

STATUS AND DISTRIBUTION OF RIVER OTTERS, *LONTRA CANADENSIS*, IN SOUTH DAKOTA

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ABSTRACT

Currently, river otters (*Lontra canadensis*) range throughout Canada and northern parts of the United States, which constitutes half their historical range. River otters are a threatened species in South Dakota, although their current status and distribution are relatively unknown. We attempted to determine the status and distribution of river otters in South Dakota. To conduct river otter surveys, 14 rivers and 3 creeks were selected throughout South Dakota based on stream size (orders three to seven), water gradient, and water permanence. At each river or creek, line transects and shorelines (below high water mark) were surveyed for river otter sign. In addition, reports were collected from the Natural Heritage Database and landowners, and observation report forms were mailed to state conservation officers collecting their observations. Thirty-four verified and three unverified sightings were recorded during our research. Eighty-nine percent of the sightings were reported in eastern South Dakota, particularly along the Big Sioux River. There may be a small population of river otters residing in the Big Sioux River watershed, which is possibly the result of reintroduction efforts by the Flandreau Santee Sioux Tribe. From our survey efforts, we found no indication of a remnant river otter population in South Dakota, though a small population of reintroduced river otters may reside in the eastern third of South Dakota. Because river otter populations do not likely exist in other areas of the state, efforts should be taken to restore this native animal to South Dakota's river systems.

Keywords

River otter, *Lontra canadensis*, status, distribution, home range, South Dakota, rivers, sightings.

INTRODUCTION

Historically, river otters (*Lontra canadensis*) occupied all major waterways of the United States and Canada (Halbrook, 1978; Hall, 1981; Jones et al., 1983; Lariviere and Walton, 1998). At present, the river otter is abundant in Alaska, most of Canada, the Pacific Northwest, the Great Lakes region, and most states along the Atlantic Coast and Gulf of Mexico (Andelt, 1992). In other states, particularly the Midwest, river otter populations are not faring as well (Halbrook, 1978; Choromanski and Fritzell, 1982; Toweill and Tabor, 1982). Presently, river otters occupy less than 33% of their historical range in the contiguous 48 states (Fig. 1). River otters are protected in 17 states either as a threatened or endangered species (Melquist and Hornocker, 1983).

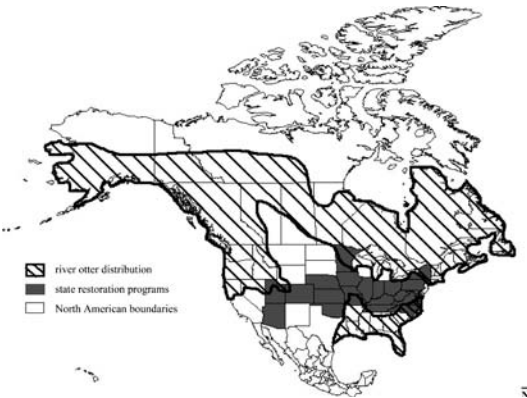


Figure 1. Distribution of river otters in North America (Toweill and Tabor, 1982). Currently, river otters are expanding their range into central areas of the United States, which is the location of state restoration programs.

At one time, river otters inhabited riparian areas and permanent bodies of water throughout South Dakota (Choate and Jones, 1981; Jones et al., 1985). River otters were important furbearers for European trappers and were extirpated from South Dakota's waters due to extensive trapping, loss of habitat, and other human intervention (Over and Churchill, 1941; Choromanski and Fritzell, 1982; Toweill and Tabor, 1982; Jones et al., 1983; Melquist and Hornocker, 1983; Dronkert-Egnew, 1991; Lizotte and Kennedy, 1997; Lariviere and Walton, 1998). More recently, biologists, landowners, and conservation officers have documented occasional sightings of river otters throughout South Dakota. These sightings may be due to river otters dispersing from established populations or from restoration programs in surrounding states, which makes it unclear whether a remnant population of river otters still exists in South Dakota. River otters are a threatened species in South Dakota (Ashton and Dowd, 1991), though the current status and distribution of river otters in South Dakota is relatively unknown. This project was initiated to determine whether a remnant population of river otters exists and to determine the status and distribution of river otters in South Dakota.

STUDY AREA

South Dakota lies in the Northern Great Plains region and is dissected by many rivers, streams, and creeks. Natural ecosystems in South Dakota include northern floodplain forest, tall-grass prairie, mixed-grass prairie, short-grass prairie, and ponderosa pine (*Pinus ponderosa*) woodland. Northern floodplain forests are riparian communities that consist of primarily cottonwood (*Populus deltoides*) and willows (*Salix* spp.). Tall-grass prairies consist of primarily big bluestem (*Andropogon gerardii*), switchgrass (*Panicum virgatum*), and Indiangrass (*Sorghastrum nutans*). Mixed-grass prairies include tall grasses, short grasses (e.g., blue grama [*Bouteloua gracilis*]), and intermediate grasses (e.g., little bluestem [*Schizachyrium scoparium*] and sideoats grama [*Bouteloua curtipendula*]). Short-grass prairies are dominated by species such as buffalograss (*Buchloe dactyloides*), blue grama, needle and thread (*Stipa comata*), and western wheatgrass (*Agropyron smithii*). Ponderosa pine trees dominate the ponderosa pine woodlands with variable undergrowth vegetation (Jones et al., 1985).

