

# SOUTH DAKOTA RIVER OTTER MANAGEMENT PLAN, 2020-2029



SOUTH DAKOTA DEPARTMENT OF GAME, FISH AND PARKS  
PIERRE, SOUTH DAKOTA

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## Acknowledgements

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## Table of Contents

Acknowledgements.....	i
Table of Contents.....	ii
List of Tables .....	iii
List of Figures .....	iv
List of Appendices.....	v
Executive Summary.....	1
Introduction .....	1
Ecological and legal status .....	1
Recent research .....	2
Information on distribution and mortality .....	2
Information gained from necropsies .....	4
Harvest .....	5
Surveys and Monitoring.....	6
Goals, Objectives and Strategies, 2020-2029 .....	11
Literature Cited .....	13
Tables .....	15
Figures.....	22
Appendices.....	31

## List of Tables

Table 1. Frequency of river otter reports in South Dakota watersheds, 1979-2019. ....	15
Table 2. Frequency of river otter reports in South Dakota counties, 1979-2019. ....	16
Table 3. Frequency of reported incidentally trapped river otter in South Dakota watersheds, 1979-2019. ....	16
Table 4. Frequency of reported incidentally trapped river otter in South Dakota counties, 1979-2019. ....	17
Table 5. Species targeted when river otter were incidentally captured in South Dakota, 1979-2019. ....	17
Table 6. Trap types used when river otter were incidentally captured in South Dakota, 1979-2019. ....	18
Table 7. Sources of mortality for 229 river otters in South Dakota, 1979-2019. ....	18
Table 8. Frequency of necropsied river otter in South Dakota watersheds, 1979-2019. ....	18
Table 9. Frequency of necropsied river otter in South Dakota counties, 1979-2019. ....	19
Table 10. Age structure of 179 necropsied river otter from South Dakota, 2003-2019*. ....	20
Table 11. Female river otter with corpora lutea (CL) from South Dakota, 2003-2019. ....	20
Table 12. Contents of 192 river otter stomachs from South Dakota, 2003-2019. ....	21

## List of Figures

Figure 1. Annual frequency of 575 river otter reports in South Dakota, 1979 - 2019. ....	22
Figure 2. Location of 575 river otter reports in South Dakota watersheds, 1979 - 2019. ....	23
Figure 3. Location of 575 river otter reports in South Dakota counties, 1979 - 2019. ....	24
Figure 4. Composition of 575 river otter reports in South Dakota, 1979 - 2019. ....	25
Figure 5. Monthly frequency of 575 river otter report types in South Dakota, 1979 - 2019.....	26
Figure 6. Annual frequency of verified, probable, and unverified river otter reports in South Dakota, 1979 - 2019.....	27
Figure 7. Location of 148 river otter reports that provide evidence of reproduction in South Dakota, 1979 - 2019.....	28
Figure 8. Carcass weights of 109 males and 66 females in South Dakota, 2004-2019. ....	29
Figure 9. Contents of 192 river otter stomachs in South Dakota, 2003 - 2019.....	30

## List of Appendices

Appendix A. Status review of the state threatened North American river otter, April 2018. ....	31
Appendix B. SDGFP Commission action to delist the North American river otter. ....	40
Appendix C. Proposal to SDGFP Commission for a river otter trapping season in 2020.....	44
Appendix D. SDGFP Commission action to finalize a river otter trapping season in 2020.....	46
Appendix E. Response to public comments.....	49

## Executive Summary

The conservation and management of river otter in South Dakota has progressed from protection to potential harvest. Over the last 41 years the number and distribution of incidental river otter reports continues to increase. Age structure indicates a young and growing population. Delisting criteria developed as part of a status review have been met and the species has been delisted. A conservative harvest is sustainable. Although the river otter is secretive and difficult to survey, the development of a monitoring program is recommended. Feasible and flexible survey methods must help meet monitoring program goals, be suited to the state's climate and landscape, and implemented with available resources. A set of guiding principles and identified needs will direct the development of such a program for river otter. Information, education and outreach enhance river otter management in South Dakota.

## Introduction

In December of 2010, a group of South Dakota Department of Game, Fish and Parks (SDGFP) staff began developing a plan for the conservation and management of the North American River Otter (*Lontra canadensis*; hereafter river otter). This team produced the South Dakota River Otter Management Plan (SDGFP 2012). That 5-year plan provided general, strategic guidance to SDGFP and potential partners for the recovery and sustained management of river otter in South Dakota. It also included background information on the biology, ecology and management of river otter.

The current document identifies what we strive to accomplish related to the management of river otter in South Dakota over the next 10 years. It also includes updates to the relevant supporting information included in the first river otter management plan (SDGFP 2012). These two documents should be used in concert with one another. For more background on the biology, ecology and threats to river otters, please refer to SDGFP (2012).

The current plan update will be used by SDGFP staff and Commission on an annual basis and will be formally evaluated at least every 10 years. Supporting information will be formally updated at least every 5 years. All text and data contained within this document are subject to revision for corrections, updates, and data analyses.

## Ecological and legal status

As directed in the 2012 plan (SDGFP 2012), recovery criteria were developed to justify removing the species from the state threatened species list when appropriate. This was done as a part of the biennial status reviews conducted for all state threatened or endangered species, which includes the river otter ([Appendix A](#)). Status reviews summarize what is known about the species in the state, identify delisting or downlisting criteria, and list monitoring and research needs. As per the river otter status review, delisting criteria for the river otter included: 1) verified reports of reproduction are documented in three of the five basins (60%) within the recovery area and 2) within each basin, the presence of river otter has been documented by verified reports in at least 40% of their subbasins. Both criteria were required for at least two of the five years prior to recommended delisting. These criteria were met in 2019. On 5 March

2020, SDGFP staff recommended to the SDGFP Commission (Commission) that the North American River Otter (*Lontra canadensis*) be removed from the state list of state threatened mammals ([Appendix B](#)). The Commission approved delisting of this species on 7 May 2020.

## Recent research

The need to collect updated information on the distribution and population of river otter in South Dakota was identified in the first plan (SDGFP 2012). As such, a State Wildlife Grant-funded project was initiated with Dr. Wayne Melquist to determine current river otter distribution and evaluate habitat, including identifying suitable habitat of unoccupied sites with the potential for population expansion. Refer to Appendix A for a [summary](#) of findings from Melquist (2015).

## Information on distribution and mortality

### Reports of river otter

The South Dakota Natural Heritage Program (SDNHP), a part of SDGFP, maintains information on rare animal and plant species and plant communities in the state. The SDNHP monitors river otter by soliciting and collecting incidental reports from a variety of sources including universities, government wildlife agencies, private contractors, and the general public.

Reports are categorized based on the primary method used to identify the animal as a river otter: sighting, sign, incidental trap, and vehicle kill. Sightings are based upon the actual observation of a river otter. Reports of sign are based on tracks, slides, runs, scat, latrines, or natal dens. Incidental trap reports are of river otter that were incidentally caught while targeting other species. Vehicle kills are reports of river otter found dead on the road or hit by a vehicle. A report can be of an individual animal or a group of animals.

Certain criteria are used to determine the reliability of each report. A verified report is one of a carcass or live-captured individual(s) or where evidence exists that proves the report was a river otter. Photos where the animal can clearly be identified as a river otter may also be considered verified. Tracks associated with sliding marks in the snow, if confirmed by knowledgeable reviewers can also be considered a verified sighting. Knowledgeable reviewers may include agency staff familiar with river otter or other river otter experts. A probable report is a sighting not accompanied by a photo but is observed by someone with river otter experience and knowledge. In addition, tracks and scats not in snow are considered probable reports in part because of the difficulty of correctly identifying them. Photos are evaluated by knowledgeable reviewers. Unverified reports are those with no evidence to support or reject the report.

The SDNHP database contains 575 reports of river otter from 1979 through 2019. The number of reports received has steadily increased since 1998 ([Figure 1](#)). Since 1979, we received an average of 14.0 (SD = 19.3) river otter reports per year. From 1979 through 1999, an average of less than 1 report (SD = 1.5) was received per year. During the most recent 20 years of monitoring (2000-2019), a yearly average of 27.9 (SD = 19.6) reports was made. Between 2015 and 2019, we received an average of 50.6 (SD = 11.7) river otter reports. The highest number of river otter reports occurred in 2016 (n = 65).



Although river otter have been reported to be in 9 of the 10 watersheds in South Dakota, 80.2% of all reports came from three watersheds: Big Sioux (n = 302, 52.5%), Minnesota (n = 112, 19.5%), and James (n = 76, 13.2%; [Table 1](#) and [Figure 2](#)). We define watersheds as hydrological unit level two subregions delineated by the U.S. Geological Survey National Watershed Boundary Dataset. River otter have been observed in 47 of the 66 South Dakota counties ([Table 2](#) and [Figure 3](#)). Approximately half (51.5%) of all reports came from four counties: Moody (n = 97, 16.9%), Roberts (n = 71; 12.4%), Grant (n = 65; 11.3%) and Minnehaha (n = 63; 11.0%) counties.

We received a similar number of sightings (n = 220) and incidental trap reports (n = 216) over the last 41 years ([Figure 4](#)). Together they account for 76% of all report types. The remainder of reports were based on sign left by a river otter (n = 84, 14.6%), river otter struck by a vehicle (n = 48, 8.3%) and seven locations where river otter were detected by field cameras as part of a SDGFP project evaluating the use of cameras for monitoring river otter.

River otter reports from 1979 through 2019 revealed some monthly patterns based on observation type ([Figure 5](#)). Over half (53.2%) of all reports are received in March (n = 92; 16%), April (n = 95; 16.5%), and November (n = 119; 20.7%). Sightings of live animals were reported all year, but most frequently in March (n = 34) and April (n = 34). Incidentally caught river otter were reported in all months of the year but were most frequent in March (n = 27), April (n = 43), and November (n = 86). Observations of sign were common in March (n = 24). Reports of vehicle killed otter occurred throughout the year with the most reported in April (n = 12).

Reports are comprised of 379 (65.9%) verified, 120 (20.9%) probable, and 76 (13.2%) unverified reports. The first verified observation of a river otter was made in Hughes County in 1983. Since that time, we have received an average of 10.2 (SD = 13.9) verified reports per year. Verified reports have increased from an average of less than one report per year (SD = 1.0) in the first 21 years (1979-1999) to 18.6 (SD = 14.3) reports per year during the most recent 20 years ([Figure 6](#)). During the last five years (2015-2019), an average of 35.2 (SD = 7.6) verified river otter reports were made per year. We received the most verified reports (n = 42) in 2016.

### Incidental Trapping

Although incidentally trapped river otter were reported from five of the 10 watersheds ([Table 3](#)), 85.7% came from the Big Sioux (n = 127) and Minnesota (n = 58) watersheds. Most (71.8%) of the 216 incidentally trapped otter from 1979 through 2019 occurred in five counties: Moody (n = 54; 25.0%), Roberts (n = 32; 14.8%), Grant (n = 31; 14.4%), Brookings (n = 19; 8.8%), Minnehaha (n = 19; 8.8%; [Table 4](#)). Three incidentally trapped otter were reported from west of the Missouri River. Two were incidentally trapped in Lyman county and one was released alive after being incidentally trapped in Haakon County.

Target species was known for 146 of the 216 (67.5%) incidentally trapped river otter ([Table 5](#)). Of these, 116 (53.7%) were caught in traps targeting beaver, 19 while targeting raccoon (8.8%), 5 in fish nets or traps (2.3%), and 3 in sets targeting mink (1.4%). Trap types reported included body-grip, foot-hold, snare, and live traps ([Table 6](#)). Five sizes of body-gripping conibear traps were reported but the 330 conibear was the most common. Live-traps included the Hancock and havahart traps. Other trap types included fyke and hoop nets for fish sampling.

SDGFP surveyed resident and nonresident furbearer license holders who had a 2012 license or a 2013 license that was purchased prior to May 1, 2013 to learn more about the distribution of river otters in the state (Huxoll 2013). License holders were asked if they had incidentally trapped a river otter in the previous year and if so, in what county. Huxoll (2013) reported that river otter were incidentally caught in Grant (n = 4), Moody (n = 3), Minnehaha (n = 3), Lincoln (n = 2), and one each from Clark, Deuel, and Robert counties.

### Causes of death

Of the 575 reports provided to SDGFP from 1979 through 2019, 229 (29.8%) were of otters found dead or killed (euthanized) due to injuries determined likely to be fatal. Causes of death included: incidental trapping (n = 159; 69.4%), vehicle strike (n = 46; 20.1%), other (n = 14; 6.1%), and euthanized (n = 10; 4.4%; [Table 7](#)). Note that not all incidentally trapped river otter are killed. Forty-four of the 216 (20.4%) incidentally trapped otter were released alive. Other causes of death included nine unknown causes, four drownings in fish sampling gear, and one radio-marked otter that died of cardio myopathy. Of those euthanized, seven sustained trap-related injuries, two sustained injuries from being hit by a vehicle and one was incidentally trapped. The incidentally trapped animal bit the observer and was tested for rabies. Test results were negative.

### Information gained from necropsies

Since 2003, SDGFP conducted necropsies on 200 opportunistically obtained carcasses from 5 watersheds and 22 counties ([Tables 8](#) and [9](#)). Eighty-four percent of all carcasses were collected from the Big Sioux (n = 116, 58.0%) and Minnesota (n = 51, 25.5%) watersheds. Half (51.5%) of necropsied carcasses were obtained from Moody (n = 43, 21.5%), Roberts (n = 31, 15.5%) and Grant (n = 29, 14.5%) counties. Half (n = 102, 51.8%) of the carcasses necropsied were collected between 2015 and 2019 during the months of April and November. Incidental trapping was the cause of death for 71.1% (n = 140) of necropsied river otter.

### Sex ratio and age structure

Of the 200 river otters examined, 60.5% were male (n = 121) and 39% were female (n = 78) resulting in a male:female ratio of 1.7:1. The sex of one otter was unknown. We determined the age of 179 river otter (111 males, 67 females and 1 unknown sex) by analysis of cementum annuli in a lower canine ([Table 10](#)). Ages ranged from 0 to 12 years old. The oldest known river otter in South Dakota was a 12-year old male collected from Grant County in 2019. The oldest known female otter was an 8-year old collected from Brookings County in 2006. Over half of known-aged river otter were either juvenile (< 1-year old; n = 34; 19%) or yearlings (1-year old; n = 68, 38%). The age structure of both sexes reflected that of the entire sample. Juveniles and yearlings combined (subadults) comprised approximately half all known-age males (56%) and females (60%).

### Reproduction

Reproduction has been documented in 21 counties and six of the 10 watersheds in South Dakota ([Figure 7](#)). Evidence of reproduction is based on verified reports of family groups (>2

individuals), observation of corpora lutea, evidence of lactation, or presence of a 0- or 1-year old river otter.

We observed corpora lutea in 39 of 51 (76.4%) females examined. Corpora lutea are thickened, glandular tissues that form where an egg was released from the ovary. Age was known for 32 of the 39 reproductive females. Of these 32 known-age females, two (6.3%) were juveniles, 13 (40.6%) were yearlings, and 17 were adult (53.1%; [Table 11](#)). Subadult (juvenile and yearlings combined) and adult females averaged of 1.5 (SD = 1.3) and 2.2 (SD = 1.3) corpora lutea, respectively. The most corpora lutea observed in a subadult female was three. Five corpora lutea were observed in the ovaries of a 5-year old female. The proportion of ovulating females increased with age from 40% of juvenile, 68% of yearling to 80-100% of adult females ([Table 11](#)).

### Morphology

In a sample of 109 male and 66 female river otter, males averaged larger than females (21.0 lbs, SD = 4.1 vs 17.6 lbs, SD = 2.7 [9.5 kg, SD = 1.9 vs 8.0 kg, SD = 1.2]; [Figure 8](#)).

