Senate Committee on Environment and Public Works Subcommittee on Fisheries, Water, and Wildlife: Hearing Examining the Challenges and Opportunities with Implementing the Endangered Species Act

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Introduction

Chairman Ricketts, Ranking Member Schiff, and members of the Subcommittee, thank you for the opportunity to testify today regarding the challenges and opportunities with implementing the Endangered Species Act (ESA).[1]

From my perspective as a water resources engineer and former state water administrator, many of the challenges associated with ESA implementation in the western United States are fundamentally systems management challenges—balancing river ecology, water infrastructure, and working landscapes that support communities and agriculture.

This perspective has been informed by several roles. I am a professional engineer specializing in water resources and environmental restoration. I previously served as

[1] Endangered Species Act of 1973, 16 U.S.C. §1531–1544.

Director of the Nebraska Department of Natural Resources, where I represented the State of Nebraska in interstate water management and collaborative recovery programs, including the Platte River Recovery Implementation Program (PRRIP). I also teach a college course in Ecological Engineering. Nebraska sits at the intersection of several major western river systems, and our experience managing water, habitat restoration, and species recovery within those systems provides practical insight into how ESA implementation can work within working landscapes.

Ecological engineering focuses on designing systems that integrate human needs with ecological function for the mutual benefit of people and the environment.[2,3] Many of the solutions required for species recovery under the ESA are fundamentally engineering and systems challenges that occur within working landscapes (see Figure 1). They involve restoring river systems, designing wetlands, managing river flows, and improving habitat conditions while maintaining the working landscapes that sustain agriculture, recreation, and communities.

Across the western United States, water resources, agriculture, ecosystems, and communities are closely interconnected. Species recovery under the ESA often occurs within landscapes that support farming and ranching, municipal water supplies, and regional economies.

Because water is scarce and heavily managed across much of the western United States, effective ESA implementation frequently requires coordinated management of large river systems, interstate water agreements, and collaboration among federal agencies, states, and local stakeholders. My comments focus primarily on the western United States, often historically referred to as the “Great American Desert.”

Nebraska’s experience in the Platte and Missouri River basins provides examples of how ESA implementation can work effectively when several key principles are present: strong local science, collaborative basin-scale management, conservation within working landscapes, coordination with state water management systems, and regulatory certainty that allows long-term planning. The examples that follow illustrate how these principles can work together in practice.

[2] “Ecological Engineering is the mitigation of, or intervention to, anthropogenic effects on the environment thereby integrating human activities with the natural environment.” Tom Riley. Introduction to Ecological Engineering. 2025

[3] "..the design of sustainable ecosystems that integrate human society with its natural environment for the benefit of both." William Mitch. 2004.

Historical Context of Western Water Systems

Understanding ESA implementation in the West requires recognizing the historical development of western water systems.

Throughout the twentieth century, federal and state water projects—including dams, reservoirs, and irrigation systems—were constructed to support agricultural development and food security, flood control, hydropower generation, and municipal growth. These projects transformed river systems that had historically been dynamic and highly variable.

Large rivers such as the Missouri, Colorado, Columbia, and Platte became highly managed systems supporting communities and regional economies across multiple states.

The ESA was enacted after many of these systems were already developed. As a result, modern species recovery efforts must operate within landscapes where water infrastructure, interstate compacts, and long-established water rights are integral to the functioning of western communities.

Today, ESA implementation in western river basins often involves restoring ecological processes within these managed systems while maintaining the water resources that support people and local economies.

Example 1: Eastern Nebraska Saline Wetlands Restoration

One example where ESA implementation has aligned well with practical land-use realities involves the Eastern Nebraska saline wetlands (see Figure 2) and the habitat of the Salt Creek Tiger Beetle (*Cicindela nevadica lincolniana*).[4,5]

These wetlands occur in soils heavily affected by saline conditions. From both an agricultural and engineering perspective, these soils present significant limitations. They are extremely difficult to farm productively and many historical attempts at cultivation were abandoned. The soils' structural properties make urban development expensive and technically challenging.

