



REPI

READINESS AND ENVIRONMENTAL
PROTECTION INTEGRATION PROGRAM

2023 | 17TH ANNUAL REPORT TO CONGRESS



Submitted on behalf of the Assistant Secretary of Defense for Energy, Installations, and Environment.

This document outlines the Department of Defense (DOD) Readiness and Environmental Protection Integration (REPI) Program's use of agreements to limit encroachment and other constraints on military training, testing, and operations, as well as the activities undertaken pursuant to the Sentinel Landscape Partnership.

The estimated cost of this report or study for the Department of Defense is approximately \$10,270 in Fiscal Years 2022 - 2023. This includes \$5,200 in expenses and \$5,070 in DOD labor.

Cover photo credits: (clockwise from top)

U.S. Marine Corps Staff Sgt. Ruben Arzate, attached to the "Lucky Red Lions" of Marine Medium Tiltrotor Squadron 363, lowers a payload from an MV-22B Osprey to the Ohio-class ballistic-missile submarine USS Henry M. Jackson (SSBN 730) in the vicinity of the Hawaiian Islands. (U.S. Marine Corps photo by Cpl. Matthew Kirk).

Soldier work crews from all the installation's units work with DPW, DES and Mountain Vista Community's maintenance team to bring the area into Firewise Community standards on Fort Huachuca, Arizona. (U.S. Army photo by Karen Sampson).

An F-16 Fighting Falcon with the 18th Aggressor Squadron prepares to take off from Eielson Air Force Base, Alaska, shortly after sunrise, in transit to Kadena Air Base, Japan, to participate in training exercises. (U.S. Navy photo by Staff Sgt. Shawn Nickel).

An Air Force Global Strike Command unarmed Minuteman III intercontinental ballistic missile launches during an operation test at Vandenberg Air Force Base, California. (U.S. Air Force photo by Airman 1st Class Ryan Quijas).

Marines with Bulk Fuel Company, 8th Engineer Support Battalion, 2nd Marine Logistics Group conduct firefighting training at Marine Corps Air Station Cherry Point, North Carolina. The training allows Marines to enhance job proficiency and prepare for emergency situations. (U.S. Marine Corps photo by Cpl. Stephanie Cervantes).

STRENGTHENING MILITARY READINESS BY COMBATING ENCROACHMENT THREATS

The Department of Defense (DOD) faces a crucial need to mitigate new and expanding encroachment pressures that adversely affect the military's operational capabilities at installations and ranges across the United States. Without DOD facilities and testing and training areas, the Military Services may have limited opportunities to conduct realistic live-fire training, seamlessly operate from remote environments, test implications of new technologies and advanced autonomous systems, and access land, air, and sea space that replicates the operational environment. By conserving landscapes, protecting testing and training environments, and preserving infrastructure necessary for mission requirements, DOD can ensure the continued readiness and resilience of our Nation's Service Members and safeguard U.S. national security interests.

Encroachment threats continue to disrupt, delay, or cancel the Department's testing and training operations. Land use changes, including rapid commercial and residential development, restricts access to testing and training lands, waters, and critical airspace and disrupts the Department's ability to conduct realistic testing, training, and operations. Frequent environmental changes also cause imperiled species to seek shelter within installation and range boundaries, thereby increasing DOD's responsibility to manage threatened, endangered, and at-risk species. Climate change impacts and extreme weather events, including drought, heat, wildfires, coastal and riverine flooding, and thawing permafrost can damage critical transportation routes supporting military installations, cause training delays, and threaten public safety.

To prevent and mitigate increasing encroachment pressures, Congress authorized 10 U.S. Code (U.S.C.) §2684a in 2002 as part of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2003. Under this authority, the Department can address land use changes, environmental restrictions, and climate and extreme weather hazards that could impact the Department's operational capabilities. DOD executes 10 U.S.C. §2684a through the Readiness and Environmental Protection Integration (REPI) Program. Under the REPI Program, the Military Services can reduce or alleviate encroachment threats by entering into cost-sharing agreements with state and local governments and conservation organizations to promote compatible land uses, preserve habitats outside installations and ranges, and enhance military installation resilience to climate vulnerabilities. In addition to 10 U.S.C. §2684a, the Military Services execute agreements under 16 U.S.C. § 670c-1, commonly referred to as the Sikes Act, and 10 U.S.C. § 2679,



Airman 1st Class Hunter Ring, 647th Security Forces Squadron installation entry controller, points towards simulated opposition during a joint field training exercise with the 15th Medical Group at Joint Base Pearl Harbor-Hickam, Hawai'i. (U.S. Air Force photo by Staff Sgt. Alan Ricker).

or Intergovernmental Support Agreements (IGSAs).

