

Taking Flight: How a New Airport Runway Rejuvenated Nature in the Minnesota River Valley

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University of Wisconsin, Eau Claire. December 2021.

At 7 a.m., the place crackles with life. Wood ducks perch high in the trees, the males' multi-colored heads resplendent in the morning sun. A birder hears and then spots a hairy woodpecker investigating a dead tree. At first glance, the Long Meadow Lake Unit of the Minnesota Valley National Wildlife Refuge (MVNWR) seems like a typical nature preserve. Then a plane passes overhead, muffling the woodpecker's insistent pecking. Just moments from landing, it is low in the sky and hulking.

A minute later, another one roars over, seemingly on the same exact path. The birds don't seem to mind, but the first-time visitor might wonder: What kind of refuge is this? The answer turns out to be much more complicated and interesting than one might expect.

In 1974, a group of residents banded together to oppose expansion of a landfill in a Minneapolis suburb. The environmentalists drew a curious lesson from their failure to block the landfill: Think bigger. Instead of fighting new development in community after community, they adopted a regional approach. They formed the Burnsville Environmental Council and called for protection of a large swath of land along the Minnesota River, which flows more than three hundred miles from the Minnesota-South Dakota border before emptying into the Mississippi River in the Twin Cities of St. Paul and Minneapolis.

Two years later, the suburban environmentalists realized their dream when Congress established the [MVNWR](#), one of the largest urban wildlife refuges in the country. Although they lost the battle over the landfill, they won the war to preserve a significant chunk of beautiful riparian habitat in a major metropolitan area.

The refuge attracted hundreds of thousands of annual visitors from the Twin Cities and surrounding suburbs. Birders, schoolchildren, walkers, and anglers flocked to the refuge, which stretched from inner-ring suburbs of the Twin Cities to sparsely populated rural areas. In 1992, in a sign of things to come, the country's largest shopping center, the Mall of America, opened for business just down the road from the Long Meadow Lake Unit entrance.

The refuge's metropolitan location was a double-edged sword: Two million people lived within a short drive of its natural beauty, but urban growth posed a looming threat. The sharp edge of the sword began to cut in 1996, when the state legislature voted to expand Minneapolis-St. Paul International Airport and construct a new runway only a mile and a quarter from the refuge. Hundreds of flights a day would soon rumble overhead.

Reconciling Development and Environmental Protection

Refuge managers, their bosses at the U.S. Fish and Wildlife Service, and the Twin Cities environmental community turned their attention to the question of mitigation. How could they

offset the damage from the persistent drone of 737s? They began to meet with local airport officials and the Federal Aviation Administration to develop a strategy.

Transportation law provided wildlife advocates with a legal lifeline in the form of the 1966 Department of Transportation Act. [Section 4\(f\)](#) requires the government to minimize harm from aviation activity to publicly-owned natural resources. The FAA complies by routing air traffic away from refuges and other natural areas. In urban areas where the proximity of parks to airports makes it impossible to eliminate flyovers, airports compensate municipalities operating affected parks.

The damage to the refuge was on a completely different scale than previous conflicts between aviation and parklands. There was little research on the effects of air traffic on wildlife. But the impact on environmental education would be enormous. As Dan Ashe, a high-ranking U.S. Fish and Wildlife official, [explained](#) in 1999, the hum of airplane noise would make it practically impossible “for us to accomplish our conservation education and wildlife interpretation mission on those portions of the refuge.”

Two years of protracted negotiations between aviation officials and the Fish and Wildlife Service resulted in an elegant solution: Passengers flying into and out of Minneapolis-St. Paul International Airport would pay a small surcharge to finance costs associated with airport expansion, some of which would go to establish a \$26.09 million mitigation fund. The deal called for the acquisition of an additional 4,090 acres for the refuge (the estimated size of the area directly affected by aircraft noise) and construction of a new visitor center to be located outside of the flight path. Sixty percent of the funds would go toward acquiring land in the river valley within delineated boundaries from private property owners.