[4] U.S. Fish and Wildlife Service. Salt Creek Tiger Beetle Recovery Plan.
[5] https://www.lincoln.ne.gov/City/Departments/Parks-and-Recreation/Parks-Facilities/Saline-Wetlands

In this case, restoration of saline wetlands has proven to be the most sustainable long-term land use. Habitat restoration has supported recovery of the Salt Creek Tiger Beetle and associated salt loving plants, while also providing flood storage, ecological function, and valuable open space for the growing Lincoln metropolitan area.

This example illustrates two important lessons for ESA implementation. First, conservation strategies are most effective when they are grounded in local science, hydrology, and land capability. Second, successful conservation in western states must often occur within working landscapes where ecological restoration, agriculture, and growing communities exist side by side.

Example 2: Basin-Scale Recovery in the Platte River

The Platte River Recovery Implementation Program (PRRIP) provides an important example of collaborative ESA implementation (see Figure 3).[6]

The program is a cooperative effort among the states of Nebraska, Colorado, and Wyoming, federal agencies including the U.S. Fish and Wildlife Service, water users, and conservation organizations. It addresses habitat needs for several federally listed species including the whooping crane (*Grus americana*), piping plover (*Charadrius melodus*), interior least tern (*Sternula antillarum athalassos*)[7], and pallid sturgeon (*Scaphirhynchus albus*).

Rather than addressing ESA obligations through project-by-project conflict, the program takes a basin-scale approach combining habitat restoration, land acquisition, water management, and scientific monitoring.

Importantly, the program was structured with defined increments, with the first increment extending through 2032. This structure provided a clear planning horizon that allowed states and water users to commit land, water, and financial resources with confidence.

The collaborative model used in the Platte River Basin reflects a broader recognition across the West that species recovery in large river systems requires basin-scale solutions rather than project-by-project regulation.

The Platte River program demonstrates how collaborative basin-scale management can reduce conflict and produce durable conservation outcomes. It also reflects the

[6] Platte River Recovery Implementation Program Cooperative Agreement (2007).
[7] The interior least tern was officially removed from the federal List of Endangered and Threatened Wildlife (delisted) on February 12, 2021, due to recovery.

importance of coordination between federal agencies and state water management systems that already govern water allocation across the basin. Finally, the program's defined increments and evaluation milestones provide the regulatory certainty necessary for states and water users to make long-term commitments of water, land, and financial resources.

River System Management and the Pallid Sturgeon

Another species that illustrates the complexity of ESA implementation in large river systems is the pallid sturgeon, which inhabits the Missouri River and its major tributaries, including the Platte River. This Missouri River Recovery Program (MRRP)[8] has two primary functions. First, it identifies and implements actions to avoid a finding of jeopardy for three federally listed species: the piping plover, the interior least tern, and the pallid sturgeon. Second, it implements the Bank Stabilization and Navigation Project Fish and Wildlife Mitigation Project (BSNP Mitigation Project). I focus here primarily on the pallid sturgeon.

The pallid sturgeon evolved in a dynamic river system characterized by long reaches of free-flowing water, variable flows, sediment transport, and channel complexity. Over time, large federal water infrastructure projects on the Missouri River and its tributaries have altered many of these natural processes.

Recovery of the pallid sturgeon therefore involves a wide range of management strategies, including:

- habitat restoration
- channel modification
- flow management
- propagation and stocking programs
- long-term scientific monitoring

These efforts illustrate the complexity of restoring ecological function in large river systems that also support navigation, flood control, irrigation, hydropower, and municipal water supply.

Collaborative basin-scale efforts such as the Platte River Recovery Implementation Program contribute to habitat improvements that benefit species connected to the broader Missouri River ecosystem.

[8] https://www.nwo.usace.army.mil/MRRP/

These challenges highlight why ESA implementation in large western river systems must work within existing water management structures and infrastructure while pursuing long-term ecological recovery.

