



U.S. Fish & Wildlife Service

# Partners for Fish and Wildlife 2023 Annual Report



# PARTNERS FOR FISH AND WILDLIFE 2023 ANNUAL REPORT

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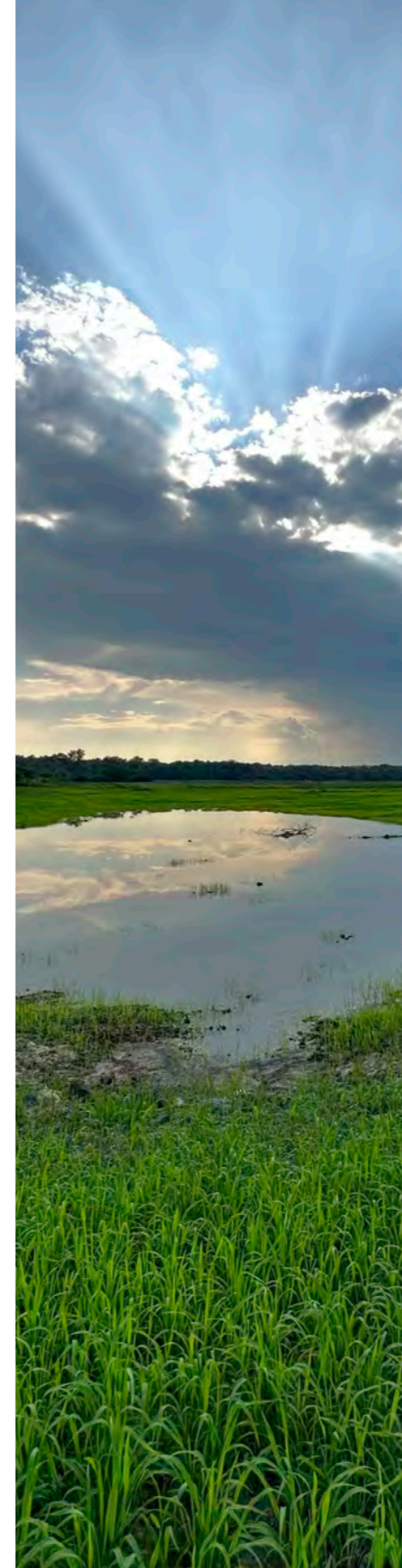
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Left page: Partners for Fish and Wildlife staff in California supported California Department of Fish and Wildlife to reintroduce beavers in cooperation with local tribes, for the first time in more than 75 years! Photo © California Department of Fish and Wildlife. Left inset: Restored wetland in Ohio. ©USFWS.

## MISSION

The Partners for Fish and Wildlife Program is achieving the mission of the Service, working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.





Migratory waterfowl utilizing newly restored Lemon Fair River wetland restoration project in Vermont. ©USFWS.

## MESSAGE FROM THE CHIEF

### Celebrating Conservation Together

In 2023, the U.S. Fish and Wildlife Service (Service) celebrated conservation success through two significant anniversaries, the 120th year of the of the National Wildlife Refuge System and 50 years since the signing of the Endangered Species Act (ESA). Together the Refuge System and ESA have ensured conservation throughout the United States, protecting wildlife and preserving habitats for both wildlife and people.

Beyond the boundaries of the National Wildlife Refuge System, the Partners for Fish and Wildlife Program works with partners and private landowners to amplify the impactful conservation of the Refuge System and ESA.

Since the beginning of the Partners for Fish and Wildlife (PFW) Program in 1987, we have partnered with more than 30,000 landowners, working together to care for more than six million acres of habitat for wildlife and people across America.

In 2023, our 220 biologists completed 1,896 wildlife habitat projects across all states and U.S. territories, restoring and enhancing 167,230 acres of uplands, 15,566 acres of wetlands and 215 miles of rivers and streams for fish, wildlife and plant species.

Over the past year, we came together with conservation partners to celebrate voluntary conservation contributions that resulted in the delisting and downlisting of species from the ESA and prevention of species from needing ESA protections. Voluntary conservation efforts have significantly contributed to recovery of several species, including the Oregon chub, Louisiana black bear, Fender’s blue butterfly, Bradshaw’s desert parsley, Delmarva fox squirrel and fluvial Arctic grayling.

We reflected upon our roots working beyond the boundaries of national wildlife refuges. With our partners we have conserved and connected habitats while promoting equity, inclusion and diversity, urban conservation and youth engagement amidst our cooperative efforts. Each day seems to bring a new set of challenges and opportunities, and we continue to innovate and adapt at a rate far greater than we could have imagined.

I look forward to working together with all of you in 2024 and beyond to continue to re-imagine conservation solutions for people and wildlife.

Cynthia Martinez, Chief  
National Wildlife Refuge System



USFWS National Wildlife Refuge System Chief Cynthia Martinez. ©USFWS.

1,896  
PROJECTS

\$10.04M  
PFW PROJECT  
INVESTMENT

\$55.01M  
PARTNER  
CONTRIBUTION

\$65.05M  
TOTAL  
PROJECT  
INVESTMENT

\$1:5.4  
LEVERAGE

215  
STREAM  
AND RIVER  
MILES

167,230  
UPLAND  
ACRES

15,566  
WETLAND  
ACRES

67  
FISH  
PASSAGE  
STRUCTURES



## WORKING TOGETHER

Working with 1,592 landowners and 483 partnering organizations, we completed 1,896 collaborative restoration and enhancement projects in 2023.

Above: Map showcasing PFW projects completed in 2023 across the country. Background photo: heavy equipment restoring a wetland in MN. ©USFWS.



PFW biologist Mitch Osborne with Alaska Regional Director Sara Boario at Cripple Creek watershed restoration project. ©USFWS.

The PFW program provides technical and financial assistance to landowners interested in restoring and enhancing wildlife habitat on their land. Projects are custom designed to meet landowners' needs.

on working landscapes such as forests, farms and ranches. Our goal is to keep lands working: increasing sustainability and yield while improving habitat for wildlife. We focus our efforts on areas of conservation concern, such as upland prairies, wetlands, rivers and streams. Projects range in size and scope to benefit federal trust species including migratory birds, endangered, threatened and at-risk species.

Since the PFW program's start in 1987, more than 25,000 landowners have worked with PFW biologists to complete 40,000 habitat restoration projects across 6 million acres.

PFW projects are voluntary. Participating landowners continue to own and manage their land to serve their needs while they improve conditions for fish, wildlife and plants.

The health of the country's fish and wildlife populations depends on private landowners, who manage more than two-thirds of the country's land. Many PFW projects take place

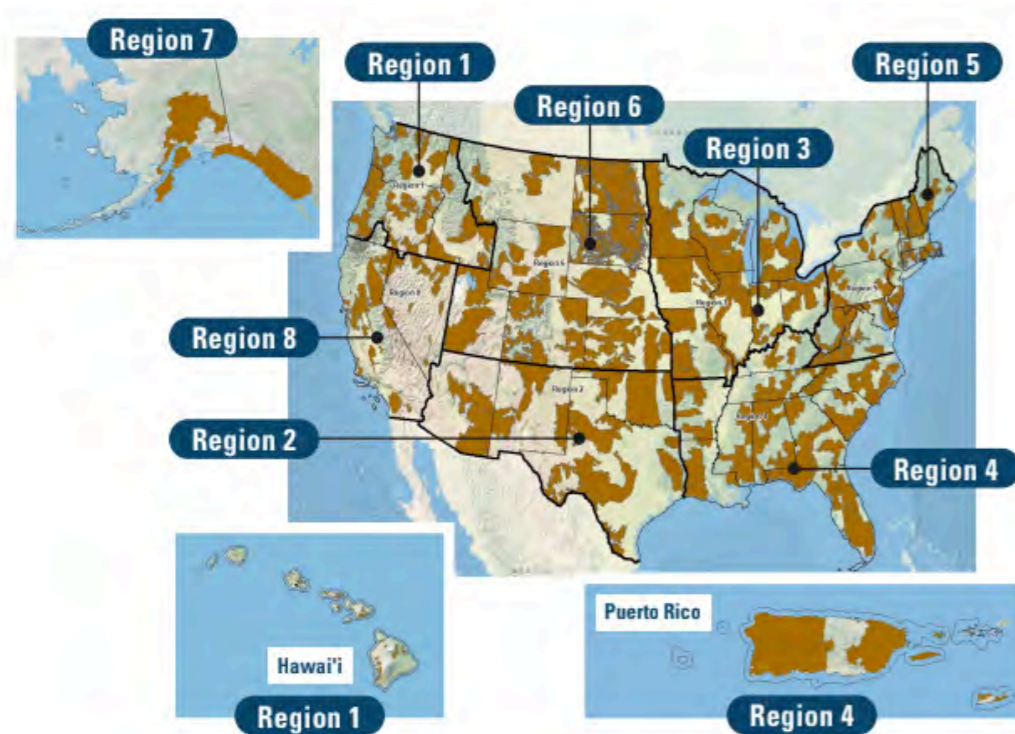
↑ 1,592  
 New Landowners Enrolled in 2023

↑ 182,795  
 Private Landowner Acres Restored in 2023

↑ \$1:5.40  
 Federal Dollars Leveraged with Partners

# STRATEGIC CONSERVATION

## GEOGRAPHIC FOCUS AREAS



## 2022-2026 STRATEGIC PLANS

### A Comprehensive Approach to Conservation Planning and Delivery

Our conservation efforts are guided by a three-part National Strategic Plan, which we update every five years. This revision is our fourth generation plan that will cover fiscal years 2022–2026. Collectively, the components of the plan identify conservation goals, priorities, and objectives that were developed collaboratively among Headquarters, regional and field staff, in collaboration with conservation partners and stakeholders. The national strategic plan ensures that we continually allocate our resources toward habitats and priorities with the greatest need. The National Strategy presents the vision, goals, and national priorities. The Regional Implementation Plans present each Region's geographic focus areas (i.e., priorities), focal species, and conservation objectives. The Strategic Plan Review reports on the Regions' previous five-year accomplishments and summarizes the Regions' conservation objectives.

## NATIONAL INITIATIVES

### Conservation Equity, Inclusion and Diversity

Diversity, inclusion, racial justice and equity are complex, societal challenges that require thoughtful and ambitious solutions. The PFW Program is committed to providing benefits to the American people as we carry out our mission. As part of the Justice 40 initiative, the PFW Program is reviewing how our habitat conservation projects can provide additional benefits and better support these initiatives. Fundamental to our conservation approach is building a diverse coalition of stakeholders, including underrepresented and underserved people, such as Tribes and minority communities and delivering projects that in addition to wildlife conservation, benefit people and communities.

### Urban Conservation

According to the U.S. Census Bureau, more than 80% of Americans live in urban areas. The Service recognizes the future success of conservation lies ultimately in our ability to inspire Americans to connect with the outdoors and nature, and to become stewards of the environment which support their communities and the fish and wildlife resources on which they depend.

### Youth and Nature

The PFW Program works to foster a connection with nature in communities, especially among youth – the next generation of environmental stewards. The Service is committed to working with local and national non-profit youth organizations by providing internships and other employment opportunities. By partnering with these organizations, upon completion of their commitment, these youth are eligible for a variety of jobs under Special Hiring Authorities in the Service. We can do this by working with local schools, youth job corps and others to create, we help create employment opportunities and restore natural spaces that educate and engage young people.

## STRATEGIC PRIORITIES

### Species Conservation

Implement habitat projects within priority areas that prevents decline or supports recovery of species of greatest conservation concern, including federal listed species, Birds of Conservation Concern, pollinators and interjurisdictional fish. This priority supports the Service's conservation mission and our role as stewards of federal trust species with intent to make improvements in select species status.

### Habitat Connectivity

Integrate projects at a landscape level to improve habitat connectivity and functionality. This priority recognizes that interconnected habitats and migration corridors are vital to fish and wildlife conservation and the work of the PFW Program can support and leverage other ongoing conservation efforts including on National Wildlife Refuges and other protected lands.

### Resilient Ecosystems

Advance ecosystem health and resilience to climate change related impacts to benefit communities of fish, wildlife, plants and people. This priority acknowledges that climate change affects all parts of the ecosystem, including those in which humans depend, and the PFW Program can work with diverse partners to support conservation actions to help them respond to climate change stressors.

# NATURE-BASED SOLUTIONS

## A LEADER IN IMPLEMENTING NATURE-BASED SOLUTIONS

A Nature-based Solution (NBS) is an action that incorporates natural features and processes to protect, conserve, restore, sustainably use, and manage natural or modified ecosystems to address socio-environmental challenges while providing measurable co-benefits to and benefit both people and nature. NBS implementation can be referred to as “green infrastructure” or “natural infrastructure.” Executive Order 14072 directed the federal government to accelerate our use of solutions that are grounded in nature, calling for the deployment of NBS to improve the resilience of our lands, waters, wildlife, and communities in the face of climate change.

PFW plays a pivotal role in implementing NBS to address environmental challenges and promote sustainability. NBS, as championed by the Department of Interior, involve using natural processes and ecosystems to mitigate environmental issues such as climate change, biodiversity loss and habitat degradation. NBS build resilience and enhance the benefit of nature for people and the environment for the present and future society. These solutions often involve the restoration of ecosystems to their natural state, providing a habitat for wildlife while simultaneously offering benefits such as water purification, flood control, and climate resilience. NBS provide multiple benefits: they not only address specific environmental concerns but also contribute to overall ecological health and resilience.

PFW is a leader in delivering NBS through habitat restoration activities such as wetland restoration, stream restoration, and the establishment of native vegetation. These activities not only benefit fish and wildlife populations but also enhance biodiversity and ecological health. For instance, wetland restoration helps in reestablishing the natural hydrology of an area, providing critical habitat for waterfowl and other aquatic species, while also improving water quality and reducing soil erosion.

Throughout this report, PFW showcases how nature-based solutions can be implemented effectively through community and stakeholder collaboration, underscoring the potential of these solutions in addressing environmental challenges while promoting biodiversity and ecological sustainability. PFW and other voluntary conservation programs serve as a model for NBS efforts, demonstrating how human activities and natural ecosystems can coexist in harmony for the mutual benefit of wildlife and people.



PFW is a leader within the Department of Interior in implementing Nature-Based Solutions by delivering conservation projects such as stream restoration, culvert replacement, fish passage, fuel management, pollinator gardens and reforestation. Photos ©USFWS.

# FARM CONSERVATION

Keeping Working Lands Working



Rural landowners are some of our most important partners in conservation. By working in the right areas and applying best available science, wildlife conservation and sustainable agriculture can fit together like hand in glove.

USFWS photo.

The Farm Conservation program serves as a liaison to the U.S. Department of Agriculture (USDA), providing technical assistance in the development, implementation and evaluation of Farm Bill conservation programs to ensure shared conservation goals are met, maximizing the benefit to Federal Trust species. By working with our nation's farmers, ranchers and forest landowners, we can implement conservation practices that will contribute to the long-term sustainability of both their agricultural operations and the wildlife populations that depend on the lands under their stewardship.



Ranchers working on a project in California. Photo copyright Conservation Media.

## IN 2023, THE FARM CONSERVATION PROGRAM:

- Provided technical assistance at the national, state and local levels in support of efforts by USDA to target Farm Bill resources to conserve priority wildlife and their habitats and facilitate ecosystem resilience to climate change.
- Tracked implementation of the 2018 Farm Bill and provided information updates on conservation program funding, rules, and policies, including additional conservation program funding provided to USDA through the Inflation Reduction Act of 2022.
- Coordinated with State Fish and Wildlife agencies and other partners to leverage resources and maximize conservation opportunities offered by the Farm Bill.
- Worked with NRCS, as directed by Congress in the 2018 Farm Bill, to support implementation of the Working Lands for Wildlife, which offers regulatory predictability to agricultural producers who take actions to conserve declining species on their lands.
- Facilitated engagement by the agricultural community in pollinator conservation efforts.
- Coordinated implementation of the National Seed Strategy for Rehabilitation and Restoration including projects to increase native seed collection and production with \$5 million in funding provided through the Ecosystem Restoration provisions of the Bipartisan Infrastructure Act.
- Strengthened relationships with agricultural professionals who deliver conservation on private lands through the development of an MOU with the National Association of Conservation Districts (NACD).
- Developed tools to support FWS land managers to incorporate soil health practices in land management planning activities.



USFWS photo.



USFWS photo.

STATE SUMMARY

**\$296,952**  
PFW PROJECT INVESTMENTS

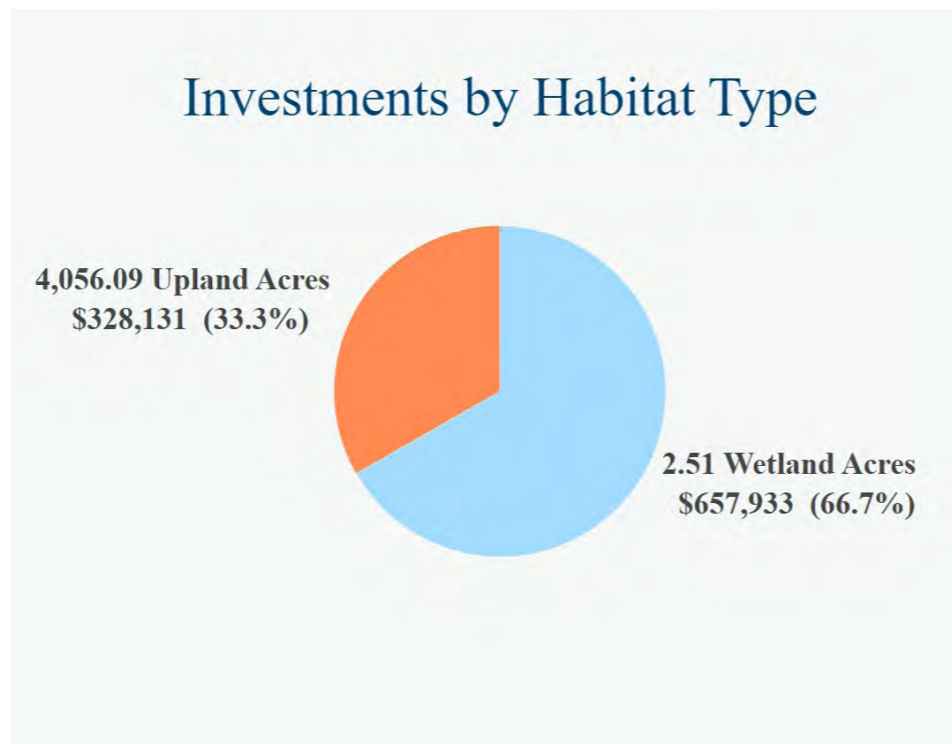
**\$689,112**  
PARTNER CONTRIBUTIONS

**\$986,064**  
TOTAL PROJECT INVESTMENTS

**\$1:2.3**  
LEVERAGE

**2.5**  
WETLAND ACRES

**4,056**  
UPLAND ACRES



Above: Completed 2023 PFW projects in Alabama.  
Below: chart showcasing project investments by habitat type.



Left: Before restoration, Right: After restoration. ©USFWS.

## PROJECT HIGHLIGHT:

Trispot Darter Cooperative, 3-for-1 Barrier Removal Project

In early 2023, restoration activities at three barrier locations were addressed. These restoration activities were part of a large collaborative effort between the Service, a timber investment company, CAWACO Resource Conservation and Development Council, Inc. (CAWACO) and a private landowner. For this specific project, a priority site was identified that restricted upstream migration to potential spawning habitats for the Trispot Darter (*Etheostoma trisella*), a federally threatened fish species.

Project efforts consisted of removing a concrete pipe culvert (approximately 36 inches in diameter) and replacing it with an aluminum bottomless arch

structure on a private road crossing of an unnamed tributary to Little Canoe Creek located in St. Clair County, Alabama. The unnamed tributary is an intermittent stream that partially traverses through property owned by the timber investment company and a private landowner. Survey efforts by Service staff and other partners identified this area as a priority project site due to proximity of historic and recent occurrence records for Trispot Darter.

As previously referenced, this project was part of a larger collaborative effort. Additional efforts included two other restoration project sites. The two additional project sites involved the complete removal of upstream migration barriers that are restricting fish passage. Specifically, at one site a dilapidated corrugated steel culvert was completely removed, and the stream restored to a natural grade to promote upstream migration. At the other site, an access road that crosses a stream was decommissioned and that stream also restored to grade. These two sites are also on property owned by the timber investment company. Both also have recent records for Trispot Darter below the respective structures/barriers. The timber investment company agreed to restore these two sites as a cost-share to the funding for this Bipartisan Infrastructure Law (BIL) funded project.

This project leveraged funds from federal sources and a private timber investment company. Most of the funding was provided by the BIL. The PFW Program and CAWACO also provided in-kind contributions (e.g., environmental compliance, project oversight, and coordination) for this project.



STATE SUMMARY

**\$386,261**  
PFW PROJECT INVESTMENTS

**\$664,431**  
PARTNER CONTRIBUTIONS

**\$1.05M**  
TOTAL PROJECT INVESTMENTS

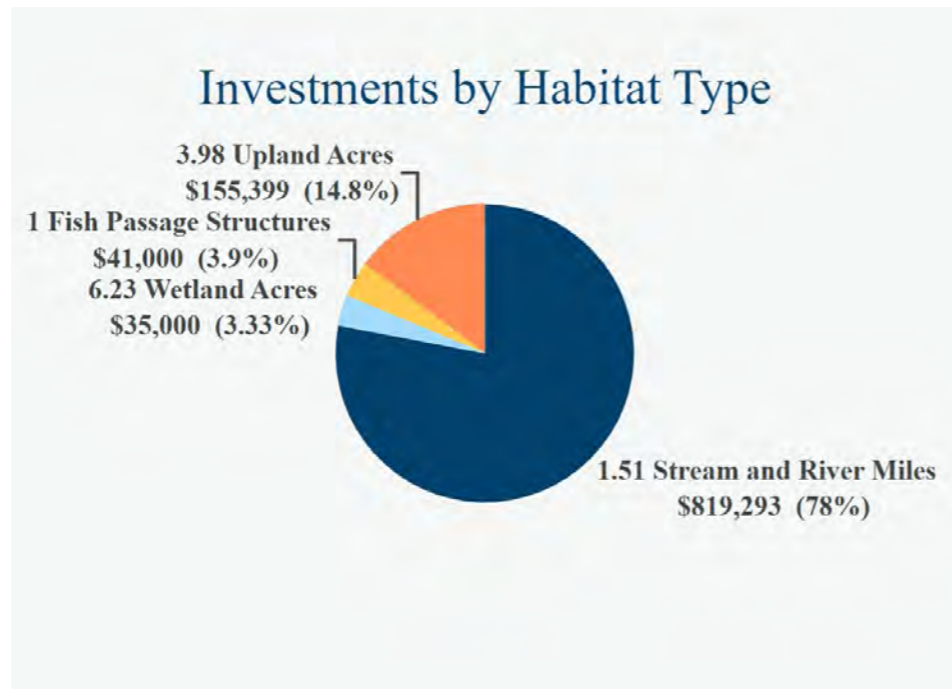
**\$1:1.7**  
LEVERAGE

**1.5**  
STREAM AND RIVER MILES

**3.98**  
UPLAND ACRES

**6.23**  
WETLAND ACRES

**1**  
FISH PASSAGE STRUCTURE



Above: Completed 2023 PFW projects in Alaska.  
Below: chart showcasing project investments by habitat type.



Happy Creek channel construction (top), active construction of stream channel (bottom left), site construction prep (bottom middle), Happy Creek fishway now connects to Cripple Creek natural channel (bottom right). ©USFWS.

## PROJECT HIGHLIGHT:

### Cripple Creek Watershed Restoration

For a number of years, the PFW Program in Alaska has been working to evaluate, prioritize, and restore stream habitat function in the Cripple Creek watershed. Cripple Creek is a tributary to the Chena River, which is one of the most important Chinook and Chum Salmon spawning rivers for the United States origin salmon populations in the Yukon River.

Historically, Cripple Creek water was diverted for mining use, abandoning the natural Cripple Creek channel in place and creating a drainage ditch that parallels the natural channel throughout much of the watershed. In 2023, PFW in Alaska accomplished a major milestone in Cripple Creek restoration by

constructing a stream diversion that directed water from the Happy Creek watershed and the Cripple Creek drainage ditch back into the natural meandering channel of Cripple Creek.

The restored flow to Cripple Creek created functioning fish and wildlife habitat that hasn't existed for decades and we are working with project partners to monitor salmon use of Cripple Creek. This section of Cripple Creek is protected habitat and part of a nature trail network that can be enjoyed by the entire community. Completion of this project restored 6.2 acres of functioning stream, riparian, and floodplain habitat.

PFW in Alaska will continue to prioritize future restoration efforts in the watershed through on-going local partnerships and new resources through the Yukon River Gravel to Gravel Keystone Initiative.



Director Williams visiting the Cripple Creek restoration site. ©USFWS.

STATE SUMMARY

\$406,511  
PFW PROJECT  
INVESTMENTS

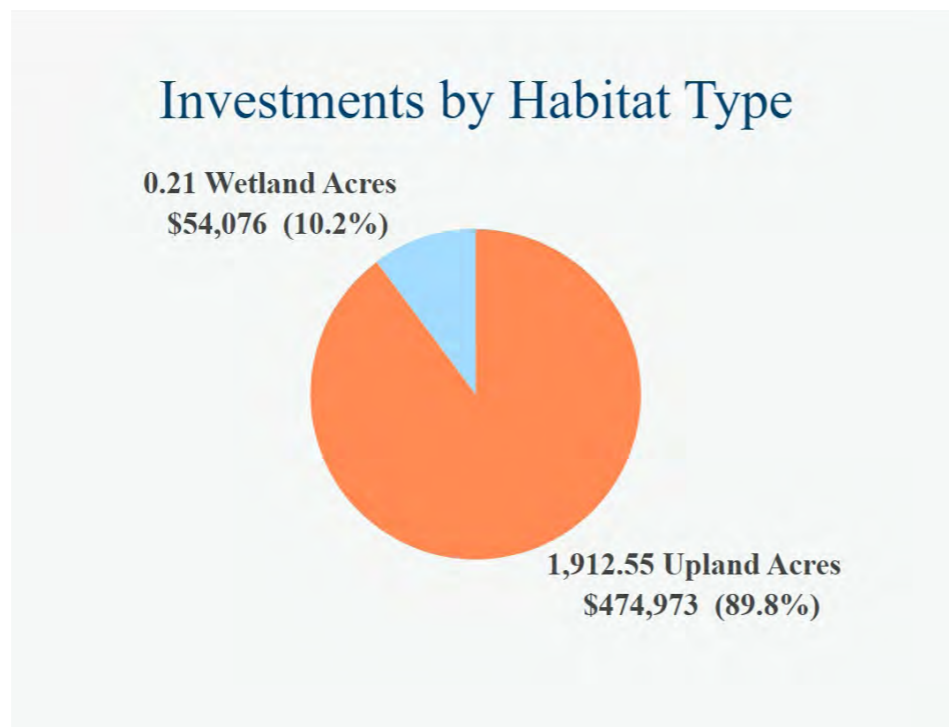
\$122,538  
PARTNER  
CONTRIBUTIONS

\$529,049  
TOTAL  
PROJECT  
INVESTMENTS

\$1:0.3  
LEVERAGE

1,912  
UPLAND  
ACRES

0.21  
WETLAND  
ACRES



Above: Completed 2023 PFW projects in Arizona.  
Below: chart showcasing project investments by habitat type.



PFW Biologist with Tucson Audubon planting native vegetation during pond installation in June 2022 and AZGFD Biologist releasing a Chiricahua leopard frog egg mass into the pond. ©USFWS.

## PROJECT HIGHLIGHT:

### Ash Canyon Bird Sanctuary Pond: A Habitat Enhancement Project for a Variety of Species

The Ash Canyon Bird Sanctuary is a place to explore and experience the diverse bird species of southeast Arizona. The site includes features to attract birds and birders alike. In 2020, the sanctuary started constructing a pond to fulfill their founder's vision and create breeding habitat for Gila topminnow and desert pupfish. Partnering with Tucson Audubon Society (TAS) they successfully constructed the pond blending it smoothly into the surrounding landscape.

TAS installed a recirculating stream and a waterfall outflow to the pond, increasing aeration and breeding opportunities

for the fish, while also improving habitat for butterflies and macroinvertebrates. A portion of the pond was converted to a permanent wetted Cienega, supporting an array of wetland plants. Within the pond, three vegetated floating islands with wetland pollinator plants aid in nutrient control and provide refugia for wildlife. Native plants were established to provide food sources for Montezuma quail and pollinators around the wetland complex. TAS completed multiple rounds of invasive plant removal throughout the site to protect the disturbed wetland complex. In August of 2023, various organizations collaborated to introduce Chiricahua Leopard Frog egg masses to the pond.

This project aimed to enhance the existing pond for Gila Topminnow and desert pupfish, create suitable areas for Huachuca water umbel and Arizona eryngo, plant native food sources for Montezuma Quail, and introduce flowering plants to support various pollinators. In the end, four threatened and endangered species were established at the wetland, with one pending due to plant availability.



PFW biologist with landowners showcasing the Partners sign on the wall. ©USFWS.

STATE SUMMARY

\$88,000  
PFW PROJECT  
INVESTMENTS

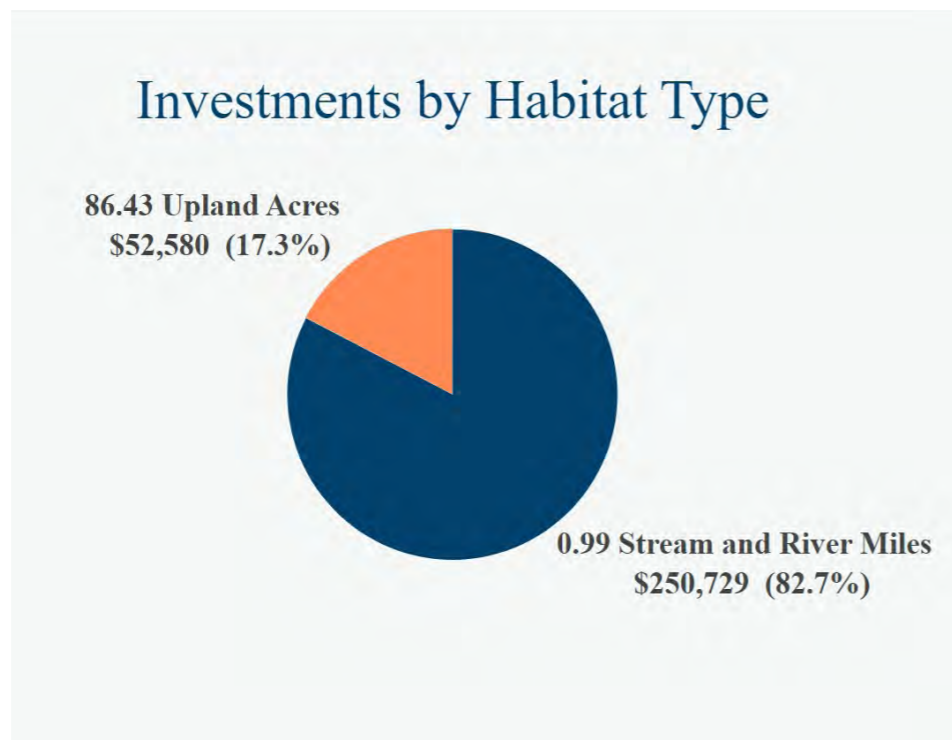
\$215,309  
PARTNER  
CONTRIBUTIONS

\$303,309  
TOTAL  
PROJECT  
INVESTMENTS

\$1:2.4  
LEVERAGE

0.99  
STREAM  
AND RIVER  
MILES

86.4  
UPLAND  
ACRES



Above: Completed 2023 PFW projects in Arkansas.  
Below: chart showcasing project investments by habitat type.



Before (left) and after (right) timber stand improvement restoration. ©USFWS.

### PROJECT HIGHLIGHT:

Stone Prairie Adjacent Uplands

This project assisted private landowners and partners with restoring a native savanna and open-woodland ecosystem that was characteristic of the uplands in central Arkansas pre-European settlement.

