



REPI

UNITED STATES DEPARTMENT OF DEFENSE
READINESS AND ENVIRONMENTAL
PROTECTION INTEGRATION PROGRAM

2022 REPI CHALLENGE RECIPIENTS



The Readiness and Environmental Protection Integration (REPI) program fosters multi-agency initiatives and collaboration to preserve compatible land uses near military installations and ranges. These cost-sharing partnerships with state and local governments and private conservation organizations limit incompatible development in the vicinity of DoD installations and ranges; enhance military installation resilience to climate change or extreme weather events; or relieve current or anticipated environmental restrictions in support of key mission capabilities of strategic importance. The REPI program designed the REPI Challenge, an annual competition that aims to:



Cultivate projects that conserve land at a greater scale and test promising ways to finance land protection.



Achieve benefits not obtainable by typical REPI projects in order to protect critically important military missions.



Support the REPI program to meet its ambitious goals.



Harness the creativity of the private sector to access and leverage unconventional sources of funding and market-based approaches.

2022 REPI Challenge Objectives and Solutions to Preserve Key Mission Capabilities

This year, the 2022 REPI Challenge will provide **\$31.6 million** in program funds to be coupled with more than **\$60.3 million** in partner contributions. These funds will help implement **nine projects** that limit incompatible development, enhance military installation resilience, and protect local habitats to preserve and improve key mission capabilities. By spreading funding across **nine projects**, the REPI Challenge will contribute to initiatives benefiting **13 installations** and their neighboring communities. **Three** of the selected **projects** are located within **sentinel landscapes** and will contribute directly to the strategic goals of the Sentinel Landscapes Partnership.

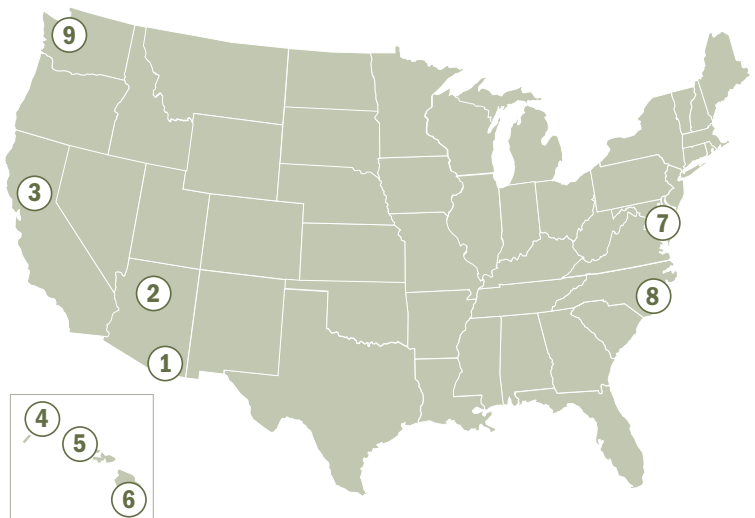
REPI Challenge Accomplishments to Date

Eleven years of the REPI Challenge have resulted in the following benefits at **38 locations** nationwide, addressing incompatible development, habitat protection, and installation resilience:

- **\$120.6M** in REPI funds invested to protect vital military missions
- **\$382.5M** in partner contributions, providing a cost savings ratio of 3:1
- **38 locations** with projects promoting compatible land uses, restoring critical habitats, and enhancing climate adaptation efforts

For more information about the REPI program and supportive DoD efforts, please visit www.repi.mil.

