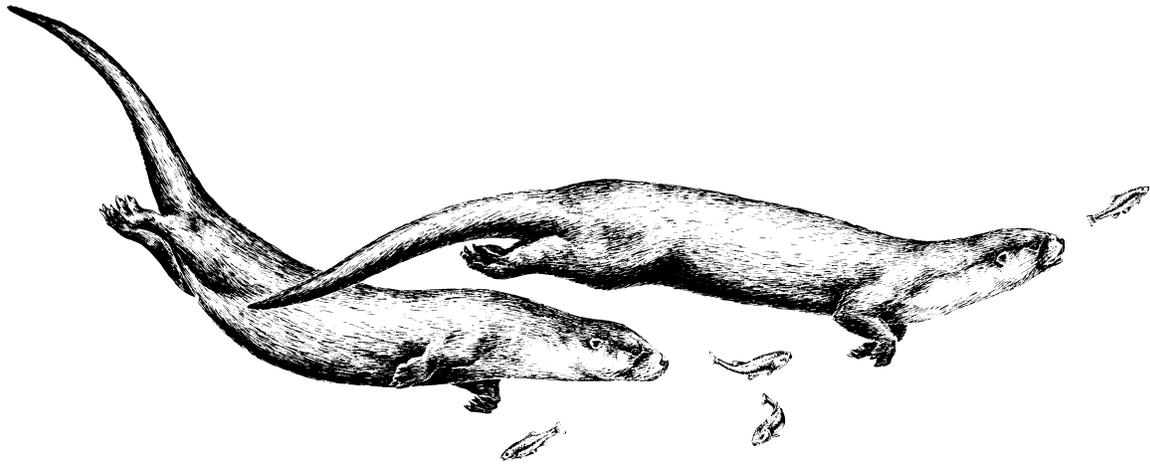


Nebraska River Otter Management Plan



June 2021



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Nebraska River Otter Management Plan

Executive Summary

The Nebraska Game and Parks Commission (Commission) recognizes river otters as an important component of the state's biodiversity. River otter reintroductions, and subsequent expansions of those populations, have allowed this species to expand to a nearly statewide distribution. The Commission is responsible for properly managing this native species. The Nebraska River Otter Management Plan is intended to guide management decisions based on our agency mission, and the management goals and guiding principles stated in the plan. The Commission will monitor river otter populations and use regulated harvest as a primary strategy for meeting management goals and objectives when possible. This plan will be revised periodically as new information regarding river otter ecology and management becomes available.

Agency Mission

The mission of the Nebraska Game and Parks Commission is stewardship of the state's fish, wildlife, park, and outdoor recreation resources in the best long-term interests of the people and those resources.

Management Goal

The Commission's management goal is to maintain resilient, healthy, and socially acceptable river otter populations that are in balance with available habitat and other wildlife species over the long term.

Guiding Principles

1. River otters are an important component of Nebraska's native biodiversity that have intrinsic value, as well as recreational value to fur harvesters and non-consumptive users.

2. River otter management programs will be based on scientifically and biologically sound principles that: (a) meet statutory obligations, (b) minimize negative interactions between humans and otters, (c) pursue balance with other wildlife, (d) incorporate input from the public, and (e) ensure resilient and healthy river otter populations persist in suitable habitats in Nebraska over the long term.
3. River otters are listed as a fur-bearing animal in statute. The Commission intends to manage river otters similarly to other fur-bearing animals, including the use of harvest seasons when appropriate.
4. The Commission will provide accurate and timely information to the public concerning river otters in Nebraska.

Introduction

The purpose of the Nebraska River Otter Management Plan is to guide management of this native species in accordance with the mission of the Nebraska Game and Parks Commission. This plan is meant to be dynamic and may be revised periodically as new information becomes available and river otter populations, distribution, and public acceptance change over time.

Biology

River otters (*Lontra canadensis*) are in the mustelid family along with weasels, mink, skunks, and badgers. They are well adapted to life in the water but are also capable of hunting on land and traveling long distances in search of new territories. Otters are efficient predators that prey primarily on fish and crayfish but can also prey on insects, amphibians, birds, and mammals (Melquist et al. 2003). Prey items are selected based on their availability although slower swimming fish may be preferred when they are encountered (Ryder 1955; Toweill 1974).