The agreements established through the REPI Program help sustain military missions, promote species conservation, improve habitat connectivity, and maintain or enhance military installation resilience by equipping installations and ranges with the necessary tools to create mutually beneficial projects and partnerships.

The REPI Program is a sustainable, cost-effective solution that allows the Military Services to operate despite accelerating land use conversion, declining at-risk species populations, and worsening climate conditions. Through the REPI Program, installations develop new community relationships, enter into long-lasting partnerships, and create resilient solutions to alleviate pressures on operational activities. REPI projects between DOD, state and local governments, private, and non-governmental organizations protect key defense priorities and accomplish partner missions by conserving working lands, promoting forest growth opportunities, improving species baselines, enhancing natural features that reduce the impacts of extreme weather and climatic changes, and preserving cultural heritage sites. These project benefits extend across landscapes to support farms, ranchlands, forests, grasslands, parks, hiking trails, and other recreation opportunities for defense communities. As a result of the REPI Program, the Department advances sustainable, resilient projects that enable continuous testing, training, and strategic operations at installations and ranges across the country.

COMBINING DOD AND NON-DOD FUNDS IN SUPPORT OF CRITICAL MISSIONS

This 17th annual report on 10 U.S.C. § 2684a highlights the REPI Program’s significant accomplishments across all projects from FY 2003 through FY 2022.

This report includes:

- A summary of the Military Services’ accomplishments using REPI partnerships at 120 locations across 35 states and territories (Figure 1);
- Information about Congressional appropriations for the REPI Program over the past five FYs (Figure 2);
- A summary of REPI, Military Service, and partner cost-sharing projects through FY 2022 (Figure 3);
- A summary of REPI obligations and expenditures using National Fish and Wildlife Foundation (NFWF) programs through FY 2022 (Figure 4);

- A summary of REPI obligations and expenditures and acres protected or managed by DOD projects implemented using authorities other than 10 U.S.C. § 2684a (Figure 5);
- A summary of FY 2022 REPI Challenge projects and locations (Figure 6);
- Detailed information by individual project (Figures 7-10);
- A map of REPI projects across the country (Figure 11); and
- Full project summaries are available on www.repi.mil.

Comparable to the overhead costs for similar federal land protection programs, the cost for REPI’s program management averages less than five percent of total program costs annually.

Since FY 2003, DOD has secured \$1.24 billion with over \$1.13 billion in non-Department partner contributions to protect over 1.18 million acres of land at 120 locations across 35 states and territories to preserve key operational assets, infrastructure, and capabilities.

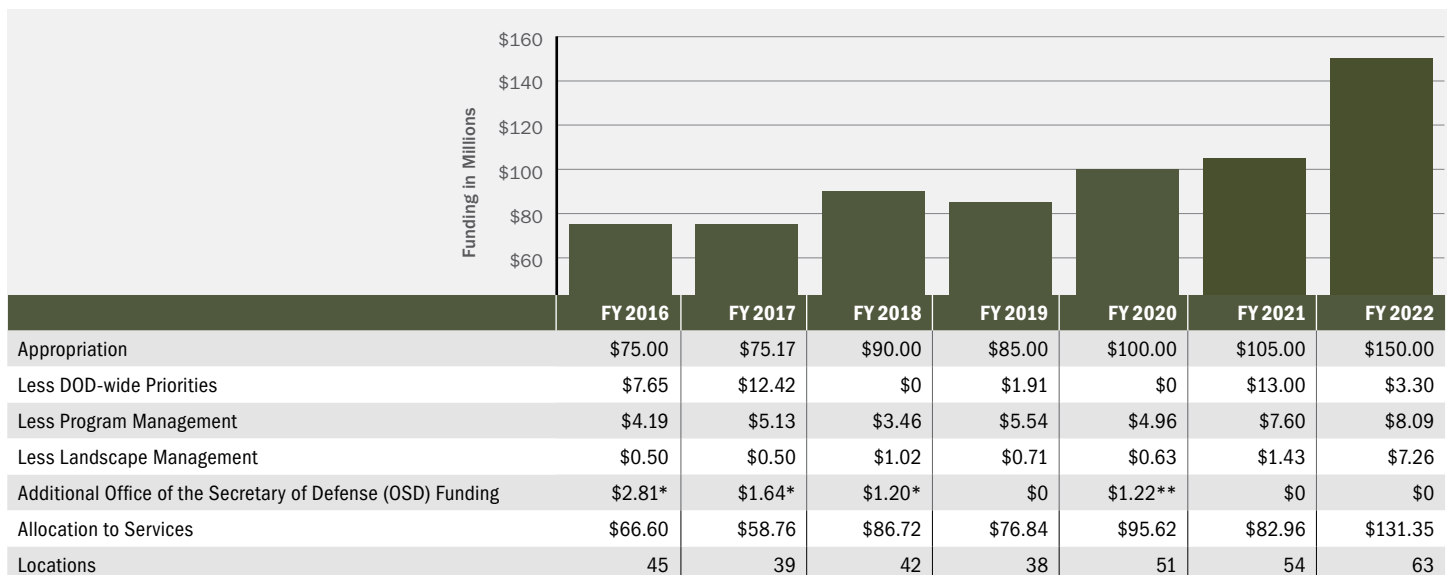
Figure 1: Accomplishments by Service from the Enactment of 10 U.S.C. § 2684a through FY 2022