PFW in Arkansas provided funding and technical assistance for timber stand improvement to transition the overstocked shade-tolerant forest back into an open canopy of fire-tolerant tree species with a dense herbaceous understory of native forbs and grasses that are critical to many declining grassland-dependent species of greatest conservation need. In conjunction with timber thinning, our partners the Arkansas Game and Fish

Commission and Quail Forever collaborated on invasive grass species removal and helping the landowner conduct prescribed fire on the site. This project is in a strategic location that serves as a corridor to connect two state-managed wildlife areas that are hotspots of grassland species diversity, including the declining northern bobwhite quail, Texas frosted elfin, and monarch butterfly.

Together, it now provides over 5,000 acres of contiguous grassland habitat. This project showcases strategic landscape-scale conservation planning while also addressing critical priorities like increasing the availability of suitable habitat for pollinator conservation and benefiting federal trust resources by increasing foraging opportunities for federally threatened and endangered bats. The landowners will maintain the restored habitat with periodic prescribed fire on a 2-3 year rotation. The PFW program and project partners are coordinating follow-up biodiversity surveys to evaluate how the flora and fauna species composition has changed following the restoration.



Open oak woodland after restoration. ©USFWS.

STATE SUMMARY

\$675,000

PFW PROJECT INVESTMENTS

\$1.79M

PARTNER CONTRIBUTIONS

\$2.47M

TOTAL PROJECT INVESTMENTS

\$1:2.6

LEVERAGE

8.87

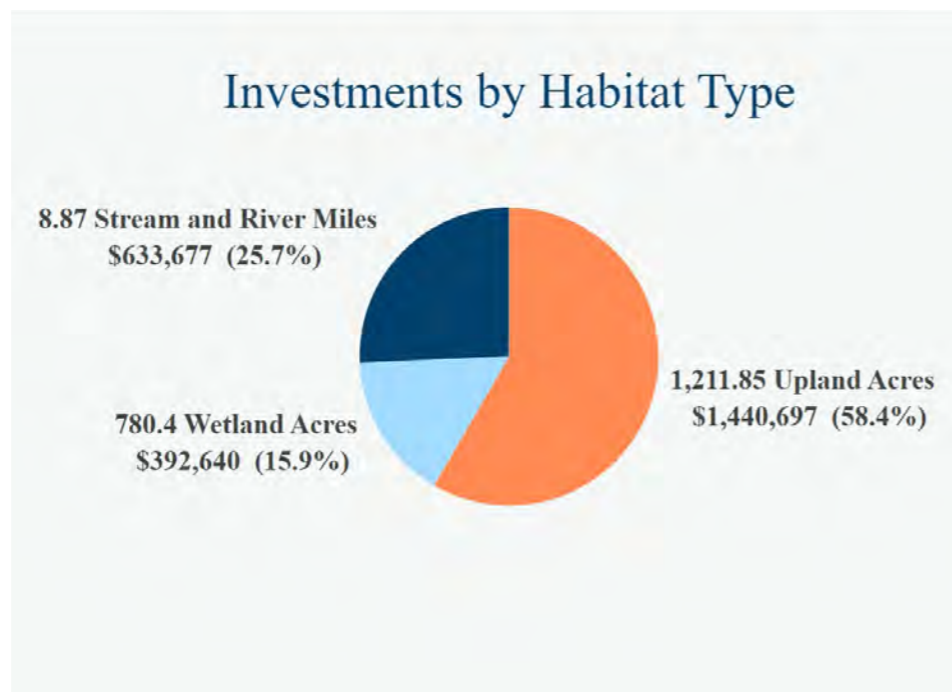
STREAM AND RIVER MILES

1,212

UPLAND ACRES

780

WETLAND ACRES



Above: Completed 2023 PFW projects in California. Below: chart showcasing project investments by habitat type.



Releasing beavers at the Tasmam Koyom Meadow for the first time in 75 years! ©USFWS.

## PROJECT HIGHLIGHT:

### Beaver Reintroduction

Since 2019, the PFW Program in California, with the support of tribal landowners and state partners, has been revitalizing the stream and meadow habitats of Tasmam Koyom (Humbug) Meadow, a 2,000-acre wet meadow in Plumas County.

This restoration initiative, spearheaded by the Maidu Summit Consortium—a collective of Maidu tribal bands—aims to reintroduce beavers to the ecosystem, marking the first such effort in California in over 70 years. Yellow Creek, a crucial headwater of the Feather and Sacramento Rivers, runs through the meadow.

The restoration enhanced

water storage, releasing snowmelt downstream later in the season, thereby supporting downstream agriculture and increasing watershed resiliency against climate change.

The meadow, which suffered extensive damage during the 2020 Dixie wildfire, was restored using Process-Based Low-Tech Restoration techniques. Workshops in 2022 and 2023 trained 75 participants annually, many from the Maidu and other tribes, in these methods. Additionally, in 2023, PFW funded experimental use of Trax equipment to transport fire-damaged trees across the snow for stream restoration, minimizing meadow impact during warmer months.

The restoration of Tasmam Koyom Meadow, which provides public access, is expected to enhance the diversity and abundance of native flora and fauna, including the American Beaver, serving as a restoration model for Northern California.

For \$260,000, the Partners for Fish and Wildlife Program has:

- Built 351 new structures, and have reworked about 70 of them at least once
- Built 5 stream miles, doubling our channel length
- Increased wetted area by more than 1000%



Meeting with project partners at the Tasmam Koyom Meadow project site. ©CDFWG.

STATE SUMMARY

\$2,540

PFW PROJECT INVESTMENTS

\$139,847

PARTNER CONTRIBUTIONS

\$142,387

TOTAL PROJECT INVESTMENTS

\$1:55

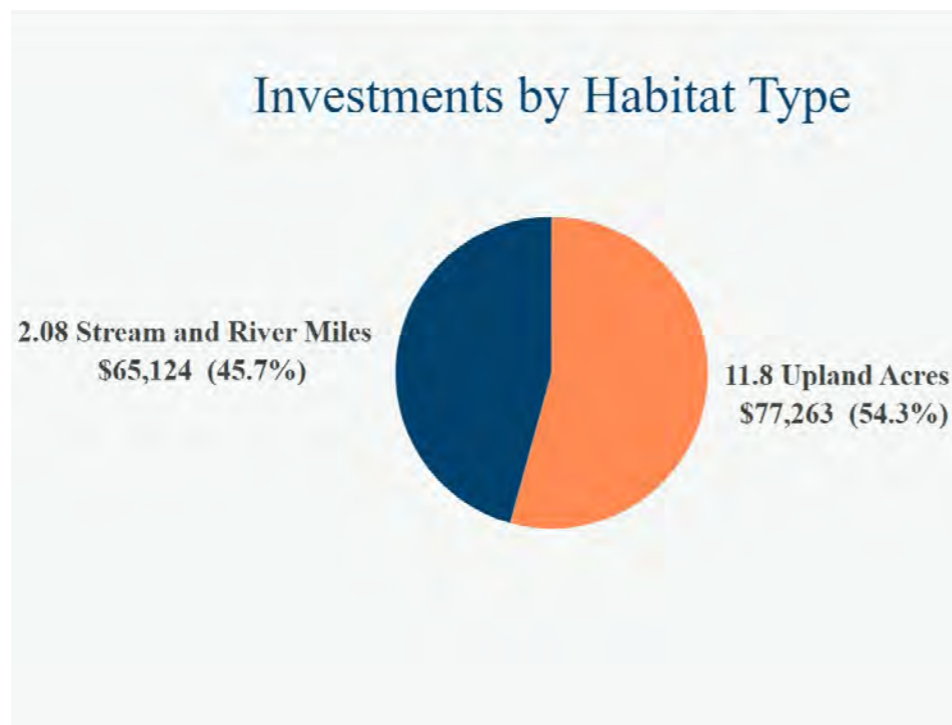
LEVERAGE

11.8

UPLAND ACRES

2.08

STREAM AND RIVER MILES



Above: Completed 2023 PFW projects in Puerto Rico. Below: chart showcasing project investments by habitat type.



Left: Individual of Oplonia spinosa, host plant for the Harlequin butterfly. Photo by Jennifer Valentin/USFWS. Right: Flowering Oplonia spinosa during the visit to certify implemented practices. Photo by Alexandra Galindo/USFWS

PROJECT HIGHLIGHT:

Habitat Restoration Project for the Harlequin Butterfly (Atlantea tulita) in Maricao and Sabana Grande

The PFW Program in the Caribbean, in collaboration with Envirosurvey, Inc. (NGO), the Natural Resources Conservation Service (NRCS), and private landowners, has been working to restore habitat for the Puerto Rican harlequin butterfly (Atlantea tulita) within private lands in the Maricao and Sabana Grande municipalities of western Puerto Rico. This initiative involves planting 475 Oplonia spinosa (the butterfly's host plant) and 425 individuals of various other species like Poitea punicea and Eugenia ligustrina to enhance the butterfly's habitat. The project,

primarily focused in Maricao, also aims to create ecological corridors to expand the butterfly's distribution.

Located in western Puerto Rico's central mountain range, encompassing six watersheds, the project area is integral to the region's agricultural community, notably its primary coffee production zone. This initiative boosts local economy through landowner-based conservation, ecologically sustainable agroforestry, and native tree planting. It supports sustainable management of forests and agricultural lands, enhancing habitats for endangered species and protecting wildlife, soil, and water resources.

This project aligns with the Southeast Region Strategic Plan and complements initiatives like the Shade-grown Coffee Restoration Initiative. The conservation areas within these agricultural lands are habitats for diverse wildlife, including migratory birds and the threatened elfin-woods warbler. The U.S. Fish and Wildlife Service has been deeply involved in the project, offering technical assistance from planning to implementation and monitoring, ensuring successful restoration practices. The Service continues to educate landowners about the Puerto Rican harlequin butterfly and encourages conservation efforts on their properties.



Envirosurvey, Inc. (NGO) assisting in the certification of implemented practices. Photo by Alexandra Galindo/USFWS.

STATE SUMMARY

\$46,721  
PFW PROJECT  
INVESTMENTS

\$1.68M  
PARTNER  
CONTRIBUTIONS

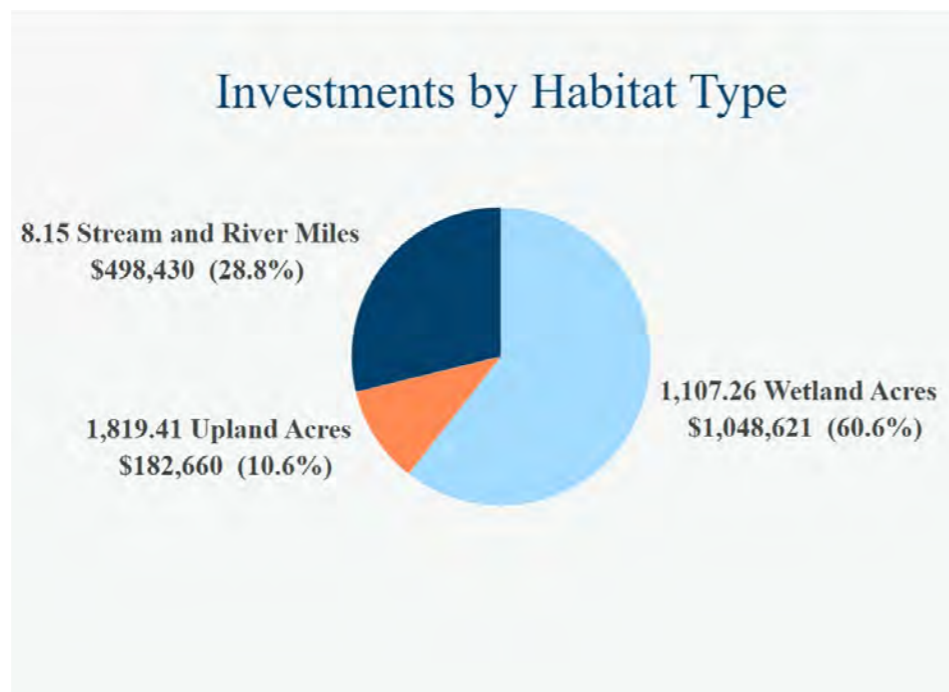
\$1.72M  
TOTAL  
PROJECT  
INVESTMENTS

\$1:36  
LEVERAGE

8.15  
STREAM  
AND RIVER  
MILES

1,819  
UPLAND  
ACRES

1,107  
WETLAND  
ACRES



Above: Completed 2023 PFW projects in Colorado.  
Below: chart showcasing project investments by habitat type.



Before restoration (left), post construction (middle) and restored habitat (right). Landowner spreading seeds over the disturbed area (below). Photos by Kelsea Holloway and Ashley Mertz.

### PROJECT HIGHLIGHT:

Crossing Property Boundaries for Collaborative Conservation

Habitat does not abide by human-drawn boundaries which provided an opportunity for different organizations to work together for a common goal. In 2023, PFW Private Lands Biologist, Kelsea Holloway brought together multiple partners including Colorado Parks and Wildlife, the USDA Natural Resources Conservation Service, Bird Conservancy of the Rockies, Ducks Unlimited, and private landowners to restore a valuable local wetland in eastern Colorado.

The wetland area spans public and private land boundaries along the South Platte River. The project involved the removal of cattails and sediment from

a warm water slough using an excavator, the installation of beaver flow devices through two beaver dams, and reseedling of disturbed areas with a diverse riparian seed mix. Identifying goals, planning, surveying, budget development, and management was made easy through the collaboration of all parties involved.

Warm water sloughs are valuable wintering wetland habitat for waterfowl and other wildlife. During the coldest days of the year when other bodies of water are frozen over, warm water sloughs remain open because of continues flow and from being groundwater-fed. Sloughs quickly revert to frozen water bodies when the water velocity slows due to sedimentation, cattail invasion, and beaver dam installation.

Historically, natural floods would scour these wetlands which would restore their function and value. With present day hydrological alterations, those floods are less frequent. Human intervention is necessary to restore these rare wetlands. This project is the beginning of partners working across boundaries to restore sloughs all along the South Platte River to benefit wildlife.

STATE SUMMARY

\$0\*

PFW PROJECT INVESTMENTS

\$850

PARTNER CONTRIBUTIONS

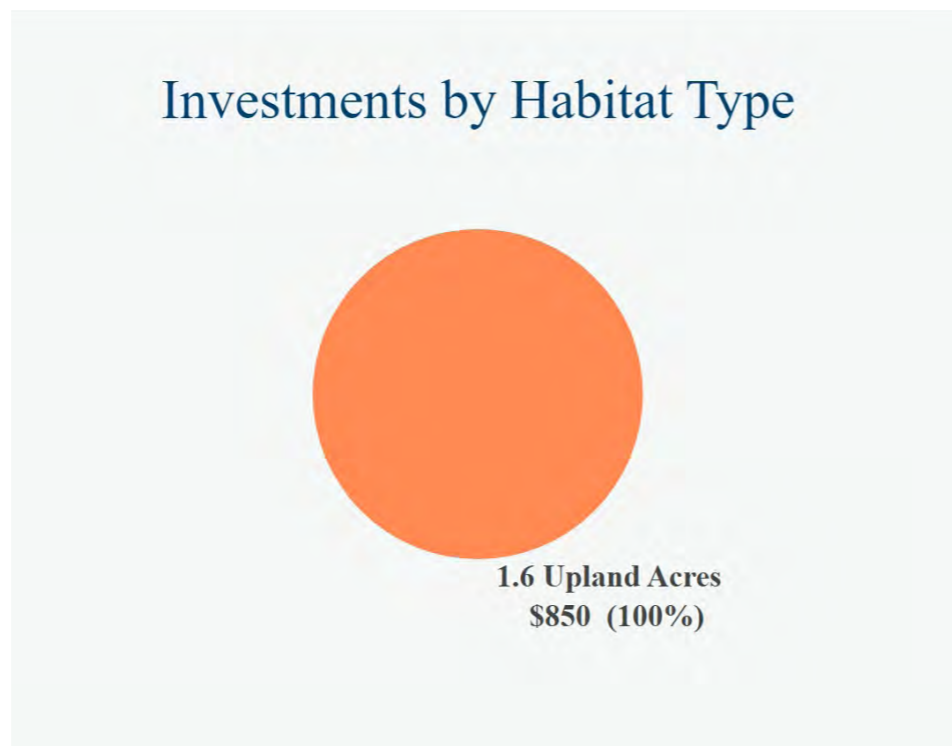
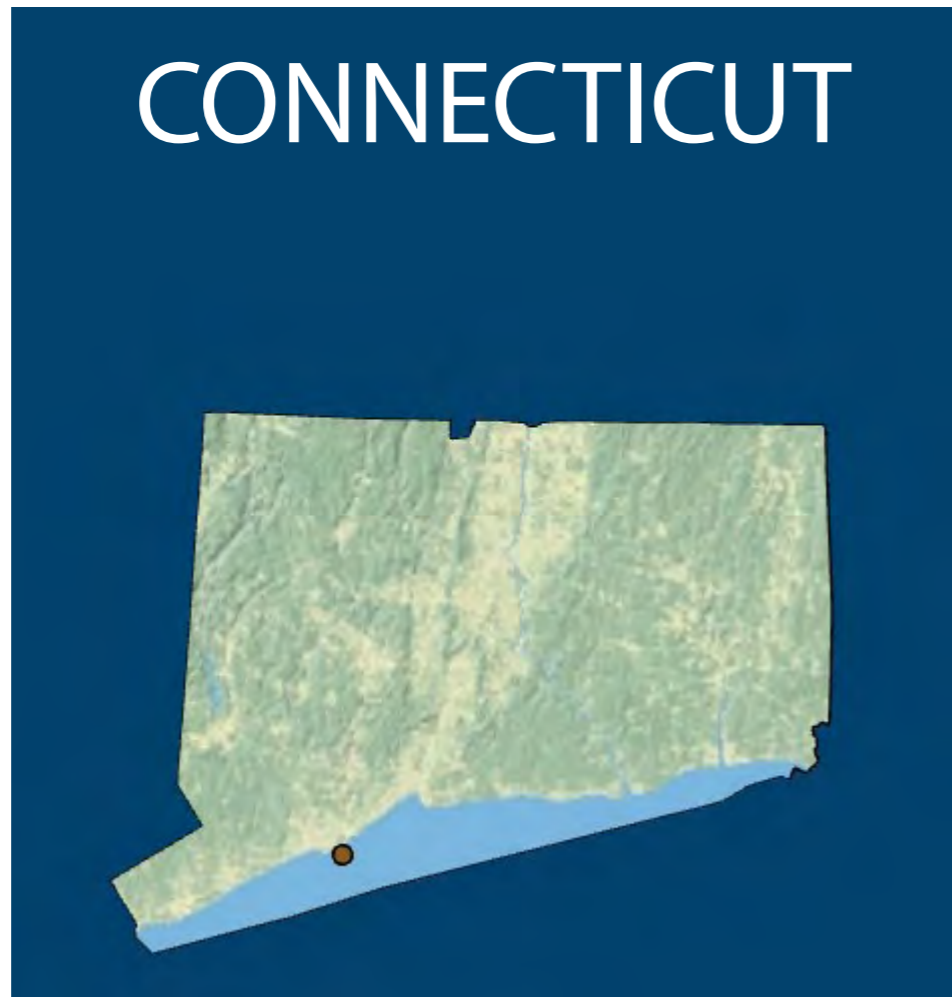
\$850

TOTAL PROJECT INVESTMENTS

1.6

UPLAND ACRES

\*IN-KIND OR TECHNICAL ASSISTANCE PROVIDED BY PFW PROGRAM TO SUPPORT PROJECT IMPLEMENTATION IN LIEU OF FINANCIAL ASSISTANCE.



Above: Completed 2023 PFW projects in Connecticut. Below: chart showcasing project investments by habitat type.



Youth from the surrounding community in Hartford engaged in planting and learned about pollinator benefits. ©USFWS.

## PROJECT HIGHLIGHT:

### Youth Restore Hartford's Pollinators

PFW in Connecticut worked with KNOX inc., a community-based organization with over 20 urban agriculture gardens sites throughout the city of Hartford, to improve habitat for pollinators.

Hartford has a population of 120,000 people with 28% of residents in poverty. A team of volunteers and staff selected a site and planted an educational pollinator garden in the heart of Hartford to communicate the importance of pollinators for urban agriculture.

Youth from the surrounding community engaged in planting and learned about the benefits of pollinators in their

community. This is a model that we hope to repeat and grow in many of the other gardens in the Hartford.



Planting at Knox Garden in Hartford. ©USFWS

STATE SUMMARY

\$0

PFW PROJECT INVESTMENTS

\$100,000

PARTNER CONTRIBUTIONS

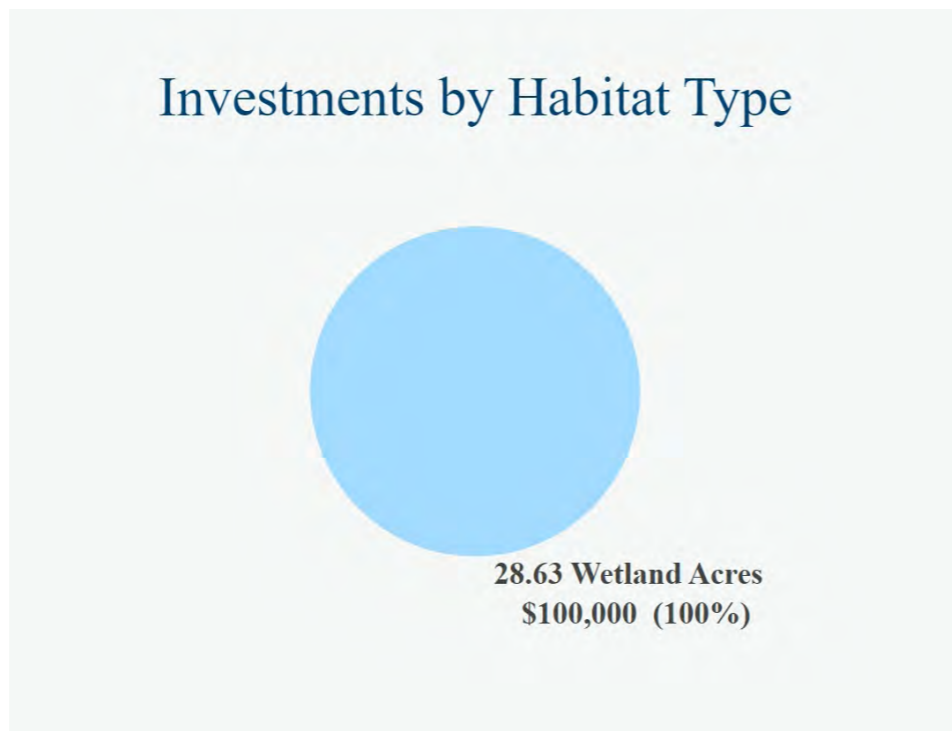
\$100,000

TOTAL PROJECT INVESTMENTS

28.63

WETLAND ACRES

\*IN-KIND OR TECHNICAL ASSISTANCE PROVIDED BY PFW PROGRAM TO SUPPORT PROJECT IMPLEMENTATION IN LIEU OF FINANCIAL ASSISTANCE.



Above: Completed 2023 PFW projects in Delaware. Below: chart showcasing project investments by habitat type.



Choptank watershed restoration site. ©USFWS.

PROJECT HIGHLIGHT:

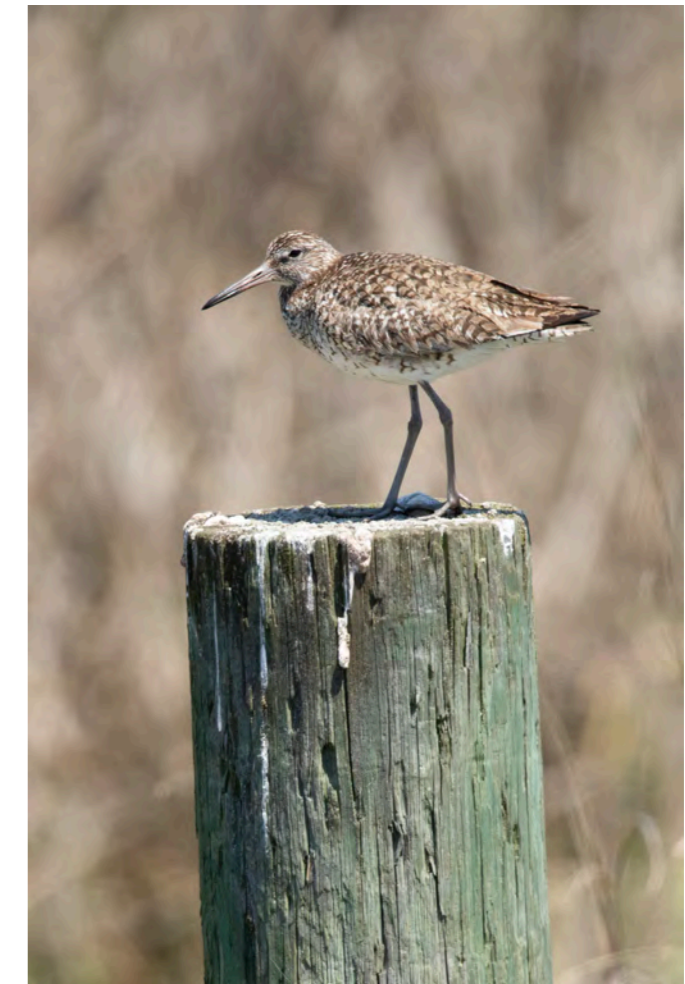
Emergent Wetland Restoration

This year's highlight project restored the hydrology to 5.39 acres of emergent wetlands through the shallow (1 foot or less) excavation of the existing wet areas in the agriculture row crop field.

The excavated material was used to construct low berms that will increase the ponding area.

The water control structures will allow a mosaic of separate moist soil management cells to promote emergent vegetation growth in the spring and summer, which will provide habitat structure and food for waterfowl and wading birds.

The goal of the project is to provide a longer hydro period to benefit waterfowl, wading birds, spotted turtles and various amphibians. The projects is located in the Choptank River watershed, a tributary of the Chesapeake Bay.



Migratory bird using utilizing restored habitat. ©USFWS.



STATE SUMMARY

**\$331,531**  
PFW PROJECT INVESTMENTS

**\$634,582**  
PARTNER CONTRIBUTIONS

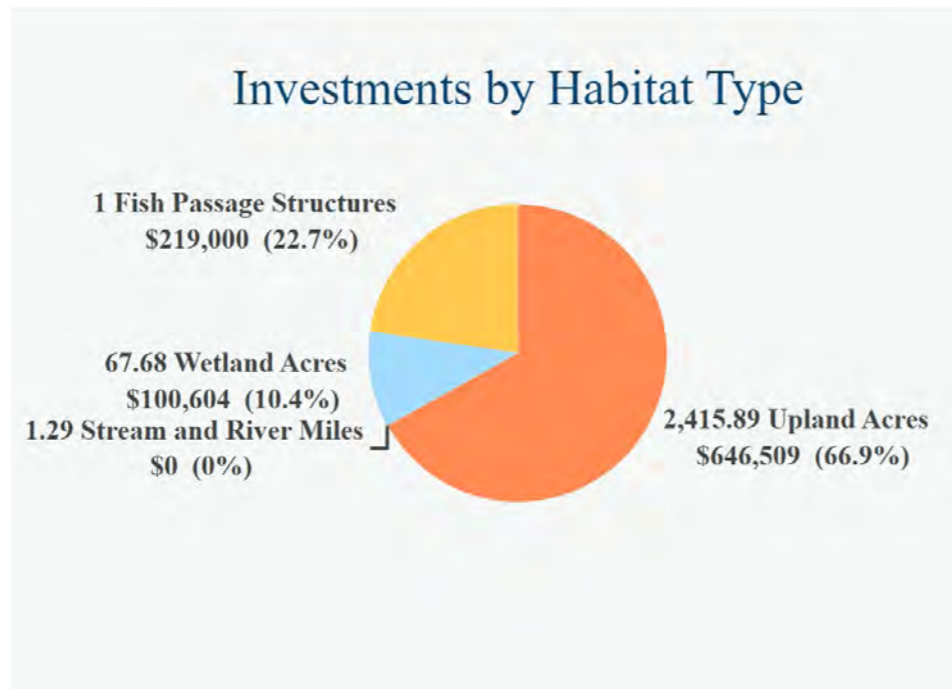
**\$966,113**  
TOTAL PROJECT INVESTMENTS

**\$1:1.9**  
LEVERAGE

**1.29**  
STREAM AND RIVER MILES

**2,416**  
UPLAND ACRES

**67.6**  
WETLAND ACRES



Above: Completed 2023 PFW projects in Florida.  
Below: chart showcasing project investments by habitat type.



Aerial view of the prescribed fire. Photo by Hal Scott.

## PROJECT HIGHLIGHT:

St. Johns River Water Management District Habitat Enhancement

With a mission to ensure the sustainable use of water throughout East Central and Northeast Florida, the St. Johns River Water Management District (SJRWMD) welcomed multi-year support from PFW to enhance upland habitat on over 1,300 acres of conservation land in three counties.

With SJRWMD providing almost a 1:1 match in cash and in-kind services, the partnership included strategies designed to support habitat needs of various listed and at-risk species including the red-cockaded woodpecker (E), Florida scrub-jay (T), eastern indigo snake (T), and Florida pine snake (AR).

Approximately 13 acres of sandhill at Pellicer Creek Conservation Area were mechanically treated to reduce invasive sand pines, oaks, and residual stumps prior to planting native ground cover seed mix in support of the eastern indigo snake. Over 75 acres of pine flatwoods at Hal Scott Regional Preserve and Park received heavy mowing prior to the aerial application of prescribed fire across nearly 1,263 acres improving connectivity among 12 active red-cockaded woodpecker clusters. Finally, over 17 acres of scrub at Lake Monroe Conservation Area were mulched along with firebreak improvements before applying prescribed fire in support of the resident Florida scrub-jay, eastern indigo snake, and Florida pine snake populations.

Culminating in the summer of 2023, with over 95% of this work occurring throughout protected lands found within the legislatively recognized Florid Wildlife Corridor, PFW was able to contribute to habitat connectivity at a landscape scale while fulfilling objectives of both the Service and our partners at the Water Management District.



Left: Lake Monroe, post mow and post fire. Right: Florida scrub jays. ©USFWS.

STATE SUMMARY

\$216,761  
PFW PROJECT  
INVESTMENTS

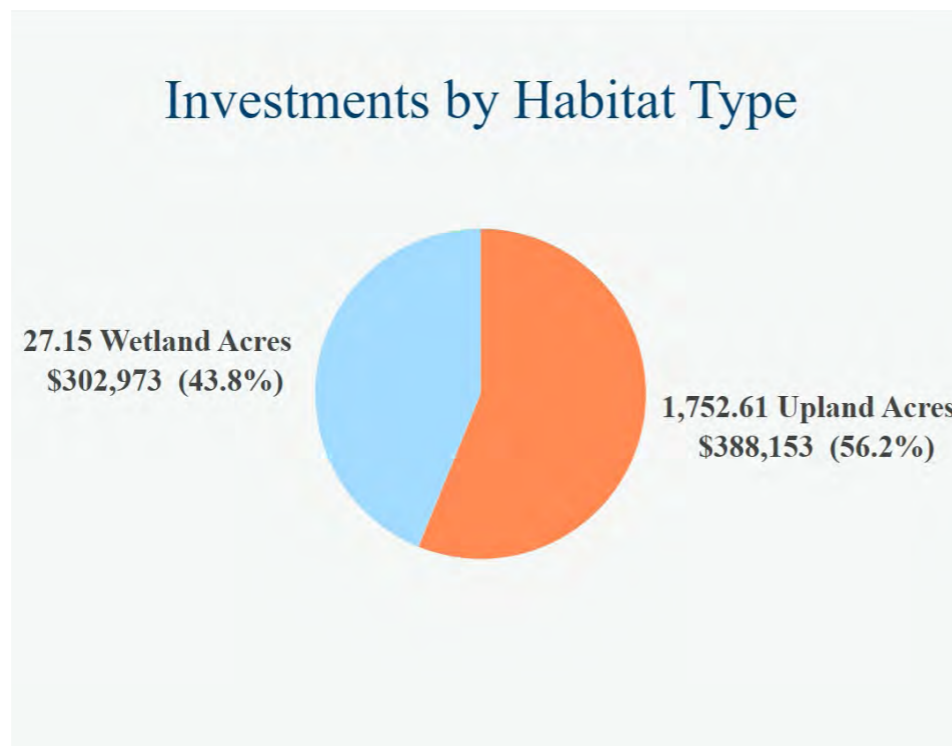
\$474,365  
PARTNER  
CONTRIBUTIONS

\$691,126  
TOTAL  
PROJECT  
INVESTMENTS

\$1:2.2  
LEVERAGE

1,753  
UPLAND  
ACRES

27.15  
WETLAND  
ACRES



Above: Completed 2023 PFW projects in Georgia.  
Below: chart showcasing project investments by habitat type.