Transparency, Accountability, and Regulatory Certainty

One of the most important lessons from collaborative recovery programs is that transparency and accountability are essential to long-term success.

States and stakeholders committed substantial resources to PRRIP because the program was structured with defined evaluation milestones and a clear timeline. Scientific monitoring and adaptive management are intended to inform decisions about future program actions.

Maintaining confidence in collaborative frameworks requires honoring the structure of the agreements under which participants made those commitments. When expectations appear to shift before agreed evaluation points, stakeholders may question whether the collaborative model can provide the regulatory certainty necessary for long-term planning.

Transparency in scientific analysis, clear evaluation criteria, and respect for negotiated program structures are essential to sustaining the cooperative relationships that make basin-scale recovery programs successful.

Regulatory certainty is particularly important in western water systems where infrastructure investments and water management decisions often involve planning horizons measured in decades.

Conclusion

The ESA remains one of the most important conservation laws in the United States. Nebraska’s experience demonstrates that its goals can be achieved most effectively when implementation is collaborative, science-based, transparent, and predictable.

Programs such as the Platte River Recovery Implementation Program and the restoration of the Eastern Nebraska saline wetlands demonstrate that species recovery and economic activity can coexist when stakeholders work together within a clear and accountable framework.

These lessons are relevant not only in Nebraska but across the western United States, where effective management of water resources, ecosystems, and working landscapes must occur together.

The examples discussed above highlight several principles that can improve ESA implementation in Nebraska and across the western United States:

- **Collaborative basin-scale programs** can reduce conflict and produce durable conservation outcomes.
- **Local science and land capability—**hydrology, soils, and ecological processes—should guide conservation strategies.
- **Working landscapes matter.** Species recovery in the West must occur alongside working landscapes that support agriculture, communities, and regional economies.
- **ESA implementation should coordinate with existing state water management systems and interstate river governance** that already allocates water across western river basins (see Figure 4).
- **Regulatory certainty and clearly defined program milestones** are essential for long-term stakeholder participation.

These principles also suggest several practical ways Congress could strengthen ESA implementation while maintaining the collaborative approaches that have proven successful in western river systems.

In speaking with Nebraska stakeholders, water managers, agricultural producers, and restoration practitioners, several consistent themes emerge regarding how the ESA could be implemented more effectively.

Based on those discussions, I would offer three actions Congress could consider that improve transparency, increase regulatory certainty, and encourage proactive conservation.

1. **Codify the Critical Habitat Exclusion Analysis and the Section 4(d) "Blanket Rule" Withdrawal:** Congress could provide additional regulatory clarity by codifying key elements of the critical habitat exclusion analysis under Section 4(b)(2)[9] and the withdrawal of the blanket Section 4(d) rule for threatened species.

   These policy tools allow the Services[10] to consider economic impacts, national security concerns, and other relevant factors when designating critical habitat. Clarifying their use in statute could improve transparency and provide greater predictability for landowners, states, and infrastructure developers while still maintaining strong protections for listed species.

   Providing this certainty would help reduce unnecessary regulatory conflicts while allowing federal agencies to focus conservation resources where they are most effective.

[9] 16 U.S.C. §1533(b)(2)
[10] The Endangered Species Act (ESA) is administered by the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS), collectively known as "the Services".

2. **Increase Incentives for Conservation on Private Lands:** Congress could expand incentives for voluntary conservation on private lands, including technical assistance, tax incentives, and potentially direct compensation for conservation actions that benefit listed species.

   Private lands play a critical role in species conservation across the United States. More than 60 percent of land nationwide is privately owned, and in Nebraska approximately 97 percent of land is in private ownership.[11] These lands support a substantial portion of the habitat used by species listed under the ESA, with some species occurring almost entirely on private lands. Because so much species habitat occurs on working agricultural and ranching landscapes, conservation programs that partner with private landowners are often essential for long-term recovery.