River otters in Nebraska are typically 40–50 inches in length and weigh 15–30lbs. Males are larger than females. They are sexually mature at two years of age and breed during December–April, with a gestation period of approximately 62 days. River otters in Nebraska give birth during March and nurture pups in the natal den until mid-May (Wilson 2012). Litter sizes are

commonly 1–3 although they can have up to five pups. Males do not help raise young. Otters are not typically territorial and are highly social with groups consisting of a female and young, males, or a mix of related and unrelated otters of both sexes.

River otters are highly adaptable and historically had one of the largest distributions of any North America mammal (Toweill and Tabor 1982). Melquist and Hornocker (1983) found that river otters avoid areas with high levels of human disturbance; although, like Gallant et al. (2009), they found that river otters respond primarily to the presence of appropriate habitat and prey and secondarily to human activities or disturbance.

Riparian areas and wetlands have been shown to be an important component of river otter habitat (Melquist and Hornocker 1983; Melquist and Dronkert 1987; Melquist et al. 2003) although they are not required. Riparian areas may be of increased importance due to the presence of beaver. Beaver dams create ponds in streams and waterways that provide habitat for river otters and their prey (Tumlison et al. 1982). This relationship between river otters and beavers has been described as commensalism by Tumlison et al. (1982) and partial commensalism by Reid et al. (1988). River otter dens are typically constructed by other animals or consist of natural features such as root structures, according to Melquist and Hornocker (1983), who identified 38% of river otter den or resting sites as beaver dens or lodges. Beaver dens may be of additional importance in Nebraska and other Prairie Plains states where natural den sites such as rock overhangs are rare or absent.

River otter home range size varies and is likely influenced by prey densities, habitat quality, and other requirements (Melquist et al. 2003). Home ranges as large as 200 km² for males and 70 km² for females were documented by Reid et al. (1994) in Alberta, Canada; home ranges as small as 303 ha were documented by Foy (1984) in southeastern Texas. Mean home range size for river otters in Nebraska using the 95% MCP method was 1,361 ha (Wilson 2012). Adult river otters have larger home ranges than juveniles, and males typically have larger home ranges than females (Melquist and Hornocker 1983; Blundell et al. 2000). Blundell et al. (2000) suggested that larger home ranges of males were related to the spacing of female home ranges and not caused by a greater need for food or habitat resources. Both male and female river

otters in Idaho exhibited overlapping home ranges (Melquist and Hornocker 1983). Route and Peterson (1988) found that female river otter home ranges in Minnesota showed little overlap. More recently, Gorman et al. (2006) found considerable overlap and described river otters in Minnesota as social rather than territorial. River otter home ranges can be linear in areas where habitat is limited to a river, stream or coastline (Blundell et al. 2001).

History in Nebraska

River otters were found throughout the state of Nebraska prior to European settlement and were frequently documented by early explorers on the Missouri and Platte rivers (Jones 1964). Conversion of habitat for agricultural production and unregulated harvest led to the extirpation of the species by the early 1900s. The last documented river otter was found dead near Lincoln creek in Seward County in 1916 (Jones 1964). No river otters were documented in the state between 1916 and 1977 (Farney and Jones 1978). A female river otter trapped on Sappa Creek in Furnas County in 1977 represented the first documented occurrence in more than 60 years (Farney and Jones 1978). This confirmation occurred after the reintroduction of river otters in Colorado in 1976 (Tischbein 1976) and may represent a transient animal from that release or a member of an undetected remnant population (Farney and Jones 1978). Between 1980 and 1985 four subsequent confirmations were made in the Republican River Basin (F. Andelt and R. Lock, Nebraska Game and Parks Commission, unpublished data); however, no confirmed presence was documented in this area between 1986 and 2010.

Reintroductions

Many Midwestern states experienced a similar decline and otters were extirpated or rare in 15 states by the mid-1900s (Toweill and Tabor 1982). During the 1970s and 1980s ten states initiated reintroductions (Raesly 2001), including Nebraska. To restore river otters throughout the state, the Nebraska Game and Parks Commission released 159 river otters between 1986 and 1991 (Figure 1) at seven release sites (Figure 2) in five of the major river basins (Andelt 1988; Andelt 1992; Bischof 2003). The majority of those animals were trapped in Louisiana and Alaska (Figure 3) (Bischof 2003). Post-release expansion of river otter distribution and an increase in the number

of river otters incidentally trapped provided evidence that the population was growing (Bischof 2003; Hoffman and Genoways 2005).