One of three designated low water crossings fortified during the project to permit cattle accessing water during the summer and accommodate rotational grazing practices on pastures occurring on both sides of Holly Creek. Photo taken by Joseph Kirsch/USFWS

## PROJECT HIGHLIGHT:

### Holly Creek Restoration

PFW in Georgia worked with the Limestone Valley Resource Conservation and Development Council, Coosa River Basin Initiative, and Georgia Environmental Protection Division to assist a cattle ranch with protecting and enhancing a one-mile segment of Holly Creek within the Conasauga River watershed, which is an aquatic biodiversity hotspot.

Prior to this collaboration, cattle were allowed to freely access Holly Creek and its riparian areas for water and food, which degraded aquatic habitat by damaging streambanks, removing vegetation, compacting soils, and introducing nutrients to the stream. During the summer of

2022, approximately 10,562 linear feet of electric wire fencing was installed to exclude cattle from within, on average, 50 feet of Holly Creek.

In addition, three existing low water crossings were further fortified to allow cattle to access water during the summer and pastures on both sides of Holly Creek under a rotational grazing regime. Over 12,000 locally sourced native bare-root woody trees and shrubs, and 800 grass and forb plugs were planted during January 2023 within the cattle exclusion area to “beef up” the now protected 11.3-acre riparian corridor. To ensure community involvement, volunteers also planted approximately 2,000 woody livestakes along the stream edges to accelerate bank stabilization.

Overall, this work will benefit seven listed aquatic species (Blue Shiner, Trispot Darter, Finelined Pocketbook, Alabama Moccasinshell, Coosa Moccasinshell, Southern Pigtoe, and Triangular Kidneyshell), two at-risk aquatic species (Alabama Rainbow and Coosa Creekshell), and improve over 0.4 miles of designated critical habitat occurring in Holly Creek.



Cattle accessing the degraded riparian buffer, before restoration, Photo taken by Joseph Kirsch/USFWS. Community volunteers hammering in Black Willow and Silky Dogwood livestakes into an eroding streambank along Holly Creek to accelerate stabilization on 1Feb2023. Photo taken by Stephen Bontekoe/Limestone Valley Resources Conservation and Development Council

STATE SUMMARY

**\$265,981**  
PFW PROJECT INVESTMENTS

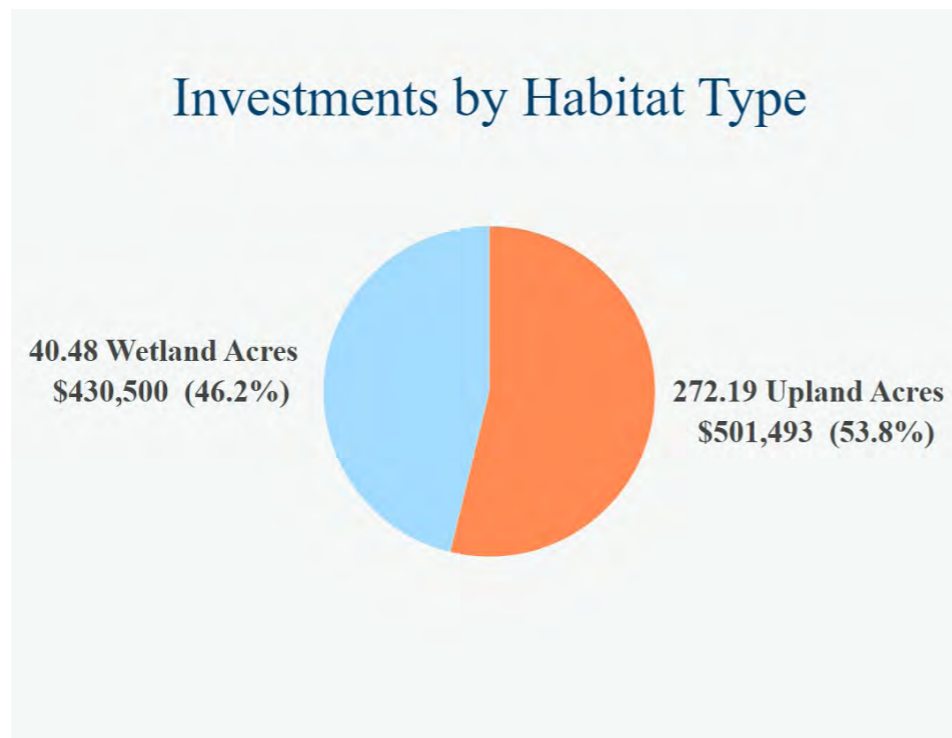
**\$666,012**  
PARTNER CONTRIBUTIONS

**\$931,993**  
TOTAL PROJECT INVESTMENTS

**\$1:2.5**  
LEVERAGE

**272.19**  
UPLAND ACRES

**40.48**  
WETLAND ACRES



Above: Completed 2023 PFW projects in Hawaii.  
Below: chart showcasing project investments by habitat type.



Left: The boundary fence of this project was sufficient to keep cattle out of the project, but not tall enough to exclude the invasive axis deer. Plastic mesh was used to add height to the existing fence to keep deer out of the project site. Photo Credit: Leeward Haleakalā Watershed Restoration Partnership  
Right: Goats were used as site prep in this project before outplanting. On the left of the photo is a movable electric fence dividing the enclosure so goats could graze the area to the right in January 2021. Photo Credit: Leeward Haleakalā Watershed Restoration Partnership.

## PROJECT HIGHLIGHT:

### Restoring Habitat for Rare Species at Kaupo Ranch

The mesic forests of leeward Haleakala contain a significant quantity of Hawaii’s endemic biodiversity. This area has been significantly depleted, with only 5-10% remaining.

This project focused on outplanting three endemic tree species: halapepe (*Pleomele auwahiensis*), aiea (*Nothocestrum latifolium*) listed endangered, and koa (*Acacia koa*).

The outplantings helped to reestablish forest canopy and provide sources of nectar and pollen to support native forest birds, bats, and invertebrates. Leeward Haleakala Watershed Restoration Partnership

(LHWRP) field staff collected seeds from native trees in the region, oversaw propagation, and outplanted the native seedlings across a 215-acre fenced unit. Incipient populations of priority invasive species within the restoration area, including Australian tree fern (*Sphaeropteris cooperi*), Christmas berry (*Schinus terebinthifolius*), silk oak (*Grevillea robusta*), and nonnative grasses such as kikuyu (*Cenchrus clandestinus*) were controlled.

Partners in the regional effort included the Department of Hawaiian Home Lands, Haleakala National Park (a Biosphere Reserve), Nu u Mauka Ranch, and Kipahulu Forest Reserve. LHWRP works with all partners to share resources, address regional issues such as invasive species, erosion, and fire, and implement restoration efforts such as seed collection and outplanting.

The public access trail to enter Haleakalā National Park traverses this site, offering the public a rare opportunity to experience restoration and observe the obvious distinction between pasture and invasive-species dominated ecosystems and native ecosystems. Volunteers and students were incorporated into the restoration efforts.

STATE SUMMARY

**\$170,585**  
PFW PROJECT INVESTMENTS

**\$1.57M**  
PARTNER CONTRIBUTIONS

**\$1.74M**  
TOTAL PROJECT INVESTMENTS

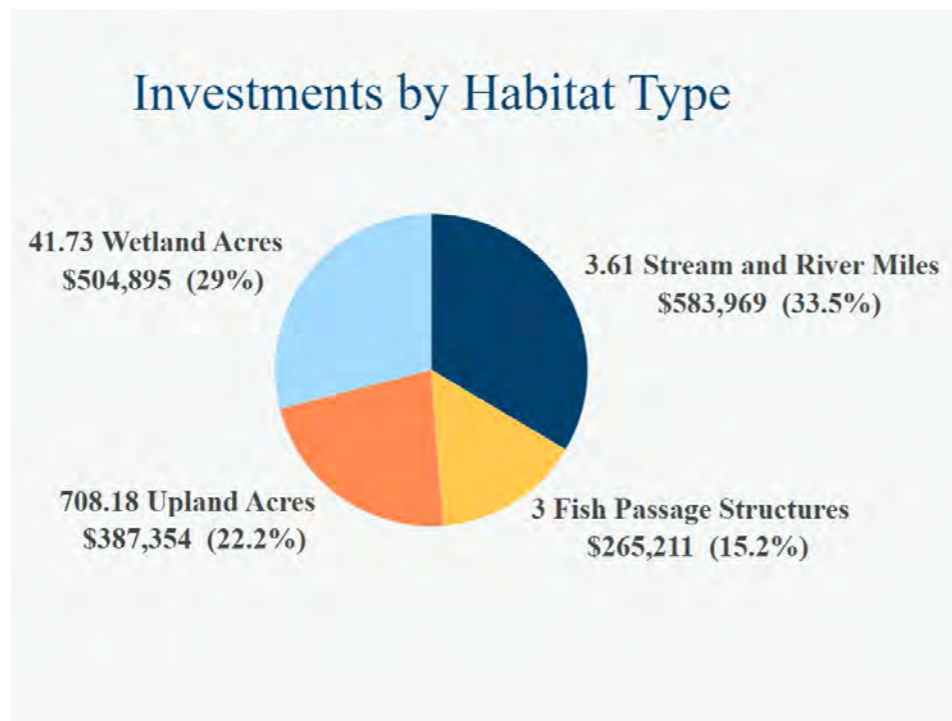
**\$1:9.2**  
LEVERAGE

**3.61**  
STREAM AND RIVER MILES

**708.19**  
UPLAND ACRES

**41.73**  
WETLAND ACRES

**3**  
FISH PASSAGE STRUCTURES



Above: Completed 2023 PFW projects in Idaho.  
Below: chart showcasing project investments by habitat type.



In Spring 2022, 595 conifers (yellow mesh protectors) were planted adjacent to an established ponderosa pine forest. The following spring (2023), 710 native shrubs (blue tubes) were planted adjacent to forested habitat to provide structural diversity. Trees/shrubs combined provide a 3-acre buffer surrounding reconstructed prairie habitat. Photo Credit: Brittany Morlin / USFWS.

## PROJECT HIGHLIGHT:

### Enhancing Biodiversity in the Palouse Prairie

Starting in 2018, a Latah County landowner started reconstruction efforts on LoSo Prairie to convert 8.9 acres of previously tilled hayfield (smooth brome) to a diverse mix of native grasses and forbs with a buffering perimeter of flowering native shrubs and trees. This effort will support expansion and reconnection of the few remaining Palouse Prairie remnants.

As part of a multi-year process, work has included removal of non-native weeds and planting native plants to increase cover, diversity and habitat for native pollinators, grassland songbirds, rare and endemic plants, and other wildlife within

this endangered ecosystem. PFW has worked with NRCS and Latah SWCD for over a decade to protect and restore the Palouse Prairie.

As the diverse mix of native plants continue to establish throughout the site, there will be further opportunities to enhance and diversify the stand in areas where weed control effort leave gaps in plant coverage.

Creation of wildlife and pollinator habitat on the degraded hayfield will enhance the landowner's previous efforts to improve the habitat value and diversity of the nearby hay field and forestland completed in partnership with NRCS EQIP and CSP, as well as the Latah Soil and Water Conservation District (SWCD) and U.S. Fish and Wildlife Service.



Photos showcasing native grass/forb seed mixes, to be broadcasted over bare spots to control invasives. Desert parsley, penstemon, and Oregon sunshine are blooming Photos by Brittany Morlin / USFWS.

STATE SUMMARY

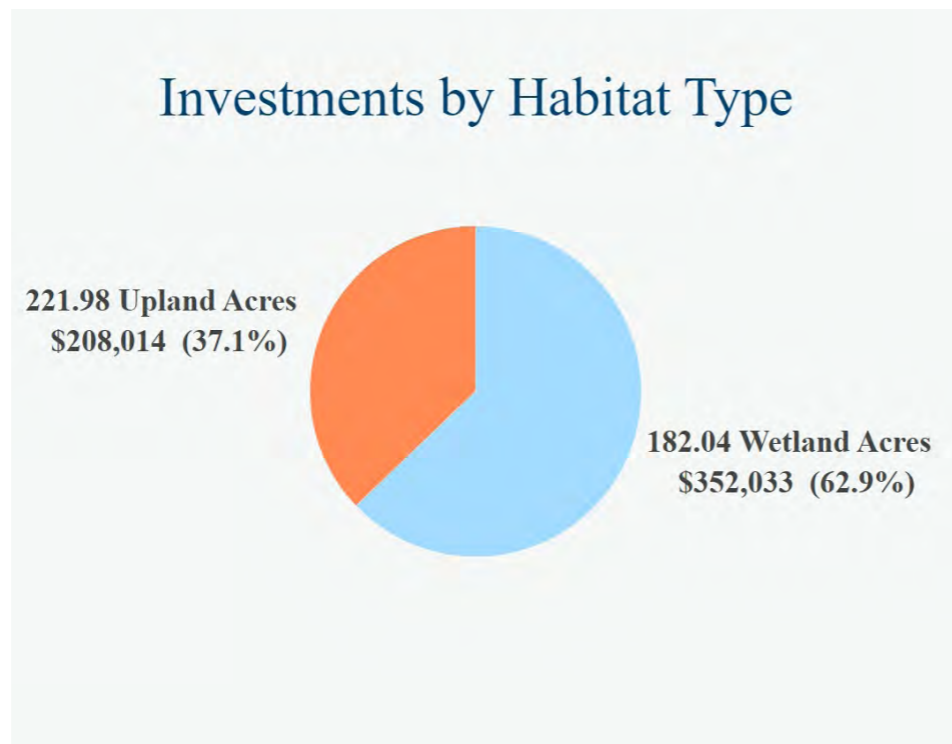
**\$27,246**  
PFW PROJECT INVESTMENTS

**\$532,801**  
PARTNER CONTRIBUTIONS

**\$560,047**  
TOTAL PROJECT INVESTMENTS

**\$1:19**  
LEVERAGE

**221.98**  
UPLAND ACRES  
**182**  
WETLAND ACRES



Above: Completed 2023 PFW projects in Illinois.  
Below: chart showcasing project investments by habitat type.



Aerial view of wetland restoration site. © Jean McGuire (Outreach Specialist for The Wetland Initiative).

## PROJECT HIGHLIGHT:

### Smart Wetland Workshop

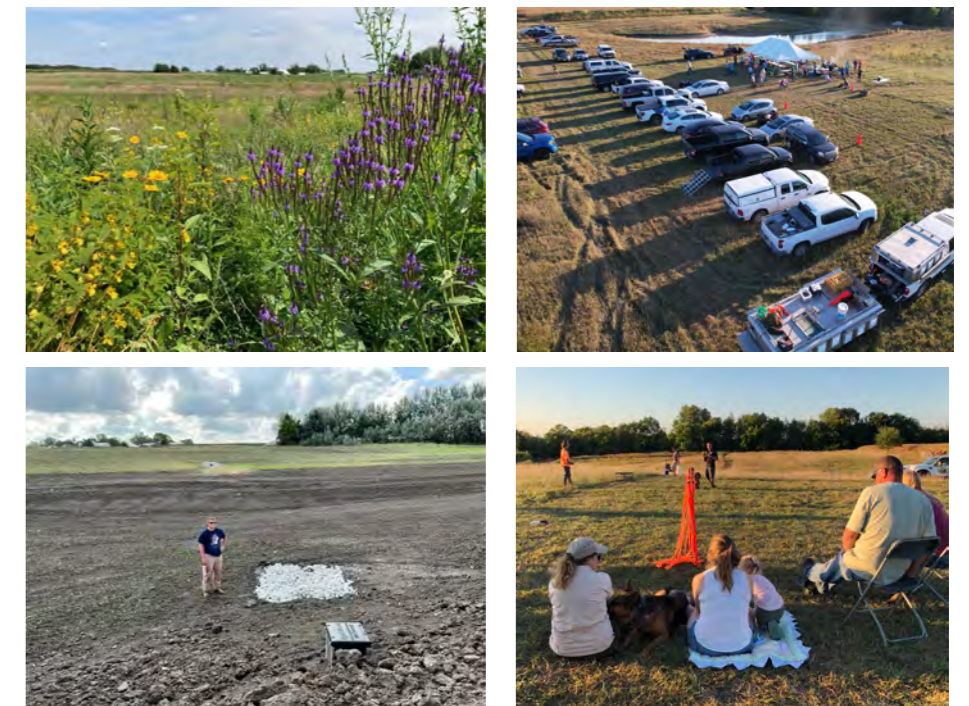
This property was recently purchased by a young, first time landowner intent on converting old pasture to wetland and native prairie habitat and using that platform to educate neighboring landowners through a series of workshops. Work consisted of planting 11 acres of prairie habitat with a diverse forb mix for pollinators and monarchs, upland wildlife, and nesting waterfowl.

Benefits to grassland birds include improved nesting and brood rearing cover and increased foraging opportunities based on the diverse seed mix.

This also represents a diverse partnership between Ducks

Unlimited, NAWCA, Pheasants Forever, Illinois DNR, the Illinois Land Improvement Contractors Association, and The Wetland Initiative.

The PFW biologist's role was to coordinate the prairie planting, design the seed mix, work with local contractors to oversee work, and provide cost-share. The restored wetland is an example of a "smart" wetland, which TWI pioneered, that is focused on removing runoff in agricultural landscapes that contributes to hypoxia in the Gulf of Mexico. So far, at least 200 people have attended a pair of workshops on the property.



Restored prairie habitat (top left), voluntary conservation crew (top right), demonstration of restoration site (bottom left), volunteers at the workshop. ©USFWS.

STATE SUMMARY

**\$102,813**  
PFW PROJECT INVESTMENTS

**\$418,722**  
PARTNER CONTRIBUTIONS

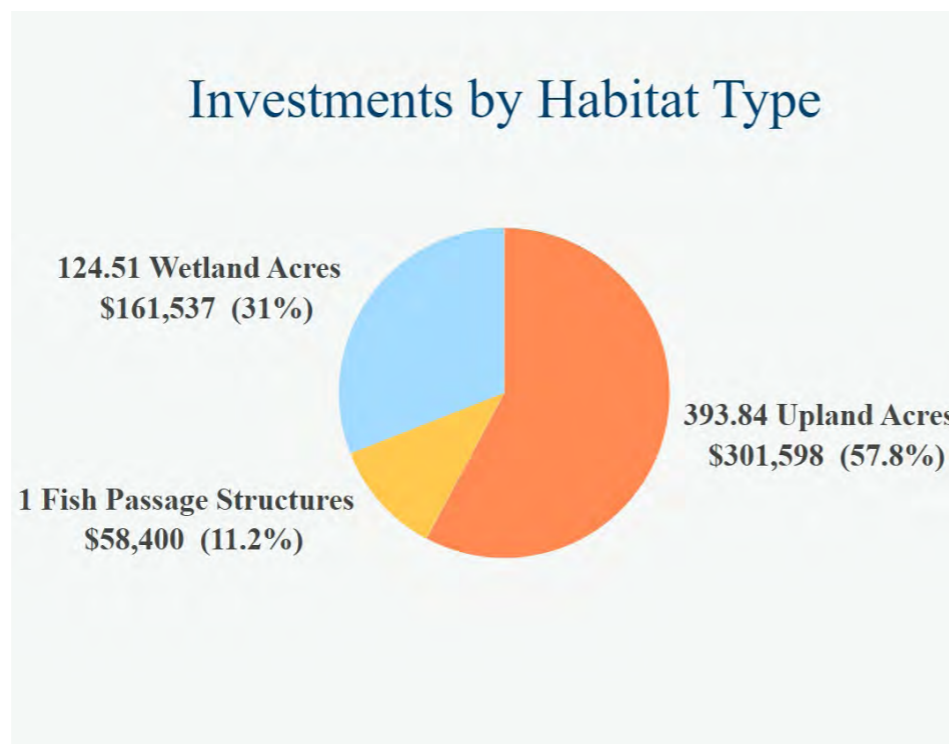
**\$521,535**  
TOTAL PROJECT INVESTMENTS

**\$1:4**  
LEVERAGE

**394**  
UPLAND ACRES

**125**  
WETLAND ACRES

**1**  
FISH PASSAGE STRUCTURE



Above: Completed 2023 PFW projects in Indiana.  
Below: chart showcasing project investments by habitat type.



Restoration at project site with heavy equipment. Inset: restored wetland habitat. ©USFWS.

## PROJECT HIGHLIGHT:

### Diamonds Park Restoration

This project restored 4.5 acres of wetland habitat and 21 acres of adjacent prairie at Hidden Diamonds Park, owned by the Town of Albion in Noble County, IN. It will provide wetland and upland nesting habitat for Mallards, Blue-winged teal, Wood ducks, American woodcock and a host of other migratory bird species as well as reptiles and amphibians.

The project included restoring two pothole wetlands with earthen dams, overflow pipes, anti-seep collars, rip-rap outlet protection, emergency spillways, and drainage tile to maintain upstream drainage and restore hydrology to the wetlands.

The property is located within the Glacial Wetlands and Grasslands Focus Area of the Indiana Partners for Fish and Wildlife Program.

This project was completed through the Northeast Indiana Wetland and Grassland Restoration Project, a cooperative partnership between PFW, Ducks Unlimited, and the Indiana DNR to restore wetland and grassland habitats on private lands in northeast Indiana.

The PFW biologist surveyed and designed the wetlands and coordinated with the landowner and partners. Several funding sources, including PFW, NAWCA, Ducks Unlimited, Indiana DNR, the Great Lakes Restoration Initiative, and the Town of Albion, combined to make this a wonderful example of a project that could not have happened with PFW alone. The restored prairie will provide habitat for nesting waterfowl, grassland birds, pollinators and monarchs, and is already being used for educational opportunities, hiking, birdwatching, and quiet relaxation.



PFW biologist Scott Fetters with project partnership signage. ©USFWS.

STATE SUMMARY

\$116,493

PFW PROJECT INVESTMENTS

\$483,707

PARTNER CONTRIBUTIONS

\$600,200

TOTAL PROJECT INVESTMENTS

\$1:4.2

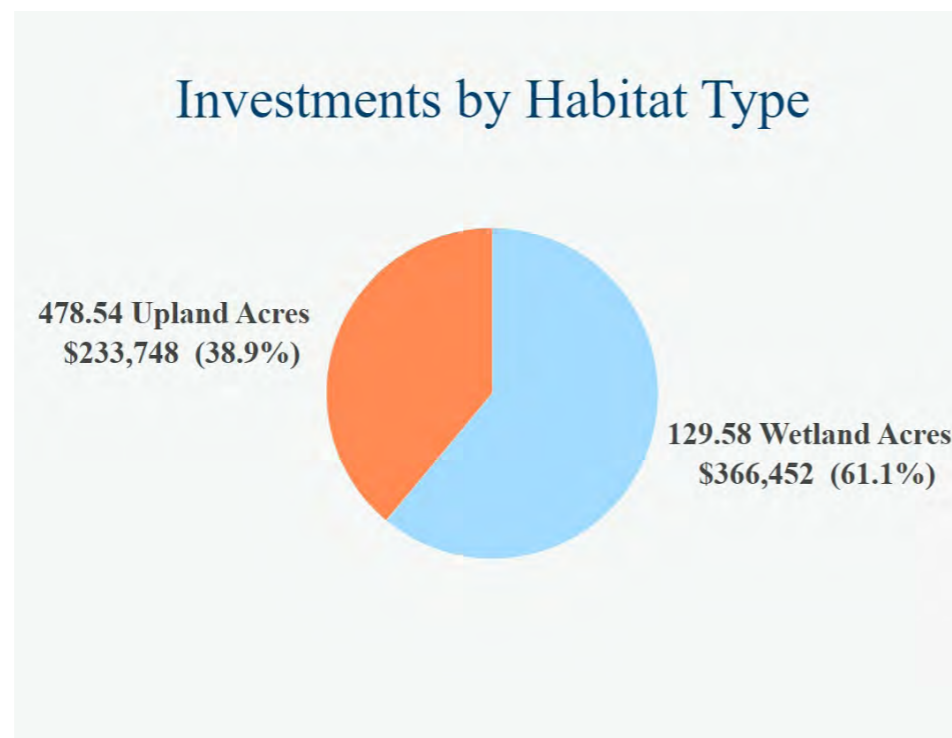
LEVERAGE

479

UPLAND ACRES

130

WETLAND ACRES



Above: Completed 2023 PFW projects in Iowa.  
Below: chart showcasing project investments by habitat type.



Restoration team at the project site. ©USFWS.

PROJECT HIGHLIGHT:

Native Prairie Restoration

This project enhanced 51.2 acres of high-quality, diverse native prairie on private land located in Jackson County, Iowa.

This project reset grassland community succession, enhanced a non-native, cool-season grass dominated prairie, and created more biodiversity for pollinators, migratory birds, and resident wildlife.

The enhancement directly benefits the monarch butterfly and the Federally endangered rusty-patched bumblebee. Additionally, this project is in a watershed flowing into the Upper Mississippi National Wildlife and Fish Refuge.

This project, located within the Iowa PFW Program's Driftless

Area Focus Area and a Rusty Patched Bumblebee High Potential Zone, leveraged resources from partner organizations such as Practical Farmers of Iowa, the Wildlife Conservation Society's Climate Adaptation Fund Grant, the Iowa Department of Natural Resources, the private landowner, and NWRS staff to complete the enhancements with significant cost-savings to the Service and private landowner.



Top left: biologists monitoring the restored prairie habitat.  
Bottom left: applying prescribed fire at the project site.  
Right: Rusty Patched Bumblebee.  
©USFWS

STATE SUMMARY

**\$131,370**  
PFW PROJECT INVESTMENTS

**\$1.31M**  
PARTNER CONTRIBUTIONS

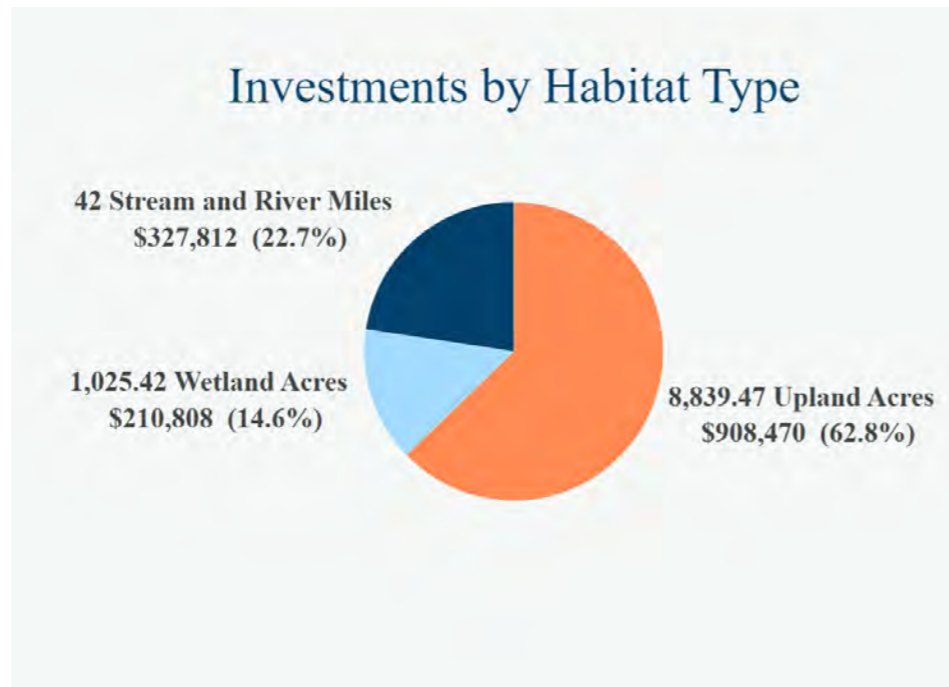
**\$1.44M**  
TOTAL PROJECT INVESTMENTS

**\$1:10**  
LEVERAGE

**42**  
STREAM AND RIVER MILES

**8,839**  
UPLAND ACRES

**1,025**  
WETLAND ACRES



Above: Completed 2023 PFW projects in Kansas.  
Below: chart showcasing project investments by habitat type.



Before (top) and after restoration (below). © USFWS.

**PROJECT HIGHLIGHT:**

Lesser Prairie-Chicken and Monarch Habitat Restoration

Partners contributing to this project in Barber County, KS include the KGLC, NFWF, private ranchers, KDWP, Gyp Hills Prescribed Burn Association, DU and PFW in Kansas.

This project improved habitat conditions for grassland-dependent and aquatic wildlife species while benefiting working agricultural lands and surrounding communities through increased livestock forage, water quantity, soil health, economic growth, wildlife and plant diversity and reduced risk of catastrophic wildfire. This project falls within the Kansas Southwest Prairies and Playas Focus Area.

The 2,000 acre project site is dominated by native mixed-grass prairie managed for livestock production and is within a region of continental significance for grassland bird conservation and a high production area for Monarch butterfly and other pollinators, providing breeding and migrating habitat. Resource concerns included range condition, woody residue from Anderson Creek wildfire, live tree encroachment, soil erosion, lack of livestock water and interior fence condition. The project connects to an existing project that included mechanical tree control, prescribed fire and excellent grazing management to benefit the range condition. This ranch has become a core grassland area free of redcedar and other invasive trees, setting an example for other land managers. The Landowner is a community leader, dedicating time to serve as president of Prescribed Burn Associations and a board member on state and regional grazing organizations. This project benefits cattle production and grassland wildlife species, such as lesser prairie-chicken, grasshopper sparrow, upland sandpiper, northern bobwhite and monarch butterfly.

Restoration practices included mechanical tree removal, firebreak establishment, fence removal, prescribed burning and prescribed grazing.



Cattle grazing on restored project site. © USFWS.



STATE SUMMARY

\$12,501  
PFW PROJECT  
INVESTMENTS

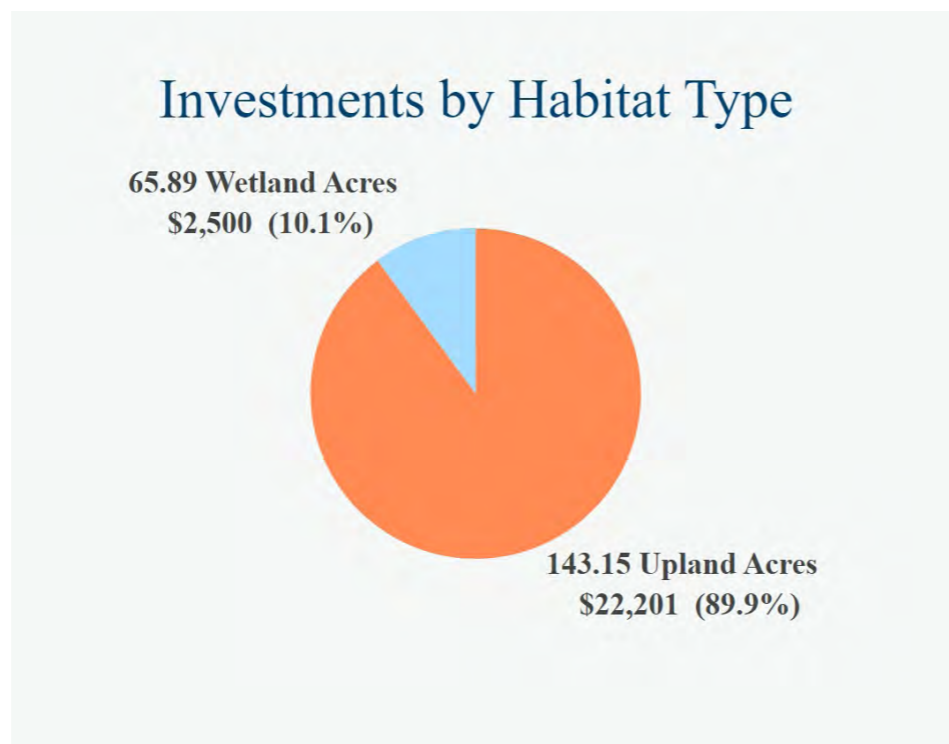
\$12,200  
PARTNER  
CONTRIBUTIONS

\$24,701  
TOTAL  
PROJECT  
INVESTMENTS

\$1:1  
LEVERAGE

143  
UPLAND  
ACRES

66  
WETLAND  
ACRES



Above: Completed 2023 PFW projects in Kentucky.  
Below: chart showcasing project investments by habitat type.