Military Service	Transactions	Acres Protected	REPI	Service	Partner	Expenditure
Air Force	583	136,958	\$105,476,347	\$30,083,432	\$138,563,803	\$274,123,582
Army	1,170	770,977	\$376,983,456	\$341,283,120	\$556,186,977	\$1,274,453,553
Marine Corps	104	105,409	\$121,460,549	\$33,163,856	\$140,155,335	\$294,779,740
Navy	806	169,587	\$197,539,012	\$37,892,752	\$294,662,647	\$530,094,411
Total[#]	2,663	1,182,931	\$801,459,364	\$442,423,160	\$1,129,568,762	\$2,373,451,286

[#]Subtotals may not sum to combined totals due to rounding.

Select Service totals reported in Figure 1 may vary slightly from Service totals reported in Figures 7 through 10 because of consolidation due to Joint Basing.

Figure 2: REPI Fiscal Year Funding (in millions)



*Represents direct funding from other OSD sources to the Military Services in support of range sustainment through REPI projects.

**Represents direct funding from other OSD sources to the Military Services in support of military installation resilience through REPI projects.

The REPI Program provides a framework for the Military Services to enter into agreements with state and local governments and conservation organizations to support projects that meet the requirements and objectives of 10 U.S.C. § 2684a, 16 U.S.C. § 670c-1 (Sikes Act), and 10 U.S.C. § 2679 (IGSAs). The REPI Program empowers the Military Services to develop projects that strategically address current or anticipated encroachment threats to mission capabilities. Once an installation identifies the encroachment threat, the Military Service then works with local partners to develop projects and requests funding from the REPI Program annually. Since FY 2015, the Military Services' funding requests have exceeded available REPI funding amounts by an average of \$101 million due to the growing number of current or impending encroachment threats to mission requirements. As a result, the REPI Program must assess and prioritize the projects based on several factors, including:

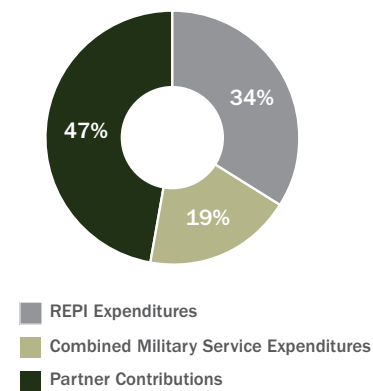
- Potential to mitigate encroachment factors that negatively impact the military mission;
- Elevation of DOD's strategic priorities;
- Capacity, usage, and uniqueness of the military capability being protected;
- Innovation that increases mission sustainability, leverages additional funds, or creates new tools to support mission readiness;
- Timeliness to complete land transactions or nature-based solutions;
- Community support and planning efforts that address land use and demonstrate significant participation in local and regional planning efforts (e.g., Compatible Use Plans, Military Installation Resilience Reviews, and sustained involvement in collaborative land use and resilience planning);
- Benefits to, and investments from, partner organizations, other federal, state and local agencies, and the community; and
- Advancement of the Sentinel Landscapes Partnership goals.

