

Fall Review

2022

Restoring the
St. Louis River Estuary

Planting Resilient
Coastal Wetland Forests



MINNESOTA
LAND TRUST

Minnesota Land Trust—Climate Change Engaged

Minnesota is one of the fastest warming states in the U.S., with northern Minnesota warming at more than twice the rate of southern Minnesota.

Here is how the Minnesota Land Trust is making a difference:



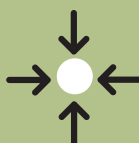
Strategically designing restoration projects to add resiliency to habitats and help facilitate ecological adaptation to climate change.



Preserving carbon storage capacity of over 73,000 protected acres and adding 4,400 acres of capacity through restored lands to help reduce greenhouse gas emissions.



Aggressively pursuing conservation, stewardship and restoration opportunities that protect native species biodiversity, connect fragmented lands, and promote resilient landscapes—critical in the face of climate change.



Integrating climate change into an organization-wide diversity, equity & inclusion framework, since under-resourced communities are disproportionately impacted by it and their inclusion is critical for effectively addressing the issue.

Your help is needed. Will you give today?

The Minnesota Land Trust's leading work on conservation and climate change-adaptive habitat restoration in Minnesota wouldn't be possible without the help of conscientious and generous supporters. Will *you* give a gift today?

To make a donation, **call 651-647-9590, visit mnland.org/donate**, scan the QR code at right with your mobile device, or send us your gift with the enclosed envelope.



In This Publication

Thank you to everyone who provided photos for use in this publication.

Cover: St. Louis River Estuary—*Paul Raymaker*

Leaving a Legacy: Healthy vegetation in the St. Louis River Estuary—*Barbara LaMotte*; Kate Hartley—*Kate Hartley*

Bringing the St. Louis River Estuary Back to Life: Excavation equipment at Radio Tower Bay; Excavating the Chambers Grove hardened shoreline; Manoomin bed at a restoration site; Kayakers paddle in the St. Louis River; Two common terns on Interstate Island; Wood waste on the shoreline at Grassy Point; Perch Lake and the St. Louis River bisected by Highway 23—*Hansi Johnson*

The Upper St. Louis River Estuary: St. Louis River Estuary—*Paul Raymaker*; Members of Community Action Duluth Stream Corps (L to R): Jacob Meyer, John Masters, Jarrod Smith, Eben Phillips—*Gini Breidenbach*; Female rusty blackbird—*Paul Reeves Photography*

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Leaving a Legacy

A PLANNED GIFT MAKES A DIFFERENCE



“I try to focus on where I can have an impact locally—whether that’s volunteering or donating. If we all do that, collectively, we can make a difference.”

—KATE HARTLEY

Kate Hartley grew up in Duluth, MN, surrounded by the woods and water. That’s why, for her, conservation and restoration in the North Shore and St. Louis River Estuary are especially meaningful.

In fact, her first introduction to the Minnesota Land Trust was on an estuary boat tour a few years ago where she met Kris Larson, Minnesota Land Trust CEO, and Daryl Peterson, Director of Restoration Programs. Inspired by their devotion and passion for habitat restoration, including land and shoreline protection in the North Shore and throughout Minnesota, Kate has been a supporter ever since.

According to Kate, “The Minnesota Land Trust takes a holistic approach to environmental protection—They really get it—because while it’s important to preserve

untouched habitats we also must *restore* polluted lands and shoreline to begin to make progress on bigger issues like climate change.”

Kate has made environmental conservation and habitat restoration a central feature of her life’s work and legacy, and that includes the plans she’s made for her estate. In addition to the Minnesota Land Trust, Kate supports land trusts in Wisconsin where she spends her summers, and South Carolina, where she resides during the winter months, and has volunteered over four thousand hours at nearby Congaree National Park in Hopkins, S.C.

“I do what I can and try to remember that no one person can solve all of this. I try to focus on where I can have an impact locally—whether that’s volunteering or donating. If we all do that, collectively, we can make a difference.” 🌲

It’s never too early to think about the kind of legacy you want to leave.

