of the Custer National Forest.

Natural Heritage Program 03/08/1995
 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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TIGER SALAMANDER

- | | | | | |
|-------------|-------------|-----------|-----|--|
| Carter | .5 to 5 mil | 7/24/1970 | No | Museum Specimen
16 mi E of Ekalaka |
| Carter | .5 to 5 mil | 7/17/1970 | No | Museum Specimen
2 mi N and 4.5 mi W of Camp Cook, 3700 ft. |
| Carter | .5 to 5 mil | 7/9/1970 | No | Museum Specimen
7.5 mi N and 10 mi W of Camp Cook, 3800 ft. |
| Carter | .5 to 5 mil | 6/29/1949 | No | Museum Specimen
SE Chalk Buttes |
| Carter | .5 to 5 mil | 7/7/1949 | No | Museum Specimen
N. Ekalaka |
| Carter | < .5 mile. | 6/16/1994 | Yes | Observation
Ekalaka Hills. "Stock Reservoir" at section 9. |
| Harding, SD | < .5 mile. | 6/16/1994 | Yes | Museum Specimen
Lower Cabin Spring Reservoir, N. Cave Hills |
| Harding, SD | < .5 mile. | 6/16/1994 | Yes | Observation
Lone Tree Spring, N. Cave Hills. |
| Harding, SD | < .5 mile. | 6/16/1994 | Yes | Observation
Upper Cabin Spring Reservoir. |
| Harding, SD | < .5 mile. | 6/15/1994 | Yes | Observation
Padalower Spring Reservoir. |
| Harding, SD | < .5 mile. | 6/14/1994 | No | Museum Specimen
Road Draw Reservoir Main |
| Harding, SD | < .5 mile. | 6/14/1994 | Yes | Observation
Pond 0.1 mi. NE of Reva Gap Campgrounds. |

GREAT PLAINS TOAD

- | | | | | |
|--------|-------------|-----------|----|--|
| Carter | .5 to 5 mil | 7/11/1970 | No | Museum Specimen
5 mi N, 3.5 mi W Camp Crook, 3400 ft. |
| Carter | .5 to 5 mil | 7/14/1970 | No | Museum Specimen
5 mi N, 3.5 mi W Camp Crook, 3400 ft. |

Natural Heritage Program 03/08/1995
 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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WOODHOUSE'S TOAD

Carter .5 to 10 mil 5/29/1916 No Museum Specimen
 5 mi S of Ekalaka at 4000 ft.

Carter .5 to 10 mil 5/31/1916 No Museum Specimen
 8 mi SE of Ekalaka at 4500 ft.

Carter .5 to 10 mil 5/25/1916 No Museum Specimen
 15 mi N of Ekalaka at Medicine Rocks, 3500 ft.

Carter .5 to 5 mil 6/3/1916 No Museum Specimen
 5 mile NW of Capitol on Sand Creek at 4000 ft.

Carter .5 to 5 mil 6/29/1970 No Museum Specimen
 5 mi N, 6 mi W Camp Crook, 3500 ft.

Carter .5 to 5 mil 7/1/1970 No Museum Specimen
 2 mi N, 4.5 mi W Camp Crook, 3700 ft.

Carter .5 to 5 mil 7/25/1970 No Museum Specimen
 4 mi N, 8 mi W Camp Crook, 3650 ft.

Carter .5 to 5 mil 5/25/1966 Yes Observation
 near Medicine Rocks

Carter .5 to 5 mil 5/29/1966 Yes Observation
 Ekalaka

WESTERN CHORUS FROG

Carter .5 to 5 mil 5/29/1916 No Museum Specimen
 5 miles south of Ekalaka at 4000 ft.

Carter .5 to 5 mil 5/25/1916 No Museum Specimen
 Medicine Rocks, 15 mi N of Ekalaka

Carter .5 to 5 mil 7/14/1970 No Museum Specimen
 16 mi E of Ekalaka, 3150 ft.

Carter .5 to 5 mil 7/17/1970 No Museum Specimen
 2 mi N, 4.5 mi W of Camp Crook, 3700 ft.