The REPI Program facilitates the management, coordination, and implementation of funding decisions while empowering the Military Services to advance initiatives based on their specific mission requirements.

ADVANCING COST-EFFECTIVE SOLUTIONS THROUGH PARTNERSHIPS

REPI project success is largely due to strong partnerships between other federal agencies, state and local governments, private organizations, and the Military Services. These mutually beneficial partnerships are essential for developing collaborative solutions where shared priorities converge to protect national defense. Since its inception, the REPI Program has established support from over 500 partners, resulting in a cost savings of \$1.13 billion over the Program's lifetime. As shown in Figure 3, partner contributions account for 47 percent of dollars spent on REPI projects. These cost-effective projects ensure the longevity of DOD operations by allowing installations to safeguard, protect, and enhance valuable critical DOD assets without incurring additional costs to build and modernize new facilities, replace infrastructure, or implement other costly workarounds.

Figure 3: Cost-Share through FY 2022



	Funding Amount
REPI Expenditures	\$801,459,364
Combined Military Service Expenditures	\$442,423,160
Partner Contributions	\$1,129,568,762



Nimitz-class aircraft carrier USS Abraham Lincoln (CVN 72) gets underway from Naval Base Guam following a port visit. (U.S Navy Photo by Mass Communication Specialist Seaman Apprentice Julia Brockman).



Airmen observe a wildfire at Beale Air Force Base, Calif. (U.S. Air Force photo by Airman Jason W. Cochran).

BUILDING CAPACITY FOR CLIMATE RESILIENCE IN SENTINEL LANDSCAPES

In order to promote strategic collaboration, address shared land use priorities, and ensure the long-term sustainability of installation mission capabilities, DOD partnered with the U.S. Department of Agriculture (USDA) and the U.S. Department of the Interior (DOI) to create the Sentinel Landscapes Partnership. Established in 2013, the partnership is a coalition of federal agencies, state and local governments, and non-governmental organizations that work to advance mutually beneficial land use objectives in designated project areas known as “sentinel landscapes.” Congress affirmed the Sentinel Landscapes Partnership in statute under Section 317 of the NDAA for FY 2018.

The Sentinel Landscapes Partnership provides a forum for local, state, and federal entities to develop projects that preserve military missions, promote sustainable land management practices, and generate new economic opportunities for farmers, foresters, and ranchers. Partners across sentinel landscapes advance conservation and resilience practices by connecting landowners with voluntary government assistance programs that help offset the upfront cost of implementing sustainable land management practices, such as establishing on-farm conservation practices, preserving endangered species’ habitats, and restoring natural features that advance resilience.

As of FY 2022, the partnership has designated ten sentinel landscapes across the country: Avon Park Air Force Range (Florida), Camp Bullis (Texas), Camp Ripley (Minnesota), Eastern North Carolina, Georgia, Fort Huachuca (Arizona), Joint Base Lewis-McChord (Washington), Middle Chesapeake (Maryland, Delaware, and Virginia), Northwest Florida, and Southern Indiana. The Camp Bullis, Northwest Florida, and Southern Indiana sentinel landscapes received an official

Through FY 2021, projects across sentinel landscapes have attracted nearly \$197 million in DOD funds, \$307 million in USDA funds, \$70 million in DOI funds, \$324 million in state funds, \$21 million in local funds, and \$135 million in private funds.

designation in February 2022. The Sentinel Landscapes Federal Coordinating Committee (FCC) designates new landscapes in areas with a strong foundation for planning, developing, and implementing new conservation and resilience initiatives that support DOD, DOI, and USDA’s missions.

In February 2022, the Sentinel Landscapes Partnership released an updated Memorandum of Understanding (MOU) between DOD, USDA, and DOI. Through this new MOU, the partnership reaffirmed the agencies’ commitment to coordinating natural resource management activities across sentinel landscapes and expanded the partnership’s focus on enhancing military installation resilience to extreme weather and a changing climate. This expansion allows the partnership and FCC to support sentinel landscapes with assessing climatic threats, developing nature-based solutions, and enhancing capacity for resilience project implementation.