### Diet

We conducted a gross examination of 192 river otter stomachs to determine diet composition. Fish were found in 44% of stomach examined ([Table 12](#)) including pieces of minnow, carp, sucker, northern pike (*Esox lucius*), bullhead, catfish, green sunfish (*Lepomis cyanellus*), Johnny darter (*Etheostoma nigrum*), and sand shiner (*Notropis stramineus*). Frogs, crayfish, vegetation, black liquid, and birds were also observed. Not all items were identified to genus or species. Many stomachs were empty (56 of 192 stomachs). Eleven stomachs were too damaged to determine contents.

Fish were found in stomach contents year-round but increased in frequency during March, April and November ([Figure 9](#)). Frogs were present in stomach contents all year except in June and December. Crayfish remains were observed from March through September. Bird remains were found in June, September, and November. Empty stomachs were most frequent in April and November.

### Parasites

During necropsies of opportunistically obtained otters in South Dakota, 30 of the 200 carcasses had visible wrist worms. These worms are not detrimental to otters and do not pose a human health risk.

### Harvest

#### Philosophy

The recovery of river otter populations in South Dakota, facilitated in part through protection as a state threatened species, is a conservation success story. Data collected and research conducted since the turn of the century indicate river otter have re-colonized many areas of their former range in eastern South Dakota, with a growing population expected to continue to expand into any remaining suitable habitat across the state. Delisting criteria developed as part of a species status review have been met and the species delisted. A conservative harvest is

sustainable. This will allow managers to create the opportunity for recreational trapping of river otter through a regulated harvest season while ensuring a growing population into the future. River otter are incidentally trapped by licensed trappers in pursuit of other species, particularly beaver. Allowing a conservative and limited harvest during a short season will allow better utilization of those river otter otherwise caught incidentally. Further, a regulated river otter harvest season can be informed by continued monitoring of the population, and any harvest closely monitored to ensure a stable or increasing population. Data collected from harvested river otter will add valuable information toward a monitoring effort that would be difficult to obtain otherwise.

### Recommendation for 2020

During the May 2020 Commission meeting, SDGFP staff proposed a river otter season from 1 November through 31 December 2020 or until a harvest limit of 15 river otter is reached, whichever comes first. Resident trappers would be limited to a harvest of 1 river otter/trapper/season. Refer to [Appendix C](#) for more details.

### CITES

The Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) regulates international trade of certain animal and plant species. Species are assigned to Appendix I, II, or III. North American river otter are included in the Appendix II category because this species is similar in appearance to others that may be threatened; thus the U.S. Fish and Wildlife Service (USFWS) regulates and monitors river otter export.

If international trade of pelts is desired, states recommending or considering a river otter harvest season need to request approval for export of river otter pelts under the CITES Export Program. CITES authorization follows standard federal rule-making procedures (50 CFR 23.69 (b)(2)). The CITES Scientific Authority has concluded that the exportation of North American river otter taken in states with open harvest seasons between 2018-2019 and 2023-2024, will not be detrimental to the survival of the species. This General Advice also applies to States opening river otter harvest seasons for the first time (USFWS 2018). Because the U.S. Scientific Authority has made this range-wide nondetrimental finding for North American river otter, states requesting export approval need to submit only the information in (b)(1)(ii) and (vi) to the Division of Management Authority: (ii) current harvest control measures, including laws regulating harvest seasons and methods and (iv) tagging or marking requirements for fur skins.

Once a state's request for an export program has been approved, the USFWS requires that the state provide annual updates on the status of their river otter population and any regulatory changes that may be needed.

## Surveys and Monitoring

### Use of cameras

The use of trail cameras to monitor river otter is a new survey technique and few published studies are available. Wagnon and Serfass (2016) had success capturing river otter via trail cameras placed at latrine sites but failed to detect river otter at non-latrine sites. Bieber (2016) deployed 14 cameras on three different rivers in Nebraska, but experienced 'technical and

configuration problems' and therefore discontinued their use. Findlay et al. (2020) provided technical recommendations on improving camera trapping based on their experiences from a six-year study of a Eurasian otter (*Lutra lutra*) den site. Stevens and Serfass (2008) stated their study was the first use of trail cameras in a river otter study, and they reported success with detecting river otter at latrine sites. Despite the lack of published studies on trail camera surveys for river otter, the technique offers the advantages of being a noninvasive approach with continual improvements in trail camera technology and the possibility for improved efficiency over more traditional methods.

SDGFP staff conducted a small-scale trail camera survey in 2019-2020 to evaluate the effectiveness of the technique and to provide recommendations on its use for future management surveys in South Dakota. Factors evaluated included trail camera brand and model performance, data storage, battery life, and warranties; number and location of camera traps needed; use of attractants; camera trap maintenance and security; time of year, and otter biology and behavior.

Although the trail camera study is ongoing, as of Spring 2020, we have the following recommendations.

- We were successful in detecting river otter with trail cameras set along stream banks; however, detection probabilities were less than 100%. Therefore, caution is advised when interpreting survey results.
- Camera traps should be operated during late summer through fall to take advantage of seasonal water lows and reduced chance of major flooding.
- Each camera trap site should be actively surveyed for at least two consecutive months; if no river otter are detected within the first month, consider small-scale movement of camera site.
- Focus survey efforts on streams of Order 3, 4, or 5.
- Camera traps should target stream sites with a ~90° bend revealing a mud flat, or alternatively streams with exposed sections of mud/sandbars that would be naturally attractive to moving river otter. Also consider junctions of multiple streams.
- Visual and olfactory attractants can be used, but priority should be placed on targeting sites that naturally funnel river otter movement.
- We configured trail cameras to take two photos followed by a 15 second video; this resulted in enhanced ability to determine species and did not result in battery or storage problems.
- Plan for flooding; try to keep cameras above any observable high-water marks.
- Install trail cameras using fence posts to achieve maximum placement opportunity and avoid raccoon (*Procyon lotor*) issues from trail cameras set on trees.

#### Methods used in nearby states and provinces

States and provinces employ various methods that help meet their needs in a feasible way that matches survey and monitoring needs with available resources. When river otter populations recover to harvestable levels, many entities shift from population surveys to harvest analyses and other, less intensive methods.

SDGFP learned the following based on contacts with appropriate staff in nearby states and provinces in 2020.

Colorado surveys for river otter sign within identified focal recovery river systems to evaluate reintroduction success and assess progress in meeting state recovery goals. Agency staff and volunteers survey for sign during early spring prior to bank green-up or peak run-off flows at most selected areas, with limited use of winter surveys. Specific monitoring protocols are described in the state recovery plan, with a handbook provided as a resource for new surveyors (Colorado Parks and Wildlife 2003, Flohrs, no date). State contact: Eric Odell, Colorado Parks and Wildlife.

Iowa does not conduct specific population surveys. Iowa Dept. of Natural Resources (IADNR) collects river otter information from a variety of sources, including annual bowhunters observation survey, data from harvested animals (date and method of kill, county, and gender), tooth aging for 20% of total annual harvest, attempts to document the annual numbers of vehicle-kills and nuisance reports, Fur Harvester Diary Survey (started in 2018 primarily to collect effort data for all furbearers), and feedback from staff, trappers and landowners. A PhD student is currently analyzing harvest/age information to construct a population estimation model. State contact: Vince Evelsizer, IADNR.

Kansas is in transition with river otter monitoring. Kansas Wildlife, Parks and Tourism (KWPT) collected teeth until recently. This extensive data set has demonstrated the state's river otter population has a young age structure that has not been impacted by harvest. The agency previously tracked river otter damage complaints, a practice that was discontinued when harvesting began. At present, KWPT uses harvest-generated data to monitor frequency distribution and catch-per-unit-effort (CPUE) and monitors river otter distribution using all information sources. The agency also listens to input from agency staff and the public in managing this species. State contact: Matt Peek, KWPT.

Minnesota does not currently monitor river otter populations. Minnesota Dept. of Natural Resources (MNDNR) collects harvest statistics from mandatory furbearer registration and CPUE through voluntary trapper postcards. The agency previously evaluated the use of aerial snow-track surveys, with promising results, but the fact that this species is doing well in the state has made specific monitoring a low priority. State contact: John Erb, MNDNR.

Montana does not currently monitor river otter populations. Montana Fish, Wildlife and Parks (MTFWP) monitors age, sex and locations for harvested animals. State contact: Bob Inman, MTFWP.

Nebraska monitors changes in river otter distribution with winter bridge surveys. Nebraska Game and Parks Commission (NGPC) collects information from observations, vehicle-kills and incidentally trapped animals and recently began conducting sign surveys. State contact: Sam Wilson, NGPC.

New Mexico does not currently conduct river otter population surveys. New Mexico Game and Fish Department (NMGFD) collects photos and observations submitted on standardized data sheets from the public and agency staff to track distribution and persistence in two river

systems, the Rio Grande and San Juan. Volunteers conduct sign surveys and camera trapping at various sites. State contact: Jim Stuart, NMGFD.

North Dakota collects and classifies furbearer reports from staff, the general public, hunters and trappers, and USDA-Wildlife Services staff. North Dakota Game and Fish Department (NDGFD) staff necropsy rare furbearers. Necropsy products include measurements, reproductive tracts, stomachs, and DNA samples (NDGFD 2019). State contact: Stephanie Tucker, NDGFD.

Oklahoma Department of Wildlife Conservation (ODWC) does not presently actively survey river otters. Activities include an annual (March) roadside survey that may reveal a limited number of animals and completion of CITES tagging requirements during the fur harvesting season. More detailed studies are desired but have not yet materialized. State contact: Jerrod Davis, ODWC.

Saskatchewan does not currently monitor river otter populations. The Saskatchewan Ministry of Environment (SKME) maintains records of trapped animals as an information source, although these numbers vary with the pelt price and related trapper efforts. Provincial contact: Rick Espie, SKME.

Texas does not currently monitor river otter populations. State contact: Jonah Evans, Texas Parks and Wildlife Department.

Wyoming recently developed a river otter survey protocol document (WGFD 2019). The Wyoming Game and Fish Department (WGFD) has funded a graduate project that will begin in 2020 or 2021 to address questions about populations and their connectivity. The project will also generate a robust river otter monitoring plan. In the meantime, agency regional staff are conducting preliminary surveys to locate latrine sites and collect genetic samples. State contact: Nichole Bjornlie, WGFD.

### [Future surveys and monitoring](#)

The river otter is a difficult species to monitor, making the development of a meaningful monitoring program a continuing challenge. As with any species, clear objectives must be paired with suitable survey and monitoring tools. A monitoring program must help ensure the species status remains at least stable to demonstrate that delisting remains justified or until harvest or other data provide needed information. Survey and monitoring tools must also be adapted to South Dakota's climate and landscape. A combination of methods may be needed that is best suited to South Dakota, with consideration given to limited funding and staff availability and dynamic weather and habitat conditions.

The following have been identified as guiding principles and needs in the development of a meaningful, long-term river otter monitoring program:

- Learn from the experience of other wildlife management entities.
- Ensure that delisting distribution and reproduction criteria continue to be met.
- Monitor changes in distribution.

- Obtain and interpret information on harvested populations including sex ratio, age distribution, reproductive rates and areas where harvest occurred.
- Monitor distribution for at least 5 years following delisting.
- Continue to refine specific state needs to understand river otter distribution and occupancy, abundance, and population trends.



## Goals, Objectives and Strategies, 2020-2029

South Dakota will manage river otter populations with scientifically sound data and techniques to encourage occupation of suitable available habitats and to provide sustainable use and enjoyment within the social tolerance level for this species.

1. Monitor river otter
  - a. Collect population information
    - i. Collect and summarize river otter reports to improve knowledge of distribution and document expansion; refine reporting process as needed
    - ii. Collect and analyze information on age structure, sex ratio, reproduction, morphology, diet, and body condition by conducting necropsies on all carcasses
    - iii. Determine need for use of stored tissue samples in contaminant and genetics analyses; implement analyses and report findings
  - b. Develop and implement a long-term monitoring program
    - i. Identify and review scientifically sound and feasible monitoring method(s)
    - ii. Evaluate feasibility of field cameras as a survey technique
    - iii. Determine need to develop species occupancy model and population estimate
2. Allow for sustainable harvest
  - a. Annually review and analyze existing data to inform and refine harvest season structure recommendations
  - b. Comply with necessary state and federal requirement for harvest implementation and reporting
  - c. Coordinate with conservation partners, such as Native tribes and federal land management agencies
3. Provide information, assistance and outreach
  - a. Promote public awareness of river otter, including management needs and challenges
  - b. Provide information on ways to reduce incidental river otter catches
  - c. Explore opportunities to evaluate public attitudes towards river otter
  - d. Continue to promote and coordinate with conservation partners to improve wetlands and riparian habitat management
  - e. Respond to requests for service where river otter presence may conflict with other uses of aquatic habitats
    - i. Implement river otter capture and translocation protocol outlined in the 2012 river otter management plan
    - ii. Review translocation protocol and update as needed
    - iii. Evaluate frequency and extent of requests for service
4. Evaluate plan
  - a. Lead biologist shall be responsible for a mid-term plan evaluation by 31 December 2025

- i. Identify objectives, strategies and actions that have not been completed, are not needed or are ineffective by meeting with key management planning staff, including regional terrestrial resource supervisors
  - ii. Summarize evaluation and provide to Wildlife Program Administrator
- b. Lead biologist shall be responsible for a final plan evaluation by 31 December 2029
  - i. Identify objectives, strategies and actions that have not been completed, are not needed or are ineffective by meeting with key management planning staff
  - ii. Coordinate with Wildlife Program Administrator to determine the need for a new or updated plan.
- c. Provide updates to SDGFP Commission on plan implementation progress as required and requested

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## Tables

*Table 1. Frequency of river otter reports in South Dakota watersheds, 1979-2019.*

<b>Watershed</b>	<b>Frequency</b>	<b>%</b>
Big Sioux	302	52.5%
Minnesota	112	19.5%
James	76	13.2%
Red	39	6.8%
White	25	4.3%
Cheyenne	14	2.4%
Oahe	4	0.7%
Little	1	0.2%
Niobrara	1	0.2%
unknown	1	0.2%
	575	100%

Table 2. Frequency of river otter reports in South Dakota counties, 1979-2019.

County	Frequency	%	County	Frequency	%
Moody	97	16.9%	Hutchinson	4	0.7%
Roberts	71	12.4%	Sanborn	4	0.7%
Grant	65	11.3%	Clark	3	0.5%
Minnehaha	63	11.0%	Custer	2	0.3%
Brookings	35	6.1%	Kingsbury	2	0.3%
Brown	27	4.7%	Spink	2	0.3%
Lake	24	4.2%	Yankton	2	0.3%
Lincoln	24	4.2%	Aurora	1	0.2%
Marshall	24	4.2%	Brule	1	0.2%
Union	15	2.6%	Buffalo	1	0.2%
Codington	10	1.7%	Fall River	1	0.2%
Deuel	10	1.7%	Haakon	1	0.2%
Day	9	1.6%	Hanson	1	0.2%
Hamlin	9	1.6%	Harding	1	0.2%
Beadle	8	1.4%	Jerauld	1	0.2%
Hughes	7	1.2%	Jones	1	0.2%
Bon Homme	6	1.0%	Lawrence	1	0.2%
Lyman	6	1.0%	Meade	1	0.2%
McCook	6	1.0%	Miner	1	0.2%
Bennett	5	0.9%	Sully	1	0.2%
Pennington	5	0.9%	Todd	1	0.2%
Stanley	5	0.9%	Tripp	1	0.2%
Butte	4	0.7%	Turner	1	0.2%
Clay	4	0.7%	unknown	1	0.2%
				575	100.0%

Table 3. Frequency of reported incidentally trapped river otter in South Dakota watersheds, 1979-2019.

