

APPENDIX A.2

Amphibian and Reptile Species of Conservation Priority Accounts

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Plains Spadefoot

Level I

Scientific Name: *Spea bombifrons*

General Description: L 1 ½ -2". Smooth grayish or brown skin with small red or orange tipped warts. A cat-like eye, pronounced boss between eyes, and short, rounded, wedge-shaped spade characterize this toad.

Status: Year-round resident.

Abundance: Uncommon to locally abundant.

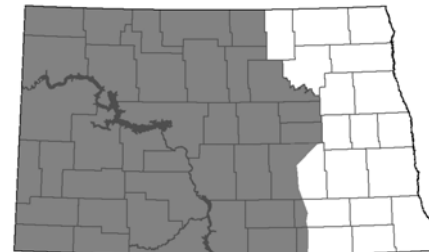
Primary Habitat: Dry grasslands with sandy or loose soil.

Federal Status: None.

Reason for Designation: Vulnerable throughout much of its northern range, including Montana. Its geographic range overlaps much of the Great Plains, perhaps one of the more vulnerable ecosystems in North America.



Ron Wilson



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Rather dry, open grasslands with sandy or otherwise loose soil are preferred. Typically avoid river bottoms and woodlands. Burrow into the ground until damp soil is reached, sometimes more than 2 feet. Prolific breeders which rarely emerge from the ground except when heavy rains occur, creating small pools of water used for breeding. Temporary wetlands without heavy vegetation such as those found in agricultural fields are easily flooded and may provide tolerable spadefoot breeding habitat. Spadefoots may also emerge from the ground during very humid nights. Tadpoles may be omnivorous or sometimes even cannibalistic. Adults eat small invertebrates.

Key Areas and Conditions for Plains Spadefoot in North Dakota

Spadefoots were seen for many years on the eastern edge of Carrington. Focus areas where this species may occur include the Glacial Lake Deltas.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Ephemeral wetlands in which the species naturally breed are at risk of destruction and/or degradation. However, they may be tolerant of a broad range of habitats, even laying eggs in non-native sites such as ditches or flooded agricultural fields. Prairie habitat fragmentation may hinder movements.

Other Natural or Manmade Factors

The effect of pesticides, herbicides, road kills and disease is unknown.

RESEARCH AND SURVEY EFFORTS

Current Research or Surveys

- There is currently nothing specific to the species in North Dakota. In 2004, a study through UND began looking at the effect of climate change and land use effects on small mammal communities of southwestern North Dakota. Beginning in 2005, SWG funding will be awarded to expand this

Plains Spadefoot

Level I

study to recreate the REAP project of 1978. This will involve searching and trapping for a variety of mammals, amphibians, and reptiles, including spadefoot toads.

Previous Research or Surveys

- Wheeler and Wheeler (1966) conducted a statewide survey of all amphibians and reptiles, as well as compiled existing records. The toads were found primarily west of the Missouri River and in small numbers.
- The REAP program (1978) found few records of the spadefoot toad in the southwest.
- Hoberg and Gause (1992) recorded personal observations of spadefoot toads in North Dakota.
- A survey of calling amphibians conducted by Johnson and Batie (1996) found the toads east of the previously known range in Towner and Wells counties.
- A compilation of all records in North Dakota by Jundt (2000) listed around 45 documentations of the spadefoot toad in the state.
- In 2004, researchers from NPWRC concluded that “extending the natural hydroperiods of wetlands in western North Dakota for the combined benefit of livestock and waterfowl has had a negative effect on species such as the plains spadefoot which have adapted to the shallow transitory water sources natural to this arid region of the state.”

Additional Research or Surveys Needed

- Future surveys could include visual encounter surveys or using auto recorders, which turn on to record audio when the humidity or other environmental cues occur at a certain level.

MANAGEMENT RECOMMENDATIONS

- Protect ephemeral wetland habitats from drainage or filling.
- Avoid artificially extending the naturally short hydroperiods of wetlands in arid regions of the state.
- Avoid creating permanent water sources in areas where they are naturally lacking (e.g. southwestern North Dakota). Consider creating permanent water where ephemeral wetlands do not exist or in an area that has already been altered.
- In arid regions of the state, restore the natural hydroperiods of wetlands that have been altered to create permanent water sources.
- Encourage the use of alternative water sources for livestock in arid regions of the state.
- Encourage the restoration of grassland habitats that were converted to stockponds or dugouts.

MONITORING PLANS

There currently is little or monitoring taking place. Monitoring tools could include school classes/programs, the general public, or national monitoring initiatives such as ARMI, NAAMP, or PARC. Amphibian monitoring can and should be directed at several species. Implementation of a monitoring system should occur by 2007.

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Plains Spadefoot

Level I

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Canadian Toad

Level I

Scientific Name: *Bufo hemiophrys*

General Description: L 2-3". Green to brown-red body with brown or red warts. A light line runs down center of back and a large raised bump, or boss, is present between the eyes.