Partners in the Eastern North Carolina Sentinel Landscape are enhancing their capacity to plan, develop, and implement resilience projects by hosting the Sentinel Landscape Partnership’s first resilience and climate adaptation coordinator. The Eastern North Carolina Sentinel Landscape faces a combination of coastal and inland climate hazards, including extreme weather, sea level rise, storm surge, and flooding events that can damage natural and working lands and defense facilities. To help the 33-county landscape develop resilience projects designed to address threats from extreme weather, the new resilience and adaptation coordinator will help create a strategic resilience plan for the Eastern North Carolina Sentinel Landscape and identify recommendations for combating resilience and climate adaptation challenges.

For more information about the Sentinel Landscapes Partnership, visit the partnership website at <https://sentinellandscapes.org/>.

LEVERAGING FEDERAL CONSERVATION AND RESTORATION INVESTMENTS

Partnerships among DOD, federal partners, state and local governments, and private organizations are a key component of the REPI Program and help sustain installations' operations and resilience. The REPI Program supports installations with developing new partnerships through several avenues, including, but not limited to, the REPI Challenge, Sentinel Landscapes Partnership, and NFWF programs.

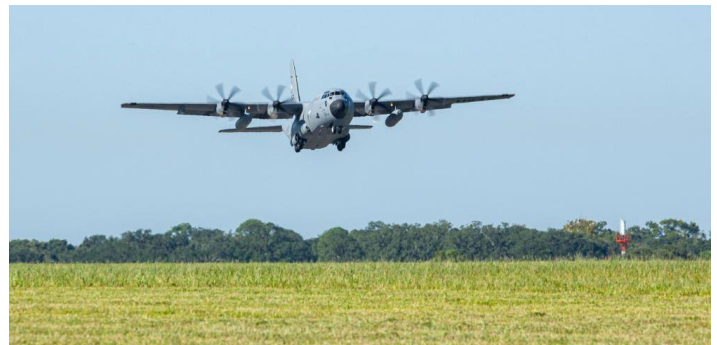
Through NFWF's National Coastal Resilience Fund (NCRF) and America the Beautiful Challenge, the REPI Program accelerates landscape restoration, nature-based solutions, and species recovery in support of military missions by leveraging funding from multiple local, state, federal, and private partners. The NCRF prioritizes projects in coastal areas that restore, expand, and strengthen nature-based solutions to minimize the impacts of storms and other extreme weather events. Out of the \$136 million NFWF dedicated to the 2022 NCRF projects, REPI contributed \$15 million to seven projects benefitting installations in Washington, Mississippi, Florida, South Carolina, Georgia, North Carolina, and Hawai'i.

At Keesler Air Force Base (AFB) in Mississippi, the installation is working with Mississippi State University to construct a 2.5-mile living shoreline using marsh sill, fill, native planting, and segmented breakwaters. This resilience project received over \$5.2 million in funding from the REPI Program and over \$1.2 million in funding from the National Oceanic and Atmospheric Administration for a total project funding amount of nearly \$6.5 million. By supporting projects through NFWF, the REPI Program

is providing installations and partners with a unique opportunity to leverage funding from multiple federal agencies for projects that meet the mission objectives of multiple partners.

NFWF's America the Beautiful Challenge serves as another opportunity for installations to combine investments from the REPI Program and other federal agencies, including DOI and USDA. Through the new America the Beautiful Challenge, states, Tribes, territories, local groups, and non-governmental organizations develop projects that improve ecosystem and community resilience, connect wildlife corridors, and expand access to recreational opportunities. Creating locally led projects that restore public and private rivers, wetlands, and forests helps safeguard DOD missions by strengthening installation and community resilience, protecting at-risk species habitats, and conserving undeveloped ecosystems.

The REPI Program investments in the NCRF and America the Beautiful Challenge since FY 2020 may be found below in Figure 4.



A WC-130J Super Hercules aircraft assigned to the 53rd Weather Reconnaissance Squadron departs Keesler Air Force Base, Miss. (U.S. Air Force photo by Staff Sgt. Kristen Pittman).