Watershed	Frequency	%
Big Sioux	127	58.8%
Minnesota	58	26.9%
Red	15	6.9%
James	12	5.6%
White	3	1.4%
unknown	1	0.5%

216

Table 4. Frequency of reported incidentally trapped river otter in South Dakota counties, 1979-2019.

<b>County</b>	<b>Frequency</b>	<b>%</b>
Moody	54	25.0%
Roberts	32	14.8%
Grant	31	14.4%
Brookings	19	8.8%
Minnehaha	19	8.8%
Lincoln	7	3.2%
Codington	7	3.2%
Deuel	7	3.2%
Marshall	6	2.8%
Union	6	2.8%
Lake	5	2.3%
Day	3	1.4%
Brown	3	1.4%
Hamlin	3	1.4%
Clay	2	0.9%
Lyman	2	0.9%
Clark	2	0.9%
Bon Homme	2	0.9%
Hutchinson	2	0.9%
unknown	1	0.5%
Haakon	1	0.5%
McCook	1	0.5%
Miner	1	0.5%
	216	100%

Table 5. Species targeted when river otter were incidentally captured in South Dakota, 1979-2019.

<b>Species</b>	<b>Frequency</b>	<b>%</b>
beaver	116	53.7%
unknown	70	32.4%
raccoon	19	8.8%
fish	5	2.3%
mink	3	1.4%
other	3	1.4%
	216	100%

Table 6. Trap types used when river otter were incidentally captured in South Dakota, 1979-2019.

Trap Type	Frequency	%
kill trap	106	49.1%
unknown	39	18.1%
foot-hold	35	16.2%
snare	22	10.2%
live trap	9	4.2%
other	5	2.3%
	216	

Table 7. Sources of mortality for 229 river otters in South Dakota, 1979-2019.

Cause of Death	Frequency	%
Incidentally trapped	159	69.4%
Vehicle strike	46	20.1%
other	14	6.1%
euthanized	10	4.4%
	229	100%

Table 8. Frequency of necropsied river otter in South Dakota watersheds, 1979-2019.

Watershed	Frequency	%
Big Sioux	116	58.0%
Minnesota	51	25.5%
Red	16	8.0%
James	11	5.5%
unknown	4	2.0%
White	2	1.0%
	200	



Table 9. Frequency of necropsied river otter in South Dakota counties, 1979-2019.

<b>County</b>	<b>Frequency</b>	<b>%</b>
Moody	43	21.5%
Roberts	31	15.5%
Grant	29	14.5%
Minnehaha	20	10.0%
Brookings	15	7.5%
Lincoln	10	5.0%
Lake	9	4.5%
Deuel	6	3.0%
Codington	5	2.5%
Union	5	2.5%
Marshall	4	2.0%
unknown	4	2.0%
Brown	3	1.5%
Day	3	1.5%
Hutchinson	3	1.5%
Clark	2	1.0%
Clay	2	1.0%
Hamlin	2	1.0%
Bennett	1	0.5%
Bon Homme	1	0.5%
Lyman	1	0.5%
Miner	1	0.5%

200

Table 10. Age structure of 179 necropsied river otter from South Dakota, 2003-2019\*.

Age	Male		Female		Total	
	Freq	%	Freq	%	Freq	%
0	24	21.6%	10	14.9%	34	19%
1	39	35.1%	29	43.3%	68	38%
2	22	19.8%	12	17.9%	34	19%
3	5	4.5%	7	10.4%	12	7%
4	5	4.5%	3	4.5%	8	5%
5	5	4.5%	2	3.0%	8	4%
6	2	1.8%	2	3.0%	4	2%
7	4	3.6%	1	1.5%	5	3%
8	1	0.9%	1	1.5%	2	1%
9	1	0.9%	0	0.0%	1	1%
10	1	0.9%	0	0.0%	1	1%
11	1	0.9%	0	0.0%	1	1%
12	1	0.9%	0	0.0%	1	1%
	111		67		179	

\*Sex is unknown for one 5-year old otter.

Table 11. Female river otter with corpora lutea (CL) from South Dakota, 2003-2019.

Age	Female Otter	
	# w/ CL	# examined
0	2	5
1	13	19
2	6	7
3	4	5
4	2	2
5	2	2
6	1	1
7	1	1
8	1	1
unkn	7	8
	39	51

Table 12. Contents of 192 river otter stomachs from South Dakota, 2003-2019.

<b>Contents</b>	<b>Frequency</b>	<b>%</b>
Fish	92	44%
Empty	56	27%
Frog	20	10%
Other*	15	7%
Crayfish	9	4%
Vegetation	8	4%
Black Liquid	5	2%
Bird	3	1%
	208	

\*Stomach damaged or contents unidentifiable.

## Figures

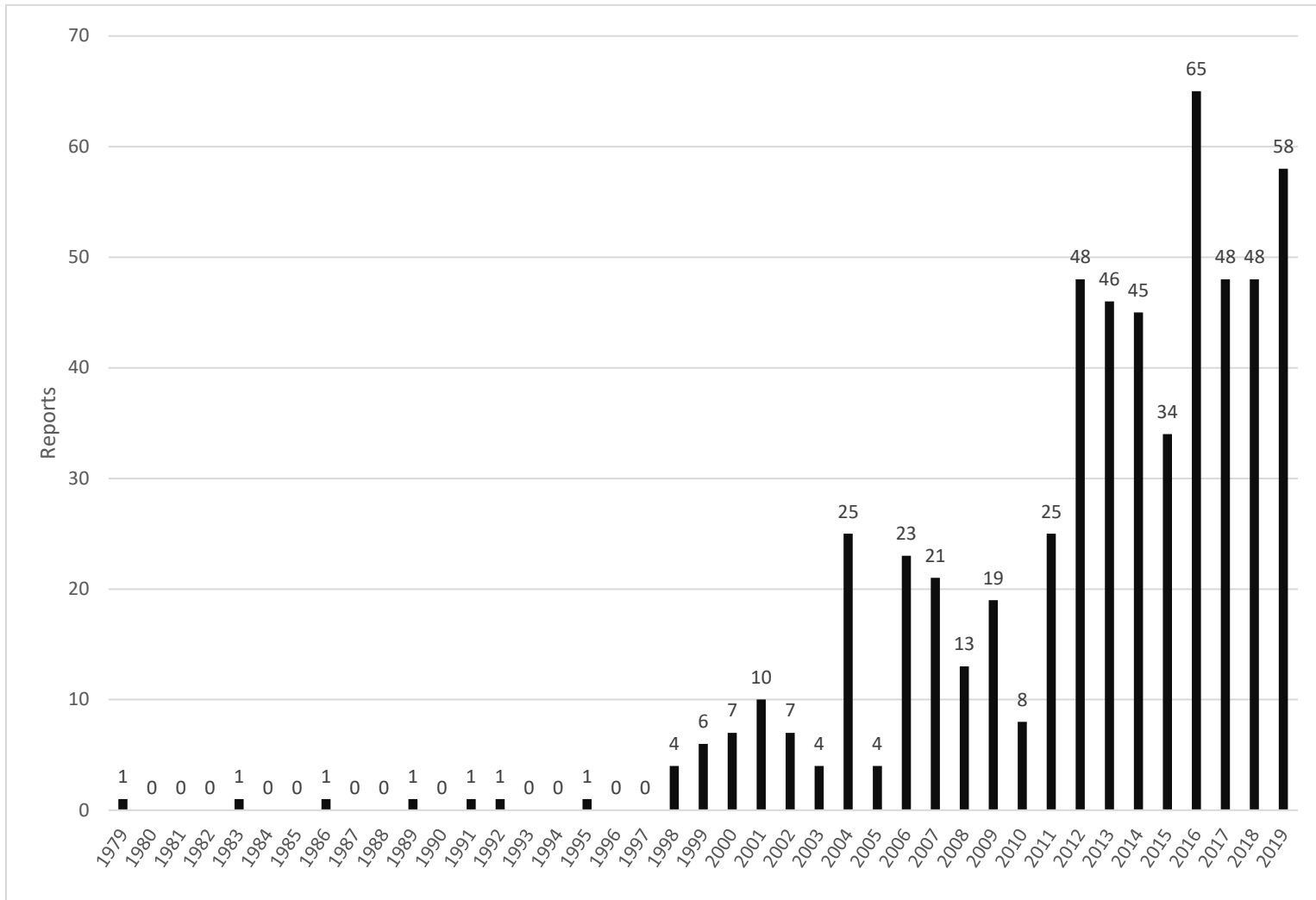


Figure 1. Annual frequency of 575 river otter reports in South Dakota, 1979 - 2019.

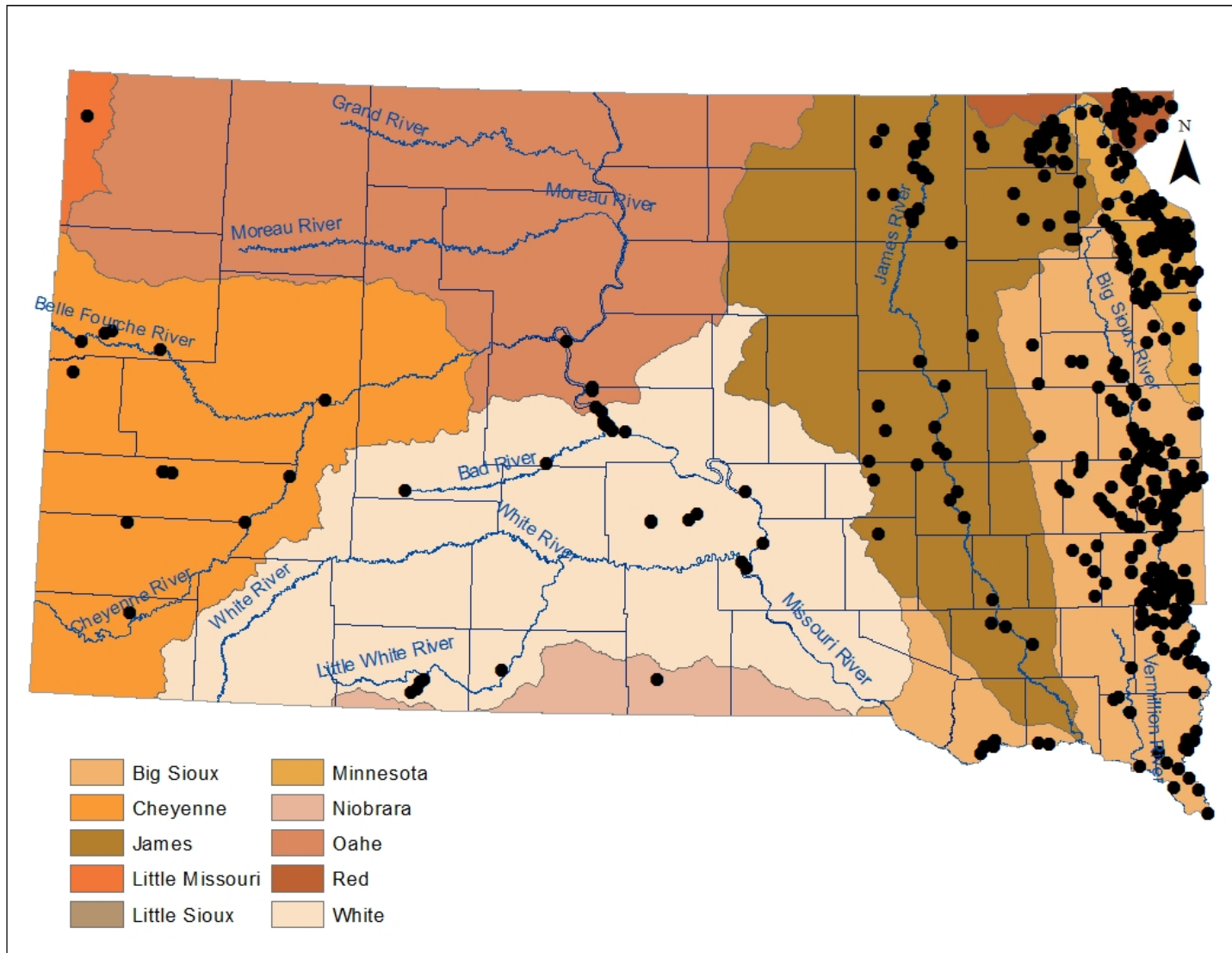


Figure 2. Location of 575 river otter reports in South Dakota watersheds, 1979 - 2019.

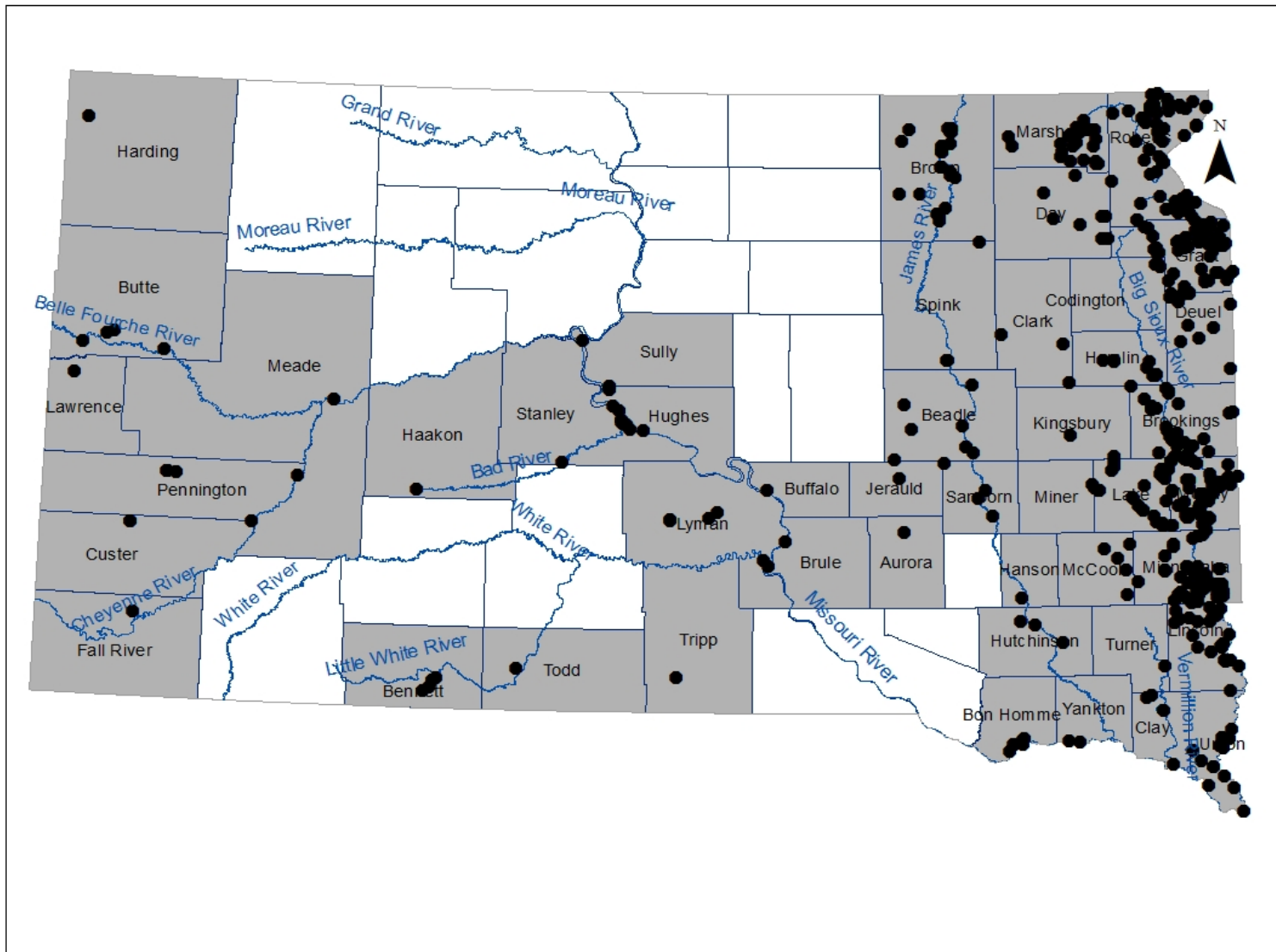


Figure 3. Location of 575 river otter reports in South Dakota counties, 1979 - 2019.