Status: Year-round resident.

Abundance: Fairly common.

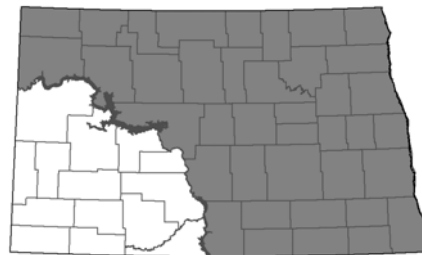
Primary Habitat: Margins of lakes, ponds, and a variety of wetlands.

Federal Status: None.

Reason for Designation: North Dakota comprises the southern portion of the species' rather limited range, which includes much of North Dakota, parts of Minnesota, South Dakota, Montana, and through central Canada. Vulnerable in the United States although apparently secure across the border in Canada. Recent surveys did not detect this toad as much as in the past.



Ted Hoberg and Cully Gause



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

The margin of lakes, ponds, and wetlands, particularly permanent water, are the Canadian's toads preferred habitat. Considerably more aquatic than most toads, they will swim far into water for refuge. Burrows into the ground using its hind feet.

Key Areas and Conditions for Canadian Toad in North Dakota

Permanent water east of the Missouri River. No specific sites are known.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Wetland destruction and/or degradation. Lack of vegetation buffer around wetlands in agricultural fields may limit use.

Other Natural or Manmade Factors

The effect of pesticides, herbicides, and disease is unknown.

RESEARCH AND SURVEY EFFORTS

Current Research or Surveys

- There is currently nothing specific to the species in North Dakota. Toads were document in the Sheyenne National Grasslands during a recent research project.

Previous Research or Surveys

- Wheeler and Wheeler (1966) conducted a statewide survey of all amphibians and reptiles, as well as compiled existing records. The toads were found east of the Missouri River and in reasonable numbers.

Canadian Toad

Level I

- The REAP program (1978) found two Canadian toads in the ponderosa pines, the only records ever found west of the Missouri River.
- Hoberg and Gause (1992) recorded personal observations of Canadian toads in North Dakota.
- A survey of calling amphibians conducted by Johnson and Batie (1996) found the toads only in the northeastern portion of the known range in North Dakota.
- A compilation of all records in North Dakota by Jundt (2000) listed roughly 60 documentations of the Canadian toad in the state.

Additional Research or Surveys Needed

- Visual encounter surveys appear to work well with this species and should continue in the future.

MANAGEMENT RECOMMENDATIONS

- Provide a buffer strip of natural vegetation between wetlands and agricultural areas of at least 50-60 feet.
- Provide adjacent upland habitat to wetlands of at least 500 feet.
- Leave logs, snags, and other coarse woody debris in place.

MONITORING PLANS

There currently is little or monitoring taking place. Monitoring tools could include school classes/programs, the general public, or national monitoring initiatives such as ARMI, NAAMP, or PARC. Amphibian monitoring can and should be directed at several species. Implementation of a monitoring system should occur by 2007.

REFERENCES

- Conant, R., and J. T. Collins. 1991. *A Field Guide to Reptiles and Amphibians: Eastern and Central North America*. Third edition. Houghton Mifflin Company, Boston, MA. 450 pp.
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- Wheeler, G. C., and J. Wheeler. 1966. *The Amphibians and Reptiles of North Dakota*. University of North Dakota Press, Grand Forks. 104 pp.

Common Snapping Turtle

Level II

Scientific Name: *Chelydra serpentina*

General Description: L 8-30", 65lbs. Brown to gray turtle with undersides of light tan or gray. Snapping turtles have a large head, hooked jaw, muscular limbs, webbed feet with long claws and a long, robust tail. Carapace often covered with green algae.

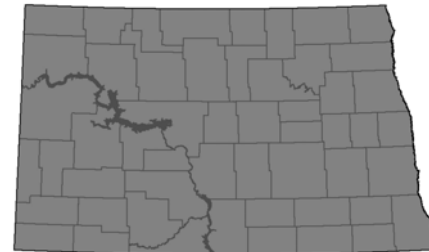
Status: Year-round resident.

Abundance: Fairly common.

Primary Habitat: Warm water in permanent lakes or rivers with a muddy bottom and plenty of aquatic vegetation.

Federal Status: None.

Reason for Designation: Listed as vulnerable in Montana, Minnesota, Saskatchewan and Manitoba by NatureServe. Although a season limit of two turtles caught by hook and line is allowed with a fishing license, little is known about the current status of this species in North Dakota.



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Snapping turtles can be found in slow-moving rivers and streams carrying a high sediment load, or large permanent or semi-permanent bodies of water with a muddy bottom and warm water. Often reside in the margins of ponds, buried in the mud with only eyes exposed. Feed on invertebrates, carrion, aquatic plants, fish, amphibians, other turtles, small mammals, or baby birds.