A follow-up agreement established the [Minnesota Valley National Wildlife Refuge Trust](#), a non-profit organization charged with implementing the mitigation plan. The Trust built a striking new [visitor center](#) at the Rapids Lake Unit of the refuge, forty miles southwest of St. Paul in the rural community of Carver. The nucleus of the unit was a family farm that the refuge purchased in the 1990s.

Beginning in 2004, the Trust began to acquire additional acreage in the Rapids Lake area from private landowners. It also purchased thousands of acres upriver that were added to the refuge’s holdings. Today, nearly two decades after the new runway was put into service, it has become clear that the aluminum birds hurtling through the skies of the Twin Cities delivered multiple benefits to their feathered brethren and to a wide range of other fauna and flora. As Americans anticipate the injection of hundreds of billions of dollars in federal aid to rebuild outdated bridges and roads and construct digital age infrastructure, the Trust’s track record offers hope that the country can strike the right balance between development and preservation.

Recovering the Landscape

As he walks among the bur oaks overlooking Rapids Lake on a warm summer morning, Matt McClanahan slashes at sweet clover with his machete. He knows it will take years to fully restore the seventy-seven-acre Lundquist property just up the hill from the refuge’s visitor center, but he cannot resist wielding his machete to bring his vision of a healthy oak savanna one step closer to reality. In his role as habitat biologist for the Trust, McClanahan coordinates multiple

restoration projects in the valley. He is here to check on the oaks and an adjacent prairie that he is coaxing from the soil.

[Oak savannas](#) once covered much of the transition zone between woodlands and prairies in the Midwest. Anchored by large bur oaks, these areas have less tree cover than eastern forests and support a range of shrubs and grasses. Oaks prosper in open areas where there is little competition from other trees, which in pre-agricultural Minnesota meant prairies. To successfully restore oak savannas, conservationists must nurture the prairies that supported the oaks.

Restoration work on the site began in December of 2019. Contracted crews removed the red cedar that was robbing the oaks of light. McClanahan likes much of what he sees. The emergence of native species such as figwort is a promising sign, and the flourishing red elderberry will help keep the sumac in check. Prairie species typically store energy in their root systems during the first years of life, so most of the action is taking place below ground. Perhaps viewing the parcel through the eyes of a first-time visitor, he sighs, “habitat restoration is really ugly.”

On paper, the Trust’s model is straightforward. It purchases land from private landowners (generally farmers), restores the parcel to its pre-agricultural condition, and then transfers the rehabilitated property to the wildlife refuge for ongoing management. In practice, acquisition and restoration are remarkably complex undertakings.

The Trust leans heavily on refuge staff to help it identify opportunities to acquire property. In his twenty-four years with the refuge, private lands biologist Mike Malling has become a familiar face to landowners and sportsmen’s clubs in southern Minnesota. Acquiring a property is often the culmination of a long relationship he develops with landowners. It is not uncommon for Malling to spend years getting to know a landowner without ever broaching the possibility of a land sale. Working with farmers on voluntary small-scale land improvement projects is one approach that has borne fruit. These facelifts give landowners a sense of what their property might look like after a more extensive restoration, and help Malling earn a farm family’s trust.

Restoration is also a lengthy process. McClanahan and Malling pore over Farm Security Administration maps from the 1930s to get a sense of what a parcel looked like before it was grazed, mowed, or tilled. But the maps are more suggestive than definitive. The restoration project unfolding on the recently acquired Anderson parcel, a short drive from the former Lundquist farm, reveals the challenges and rewards of large-scale rehabilitation work.

After removing brome grass that was crowding out other vegetation, McClanahan was delighted to discover a profusion of [lead plant](#) covering a hillside on the Anderson parcel. The presence of lead plant, which produces clusters of purple flowers that resemble bottle brushes, indicates that this spot is likely a remnant of native prairie. When McClanahan eyes some prairie turnip nearby, he is certain: This hillside is part of the 170 million acres of [prairie](#) that stretched from Texas to Canada before settlers drained, ditched, and farmed 99 percent of it. Although cattle grazed on this parcel, the profusion of prairie species suggests that this particular area was relatively undisturbed.