   Programs that encourage voluntary habitat conservation on private property can often achieve better ecological outcomes while reducing regulatory conflict. Expanding incentives for landowners to participate in conservation programs could significantly improve the effectiveness of ESA implementation.

3. **Invest in Proactive Conservation Under ESA Section 7(a)(1):** Congress could direct additional funding toward proactive conservation efforts under Section 7(a)(1)[12] of the ESA.

   Section 7(a)(1) directs federal agencies to use their authorities to further the conservation of listed species. Expanding funding for proactive conservation programs can help address habitat degradation and species decline before a species becomes threatened or endangered.

   From an engineering perspective, designing ecological function into projects at the planning stage is almost always more efficient and cost-effective than attempting to retrofit infrastructure after regulatory conflicts arise.

   Proactive conservation allows species' needs to be incorporated into project planning from the beginning, reducing delays, lowering costs, and improving ecological outcomes.

   Investing in proactive conservation strategies could reduce the need for future listings and help avoid the regulatory conflicts that often occur once a species becomes formally protected.

[11] U.S. Department of Agriculture (USDA) Economic Research Service (ERS)
[12] 16 U.S.C. §1536(a)(1)

These types of proactive and collaborative approaches reflect the longstanding western conservation ethic of balancing environmental stewardship with the responsible management of water, land, and natural resources.

When implemented in this way, the ESA can continue to protect species while supporting the working landscapes and water systems that sustain communities across the western United States.

Thank you for the opportunity to submit this testimony.

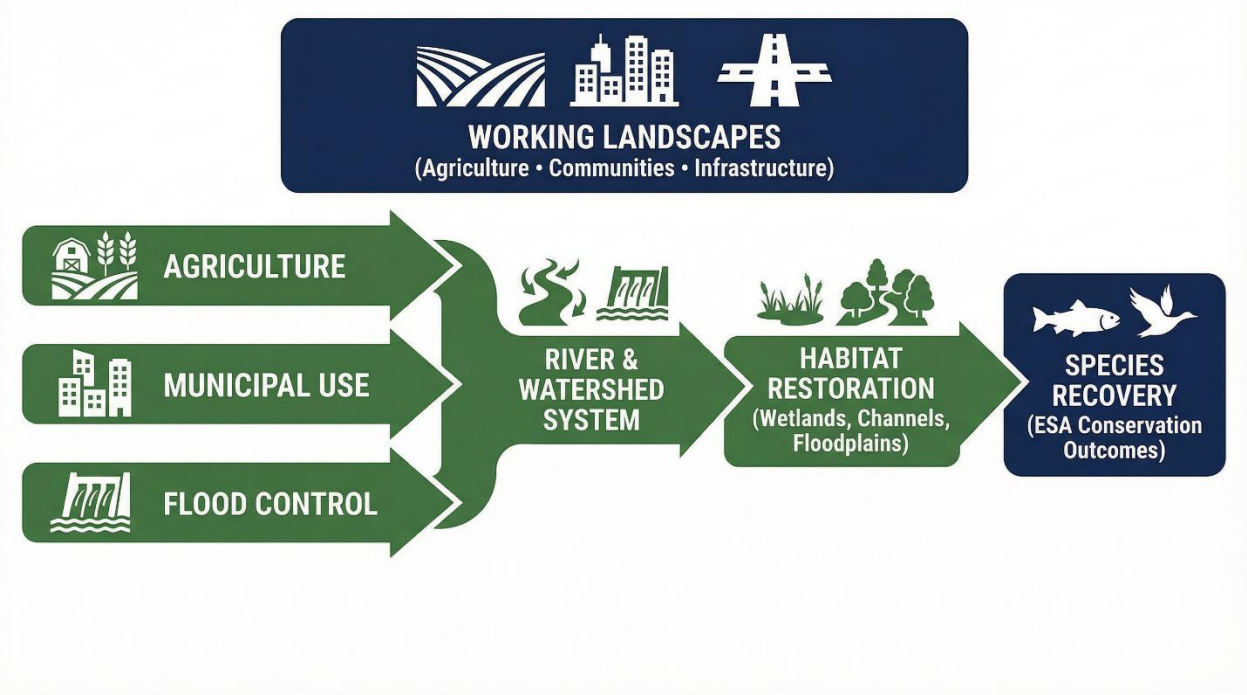


Figure 1--Conceptual ecological engineering framework illustrating how water management within working landscapes can integrate human water use, habitat restoration, and species recovery under the Endangered Species Act.