Figure 1. A river otter is fitted with an ear tag (left) and a river otter is released (right) as part of reintroduction efforts by the Nebraska Game and Parks Commission during 1986–1991.

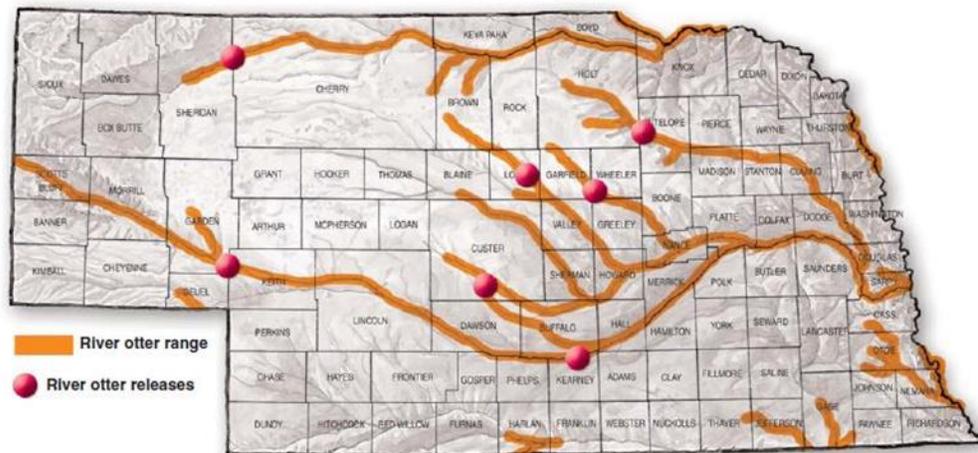


Figure 2. The Nebraska Game and Parks Commission reintroduced river otters at seven sites – shown in red – between 1986 and 1991 to reestablish the species in Nebraska. Estimated current distribution of river otters in Nebraska is shown in orange.

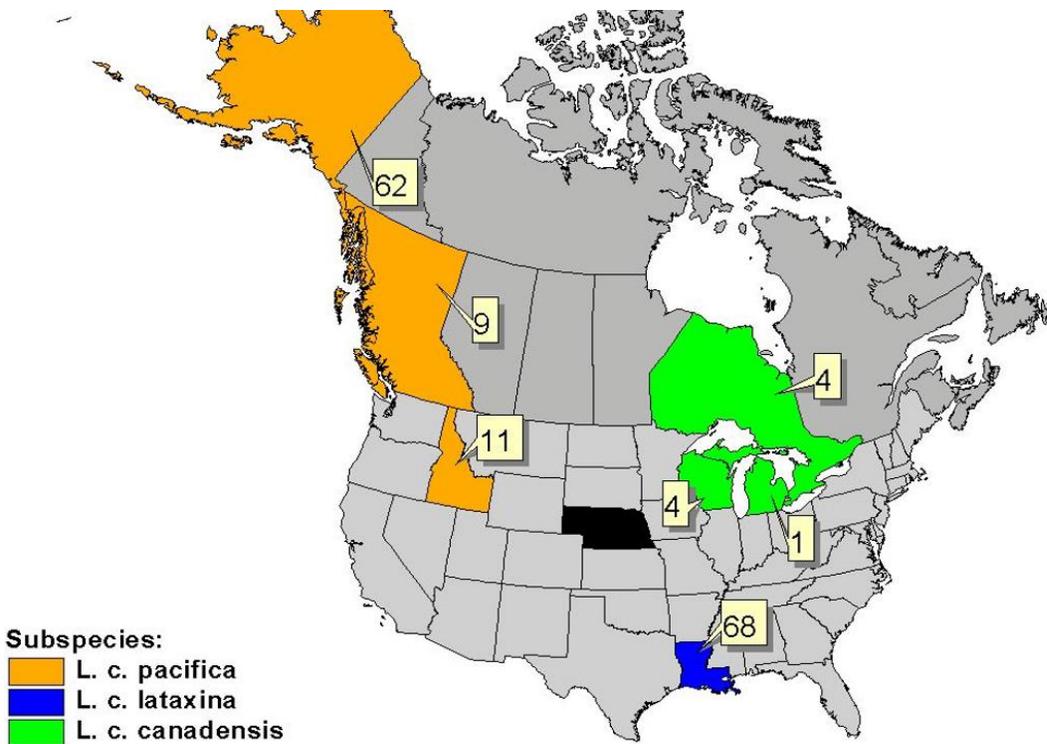


Figure 3. Source locations for 159 river otters reintroduced to Nebraska during 1986–1991.