Key Areas and Conditions for Common Snapping Turtle in North Dakota

No specific sites have been identified.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

The loss or lack of aquatic vegetation, stumps, logs, and other debris could affect this species. Road mortality may contribute to the decline.

Other Natural or Manmade Factors

Harvest of snapping turtles for their meat is largely unregulated. Contaminants have been linked to population decline or abnormal development in some areas. Snapping turtles can be defensive on land if aggravated, hissing loudly and striking out. They are sometimes deliberately killed because of this perceived danger.

RESEARCH AND SURVEY EFFORTS

Current Research or Surveys

- There is currently nothing specific to the species in North Dakota.

Previous Research or Surveys

- Wheeler and Wheeler (1966) conducted a statewide survey of all amphibians and reptiles, as well as compiled existing records. The turtles were found statewide in permanent water.

Common Snapping Turtle

Level II

- The REAP program (1978) rarely observed snapping turtles, but indicated they are abundant in permanent bodies of water.
- Hoberg and Gause (1992) recorded personal observations of snapping turtles in North Dakota.
- A compilation of all records in North Dakota by Jundt (2000) listed around 35 documentations of the snapping turtle in the state.

Additional Research or Surveys Needed

- Future survey work could include trapping rivers and larger lakes throughout the state to obtain presence information, or to request reports from the public.

MANAGEMENT RECOMMENDATIONS

- Avoid clearing or replacing natural vegetation along wetland edges, providing at least 50-75 feet of undisturbed habitat to protect water quality and prevent erosion.
- Maintain the natural water level and fluctuations of wetlands.
- Leave logs, snags, and other woody debris on site and replace if removed.
- Erosion control structures such as retaining walls or rip-rap will limit or prevent access to the shoreline and adjacent habitat.
- Do not alter natural river undulations, backwater areas, or sand and gravel bars.
- When possible, keep cattle out of streams to reduce impacts on water quality and the streambed.

MONITORING PLANS

There currently is little or monitoring taking place. Possible monitoring options could include school classes/programs including universities, the general public through the NDGFD incidental reporting system, or national monitoring initiatives such as PARC. Monitoring should be directed at several species. Implementation of a monitoring system should occur by 2007.

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Common Snapping Turtle

Level II

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False Map Turtle

Level III

Scientific Name: *Graptemys pseudogeographica*

General Description: L 10" for females and 5" for males. This is a rather small, brown-shelled turtle with conspicuous knobs in the middle of the shell. A yellow spot behind eye, light yellow stripes, and no red/orange markings distinguish this species from the painted turtle.

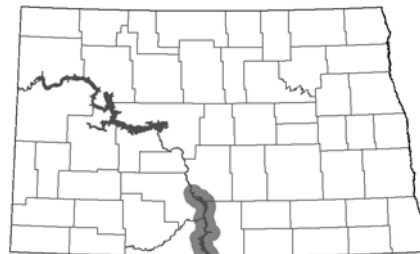
Status: Year-round resident.

Abundance: Rare.

Primary Habitat: Large rivers with or without submerged vegetation.

Federal Status: None.

Reason for Designation: Listed as Vulnerable in South Dakota by NatureServe. It was once a federal candidate species. Only a few records have been verified of this species in North Dakota.



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

False map turtles prefer large rivers or streams. A highly aquatic species which rarely emerges from the water except to lay a clutch of 6-13 eggs in the spring. May bask on slippery snags rising at steep angles from the water, but flees quickly if disturbed. Feeds on aquatic vegetation, insects, worms, crustaceans, minnows, and mollusks.

Key Areas and Conditions for False Map Turtle in North Dakota

The extreme lower portion of the Missouri River System is the only stretch of river where the turtles have been verified.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Availability and quality or the alteration/destruction of sandbars in the lower Missouri River stretch could affect nesting.

Other Natural or Manmade Factors

Nesting turtles may be disturbed by human recreation on sandbars.

RESEARCH AND SURVEY EFFORTS

Current Research or Surveys

- Starting in 2004, member states of the Wildlife Subcommittee of the Missouri River Natural Resources Committee (MRNRC) will attempt to document the relative abundance of softshell and false map turtles on the Missouri River. Beginning in 2005, portions of the river in North Dakota will be surveyed using turtle traps.

Previous Research or Surveys

- Wheeler and Wheeler (1966) conducted a statewide survey of all amphibians and reptiles, as well as compiled existing records. False map turtle is not listed in this publication.
- Hoberg and Gause (1992) recorded personal observations of false map turtles in North Dakota.

False Map Turtle

Level III

- A compilation of all records in North Dakota by Jundt (2000) listed three documentations of the false map turtle in the state.

Additional Research or Surveys Needed

- Future survey efforts could include additional trapping efforts along the Missouri River and in smaller streams leading into the Missouri.