Heavy equipment notching the dam as part of barrier removal. ©USFWS.

## PROJECT HIGHLIGHT:

### Roundstone Barrier Removal

PFW worked cooperatively with a private landowner to complete a strategic habitat conservation project that will aid in the recovery of the federally listed Cumberland bean (*Venustaconcha trabalis*) mussel and improve habitat for its fish host, the striped darter (*Etheostoma virgatum*).

The project is located in Roundstone Creek, which is a major tributary of the Rockcastle River and a strategic conservation area for the PFW Program in Kentucky. In addition, Roundstone Creek is designated as an Outstanding Water Resources and a future Cumberland bean mussel reintroduction site by the Kentucky Department of Fish

and Wildlife Resources Center for Mollusk Conservation. Roundstone Creek is also a designated "Focused Conservation" area for the Natural Resource Conservation Service (NRCS).

This project entailed the removal a large manmade concrete barrier that is impeding flow in Roundstone Creek. It also included the repair of the adjacent stream bank and a head cut that had progressed 100 feet into the floodplain. This concrete barrier was impeding flow and restricting fish migration during low flow periods. Removing the barrier eliminated those impediments and allows Cumberland bean populations to establish further upstream. Repairing the head cut and adjacent bank also reduces sediments, which is detrimental to mussels. Cumberland bean releases are scheduled for 2023 or 2024.

The barrier was removed with PFW and Service Fish Passage Funds. Other essential and contributing partners include NRCS, Kentucky Department of Transportation, Kentucky Division of Water and the private landowner.



Before barrier removal (left) and after barrier removal (right). ©USFWS.

STATE SUMMARY

\$1.8M

PFW PROJECT INVESTMENTS

\$1.9M

PARTNER CONTRIBUTIONS

\$3.7M

TOTAL PROJECT INVESTMENTS

\$1:1

LEVERAGE

16.69

STREAM AND RIVER MILES

1016

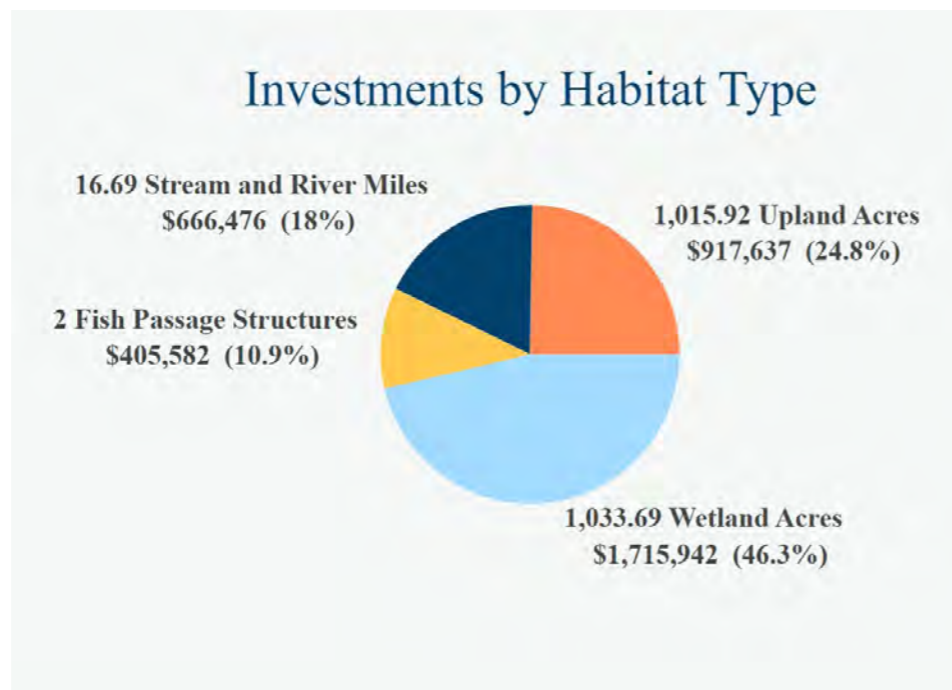
UPLAND ACRES

1033

WETLAND ACRES

2

FISH PASSAGE STRUCTURES



Above: Completed 2023 PFW projects in the Klamath Basin.  
 Below: chart showcasing project investments by habitat type.



California Conservation Corps constructing Log Jam 2 on the Cottonwood Creek Accelerated Wood Recruitment Project Phase II. ©USFWS.

## PROJECT HIGHLIGHT:

### Cottonwood Creek Accelerated Wood Recruitment Project Phase II

Cottonwood Creek is a tributary to the Klamath River approximately ten river miles downstream of Iron Gate Dam. The lower reaches of the creek support Coho Salmon while the mid and upper reaches of the creek support steelhead. However, much of Cottonwood Creek lacks large in-stream wood, an important habitat component for both of these species.

To address this issue, the Service partnered with industrial timber land owners and the California Conservation Corp to accelerate the recruitment of large wood back into the creek. Specifically, this project dropped large diameter creek-side conifers using chainsaws directly into the creek. California

Conservation Corp crews then used hand-operated grip hoists and cables to move and interlock the dropped trees and anchor them against creek-side trees and boulders to reduce mobility during high flow events.

The project was implemented in two phases. Phase I was completed in 2020 and Phase II was completed in 2023. Collectively, the two phases created a series of discrete logjams of four to six logs throughout a 0.5 mile reach of the creek. The logjams restored habitat for Coho Salmon and steelhead by creating slow water juvenile rearing habitat, providing hiding cover from predators, and sorting gravels used for spawning. Because all project activities were completed by hand and heavy equipment was not employed, this project features a low-cost and low-impact technique for restoring salmonid habitat.



Looking downstream at project site and California Conservation Corps using a grip hoist and cable to move dropped trees on the Cottonwood Creek Accelerated Wood Recruitment Project Phase II.

STATE SUMMARY

**\$234,000**  
PFW PROJECT INVESTMENTS

**\$105,000**  
PARTNER CONTRIBUTIONS

**\$339,000**  
TOTAL PROJECT INVESTMENTS

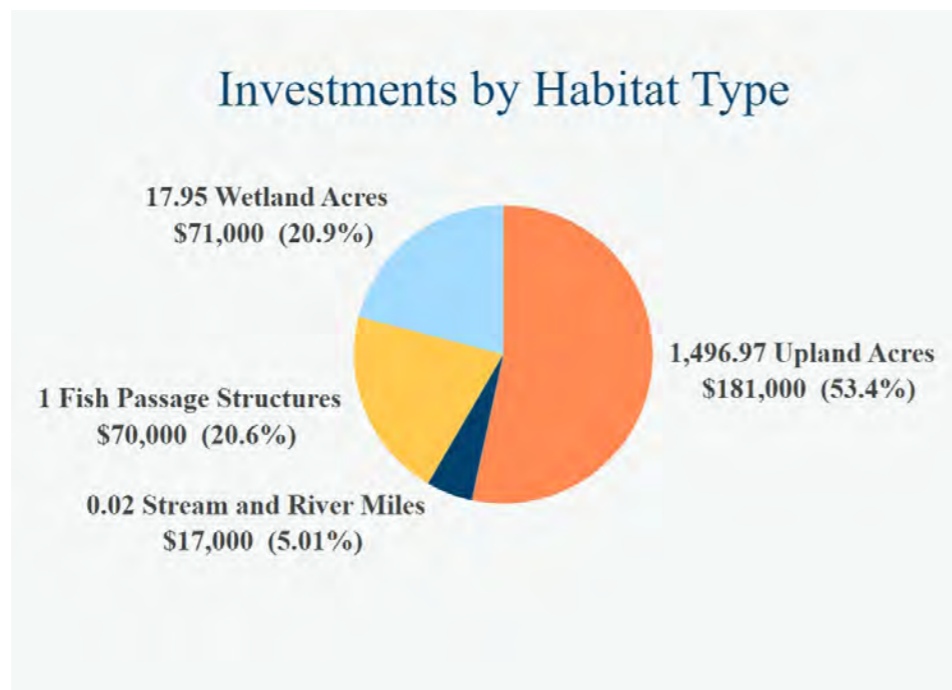
**\$1:0.5**  
LEVERAGE

**1,497**  
UPLAND ACRES

**18**  
WETLAND ACRES

**0.02**  
STREAM AND RIVER MILES

**1**  
FISH PASSAGE STRUCTURE



Above: Completed 2023 PFW projects in Louisiana.  
Below: chart showcasing project investments by habitat type.



Right side post herbicide treatment. ©USFWS.

**PROJECT HIGHLIGHT:**

Rapides Parish Forest Restoration

This project involves the restoration and enhancement of open longleaf pine habitats on approximately 4,300 acres of mixed longleaf and loblolly pine forest in Rapides Parish, Louisiana. Restoration and enhancements activities include thinning canopy trees to a low basal area, removing midstory hardwood trees and shrubs via mechanical clearing and herbicide applications, and promoting a diverse herbaceous understory by increasing the amount of sunlight that reaches the forest floor and conducting prescribed fires across the site.

These open conditions allow for a diverse herbaceous understory and are critical

for the endangered Red-cockaded woodpecker (RCW), which is currently being managed for here through a Safe Harbor Agreement. Other species that may benefit from this project include the threatened Louisiana pinesnake, numerous at-risk pollinators, as well as game species such as quail and turkey.

To date, over 2,000 acres have been burned, and many of those have also had mechanical or herbicide treatments to reduce the midstory. The remaining 2,300 acres will be burned before project completion. RCW trees have been protected from fires by raking around them and cavity inserts have been installed/replaced within active and recruitment clusters. Waterbars have been installed along dirt roads to minimize erosion. Longleaf seedlings have been planted on 55 acres and an additional 100 acres will be planted before project completion.



Prescribed fire (left) and planted longleaf pine seedlings (right). ©USFWS.

STATE SUMMARY

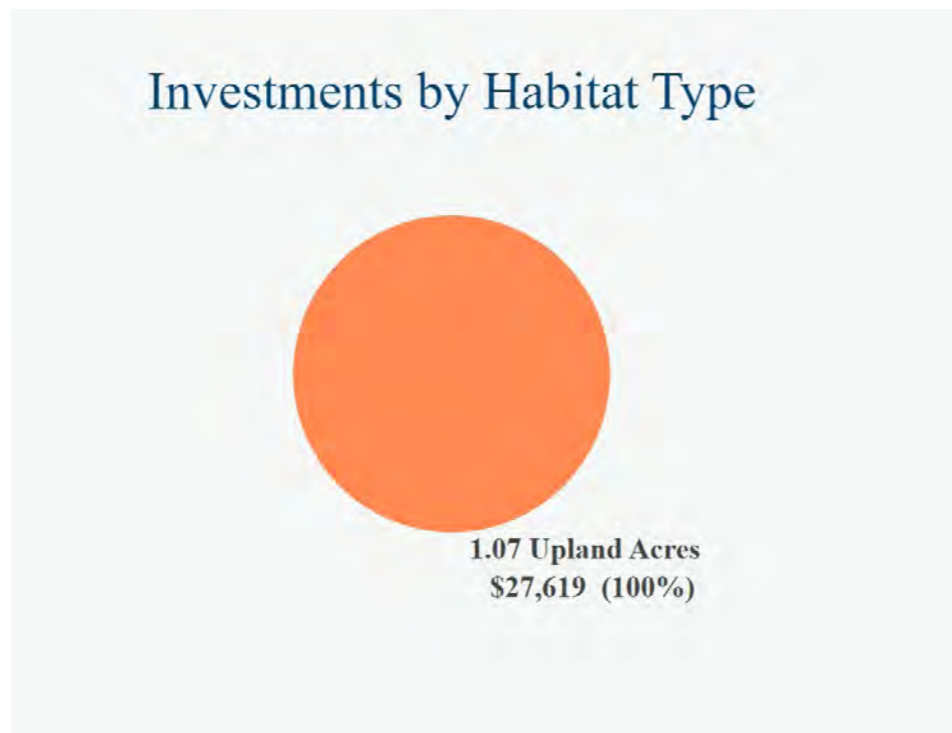
\$14,502  
PFW PROJECT  
INVESTMENTS

\$13,117  
PARTNER  
CONTRIBUTIONS

\$27,619  
TOTAL  
PROJECT  
INVESTMENTS

\$1:0.9  
LEVERAGE

1.07  
UPLAND  
ACRES



Above: Completed 2023 PFW projects in Maine.  
Below: chart showcasing project investments by habitat type.



PFW biologist Hannah Mullally planting riparian buffer (left) and native plants plated in the riparian area at project site. ©USFWS.

### PROJECT HIGHLIGHT:

#### Narraguagus River Restoration

Riparian buffers are important to the health of river and stream ecosystems. A well wooded buffer provides bank stability, a source of organic material and terrestrial invertebrates, regulates water temperature through shade, and contributes in-stream complexity through course woody debris. Industrial log drives of yesteryear and the subsequent network of logging roads have taken their toll on riparian buffers in Maine, with the wooded riparian buffer removed completely or with low species diversity.

In 2022, engineered log jams were installed on a reach of the Narraguagus River in Maine to provide instream habitat and cold water refugia for the

federally endangered Atlantic salmon. The log jams also expanded the floodplain riparian area. Building off the engineered log jam project, this riparian project re-vegetated the newly restored floodplain and helped to jump-start forest succession.

Over the course of three planting events, PFW worked with various partners including Project SHARE, Maine Audubon, Maine Department of Marine Resources, NRCS, NOAA, and others to plant over 750 native plants within the riparian area. A wide diversity of native plants was used and the survival rate over the first growing season has exceeded expectations.

These plants will not only provide bank stability and shade for cold water fish, but also provide nectar and nesting resources for native pollinators and habitat for the 85% of Maine's wildlife species which use riparian habitat during their annual life cycle. This project of 0.36 acres is the first of several PFW projects which will restore riparian vegetation.

STATE SUMMARY

**\$40,384**  
PFW PROJECT  
INVESTMENTS

**\$530,962**  
PARTNER  
CONTRIBUTIONS

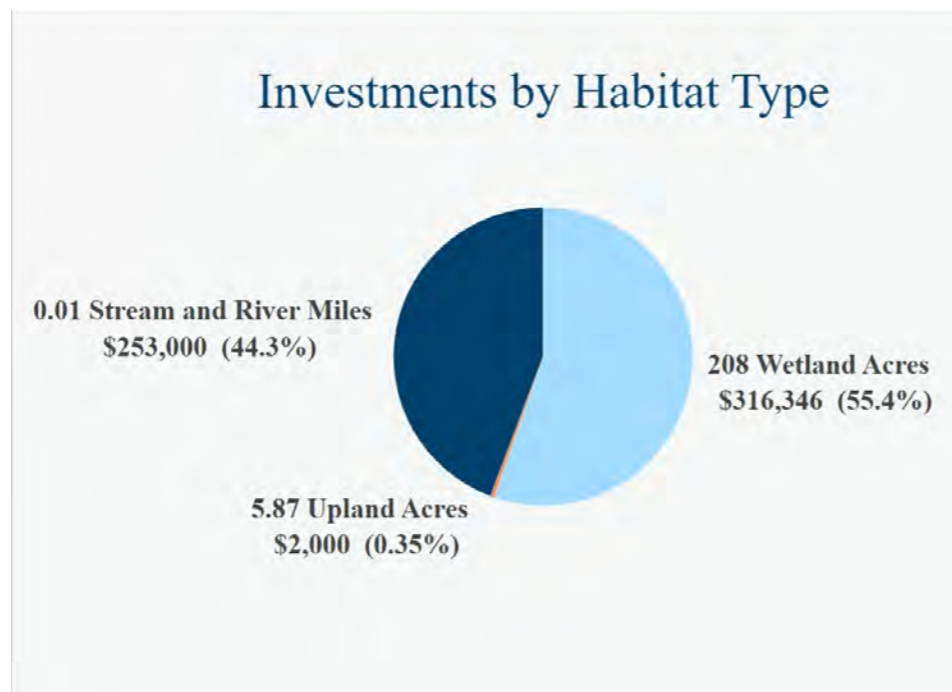
**\$571,346**  
TOTAL  
PROJECT  
INVESTMENTS

**\$1:13**  
LEVERAGE

**5.87**  
UPLAND  
ACRES

**208**  
WETLAND  
ACRES

**0.01**  
STREAM  
AND RIVER  
MILES



Above: Completed 2023 PFW projects in Maryland.  
Below: chart showcasing project investments by habitat type.



Degraded Rum Pointe marsh (lower half of photo), prior to restoration, and neighboring degraded marsh. Note fully formed pools within the grid ditch system. Photo by William Nardin, University of Maryland Center for Environmental Science (UMCES)

**PROJECT  
HIGHLIGHT:**

**Rum Pointe Runnel Project**

As part of a landscape-scale partnership in the Maryland Coastal Bays to restore and recover damaged saltmarshes, the Rum Pointe runnel project was completed. This 32-acre marsh, located in Sinepuxent Bay, has been significantly degraded by historic grid ditching and sea level rise. As a result, large pools of standing water, disconnected from tidal flow, formed on the marsh platform. Higher elevations along the ditch banks cause water to impound on the marsh surface, killing the marsh grasses and causing chemical changes in the marsh soils. Widespread loss of habitat for coastal species has occurred in Maryland saltmarshes due to the pool formation process.

Restoration was carried out on the site using a new restoration technique piloted in other northeast region locations. Runnels involve digging shallow channels, no deeper than one foot, to connect the pools to the ditch drainage system onsite. These channels reconnect the pools with natural tidal flow, allowing the stagnant water to drain from the marsh platform. Once tidal flow is reestablished, native marsh vegetation can spread and recolonize where the pools once were.

In partnership with University of Maryland, extensive pre- and post-monitoring of the Rum Pointe restoration is occurring, including soil chemistry, vegetation, and elevation data. These assessments will inform future restoration efforts in our region. USFWS staff worked with a large partnership, including universities, nonprofit organizations, and state and federal agencies, to undertake the work at Rum Pointe and plan for future conservation and restoration work in the Maryland Coastal Bays.



Contractors hand-digging a runnel at Rum Pointe. Photo by Katherine Stahl, USFWS.

STATE SUMMARY

**\$17,400**  
PFW PROJECT INVESTMENTS

**\$32,000**  
PARTNER CONTRIBUTIONS

**\$49,400**  
TOTAL PROJECT INVESTMENTS

**\$1:1.8**  
LEVERAGE



P.A.T.C.H. volunteers working to transform a vacant lot into a pocket park. ©USFWS.

**PROJECT HIGHLIGHT:**

Community-Grown Greenspace in Springfield

This area will be used as an educational greenspace for the community, a rain garden, and urban agriculture. The project illustrates the importance of these small open spaces in the city for the community to come and relax and enjoy the outdoors and the sights and sounds of nature.

The PFW Program worked in Massachusetts with People Aligning to Create Harmony (P.A.T.C.H.) to assist in transforming a vacant lot into a pocket park in Springfield. Staff engaged community members as part of the Urban Wildlife Conservation Partnership and environmental justice efforts in Springfield, MA, to restore a wetland and plant a buffering pollinator habitat in this community. Springfield has a population of about 154,000 people, and 26% of residents are in poverty.

With the efforts of neighborhood volunteers and Youth Conservation Corps (YCC), the project restored a small wetland for wildlife and installed pollinator friendly plants.

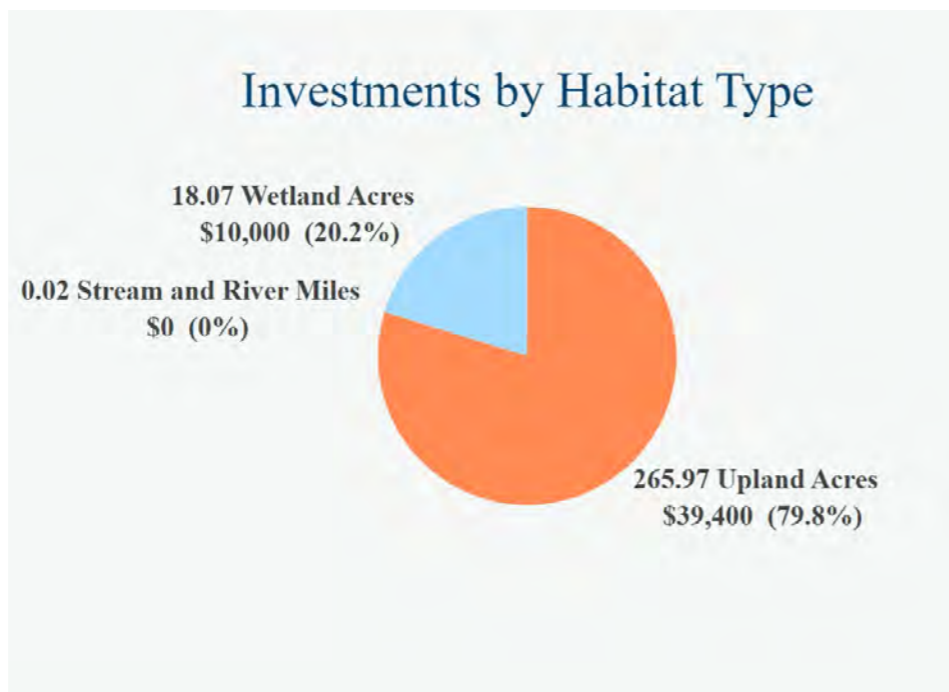


Planting pollinator friendly plants and designing a rain garden in an urban setting for constituents to enjoy. ©USFWS

**266**  
UPLAND ACRES

**18**  
WETLAND ACRES

**0.02**  
STREAM AND RIVER MILES



Above: Completed 2023 PFW projects in Massachusetts. Below: chart showcasing project investments by habitat type.

STATE SUMMARY

**\$160,544**

PFW PROJECT INVESTMENTS

**\$1.43M**

PARTNER CONTRIBUTIONS

**\$1.59M**

TOTAL PROJECT INVESTMENTS

**\$1:8.9**

LEVERAGE

**644.6**

UPLAND ACRES

**808**

WETLAND ACRES

**0.51**

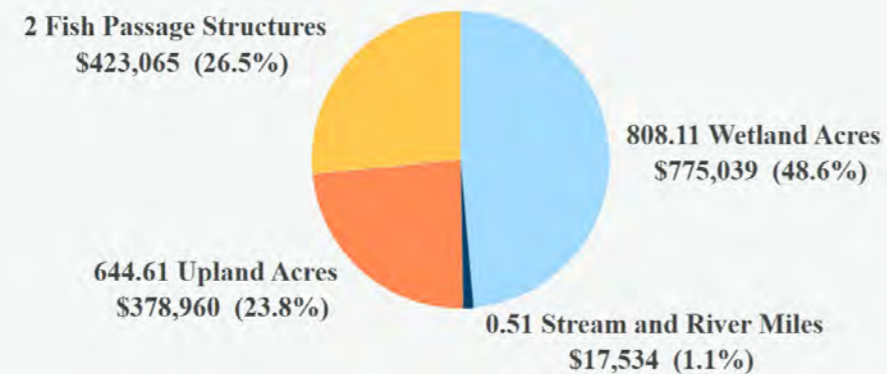
STREAM AND RIVER MILES

**2**

FISH PASSAGE STRUCTURES



Investments by Habitat Type



Above: Completed 2023 PFW projects in Michigan.  
Below: chart showcasing project investments by habitat type.



Volunteers at restoration site. © Joe Bruce, Trout Unlimited

PROJECT HIGHLIGHT:

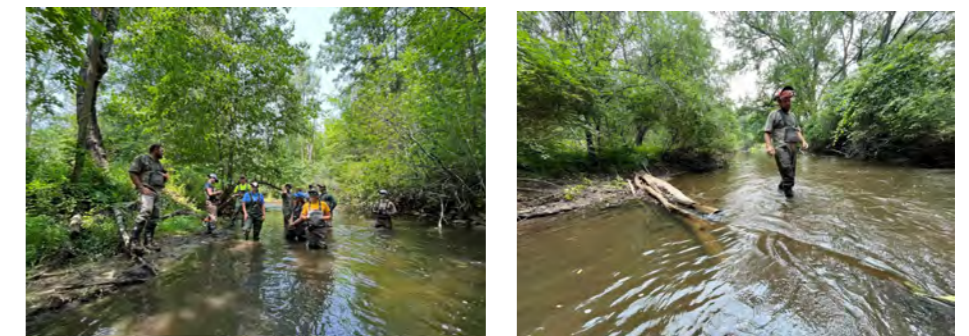
Restoring Paint Creek

This partnership between the Service's PFW Program, the Great Lakes Restoration Initiative, Trout Unlimited, and the Clinton River Watershed Council improved more than 1,800 feet of streambank along Paint Creek in Southeastern Michigan to address excessive erosion and lack of crucial habitat features.

This is a rare opportunity to improve a trout stream so far south in the state, which will improve resiliency in the face of climate change. It will also support brown trout and a diverse array of other aquatic species, specifically by creating riffle-pool-cover habitat and diverting sediment.

The PFW biologist provided financial assistance, project design, and implementation coordination. Work, which installed 61 submerged log structures throughout the stretch of streambank, was done by a diverse team of volunteers from various local Trout Unlimited chapters, the Clinton River Watershed Council, local high school and college students, as well as a local contractor.

Paint Creek is the most accessible trout stream to a majority of Michigan's population and is used by the public for many types of recreation.



Volunteers working in-stream, restored Paint Creek project site with habitat features such as woody vegetation. © Joe Bruce, Trout Unlimited.

STATE SUMMARY

\$460,713

PFW PROJECT INVESTMENTS

\$5.11M

PARTNER CONTRIBUTIONS

\$5.57M

TOTAL PROJECT INVESTMENTS

\$1:11

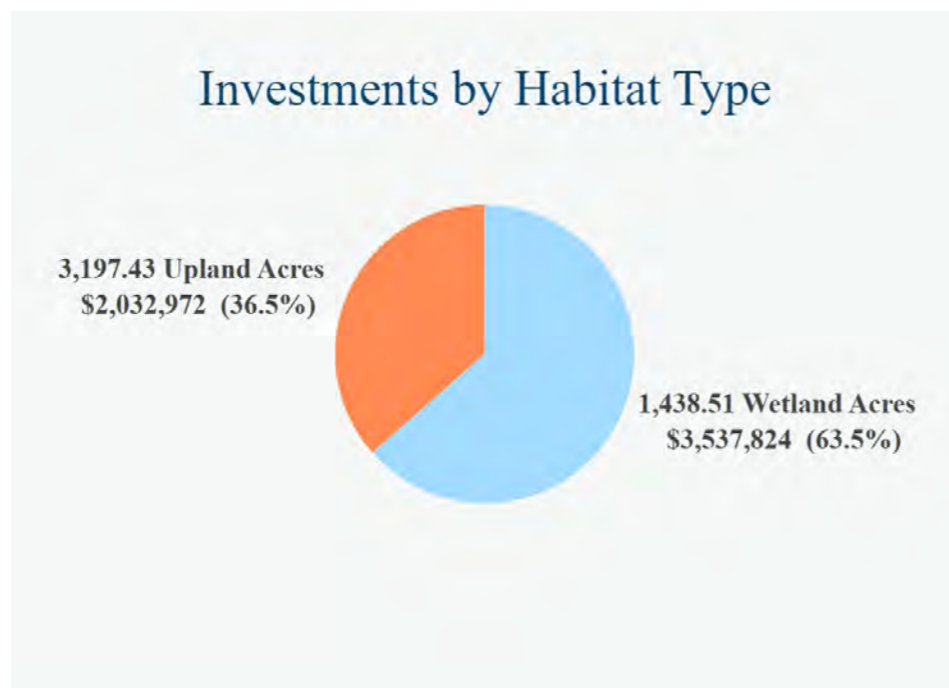
LEVERAGE

3,197

UPLAND ACRES

1,439

WETLAND ACRES



Above: Completed 2023 PFW projects in Minnesota. Below: chart showcasing project investments by habitat type.



During restoration. ©USFWS.

PROJECT HIGHLIGHT:

Big Stone Habitat Conservation

This wetland and prairie restoration in Big Stone County represents a partnership between the Service, Minnesota Land Trust, and the Minnesota Sharp-tailed Grouse Society.

The property is protected in perpetuity by a Service habitat easement. It is also in close proximity to other protected lands and is part of a large-scale effort by the Service and others to restore habitat in the prairie pothole region. Work consisted of restoring cropland to native prairie by planting high diversity, local ecotype native seed mixes. Invasive woody plant species were also removed using a combination of hand cutting and mechanical removal.

This should provide high quality prairie habitat for migratory birds, resident wildlife, and pollinators. Multiple wetlands were also restored by constructing ditch plugs and removing sediment. Spot spraying perennial weeds to control invasive species while limiting herbicide exposure to native plant species will occur in the long-term. A combination of prescribed burning, grazing, and haying will be used to remove biomass accumulation, stimulate native plant growth, prevent woody plant encroachment, and set back exotic cool-season grasses.

The PFW biologist was significantly involved as the project manager by providing the Project Plan, technical assistance, and by providing and planting the high diversity native seed mix on disturbed areas.



Migratory birds utilizing the restored habitat. ©USFWS.



STATE SUMMARY

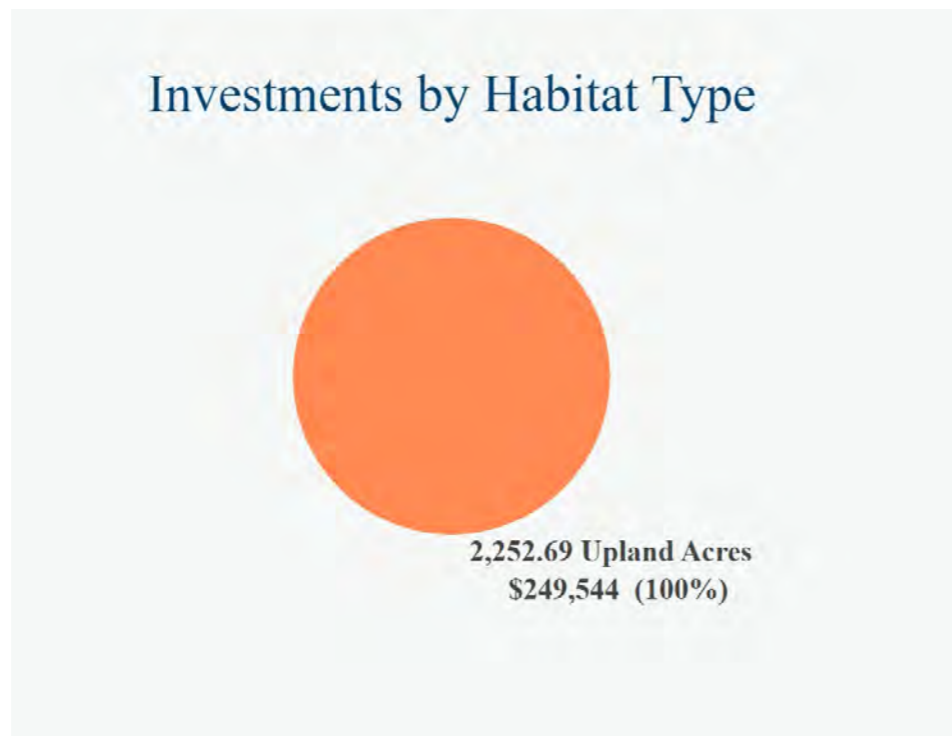
\$3,182  
PFW PROJECT  
INVESTMENTS

\$246,362  
PARTNER  
CONTRIBUTIONS

\$249,544  
TOTAL  
PROJECT  
INVESTMENTS

\$1:77  
LEVERAGE

2,253  
UPLAND  
ACRES



Above: Completed 2023 PFW projects in Mississippi.  
Below: chart showcasing project investments by habitat type.