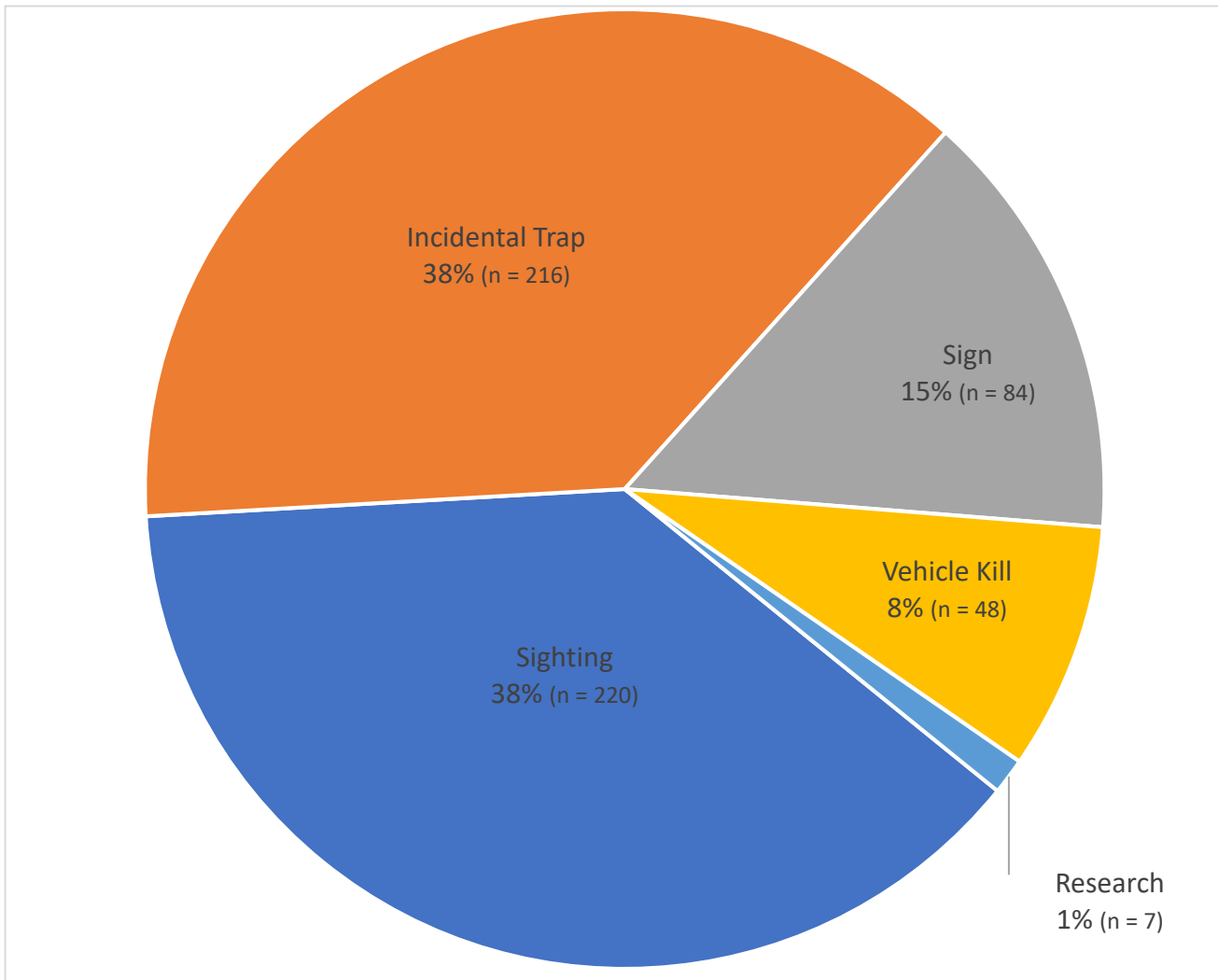


Figure 4. Composition of 575 river otter reports in South Dakota, 1979 - 2019.

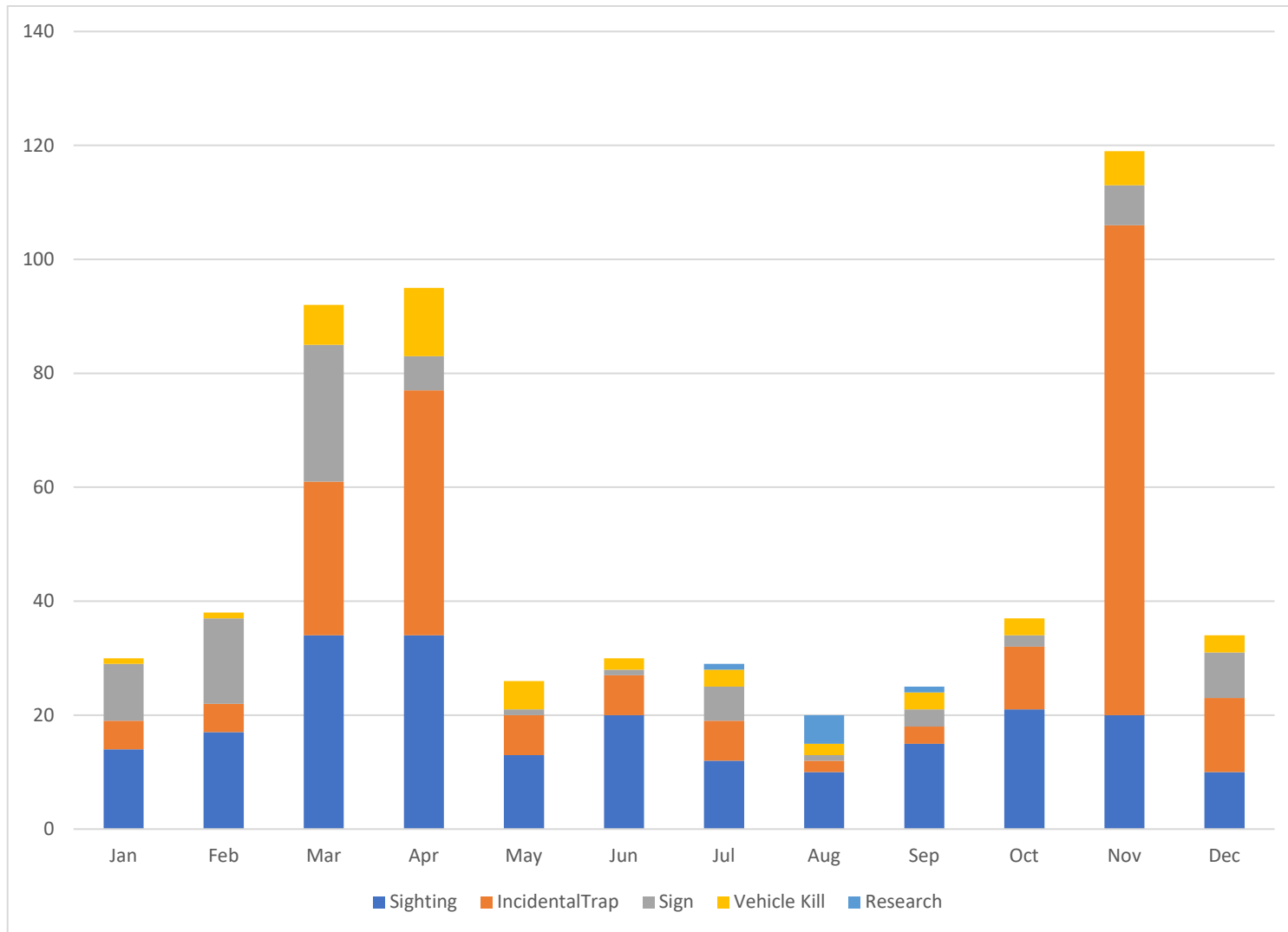


Figure 5. Monthly frequency of 575 river otter report types in South Dakota, 1979 - 2019.



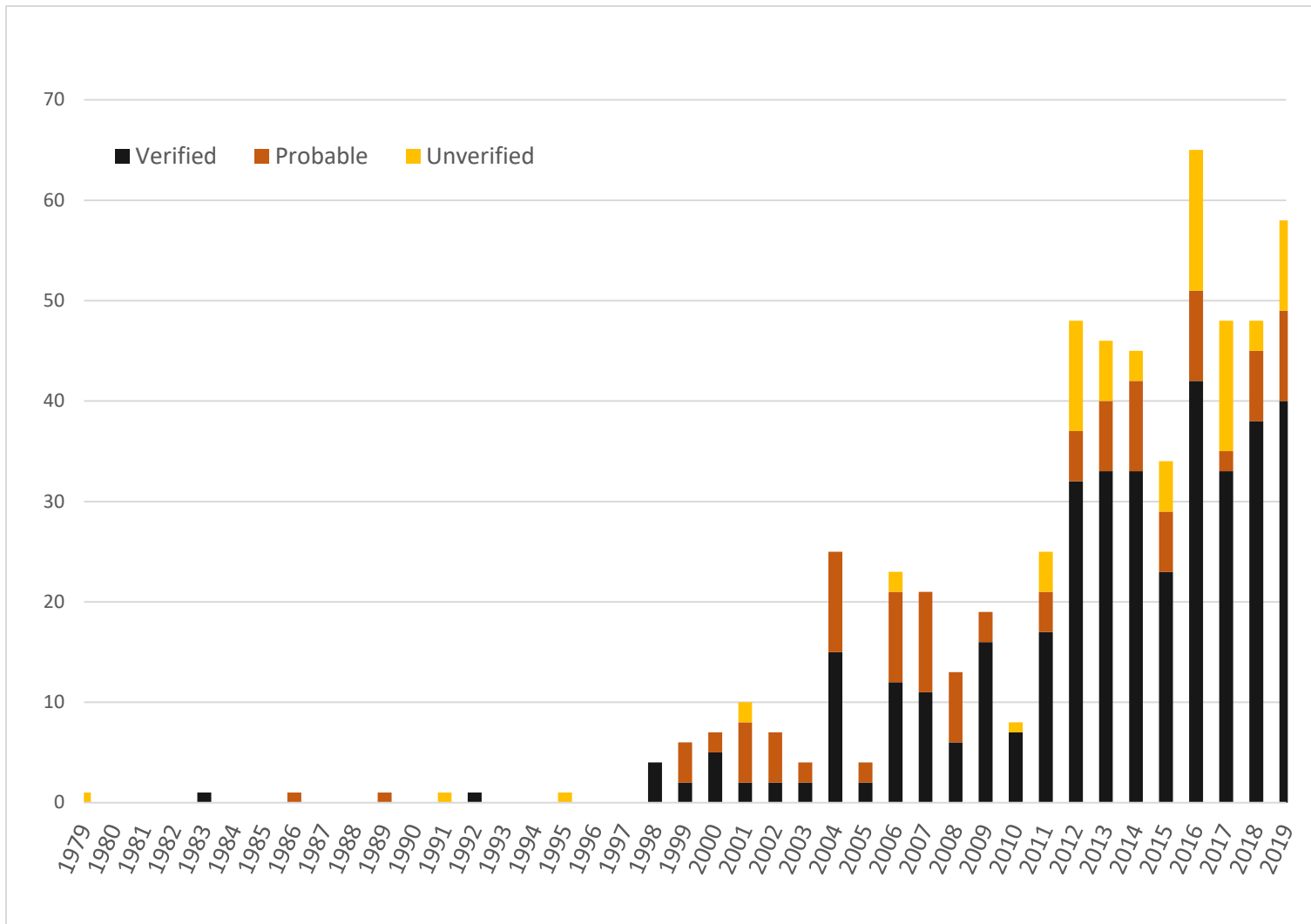


Figure 6. Annual frequency of verified, probable, and unverified river otter reports in South Dakota, 1979 - 2019.

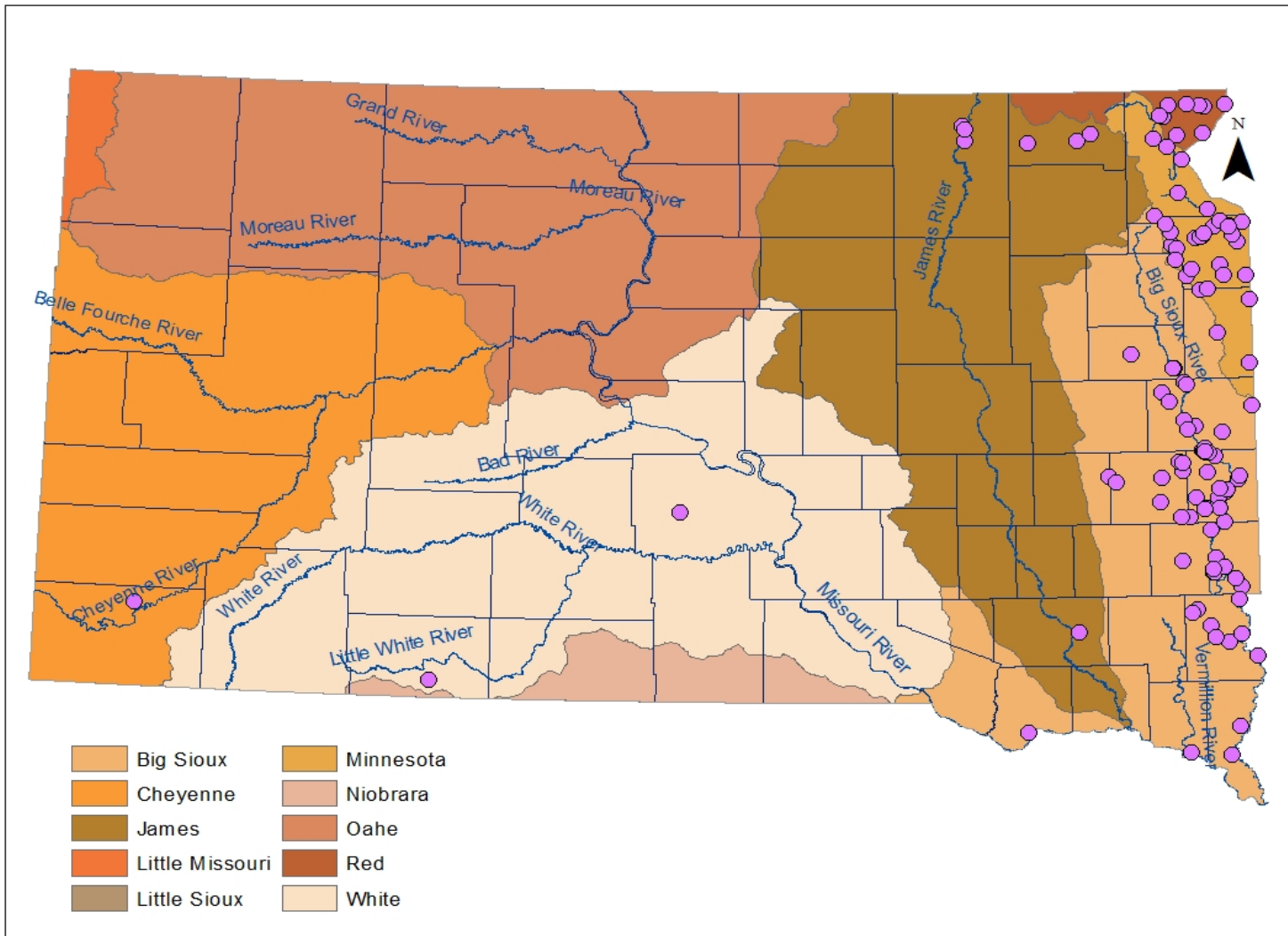


Figure 7. Location of 148 river otter reports that provide evidence of reproduction in South Dakota, 1979 - 2019.