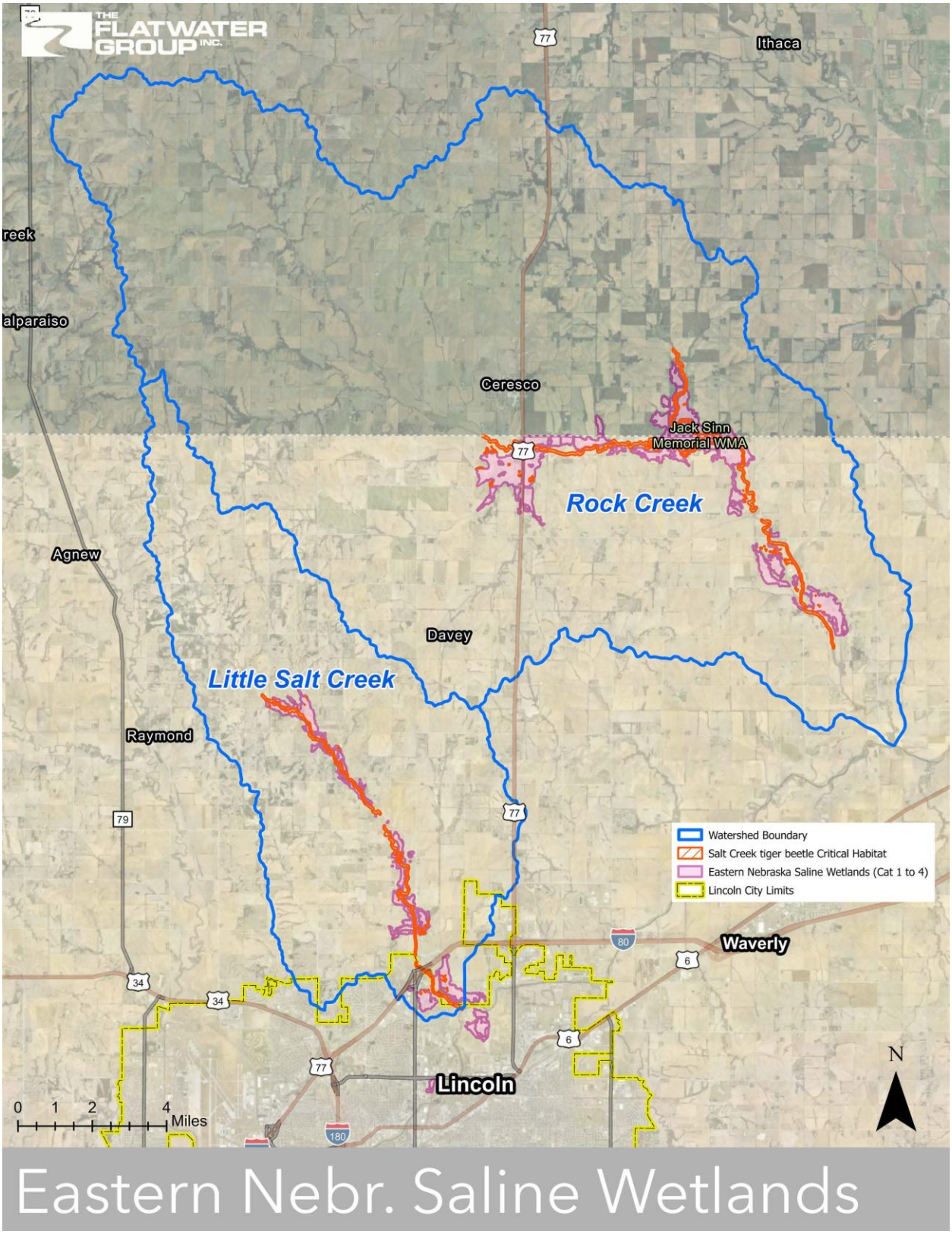


Figure 2--Eastern Nebraska Saline Wetlands in the Salt Creek Watershed near Lincoln, Nebraska. (Courtesy of The Flatwater Group, Inc.)