McClanahan originally planned to disk much of the site to improve soil aeration. But breaking up the soil risks damaging the native prairie vegetation. So he marked the prairie remnants with orange flags to ensure that contractors leave them untouched. Malling gently urges him to expand his flagging to ensure that workers do not inadvertently damage any of the precious native prairie.

The Trust's contracts spell out minimum and maximum acreages that contractors will disk, clear of trees, or otherwise modify. McClanahan will not need to revise the underlying contract; he will simply provide contractors with new instructions about where to disk. The Trust's flexible management tools give it an enormous advantage over refuge projects that must adhere to strict federal contracting requirements. McClanahan and Malling embrace adaptive management—the practice of continually modifying restoration practices in response to new scientific information. The Trust, which as executive director Deb Loon observed, is “arguably more nimble than the federal government” is ideally suited to carry out this challenging work.

A New Financial Model

Managers of national wildlife refuges are always on the lookout for new conservation opportunities. But they compete with one another for limited pools of federal funds. The Trust gives the MVNWR something almost no other national refuge has: ready access to funds when a desirable property becomes available for sale.

The Trust was not always on such solid financial ground. Executive director Loon recalls watching its assets shrink during the Great Recession. She worried that the money might run out before the Trust could meet its goal of acquiring 4,090 acres to add to the refuge. She asked her board whether the Trust should divest most of its stock to avoid further losses. Stay the course, they decided; the market will bounce back. It did, and Loon used the proceeds to acquire new parcels. By 2012, the Trust had met its initial land acquisition goal and still had millions with which to acquire more land.

The Trust's enviable financial position was not solely a product of a booming stock market. Under Loon's leadership and her board's solid oversight, it prudently managed its resources by leveraging funding from public agencies and other conservation organizations. This support has enabled the Trust to acquire valuable floodplain forests and oak savanna and prairie habitat in the Rapids Lake area without depleting its reserves. The habitat near Rapids Lake supports more than 200 plant and animal species, including [Henslow's Sparrow](#), a secretive ground forager deemed endangered or threatened by more than a dozen states.

The Trust has also played a key role in restoring wetlands in portions of southern Minnesota. When it acquires and restores wetland habitat, these lands become part of a 14-county [wetland management district](#) managed by the refuge. Hunting is permitted on these Waterfowl Production Areas (WPAs), which lie outside the main refuge units.

These wetland projects help restore some balance to a heavily agricultural landscape. Since the nineteenth century, Midwestern farmers have installed subsurface drainage systems to boost crop yields. In soggy southern Minnesota, farmers used tile drainage to create more favorable growing conditions, drying out large swaths of wetlands. Due in part to their connection to Malling, sportsmen's groups came to view the refuge and Trust as key partners in restoring habitat that supported the species they liked to hunt. These groups generally lacked the resources to acquire

and restore large wetlands but were eager to collaborate with the Trust when farmers expressed a willingness to part with land.

The [Lincoln Waterfowl Production Area](#) in Blue Earth County illustrates several of the features that have made the Trust's model so successful. A strong partnership between hunters' groups and the Trust is an important part of the formula. The local chapter of Minnesota Pheasants, Inc., contributed \$100,000 to help restore Lincoln and other WPAs in the county. The Trust combined support from Minnesota Pheasants with contributions from other conservation organizations and the state to assemble the matching funds required to secure federal conservation grants.

Over the years, the Trust's success in partnering with other nonprofit organizations helped it garner many federal and state grants. The Trust has the good fortune of operating in Minnesota, where voters passed constitutional amendments in 1988 and 2008 establishing various [funds](#) that support environmental protection. Reliable access to state support that is not subject to the caprice of the legislature has enabled the Trust and other conservation organizations to undertake hundreds of conservation projects in Minnesota.

Through the middle of 2021, the Trust had received more than \$15.5 million in grants to finance the acquisition and restoration of dozens of parcels. To date, it has acquired more than 6,000 acres on behalf of the refuge.