The Minnesota Land Trust can work with you to determine if including us in your will or trust, as a beneficiary on a qualified retirement plan or life insurance policy, setting aside a gift of land or real estate, or utilizing other planned gift vehicles might be right for you.

To discuss your options and take the next steps towards securing your Minnesota conservation legacy, please contact **Jennifer Scholl, Minnesota Land Trust Director of Development and Communications**, at **651-917-6289** or email jscholl@mnland.org.

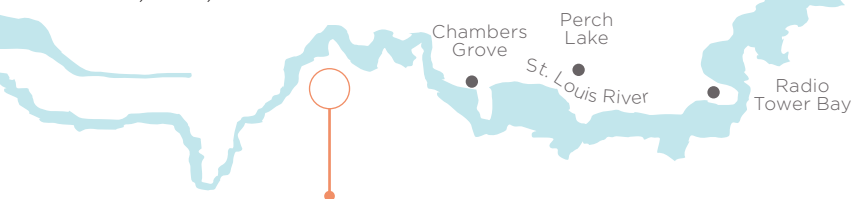
Bringing the St. Louis River Estuary Back to Life

The St. Louis River was a dumping site for unregulated industrial pollution from the mid-1900s through most of the 20th century, leaving many regions in the Estuary unable to support aquatic and wetland ecosystems. In addition to habitat loss for fish and migrating birds, people were cautioned to stay out of the water and refrain from eating the fish.

Originally listed as an Area of Concern (AOC) in 1987, today the goal is to delist the St. Louis River Estuary in the coming years and ensure that fish and migrating birds, wild rice and other native plants once again thrive in the region.

It is also a goal of the Minnesota Land Trust to continue to expand recreational access to this unique 12,000-acre wetland complex so that anglers, kayakers, canoers and the people that live and work near the river can enjoy its natural scenic beauty and the wildlife it now sustains.

The Land Trust has been leading habitat restoration projects in the St. Louis River Estuary since 2010 along with over a dozen local, state, federal and tribal entities.



RESTORATION PROJECTS TIMELINE

Radio Tower Bay 2011–2016

» **The Work:** Removal of 115,000 cubic yards of wood waste, including over 200 forty-foot wood pilings from the historic railroad trestle that crossed the river and over four feet of sawmill debris from the bottom of the river.

» **Result:** Restored off-channel fish and coastal wetland habitat, recreation, and wild rice beds.



Chambers Grove 2014–2016

» **The Work:** Replacement of the 1,000-foot steel retaining wall and wood boardwalk with natural shoreline and three in-water weir structures, installation of ADA-compliant fishing platforms and a kayak launch.

» **Result:** Weir structures redirected the water flow from the riverbank to the channel center and created new spawning habitat for walleye and sturgeon, and increased river-based outdoor recreation opportunities in the park, including shore fishing, canoeing and kayaking. Additional amenities were added by the City of Duluth to enhance the park, including fully accessible fishing platforms, kayak and boat launch, restrooms, a playground, pavilion, picnic areas, event gazebo, drumming circle and arbor, improved parking, way-finding and interpretive signs.



Manoomin Restoration 2015–2025

» **The Work:** Restoration of over 200 acres of manoomin (wild rice) at multiple sites throughout the estuary, including site preparation to reduce competition from nearby vegetation, seeding and further management to protect the vulnerable beds from grazing by geese and waves from motorized watercraft.

» **Result:** The reintroduction and increasing occurrence of manoomin in shallow wetlands. Manoomin seeding and management continues to 2025.





St. Louis River Estuary National Water Trail Designation 2017–2020

» **The Work:** Alongside stakeholders and partners, the Minnesota Land Trust developed and coordinated the application to designate the St. Louis River Estuary as a National Water Trail, something that wouldn't have been possible without the ongoing restoration work being done in the region.

» **Result:** The 11-loop multi-use waterway was officially designated as a National Water Trail, providing more visibility and resources to the region, including additional funding and support for recreation and restoration in the St. Louis River Estuary.

Interstate Island Wildlife Management Area 2019–2023

» **The Work:** Raised the height of the Common Tern nesting area and added permanent fencing; increased the size of the island and shoreline habitat using sediment dredged from the Duluth-Superior Harbor navigation channel to alleviate crowding and predation by gulls; added low-growing native vegetation to help slow wind erosion and support migrating shorebirds.