Designated T&E management area after prescribed-burn and cogongrass control. Photo: Randy Browning / USFWS.

**PROJECT  
HIGHLIGHT:**

Covington County Prescribed  
Fire and Cogongrass Control

This project controlled cogongrass (*Imperata cylindrica*) on upland pine grassland habitat in Covington County, Mississippi. The owner of the project property recently renewed a Safe Harbor Agreement with the Service for the benefit of T&E species. Unfortunately, the upland pine habitat on the tract is infested with cogongrass. Cogongrass is a non-native, invasive perennial grass that forms dense vegetative colonies. When untreated, this species of grass will displace the native understory vegetation that a multitude of wildlife species depend upon.

This project consisted of

controlling approximately 35 acres of cogongrass with selective hand application of herbicide across 536 acres of pine grassland habitat. The landowners contributed to the project by conducting controlled burns across the tract prior to herbicide application to improve cogongrass detection and herbicide efficiency. This project has enhanced the understory vegetation within the tract for the benefit of the listed gopher tortoise (*Gopherus polyphemus*), and black pinesnake (*Pituophis melanoleucus lodingi*) as well as the at-risk Eastern diamondback rattlesnake (*Crotalus adamanteus*).

Species of concern that will benefit from the project include but are not limited to the Chuck-will's-widow (*Antrostomus carolinensis*), red-headed woodpecker (*Melanerpes erythrocephalus*), brown-headed nuthatch (*Sitta pusilla*), and Bachman's sparrow (*Peucaea aestivalis*). The landowner will continue to control cogongrass and conduct prescribed burns for the benefit of the above listed species as well as a multitude of other native wildlife species.



Dense cogongrass infestation within the pine upland (left). Contractor controlling cogongrass with selective herbicide applications (right). Photos: © Randy Browning / USFWS.

STATE SUMMARY

**\$59,813**  
PFW PROJECT INVESTMENTS

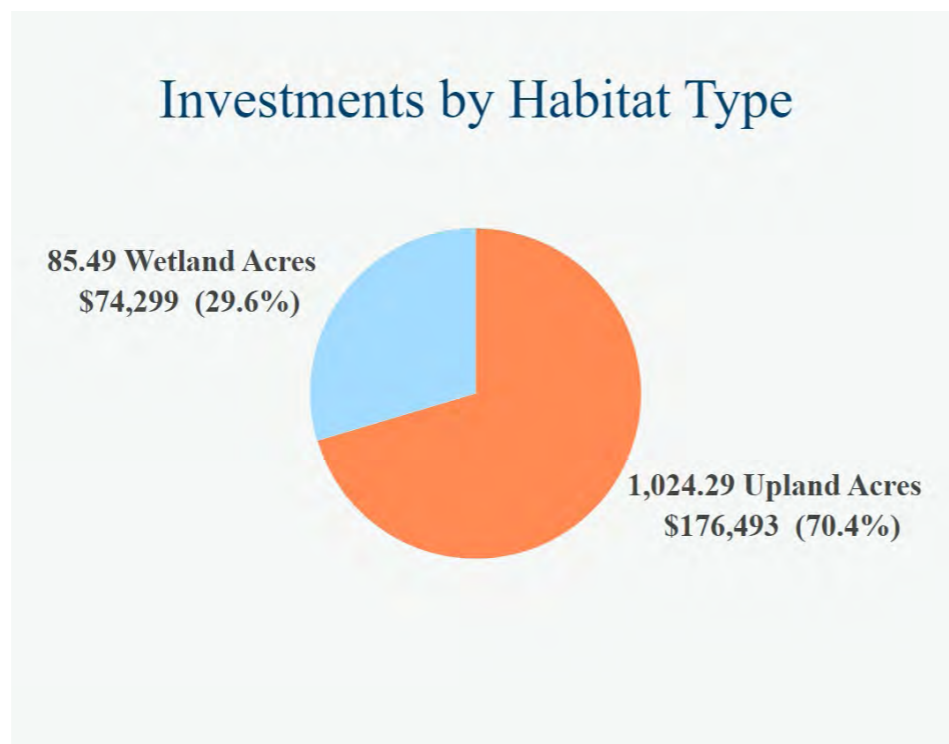
**\$190,979**  
PARTNER CONTRIBUTIONS

**\$250,792**  
TOTAL PROJECT INVESTMENTS

**\$1:3.2**  
LEVERAGE

**1,024**  
UPLAND ACRES

**85**  
WETLAND ACRES



Above: Completed 2023 PFW projects in Missouri.  
Below: chart showcasing project investments by habitat type.



Proud landowner with PFW biologist at the Rainbow Wetland site. ©USFWS.

## PROJECT HIGHLIGHT:

### Rainbow Wetland Restoration

This wetland project in the Mississippi River Alluvial Basin, nicknamed the Rainbow Wetland, enhanced 17 acres of wet prairie and herbaceous moist soil wetland habitat. Pollinator plantings on disturbed areas associated with construction were also restored adding more diversity to the site for the benefit of a greater suite of species. Species benefiting from this project include the pectoral sandpiper, lesser yellowlegs, American golden plover, marsh wren, wood duck, hooded merganser, and least sandpiper. The location is also considered a high priority for monarch habitat restoration and will promote plant and insect diversity and abundance

through both the wet prairie and upland pollinator plantings. This will also benefit endangered Indiana and Northern Long-Eared bats by providing better foraging opportunities adjacent to summer roosting habitat. Throughout the agreement period water management will be used to maintain adequate vegetative structure, density, and diversity. The PFW biologist assisted with project design, oversaw completion, provided the landowner with a water management plan, and provided technical assistance identifying and treating invasive species. Technical assistance will continue to be provided to the landowner as the project develops. Through the restoration of native herbaceous wetland vegetation, the health of the soil is also being restored. In addition to habitat for native species, wetlands act as natural filters for water. This improves the water quality locally and helps to prevent sediment and nutrient runoff into the watershed. The vegetation also helps to sequester carbon by improving the carbon balance and the uptake of CO2 in the atmosphere.

Hunting and wildlife viewing is a conservation tradition for the landowners and played a big role in the design and delivery of this restoration project. They share this love of wildlife and their land with family and friends. This project was a partnership with the landowner, state and federal partners and the Service. Working together helps to strengthen our partnerships and further our impact on the landscape.



During construction. ©USFWS.

STATE SUMMARY

\$153,225

PFW PROJECT INVESTMENTS

\$3.35M

PARTNER CONTRIBUTIONS

\$3.5M

TOTAL PROJECT INVESTMENTS

\$1:23

LEVERAGE

53.6

STREAM AND RIVER MILES

21,080

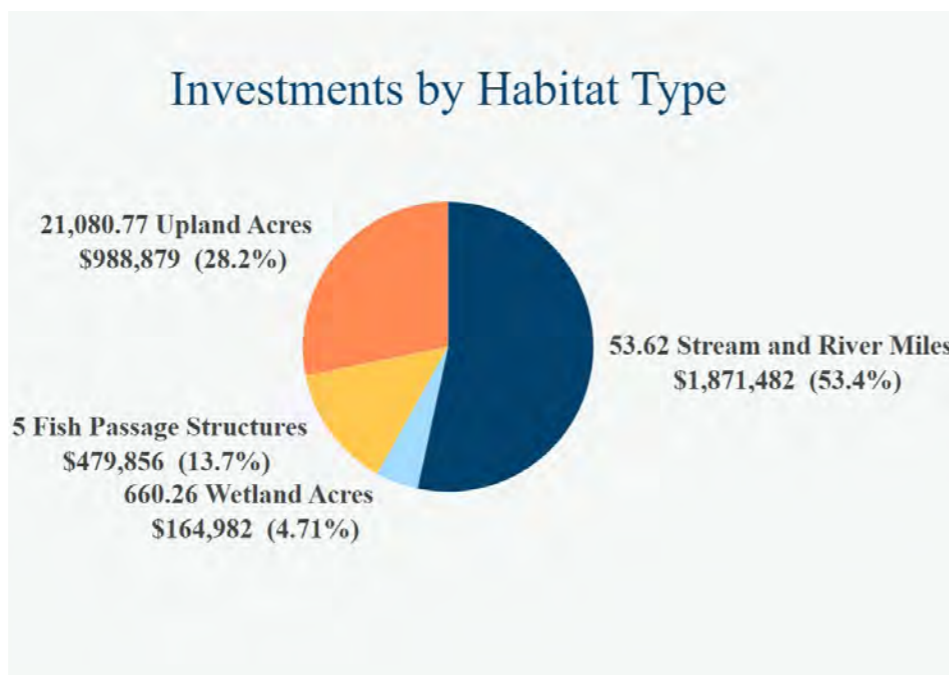
UPLAND ACRES

660

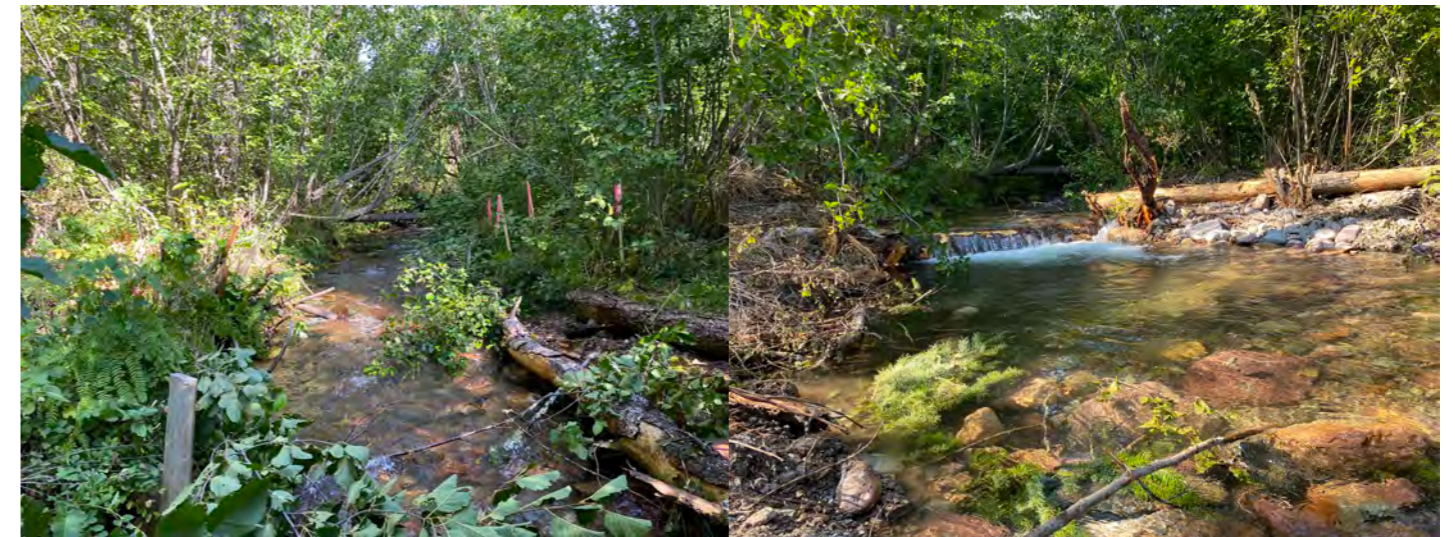
WETLAND ACRES

5

FISH PASSAGE STRUCTURES



Above: Completed 2023 PFW projects in Montana.  
 Below: chart showcasing project investments by habitat type.



Johnson Creek, pre-fish-screen installation, looking upstream from the irrigation diversion (left). Post-fish-screen installation, looking upstream from the irrigation diversion. The fish screen is visible as a white, underwater shape on river right (right). ©USFWS.

## PROJECT HIGHLIGHT:

### Johnson Creek Fish Screen

Johnson creek is a tributary to the Blackfoot River that enters the mainstem just above the Blackfoot River's confluence with the Clark Fork of the Columbia River near Missoula, MT.

Johnson creek is an important tributary for westslope cutthroat trout spawning and rearing. Additionally, Johnson Creek water is very cold, even in the height of summer, so it provides a thermal refuge for cold-water loving species like westslope cutthroat trout and bull trout when the mainstem river's water begins to warm in the summer heat.

This project addressed the last known fish passage issue impacting Johnson Creek by upgrading a previously unscreened and unregulated diversion. The project also increased instream habitat complexity by adding large wood to create a series of pools. Before the project, the old ditch system would occasionally re-route the entire creek during high flows, leaving a section of the existing creek dry and disconnected.

In addition to installing a new headgate to control the diversion flows and a fish screen to prevent fish entrainment within the irrigation system, this project also constructed a water pipeline to replace the old, leaky ditch and improve water use efficiency. The new diversion system pulls less water from the creek, needs less maintenance by the landowners, and prevents fish from getting trapped in the ditch and irrigation system with no way back to the creek. The improved diversion efficiency results in more cold water making it downstream, where it's needed to cool the mainstem Blackfoot River.



A view of the unscreened irrigation ditch, looking downstream (left), The formerly unscreened ditch was plugged with on-site sediments, backed by geotextile fabric, and reinforced with willow transplants (right). ©USFWS.

STATE SUMMARY

**\$213,831**

PFW PROJECT INVESTMENTS

**\$2.35M**

PARTNER CONTRIBUTIONS

**\$2.56M**

TOTAL PROJECT INVESTMENTS

**\$1:11**

LEVERAGE

**5.5**

STREAM AND RIVER MILES

**30,564**

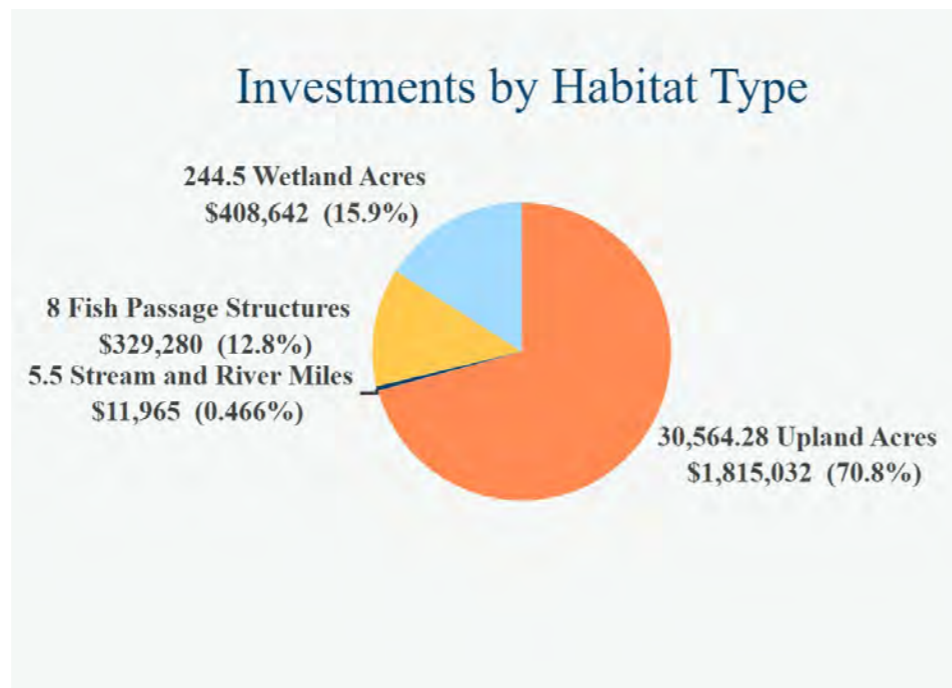
UPLAND ACRES

**244.5**

WETLAND ACRES

**8**

FISH PASSAGE STRUCTURES



Above: Completed 2023 PFW projects in Nebraska.  
Below: chart showcasing project investments by habitat type.



Restored wet meadow habitat in the Sandhills focus area of Nebraska. © USFWS.

**PROJECT HIGHLIGHT:**

**Sandhills Wet Meadow and Stream Restoration**

PFW biologist Chad Christiansen worked with a landowner and multiple funding partners to restore 89 acres of wet meadow habitat in the Sandhills of Nebraska.

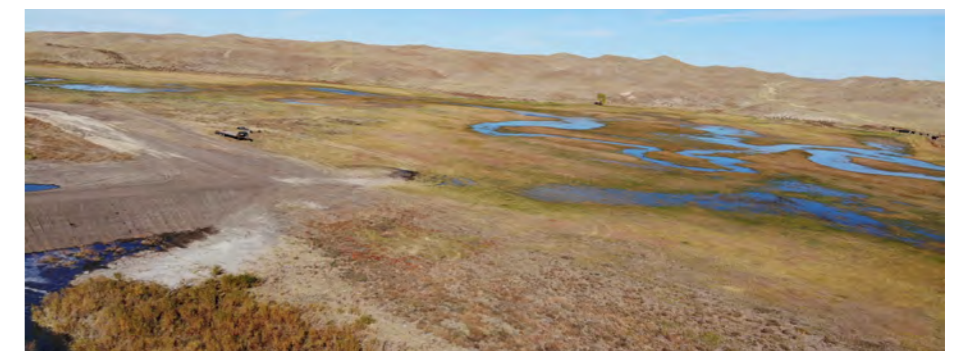
The overall goal of this project was to restore and enhance wet meadow and stream habitat along Gordon Creek. This stream had been ditched and straightened to facilitate water movement and to allow for seasonal haying. Over time, the stream became more incised, lowering the water table within the wet meadow.

As a result, the wet meadow became degraded due to the altered hydrology and became less productive habitat for wildlife as

well as hay production.

This project focused primarily on restoring the hydrology and other functions and values of this wet meadow by installing instream structures to raise water level of the stream and within the meadow. By installing the instream stop-log structure wet meadow habitat will be restored and enhanced for migratory waterfowl, shorebirds, whooping and sandhill cranes, and other species that utilize these habitats.

Partners on this project include the landowner, Sandhills Task Force, Nebraska Game and Parks Commission, Ducks Unlimited.



Restored wet meadow habitat in the Sandhills focus area of Nebraska. © USFWS.

STATE SUMMARY

**140,773**  
PFW PROJECT INVESTMENTS

**\$563,190**  
PARTNER CONTRIBUTIONS

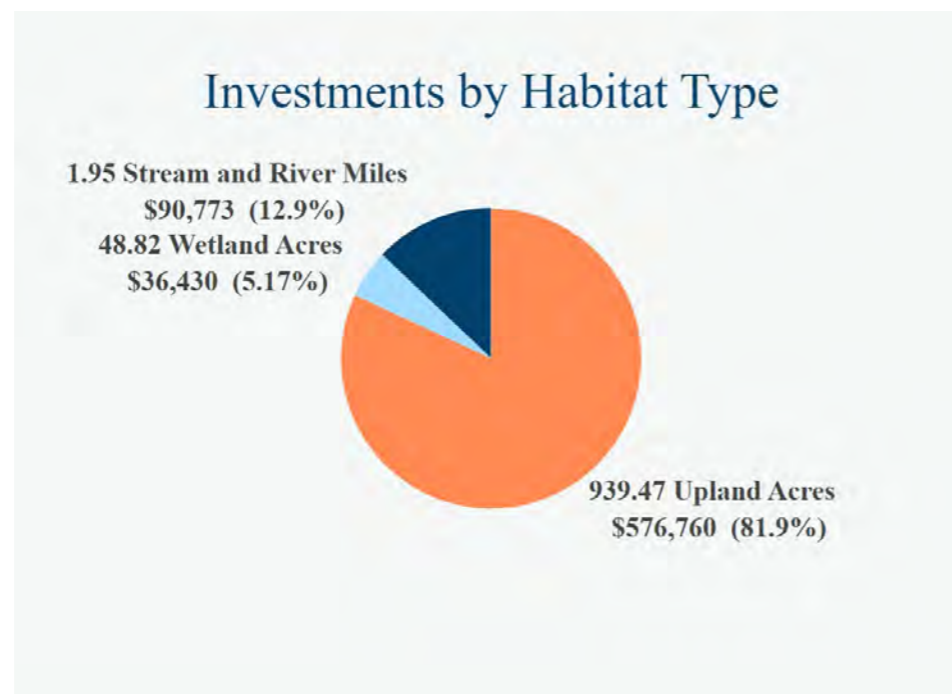
**\$703,963**  
TOTAL PROJECT INVESTMENTS

**\$1:4**  
LEVERAGE

**1.95**  
STREAM AND RIVER MILES

**939**  
UPLAND ACRES

**49**  
WETLAND ACRES



Above: Completed 2023 PFW projects in Nevada.  
Below: chart showcasing project investments by habitat type.



Resilient Landscapes Collaborative tour attendees discuss riparian enhancement project with private landowner in northern Nevada. FWS staff from Nevada PFW, Oregon PFW, Klamath PFW, and Region 8 Science Applications with private landowner. ©USFWS.

## PROJECT HIGHLIGHT:

### Instream Structures

In 2023, the PFW Program in Nevada continued implementation of projects developed under the Greater Sheldon Hart Mountain Resilient Landscapes Collaborative. This collaborative received funding from the Office of Wildland Fire in 2015 that has been leveraged to increase coordination between multiple partners to strategically identify and work to increase the resiliency of one of the last remaining large expanses of intact sage steppe habitat spanning the Nevada/Oregon border.

Enhancing wet meadows on private lands was a priority under this effort and the PFW Program of Nevada and Oregon lead coordination and implementation of these projects. PFW in Nevada worked with the

Nevada Department of Wildlife (NDOW) to develop projects with private landowners who own and manage important habitat for wildlife. Working together, we were able to identify an opportunity to enhance stream and meadow habitat to achieve common objectives of the Service, NDOW, and a private landowner. In FY23, we installed 76 in-stream structures (e.g. rock, wood, downed juniper trees) along over 0.5 miles of stream channel to restore and enhance an ephemeral stream and associated wet meadow.

This project is an important step in repairing degraded riparian habitat and sub-irrigating meadow for wildlife habitat that also serves as a pasture for livestock. A multitude of priority species benefit including sage-grouse, migratory birds (e.g., Brewer's sparrow, sage sparrow, and sage thrasher), and pronghorn. The project also played a key role in contributing to local economies and livelihoods and keeping working lands working.



Wet meadow habitat important for wildlife and livestock and Resilient Landscapes Collaborative tour attendees discuss riparian enhancement project with private landowner in northern Nevada ©USFWS.

STATE SUMMARY

\$44,00

PFW PROJECT INVESTMENTS

\$33,000

PARTNER CONTRIBUTIONS

\$77,000

TOTAL PROJECT INVESTMENTS

\$1:0.8

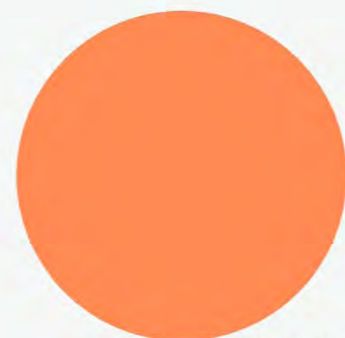
LEVERAGE

72

UPLAND ACRES



Investments by Habitat Type



71.99 Upland Acres  
\$77,000 (100%)

Above: Completed 2023 PFW projects in New Hampshire. Below: chart showcasing project investments by habitat type.



Burn crew briefing. ©USFWS.

PROJECT HIGHLIGHT:

Foss Mountain Restoration

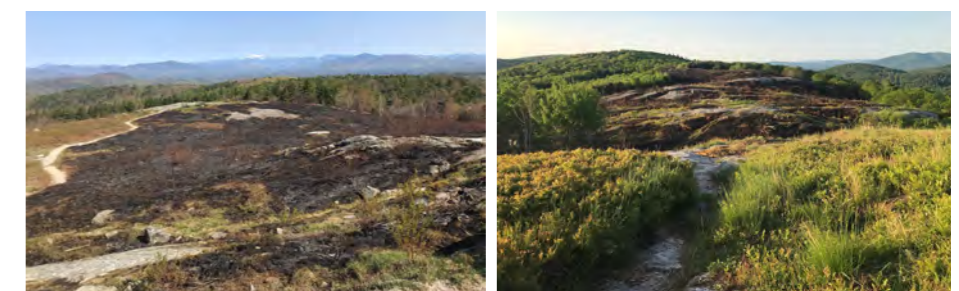
The New England Field Office (NEFO) PFW Program entered into a Landowner Agreement with the Town of Eaton, New Hampshire Conservation Commission to enhance native blueberry barrens and warm season grasses on Foss Mountain. The purpose of the prescribed burn will be to diversify an assemblage of native wildlife species by reducing woody plant encroachment, controlling invasive and exotic plants, and establishing native grasses and forbs in the treatment areas.

The NEFO PFW had substantial involvement in the development of this project along with other partners such as the White Mountain National

Forest (WMNF) Assistant Fire Management Officer and the Town of Eaton Conservation Commission staff. Additionally, PFW staff coordinated with the Service's At-Risk Species coordinator and NEFO Endangered Species staff to identify if any At-Risk Species occurred in the subject area. It was determined that not only would this project benefit several pollinator species and migratory birds but would also potentially benefit the yellow-banded bumblebee.

To accomplish this goal, approximately 100 acres of habitat was targeted for a prescribed fire to enhanced and create pollinator habitat.

In April of 2023 a contract was signed between the Town of Eaton and Star Tree Wildlife Protection, LLC to implement a 58-acre prescribed fire. On May 9, 2023, Star Tree Wildlife Protection, LLC and the Town of Eaton Conservation Commission reviewed the burn unit, on May 10, 2023, Start Tree Wildlife Protection, LLC implemented the prescribed burn plan with assistance from the US Forest Service and New Hampshire Fish and Game. The fire was declared out on May 12, 2023.



Foss Mt burned area (left) and vegetation growth after the burn (right). ©USFWS.

STATE SUMMARY

**\$18,160**  
PFW PROJECT INVESTMENTS

**\$762,865**  
PARTNER CONTRIBUTIONS

**\$781,025**  
TOTAL PROJECT INVESTMENTS

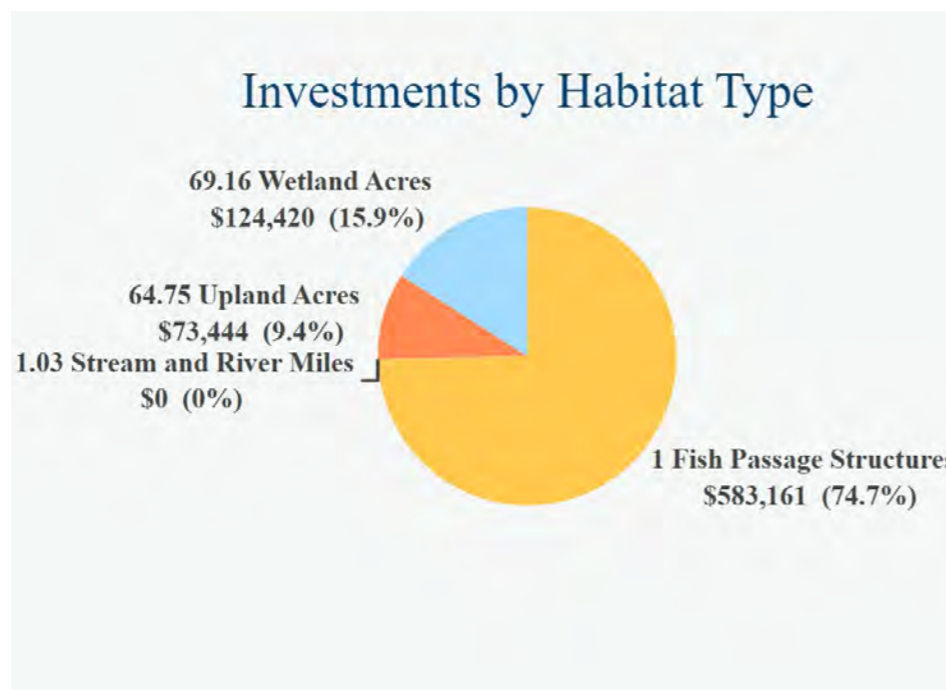
**\$1:42**  
LEVERAGE

**1.03**  
STREAM AND RIVER MILES

**64.75**  
UPLAND ACRES

**69**  
WETLAND ACRES

**1**  
FISH PASSAGE STRUCTURE



Above: Completed 2023 PFW projects in New Jersey.  
Below: chart showcasing project investments by habitat type.



Photos from Marsh Elementary, Washington Ave Elementary and Atlantic City Multicultural Affairs Summer Camp. ©USFWS.

**PROJECT HIGHLIGHT:**

**Pollinator Restoration and Outreach in Overburdened Communities**

New Jersey is the most densely populated state in the nation, with 90% of its population living in Census designated urban areas. The state's location along the Atlantic Migratory Flyway and heavily developed coastline, presents unique opportunities to improve corridors for migratory wildlife and connect people with nature.

In FY23 the PFW Program worked with Edwin B. Forsythe National Wildlife Refuge, New Jersey Audubon, and local school groups to create pollinator habitat in "overburdened communities" by planting native forbs and grasses.

The State has designated overburdened communities as areas with a high percentage of low-income households, minority residents, and limited English proficiency.

The project involved three student groups: Marsh Elementary, Washington Ave Elementary, and the Atlantic City Multicultural Affairs Summer Camp. Each group was given the opportunity to learn about the role of native plants, pollinators, and birds and how their communities support them throughout their lifecycles and migrations every year. New Jersey Audubon provided educational lessons to students while Partners coordinated the planting events with support from Refuge staff.

The program and planting engaged over 75 students and created a learning garden for future classes at the two elementary schools. The Atlantic City project was installed at a public park and educational signage was installed with information about pollinators and native plants.

STATE SUMMARY

\$138,009

PFW PROJECT INVESTMENTS

\$89,924

PARTNER CONTRIBUTIONS

\$227,933

TOTAL PROJECT INVESTMENTS

\$1:0.7

LEVERAGE

2.09

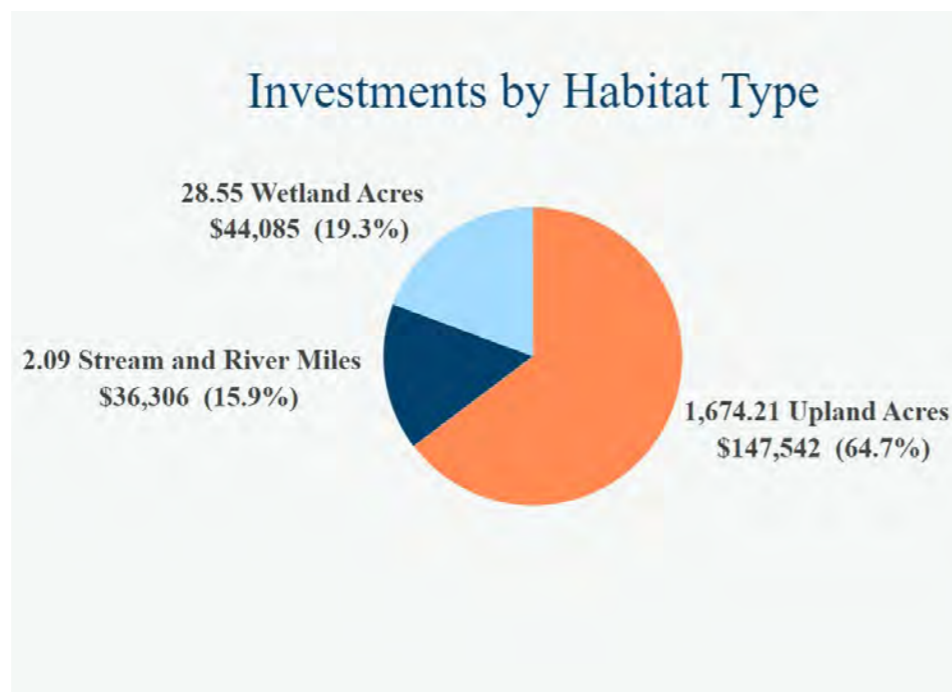
STREAM AND RIVER MILES

1,674

UPLAND ACRES

28.5

WETLAND ACRES



Above: Completed 2023 PFW projects in New Mexico. Below: chart showcasing project investments by habitat type.