Figure 4: NFWF Project Funding from through FY 2022

NFWF Program	Project	State	REPI Funds Expended through FY 2022	Total REPI Obligations through FY 2022
NCRF	NWS Earle	NJ	\$0	\$200,000
NCRF	NWS Yorktown	VA	\$0	\$2,000,000
NCRF	MCAS Cherry Point	NC	\$0	\$1,000,000
NCRF	MCAS New River and MCB Camp Lejeune	NC	\$0	\$510,601
NCRF	NAS Pensacola	FL	\$0	\$6,566,853
NCRF	Joint Base Pearl Harbor-Hickam	HI	\$0	\$500,000
NCRF	NSB Kings Bay	GA	\$0	\$583,768
NCRF	NAS Whidbey Island	WA	\$0	\$600,000
NCRF	Marine Corps Recruit Depot Parris Island	SC	\$0	\$997,380
NCRF	Keesler AFB	MS	\$0	\$5,241,398
NCRF	Tyndall AFB	FL	\$90,140	\$7,600,000
America the Beautiful Challenge	Fort Huachuca Sentinel Landscape	AZ	\$0	\$976,992
America the Beautiful Challenge	Georgia Sentinel Landscape	GA	\$0	\$523,008
Total			\$90,140	\$27,300,000

USING MULTIPLE AUTHORITIES TO PROTECT CRITICAL MISSIONS

The Sikes Act and IGSA serve as innovative and cost-effective opportunities for REPI installations and partners to address encroachment threats without acquiring real property interest. Both the Sikes Act and IGSA authorities create increased flexibility for landowners and additional opportunities for installations and partners to implement REPI projects.

Figure 5 shows that the REPI Program has committed or expended over \$13.6 million under the Sikes Act and IGSA authority. As of FY 2022, DOD has invested \$8.7 million of this amount into interest-bearing accounts under the Sikes Act for the long-term management of natural resources beyond installation boundaries to benefit the military mission.



Army paratroopers assigned to Headquarters and Headquarters Company, 1st Battalion, 501st Parachute Infantry Regiment, 4th Infantry Brigade Combat Team (Airborne), 25th Infantry Division, U.S. Army Alaska, hold onto a rope secured to the back of Small Unit Sustainment Vehicle during a ski-joring exercise at Joint Base Elmendorf-Richardson, Alaska. (U.S. Army photo by Spc. Jillian Hix).



Zumwalt-class guided-missile destroyer USS Michael Monsoor (DDG 1001) gets underway in Joint Base Pearl Harbor-Hickam. (U.S. Navy photo by Mass Communication Specialist 3rd Class Isaak Martinez).



Army paratroopers conduct a heavy drop and fire mission during Exercise Panther Storm on the Salerno Drop Zone at Fort Bragg, N.C. (U.S. Army photo by Spc. Jillian Hix).

Figure 5: REPI Expenditures and Total Obligations at DOD Projects under Authorities other than 10 U.S.C. § 2684a

Lead Military Service	Project	State or Territory	REPI Funds Expended Through FY 2022	Total REPI Obligations Through FY 2022	Authority Used
Navy	Fallon Range Training Complex	NV	\$0	\$1,100,000	Sikes Act
	Guam Region	GU	\$3,850,482	\$0	Sikes Act
	NWS Earle	NJ	\$519,150	\$3,416,415	IGSA
	Naval Observatory Flagstaff	AZ	\$0	\$1,499,457	Sikes Act
	Naval Base Kitsap	WA	\$5,000,000	\$1,250,000	Sikes Act
	NWS Yorktown	VA	\$0	\$4,625,000	Sikes Act
	Pacific Missile Range Facility Barking Sands	HI	\$1,260,000	\$1,858,334	Sikes Act
	NSF Dahlgren	VA	\$0	\$664,042	Sikes Act
	Joint Base Pearl Harbor-Hickam	HI	\$0	\$14,881,880	Sikes Act
	NAS Patuxent River	MD	\$0	\$3,344,002	Sikes Act
Marine Corps	MCB Camp Pendleton	CA	\$826,000	\$0	Sikes Act
	MCAGCC 29 Palms	CA	\$57,668	\$917,332	Sikes Act
Air Force	Eglin AFB	FL	\$2,107,931	\$0	Sikes Act
Total			\$13,621,231	\$33,556,462	

PROTECTING CRITICAL LANDSCAPES AND DOD MISSIONS IN THE INDO-PACIFIC THROUGH THE REPI CHALLENGE

For the 11th consecutive year, the REPI Program hosted the annual REPI Challenge, a competition with dedicated funding to advance REPI project outcomes through large-scale innovation and conservation and military installation resilience. The REPI Program designed the REPI Challenge to help meet its ambitious conservation goals while aiming to cultivate new projects, harness creativity, and protect critical testing and training capabilities.