MANAGEMENT RECOMMENDATIONS

- Avoid clearing or replacing natural vegetation along shoreline, providing at least 50-75 feet of undisturbed habitat to protect water quality and prevent erosion.
- Leave logs, snags, and other woody debris on site, or replace if removed.
- Erosion control structures such as retaining walls or rip-rap will limit or prevent access to the shoreline and adjacent habitat.
- Do not alter natural river undulations, backwater areas, or sand and gravel bars.
- When possible, keep cattle out of streams to reduce impacts on water quality and the streambed.

MONITORING PLANS

There currently is little or monitoring taking place. Possible monitoring options could include school classes/programs including universities, the general public through the NDGFD incidental reporting system, or national monitoring initiatives such as PARC. Monitoring should be directed at several species. Implementation of a monitoring system should occur by 2007.

REFERENCES

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Smooth Softshell Turtle

Level III

Scientific Name: *Apalone mutica*

General Description: L 14" for females and 7" for males. The carapace is circular in shape, olive-gray to orange-brown, smooth, flat, and leathery-like.

Status: Year-round resident.

Abundance: Rare.

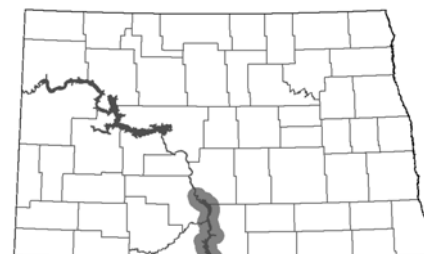
Primary Habitat: Large rivers and streams with sandy beaches.

Federal Status: None.

Reason for Designation: Listed as Imperiled in South Dakota and Vulnerable in Minnesota by NatureServe. Few records have been verified in North Dakota, however, there are several reports of fishermen catching "leathery" turtles, possibly around the Williston area. The status of this species is unclear in North Dakota.



Ted Hoberg and Cully Gause



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Softshells prefer permanent streams or creeks with a sandy or muddy bottom and sandy beaches. They may burrow into the sand under shallow water for a long period of time. Frequently bask on river banks and logs, but flee quickly if disturbed. Females do not mature until around 9 years of age, when they lay one to three clutches of 4-33 hard-shelled eggs on sandbars. Feed primarily on crayfish, small invertebrates, frogs, and small fish.

Key Areas and Conditions for Smooth Softshell in North Dakota

The extreme lower portion of the Missouri River System is the only stretch of river where the turtles have been verified. There are unverified reports of softshells in the Missouri River near the Montana border.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Availability and quality of sandbars in the lower Missouri River stretch could affect nesting.

Other Natural or Manmade Factors

Nesting turtles may be disturbed by human recreation on sandbars.

RESEARCH AND SURVEY EFFORTS

Current Research or Surveys

- In 2004, member states of the Wildlife Subcommittee of the Missouri River Natural Resources Committee (MRNRC) will attempt to document the relative abundance of softshell turtles and false map turtles on the Missouri River. Beginning in 2005, portions of the river in North Dakota will be surveyed using turtle traps.

Smooth Softshell

Level III

Previous Research or Surveys

- Wheeler and Wheeler (1966) conducted a statewide survey of all amphibians and reptiles, as well as compiled existing records. Only one positive record for the state at that time.
- The REAP program (1978) had one observation of the smooth softshell turtle on the north branch of the Little Heart River and indicated it is rare and sparse in the project area.
- A compilation of all records in North Dakota by Jundt (2000) listed three documentations.

Additional Research or Surveys Needed

- Future survey efforts could include additional trapping efforts along the Missouri River and its tributaries.

MANAGEMENT RECOMMENDATIONS

- Avoid clearing or replacing natural vegetation along shoreline, providing at least 50-75 feet.
- Leave logs, snags, and other woody debris on site, and replace if removed.
- Erosion control structures such as retaining walls or rip-rap will limit or prevent access to the shoreline and adjacent habitat.
- Do not alter natural river undulations, backwater areas, or sand and gravel bars.
- When possible, keep cattle out of streams to reduce impacts on water quality and the streambed.

MONITORING PLANS

There currently is little or monitoring taking place. Monitoring tools could include school classes/programs, the general public, or national monitoring initiatives such as ARMI, NAAMP, or PARC. Amphibian monitoring can and should be directed at several species. Implementation of a monitoring system should occur by 2007.

REFERENCES

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- Wheeler, G. C., and J. Wheeler. 1966. The Amphibians and Reptiles of North Dakota. University of North Dakota Press, Grand Forks. 104 pp.

Northern Sagebrush Lizard

Level III

Scientific Name: *Sceloporus graciosus*

General Description: L 4-6". This inconspicuous lizard is pale brown or green with four longitudinal rows of dark brown spots. Elongated blue patches on each side of belly are visible in most specimens.

Status: Year-round.

Abundance: Rare.

