



Nature-Based Strategies for Hazard Mitigation

EMILY DONAHOE

POLICY SPECIALIST, RESILIENT COASTS AND FLOODPLAINS



Uniting people to ensure that wildlife thrive in a changing world, working with our network of 52 state and territorial affiliates and over seven million members and supporters.



- ❓ **What are natural infrastructure projects and nature-based solutions?**
- ❓ **How can these approaches mitigate hazard risks?**
- ❓ **Examples at various scales**



What are nature-based solutions?

Natural Infrastructure:
natural systems and features that provide benefits and services to people within the environment

Nature-Based Infrastructure:
approaches designed and constructed by people to mimic natural systems, e.g. green roofs



Nature-based solutions are EFFECTIVE

Healthy landscapes protect communities from floods and storm surges, often equal to or better than traditional grey approaches



Nature-based solutions are **ADAPTABLE**

Nature-based solutions can fit into almost any environment for a wide range of stakeholders including property owners, developers, community planners, and more.



Nature-based solutions are BENEFICIAL

Nature-based solutions not only provides protective abilities like buffering against hazard risks, but also provide a plethora of co-benefits to people and wildlife alike.



Native Species Plantings in Urban Environments

- Parcel-scale projects in cities can have significant positive impacts on the surrounding environment and community
- Include approaches like planting native species, pollinator gardens, installing rainwater catchment systems, and more...



Installing Green Roofs in Kansas City, MO

- In heavily built environments like cities, green roofs installed on building rooftops are an effective way to benefit from ecosystem services.
- Kansas City, Missouri, prioritized the installation of green roofs across the city's skyline with the aim to improve water and air quality and has installed 19 green roofs as of 2018.



Leveraging Grassroots Networks in Detroit, Michigan

- NWF's [Sacred Grounds](#) program leverages the grassroots capacity of houses of worship to act as environmental and social change agents.
- As respected community leaders and some of the largest landowners, houses of worship serve as vital community anchors to disseminate native habitats, rain gardens, and other best management practices (BMPs) onsite and in the surrounding neighborhoods.



Watershed Stewardship with Camp Second Chance in Seattle, Washington

- The [Weed Warriors, Nature Stewards Program](#) collaborates with Camp Second Chance to provide educational opportunities and enable “boots on the ground” projects to identify and remove noxious weeds surrounding the Myers Way Wetlands and the encampment.
- The program works to restore the riparian wetlands and offers Camp Second Chance residents stipends, educational workshops, and skill development opportunities in environmental conservation.



Stabilizing Coastlines with RiSC in New York City

- Established in the wake of Superstorm Sandy, NWF's Resilient Schools Consortium (RiSC) Program, aims to educate the city's youth about climate science, climate impacts, climate justice, and the natural and built solutions that increase climate resiliency.
- The program engages middle and high school students and formerly incarcerated youth through on-the-ground projects along Coney Island's coastline to plant American beach grass to stabilize coastal dunes.



Oyster Reef Restoration in the Chesapeake Bay

- In 2015, the bay's largest oyster restoration project was completed in Maryland's Harris Creek.
- The project not only rehabilitated the oyster population, but greatly increased water filtration and nutrient removal capacity, along with many hazard risk reduction benefits.



Exploration Green in Clear Lake, Texas

- Abandoned golf course was purchased by the Clear Lake City Water Authority and converted to a 178-acre park and wetland, protecting residents and homes from significant flooding during Hurricane Harvey.
- The park includes detention ponds, wetlands, native tree nurseries, hiking and biking trails, native plantings, and athletic fields.



Buyouts in Charlotte and Mecklenburg County, North Carolina

- **After major flooding, North Carolina implemented a voluntary buyout program and spent approximately \$67 million acquiring over 400 properties, and restored 185 acres of floodplain.**
- **This buyout program is expected to prevent an estimated \$300 million in future losses.**

- 
- ❑ **Nature-based solutions are adaptable and can be implemented at multiple scales**
 - ❑ **Nature-based solutions provide numerous hazard risk reduction benefits**
 - ❑ **Nature-based solutions provide plentiful co-benefits to the surrounding community and environment**



[Funding Database](#)

[About](#)

[Resources](#)

[Glossary](#)

[Contact](#)



Nature-based Solutions Funding Database

National Wildlife Federation's interactive database for communities interested in pursuing federal funding and/or technical assistance for nature-based solutions. Use the filters below to search for nature-based solutions funding and technical assistance resources that fit your needs. For additional information on search filters, see our Glossary page.



National
Wildlife
Federation

[Funding Database](#)

[About](#)

[Resources](#)

[Glossary](#)

[Contact](#)



About

Connecting communities with nature-based solutions to address local needs.

A database for communities pursuing federal funding and/or technical assistance for nature-based solutions

Filter:

PURPOSE ▾

ELIGIBILITY ▾

SUPPORT TYPE ▾

COST SHARING ▾

AGENCY ▾



RESET

Showing: All | 78 programs found.