1. Fort Huachuca, Arizona | REPI Funds: \$2.8M
2. Naval Observatory Flagstaff Station & Camp Navajo, Arizona
REPI Funds: \$1.0M
3. Beale Air Force Base, California | REPI Funds: \$3.6M
4. Pacific Missile Range Facility Barking Sands, Hawaii
REPI Funds: \$1.9M
5. Joint Base Pearl Harbor-Hickam, Hawaii | REPI Funds: \$14.9M
6. Pohakuloa Training Area, Hawaii | REPI Funds: \$2.4M
7. Naval Air Station Patuxent River, Maryland | REPI Funds: \$2.7M
8. Fort Bragg, Seymour Johnson Air Force Base, Marine Corps Base
Camp Lejeune, Marine Corps Air Station Cherry Point, North Carolina
REPI Funds: \$1.8M
9. Naval Base Kitsap, Washington | REPI Funds: \$0.5M





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Fort Huachuca, Fort Huachuca Sentinel Landscape Partnership, Arizona

Climate Resilience Projects

- Fort Huachuca is a Major Range Test Facility Base and the home of Army Intelligence. It has the world's largest Unmanned Aircraft System training center and, nestled within the 2,500 square-acre electromagnetically quiet, high altitude "bowl" known as the Buffalo Soldier Electronic Testing Range, it is uniquely able to conduct full-frequency, full-power jamming as part of the DoD's cyber warfare testing and training mission. The **Fort Huachuca Sentinel Landscape** includes Sky Island Mountain range, important native grasslands, mesquite and creosote-dominated desert areas, and one of the most ecologically significant river systems in the Southwest, the San Pedro River, as well as one of its main tributaries, the Babocomari River.
- Fort Huachuca's operations and mission capabilities must always consider **groundwater use** and continuing **development pressure**. A changing climate, long-term drought, and continued groundwater pumping may impact water supplies in this region. Population growth and land-use conversion have increased competition for limited water resources while fragmenting essential wildlife habitats and encroaching upon Fort Huachuca's critical airspace.
- The Fort Huachuca Sentinel Landscape Climate Resilience Project **promotes installation resilience and mission flexibility** with off-base projects (groundwater recharge, streambank stabilization, watershed analyses, land conservation) that together will **enhance watershed-level climate change resilience** at Fort Huachuca.



A basin at the Palominas Stormwater Recharge facility is used to capture stormwater that is then infiltrated into the alluvial aquifer and sustains the flow in the San Pedro River while also enhancing riparian habitat for endangered species in the San Pedro Riparian National Conservation Area. (Cochise County Engineering and Natural Resources photo by Mark Apel)



REPI Funds:
\$2.8M
Partner Contributions:
\$5.3M

Total: \$8.1M

NOMINATING PARTNER

Cochise County Department of
Engineering & Natural Resources



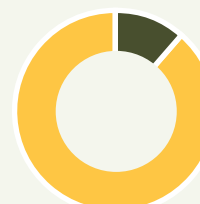
Naval Observatory Flagstaff Station & Camp Navajo, Arizona

Fuels and Wildfire Risk Reduction Project

- Naval Observatory (NO) Flagstaff** is the **national dark-sky observatory site** for the Department of Defense, located in north-central Arizona, with the ideal geographic, climatic, and atmospheric conditions for scientific observation and research of the night sky. **Camp Navajo** is an expansive United States Army training facility and ammunition storage depot near Flagstaff, Arizona. Primarily used by the Arizona Army National Guard, the facility spans over 44 square miles, making it the **largest military installation in the state**.
- Unhealthy forests and sustained drought increase the risk of high-intensity wildfire. In Northern Arizona, catastrophic wildfires threaten the Army National Guard's training mission at Camp Navajo, NO Flagstaff, and the Naval Precision Optical Interferometer at Anderson Mesa. Reducing the risk of disastrous wildfire and post-fire flooding will enable flexible execution of the full mission set and construction of new facilities on the installations.
- This **fuels and wildfire risk reduction project improves the resiliency and safety of military assets and communities** by thinning unhealthy forests to reduce hazardous fuels, protecting the installations and communities from the threat of catastrophic wildfires, post-wildfire flooding, and smoke pollution produced by wildfires.