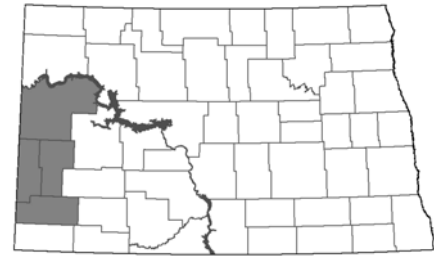
Primary Habitat: Sagebrush and rocky areas near water.

Federal Status: None.

Reason for Designation: Listed as Imperiled in South Dakota, Vulnerable in Montana, and Critically Imperiled in Nebraska according to NatureServe. Once listed as a federal candidate species.



Ted Hoberg and Cully Gause



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Sagebrush lizards can be found in association with sagebrush, rocky areas near water, and adjacent areas of fine gravel, sandy, or rocky soil. Areas with boulders, forested slopes, and open flat land with rock crevices or mammal holes will also be used. Although somewhat docile, they will hide under rocks, twigs, or brush piles if alarmed and may occasionally climb trees or bushes. Feed on a variety of insects, spiders, ticks, mites, and aphids.

Key Areas and Conditions for Northern Sagebrush Lizard in North Dakota

Known populations occur in the north unit of Theodore Roosevelt National Park and the badlands near Medora and southward.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Destruction and/or degradation of sagebrush habitat.

Other Natural or Manmade Factors

It is unknown what effect pesticides, development, and other disturbance has on populations of sagebrush lizards.

RESEARCH AND SURVEY EFFORTS

Current Research or Surveys

- There is currently nothing specific to the species in North Dakota. In 2004, a study through UND began looking at the effect of climate change and land use effects on small mammal communities of southwestern North Dakota. Beginning in 2005, SWG funding will be awarded to expand this study to recreate the REAP project of 1978. This will include searching and trapping for a variety of mammals, amphibians, and reptiles. There is a chance sagebrush lizards may be captured during the two-year study.

Northern Sagebrush Lizard

Level III

Previous Research or Surveys

- Wheeler and Wheeler (1966) conducted a statewide survey of all amphibians and reptiles, as well as compiled existing records. Only one record of the lizard was known at the time.
- The REAP program (1978) observed sagebrush lizards at the north unit of Theodore Roosevelt National Park and at a site in Slope County. Although rarely observed and sparse where found, they indicated the lizards are distributed in upland breaks all along the Little Missouri River.
- A compilation of all records in North Dakota by Jundt (2000) listed ten documentations of the sagebrush lizard in the state.

Additional Research or Surveys Needed

- Future efforts could include visual encounter surveys as the most productive for determining presence.

MANAGEMENT RECOMMENDATIONS

- Prevent overgrowth by shrubs and trees in sand habitats to maintain openness. This should include juniper removal and control.
- Restrict off-road vehicle use to pre-selected, less sensitive/lower quality areas.

MONITORING PLANS

There currently is little or monitoring taking place. Possible monitoring options could include school classes/programs including universities, the general public through the NDGFD incidental reporting system, or national monitoring initiatives such as PARC. Monitoring should be directed at several species. Implementation of a monitoring system should occur by 2007.

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Short-horned Lizard

Level II

Scientific Name: *Phrynosoma douglassi*

General Description: L 2 ½ -4". A flat, grayish body covered with numerous horns and spikes. Gives birth to 5-30 live young.

Status: Year-round resident.

Abundance: Uncommon, locally abundant.

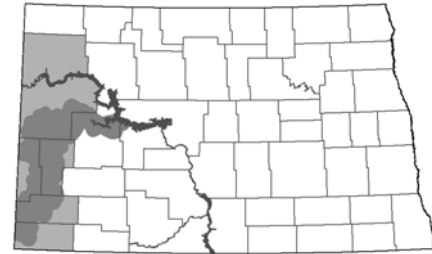
Primary Habitat: Semi-arid, shortgrass prairie in rough terrain.

Federal Status: None.

Reason for Designation: Listed as Imperiled in South Dakota and Saskatchewan and Vulnerable in Montana by NatureServe. Once listed as a federal candidate species, little is known of this species in North Dakota.



Sandra Hagen



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Arid landscapes, shortgrass prairie, and rough terrain are the primary habitats of the short-horned lizard. Open areas, shrubby, or open woody areas with sparse ground vegetation are also used. The lizards burrow into the ground in sandy soils and will also occupy abandoned rodent burrows. Feed on small insects, ants, and spiders.

Key Areas and Conditions for Short-horned Lizard in North Dakota

Most specimens have been encountered in the badlands and surrounding breaks.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Destruction and/or degradation of grassland and shrubland habitat.

Other Natural or Manmade Factors

It is unknown what effect pesticides, development, and other disturbance has on populations of short-horned lizards.

RESEARCH AND SURVEY EFFORTS

Current Research or Surveys

- There is currently nothing specific to the species in North Dakota. In 2004, a study through UND began looking at the effect of climate change and land use effects on small mammal communities of southwestern North Dakota. Beginning in 2005, SWG funding will be awarded to expand this study to recreate the REAP project of 1978. This will include searching and trapping for a variety of mammals, amphibians, and reptiles. Short-horned lizards will likely be captured during the two year study.