Gully erosion leading into the playa (left), assessing habitat treatment options (right). ©USFWS.

**PROJECT HIGHLIGHT:**

**Playa Restoration**

In cooperation with Grasslans Charitable Foundation, Center of Excellence - CEHMM, and NM Environment Dept. the NM Partners for Fish and Wildlife Program developed a restoration plan for a degraded 16 acre playa and its surrounding uplands. This project assisted a private landowner in treating erosion that had developed from pit tank construction, over grazing, and improper road construction.

Severe soil erosion on the property was preventing the playa and associated uplands from functioning properly. A pit tank previously constructed in the bottom of the playa concentrated water for livestock but prevented natural

hydrological function. Improper road construction also contributed to the erosion problem. Several gullies drained into the playa, causing increased sediment loading.

The team identified several techniques to halt erosion and promote recovery of the playa such as biologically engineered erosion control structures like head-cut pond, plug and pond, plug and spread, and brush mats. These structures will divert water out of the gullies and onto undisturbed soils and were constructed using on-site materials, including sod, grasses, mesquite debris/mulch, and soil plugs. The pit tank was filled by pushing the existing spoils back into the pit bottom. Vegetation already established in the pit bottom was salvaged and replanted as the top layer on the fill material.

The landowner has removed all livestock from this pasture to allow a more speedy recovery. Proper management on this playa and the surrounding uplands will reduce erosion and create grassland and playa habitat for pollinators, migratory birds, bats, and the endangered lesser prairie chicken. Improving these native habitats will also improve habitat for mule deer and pronghorn.



Grass plug for re-routing water. Photo by Keystone Restoration Ecology.



STATE SUMMARY

\$251,200  
PFW PROJECT  
INVESTMENTS

\$2.51M  
PARTNER  
CONTRIBUTIONS

\$2.76M  
TOTAL  
PROJECT  
INVESTMENTS

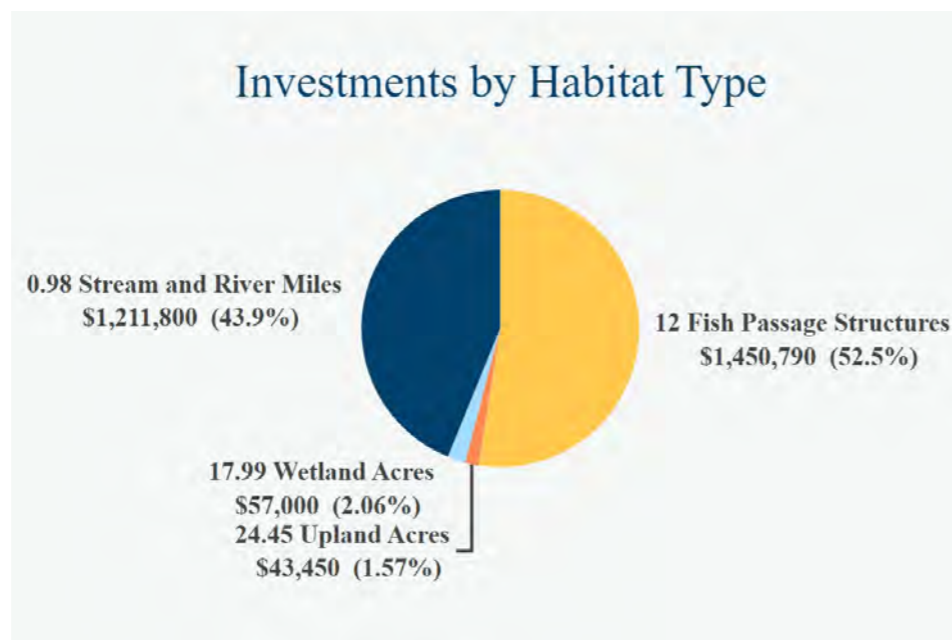
\$1:10  
LEVERAGE

0.98  
STREAM  
AND RIVER  
MILES

24.45  
UPLAND  
ACRES

18  
WETLAND  
ACRES

12  
FISH  
PASSAGE  
STRUCTURES



Above: Completed 2023 PFW projects in New York.  
Below: chart showcasing project investments by habitat type.



Completed restoration. ©USFWS.

**PROJECT  
HIGHLIGHT:**

Improving Aquatic Connectivity  
for Trout and Wood Turtles

The PFW Program in New York, Trout Unlimited and a private landowner worked together to restore trout and wood turtle habitat along the Willowemoc Creek.

The Willowemoc, in Sullivan County New York, is a tributary to the Beaver Kill which then flows into the East Branch Delaware River. The goal of the project was to restore the channel to its historic, stable pattern, reconnect the floodplain and plant the riparian area.

A new channel was constructed along 2,000 feet; 550 linear feet of large wood (toe wood) was installed along the banks to

help with bank stabilization and the channel alignment, and the fill removed from the new channel was used to expand the floodplain. A rock cross vane and "J" hook were installed to help direct flows, stabilize the stream bed and provide additional in-stream habitat.

Following the excavation, the site was planted with native grasses, trees and shrubs. The Service provided technical assistance on this project assisting with site survey, assessment, and completing the design. Additionally, PFW staff supervised project implementation.



Before and during restoration. ©USFWS.

STATE SUMMARY

**\$248,200**  
PFW PROJECT INVESTMENTS

**\$863,640**  
PARTNER CONTRIBUTIONS

**\$1.11M**  
TOTAL PROJECT INVESTMENTS

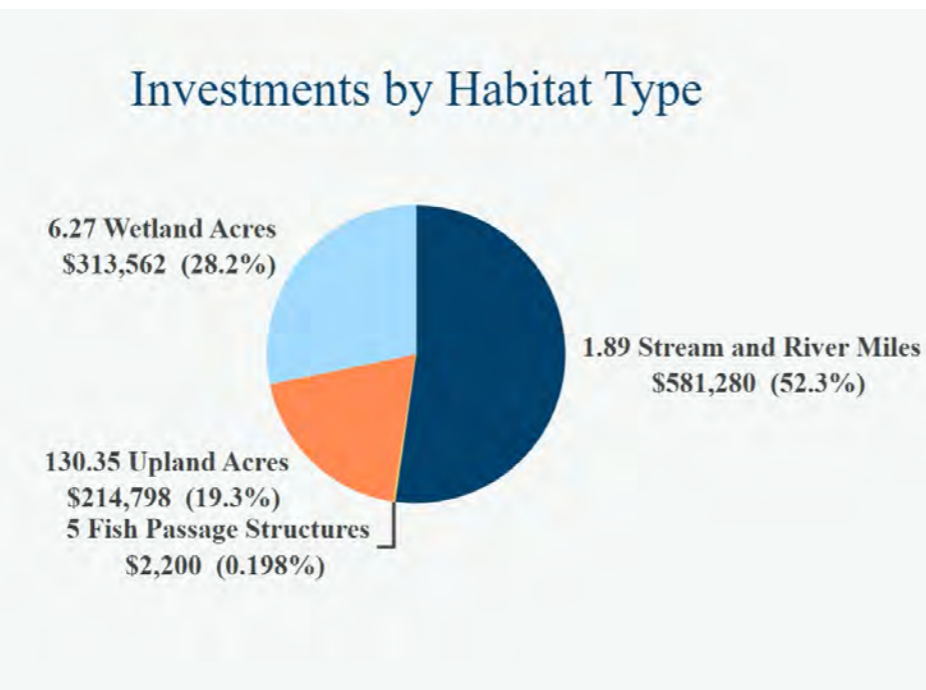
**\$1:3.5**  
LEVERAGE

**1.89**  
STREAM AND RIVER MILES

**130**  
UPLAND ACRES

**6.27**  
WETLAND ACRES

**5**  
FISH PASSAGE STRUCTURES



Above: Completed 2023 PFW projects in North Carolina. Below: chart showcasing project investments by habitat type.



A series of weirs replaced the Lindsey Bridge Dam opening up 48 miles of previously inaccessible stream reach. Credit: K. Bass

## PROJECT HIGHLIGHT:

Yellow Brick Road – Leading the Way to Success

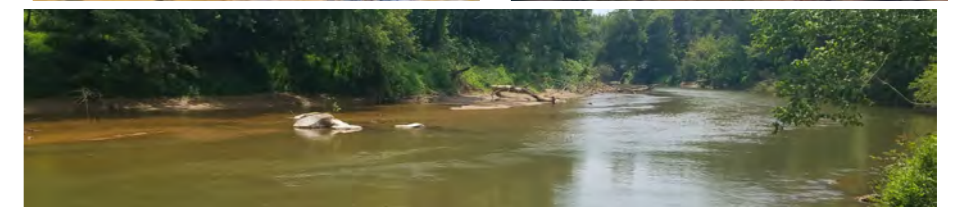
An innovative fish passage project on the Dan River at the Lindsey Bridge Dam near Madison, NC allowed the endangered Roanoke Logperch and other important species to overcome this obstacle, reconnecting 48 miles of desirable river habitats that had been inaccessible and unoccupied by the fish since the dam's construction. However, a portion of the impounded reach had filled with sand and coarse materials, destroying necessary complex habitats. Enter Project Yellow Brick Road!

A team of partners from the North Carolina Wildlife Resources Commission, Piedmont Conservation Council, Kris Bass Engineering, and the Service's

PFW Program realized that it was essential to pave the way to success by installing fish habitat structures to provide resting, feeding, and refuge areas between the dam and natural reaches further upstream. An unlikely partner, Pine Hall Brick Company, who coincidentally makes yellow bricks, joined the effort offering river access to support the installation of the in-stream structures.

The project included sediment sampling upstream of the former dam to identify the most effective habitat feature designs and the best locations. After permitting and logistical preparations, the Service's Southeast Aquatic Habitat Restoration Team and a local contractor installed 5 in-stream fish riffle habitat structures made of natural stone.

In addition to benefits for the Roanoke Logperch, the habitat created is also suitable for rare aquatic mussels including the endangered James Spiny mussel and the threatened Atlantic pigtoe and their host fish. And now all these species have to do is Follow the Yellow Brick Road!



The Yellow Brick Road Project provided in-stream habitat structure for the endangered Roanoke Logperch. Fish seek refuge around carefully sized and placed natural stones grouped adjacent to the bank and just under the water's surface. Credit: K. Bass

STATE SUMMARY

\$72,520  
PFW PROJECT  
INVESTMENTS

\$3.09M  
PARTNER  
CONTRIBUTIONS

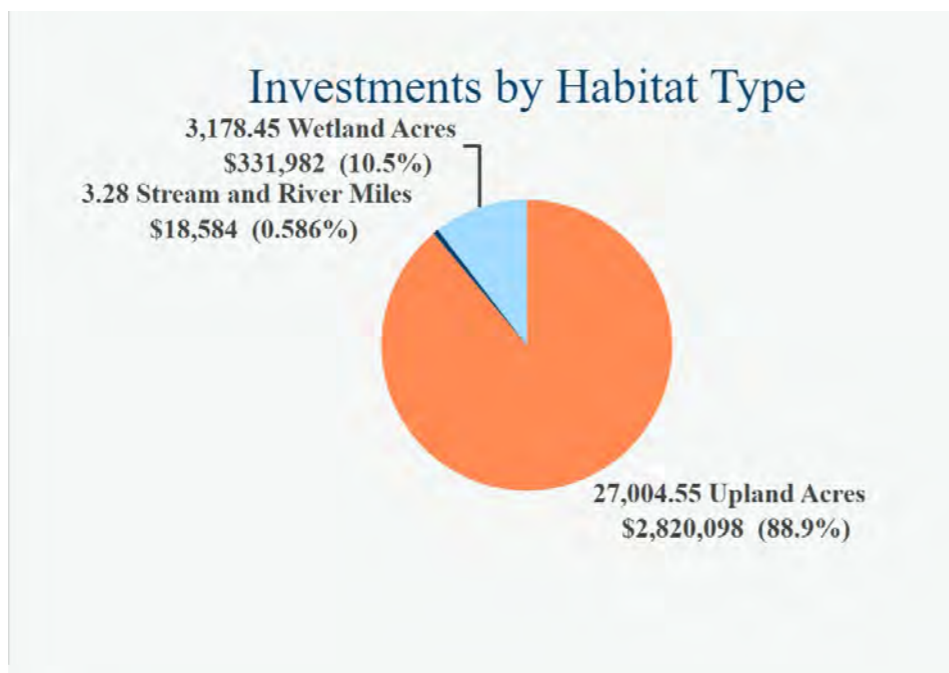
\$3.17M  
TOTAL  
PROJECT  
INVESTMENTS

\$1:42  
LEVERAGE

3.28  
STREAM  
& RIVER  
MILES

27,004  
UPLAND  
ACRES

3,178  
WETLAND  
ACRES



Above: Completed 2023 PFW projects in North Dakota.  
Below: chart showcasing project investments by habitat type.



McPeak restoration team on site. ©USFWS.

## PROJECT HIGHLIGHT:

### McPeak Cropland to Grassland and Wetland Restoration

PFW in North Dakota is featuring a project that restored 131.6 acres of cropland and enhanced 16.3 acres of wetlands.

This property had recently been purchased, and the new landowner wanted to restore it from cropland back to grassland. The seed mix included 26 different grass and forb species with the future goal of adding this site into a rotationally grazed system.

The site had a few unique components to it. Adjacent wetlands had previously been restored by removing eroded soil from the basins, and that soil was distributed back onto the site in 2022.

This area was then seeded with a full season cover crop mix to kickstart the soil microbes and nutrient cycling as well as suppress weeds.

In the spring of 2023, the diverse seed mix was directly seeded into the soil and had great emergent success. This project provided a fantastic learning opportunity for our Region 6 PFW all-staff meeting this past summer.

The landowner has worked with the PFW in North Dakota on several projects including wetland restorations, a wetland creation, and enhanced grazing systems. The landowner also has several perpetual grassland easements with the Service.



McPeak wetland and grassland restoration. ©USFWS.

STATE SUMMARY

**\$79,157**  
PFW PROJECT INVESTMENTS

**\$1.34M**  
PARTNER CONTRIBUTIONS

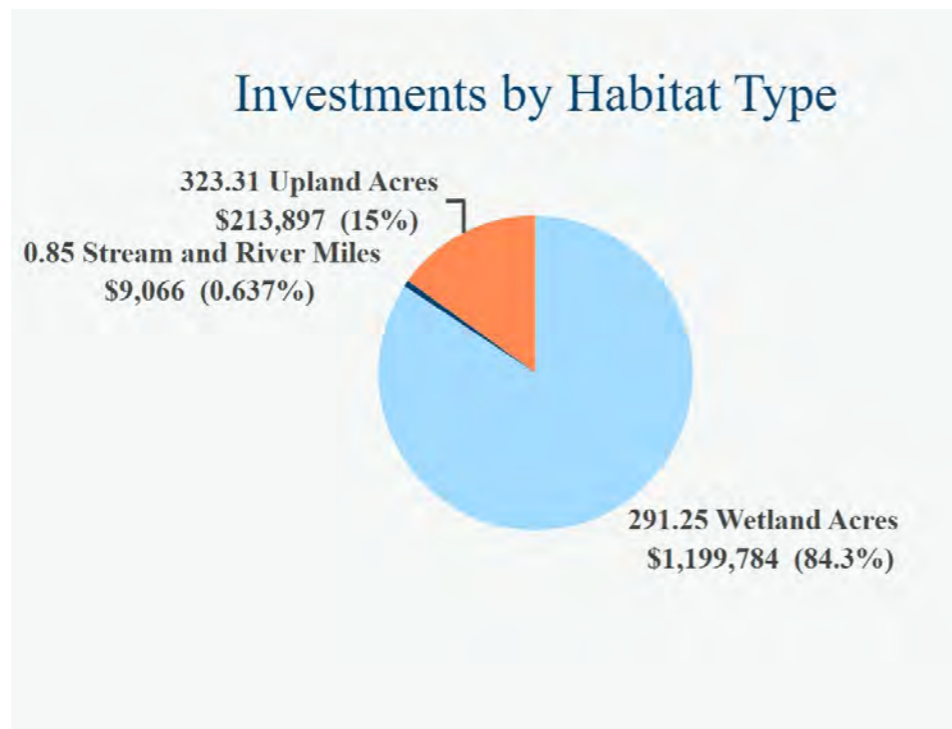
**\$1.42M**  
TOTAL PROJECT INVESTMENTS

**\$1:16**  
LEVERAGE

**0.85**  
STREAM AND RIVER MILES

**323**  
UPLAND ACRES

**291**  
WETLAND ACRES



Above: Completed 2023 PFW projects in Ohio.  
Below: chart showcasing project investments by habitat type.



Restoration underway at the Western Reserve Land Conservancy. ©USFWS.

**PROJECT HIGHLIGHT:**

**Farmland to Wetland and Pollinator Habitat Restoration**

This 479-acre property in Ashland County, OH, is owned and managed by the Western Reserve Land Conservancy, and consists of various successional stages of pine and hardwood forest, scrub-shrub, old-field, pond, wetland, agricultural field, and stream habitats.

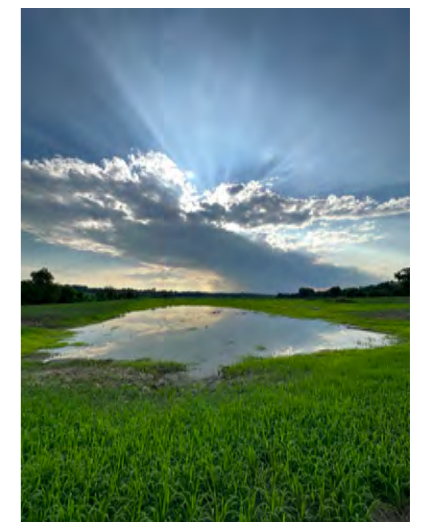
This project restored 164 acres of farmland to 120 acres of wetland and 44 acres of pollinator habitat using a combination of H2Ohio and NRCS-EQIP funds.

Objectives were to sequester nutrients from surrounding agriculture runoff, trap nutrients and sediment before entering into local stream systems,

provide flood storage capacity, and provide habitat for federal trust resources.

Habitat improvements will provide habitat for federally threatened northern long-eared and Indiana bats. Additionally, grassland nesting migratory birds, waterfowl, shorebirds, and countless pollinator species will benefit from the restored sedge meadow and prairie/pollinator habitat.

At the landscape level, this restoration will extend a 4,000-acre conservation corridor abutting other protected lands. Western Reserve Land Conservancy and PFW have a long history of collaborating to restore habitat across northeast Ohio, and this project exemplifies the power of this partnership as we address resources concerns within our priority focus areas.



Restoration in progress (left) and restored wetland habitat. ©USFWS.

STATE SUMMARY

**\$497,720**  
PFW PROJECT INVESTMENTS

**\$435,107**  
PARTNER CONTRIBUTIONS

**\$932,827**  
TOTAL PROJECT INVESTMENTS

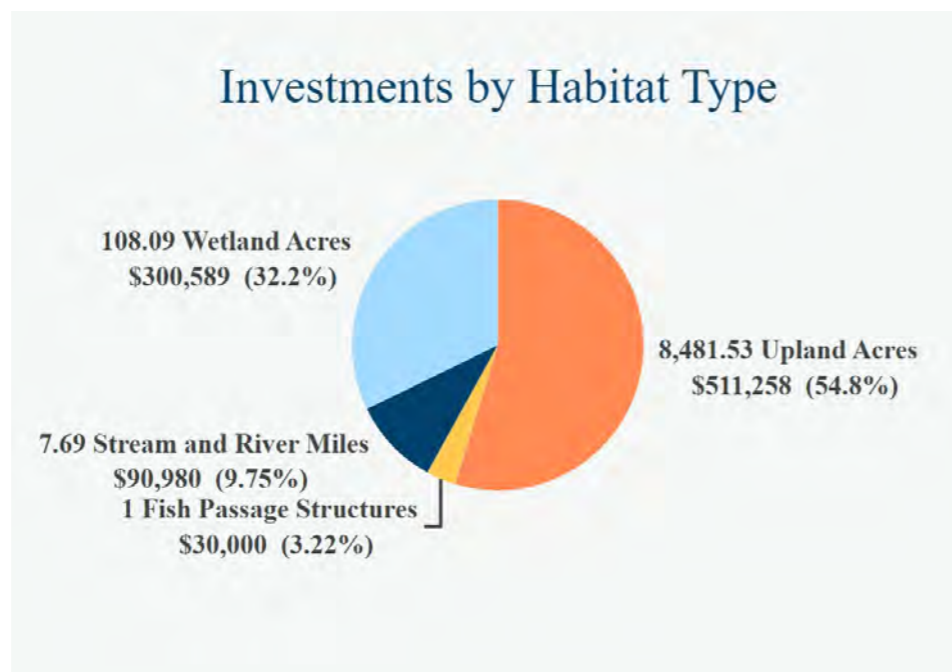
**\$1:0.8**  
LEVERAGE

**7.69**  
STREAM AND RIVER MILES

**8,481**  
UPLAND ACRES

**108**  
WETLAND ACRES

**1**  
FISH PASSAGE STRUCTURE



Above: Completed 2023 PFW projects in Oklahoma.  
Below: chart showcasing project investments by habitat type.



Picture showing landowner and family with eastern red cedar removed from property. ©USFWS.

**PROJECT HIGHLIGHT:**

Partnering to Remove 210 Acres of Invasive Eastern Redcedar in Upland Habitat and Restoring 0.5 mile of Riparian Habitat in Northwestern Oklahoma

This project mechanically removed 210 acres of eastern red cedar in upland wildlife habitat and 25 acres of riparian cedar cutting.

After restoration, fire will be reintroduced into 235 acres of the project site 3 to 4 years post brush treatment.

Livestock grazing will be permitted following treatment, not to exceed taking 25 percent of the annual grass growth that is available for livestock consumption.

If needed, to determine if actual forage consumption and

estimated consumption are accurate, and to adjust accordingly, a 4-foot by 4-foot enclosure cage will be constructed of cattle panels and placed in two representative portions of the pasture. Periodic monitoring will be required to determine the estimated grazing percentage. Enclosures should be moved each year prior to the growing season.

Within 3-4 years following the mechanical cedar tree control, a prescribed burn is recommended on the restoration area and any adjacent area of the ranch where cedars are invading. Prescribed fire should kill young remaining cedar trees, remove cedar tree skeletons, and improve grazing distribution. To ensure the area has adequate fuel loads for the prescribed fire, grazing may be deferred in areas to be treated with fire prior to the prescribed fire treatment.



Before restoration: this property is classified as having a high density of eastern red cedar. ©USFWS.

STATE SUMMARY

**\$516,468**

PFW PROJECT INVESTMENTS

**\$5.48M**

PARTNER CONTRIBUTIONS

**\$5.9M**

TOTAL PROJECT INVESTMENTS

**\$1:10.6**

LEVERAGE

**17.15**

STREAM AND RIVER MILES

**3,947**

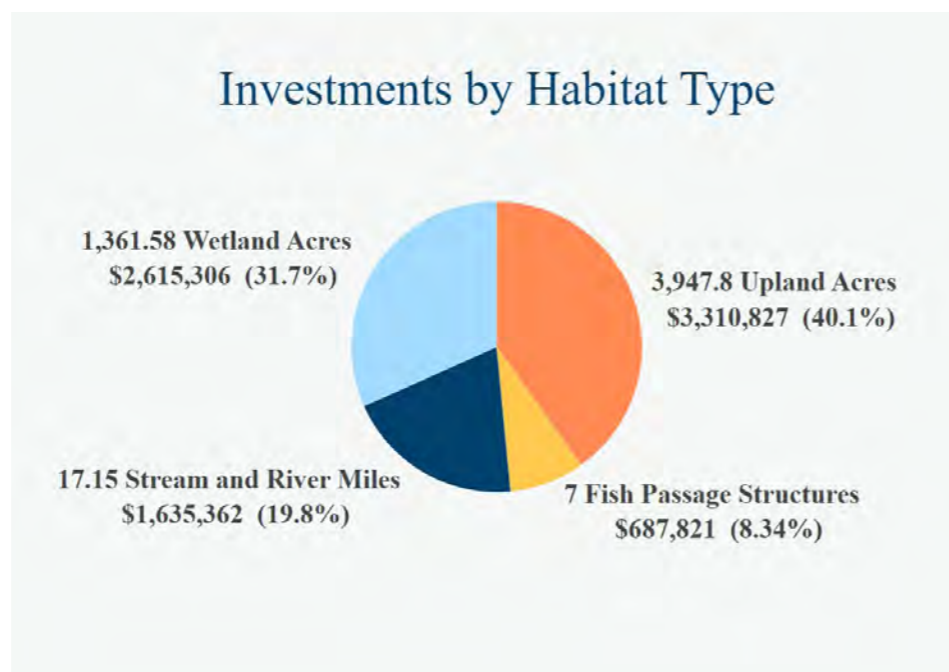
UPLAND ACRES

**1,361**

WETLAND ACRES

**7**

FISH PASSAGE STRUCTURES



Above: Completed 2023 PFW projects in Oregon.  
Below: chart showcasing project investments by habitat type.



Full vernal pool with sheet water running over the field that will be seeded with native wildflowers next fall. Photo Credit: Matt Blakeley-Smith, Greenbelt Land Trust

## PROJECT HIGHLIGHT:

### Bald Hill Farm Restoration

In 2010 Greenbelt Land Trust began an unprecedented community campaign to acquire the iconic Bald Hill Farm, protecting a vital community resource for generations to come. This 587 acre farm is at the heart of the Willamette Valley, with three miles of public trails, scenic vistas from pastures to ridgelines, and some of the most critical remnant prairie habitats in Western Oregon. Bald Hill Farm is home to three federally endangered plant species, including Kincaid's lupine, Nelson's checkermallow, and Willamette Daisy. It is also home to the endangered Taylor's checkerspot butterfly through a captive rearing program and introductions in

2022 and 2023. It hosts one of the largest populations of Oregon vesper sparrows in the Willamette Valley, which was petitioned for listing. The Greenbelt Land Trust purchased the property in 2013 after three years of outreach, education, and fundraising to protect the flagship property.

The site is a valuable community resource for both people and wildlife. Bald Hill Farm is a key connection in linking Bald Hill and Fitton Natural Areas and creating a 1,237 acre mosaic of protected lands. A new connector trail was unveiled in 2014 creating an unbroken trail corridor of over 14 miles. From researchers working on a thesis to class field trips, the site offers endless opportunities to learn about Willamette Valley habitats.

The site's restoration involved planting riparian vegetation and maintaining wetland prairies with limited woody plants, but including native shrubs, isolated trees, and snags. This will aid grassland birds like Western meadowlark and Oregon vesper sparrow. Rotational livestock grazing shows how agriculture can support native grasslands, by managing thatch and vegetation height, benefiting grassland birds.



Wetland construction with refuge owned equipment operated by PFW staff. © Matt Blakeley-Smith.

STATE SUMMARY

\$0\*

PFW PROJECT INVESTMENTS

\$3.17M

PARTNER CONTRIBUTIONS

\$3.17M

TOTAL PROJECT INVESTMENTS

17.6

STREAM AND RIVER MILES

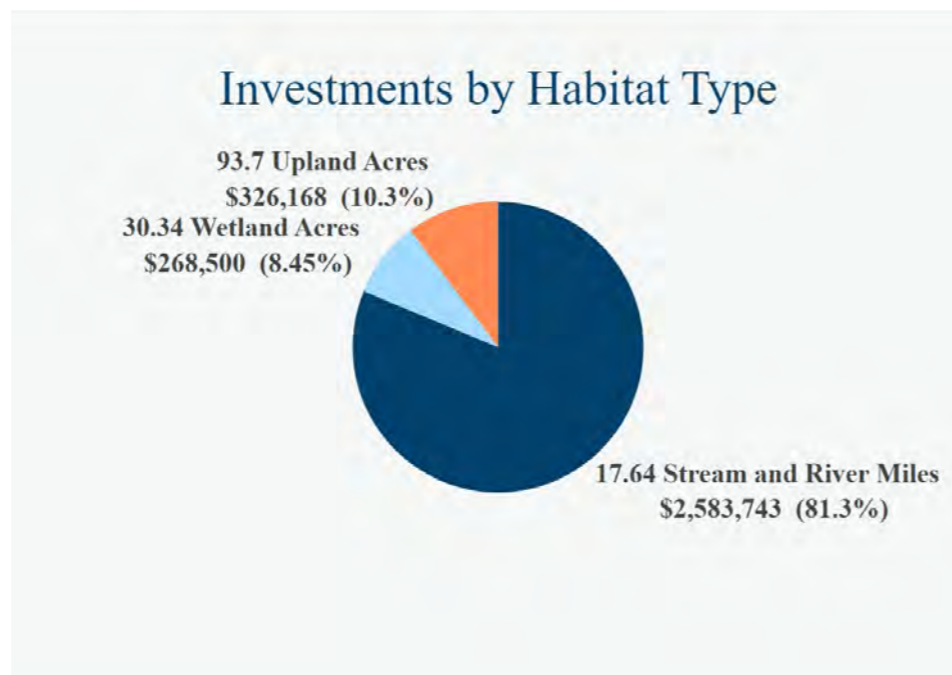
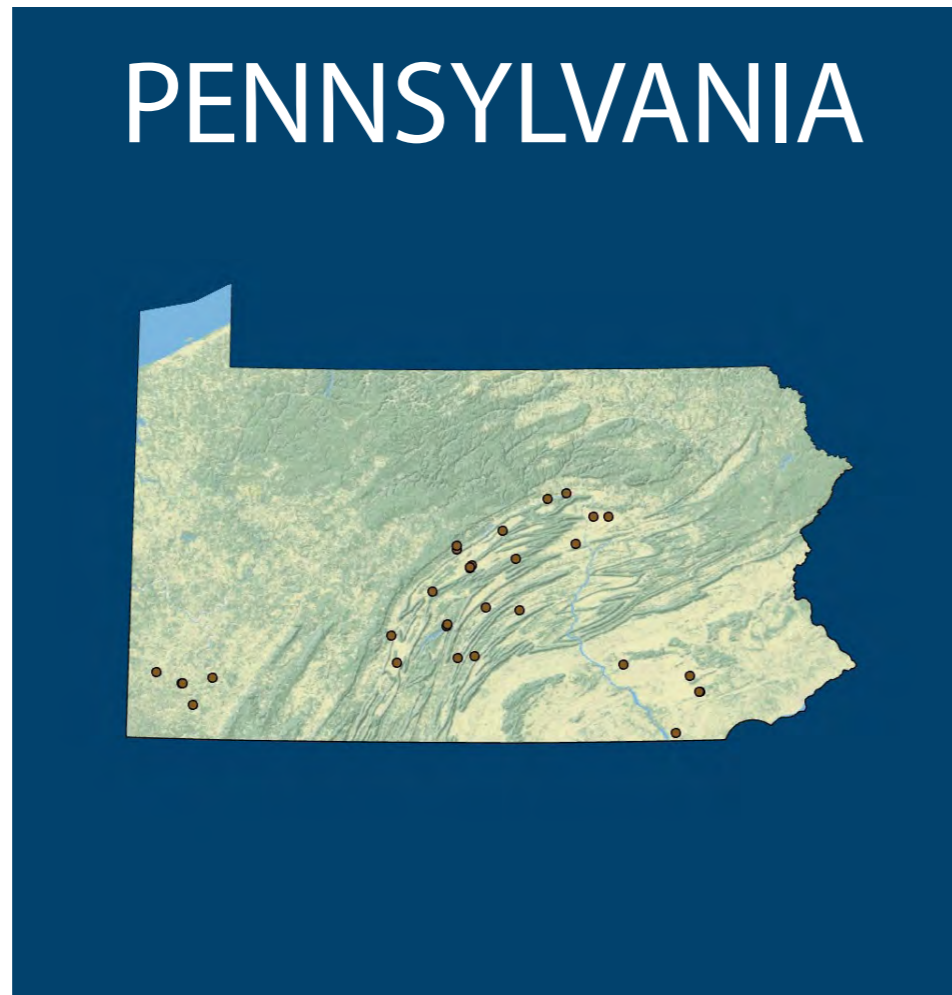
94

UPLAND ACRES

30

WETLAND ACRES

\*IN-KIND OR TECHNICAL ASSISTANCE PROVIDED BY PFW PROGRAM TO SUPPORT PROJECT IMPLEMENTATION IN LIEU OF FINANCIAL ASSISTANCE.