To narrow the focus of this research, specific rivers in South Dakota were selected based on three river otter habitat requirements. These characteristics included stream orders three through seven (large rivers or streams) according to the Strahler Order stream order system (Murphy and Willis, 1996), permanent water flow, and low gradient (slower moving waters) (Mack, 1985; Bradley, 1986; Johnson and Madej, 1994; Reid et al., 1994; SDGAP, unpublished report, 2001). Selected stream reaches were the Big Sioux River, James River, Vermillion River, Missouri River, Little Minnesota River, Jorgensen River, North Fork of the Whetstone River, Moreau River, Grand River, Virgin Creek, Cheyenne River, Bad River, Medicine Creek, White River, Little White River, Rapid Creek, and Belle Fourche River (Fig. 2).

METHODS

One to four study sites were selected per study river system. Stream length of the study river system determined the number of study sites. At each study site, we surveyed one habitat transect, which was 50 m long and intersected with six 10 m perpendicular lines every 10 m, for river otter sign. Habitat transects were less than five meters inland from the actual watercourse (Mowbray et al., 1976). We also searched for river otter sign below the high water mark beside each river.

We contacted the South Dakota Natural Heritage Program for information on river otter sightings in South Dakota. The Natural Heritage Database is a sector of the Natural Heritage Program, which serves to inventory and monitor threatened, endangered, and rare species in South Dakota. Furthermore, Indian tribes were contacted for information on reintroduction efforts and river otter sightings within the reservations. Landowners, trappers, and conservation officers provided additional information on river otter sightings within South Dakota.

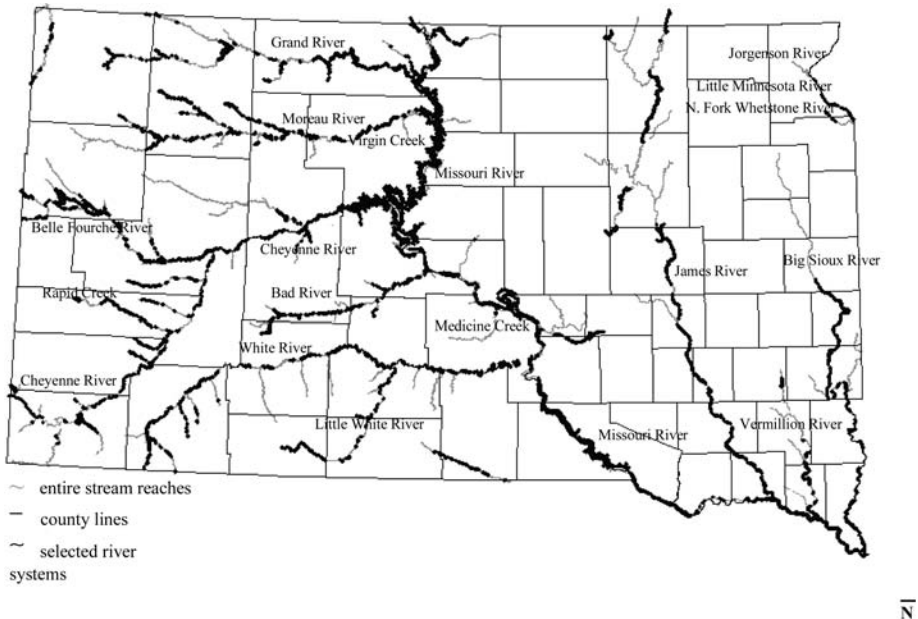


Figure 2. Selected stream reaches in South Dakota with rivers for river otter habitat study sites as determined by permanent water flow, stream orders three through seven, and low gradient.

River otter observation report forms were mailed to all conservation officers in South Dakota. Observation reports were used to record areas within counties where river otters had been sighted and to report detailed information regarding the sighting.

River otter home range and distribution maps were designed using average home range values from other studies. Linear home ranges average 80 km in river systems in Iowa (Andelt, 1992). Polygonal home ranges average 150 km² in wetlands and lakes in Canada (Ried et al., 1994). Average home ranges were applied to each river otter sighting, depending on the location, to determine the relative home range and distribution of river otters in South Dakota.