Short-horned Lizard

Level III

Previous Research or Surveys

- Wheeler and Wheeler (1966) conducted a statewide survey of all amphibians and reptiles, as well as compiled existing records. The lizards were found west of the Missouri River and in low numbers.
- The REAP program (1978) rarely observed the short-horned lizard, but indicated it is locally abundant in upland breaks along the Little Missouri River.
- Hoberg and Gause (1992) recorded personal observations of short-horned lizards in North Dakota.
- A compilation of all records in North Dakota by Jundt (2000) listed around 20 documentations of the short-horned lizard in the state.

Additional Research or Surveys Needed

- Future efforts could include visual encounter surveys for determining presence.

MANAGEMENT RECOMMENDATIONS

- Prevent overgrowth by shrubs and trees in sand habitats to maintain openness. This should include juniper removal and control.
- Restrict off-road vehicle use to pre-selected, less sensitive/lower quality areas.

MONITORING PLANS

There currently is little or monitoring taking place. Possible monitoring options could include school classes/programs including universities, the general public through the NDGFD incidental reporting system, or national monitoring initiatives such as PARC. Monitoring should be directed at several species. Implementation of a monitoring system should occur by 2007.

REFERENCES

- Conant, R., and J. T. Collins. 1991. *A Field Guide to Reptiles and Amphibians: Eastern and Central North America*. Third edition. Houghton Mifflin Company, Boston, MA. 450 pp.
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Northern Prairie Skink

Level III

Scientific Name: *Eumeces septentrionalis*

General Description: L 5-8". Light gray-brown with several dark bands extending the length of the body. The belly is pale blue-gray.

Status: Year-round resident.

Abundance: Rare.

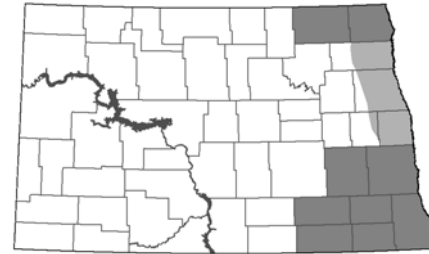
Primary Habitat: Sand dunes in grasslands.

Federal Status: None.

Reason for Designation: Listed as Imperiled in Manitoba by NatureServe. This species has a rather small range in North America, limited to patchy segments of North Dakota, South Dakota, Minnesota, Wisconsin, Iowa, Nebraska, and Kansas. Little is known of this species in North Dakota.



Ted Hoberg and Cully Gause



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Prairie skinks use open areas with grassy hillsides of soft soil and small, flat rocks. Burrow under stones or other objects on the ground. Skinks may increase in density as field age increases, as many as 200 adults per ha. Feed on grasshoppers, crickets, beetles, caterpillars, and spiders.

Key Areas and Conditions for Northern Prairie Skink in North Dakota

The largest population most likely occurs in the extreme southeastern grasslands of North Dakota, although records have come from the northern part of the state. Focus areas where this species occurs include the Sand Deltas and Beach Ridges.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Fragile sand habitat is at risk of destruction and/or degradation. The fragmentation of suitable habitat may hinder interconnectivity of populations, as movement of individual skinks is usually less than 100 meters.

Other Natural or Manmade Factors

It is unknown what effect pesticides, development, and other disturbance has on populations of prairie skinks.

RESEARCH AND SURVEY EFFORTS

Current Research or Surveys

- There is currently nothing specific to the species in North Dakota.

Previous Research or Surveys

- Wheeler and Wheeler (1966) conducted a statewide survey of all amphibians and reptiles, as well as compiled existing records. The skinks were only found in the southeastern corner of the state.
- Hoberg and Gause (1992) recorded personal observations of prairie skinks in North Dakota.

Northern Prairie Skink

Level III

- A compilation of all records in North Dakota by Jundt (2000) listed roughly 15 documentations of the prairie skink in the state.

Additional Research or Surveys Needed

- Future efforts could include visual encounter surveys, but trapping may be the most productive method for determining presence.

MANAGEMENT RECOMMENDATIONS

- Prevent overgrowth by shrubs and trees to maintain openness in sand habitats.
- Restrict off-road vehicle use to preselected, less sensitive/lower quality areas.

MONITORING PLANS

There currently is little or monitoring taking place. Possible monitoring options could include school classes/programs including universities, the general public through the NDGFD incidental reporting system, or national monitoring initiatives such as PARC. Monitoring should be directed at several species. Implementation of a monitoring system should occur by 2007.

REFERENCES

- Conant, R., and J. T. Collins. 1991. A Field Guide to Reptiles and Amphibians: Eastern and Central North America. Third edition. Houghton Mifflin Company, Boston, MA. 450 pp.
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Northern Redbelly Snake

Level II

Scientific Name: *Storeria occipitomaculata*

General Description: L 8-12". The underside of this snake is bright red to orangish/yellow and the back is brown to gray.