Distribution

After reintroduction, Commission staff tracked otter presence and distribution through winter bridge track surveys, sign surveys (scat and tracks), surveys of fur harvesters, collection of otter carcasses (incidentally trapped, road-killed, etc.), and documentation of otters through photos or video (Figure 4). By 2003, river otter distribution had expanded into the Middle Loup and Nemaha rivers, which were not part of the original releases (Bischof 2003; Hoffman and Genoways 2005). River otters have subsequently been documented in 12 of 13 major river basins – the exception being the White River in northwest Nebraska (Figure 4). Similar population growth and range expansion has been reported by other states where river otters were reintroduced (Raesly 2001) including neighboring Iowa, Kansas, Missouri, and South Dakota, where harvest seasons have been established. The Niobrara, Platte, Elkhorn and southern Loup River systems are core areas (Figure 5) with evidence of strong otter populations (Bieber et al. 2018).

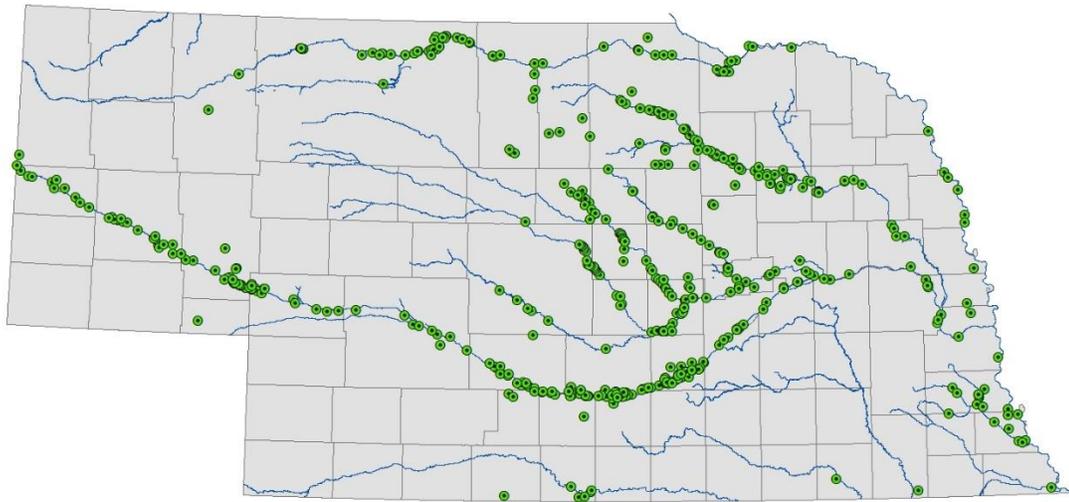


Figure 4. Locations of confirmed river otter presence in Nebraska from 1977–April 2021 are shown in green.