RESULTS

Thirty-four verified and three unverified river otter sightings were recorded prior to and during this study. Of the verified sightings, 12 sightings were reported from 1979 to 2001 to the South Dakota Natural Heritage Database, 20 sightings were received from South Dakota landowners, conservation officers, biologists, and trappers from 1998 to present, and two sightings were found in 2001 during habitat transects surveys (Fig. 3). Footprints were discovered along the Big Sioux River at two locations, Moody and Lincoln counties. In both cases, imprints in riparian zones proximate to water represented river otter sign. Some of the latter verified reports were not reported to the Natural

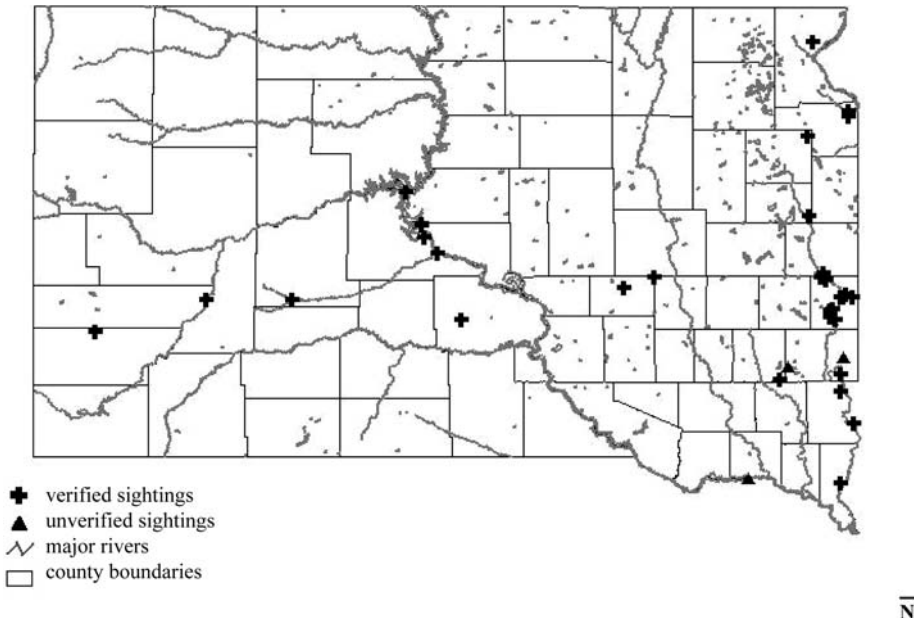


Figure 3. River otter sightings reported to the Natural Heritage Database (1979-2001), by biologists, and the general public.

Heritage Database. Unverified sightings were reported by landowners from 2000 to present.

Eighty-nine percent of the river otter sightings occurred east of the Missouri River (Fig. 4), 76 percent of the sightings occurred in the eastern third of South Dakota (Fig. 5), and 54 percent of the sightings occurred along the Big Sioux River watershed. There likely is a small population of river otters residing along the Big Sioux River, which may be the result of reintroduction efforts by the Flandreau Santee Sioux Tribe. Seventeen river otters were released into the Big Sioux River in 1998-1999 and 1999-2000 (Raesly, 2001; W. Hansen, Flandreau Santee Sioux Tribe, pers. comm.). River otter sightings have persisted for nearly five years, though the released river otters have not been monitored.

DISCUSSION

There was no indication of a remnant population of river otters in South Dakota according to river otter sightings. Only two sightings, which occurred before the late 1980's, may be attributed to river otters from established populations traveling into South Dakota. Each sighting occurred in Hughes County in 1979 and 1983.

The greatest number (20) of river otter sightings occurred in Moody County, near the Flandreau Santee Sioux Tribe. From 1998 to 2000, the Flandreau Santee Sioux Tribe reintroduced 34 river otters into the Big Sioux River near Flandreau, South Dakota, as part of a cultural goal to restore a native species