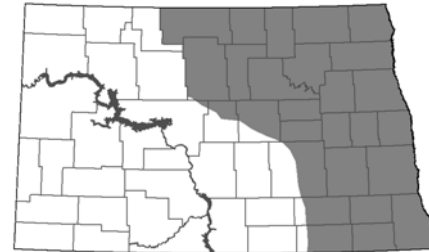
Status: Year-round resident.

Abundance: Uncommon.

Primary Habitat: Moist woodlands.

Federal Status: None.

Reason for Designation: Listed as Vulnerable in South Dakota and Saskatchewan, Critically Imperiled in Kansas by NatureServe. The redbelly snake appears vulnerable throughout much of its eastern range but secure farther east. The status of the redbelly in North Dakota is unclear.



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Redbelly snakes are most often found in or around moist woodlands or the margins of woodlands. Hide under stones, boards, rotten logs, and other forest cover during the day. May also use abandoned ant mounds. Emerge toward evening when they feed primarily on slugs, but also on small earthworms and beetle larvae.

Key Areas and Conditions for Northern Redbelly Snake in North Dakota

The Turtle Mountains and Devils Lake Mountains may be important focus areas for the snakes. Information on the occurrence along riparian focus areas is limited.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Destruction and/or degradation of native riparian and upland forest habitat.

Other Natural or Manmade Factors

None has been identified. It is unknown what effect pesticides, development, and other disturbance has on redbelly snakes.

RESEARCH AND SURVEY EFFORTS

Current Research or Surveys

- There is currently nothing specific to the species in North Dakota.

Previous Research or Surveys

- Wheeler and Wheeler (1966) conducted a statewide survey of all amphibians and reptiles, as well as compiled existing records. Few records of the snake were found.
- Hoberg and Gause (1992) recorded personal observations of redbelly snakes in North Dakota.

Northern Redbelly Snake

Level II

- A compilation of all records in North Dakota by Jundt (2000) listed roughly 20 documentations of the redbelly snake in the state.

Additional Research or Surveys Needed

- Future efforts could include visual encounter surveys, and drift fences with pitfall trap, as the most productive for determining presence.

MANAGEMENT RECOMMENDATIONS

- In forests, avoid fragmentation through careful placement of roads, agricultural fields, and other barriers.
- Do not clear cut and limit use of monoculture plantings.
- Protect wetlands within forests.
- Allow the forest understory to remain complex.
- Leave logs, snags, and other woody debris on site, and replace if removed.

MONITORING PLANS

There currently is little or monitoring taking place. Possible monitoring options could include school classes/programs including universities, the general public through the NDGFD incidental reporting system, or national monitoring initiatives such as PARC. Monitoring should be directed at several species. Implementation of a monitoring system should occur by 2007.

REFERENCES

- Conant, R., and J. T. Collins. 1991. A Field Guide to Reptiles and Amphibians: Eastern and Central North America. Third edition. Houghton Mifflin Company, Boston, MA. 450 pp.
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Western Hognose Snake

Level I

Scientific Name: *Heterodon nasicus*

General Description: L 15-39". Tan to yellowish-gray with dark blotches and a black belly with yellow or whitish squares. A unique upturned nose with keel on top sets this snake apart from the prairie rattlesnake.

Status: Year-round resident.

Abundance: Uncommon.

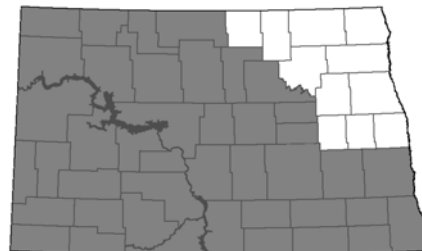
Primary Habitat: Dry grasslands with sandy or gravelly soil.

Federal Status: None.

Reason for Designation: Listed as Vulnerable in Montana, Minnesota and Saskatchewan, and Imperiled in Manitoba by NatureServe.



Chris Grondahl



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Prefer dry, sandy or gravelly areas in grassland, open sand prairies, or sand dunes. Sometimes mixed forest habitats and cropland may be used. Burrow into the loose soil or may use mammal burrows for cover, but will not use artificial cover as much as other snakes. Most active in mornings and evenings, will estivate in very hot weather. Feed on a variety of prey such as toads, lizards, snakes, reptile eggs, small birds, and rodents, which they swallow whole and alive.

Key Areas and Conditions for Western Hognose Snake in North Dakota

No specific sites have been identified.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Sandy areas preferred by hognose snakes are fragile habitats and may be easily degraded or destroyed.

Other Natural or Manmade Factors

Hognose snakes may be intentionally killed if mistaken for a rattlesnake. It is unknown how pesticides, development, and other disturbance affect hognose snakes.