Above: Completed 2023 PFW projects in Pennsylvania. Below: chart showcasing project investments by habitat type.



USFWS, Unique Excavating and Pheasants Forever staff, working to restore Indian Spring Run and an adjacent cold-water tributary. ©USFWS.

PROJECT HIGHLIGHT:

Indian Spring Run Stream Restoration

Indian Spring Run is a cold-water fishery that flows through the middle of Lancaster and Chester County horse and dairy farms in southcentral Pennsylvania. This impaired reach has been impacted by livestock, storm water, a gas line, and several bridges. Banks were typically 4 to 5 feet high - many bare or sparsely vegetated with exotics such as hops, poison hemlock and multiflora rose. Increased sediment and lack of cover decimated brook trout, songbird, waterfowl, and other wildlife habitat, though the water temperature and quality should support a thriving fishery.

The Service, with Unique Excavating and Pheasants Forever, worked to restore fish habitat and stabilize 2,200 feet of stream that included Indian Spring Run and an adjacent cold-water tributary. The restoration team built muddills, rock vanes, rock cross vanes, brush mattresses, log vanes and rock toe. The Lancaster County Conservation District obtained the funding, did the design with the Service, acquired the permit, and did the final grant reporting. The Chesapeake Bay Foundation and the District later installed streambank fencing and planted a buffer.

Overall, 367 tons of sediment, 458 pounds of nitrogen and 196 pounds of phosphorus will be reduced yearly through our natural-stream-channel designed restoration. The landowners look forward to having brook trout, songbirds, mallards and herons on their farm. This restoration is a continuation of a great partnership of Pennsylvania's Partners program, the Lancaster County Conservation District, Unique Excavating and Pheasants Forever that emphasizes outreach, education, and stream restoration on Plain-sect farms throughout southcentral and southeastern Pennsylvania.



Before (left) and after (right) restoration at Indian Spring Run restoration site. Inset: Indian Spring Run brook trout. ©USFWS.

STATEWIDE  
2022-2023  
ACCOMPLISHMENTS

\$0\*

PFW PROJECT  
INVESTMENTS

\$175,000

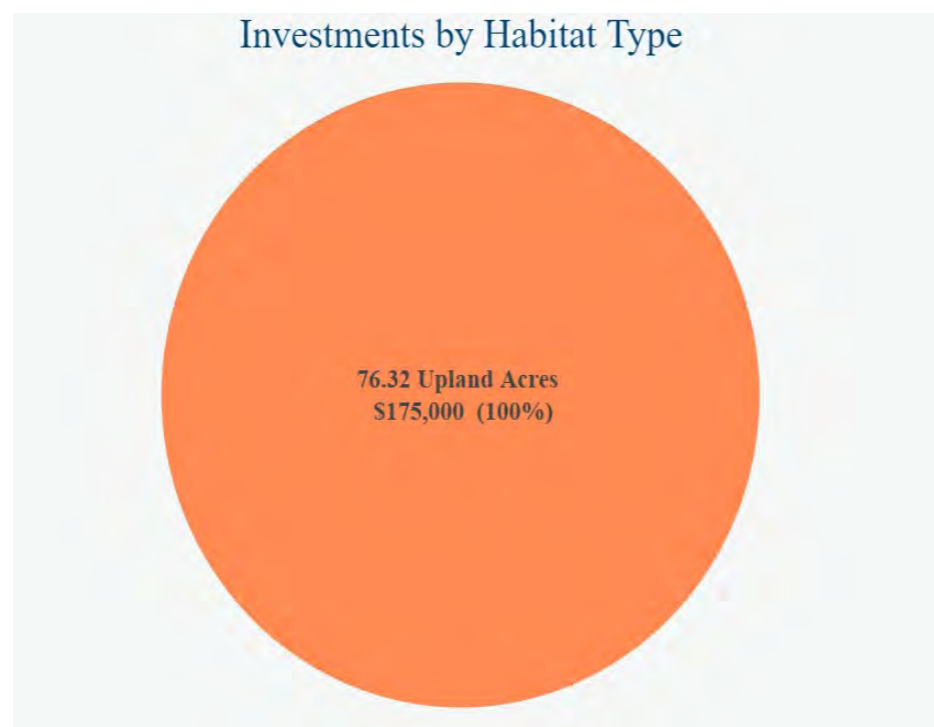
PARTNER  
CONTRIBUTIONS

\$175,000

TOTAL  
PROJECT  
INVESTMENTS

76  
UPLAND  
ACRES

\*IN-KIND OR TECHNICAL  
ASSISTANCE PROVIDED  
BY PFW PROGRAM TO  
SUPPORT PROJECT  
IMPLEMENTATION IN  
LIEU OF FINANCIAL  
ASSISTANCE.



Above: Completed 2022-2023 PFW projects in Rhode Island.  
Below: chart showcasing project investments by habitat type.



Non-selective mechanical removal of invasive plants. ©USFWS.

## PROJECT HIGHLIGHT:

Utilizing BIL Funding to Restore Habitat for the New England Cottontail

PFW out of the New England Field Office provided technical assistance to RI Division of Fish and Wildlife staff and RI National Wildlife Refuge Complex staff to obtain services to transport equipment to several islands to enhance habitat for New England cottontail, and assisted with the planning of Bipartisan Infrastructure Law (BIL) funding to enhance over 350 acres of habitat. The result of these projects aligns with several Service priorities such as:

- o Species conservation
- o Pollinator conservation
- o Proactive conservation of At-Risk or Species of Greatest

### Conservation Need

- o Habitat connectivity
- o Landscape scale conservation (i.e. with Refuges and other protected lands)
- o Cross-program restoration efforts
- o Tribal partnerships & interests
- o Keeping Working Lands Working
- o Partnering with State wildlife resource agencies
- Efforts in 2023 have resulted in the planning of numerous projects throughout RI. These efforts would not take place without the coordination of multiply Service Programs, other wildlife agencies, and universities.



Regeneration of vegetation after mechanical and herbicide treatment of invasive plants. ©USFWS.



STATEWIDE  
2022-2023  
ACCOMPLISHMENTS

\$110,050

PFW PROJECT  
INVESTMENTS

\$78,341

PARTNER  
CONTRIBUTIONS

\$188,391

TOTAL  
PROJECT  
INVESTMENTS

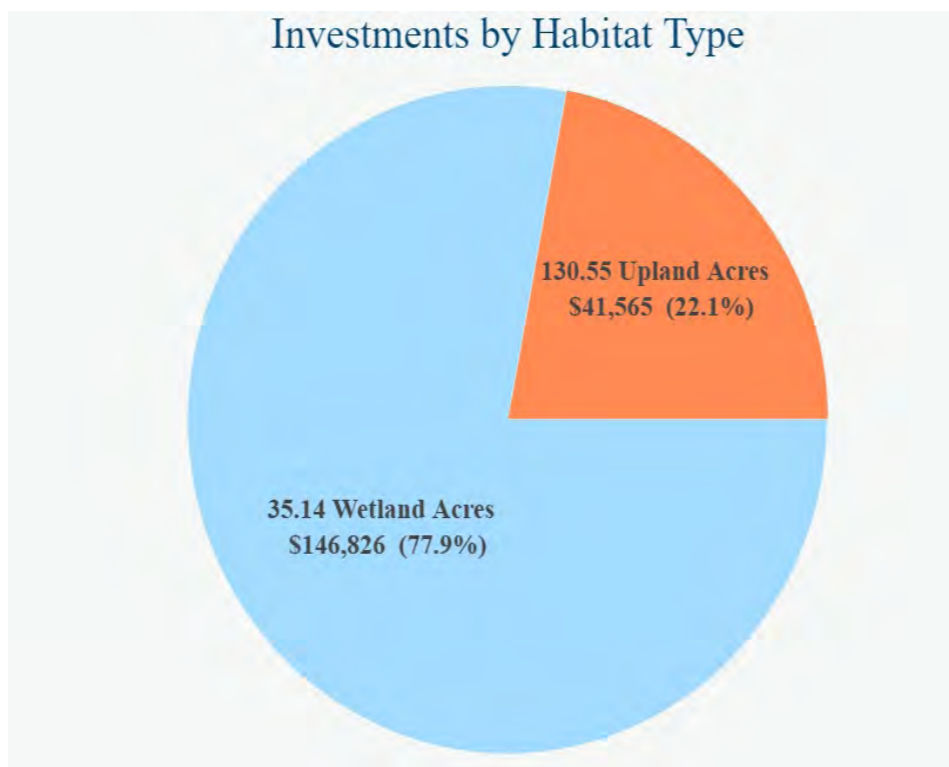
\$1:0.7  
LEVERAGE

130

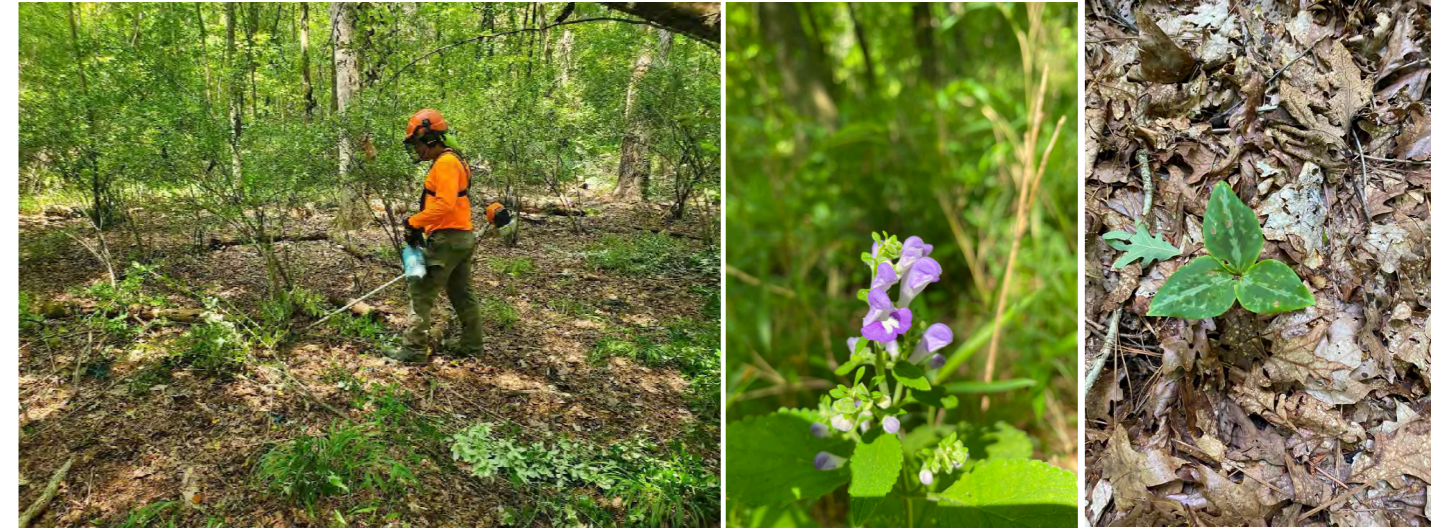
UPLAND  
ACRES

35

WETLAND  
ACRES



Above: Completed 2022-2023 PFW projects in South Carolina.  
Below: chart showcasing project investments by habitat type.



Contractor controlling invasive plants using cut-and-paint herbicide application. Photo © Hazel Cook.  
Ocmulgee skullcap flowering Photo © Bret Beasley / USFWS.  
Relict trillium Photo © Bret Beasley / USFWS.

## PROJECT HIGHLIGHT:

Ocmulgee Skullcap (*Scutellaria ocmulgee*) and Relict Trillium (*Trillium reliquum*) Habitat Restoration on Permanently Protected Land

Land Trusts are important partners of the PFW Program, that work with conservation minded landowners who seek to permanently protect their properties with conservation easements. They often have small focus areas, encompassing only a few counties and are led by individuals who are known and trusted within their communities. Partnering with Land Trusts greatly extends our program's network, reaching more landowners who are interested in working with the PFW Program to conserve and protect imperiled species.

The success of this project, which restored habitat for two federally listed plant species, was a direct result of a new partnership between the PFW Program in South Carolina and Central Savannah River Land Trust.

The project site was a 262-acre property inundated with exotic invasive woody vegetation which was out-competing the listed plant populations, Ocmulgee skullcap and relict trillium. The PFW Program and the Land Trust worked with the landowner to identify and hire an experienced herbicide applicator crew to remove and kill the woody invasive vegetation using the cut-and-paint herbicide treatment method.

Future follow-up efforts to remove invasive species attempting to reestablish on the property will be accomplished yearly by a Land Trust coordinated volunteer workday. Now that the competing invasive plants have been removed, South Carolina DNR Botanists will continue to monitor these populations documenting overall fitness and expansion across the property.



Left: High density of invasive plants before treatment. Photo © Hazel Cook.  
Right: After treatment Photo © Hazel Cook.

STATE SUMMARY

**\$198,223**  
PFW PROJECT INVESTMENTS

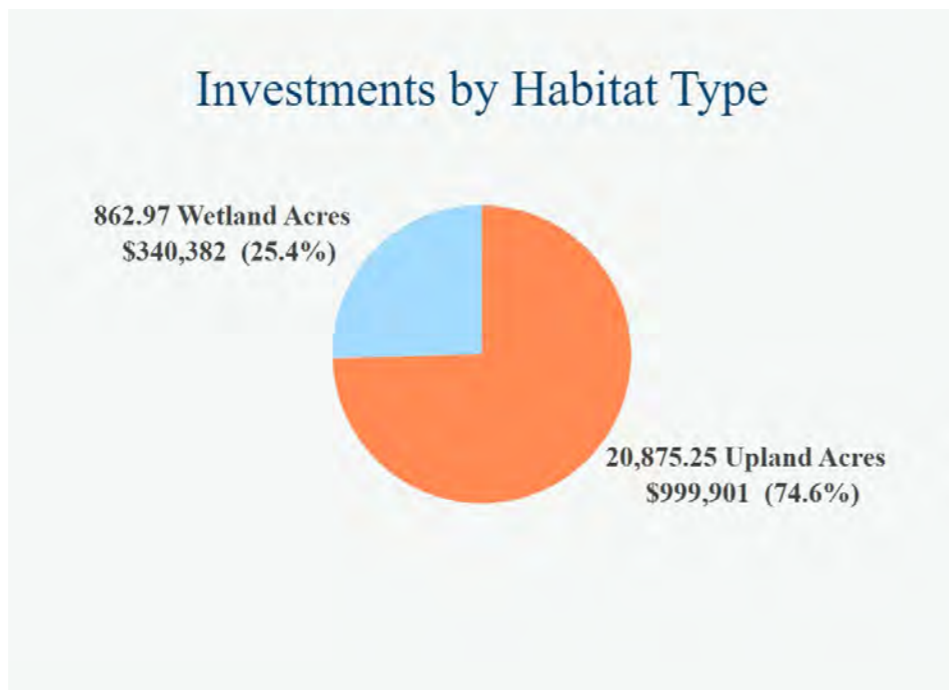
**\$1.14M**  
PARTNER CONTRIBUTIONS

**\$1.34M**  
TOTAL PROJECT INVESTMENTS

**\$1:5.7**  
LEVERAGE

**20,875**  
UPLAND ACRES

**862**  
WETLAND ACRES



Above: Completed 2023 PFW projects in South Dakota.  
Below: chart showcasing project investments by habitat type.



Grazing management improvement photos by Scott Thompson, landowner and Lindsey Wickre, USFWS.

**PROJECT HIGHLIGHT:**

**Grazing Management to Promote Landscape-Scale Conservation**

As part of a larger initiative, the PFW Program in South Dakota partnered with a landowner in the summer of 2023 to implement a 243-acre grazing management plan in the Prairie Pothole Region (PPR) of South Dakota.

Lindsey Wickre, PFW Biologist stationed at the Sand Lake NWR, worked closely with the landowner and local funding partners to design a grazing program that will simultaneously enhance rangeland stewardship and trust-species conservation. Funding partners for this specific project included the South Dakota Department of Game, Fish and Parks, and Pheasants Forever.

The strategic application of cross-fence and additional livestock water sources will allow the landowner to move cattle more efficiently between pastures to meet a wide variety of goals. In addition to the PFW grazing management project, the landowner also signed a Service perpetual grassland conservation easement funded via the Migratory Bird Conservation Fund, more widely known as the "Duck Stamp" program.

Partnering with local ranchers to implement grazing management programs is widely cited by conservation planners as a core strategy to maintain and enhance grassland-based landscapes throughout the western PPR. The PFW Program in South Dakota fully supports this philosophy and over the past five years has partnered with landowners to implement 321 grazing management projects on over 75,000 acres throughout the PPR portion of South Dakota.

These projects contribute directly to goals cited in the South Dakota PFW Strategic Plan and the Prairie Pothole Joint Venture Implementation Plan.



Grazing management improvement. Photo by Lindsey Wickre, USFWS

STATE SUMMARY

**\$201,272**  
PFW PROJECT INVESTMENTS

**\$669,723**  
PARTNER CONTRIBUTIONS

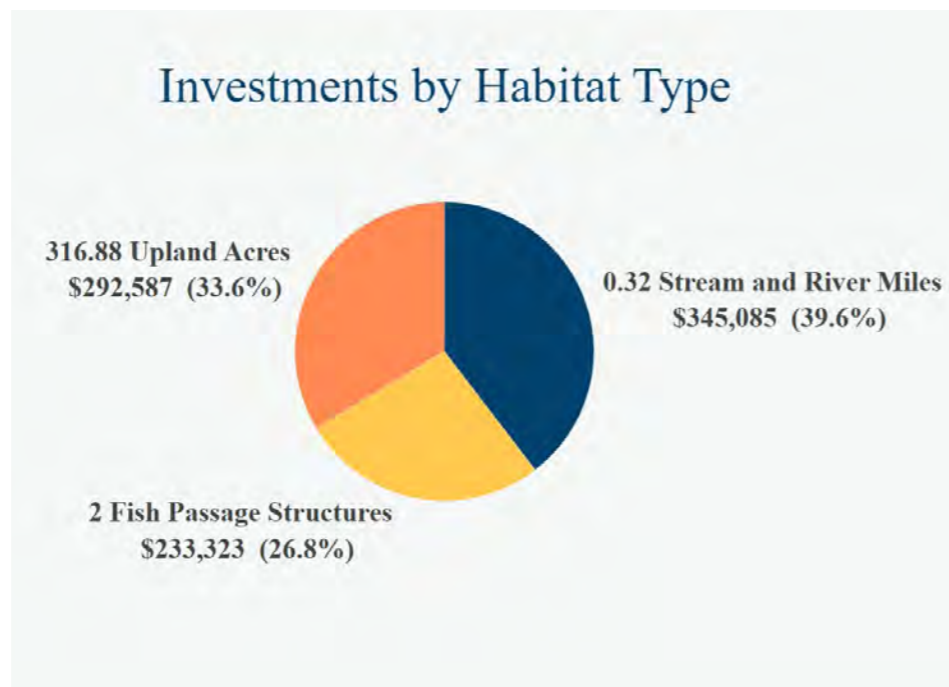
**\$870,995**  
TOTAL PROJECT INVESTMENTS

**\$1:3.3**  
LEVERAGE

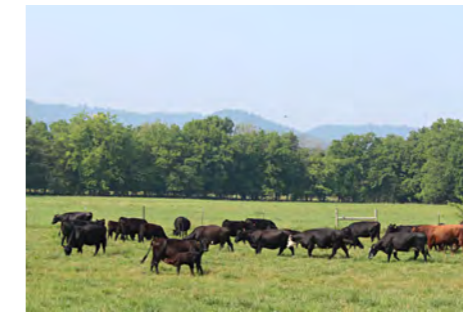
**0.32**  
STREAM AND RIVER MILES

**317**  
UPLAND ACRES

**2**  
FISH PASSAGE STRUCTURES



Above: Completed 2023 PFW projects in Tennessee.  
Below: chart showcasing project investments by habitat type.



Keeping working lands working is a high priority for the U.S. Fish & Wildlife Service. Photos showcase biologists monitoring for the Brawleys Fork Crayfish and grazing management improvements that allow the landowner to rotate cattle more efficiently. ©USFWS.

## PROJECT HIGHLIGHT:

Brawleys Fork F.W.

The PFW Program in Tennessee partnered with a private landowner, Tennessee Department of Agriculture, Natural Resource Conservation Service, and Cumberland County Soil Conservation District to deliver a project targeting improvements to aquatic habitat to benefit the Brawleys Fork crayfish.

Winter livestock feeding presented challenges for the landowner that included weather patterns, short days, and sometimes sick cattle. Winter feeding also impacted the stream that flows through the farm. Together, the conservation partners devised a strategy to address the landowner's working lands management needs while also producing species outcomes.

To achieve the mutual goals, the landowner's winter-feeding location would be relocated away from the stream into an area that allowed nutrients and sediment to filter. Two heavy use area concrete feeding pads, cross fencing, alternative water sources, and an access road were installed. Improvements made allow the landowner to rotate his cattle more efficiently throughout the year.

With feeding pads, one on either side of the creek, the landowner has the option to move his herd across a stabilized creek crossing. The Brawleys Fork crayfish will continue to benefit from reduced sediment and nutrient enrichment downstream where they occupy a landscape that is heavily dependent on the voluntary efforts of private landowners.

This project demonstrates the Service's and conservation community's commitment to conserving working landscapes and the meaningful impact private landowners have in the conservation of imperiled species.



PFW partnerships grace the cover of Tennessee Cattle Business Magazine in August 2023!

STATE SUMMARY

**\$593,340**  
PFW PROJECT INVESTMENTS

**\$1.06M**  
PARTNER CONTRIBUTIONS

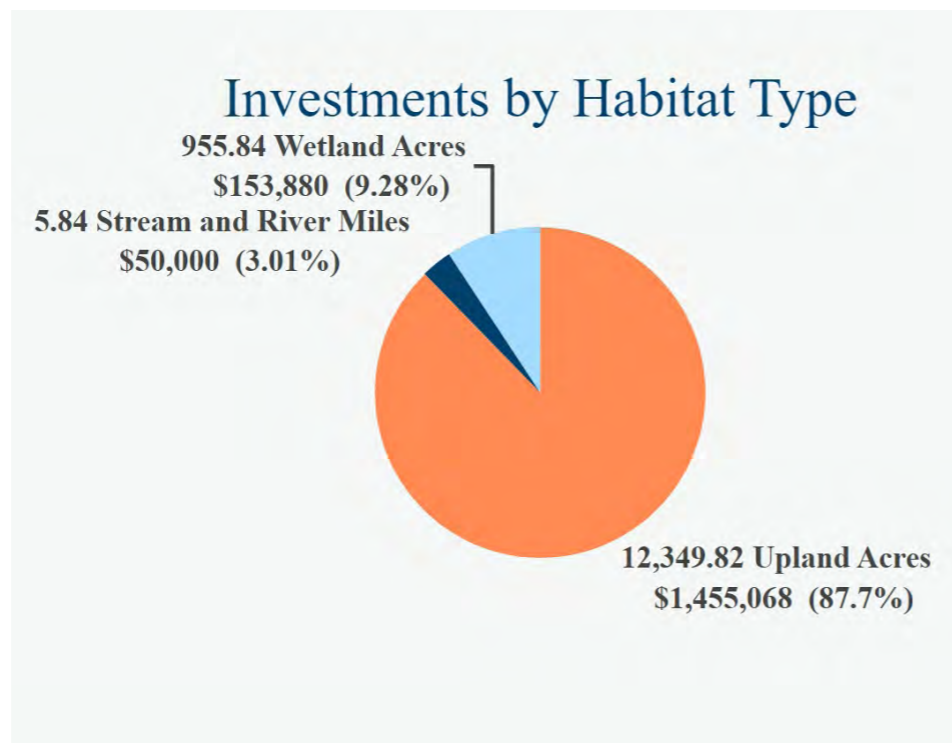
**\$1.65M**  
TOTAL PROJECT INVESTMENTS

**\$1:1.4**  
LEVERAGE

**5.84**  
STREAM AND RIVER MILES

**12,349**  
UPLAND ACRES

**956**  
WETLAND ACRES



Above: Completed 2023 PFW projects in Texas.  
Below: chart showcasing project investments by habitat type.



Pastures for Upland Birds restored grassland habitat. © Steve Arey / USFWS.

**PROJECT HIGHLIGHT:**

Improving Habitat in the Salt Creek Watershed: Salt Cedar Restoration

The Pastures for Upland Bird (PUB) program provides an incentive to Texas landowners whose goal is to convert improved pastures, tame pastures, haylands, or recently abandoned clean croplands into native warm season grass, forb, and pollinator habitat.

By working collaboratively, Texas Parks & Wildlife Department (TPWD) and Service enroll private landowners into the PFW Program via Sub-Recipient Landowner Agreements that are intended to restore native grass, forb, and pollinator plants improved pastures, tame pastures, haylands, or recently

abandoned clean croplands. Through PUB, pastures dominated by exotic or non-native grasses such as bermudagrass, bahiagrass, old world bluestems or tall fescue, or recently abandoned clean croplands, are converted to native grass, forb, and pollinator habitat within the monarch butterfly's central migration corridor in Texas.

As one of the most successful and highly praised conservation programs offered by both Service and TPWD in Texas, PUB fills a niche for landowners that may not qualify for other cost-share programs supporting native grassland restoration.

PUB benefits landowners whose goals include habitat improvement for species such as pollinators, quail, turkey, migratory songbirds, white-tailed deer, Texas horned lizard and other game or nongame wildlife, as well as wildlife tax valuation, sustainable forage production, or preserving Texas' native grassland legacy. The broader public also benefits from native grassland restoration through improved water quality, groundwater recharge, carbon sequestration, erosion control, outdoor education, and recreational opportunities.

This past fiscal year alone, an additional 2,873 restored acres were added to the program benefiting grassland birds and contributing to the Service's monarch butterfly initiative. Overall, PUB has grown into over 171 partnerships, totaling 9,741 acres statewide, and is still growing.

STATE SUMMARY

**\$31,735**  
PFW PROJECT INVESTMENTS

**\$299,751**  
PARTNER CONTRIBUTIONS

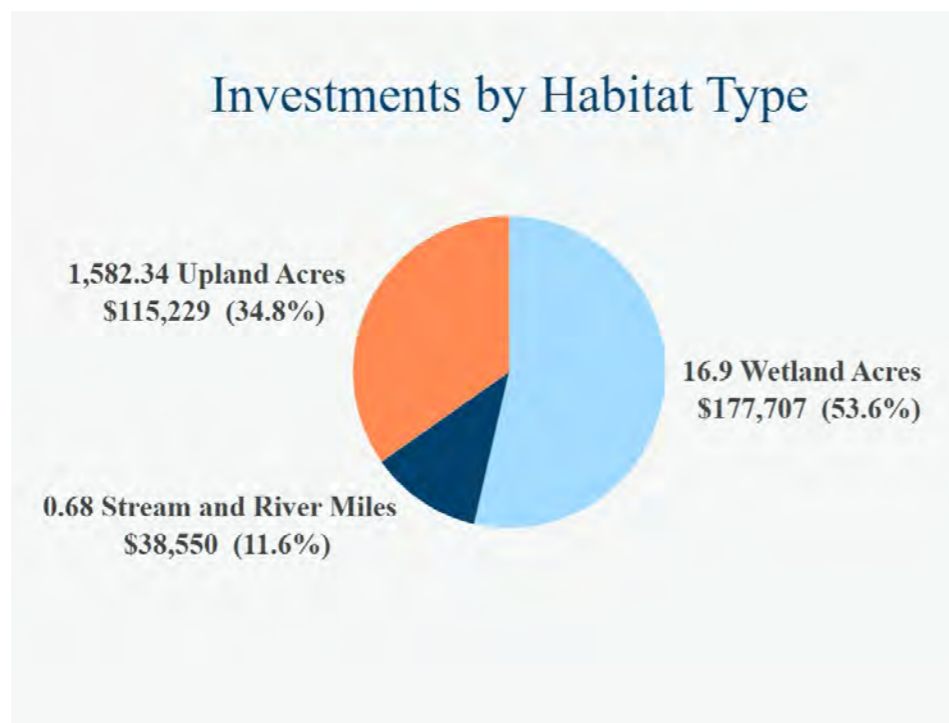
**\$331,486**  
TOTAL PROJECT INVESTMENTS

**\$1:9.4**  
LEVERAGE

**0.68**  
STREAM & RIVER

**1,582**  
UPLAND ACRES

**17**  
WETLAND ACRES



Above: Completed 2023 PFW projects in Utah.  
Below: chart showcasing project investments by habitat type.



Landscape photo of the property showing wetlands with wall of invasive non-native phragmites on the left. © Clint Wirick / USFWS.

**PROJECT HIGHLIGHT:**

**Chesapeake Duck Club Restoration**

The Chesapeake Duck Club is a private hunting club adjacent to the Bear River Migratory Bird Refuge (BRMBR) on the marshes of the Bear River. The club was incorporated in 1903 and encompasses 4,081 acres of wetlands and waterfowl-friendly agricultural fields.

In FY22, the Club voted to have their property placed into an easement with the Service. The PFW Program in Utah was asked by the BRMBR to assist with the baseline documentation. From July 2022 – December 2022, Utah PFW, BRMBR, & non-profit partner Bear River Land Conservancy made several site visits, collected data, and performed wildlife and vegetation surveys. The final report

was signed and the easement was secured in December 2022.

The PFW Program in Utah has since been coordinating with the club, Ducks Unlimited, and utilizing Utah's Watershed Restoration Initiative on efforts to improve waterfowl habitat by treating invasive Phragmites.

Between September and October of 2023, approximately 630 acres of wetland habitat was treated for Phragmites. By removing invasive species, we are opening space for native vegetation to reemerge, creating more open water habitat and better nesting habitat, and improving areas around wetland playas. Treatments like this also have the potential to increase wildlife numbers and allow hunting opportunities for future generations.

This project addresses regional and national needs for species conservation, habitat connectivity, and resilient ecosystems. This area is an important resting, feeding, and nesting area for numerous shorebirds, waterfowl, migratory birds, and falls into the Bear River Watershed Conservation Area. The PFW Program will continue to work with the Chesapeake Duck Club, BRMBR and partners to implement more restoration efforts in the future.



Local private contractor hired to treat invasive non-native phragmites. © Clint Wirick / USFWS.