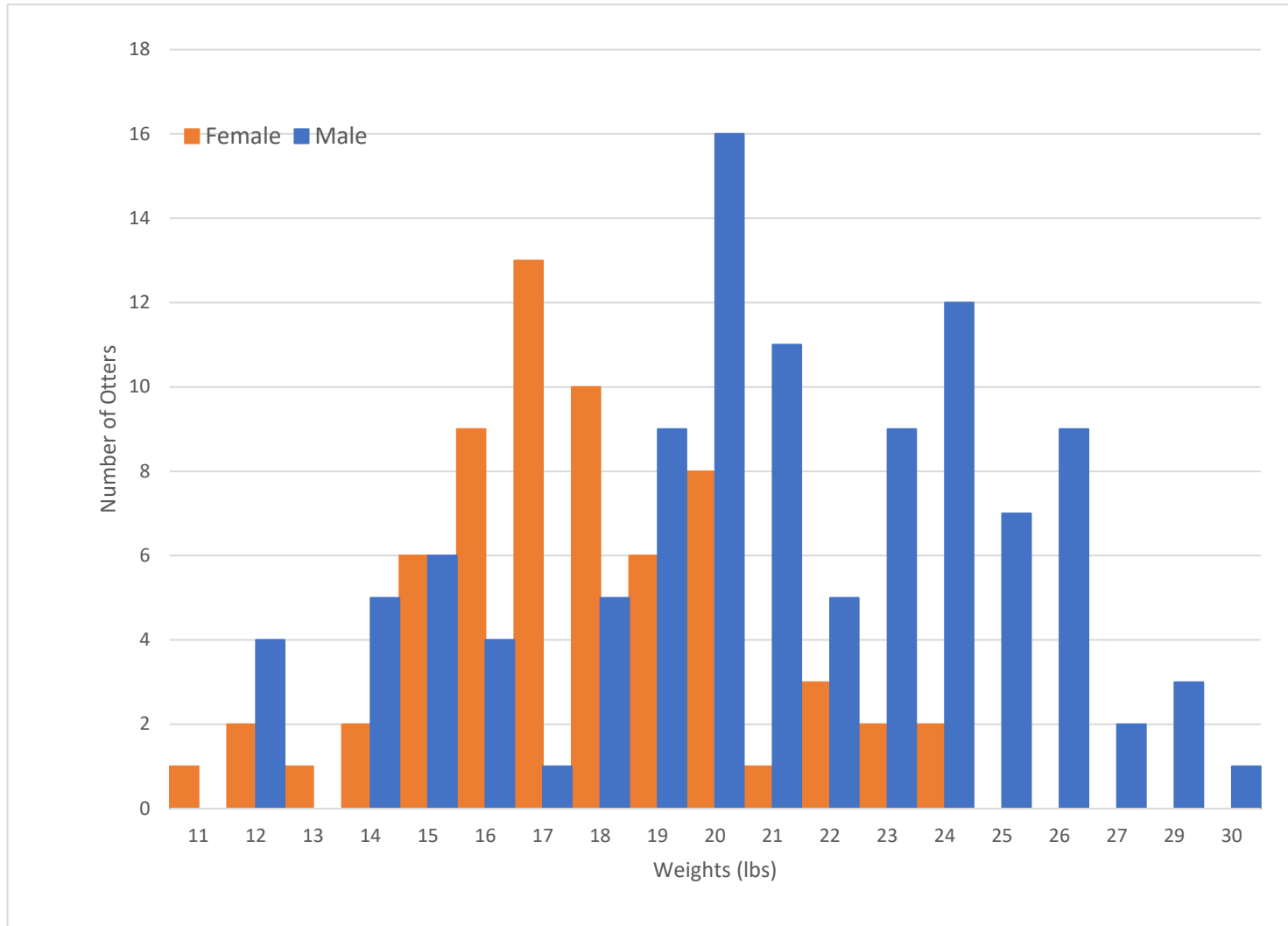


Figure 8. Carcass weights of 109 males and 66 females in South Dakota, 2004-2019.

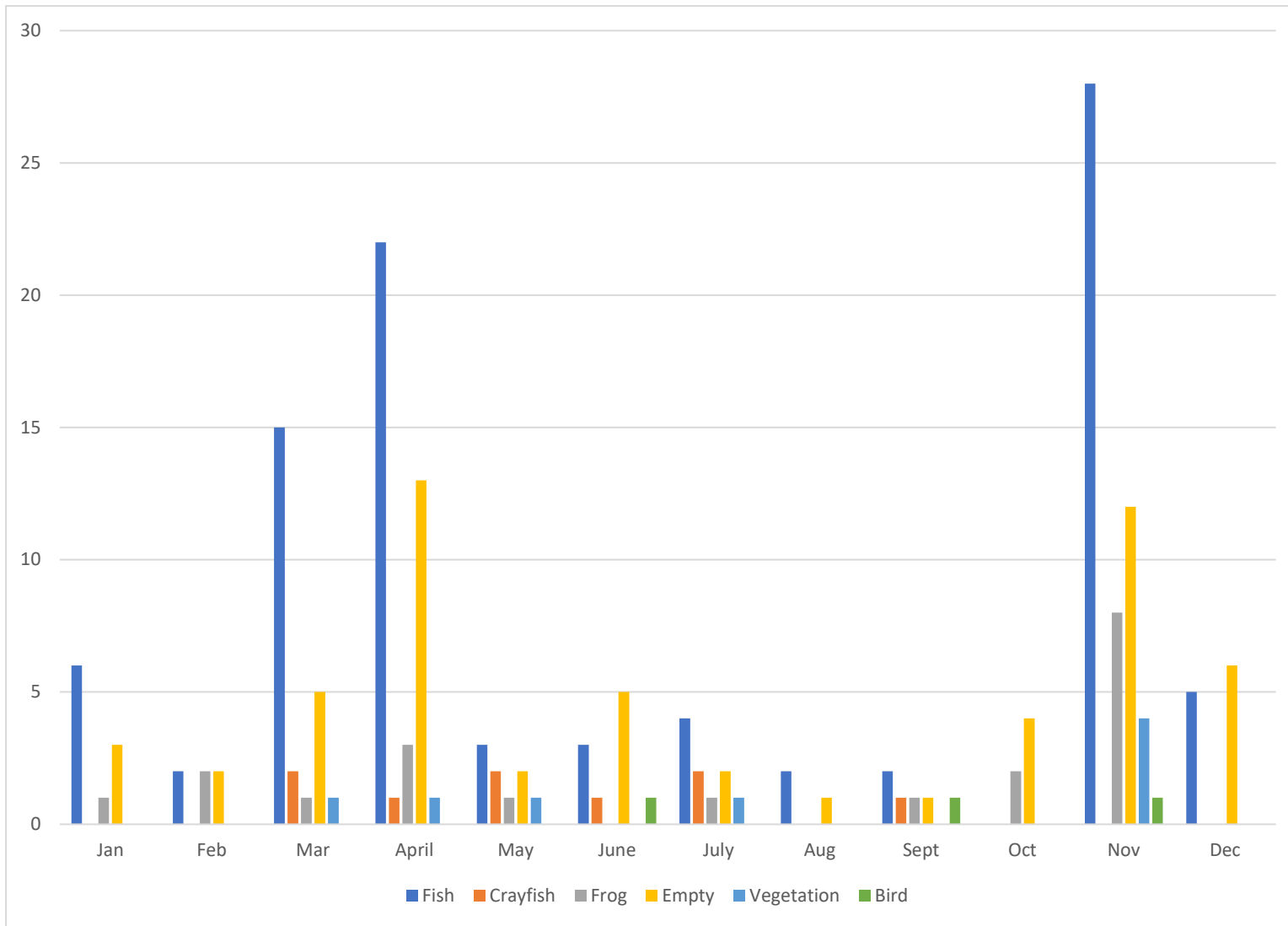


Figure 9. Contents of 192 river otter stomachs in South Dakota, 2003 - 2019.

## Appendices

Appendix A. Status review of the state threatened North American river otter, April 2018.

### STATE T&E SPECIES STATUS REVIEW

**Species Name:** North American River Otter, *Lontra canadensis*

**South Dakota Status, including legal status and special listings:**

- State threatened (SD Administrative Rule 41:10:02:04, List of threatened mammals)
- Monitored by South Dakota Natural Heritage Program
- State Heritage rank S2 (imperiled species)
- Included as a Species of Greatest Conservation Need in the South Dakota Wildlife Action Plan
- Considered a game species with no season

**Federal Status:**

- NatureServe global rank G5 (species apparently secure); last reviewed 18 November 1996
- Considered a sensitive species in Region 2 of the U.S. Forest Service
- Listed as an Appendix II species under the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) because of similarity of appearance to other species listed under CITES.

**Basis for new listing, status change (T to E, or E to T), or continued listing with same status:**

The justification for including the river otter on the first list of state threatened mammals is unknown but was presumably due to likely extirpation from the state due to unregulated harvest. Continued listing as a state threatened species is recommended at this time with an additional review of species status again within one year.

**Description, biology and life history:**

The river otter is a semiaquatic carnivore adapted to life in the water. Their cylindrical body shape, short legs and webbed feet make them agile swimmers. Eyes sit high on the head and small, rounded ears are set far back to allow a mostly submerged river otter to see and hear above water. River otters range from 35 to over 50 inches long. The tail comprises 30-40% of the total body length and is useful for diving and steering. River otter fur is extremely dense, providing insulation that is needed for life in the water. River otters are brown with a tan to silvery-white chin and chest.

Female river otters can give birth to their first litter at two years of age. Males typically do not become successful breeders until 5-7 years of age. The breeding season begins in late winter and can extend until early spring. River otters have delayed implantation. This means when an egg is fertilized, it remains unattached and undeveloped in the uterus. After this delay, the fertilized egg will attach to the uterus and grow during a 50-60-day gestation period. Two to four young are then born in early spring almost a year after conception. Pups

leave the natal den with the female at two months of age and are weaned at three months, but may stay with the adult until she gives birth to her next litter. Males are typically solitary except during breeding. River otters are most active during the evening and early morning. Life expectancy in the wild is typically 6-7 years with some living close to 20 years.

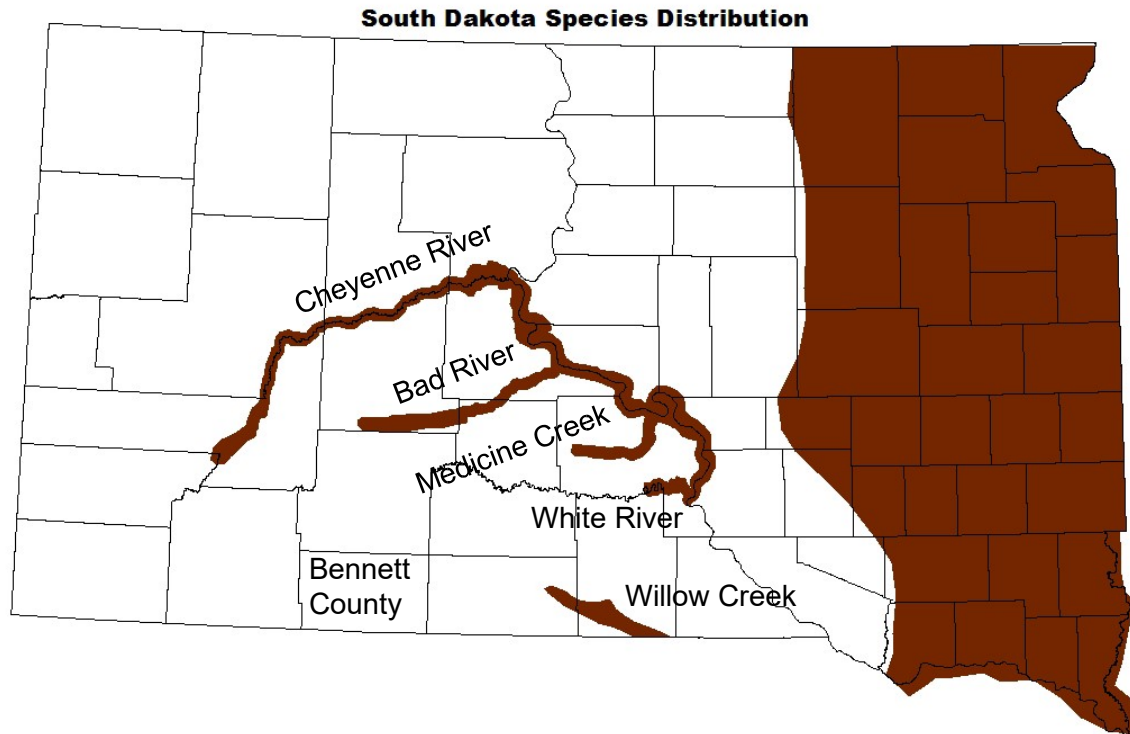
River otters primarily eat fish. They also eat crayfish, frogs, aquatic invertebrates, birds, and small mammals. River otters take fish species based on abundance and ease of capture.

**Habitat:**

River otters can be found in a variety of aquatic environments including rivers, streams, lakes, and marshes with deep pools, all of which should have abundant vegetation and prey. Good water quality, year-round access to open water and limited disturbance are often important habitat characteristics. River otters have a commensal relationship with beavers as beaver dams provide year-round open water and beaver bank dens and lodges are used by river otters as rest and natal sites.

**Distribution within the state:**

This species is thought to have historically occurred throughout South Dakota in appropriate habitat (Toweill and Tabor 1982, Jones Jr. et al. 1983). Melquist et al. (2003) estimated that in 1977 river otters occupied less than 75% of their historical range in North America. South Dakota was not included in this occupied range. Kiesow and Dieter (2003) also reported no indication of a remnant population of river otters in South Dakota. A small population existed as the result of a reintroduction in Moody County. See Figure 1 for predicted current distribution of river otters in South Dakota.



**Figure 1.** Predicted current distribution of river otters in South Dakota as determined by reports (verified, probable and unverified) submitted to the South Dakota Department of Game, Fish and Parks (South Dakota Department of Game Fish and Parks 2015).

**Conservation / Management Considerations:**

Known threats to river otters in South Dakota include incidental trapping and road kills. Of 117 reported river otters killed in South Dakota from 1979 through 2016, 73% were killed incidental to legal trapping activities; 15% of the 117 reported river otter mortalities resulted from being struck by vehicles (South Dakota Department of Game, Fish and Parks, unpublished data). Degradation of streams, loss of riparian habitat and seasonal variations in water levels also threaten long-term population stability. The impact of agricultural chemical run-off is unknown. A year-round beaver trapping season west of the Missouri River and a focus on non-native trout management in Black Hills streams will impair statewide recovery of river otters. Due to these issues and evidence of more suitable habitat in eastern South Dakota, the focus of recovery is on watersheds within the eastern part of the state.

**Conservation Efforts in South Dakota:**

Past

The Flandreau Santee Sioux Tribe conducted a reintroduction along the Big Sioux River near Flandreau in Moody County by releasing 35 river otters. Ten males and seven females were released on 23 May 1998. On 14 May 1999, eight males and 10 females were released. The

released animals were not marked or monitored and subsequent information on current distribution or reproduction of these released otters was limited.