Harding, SD < .5 mile. 6/16/1994 No Observation
 Fuller Pass Pond, N. Cave Hills

Harding, SD < .5 mile. 6/16/1994 Yes Museum Specimen
 CT Reservoir #2, N. Cave Hills

County Precision Date Breed Data Type

WESTERN CHORUS FROG (cont)

Harding, SD <.5 mile. 6/16/1994 No Observation
Picnic Springs, N. Cave Hills

Harding, SD <.5 mile. 6/14/1994 No Observation
Pond 0.1 mi. NE of Reva Gap Campgrounds.

Harding, SD <.5 mile. 9/29/1994 No Observation
Casper Gulch Spring

Harding, SD <.5 mile. 9/28/1994 No Observation
Dry Creek Reservoir.

Harding, SD <.5 mile. 9/27/1994 No Observation
Picnic Spring Campground, North Cave Hills.

Harding, SD <.5 mile. 9/27/1994 No Observation
Davis Draw Reservoir

PLAINS SPADEFOOT

Carter .5 to 5 mil 7/12/1970 No Museum Specimen
6 miles S. and 4.5 miles W. of Camp Crook

Carter .5 to 5 mil 7/10/1970 No Museum Specimen
5 miles N. and 3.5 miles W. of Camp Crook

Carter .5 to 5 mil 6/3/1916 No Museum Specimen
5 miles NW of Capitol, Sand Creek

Carter <.5 mile. 6/16/1994 No Observation
Ekalaka Hills. N. of Russel Spring at water tank, sec. 27

BULLFROG

Carter .5 to 5 mil 7/16/1970 No Museum Specimen
Slick Creek on White Ranch

Carter .5 to 5 mil 7/17/1970 No Museum Specimen
5.5 miles N. and 10 miles W. of Camp Crook

NORTHERN LEOPARD FROG

Carter .5 to 5 mil 6/2/1916 No Museum Specimen
Sioux Ranger District, 8 miles E. of Sykes

Natural Heritage Program 03/08/1995
 Montana Animal Atlas (Herpetile) Species Report

County	Precision	Date	Breed	Data Type
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NORTHERN LEOPARD FROG (continued)

Carter	.5 to 5 mil	5/29/1916	No	Museum Specimen 5 miles S. of Ekalaka
Carter	.5 to 5 mil	6/3/1916	No	Museum Specimen Capitol, Sand Creek (5 miles NW)
Carter	.5 to 5 mil	6/9/1916	No	Museum Specimen Boxelder Creek, 15 miles SW of Sykes
Carter	.5 to 5 mil	6/30/1970	No	Museum Specimen 5 miles N and 6 miles W of Crook Creek, ND.
Carter	< .5 mile.	9/30/1994	Yes	Museum Specimen Mud Spring
Carter	< .5 mile.	6/17/1994	No	Observation Boxelder Creek, 2.5 road mi. NE of Ridgway.
Carter	< .5 mile.	6/12/1994	No	Observation Little Noise Spring
Carter	< .5 mile.	6/21/1994	No	Observation Old beaver ponds just above Stagville Spring and below road.
Carter	5 to 10 mil	7/27/1976	No	Museum Specimen Little Beaver Creek
Carter	< .5 mile.	6/16/1994	No	Observation Long Pines, Wickham Gulch and Whickham Springs
Carter	< .5 mile.	6/16/1994	Yes	Observation Ekalaka Hills. Stagville Draw at Stagville Spring. Abandoned beaver ponds
Carter	< .5 mile.	6/16/1994	No	Observation Ekalaka Hills. McNab Pond.
Carter	< .5 mile.	6/16/1994	No	Observation Long Pines. Speelmon Creek, sec. 28 along FS RD 818.
Harding, SD	< .5 mile.	6/16/1994	Yes	Museum Specimen Fuller Pass Pond, N. Cave Hills
Harding, SD	< .5 mile.	6/14/1994	Yes	Museum Specimen Road Draw Spring #1

Natural Heritage Program 03/08/1995
Montana Animal Atlas (Herpetile) Species Report

County Precision Date Breed Data Type

NORTHERN LEOPARD FROG (continued)

Harding, SD < .5 mile. 6/14/1994 No Observation
Road Draw Reservoir Upper

Harding, SD < .5 mile. 6/14/1994 Yes Museum Specimen
Road Draw Reservoir Main

Harding, SD < .5 mile. 6/14/1994 Yes Observation
Rabbit Creek Reservoir.