Lower Mississippi Alluvial Valley Restoration Fund

The Lower Mississippi Alluvial Valley Restoration Fund invests in on-the-ground projects to restore, enhance and conserve bottomland hardwood forest and wetland habitats to benefit wildlife and improve water quality and ... [Read more](#)

National Culvert Removal, Replacement & Restoration Grants

The National Culvert Removal, Replacement & Restoration Grants is an annual competitive grant program that awards funding for projects to replace, remove, and repair culverts or weirs in a way ... [Read more](#)

Neighborhood Access and Equity Grant Program

This new program provides grants to help reconnect neighborhoods divided by infrastructure, mitigate negative impacts of transportation facilities or construction projects on communities, and support equitable transportation planning. Eligible Uses ... [Read more](#)

Filter:

PURPOSE ^

ELIGIBILITY v

SUPPORT TYPE v

COST SHARING v

AGENCY v



RESET

 Show All Business/Community Development **Climate Resilience/Adaptation** Disaster Recovery Drought Resilience Erosion Control **Flood/Storm Risk Reduction** Habitat/Ecosystem Protection Habitat/Ecosystem Restoration

Showing 1 - 3 of 3 results for: Climate Resilience/Adaptation, Flood/Storm Risk Reduction, Local Government, Project Funding (Grant/Other), Varies/Need-based, Federal Emergency Management Agency (FEMA) | 3 programs found.

Building Resilient Communities and Communities Program

The Building Resilient Communities and Communities Program provides funding away from recovery to promote community resilience and mitigation activities.

Structure

Flood Mitigation Assistance (FMA) Grant

The Flood Mitigation Assistance grant is a competitive grant program providing funding to states, local communities, federally recognized tribes, and territories for projects to reduce or eliminate risk of repetitive ... [Read more](#)

Hazard Mitigation Grant Program (HMGP)

The Hazard Mitigation Grant Program provides post-disaster funding to state, local, tribal, and territorial governments to reduce and mitigate future disaster losses. Grant funding is available after a presidentially declared ... [Read more](#)

Showing: Climate Resilience/Adaptation, Flood/Storm Risk Reduction, Local Government, Project Funding (Grant/Other), Varies/Need-based, Federal Emergency Management Agency (FEMA) | 3 programs found.

Building Resilient Infrastructure and Communities (BRIC) Program

The Building Resilient Infrastructure and Communities (BRIC) Program aims to shift funding away from reactive post-disaster recovery to pro-active investment in community resilience and pre-disaster mitigation activities. Eligible grantees may ... [Read more](#)

Flood Mitigation Assistance (FMA) Grant

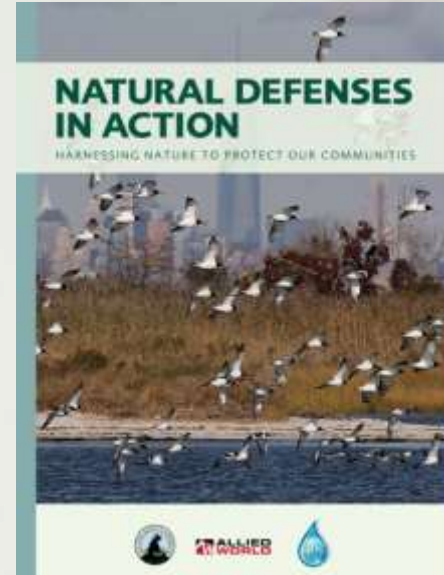
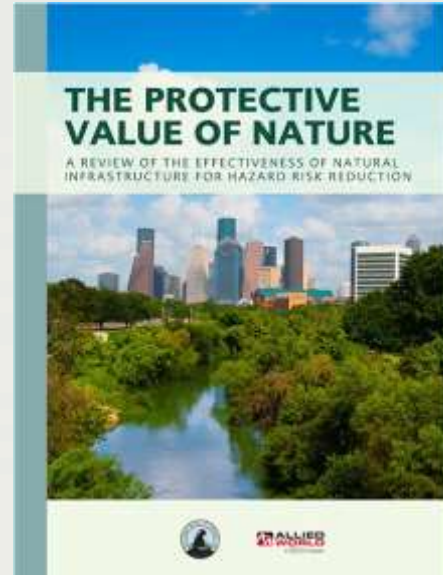
The Flood Mitigation Assistance grant is a competitive grant program providing funding to states, local communities, federally recognized tribes, and territories for projects to reduce or eliminate risk of repetitive ... [Read more](#)

Hazard Mitigation Grant Program (HMGP)

The Hazard Mitigation Grant Program provides post-disaster funding to state, local, tribal, and territorial governments to reduce and mitigate future disaster losses. Grant funding is available after a presidentially declared ... [Read more](#)

Relevant Resources

- **COMING SOON!** Showcase Report: **Versatility of Nature-Based Solutions: Protections and Benefits from the Parcel to Community Scales**
- Report: *The Protective Value of Nature*
 - www.nwf.org/protective-value-of-nature
- Podcast: *Harnessing Natural Infrastructure to Protect the Built Environment*
 - <https://blog.nwf.org/2022/04/harnessing-natural-infrastructure-to-protect-the-built-environment/>
- Report: *Natural Defenses in Action*
 - www.nwf.org/nature-in-action





Thank you!

DONAHOOE@NWF.ORG