» **Result:** Protected the Common Tern nesting area from flooding, adding 4.2 acres of viable habitat during extreme high-water levels and 6.2 acres of habitat during ordinary high-water periods; added 900 feet of shoreline which helps support migrating shorebirds that rely on the island.



Grassy Point 2021–2022

» **The Work:** The Minnesota DNR removed 170,000 cubic yards (75 acres) of wood waste; removed or buried old sawmill pilings; removed 15 acres of non-native vegetation. The Minnesota Land Trust planted forest species on an



11-acre island, constructed 20 acres of hemi-marsh habitat and improved the structure of the extant forest to improve bird habitats.

» **Result:** Created a shallow, sheltered bay and deep overwintering fish

habitat, softened and naturalized the hardened shoreline and improved habitat for forest and marsh bird species; connected isolated wetlands and improved water flow, increased access for kayaks, canoes, and small boats (City of Duluth initiative).

Perch Lake 2022–2023

» **The Work:** Dredging approximately 77,000 cubic yards of sediment from the riverbed and adding a second larger culvert to increase water flow, fish passage and boat access between this backwater lake and St. Louis River.

» **Result:** Upon completion, restoring deep water habitat to support fish year-round, and coastal marsh habitat to support fish spawning and provide marsh bird habitat.



Project partners: City of Duluth, MN; Fond du Lac Band of Lake Superior Chippewa; The 1854 Treaty Authority; Great Lakes Indian Fish & Wildlife Commission (GLIFWC); Minnesota Pollution Control Agency; University of Minnesota Duluth Natural Resources Research Institute (NRRI); University of Wisconsin-Superior Lake Superior Research Institute; Douglas County, WI; St. Louis River Alliance; The Great Lakes Lifeways Institute; Minnesota Department of Natural Resources (DNR); Wisconsin Department of Natural Resources (DNR); Ducks Unlimited; National Oceanic and Atmospheric Administration (NOAA); U.S. Army Corps of Engineers; U.S. Environmental Protection Agency (EPA); U.S. Fish & Wildlife Service (FWS); NOAA's Lake Superior National Estuarine Research Reserve; National Fish and Wildlife Foundation; private design and construction firms.

Project funding has been provided by: Great Lakes Restoration Initiative; Minnesota's Outdoor Heritage Fund as appropriated by the Minnesota State Legislature and recommended by the Lessard-Sams Outdoor Heritage Council (LSOHC); Minnesota Clean Water Fund; Great Lakes Fish & Wildlife Restoration Act; Minnesota Clean Water Fund, and Minnesota Land Trust supporters

» Learn more about Minnesota Land Trust's restoration work in this region at mnland.org/slr

The Upper St. Louis River Estuary

PROTECTING MINNESOTA'S COASTAL WETLAND FORESTS AGAINST EMERALD ASH BORER & CLIMATE CHANGE

The spread of emerald ash borer (EAB) may have been slowed by the cold winters in northern Minnesota and the proactive work of state agencies, partners and communities, but winters continue to warm and it's only a matter of time before the remaining ash trees in the state are gone...

PROPERTY

Location



32 acres planted
175 acres improved
25,700 trees & shrubs



SLRE Important Bird Area



- Rusty Blackbird
- Yellow Warbler
- Magnolia Warbler



- City of Duluth
- Community Action Duluth Stream Corps

Besides their use in the urban and suburban landscape for reducing heat stress, cooling buildings, improving water and air quality, and reducing flooding risks, ash trees dominate many of Minnesota's northern forests and hold cultural significance for Native American communities including the Fond du Lac Band of Lake Superior Chippewa.

Traditionally, Native American communities have had long-standing relationships with trees like the black ash (baapaagimaak) and accumulated Traditional Ecological Knowledge (TEK) from hundreds—sometimes thousands—of years of direct contact with the trees and the local habitats in which they live. In northern Minnesota, ash trees are important for maintaining water table levels and mitigating surface water runoff to support manoomin (wild rice) in the St. Louis River Estuary.