RESEARCH AND SURVEY EFFORTS

Current Research or Surveys

- There is currently nothing specific to the species in North Dakota. In 2004, a study through UND began looking at the effect of climate and land use change on small mammal communities of southwestern North Dakota. Beginning in 2005, SWG funding will be awarded to expand this study to recreate the REAP project of 1978. This will include searching and trapping for a variety of mammals, amphibians, and reptiles. Hognose snakes will likely be captured during the two year study.

Western Hognose Snake

Level I

Previous Research or Surveys

- Wheeler and Wheeler (1966) conducted a statewide survey of all amphibians and reptiles, as well as compiled existing records. The snakes were found statewide in low numbers except in the northeast.
- The REAP program (1978) found few records of the hognose snake in the southwest.
- Hoberg and Gause (1992) recorded personal observations of hognose snakes in North Dakota.
- A compilation of all records in North Dakota by Jundt (2000) listed around 35 documentations of the hognose snake.

Additional Research or Surveys Needed

- Future recommended survey methods would include trapping for this species.

MANAGEMENT RECOMMENDATIONS

- Prevent overgrowth by shrubs and trees in sand habitats to maintain openness.
- Restrict off-road vehicle use to pre-selected, less sensitive/lower quality areas.

MONITORING PLANS

There currently is little or monitoring taking place. Possible monitoring options could include school classes/programs including universities, the general public through the NDGFD incidental reporting system, or national monitoring initiatives such as PARC. Monitoring should be directed at several species. Implementation of a monitoring system should occur by 2007.

REFERENCES

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Smooth Green Snake

Level I

Scientific Name: *Liochlorophis vernalis*

General Description: L 12-22". A fast moving and inconspicuous snake, it is bright green above and white to pale yellow below.

Status: Year-round resident.

Abundance: Uncommon.

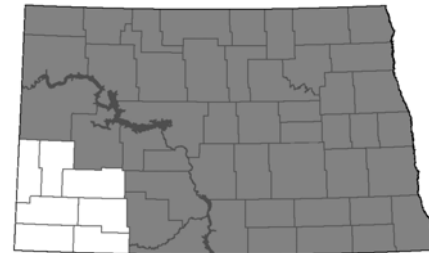
Primary Habitat: Grassland, upland hills.

Federal Status: None.

Reason for Designation: Listed as Vulnerable in Manitoba and Saskatchewan, and Imperiled in Montana by NatureServe. It is also a species of concern in several other states.



Ted Hoberg and Cully Gause



LOCATIONS AND CONDITIONS OF KEY HABITAT

Preferred Habitat

Smooth green snakes are found in grazed or ungrazed grassland, particularly the uplands of hills where grass is shorter. Moist meadows, native prairies, and occasionally woodland clearings are also used. It is rarely seen, other than in very short grass or perhaps crossing a road. Smooth green snakes hibernate in burrows, rock crevices, road embankments, and ant mounds. They are entirely insectivorous, feeding on grasshoppers, crickets and caterpillars.

Key Areas and Conditions for Smooth Green Snake in North Dakota

No specific sites have been identified.

PROBLEMS WHICH MAY AFFECT THIS SPECIES

Habitat

Destruction and/or degradation of grasslands.

Other Natural or Manmade Factors

It is unknown how pesticides, development, and other disturbances affect smooth green snakes.

RESEARCH AND SURVEY EFFORTS

Current Research or Surveys

- There is currently nothing specific to the species in North Dakota. In 2004, a study through UND began looking at the effect of climate change and land use effects on small mammal communities of southwestern North Dakota. Beginning in 2005, SWG funding will be awarded to expand this study to recreate the REAP project of 1978. This will include searching and trapping for a variety of mammals, amphibians, and reptiles. There is a chance smooth green snakes may be captured during the two year study.

Previous Research or Surveys

- Wheeler and Wheeler (1966) conducted a statewide survey of all amphibians and reptiles, as well as compiled existing records. The snakes were found primarily east river and in low numbers.
- The REAP program (1978) found few records of the smooth green snake in the southwest.

Smooth Green Snake

Level I

- Hoberg and Gause (1992) recorded personal observations of smooth green snakes in North Dakota.
- A compilation of all records in North Dakota by Jundt (2000) listed around 65 documentations of the smooth green snake in the state.

Additional Research or Surveys Needed

- Future recommended survey methods would include trapping for this species.

MANAGEMENT RECOMMENDATIONS

- Maintain the open nature of habitat.
- Protect wetlands within grasslands and control livestock access.
- Avoid excessive grazing and off-road vehicle use.
- Leave logs, snags, and other woody debris on site, and replace if removed.

MONITORING PLANS

There currently is little or monitoring taking place. Possible monitoring options could include school classes/programs including universities, the general public through the NDGFD incidental reporting system, or national monitoring initiatives such as PARC. Monitoring should be directed at several species. Implementation of a monitoring system should occur by 2007.

REFERENCES

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