In 2001, South Dakota Department of Game, Fish and Parks (SDGFP) worked with South Dakota State University's Biology Department to determine the current distribution of river otters in the state and assess the feasibility of river otter reintroduction (Kiesow 2003). Kiesow and Dieter (2003) reported that 89% of 34 reported river otter sightings occurred in the eastern third of South Dakota, particularly along the Big Sioux River and that those reported sightings were likely the result of the release conducted by the tribe. The authors' survey efforts provided no indication that there was a naturally occurring remnant river otter population in the state. As such, the authors recommended additional reintroductions of river otters. Kiesow and Dieter (2005) further identified suitable areas for reintroduction: Bad River, Big Sioux River, James River, North Fork of the Whetstone River and the Little White River. River otter reintroductions were not a high SDGFP Wildlife Division priority at that time and did not occur.

For three winters beginning in 2005, SDGFP contracted with Jacquie Ermer, currently the Regional Terrestrial Resources Supervisor in SDGFP Wildlife Division Region Four, to collect additional information on river otter distribution, evaluate suitable survey methods, solicit and collect otter observations and conduct necropsies on incidentally killed river otters. Ermer's work was focused on eastern South Dakota.

Ermer (2006, 2007, 2008) proposed using a combination of methods to monitor river otters in South Dakota: sign surveys (aerial snow track and bridge sign surveys), survey of licensed trappers, continued collection of river otter sightings, carcass collection and necropsy as well as population modeling to determine the status of river otters in the state. If feasible, a small scale study to estimate home range, fecundity and survival should be conducted (Ermer 2006). In addition, the origin of South Dakota otters should be determined and river otter awareness programs developed.

A brochure was created in 2008 that provided basic information on river otters, requested reports of any river otter observed in South Dakota and illustrated ways to reduce incidental river otter captures while trapping for other furbearing species. This brochure was made available at all SDGFP offices and on the Department website. An updated version was created in 2010, is available at SDGFP offices, through the SDGFP website and was mailed to all resident furbearer license holders in South Dakota in 2010.

In December of 2010, a group of SDGFP staff began developing a plan for river otter conservation and management. This team produced the *South Dakota River Otter Management Plan* (South Dakota Department of Game Fish and Parks 2012). The 5-year plan is intended to provide general, strategic guidance to SDGFP and potential partners for the recovery and sustained management of river otter in South Dakota. More specifically, it



recognizes the need to collect updated information on the distribution and population of river otters in South Dakota and to establish delisting criteria. As such, a State Wildlife Grant-funded project was initiated with Dr. Wayne Melquist in 2011 to determine current river otter distribution and evaluate habitat of unoccupied sites with the potential for population expansion. A final report was submitted to SDGFP in May 2015 (Melquist 2015).

Neither river otters nor their sign were observed during visits to over 300 bridge crossings and 135.2 km (84 miles) of stream (17.7 km [11 miles] walked, 117.5 km [73 miles] boated) (Melquist 2015). River otter tracks on the East Fork of the Vermillion River and an observation of a river otter on a dammed tributary of the East Fork were detected during aerial surveys of major drainages conducted 6-8 March 2013. Current confirmed distribution as identified by Melquist (2015) of river otters in South Dakota includes the Big Sioux, Vermillion and James River drainages, Jorgenson River, Little Minnesota River, Whetstone River, Yellow Bank River, Jim Creek/Big Slough and the Missouri River downstream from Pierre. Melquist (2015) also reported that the Bad and Cheyenne River drainages and Medicine Creek may have or had river otters based on unconfirmed reports previously submitted to SDGFP. Reports submitted to SDGFP in the early 1990's and late 2000's indicate that otters may have been or are found on the Bad, Cheyenne and White rivers and Medicine and Willow creeks. The intermittent flow of water in several of these streams limits the year-round use by river otter.

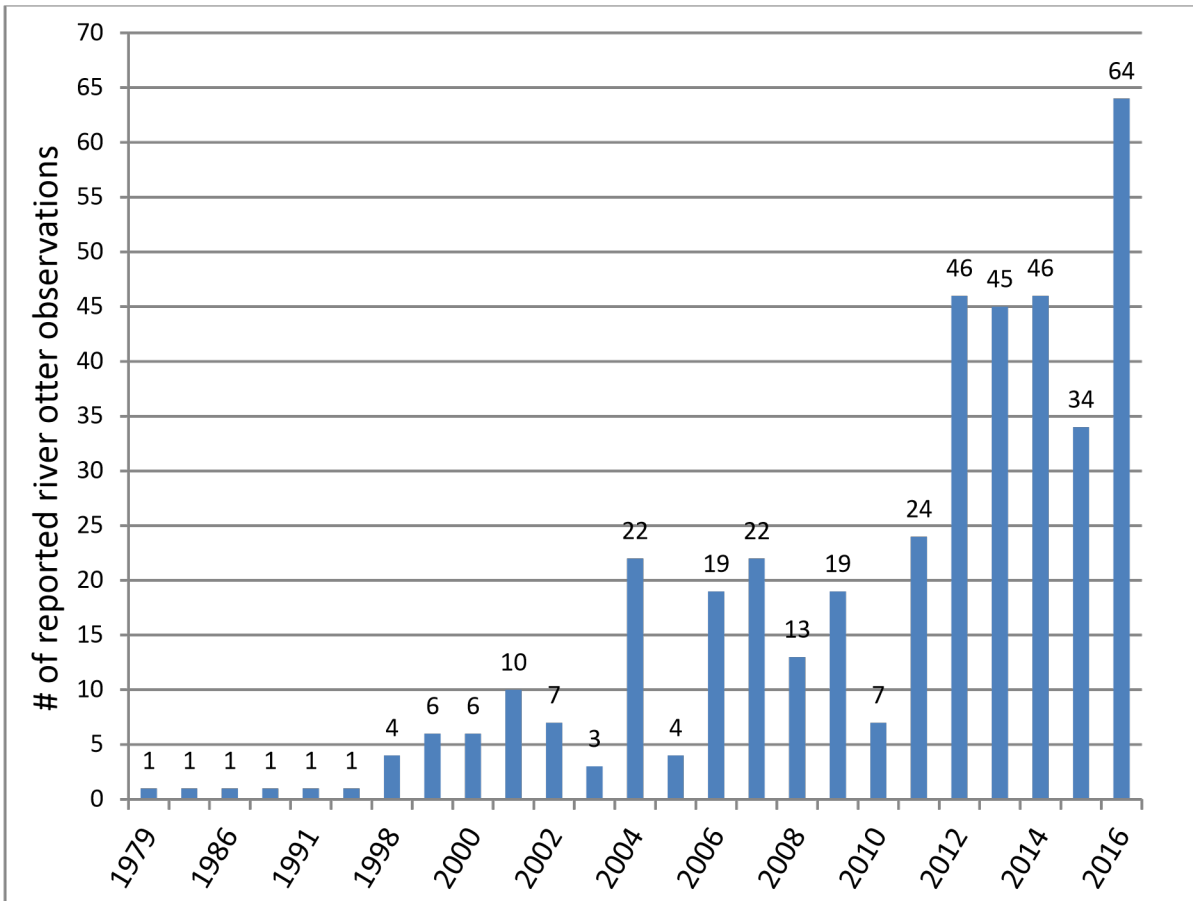
Suitable reintroduction or translocation sites to address river otter depredation complaints were selected based upon riparian habitat, water permanence, available prey, evidence of current beaver activity and banks with suitable resting sites (Melquist 2015). Potential reintroduction sites were located on the Cheyenne, Belle Fourche and Little White rivers. No evidence of recent otter occurrence exists in the areas selected for reintroduction. Note that current conservation challenges west of the Missouri River (as listed above) impair recovery at these sites. Translocation sites were recommended on the James, Missouri and Vermillion rivers. At least one site was recommended in each administrative Wildlife Division region of SDGFP.

Two incidentally captured otters (one male and one female) were radio-marked and released on the Little White River Game Production Area in Bennett County (Figure 1) on 14 November 2013 to further evaluate habitat suitability on the Little White River (Melquist 2015). Radio contact with the male was last obtained on 25 March 2014. The female occupied both the Little White River and Lacreek National Wildlife Refuge giving birth to at least one pup on the refuge during the spring of 2014. The adult female was found dead on 19 January 2015. Hypertrophic cardiomyopathy is the suspected cause of death (U.S.

Geological Survey, National Wildlife Health Center Diagnostic Services case report #26185). Portions of the Little White River and the Lacreek National Wildlife Refuge have suitable year-round otter habitat.

### Ongoing

Since the late 1970's, the South Dakota Natural Heritage Program, housed within SDGFP, has collected reports of river otter observations (Figure 2). These reports have included the sighting of a live animal, incidental catch, river otter sign (tracks, slides or scat) or road kill.



**Figure 2.** Reports of river otters in South Dakota from 1979 through 2016. An observation is based on a sighting of a live animal, incidental catch, river otter sign (tracks, scat or sign) or road kill. An observation can be an individual animal or a group of animals.

According to South Dakota Administrative Rule 41:08:02:12, if a wild animal is found dead in a trap or snare when the established season is closed the animal shall remain in the trap or snare and a SDGFP representative must be contacted within twelve hours. If the animal is found alive, it must be released. Currently, there is no season on river otters in South Dakota. SDGFP collects biological information from reported dead river otter including size, sex, age, body condition, stomach contents and reproductive status. The lower canine teeth are collected for accurate aging, tongue or muscle tissue is collected for DNA analysis and liver tissue is collected for future contaminants testing.

### Future

Refer to the South Dakota River Otter Management Plan (South Dakota Department of Game Fish and Parks 2012) for conservation and management strategies and objectives proposed through 2017.

### **Recovery Criteria/Goals**

Delisting of the river otter will be recommended when the following conditions are met:

- confirmed reports of reproduction are documented in three of the five basins (60%) within the recovery area, AND
- within each of these basins, the presence of river otters has been documented by verified reports in at least 40% of the subbasins.

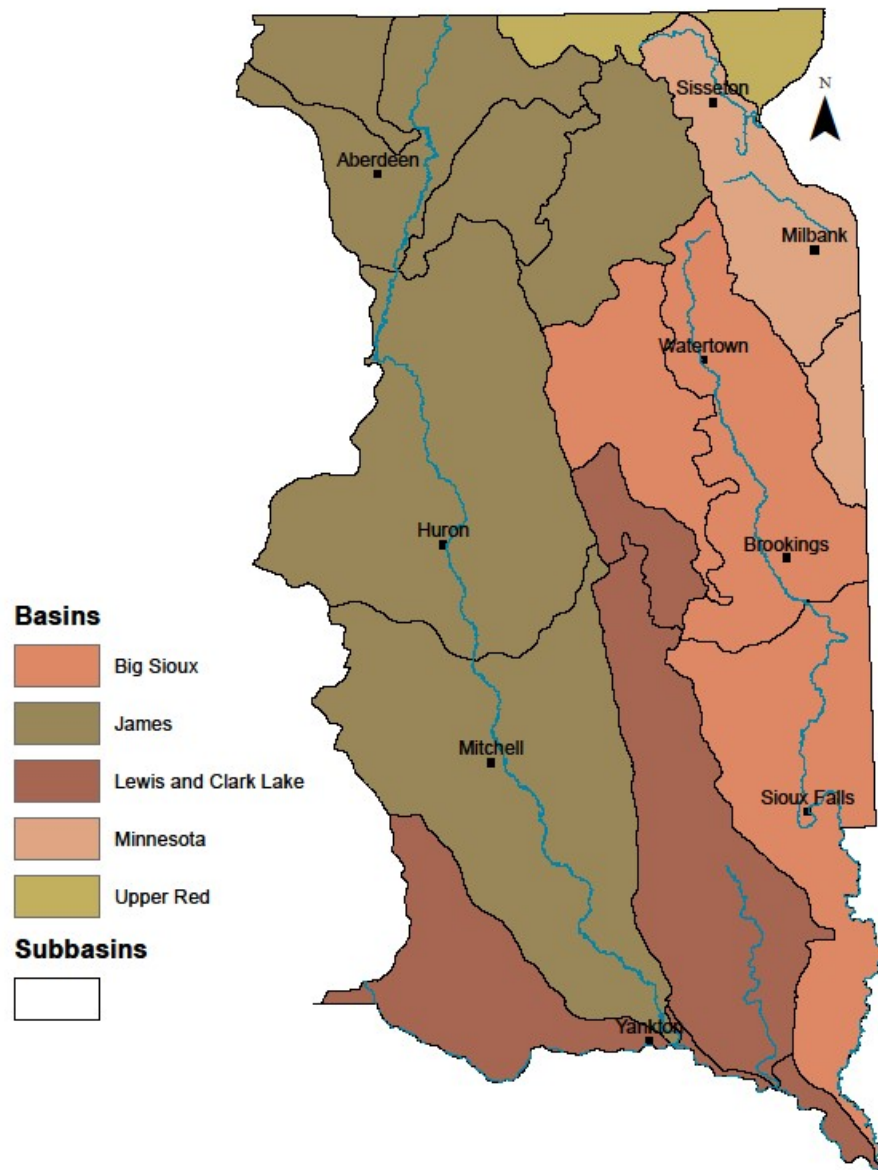
Both criteria shall be met during two of the five years prior to proposed delisting.

Reproduction is confirmed by verified reports of family groups (>2 individuals), observation of corpora lutea during necropsy of a female river otter, evidence of lactation, and presence of known age individuals (1 year or younger) as determined by laboratory analysis of cementum annuli. Cementum annuli analysis of teeth is an aging technique useful in many mammal species.

Basins are hydrological unit level six watersheds and defined by the U. S. Geological Survey (USGS) National Watershed Boundary Dataset. Subbasins are hydrological unit level eight watersheds, also defined by USGS (Figure 3).

A verified report of a river otter is one of a carcass or live-captured individuals or where evidence exists that proves the report was a river otter. Photos where the animal can clearly be identified as a river otter may also be considered verified. Tracks associated with sliding marks in the snow, if confirmed by knowledgeable reviewers can also be considered a confirmed sighting. Knowledgeable reviewers may include agency staff familiar with river otters or river otter experts.

A probable report is a sighting not accompanied by a photo only if the observer is experienced and knowledgeable. In addition, tracks and scats not in snow are considered probable reports in part because of the difficulty of correctly identifying them. Photos will be evaluated by knowledgeable reviewers. Unverified reports are those with no evidence to support or reject the report. Probable or unverified reports will not contribute to delisting benchmarks but may help identify sites for follow-up monitoring.



**Figure 3.** River otter recovery watershed basins and subbasins. Basins are hydrological unit level six watersheds defined by the U. S. Geological Survey (USGS) National Watershed Boundary Dataset. Subbasins are hydrological unit level eight watersheds, also defined by USGS.

**Primary Reviewer:** Silka Kempema, wildlife biologist

**Other Staff or Experts Involved in the Review:** Julie DeJong, Jacquie Ermer, Eileen Dowd Stukel and Chad Switzer, SDGFP

**Date Review Finalized:**

**Dates of Other Reviews, if appropriate:**

### References or Information Sources:

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**GAME, FISH, AND PARKS COMMISSION ACTION  
FINALIZATION**

**State Threatened and Endangered Species Listings  
Chapter 41:10:02:04**

<b>Commission Meeting Dates:</b>	<b>Proposal</b>	<b>March 5-6, 2020</b>	<b>Pierre</b>
	<b>Public Hearing</b>	<b>May 7, 2020</b>	<b>Custer State Park</b>
	<b>Finalization</b>	<b>May 7-8, 2020</b>	<b>Custer State Park</b>

**COMMISSION PROPOSAL**

Proposed change: Remove North American River Otter (*Lontra canadensis*) from list of state threatened mammals.

**DEPARTMENT RECOMMENDATION**

Recommended changes to proposal: None.