The Lincoln WPA also demonstrated the catalyzing effect of a landowner's decision to sell their property. The project originally consisted of 320 acres purchased from a single family. The Trust prioritized acquisition of land in this area because the wet soils indicated the potential for creating especially productive waterfowl habitat. Loon and Malling were delighted when seven other families subsequently agreed to sell to the Trust, increasing the Lincoln WPA to more than 1,000 acres.

The Lincoln parcel, which Minnesota Pheasants refers to as the "jewel" of waterfowl production areas in the county, has met the Trust's high expectations. Removal of trees and drainage tile and prescribed burns have revitalized worn-out fields. As the Trust observed in its application for state funds, "this area boasted tremendous waterfowl production due to a high density of wetlands and prairie habitat prior to the advent of farming and aggressive tiling and drainage practices." Mallard, blue-winged teal, lesser scaup, northern pintail, redhead, wood duck, canvasback and many other species of waterfowl have flocked to the restored wetlands. Because agricultural drainage systems can cause large volumes of sediment and nutrients to wash into nearby rivers and creeks, restoring wetlands has delivered broader ecological benefits. Former refuge manager Charlie Blair observed in 2009 that "In addition to providing habitat for wildlife, these lands will help improve the water quality in the Watonwan and Minnesota Rivers."

Losses and Gains

Airport expansion appeared to have relatively little effect on biodiversity at the refuge's Long Meadow Lake Unit. Refuge biologist Vicki Sherri told me that there do not appear to be "missing species," and that the area remains one of the best places to spot warblers in the Twin Cities. But she acknowledged that birding by ear can be difficult when frequent overflights drown out avian chatter. The erosion of environmental education at the unit, a short drive from St. Paul, Minneapolis, and a slew of dense suburbs, is significant. The near-constant buzz of

aircraft limits the ability of staff to provide hands-on learning opportunities to students and other visitors. Despite its profusion of wildlife, Long Meadow Lake is not a refuge from the modern world.

Conditions are more peaceful at the Rapids Lake Unit and on waterfowl production areas in the Minnesota River valley. Mike Malling, Matt McClanahan, Deb Loon, other refuge staff, hunting groups, and local landowners are slowly restoring the wetlands, prairies, and oak savannas that once flourished in the area where eastern woodlands gave way to prairie and grassland.

Agriculture is still king; on many roads near Rapids Lake, fields of corn and soybeans stretch as far as the eye can see. Some farmers are discovering that their children have little interest in working the land. Selling their property to an organization that cares about the land as much as they did strikes them as a good deal.

In some places, returning the land to its pre-agricultural state is fairly straightforward. Removing drainage systems in very moist locations can quickly revive wetlands and bring back species that once called the area home. In Mike Malling's words, "Just add water and you've got yellowlegs."

In other instances, restoring the landscape that once covered large portions of the river valley is an arduous process. On the Anderson site, contractors had to remove roughly ten thousand invasive trees to give the prairie a chance to re-establish itself. Some former prairies need more than sunlight and a respite from tilling and grazing; McClanahan will replant these sites with the species he collects from more mature prairies. He acknowledges that restrictions on conducting prescribed burns in the autumn (to avoid damaging crops) limit his ability to mimic the fires that sustained oak savannas.

These are the kinds of compromises that conservation organizations across the world must make on a daily basis. But the aftermath of runway construction at MSP Airport offers hope that farsighted leaders can turn much-needed infrastructure projects into healthier landscapes. Responding to the climate crisis will require building new electrical transmission lines and vehicle charging stations and ramping up solar and wind production: A greener future means lots of construction. Development does not have to mean destruction. The success of the Minnesota Valley Trust is proof that intelligently designed and managed mitigation projects can actually lead to more balanced ecosystems.

On a clear morning at Rapids Lake, there is not a plane in sight. McClanahan is not thinking about the mitigation agreement, a deal struck when he was still a youngster. He is focused on a more distant past, a time when oak savannas and prairies blanketed these rolling hills and ravines. For him, the past and the future are inextricably linked. Returning the land to some semblance of its old self will, he is confident, make for a brighter future. "We are providing permanent protection for habitat that people will enjoy for many years to come."

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