STATE SUMMARY

**\$123,250**  
PFW PROJECT INVESTMENTS

**\$1.66M**  
PARTNER CONTRIBUTIONS

**\$1.78M**  
TOTAL PROJECT INVESTMENTS

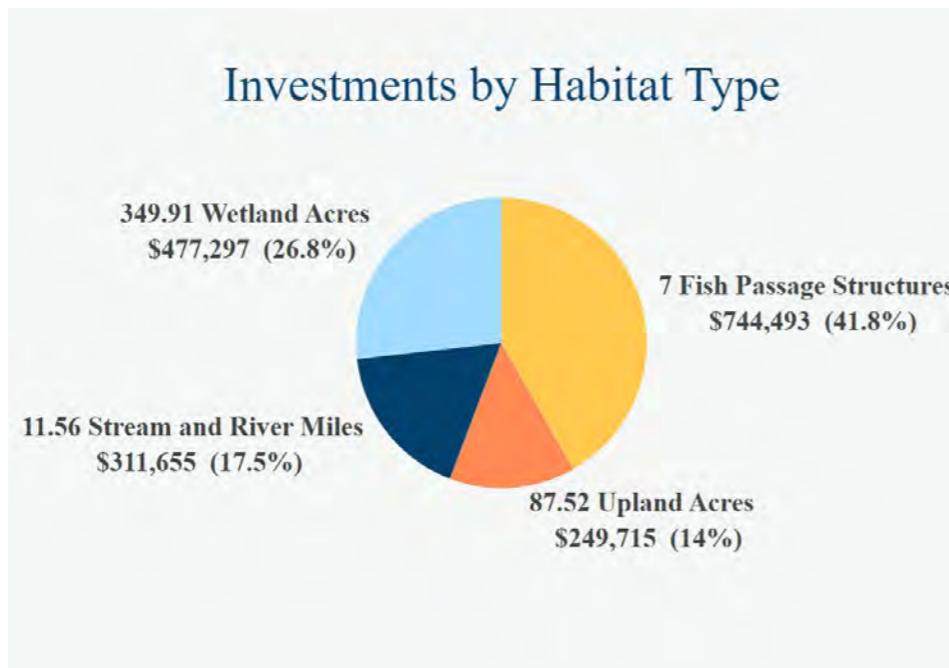
**\$1:13**  
LEVERAGE

**11.58**  
STREAM AND RIVER MILES

**88**  
UPLAND ACRES

**350**  
WETLAND ACRES

**7**  
FISH PASSAGE STRUCTURES



Above: Completed 2023 PFW projects in Vermont.  
Below: chart showcasing project investments by habitat type.



Migratory birds utilizing the restored habitat. © USFWS.

**PROJECT HIGHLIGHT:**

Lemon Fair River Wetland Restoration

This project is the largest wetland restoration project to date in the state of Vermont, comprising approximately 320 acres of formerly drained wetland. It is adjacent to two parcels that were previously restored by the PFW program in collaboration with USDA's Natural Resource Conservation Service, as well as Vermont Fish and Wildlife Department land.

The project lies at the core of over 1,500 acres of contiguous, permanently protected floodplain wetlands which provide crucial habitat for a variety of wetland dependent species and is a great example of the collaborative work of these agencies and willing landowners.

Restoration work included constructing twelve ditch plugs, excavating approximately ten acres of depressional wetlands, constructing a berm and hummock features, removing spoil piles, filling ditches, seeding trees/shrubs, adding large woody debris and controlling reed canary grass. These actions will restore the preexisting hydrology, enhance wildlife habitat, improve wetland function, and increase overall nutrient cycling of the wetland while reestablishing the topography and natural communities that likely existed prior to agricultural impacts.

Trust species that will benefit from this project include wood ducks, mallards, blue-winged teal, great blue heron, great egret, American bittern, willow flycatchers, Virginia rails, American kestrel, short-eared owl and greater yellowlegs, as well as amphibians, reptiles, a state listed mussel and wetland mammals.

A PFW biologist completed the site assessment, elevational survey, restoration design, local, state and federal permitting, project layout, bid process coordination, construction oversight and consultation with NRCS field staff, engineer and archaeologist.



Heavy equipment excavating a depressional wetland. ©USFWS.

STATE SUMMARY

**\$60,524**  
PFW PROJECT INVESTMENTS

**\$654,094**  
PARTNER CONTRIBUTIONS

**\$714,618**  
TOTAL PROJECT INVESTMENTS

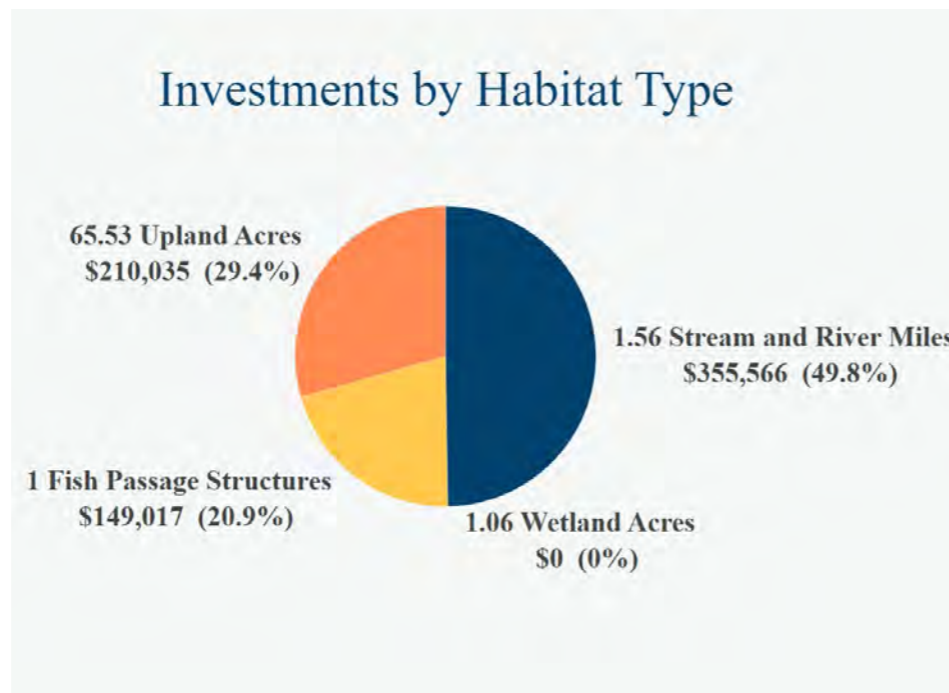
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LEVERAGE

**1.56**  
STREAM AND RIVER MILES

**66**  
UPLAND ACRES

**1.06**  
WETLAND ACRES

**1**  
FISH PASSAGE STRUCTURES



Above: Completed 2023 PFW projects in Virginia.  
Below: chart showcasing project investments by habitat type.



Before/after stream and riparian restoration along the North Fork Clinch River. © USFWS.

## PROJECT HIGHLIGHT:

### North Fork Clinch River Restoration

PFW staff and partners completed project activities in FY23 to restore a reach of the North Fork Clinch River (NFCR) in the Upper Clinch River Watershed of Southwest Virginia.

The project included a 1700-foot section of the NFCR and adjacent open space that is utilized as a community recreational area and fishing club. The stream was experiencing bank failure and severe erosion due to a lack of native riparian buffer and improperly installed in-stream structures acting as aquatic organism passage barriers.

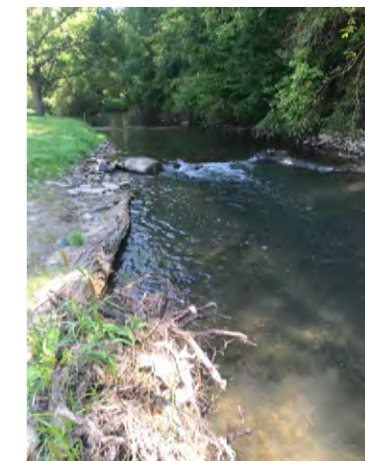
The goal of this project was to improve in-stream habitat and aquatic connectivity by removing

the old instream structures and replacing with fewer natural channel design structures to set proper bankfull dimensions and stabilize the reach. This also involved bank stabilization, bioengineering, and native riparian vegetation establishment.

The project eliminates the accelerated bank erosion, improving habitat for fish, freshwater mussels, and other riparian and aquatic species. One mussel in particular, the state endangered Tennessee heelsplitter (*Lasmigona holstonia*) is prolific throughout the NFCR in Tazewell County, VA.

In coordination with biologists from the Virginia Department of Wildlife Resources, over 150 Tennessee heelsplitters were pit-tagged and will continue to be monitored post-restoration.

Additional project partners include the private landowner, Canaan Valley Institute, Upper Tennessee River Roundtable, and Virginia Department of Environmental Quality.



Newly installed log vane structure for stability and in-stream habitat. © USFWS.

STATE SUMMARY

**\$93,389**  
PFW PROJECT INVESTMENTS

**\$805,306**  
PARTNER CONTRIBUTIONS

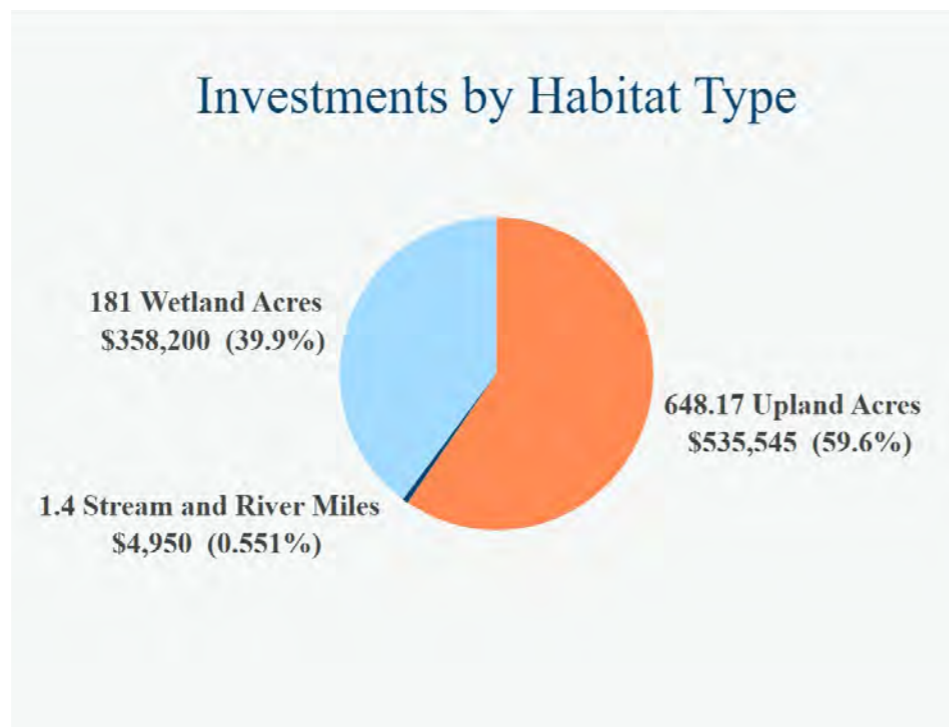
**\$898,695**  
TOTAL PROJECT INVESTMENTS

**\$1:8.6**  
LEVERAGE

**1.4**  
STREAM AND RIVER MILES

**648**  
UPLAND ACRES

**181**  
WETLAND ACRES



Above: Completed 2023 PFW projects in Washington. Below: chart showcasing project investments by habitat type.



Installing 10 foot t-posts and 7 foot tall deer fencing to keep deer, elk, and moose from uprooting newly planted trees and shrubs. Photo credit: Ducks Unlimited.

## PROJECT HIGHLIGHT:

### Wetland Meadow Restoration in Northeastern Washington

This restoration project was a joint effort on a Wetland Reserve Easement between the Natural Resources Conservation Service, Ducks Unlimited, and the PFW Program at Turnbull National Wildlife Refuge.

This easement covers 137 acres of seasonally flooded meadow adjacent to the Pend Oreille River in Northeastern Washington State.

Historically this site has been hayed in late summer, but the landowner has decided to reduce the haying effort and focus on habitat restoration. The overall project entailed excavation of seven shallow wetland basins to provide later season water for waterfowl nesting on the easement.

Two water control structures were also placed on the easement to help retain water for longer in the waterfowl fledging season. The shallow excavations resulted in more than 24,000 cubic yards of material being removed from the field, hauled to the easement edges, and then recontoured into the existing topography. These spoil locations were then reseeded with a mix of native grasses and forbs.

Adjacent to the newly excavated wetlands, a total of five acres of riparian tree and shrub planting was installed to help increase the vegetation diversity around the wetland edges.

PFW staff played a key role in project development, surveying and permitting alongside partner design and implementation. When vegetation is fully established, a total of 137 acres of riparian floodplain adjacent to the Pend Oreille River will provide habitat for a myriad of waterfowl, moose, elk, deer, beaver, river otter, and neo-tropical migratory birds.



Left: Water control structure built for this wetland restoration project. Photo credit: Ducks Unlimited. Right: location of excavated soils. Photo credit: Ducks Unlimited.



STATE SUMMARY

**\$5,000**  
PFW PROJECT  
INVESTMENTS

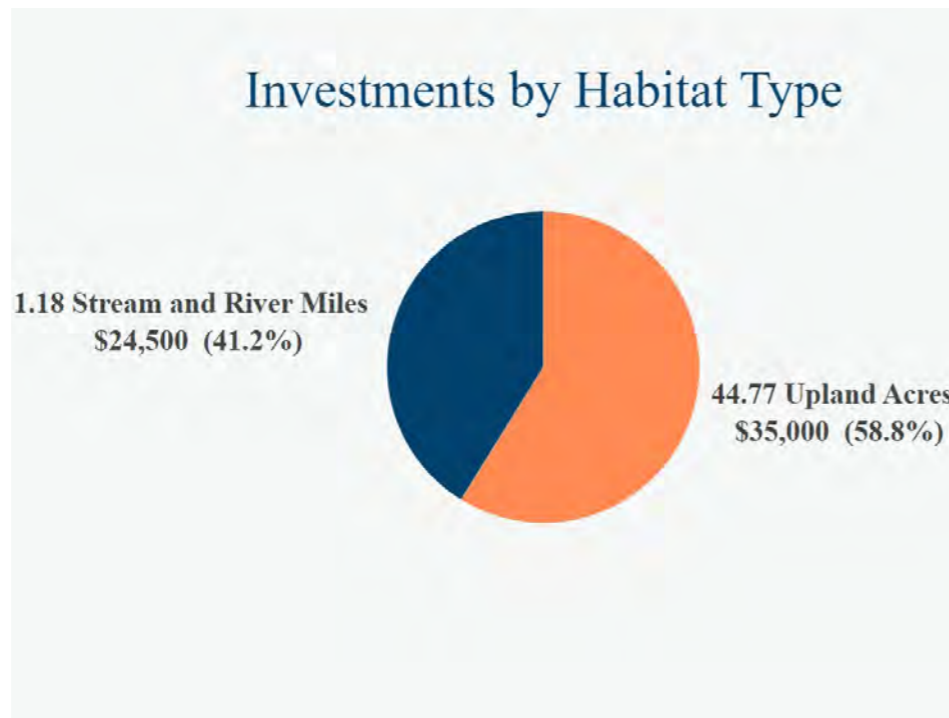
**\$54,500**  
PARTNER  
CONTRIBUTIONS

**\$59,500**  
TOTAL  
PROJECT  
INVESTMENTS

**\$1:10**  
LEVERAGE

**1.18**  
STREAM  
AND RIVER  
MILES

**44.7**  
UPLAND  
ACRES



Above: Completed 2023 PFW projects in West Virginia.  
Below: chart showcasing project investments by habitat type.



The UTV industry serves as a vital economic driver in this underserved Justice 40 community. ©USFWS.

## PROJECT HIGHLIGHT:

### Guyandotte River Crayfish Conservation

PFW, the West Virginia Ecological Services Field Office, and Appalachian Fish and Wildlife Conservation Office have teamed up to initiate a conservation partnership team deep in the Appalachian coal fields in an effort to protect and recover the critically endangered Guyandotte River Crayfish.

Endemic to West Virginia, this species only persists in a fraction of its historic range. The Pinnacle Creek watershed is a vital lifeline for the crayfish and is under significant pressure from off-road recreational vehicle activities.

The ATV/UTV industry in the area serves as a vital economic driver in this underserved Justice40 community.

In response, PFW is providing technical assistance by partnering with the Hatfield McCoy Trail System, Tread Lightly!, and Applied Trails Research.

PFW dedicated \$35,000 through Tread Lightly!, a non-profit organization that leads a national initiative to promote the responsible use of motorized vehicles when recreating outdoors. The funds will be used to initiate an aggressive outreach and education campaign to spread awareness and pride for the crayfish that calls WV its home. Additionally, PFW hired a professional trail engineer to assess the trails and stream crossings in the watershed. Applied Trails Research will provide additional technical assistance and guidance for techniques to reduce sedimentation and runoff from the trails into Pinnacle Creek.

Future PFW projects resulting from this work will promote landscape scale restoration through a trail system that sustains resilient tourism and resilient ecosystems.



UTV trail signage stating "Keep safe, stay on the trails!" and stream crossing at Pinnacle Creek. ©USFWS.

STATE SUMMARY

**\$255,366**

PFW PROJECT INVESTMENTS

**\$1.77M**

PARTNER CONTRIBUTIONS

**\$2.03M**

TOTAL PROJECT INVESTMENTS

**\$1:6.9**

LEVERAGE

**0.05**

STREAM & RIVER MILES

**730**

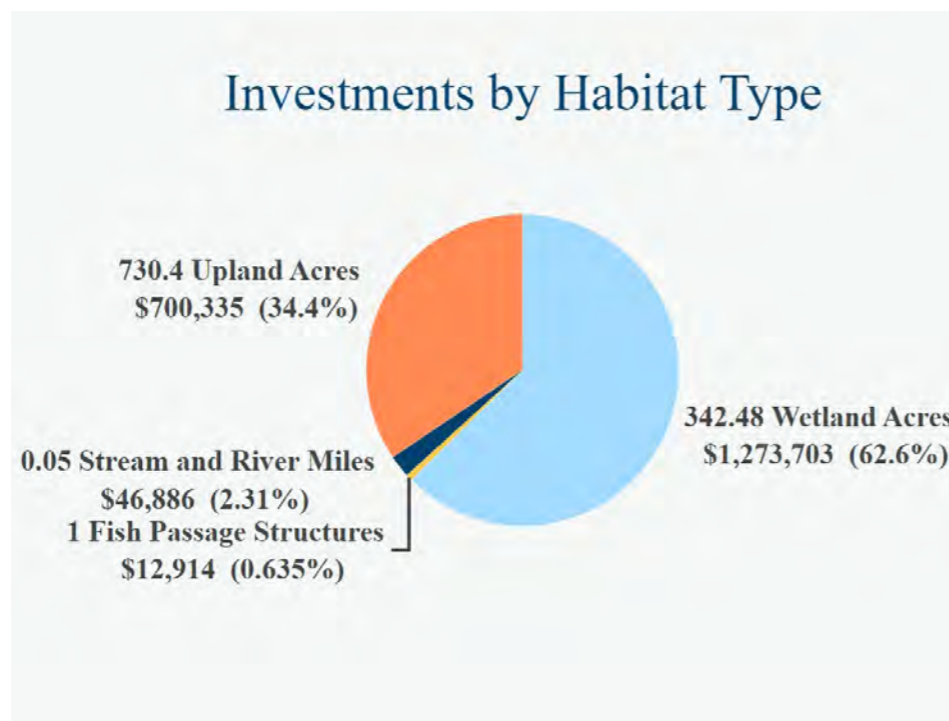
UPLAND ACRES

**342**

WETLAND ACRES

**1**

FISH PASSAGE STRUCTURE



Above: Completed 2023 PFW projects in Wisconsin. Below: chart showcasing project investments by habitat type.



Sleep slopes of remnant sites in the Driftless Area. ©USFWS.

**PROJECT HIGHLIGHT:**

Western Coulees and Ridges Ecological Restoration

The purpose of this project is to restore a remnant dry bluff prairie on private land in the Western Coulees and Ridges ecological landscape of Wisconsin.

This project targeted 9 acres and will benefit a variety of local and migratory wildlife. Funds provided by PFW were leveraged with resources from the landowner and Wisconsin DNR's Landowner Incentive Program.

This project lies within the monarch butterfly migration corridor and will provide critical breeding, feeding, nesting and migratory stopover habitat.

Additionally, rusty patched bumble bees, eastern wild turkeys, northern flickers, red-headed

woodpeckers, and other federal trust resources will benefit.

Bluff prairie restoration presents a unique opportunity to restore ecological communities that are considered rare both globally and in the Driftless areas of Southeastern Minnesota and Southwestern Wisconsin.

Due to the steep slopes in the Driftless Area, bluff prairies are generally unsuitable for uses such as clearing for development and conversion to row crop agriculture.

The main threat is not land-use change but the natural progression of invasive plants, shade-tolerant trees, and Eastern red cedar due to fire suppression. This threatens the existing, albeit limited, diversity of plants and animals by continuing this trend.



Restoration crew (left), UAV pilot at project site (right), and after prescribed fire (bottom). ©USFWS.

STATE SUMMARY

**\$60,460**  
PFW PROJECT INVESTMENTS

**\$1.74M**  
PARTNER CONTRIBUTIONS

**\$1.8M**  
TOTAL PROJECT INVESTMENTS

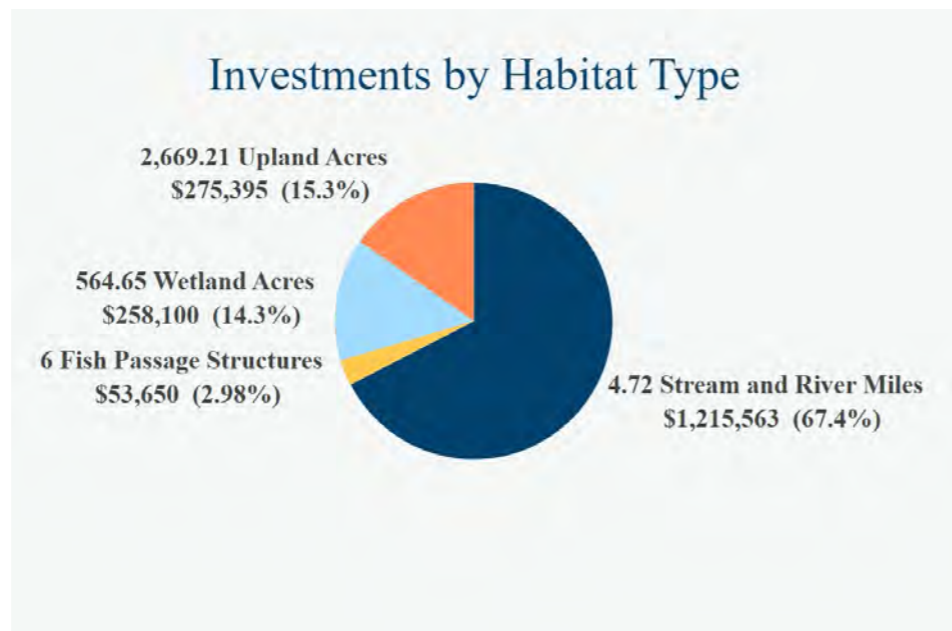
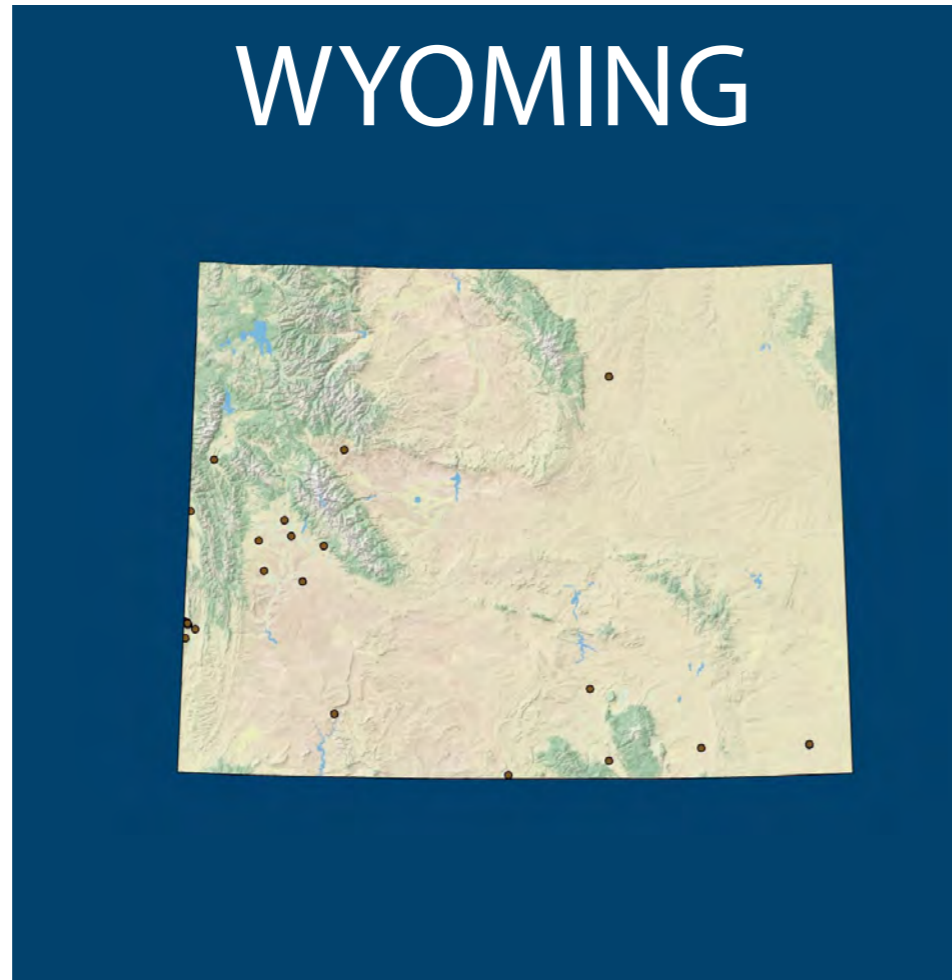
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LEVERAGE

**4.71**  
STREAM AND RIVER MILES

**2,669**  
UPLAND ACRES

**565**  
WETLAND ACRES

**6**  
FISH PASSAGE STRUCTURES



Above: Completed 2023 PFW projects in Wyoming.  
Below: chart showcasing project investments by habitat type.



Photo 1: Before and after establishment of the Repshire riparian pasture. The photo on left was taken in the spring of 2019 when the pasture was grazed continuously causing extreme hummocking and damaged banks. The repeat photo on the right was taken during the first summer of riparian deferment and AUM-based grazing management. Grasses exceeded 4-feet tall throughout much of the riparian area. Notice the toe of the slopes already revegetating in the spring of 2023 not long after grazing deferment was implemented. ©USFWS.

## PROJECT HIGHLIGHT:

### Lodgepole Creek

Extreme overstocking and year-round grazing within a Wyoming Game and Fish Department designated 'Aquatic Crucial Habitat Area' sparked deep concern among conservation partners.

The site, located on Lodgepole creek, hosts Wyoming's highest densities of species of greatest conservation need minnows and mussels. Species include orangethroat darter, plains topminnow, brassy minnow, and cylindrical papershell mussel.

Wetlands and wet meadow hydrology was degrading because of erosion and channel incision and prairie were severely over-grazed with very

little palatable forage on the uplands.

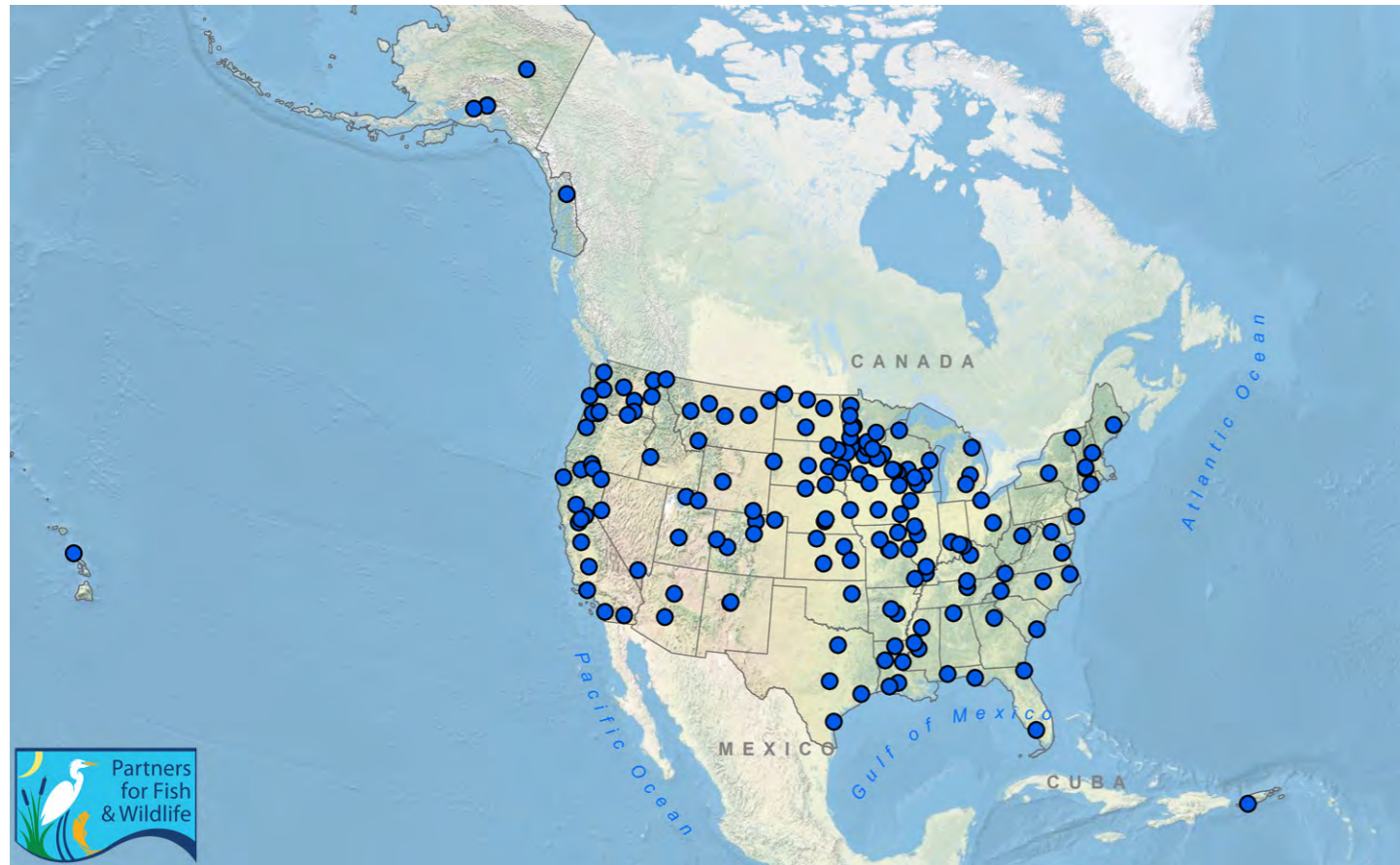
A project of this nature requires a long-game founded with patience, trust, and room for error. The 'error' occurred when the grazing tenant committed to change but failed to follow through. The discouraged landowner strongly embraced a partnership with the Laramie County Conservation District and PFW staff. The outcome was a new tenant and a 'whole' ranch grazing management plan focused on recovery and improving habitat resiliency within a working landscape.

This year, focus was placed on developing two off-channel cattle watering locations within uplands in the west half of the ranch. Cattle no longer needed access to the creek or wetlands which enabled fencing installation to create a 120-acre riparian/wetland pasture that experienced its first year of a two-year grazing deferment. A Wyoming Game and Fish Department research assistant documented improvement in fish species diversity and abundance during late fall surveys. Cattle destocking combined with a wet summer resulted in amazing first year upland habitat recovery. Cheyenne Audubon volunteers confirmed upland bird use by thick-billed longspur, chestnut-collard longspur, and bobolink.



Brassy minnow. ©USFWS.

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Above: Process-based restoration workshop attendees building structures (California). ©USFWS.

Front cover photos (L-R): Releasing beavers at Tasmam Koyom Meadow in CA for the first time in 75 years. ©USFWS.

PFW biologist with landowners showcasing the Partners sign on the wall (Arizona). ©USFWS.

USFWS Director Williams visiting Cripple Creek restoration site in Alaska. ©USFWS.

Urban conservation project at Marsh Elementary School in New Jersey. ©USFWS.

Urban youth pollinator planting project in Atlantic City, New Jersey. ©USFWS.

Prescribed fire at Foss Mountain in New Hampshire. ©USFWS.

Proud landowner with PFW biologist at the Rainbow Wetland site. ©USFWS.

Contractor controlling invasive plants using cut-and-paint herbicide application. Photo © Hazel Cook.

Pollinator habitat sign showcasing PFW partnership with the Xerces Society and Pinelands Nursery in New Jersey. ©USFWS.

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March 2024