**SUPPORTIVE INFORMATION**

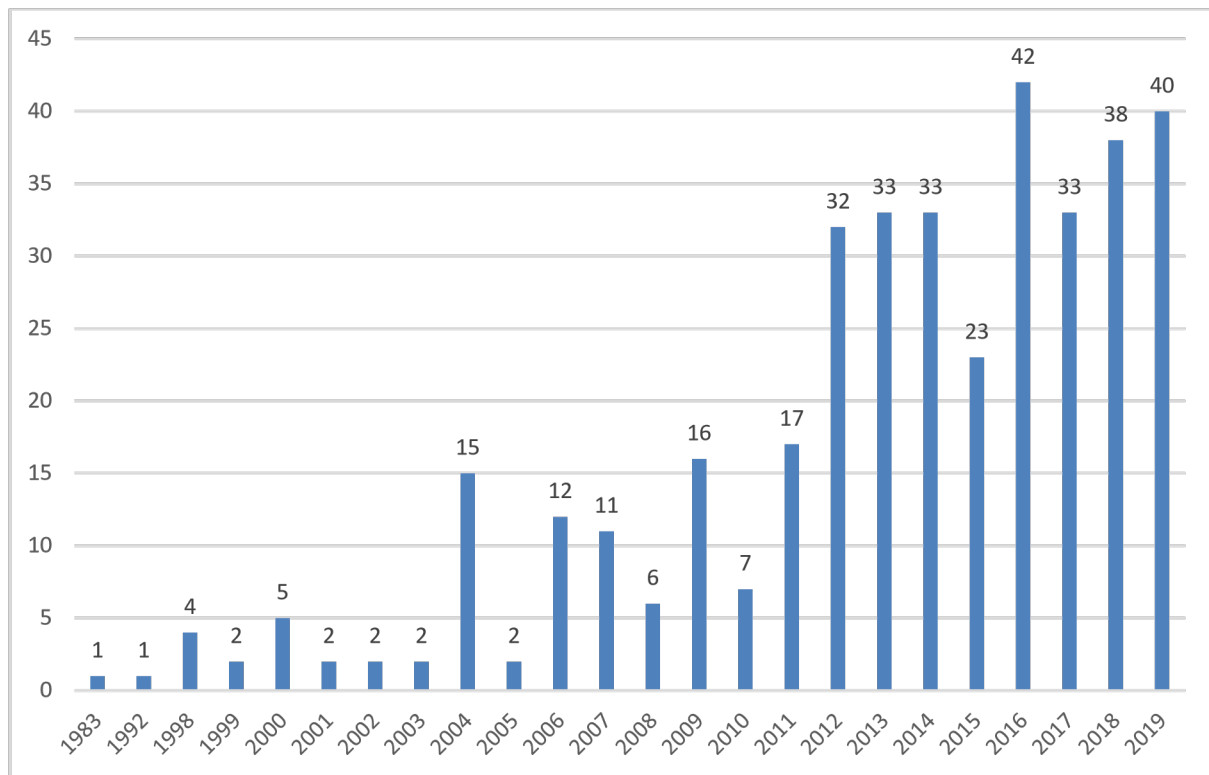
River otters were historically widespread across North America, including South Dakota in appropriate habitats. However, due to habitat loss and degradation and unregulated take during the early 20<sup>th</sup> century, river otter populations were drastically reduced, including likely extirpation from South Dakota. In 1978, river otters were included on the first list of South Dakota state threatened mammals.

Several factors have allowed river otter populations to rebound across much of their former range, including reintroductions, improvements in wetland and river habitat management, and protections afforded under various state threatened and endangered species laws. In South Dakota, the Flandreau Santee Sioux Tribe released 35 river otters along the Big Sioux River on tribal grounds in Moody County in 1998 and 1999. As part of a study to determine river otter distribution in the state, Kiesow and Dieter (2003) collected 34 confirmed reports of river otter in South Dakota. The majority (89%) of these reports occurred along the Big Sioux River; half occurred in Moody County. Melquist reported in 2015 that river otter distribution included the following: Big Sioux, Vermillion and James River drainages, Jorgenson River, Little Minnesota River, Whetstone River, Yellow Bank River, Jim Creek/Big Slough and the Missouri River downstream from Pierre (Melquist 2015).

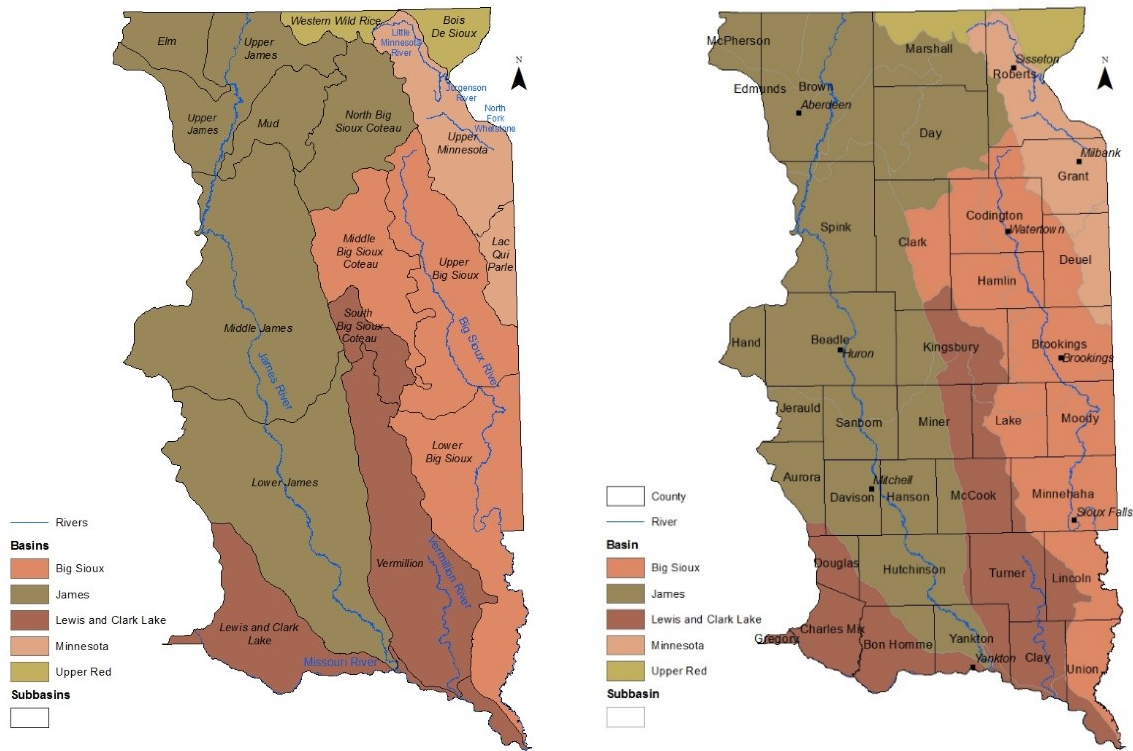
South Dakota Game, Fish and Parks (SDGFP), through the South Dakota Natural Heritage Program, maintains a database of river otter reports from across the state. Data are from a variety of sources including universities, government wildlife agencies, private contractors, and the general public. Reports include the sighting of an otter, incidental catch, river otter sign (tracks, scat, or snow slide), or a vehicle kill. Not every river otter encounter is reported to SDGFP and not all reports are verified. The number of verified river otter reports has increased

over time (Figure 1). Approximately half of these reports came from Grant, Roberts or Moody counties. The tribal reintroduction, along with natural recolonization from other areas has resulted in a growing river otter population in eastern South Dakota.

In 2012, a 5-year plan was written to provide general, strategic guidance for the recovery and sustained management of river otter. As directed in the plan, recovery criteria were developed to justify removing the species from the state threatened species list when appropriate. Delisting of the river otter will be recommended when the following conditions are met: 1) verified reports of reproduction are documented in three of the five basins (60%) within the recovery area (Figure 2), and 2) within each basin, the presence of river otters has been documented by verified reports in at least 40% of their subbasins. Both criteria shall be met during at least two of the five years prior to recommended delisting. These criteria were met in 2019 (Figure 3). Because protection under the state endangered species law is no longer justified, the Department recommends that the species be removed from the state list of threatened mammals.

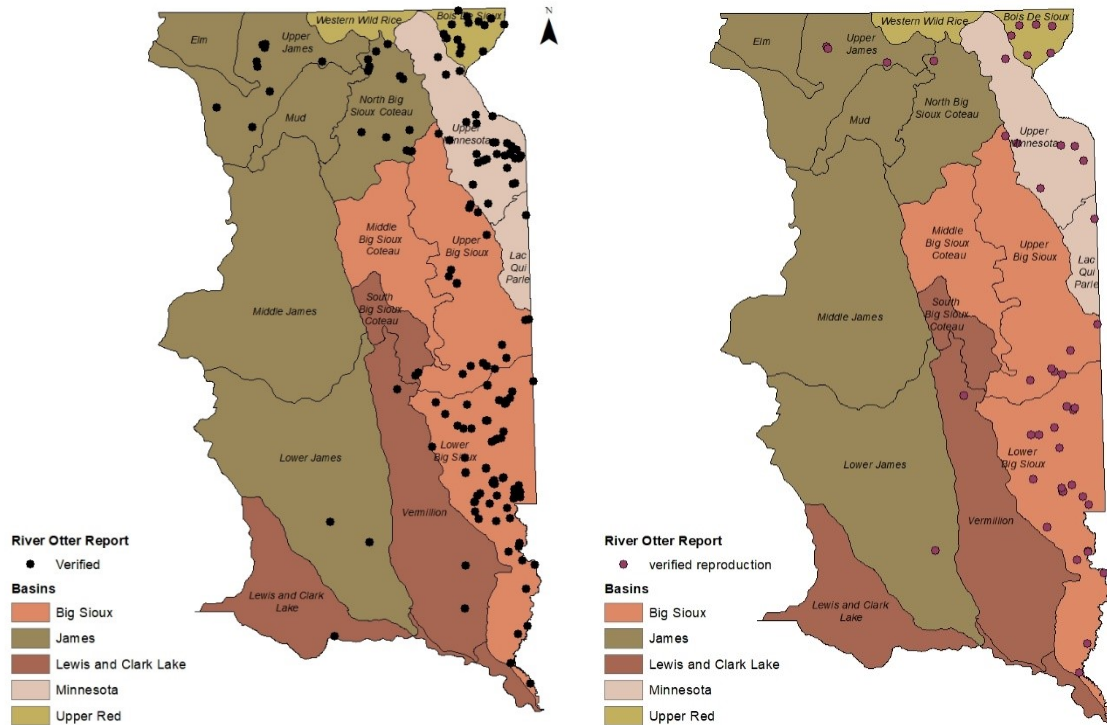


**Figure 1.** Verified reports of river otters in South Dakota from 1983 through 2019. Reports include the sighting of an otter, incidental catch, river otter sign (tracks, scat or sign) or vehicle kill.



**Figure 2.** Recovery area watershed basins and subbasins. Basins are hydrological unit level six watersheds while subbasins are hydrological unit level eight watersheds, as defined by the U. S. Geological Survey (USGS) National Watershed Boundary Dataset.





**Figure 3.** Verified reports of river otters (left) and reproduction (right) across the recovery watersheds in eastern South Dakota from 2015 – 2019. These reports represent a conservative estimate because many reports come from the public, and it is reasonable to assume not every river otter encounter is reported to SDGFP.

**Literature Cited**

Kiesow, A. M. and C. D. Dieter. 2003. Status and distribution of river otters, *Lontra canadensis*, in South Dakota. Proceedings of the South Dakota Academy of Science 82:79-87.

Melquist, W. E. 2015. Determination of river otter (*Lontra canadensis*) distribution and evaluation of potential sites for population expansion in South Dakota. South Dakota Department of Game, Fish and Parks, Wildlife Division Final Report, Pierre, SD.

**GAME, FISH AND PARKS COMMISSION ACTION  
PROPOSAL**

**River Otter Trapping Season**  
Chapters 41:08:01

<b>Commission Meeting Dates:</b>	<b>Proposal</b>	<b>May 7-8, 2020</b>	<b>Custer State Park</b>
	<b>Public Hearing</b>	<b>July 16, 2020</b>	<b>Pierre</b>
	<b>Finalization</b>	<b>July 16-17, 2020</b>	<b>Pierre</b>

**DEPARTMENT RECOMMENDATION**

**Duration of Recommendation:** 2020 trapping season

**Recommended changes from last year:** To establish a conservative river otter trapping season.

1. Establish a trapping season that is open from sunrise on November 1 to sunset on December 31 in all counties of the state.
2. Limit of one river otter per trapper per season.
3. Statewide harvest limit of 15 river otters. Season will end prior to December 31 if the harvest limit is reached.
4. Trapping season open to residents only with a furbearer license.
5. A river otter shall be reported to the Department within 24 hours of harvest. At time of reporting, arrangements will be made to check-in carcass and detached pelt at a GFP office or designated location for registration and tagging of the pelt within 5 days of harvest. Additionally, once the season has closed (last day of season or harvest limit reached), a person has 24 hours to notify the Department of a harvested river.
6. The pelt shall be removed from the carcass and the carcass shall be surrendered to the Department. After the pelt has been tagged, it shall be returned to the trapper. Upon request, the carcass may be returned to the trapper after the carcass has been inspected and biological data collected.
7. Any river otter harvested after the 24-hour period following the close of the season, will be considered incidental take and shall be surrendered to the Department.
8. A person may only possess, purchase or sell raw river otter pelts that are tagged through the eyeholes with the tag provided by the Department or if the river otter was harvested on tribal or trust land of an Indian reservation or another state and is properly and securely tagged with a tag supplied by the governmental entity issuing the license.

**SUPPORTIVE INFORMATION**

River otter populations in South Dakota continue to grow and expand into available habitat. A statewide season will provide harvest information from across the state. It also provides the greatest opportunity to pursue trapping of river otter. Over the last five years (2015-2019) the Department has received an average of 16.6 incidentally trapped river otter/year. River otter are most frequently incidentally taken during the beaver trapping season given similarity of habitat and trapping methods. The majority (72%) of the 83 incidentally trapped river otter reported over the last five years were taken in November. Updates on river otter harvest will be available on the Department website and by calling a designated phone number. A press release and other information tools will be used when the harvest limit has been met, similar to the mountain lion harvest notification process.

**RESIDENT/NONRESIDENT CRITERIA**

1. The Issue

- Why make the change, what are the change alternatives, how will public/stakeholder input be solicited, and how will the change be evaluated if implemented?
  - i. River otter populations in South Dakota continue to grow and expand into available habitat. In reviewing the number of river otters incidentally trapped, the population can sustain a conservative harvest by trappers. Public input will be solicited during the Commission process. If implemented, Department staff will collect biological data, evaluate season structure and bring any recommended changes to the Commission for consideration for future seasons.
- 2. Historical Considerations – River otters were classified as a furbearer by the South Dakota Legislature in 2019 and were removed from the state’s list of threatened species by the Commission in 2020 after meeting delisting criteria.
- 3. Biological Considerations
  - What is the current and projected status of the population and habitat conditions for these populations?
    - i. As already indicated, river otter populations in South Dakota continue to grow and expand into available habitat.
- 4. Social Considerations
  - The allowance of a restrictive trapping season will provide additional opportunities for resident trappers. It is recommended to limit this season to residents only, given the limited opportunity and expected high interest from resident trappers.
- 5. Financial considerations – Not Applicable.

#### RECRUITMENT, RETENTION, REACTIVATION (R3) CRITERIA

1. Does the regulation or fee inhibit a user’s ability to participate? Not applicable.
2. Does the regulation increase the opportunity for new and existing users?
  - Yes, the inclusion of a conservative trapping season for river otters will provide additional opportunities for existing trappers and likely spark interest from new trappers.
3. How does the regulation impact the next generation of hunters, anglers, trappers and outdoor recreationists? Provides additional trapping opportunity.
4. Does the regulation enhance the quality of life for current and future generations by getting families outdoors? Yes.