The Impact of Losing Ash Trees

Losing 1 billion ash trees, the majority of which are concentrated in northern Minnesota forests,

could result in converting one million acres of forest to non-forest ecosystems. The detrimental impacts of this shift include less carbon sequestration capacity and changes to the landscape that would negatively impact the existing resident wildlife as well as migrating birds, like the rusty blackbird, who rely on the forested wetland habitat in the St. Louis River Estuary as a stopover point.

While the eventual loss of most of the ash trees in Minnesota is all but certain, there is hope—and a strategy—to preserve forest habitats through planting diverse, climate change-resilient native tree species *now*.

Emerald ash borer was first detected in the Duluth area in 2015. The insect—an invasive pest originating in Southeast Asia—is expected to eventually destroy most of the state's 1 billion ash trees, impacting over 1 million acres of ash-dominated forest.

Preserving Coastal Wetland Forests

Led by the Minnesota Land Trust, in partnership with the City of Duluth and the Community Action Duluth Stream Corps (DSC), planting of 25,700 trees and shrubs is now underway as part of the Coastal Wetland Forest Restoration for Birds Initiative.

The Duluth Stream Corps began the first round of planting in May 2022 at Chambers Grove, Rask Bay, and North Bay, all situated within the St. Louis River Estuary Important Bird Area. The goal of the project is to mitigate the threat of EAB within this high-quality coastal habitat by planting trees that will survive even after black ash trees die off in the coming years, preserving the coastal forests for migrating birds and resident wildlife, and to help maintain the conditions necessary for manoomin to thrive.

The project will also improve species biodiversity, increasing the resiliency of Minnesota's coastal forests in the face of climate change. The new trees being planted include a diverse mix of native tree species that grow in the area but are better suited to the warmer and drier conditions that are increasingly common in northern Minnesota. These trees, including red maple, silver maple, and bur oak, can be found in the warmer regions of southern, eastern, and western Minnesota.

Northern hackberry trees will also be included as a possible replacement species for Indigenous cultural uses as suggested by Natural Resources staff at Fond du Lac Band of Lake



Superior Chippewa.

Tree planting will span two seasons and once completed, the City of Duluth will assume long term monitoring and maintenance through their Duluth Natural Areas program. Across the border in Wisconsin, the Lake Superior Reserve is conducting a partner project on river islands in the immediate vicinity with the same intent, increasing the positive impact to forested wetlands and migrating birds in the region.

According to Gini Breidenbach, St. Louis River Restoration Program Manager, "Important research is ongoing about how best to support the ecology of ash forests once the ash trees die off. But because EAB is here now threatening these important coastal wetland habitats, we feel strongly that action, based on the best available information we have, is also necessary. This project takes an adaptive management approach to support these forests and the birds that use them." 🌲



Helping the Rusty Blackbird

Rusty blackbird populations have declined 85–95% over the last 50 years, and according to recent research by the University of Minnesota Duluth Natural Resources Research Institute (NRRI), the St. Louis River Estuary may have a disproportionately large impact on the wellbeing of this swamp- and water-loving bird species.

Data shows that rusty blackbirds use the region as a stopover site longer than typical migrating birds, with 23% staying 18–24 days. The region provides vital habitat when they're most vulnerable, during fall migration as they're making their way from breeding grounds in Alaska and Canada down to the Midwest and southeastern United States.



Funding for the Coastal Wetland Forest Restoration for Birds project was secured through a grant from the U.S. Department of Agriculture (USDA) Forest Service Great Lakes Restoration Initiative and is also supported by Minnesota's Outdoor Heritage Fund as appropriated by the Minnesota State Legislature and recommended by the Lessard-Sams Outdoor Heritage Council (LSOHC).

Minnesota has more than one million acres of ash-dominated forest (2019), more than any other state in the country.

A 20-year-old ash tree sequesters 23.2–41 pounds of carbon annually. Minnesota ash forests store approximately 187 million tons of CO₂, mostly in forest soil.

Warmer winters due to climate change can result in an increase in pests and insects.

Across the state, winters are warming fastest in northern Minnesota, which has seen an average increase of 7.1°F since the 1800s, compared to +5.2°F across the rest of the state.



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