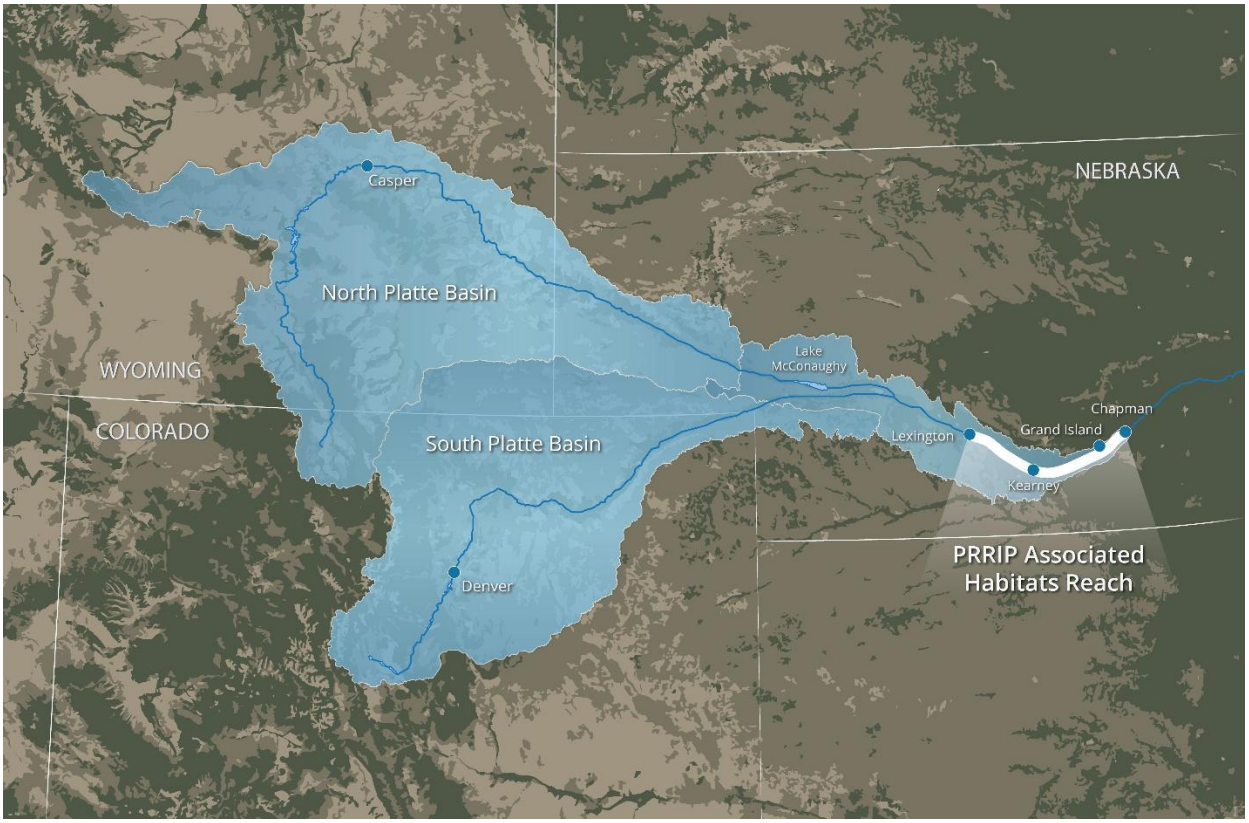


Figure 3--Platte River Basin and Platte River Recovery Implementation Program Habitat Areas. (Courtesy of PRRIP)