Since 2012, the REPI Program has distributed more than \$120.2 million in Program funds to REPI Challenge projects in 40 locations across 16 states and territories. These projects leveraged more than \$387.9 million in partner contributions to create innovative projects that limit development pressures, enhance military installation resilience, and relieve current or anticipated environmental restrictions on military testing, training, or operations in areas of strategic importance.

For the FY 2022 REPI Challenge, DOD contributed \$31.6 million in REPI Challenge funding to nine projects that resulted in over \$62.8 million in partner contributions.

For the FY 2022 REPI Challenge, projects that addressed extreme weather events and other effects of a changing climate received additional consideration, as did projects that demonstrated the ability to incorporate multiple authorities, including the Sikes Act under 16 U.S.C. § 670c-1 and IGSA's under 10 U.S.C. § 2679.

Figure 6 displays the FY 2022 REPI Challenge projects across the country that are advancing multiple missions through collaboration with conservation partners and state and local governments.

Joint Base Pearl Harbor-Hickam (JBPHH) and Pearl Harbor Naval Complex received FY 2022 REPI Challenge funding to support military training activities while protecting native forests and watersheds in the Pacific Region. Pearl Harbor Naval Complex and its associated shore facilities host key missions for the Navy, including personnel training, submarine maintenance and repair, and Special Warfare Command operations. These coastal missions and communities are threatened by the impacts of a changing climate, such as extreme weather events that rapidly accelerate erosion and flooding outside the installation. In partnership with the State of Hawai'i's Department of Land and Natural Resources, the installation received \$14.9 million in REPI Challenge funding to enhance over 7,000 acres of forested lands directly above Pearl Harbor.

Figure 6: FY 2022 REPI Challenge Project Locations



Conserving this landscape will increase the installation's resilience to coastal hazards, improve water security and water quality, and secure safe operations and training conditions for Navy personnel and ship movements.

The U.S. Navy's Pacific Missile Range Facility (PMRF), located on the west coast of Kaua'i Island, is another installation in Hawai'i facing coastal threats from storms, flooding, and sea level rise. This facility serves as the Navy's largest instrumented multi-environment range and supports subsurface, surface, air, and space operations due to the low-density population activities in the surrounding areas. Event-based flooding presents a concerning risk to the military mission and to vital native ecosystems at PMRF and may severely impact the ability of stormwater runoff to drain into the Pacific Ocean, leaving large standing bodies of water in the areas outside PMRF.

By distributing funding across nine projects, the FY 2022 REPI Challenge will contribute to limiting development pressures, enhancing installation resilience, preserving habitat, and protecting missions that support key National Defense Strategy priorities at 13 installations across the country: Fort Huachuca, Arizona; Naval Observatory

Flagstaff Station and Camp Navajo, Arizona; Beale AFB, California; PMRF Barking Sands, Hawai'i; JBPHH, Hawai'i; Pōhakuloa Training Area, Hawai'i; Naval Air Station (NAS) Patuxent River, Maryland; Fort Bragg (Future Fort Liberty), Seymour Johnson AFB, Marine Corps Base (MCB) Camp Lejeune, Marine Corps Air Station Cherry Point, North Carolina; Naval Base Kitsap, Washington.



The Ohio-class ballistic missile submarine USS Kentucky (SSBN 737) transits the Hood Canal as the boat returns to its homeport of Naval Base Kitsap-Bangor, Washington. (U.S. Navy photo by Mass Communication Specialist 2nd Class Emilia Hilliard).

HIGHLIGHTING MISSION BENEFITS THROUGH QUANTITATIVE METRICS



MV-22B Ospreys attached to Marine Medium Tiltrotor Squadron 163, 11th Marine Expeditionary Unit, land at Landing Zone Eagle aboard Marine Corps Base Hawai'i. (U.S. Marine Corps photo by Sgt. Alex Kouns).

For the fourth consecutive year, the REPI Program will publish a metrics report to quantify the REPI Program's value to the Department's strategic priorities. The FY 2022 Metrics Report will summarize more than 17 years of REPI Program data on the Military Services' growing encroachment threats and military missions protected by REPI projects.

The data analysis demonstrates how REPI projects overcome current and anticipated encroachment conflicts and the REPI Program's overall investments in securing military readiness. In FY 2022, the Military Services submitted 70 proposals to address encroachment pressures that threaten the Department's ability to conduct realistic training and testing vital to prepare Service Members and their equipment for real-world combat. Of the 70 proposals the Military Services submitted for FY 2022, 83 percent, or 58 proposals, report that noise adversely impacts their installations. This result makes noise impacts the most reported threat to installations for the fourth year in a row, followed by development near danger or safety zones.