Three soldiers in the 2021 Best Warrior Competition use a smoke grenade to conceal their movement as they prepare to capture a high-value target during a military operation in urban terrain event at Camp Navajo, Ariz., March 2021. (U.S. Army photo by Spc. Carlos Parra)



REPI Funds:
\$1.0M
Partner Contributions:
\$7.6M

Total: \$8.6M

NOMINATING PARTNER

National Forest Foundation





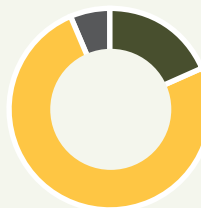
Beale Air Force Base, California

Magnolia Ranch Agricultural Conservation Easement

- Magnolia Ranch sits at the southwestern border of Beale Air Force Base (AFB) in the rural farming community of Yuba County, California. Beale AFB is home to the PAVE Phased Array Warning System, one of only three such systems in the United States that detects and tracks sea-launched and intercontinental ballistic missiles.
- The property is **threatened by high-intensity development**, which could negatively impact the region's agricultural community and jeopardize the installation and its mission. Conservation of the property would protect critical habitats and farmland while sustaining compatible land uses that complement the installation's mission.
- The Magnolia Ranch easement will **protect over 950 acres from incompatible development** along the southern and western borders of Beale AFB, **defending key missions such as flight, training, intelligence, surveillance, and reconnaissance**. The acquisition will provide environmental co-benefits by **protecting ecosystem services** (wildlife habitat and corridors, pollination, and natural food web adaptation) and **support special-status species**.



A U-2 Dragon Lady assigned to the 9th Reconnaissance Wing prepares to land at Beale Air Force, California. (U.S. Air Force photo by Airman 1st Class Luis A. Ruiz-Vazquez)



■ REPI Funds:	\$3.6M
■ Partner Contributions:	\$14.6M
■ Military Service Contributions:	\$1.2M

Total: \$19.4M

NOMINATING PARTNER
Sutter Buttes Regional
Land Trust



Sutter Buttes
Regional Land Trust

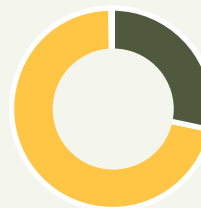
Pacific Missile Range Facility Barking Sands, Hawaii

Resilience and Protection of Compatible Land

- The U.S. Navy's Pacific Missile Range Facility (PMRF), located on the west coast of Kaua'i Island is the **world's largest instrumented multi-environment range** capable of simultaneously supporting subsurface, surface, air, and space operations. As a range, PMRF benefits from low-density population activities in surrounding areas and protects natural habitats for five endangered, threatened, and endemic Hawaiian waterbird and migratory bird species.
- **Event-based flooding and sea-level rise present encroachment risks** to the military mission at PMRF. It is estimated that within 20 years, sea-level rise will severely impact the ability of storm runoff to drain directly into the Pacific Ocean, and excess water will need to be pumped from low-lying areas of the Mānā Plain. Runoff and water pumped from the drainage ditch flows through PMRF and into the nearshore marine environment, creating encroachment threats to the installation's airfield, and the ponding of excess water decreases the resilience of agricultural land on the Mānā Plain to sea level rise.
- Utilizing natural infrastructure, including **creating open floodable space**, this project will **mitigate the effects of sea-level rise** and improve the quality of water discharged from the agricultural drainage ditches into the nearshore environment at PMRF. This project will also **enhance PMRF's efforts to promote conservation and preserve natural resources** while making mission capabilities more resilient to climate change and severe weather events.



A target test missile is launched from the Pacific Missile Range Facility at Barking Sands. (U.S. Navy photo)



■ REPI Funds:	\$1.9M
■ Partner Contributions:	\$4.8M

Total: \$6.7M

NOMINATING PARTNER
Kekaha Agriculture Association





Joint Base Pearl Harbor-Hickam, *Hawaii*

Expanding Forest and Watershed Protection

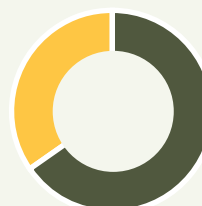
- Joint Base Pearl Harbor-Hickam (JBPHH) and Pearl Harbor Naval Complex are **strategic pivot points of support for military activities in the Pacific**. Pearl Harbor and its associated shore facilities support ship and submarine navigation, training, berthing, maintenance and repair, munitions, Navy Special Warfare Command operations, and training.
- Climate change and invasive species threaten native forests that replenish the Pearl Harbor Aquifer; the loss of which increases storm runoff.** The aquifer is a vital water supply for Navy personnel at JBPHH and provides a buffer from significant storm events that cause erosion and flooding.
- Through **forest and watershed protection above Pearl Harbor**, this project provides long-term protection of 7,155 acres of forested lands directly above JBPHH. Protection includes constructing ungulate fences around native forests, restoring areas with native species, and monitoring, controlling and removing invasive plant and animal species. This project will increase, and secure the water supply vital to mission capabilities and resilience at JBPHH, and will also improve water quality in its efforts to ensure safe operations and training conditions for Navy personnel and ship movements.