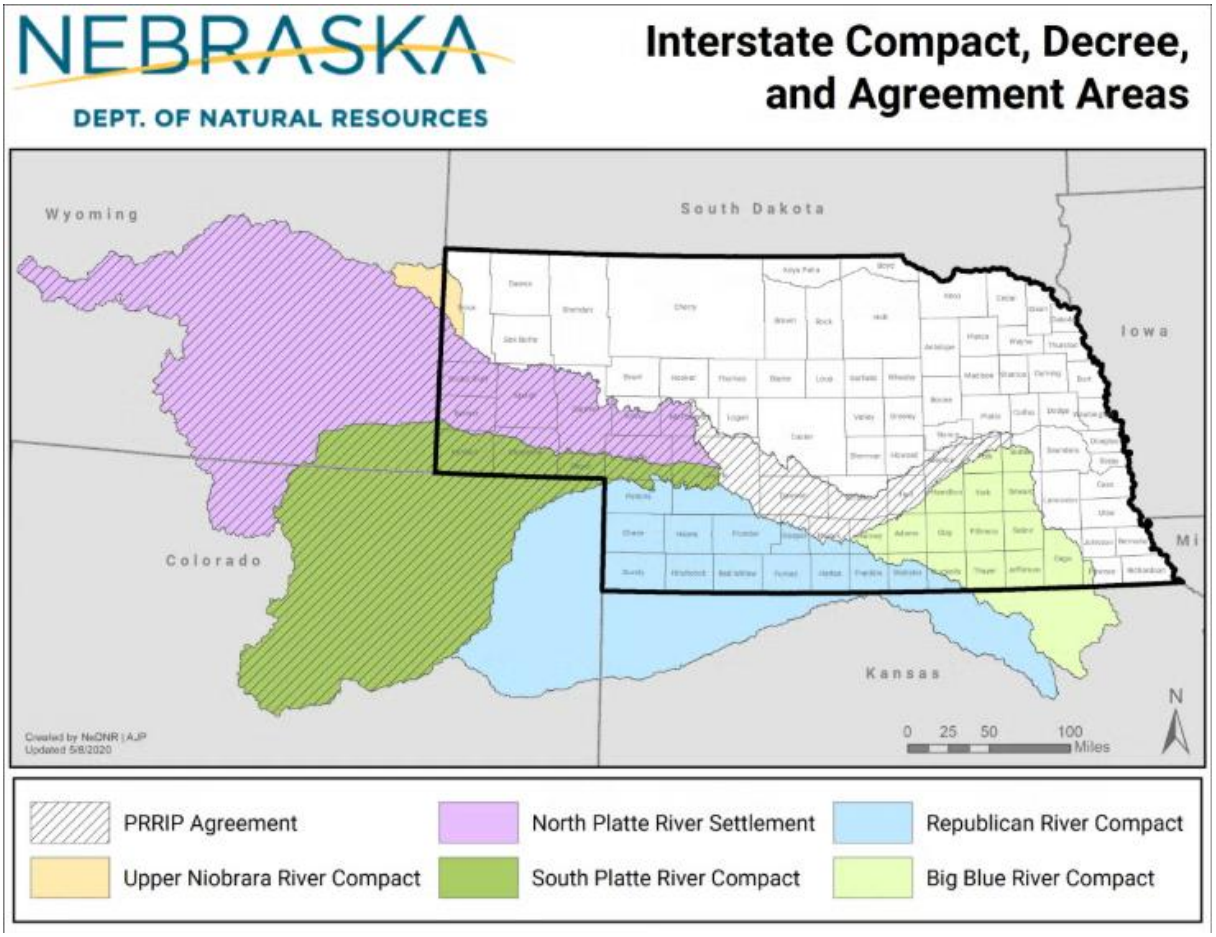


Figure 4--Nebraska Interstate River Compacts and Decrees. (Courtesy of Nebraska Department of Water, Energy, and Environment)