Harding, SD < .5 mile. 9/29/1994 No Observation
McKenzie Spring

Harding, SD < .5 mile. 9/28/1994 No Observation
Dry Creek Reservoir.

Harding, SD < .5 mile. 9/27/1994 No Observation
Davis Draw Reservoir

Harding, SD < .5 mile. 9/27/1994 No Observation
Cobblestone Reservoir

Harding, SD < .5 mile. 9/27/1994 No Observation
Ash Tree Reservoir

Harding, SD < .5 mile. 9/27/1994 No Observation
Lower Schleichart Reservoir

SNAPPING TURTLE

Carter > 10 miles. 7/16/1970 No Museum Specimen
Boxelder Creek

PAINTED TURTLE

Carter .5 to 5 mil 7/ 8/1970 No Museum Specimen
5 miles N. and 3.5 miles W. of Camp Crook

Harding, SD < .5 mile. 6/14/1994 No Observation
Rabbit Creek Reservoir.

Harding, SD < .5 mile. 6/14/1994 No Observation
Pond 0.1 mi. NE of Reva Gap Campgrounds.

County Precision Date Breed Data Type

SAGEBRUSH LIZARD

Carter <.5 mile. 7/11/1994 No Observation
On top of Chalk Butte.

RACER

Carter > 10 miles. 7/2/1916 No Museum Specimen
Sioux National Forest, 8 mi E of Sykes

Carter .5 to 5 mil 7/10/1970 No Museum Specimen
5 mi N, 3.5 mi W Camp Crook, 3400 ft.

Carter <.5 mile. 6/12/1994 No Observation
Long Pines. Rustler Divide Quad

Carter <.5 mile. 6/13/1994 No Observation
Grassland above clay and gravel slopes.

Carter <.5 mile. 6/13/1994 No Observation
Caprock at edge of escarpment, grassland and burned pine above.

Carter .5 to 5 mil 6/1/1991 No Museum Specimen
3 mi. N. of Ekalaka

Harding, SD <.5 mile. 6/14/1994 No Observation
Rabbit Creek Reservoir.

WESTERN HOGNOSE SNAKE

Carter .5 to 5 mil / / 0 No Museum Specimen
6 miles S., 4.5 miles W. of Camp Crook

Carter <.5 mile. 6/13/1994 No Observation
.5 mi. SE of Mill Iron on Camp Crook Road.

GOPHER SNAKE

Carter .5 to 5 mil 7/16/1970 No Museum Specimen
2 miles N., 4.5 miles E. of Ekalaka

Carter .5 to 5 mil 6/30/1970 No Museum Specimen
2 miles N., 4.5 miles W. of Camp Crook

Carter <.5 mile. 6/3/1994 No Observation
On road, on top of narrow divide ridge, with pine forest.

County Precision Date Breed Data Type

WESTERN TERRESTRIAL GARTER SNAKE

Carter .5 to 5 mil 6/8/1916 No Museum Specimen
Capitol, 12 WSW of, Cottonwood Creek, 4250 ft.

PLAINS GARTER SNAKE

Carter .5 to 5 mil 7/8/1970 No Museum Specimen
4 miles S., 3 miles W. of Camp Crook

Carter .5 to 5 mil 7/11/1970 No Museum Specimen
7 miles N., 10 miles W. of Camp Crook

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

Carter .5 to 5 mil 6/28/1949 No Museum Specimen
2.5 mi. W. of Ekalaka

Carter > 10 miles. / / 0 No Museum Specimen
Boxelder Creek

Harding, SD < .5 mile. 9/28/1994 No Observation
Ca. 2.5 mi. S. of S. Cave Hills, on HWY. 787.

COMMON GARTER SNAKE

Carter .5 to 5 mil 6/9/1916 No Museum Specimen
Boxelder Creek, 25 miles SW of Sykes

WESTERN RATTLESNAKE

Carter .5 to 5 mil 7/1/1970 No Museum Specimen
2 miles north and 4.5 miles west of Camp Crook, South Dakota