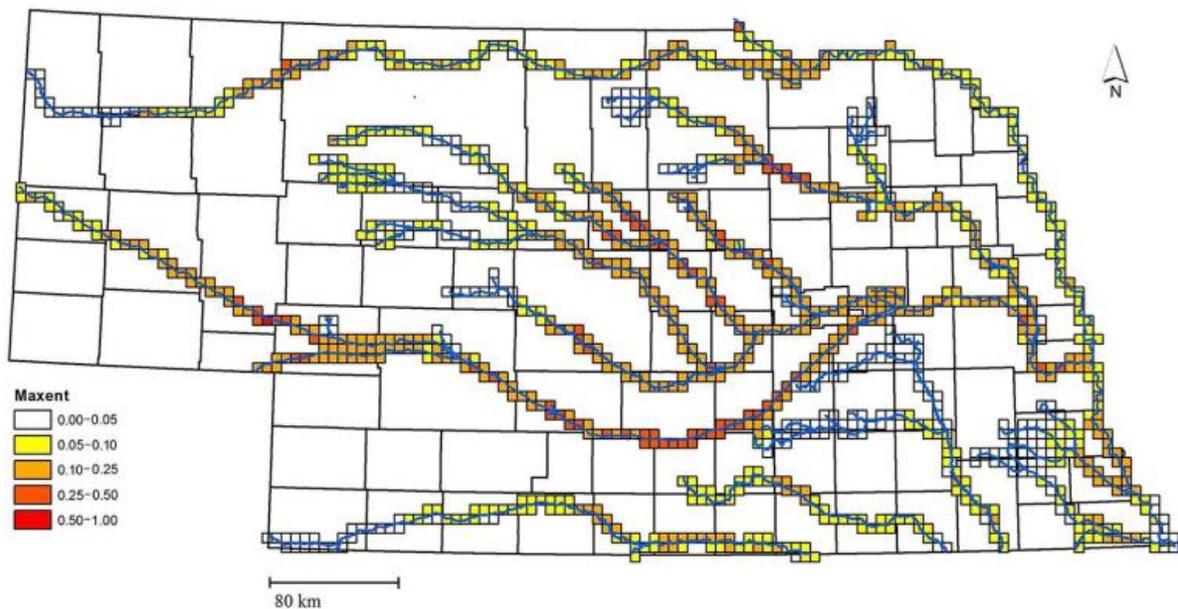


Figure 5. River otter distribution in Nebraska estimated using habitat variables and records of otter presence (1977–2014). Areas most likely occupied by otters are shown in red and orange, with areas least likely to be occupied by otters shown in yellow and white (Bieber et al. 2018).

Population Growth

River otters have made a remarkable recovery throughout the Midwest thanks to reintroduction efforts and may be near historic distributions (Roberts et al. 2020). Nebraska and many neighboring states experienced similar growth in otter distribution and population size following reintroductions. River otters have high survival rates in good habitat and populations are able to grow quickly when they are protected from harvest or harvested below the growth rate of the population. Research in the Big Bend area of the Platte River showed that survival of river otters in Nebraska was very high, with no observed mortalities of the 11 river otters that were monitored for at least one year (Wilson 2012). The density of river otters per kilometer of river in this area was also shown to be high when compared with densities reported from other states (Williams 2011). Otter population growth has been documented from 7% in IA (IA DNR 2016) to more than 25% in Missouri (Hamilton 1988). Commission wildlife staff estimate the population of river otters in Nebraska is more than 2,200 based on the assumption that 70% of the reintroduced river otters survived and contributed to the population, and the population has grown at 11% per year (Nielsen 2016). Additional river otters likely also immigrate from established populations in neighboring states such as Kansas, Iowa and Missouri.

Monitoring and Research

The Commission presently uses four primary techniques to learn more about river otters in Nebraska:

1. Collection of otter carcasses (incidentally trapped, road-kill, etc.)
2. Collection of river otter observations by the public or staff (photos and videos)
3. Surveys (winter bridge track surveys, aerial surveys, kayak sign surveys, trail camera surveys, and fur harvest surveys)
4. Large scale research projects (Williams 2011, Wilson 2012, Bieber 2016)

Collection of carcasses and observations of otters or their sign during surveys has allowed the Commission to document expansion of river otter populations since their reintroductions. In addition to these data collected over the past 35 years, the Commission has also conducted

three large scale river otter research projects through the University of Nebraska Lincoln and the Nebraska Cooperative Fish and Wildlife Research Unit.

The first of these projects captured 18 river otters along the Big Bend area of the Platte River during 2006–2009, and implanted them with telemetry transmitters (Wilson 2012). Home range size, habitat use, movements, and survival were determined. Among the key findings were that river otters selected open water habitats (ponds, sloughs, sandpit lakes, etc.) over other habitat types and had high annual survival.

The second project assessed river otter use of invasive *Phragmites* and river otter density using noninvasive genetic surveys (Williams 2011). Genetic surveys were conducted during 2009 using scat samples and subsequent genetic analysis to determine the density of otters in the Big Bend region of the Platte River. Key findings from this research were that river otters were not negatively impacted by invasive *Phragmites* and densities of river otters in the study area were high compared to previous research.

The third project conducted systematic sign surveys throughout Nebraska during 2014–2015 in order to estimate river otter distribution and suitable habitat (Bieber 2016). Most major river systems in Nebraska were surveyed via kayaks with results allowing for the creation of occupancy models (Figure 5). Key findings from this research were that the Niobrara, Platte, Elkhorn and southern Loup River systems are core areas with evidence of strong otter populations. This research also showed that estimates of distribution produced by Commission staff via collection of river otter carcasses and observations were similar to estimates produced via systematic surveys and modelling.