NOMINATING PARTNER

State of Hawaii, Department of Land & Natural Resources



The Navy's USS Daniel Inouye (DDG 118), sails through Pearl Harbor as Sailors man the rails. (U.S. Navy photo by Mass Communication Specialist 2nd Class Greg Hall)



REPI Funds:
\$14.9M

Partner Contributions:
\$7.9M

Total: \$22.8M

Pōhakuloa Training Area, *Hawaii*

Climate Resilience for Wildfire Prevention

- Pōhakuloa Training Area (PTA) is located on the island of Hawai'i on the high plateau between Mauna Loa, Mauna Kea, and the Hualālai volcanic mountains. PTA is a **joint/combined arms facility** that provides logistics, public works, airfield support, and environmental and cultural stewardship in support of the Army's training strategy, including the **use of advanced autonomous systems**.
- In recent years, **wildfires have caused severe disruptions to military training**, damage to property, and safety concerns for the Department of Defense personnel and residents while also presenting a substantial hazard to endangered plant and animal species.
- Mitigating against wildfire risk by **implementing wildfire management tools**, such as fuel and fire breaks and road improvements, this project will promote installation resilience to increasing drought risks.

NOMINATING PARTNER

State of Hawaii, Department of Land & Natural Resources



A U.S. Marine with 3rd Battalion, 3d Marine Regiment (3/3), posts security for a CH-53E Super Stallion during an aerial assault exercise, Pōhakuloa Training Area, Oct., 2018. (Photo by Cpl. Matthew Kirk)



REPI Funds:
\$2.4M

Partner Contributions:
\$2.4M

Total: \$4.8M



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Naval Air Station Patuxent River, Maryland Shoreline Protection

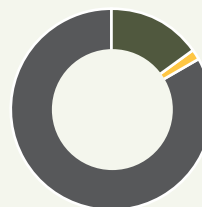
- Naval Air Station (NAS) Patuxent River, the anchor installation of the **Middle Chesapeake Sentinel Landscape** is one of the Navy's premier aircraft testing locations. The installation encompasses a vast ecologically sensitive area along the shores of the Chesapeake Bay in Southern Maryland.
- The NAS Patuxent River experiences **rising sea levels and strong wave energy** that has exposed the shoreline and accelerated erosion at the installation, threatening fifth-generation aircraft testing and training.
- Through coordinated efforts to **restore crucial shoreline reaches**, this project will **create a living shoreline** with breakwaters and sills in the Patuxent River to **mitigate significant resilience challenges impacting strategic Navy test and training operations** and the Northern Diamondback Terrapin nest habitat.

NOMINATING PARTNER

Southern Maryland Resource Conservation
& Development Board, Inc.



PATUXENT RIVER, Maryland (Jan. 25, 2022) members of the Pax River "SAR Dogs" Search and Rescue squadron performed a MEDEVAC of an injured mariner in the Chesapeake Bay. (U.S. Navy courtesy photo)



REPI Funds:
\$2.7M

Partner Contributions:
\$15.0K

Military Service Contributions:
\$14.8M*

Total: \$17.5M

*Previously expended Non-REPI Military Service funds counted toward partner cost share.