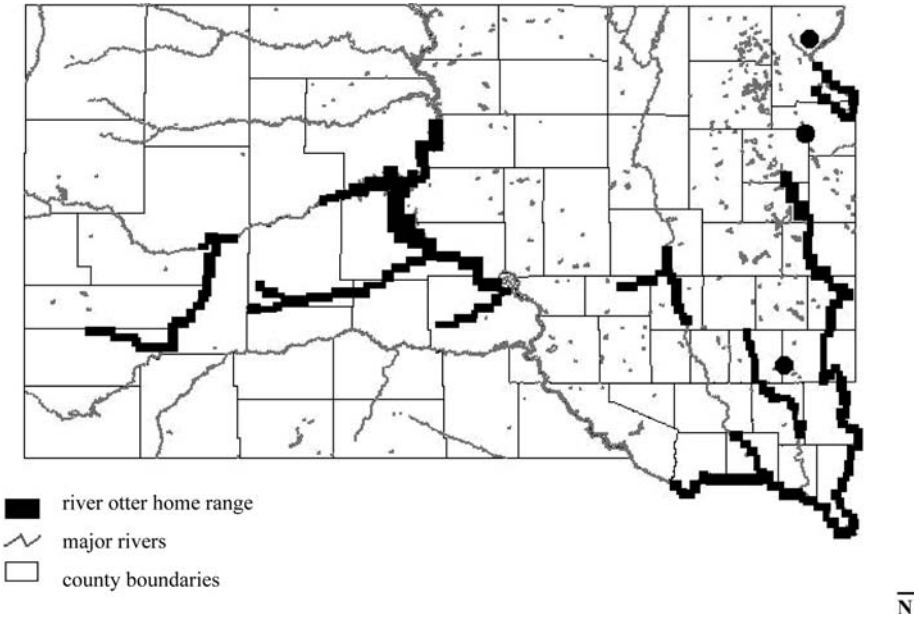


Figure 4. River otter home ranges using average linear home range and polygonal home range values on each river otter sighting. Home range value depends on the location (e.g., wetland or river) of the sighting.

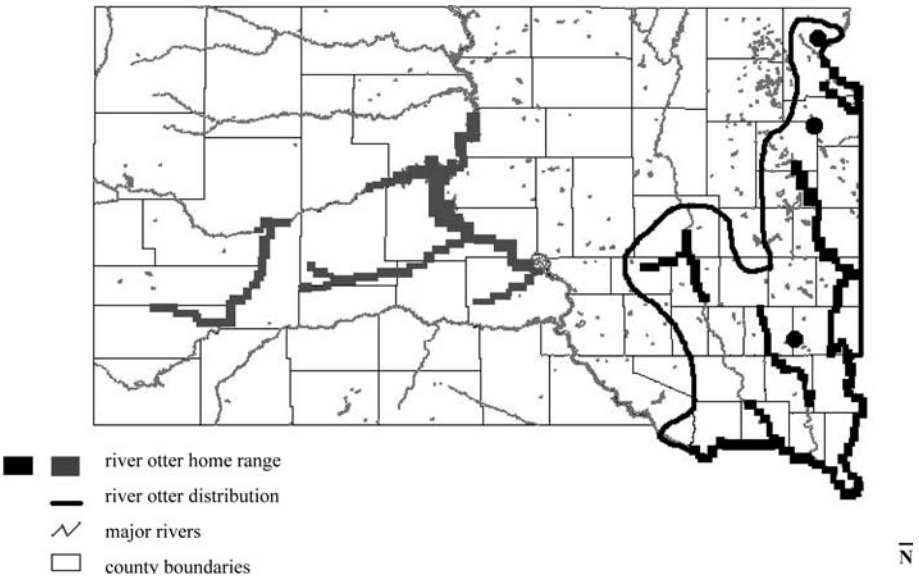


Figure 5. Distribution of river otters in eastern South Dakota as determined by home ranges and number of sightings.

to Tribal Lands (Raesly, 2001). Released river otters were not marked for post-release monitoring, though sightings of river otters have persisted for several years. Sightings of reintroduced river otters along the Big Sioux River during three occasions consisted of groups of three to four river otters. Usually groups of three to four river otters comprise family groups, which consist of the mother and her young. As a result, some reintroduced river otters may have reproduced along the Big Sioux River.

Currently, river otters appear to be distributed primarily in eastern South Dakota along the Big Sioux River. This is likely the result of the reintroduced population. River otters seem to be dispersing westward from the eastern border, which is indicated by the increased number of sightings in east-central South Dakota. Sightings west of the Missouri River are still minimal and probably limited to movements by transient river otters. Whether reintroduced river otters in eastern South Dakota travel west of the Missouri River is unknown.

CONCLUSION

Presently, 20 states in the central United States have or have had river otter restoration programs. As a result, river otters are extending their range into the central region of the United States. Currently, South Dakota Game, Fish and Parks does not have an active river otter restoration program, though efforts have been taken to determine whether habitat is available throughout South Dakota for river otter survival. Future restoration efforts depend on public and professional support as well as the potential for river otters to occupy areas west of the Missouri River. At this time, there may be a small population of reintroduced river otters residing in the eastern third of South Dakota. Whether river otters move further west into other regions of South Dakota remains relatively unknown. In the future, it is hoped that river otters may inhabit all major river systems in South Dakota, as they once did historically. With help from the citizens and biologists of South Dakota, we may be able to restore the threatened river otter to our prairie river systems and help return a unique species to its past range.

ACKNOWLEDGEMENTS

We thank South Dakota landowners, biologists, trappers, and conservation officers for their cooperation and input regarding river otter sightings. Also, we thank South Dakota Game, Fish and Parks for funding my research activities, and South Dakota State University for aiding with this research.

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