## GAME, FISH AND PARKS COMMISSION ACTION FINALIZATION

### River Otter Trapping Season

<b>Commission Meeting Dates:</b>	<b>Proposal</b>	<b>May 7, 2020</b>	<b>Teleconference</b>
	<b>Public Hearing</b>	<b>July 16, 2020</b>	<b>Teleconference</b>
	<b>Finalization</b>	<b>July 16-17, 2020</b>	<b>Teleconference</b>

#### COMMISSION PROPOSAL

**Duration of Proposal:** 2020 trapping season

**Proposed changes from last year:** To establish a conservative river otter trapping season.

1. Establish a trapping season that is open from sunrise on November 1 to sunset on December 31 in all counties of the state.
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5. A river otter shall be reported to the Department within 24 hours of harvest. At time of reporting, arrangements will be made to check-in carcass and detached pelt at a GFP office or designated location for registration and tagging of the pelt within 5 days of harvest. Additionally, once the season has closed (last day of season or harvest limit reached), a person has 24 hours to notify the Department of a harvested river otter.
6. The pelt shall be removed from the carcass and the carcass shall be surrendered to the Department. After the pelt has been tagged, it shall be returned to the trapper. Upon request, the carcass may be returned to the trapper after the carcass has been inspected and biological data collected.
7. Any river otter harvested after the 24-hour period following the close of the season, will be considered incidental take and shall be surrendered to the Department.
8. A person may only possess, purchase or sell raw river otter pelts that are tagged through the eyeholes with the tag provided by the Department or if the river otter was harvested on tribal or trust land of an Indian reservation or another state and is properly and securely tagged with a tag supplied by the governmental entity issuing the license.

#### DEPARTMENT RECOMMENDATION

**Recommended changes to proposal:**

1. Modify the open area from statewide to the following counties in eastern South Dakota: Aurora, Beadle, Bon Homme, Brookings, Brown, Charles Mix, Clark, Clay, Codington, Davison, Day, Deuel, Douglas, Grant, Hamlin, Hanson, Hutchinson, Jerauld, Kingsbury, Lake, Lincoln, Marshall, McCook, Miner, Minnehaha, Moody, Roberts, Sanborn, Spink, Turner, Union and Yankton (see Figure 1).

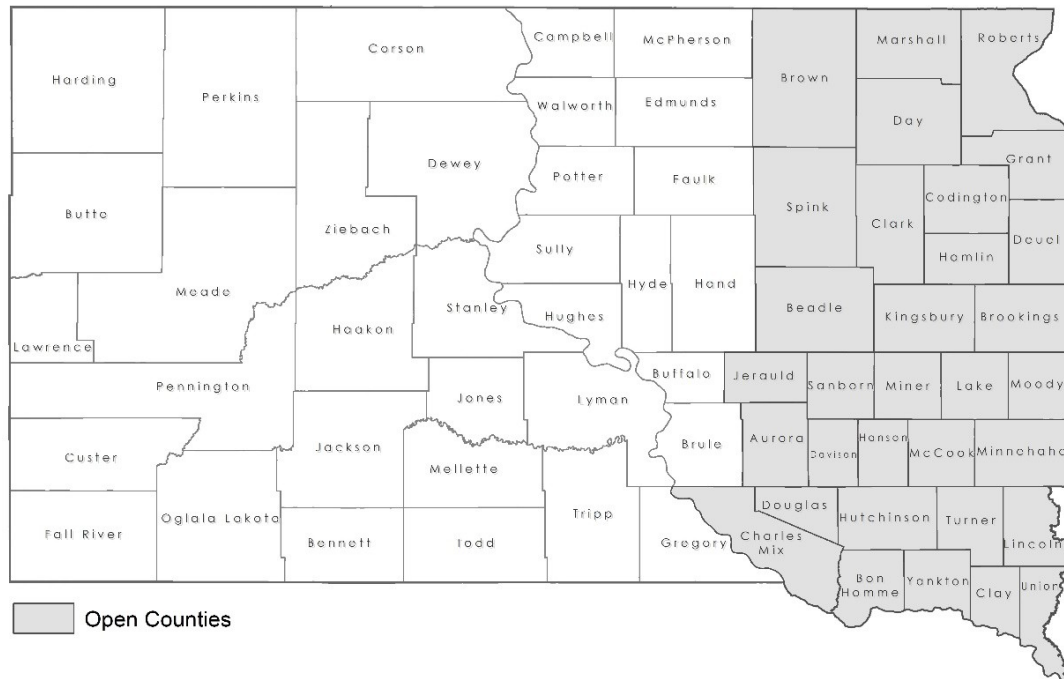


Figure 1. Recommended open area for river otter trapping season.

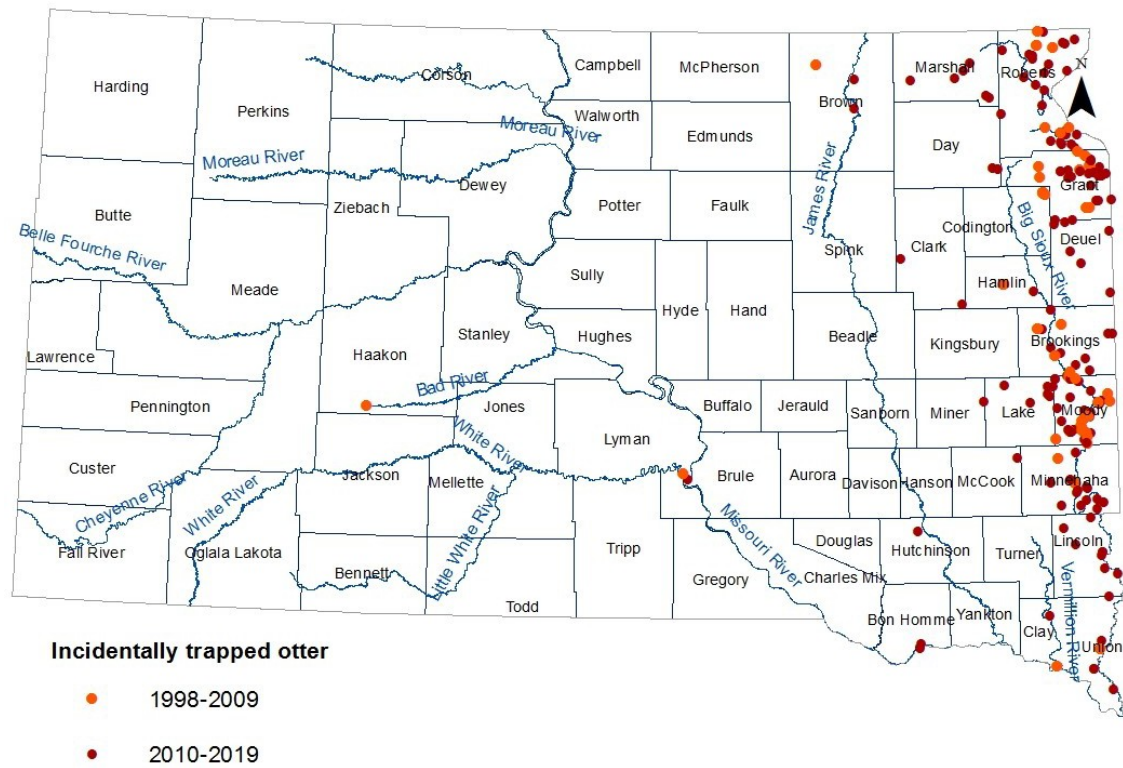


Figure 2. Reports of incidentally trapped river otters, 1998-2019.

## SUPPORTIVE INFORMATION

River otter populations in South Dakota continue to grow and expand into available habitat. A statewide season will provide harvest information from across the state. It also provides the greatest opportunity to pursue trapping of river otter. Over the last five years (2015-2019) the Department has received an average of 16.6 incidentally trapped river otter/year. River otter are most frequently incidentally taken during the beaver trapping season given similarity of habitat and trapping methods. The majority (72%) of the 83 incidentally trapped river otter reported over the last five years were taken in November. Updates on river otter harvest will be available on the Department website and by calling a designated phone number. A press release and other information tools will be used when the harvest limit has been met, similar to the mountain lion harvest notification process.

## RESIDENT/NONRESIDENT CRITERIA

1. The Issue
  - Why make the change, what are the change alternatives, how will public/stakeholder input be solicited, and how will the change be evaluated if implemented?
    - i. River otter populations in South Dakota continue to grow and expand into available habitat. In reviewing the number of river otters incidentally trapped, the population can sustain a conservative harvest by trappers. Public input will be solicited during the Commission process. If implemented, Department staff will collect biological data, evaluate season structure and bring any recommended changes to the Commission for consideration for future seasons.
2. Historical Considerations – River otters were classified as a furbearer by the South Dakota Legislature in 2019 and were removed from the state's list of threatened species by the Commission in 2020 after meeting delisting criteria.
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  - What is the current and projected status of the population and habitat conditions for these populations?
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4. Social Considerations
  - The allowance of a restrictive trapping season will provide additional opportunities for resident trappers. It is recommended to limit this season to residents only, given the limited opportunity and expected high interest from resident trappers.
5. Financial considerations – Not Applicable.

## RECRUITMENT, RETENTION, REACTIVATION (R3) CRITERIA

1. Does the regulation or fee inhibit a user's ability to participate? Not applicable.
2. Does the regulation increase the opportunity for new and existing users?
  - Yes, the inclusion of a conservative trapping season for river otters will provide additional opportunities for existing trappers and likely spark interest from new trappers.
3. How does the regulation impact the next generation of hunters, anglers, trappers and outdoor recreationists? Provides additional trapping opportunity.
4. Does the regulation enhance the quality of life for current and future generations by getting families outdoors? Yes.

**River otters should be appreciated for their value as watchable wildlife**

People sometimes confuse river otters with sea otters. Sea otters are 2-3 times larger than river otters. They usually congregate in small to large groups, spending most of their time in the water. Sea otters typically swim on their backs and often eat while floating on their backs. These characteristics make the sea otter a popular mammal to watch and photograph. The more secretive river otter swims with its belly down and spends much more time on land, using waterways to travel and find food. River otters are typically alone or in family groups. Although seeing a river otter is a special experience, their secretive, solitary nature makes them less predictable for wildlife viewing.

**River otters are closely tied to water quality**

River otters need adequate prey, year-round open water, and suitable places to den and bear young. Harvesting a conservative number of river otters will not impact the efforts of private landowners; nongovernmental organizations; or local, tribal, state, or federal entities to improve the quality of South Dakota's lakes, rivers and streams. GFP's aquatic plans include commitments to enhance aquatic habitats through such activities as small and large-scale habitat projects, small dam inspections, shoreline alteration permitting and inspection, small dam and water structure repair and maintenance, sedimentation removal, rough fish removal, submergent and emergent vegetation plantings, stream habitat projects, flow regime and water level modifications, riparian zone and watershed improvements, and water quality improvements (SDGFP Statewide Aquatics Plan).

Beginning July 1, 2020, a habitat stamp is required for anyone 18 years of age or older who purchases or applies for a hunting, fishing or furbearer license. Habitat stamp funds associated with fishing license sales will fund aquatic habitat projects on public waters across South Dakota, as well as projects that create or enhance public access to those waters. Dam maintenance, repairs and replacements will be conducted on aging structures around the state. Boat docks, roads and vault toilets may be added or improved to create more opportunities for users. Small-scale projects may include dredging, aeration, shoreline restoration, stream restoration, artificial and natural habitat structure placements, and outlet structure repair and maintenance. Large-scale projects may include whole-lake restorations, river/stream restorations, watershed improvements, sediment removal and controls, chemical renovations of the fish populations, riparian buffer zone creations, and habitat diversifications (GFP website Habitat Stamp FAQs).

Existing and future water quality efforts are likely to enhance river otter populations.

**GFP should make sure river otters are recovered throughout western South Dakota**

Some people believe river otters should inhabit additional watersheds in central and western South Dakota before they are considered recovered and that GFP should reintroduce river otters to make that happen. GFP has considered this scenario and contracted with river otter

expert Dr. Wayne Melquist to evaluate additional river otter habitat potential besides eastern South Dakota recovery area. Dr. Melquist found that some western South Dakota river systems may have potential for this species. River otters continue to be protected in the state as furbearers with a proposed season, and their take is not allowed outside that proposed season. Reintroductions are typically conducted with very rare species that are unlikely to expand on their own, because such projects require a large investment of time and funding. GFP has determined that river otter reintroduction does not meet this standard and expects river otters to continue their natural expansion into areas with suitable habitat.

### **Citizen Involvement and Outreach**

Public involvement is an important component in developing and implementing a river otter management plan in South Dakota. Information on the development of the South Dakota River Otter Management Plan was available online at <https://gfp.sd.gov/management-plans/> under "Plans Up for Revision". Media outlets were informed of the draft plan through the standard press release distribution process. Press releases were sent via email to a group of over 5,000 recipients who have opted in to receive all GFP News (or press releases). Individuals had opportunity to provide comments by writing to [wildinfo@state.sd.us](mailto:wildinfo@state.sd.us) or mail them to 523 E Capitol Ave., Pierre, SD 57501.

GFP will continue to encourage the public to report river otter sightings year-round. Moreover, GFP will continue to provide educational programs and materials through various media outlets with a goal of reaching a diverse public, trappers, agencies and organizations, and others as identified. Public involvement is a continuous process and GFP will strive to inform and ensure opportunities are accessible to all citizens.

### **Tribal Coordination**

The regional GFP wildlife staff in the northeast have had several conversations regarding river otter with the Sisseton Wahpeton Oyate (SWO) tribal wildlife manager and biologist over the years. Most recently, regional GFP staff met with SWO in March 2020 to discuss plans for delisting river otters, a possible otter harvest strategy, management plan revisions and any concerns or questions they had. Due to concerns with COVID-19, more recent communication has been difficult due to office closures. Nonetheless, shortly after the GFP Commission's proposals for delisting and then later the harvest season proposal, an email was sent to SWO describing the proposals and asking for their review and comment. GFP staff will continue to coordinate with the SWO wildlife manager.

A brief discussion was held with the Flandreau Santee Sioux Tribe's Director of Natural Resources in spring 2020 with regards to delisting proposal and potential for a conservative harvest season. Efforts will be made to continue conversations with them.



## **Regulated Trapping**

Trapping is highly regulated and strictly enforced by wildlife conservation officers in South Dakota. Trapping provides environmental, social, and economic benefits. Regulated trapping is consistent with other “methods of take” which allow the public to harvest wildlife species and follow sustainable use of wildlife resources and it is a proven method for conserving and managing our wildlife resources. Furbearer seasons and regulations are reviewed at least every two years or more often as needed. If a harvest is approved, biological data collected from harvested river otters will help inform future management, including proposed seasons. Members of the public who trap tend to be wildlife watchers as well and are some of the strongest advocates for habitat conservation, which benefits a myriad of other species.

## **Monitoring plan and population estimate**

GFP recognizes the importance of monitoring wildlife species, including river otter. Some species, including river otter, tend to be more difficult to monitor due to their secretive nature. Over the years, biologists across the country have used various methods with differing success to monitor river otters; and typically must use multiple methods (see section in the plan “Methods used in nearby states and provinces”). As indicated by Objective 1b in the management plan, GFP is committed to determine and implement the most feasible monitoring method(s) for South Dakota as well as determine the need for a specific river otter occupancy model and population estimate. Trends within river otter populations can be more telling than actual counts. Managers are interested in knowing if the population is increasing, decreasing or stable. By looking at trends, management actions can be assessed, and adjustments made if necessary. GFP staff will continue to collect reports of sightings and perform necropsies to obtain important biological data.