Fort Bragg, Seymour Johnson Air Force Base, Marine Corps Base Camp Lejeune, Marine Corps Air Station Cherry Point, North Carolina

Advancing Capacity for a Resilient Sentinel Landscape: The Connection Between Military Readiness, Working Lands, and Nature-Based Infrastructure

- All four of these installations are located within the **Eastern North Carolina Sentinel Landscape**. Fort Bragg is home to the 82nd Airborne and U.S. Army Special Forces, MCB Camp Lejeune is DoD's largest amphibious training facility, MCAS Cherry Point supports unmanned aerial systems and ground maneuver training, and the 4th Fighter Wing at Seymour Johnson supports F-15E training and operations.
- The installations are vulnerable to **coastal erosion, sea-level rise, degradation of natural resources, and wildfire threats**. These threats may put operations, infrastructure, and training missions at risk while reducing connectivity of neighboring working lands and managed conservation areas.
- Funding for this project will **assess threats to surface water flow** in two critical waterways near Fort Bragg, reduce wildfire risk, and assess how climate change may impact red-cockaded woodpecker productivity. This funding will also **secure climate resiliency conservation easements** around the Marine Corps installations to increase water-holding capacity and reduce surface runoff and flooding. The project will also manage and protect wildlife habitats, including the longleaf pine ecosystem and large expanses of coastal marsh, both of which support endangered and at-risk species, such as the red-cockaded woodpecker and eastern black rail.

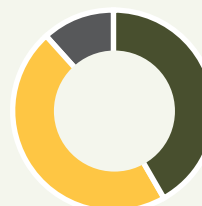
NOMINATING PARTNER

North Carolina Sentinel Landscape Committee

SENTINEL LANDSCAPES



U.S. Army artillerymen assigned to the 82nd Airborne Division Artillery, 82nd Airborne Division, conducted a live-fire exercise at Fort Bragg, N.C., in March 2016. (U.S. Army photo by Capt. Joe Bush)



REPI Funds:
\$1.8M

Partner Contributions:
\$2.0M

Military Service Contributions:
\$0.5M

Total: \$4.3M



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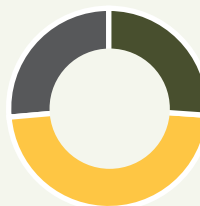
Naval Base Kitsap, Washington

Southern Resident Killer Whale Conservation to Improve Military Readiness

- Naval Base Kitsap on the Kitsap Peninsula is the **third largest naval installation in the United States**, constituting 33,800 military and civilian personnel plus 7,500 defense contractors. The Navy is the largest employer in Kitsap County, with nearly 17,500 daily workers. The base supports the U.S. Navy fleet operating across West Puget Sound and serves the surface vessels and submarines based at Bremerton and Bangor.
- As one of the least developed and most ecologically essential estuaries in the Puget Sound, the area is **vital for productive and diverse salmonids, native Olympia oyster beds, and other keystone fish and mammal species**. Regulatory protections for the threatened Southern Resident Killer Whale (SRKW) population can impact training, infrastructure modernization, and operations at Naval Base Kitsap. The continued decline of these populations will increase regulatory restrictions on the mission within the broader Pacific Northwest.
- Undertaking a proactive, collaborative **species conservation and recovery approach**, this project will help **reduce complex species regulatory consultations** and minimize impacts on the Navy's mission at Naval Base Kitsap.



National Marine Fisheries Service research vessel observing a "spy-hopping" Southern Resident Killer Whale off San Juan Island, Washington. (Photo by NOAA Northwest Fisheries Science Center)



- REPI Funds: \$0.5M
- Partner Contributions: \$0.9M
- Military Service Contributions: \$0.5M

Total: \$1.9M

NOMINATING PARTNER

National Fish and Wildlife Foundation



NFWF

REPI CHALLENGE ACCOMPLISHMENTS TO DATE

Eleven years of the REPI Challenge have resulted in the following benefits at **38 locations** nationwide, addressing incompatible development, habitat protection, and installation resilience:

\$120.6M

in REPI funds invested to protect vital military missions

\$382.5M

in partner contributions, providing a cost savings ratio of 3:1

38 locations

promoting compatible land uses, restoring critical habitats, and enhancing climate adaptation efforts

REPI Challenge Advances Sentinel Landscapes

More information on DoD's partnership with the Departments of Agriculture and Interior can be found at www.sentinellandscapes.org.