The overall findings of river otter research in Nebraska show that the population is widely distributed and has recolonized much of the available habitat in Nebraska. In addition, individuals along the Big Bend area of the Platte River exhibited high survival and densities were high compared to research in other areas. Future harvest seasons would provide additional annual information regarding distribution based on the locations where otters are harvested.

Legal Status

River otters are presently listed as a fur-bearing animal in statute along with commonly harvested furbearers such as beaver, mink, muskrats, raccoons, opossums, bobcats, gray foxes, red foxes, badgers, long-tailed weasels, and striped skunks. Unlike the other furbearers listed there is presently no harvest season. River otters were state listed as Endangered in 1986 while their reintroductions were beginning. In 2000, the species was down-listed to Threatened because of substantial progress towards recovery. Due to continued expansion, the Commission removed otters from the list of threatened species in 2020 after meetings were held throughout the state over several years.

This is a paramount example of species recovery and could not have been accomplished without the efforts of the Commission and long-term partnerships with private landowners, The University of Nebraska, the Nebraska Cooperative Fish and Wildlife Research Unit, The Nature Conservancy, the Nebraska Fur Harvesters, other conservation organizations, and funding from donations to the Nebraska Wildlife Conservation Fund.

Regulated Harvest

The Nebraska Legislature classifies river otters as fur-bearing animals. This signals to the Commission that harvest of the species could be allowed if the population is large enough to sustain a harvest. This is the same criteria used for any other species on the state's list of fur-bearing animals, from raccoons to muskrats to bobcats. State statute also identifies the Commission as the appropriate agency to set harvest seasons.

Future harvest seasons for river otters would be modeled after successful harvest season designs used presently with furbearing species. Including season dates that ensure pelts are prime and harvest would minimize the probability of orphaning dependent young. A pilot harvest season could include a harvest limit, or season close trigger, that would allow the Commission to learn more about river otter distribution, resilience to harvest, and capture effort by harvesters. This would inform future season designs. As river otter populations continue to become more

established over time, staff intend to simplify harvest seasons, and harmonize rules with the seasons of other commonly harvested furbearers as has been done in neighboring states.

Management Goal

The Commission's management goal is to maintain resilient, healthy, and socially acceptable river otter populations that are in balance with available habitat and other wildlife species over the long term.

Definition: A resilient and healthy river otter population is one that: 1) maintains a distribution that includes most major river systems in Nebraska, 2) has healthy individuals with minimal burden from disease or malnutrition, 3) maintains genetic variability and connectivity to other populations, 4) maintains a population large enough to recover from harvest or natural events (drought/floods).

Objectives and Strategies

Objective 1: Maintain resilient and healthy river otter populations in Nebraska.

Strategies:

1. Monitor distribution, demographics, and expansion or contraction of river otter populations in Nebraska and manage accordingly to ensure resilience.
2. Determine genetic variability and health of river otters in Nebraska via analysis of samples.

Objective 2: Allow regulated harvest when harvest fits within management goals.

Strategies:

1. Monitor distribution and estimate abundance in order to determine if the population would be resilient to harvest.
2. Recommend a harvest season when a harvest fits within management goals.

3. Harvest season dates will be selected to minimize probability of orphaning dependent otter pups, to ensure otter pelts are prime, and to align with trapping of beavers – which are found in the same habitats and captured with the same traps – whenever possible.
4. Harvest rules for river otters will be harmonized with other commonly harvested furbearing animals when possible.

Objective 3: Maintain socially acceptable river otter populations that are in balance with other wildlife species.

Strategies:

1. Use regulated harvest to address conflicts with river otters when possible.
2. Provide information or take permits as appropriate to alleviate damage caused by river otters to fish farms or stocked private ponds.
3. Document concerns voiced by the public regarding management for annual review.

Measuring Management Success

Management of river otters in Nebraska will be considered successful during the term of this management plan if:

1. Management activities allow for resilient, healthy, and socially acceptable river otter populations that are in balance with available habitat and other wildlife species.
2. Management includes harvest seasons when appropriate considering goals and objectives.
3. Depredation and human conflicts events are infrequent.
4. River otter distribution includes present core areas in the Niobrara, Platte, Elkhorn and southern Loup River systems at minimum or expands beyond 2021 distribution estimates.

***The River Otter Management Plan will be reviewed and updated periodically in order to incorporate new information regarding ecology, management, or social issues.**