Through REPI projects, the Military Departments have a cost-effective solution for protecting vital training areas surrounding installations that allow for uninterrupted flight operations, testing, and radar and navigation activities. In FY 2022, the Military Services aimed to preserve nearly 553 million acres of total training, testing, and operating land across installations. This includes 58 million acres of total airspace, more than 380 million acres of marine space, and 290 million acres of range complexes. Without these assets, the Department would have diminished opportunities for conducting realistic testing and training, navigating through uninhibited waterways, and flying over unrestricted airspace.



U.S. Air Force F-15E Strike Eagle fighter aircraft of the 4th Fighter Wing perform an “Elephant Walk” as they taxi down the runway during a Turkey Shoot training mission on Seymour Johnson Air Force Base, N.C. (U.S. Air Force photo by Staff Sgt. Elizabeth Rissmiller).

Installation facilities, personnel, and missions continue to face mounting risks from climate change threats such as wildfires, coastal flooding, drought, land degradation, and thawing permafrost. The Military Departments are leveraging the REPI Program to advance nature-based solutions that increase the installation and surrounding community’s resilience to a changing climate.

Since Congress expanded 10 U.S.C. § 2684a in FY 2019 to allow the REPI Program to maintain or improve military installation resilience, the number of REPI projects with installation resilience as the primary justification has tripled. The top climate threat identified in FY 2022 proposals was land degradation, with wildfire and drought rounding out the top three climate impacts.

In North Carolina, MCB Camp Lejeune faces growing threats from sea level rise, coastal flooding, and wildfires. As one of the five key military installations in the Eastern North Carolina Sentinel Landscape, this installation is leveraging the REPI Program to enhance installation resilience on over 23,000 acres surrounding the installation. The REPI Program’s investment has helped preserve over \$81 million in assets at MCB Camp Lejeune, including the SR-10 Tank Range and a tactical vehicle maneuver course.

The FY 2022 REPI Metrics Report will be released in early spring and published on the REPI website at:

www.repi.mil/Resources/Reports-and-Fact-Sheets/.

ADDRESSING NATIONAL SECURITY PRIORITIES BY ENHANCING INSTALLATION RESILIENCE

The impacts of a changing climate and extreme weather events threaten national security by creating new mission requirements, workarounds, and delays at installations and ranges across the country. In the 2022 National Defense Strategy, the Department acknowledges the threat of a changing climate and commits to strengthening the Military Service’s ability to quickly recover from extreme weather and other impacts of a changing climate.

“We will strengthen the Department’s ability to withstand and recover quickly from climate events. We will continue to analyze climate change impacts on the Joint Force, and will integrate climate change into threat assessments. We will increase resilience of military installations and at affected access and basing locations vital for deterrence and warfighting objective.”

—2022 National Defense Strategy of the United States of America

In FY 2022, NAS Patuxent River, Maryland, received \$2.7 million in REPI Challenge funding to restore crucial shorelines neighboring the installation. Rising sea levels are exposing shoreline along the Patuxent River and rapidly accelerating erosion rates are threatening fifth-generation aircraft testing and training. To protect the Navy’s premier aircraft testing location, the installation is using REPI funds to create a living shoreline with breakwaters and sills to reduce erosion rates and help combat future changes to the Patuxent River.

Climate-driven threats also impact Fort Huachuca in Arizona, which hosts the world’s largest Unmanned Aircraft System training center. Long-term drought and continued groundwater pumping create competition for limited water resources while simultaneously fragmenting essential wildlife habitats and increasing the risk of wildfires. The installation and the Fort Huachuca Sentinel Landscape received \$2.8 million through the FY 2022 REPI Challenge to enhance watershed-level resilience at Fort Huachuca by stabilizing streambanks, performing watershed analyses, and reducing land conversion in neighboring landscapes.

PRIORITIZING PARTNERSHIPS AND MISSIONS IN THE PACIFIC REGION

As the Pacific region grows in strategic importance, the REPI Program continues to accelerate local partnerships by implementing several projects across the region to protect cultural and natural resources and compatible land uses that benefit shared priorities.

In Hawai'i, the Army is working in close collaboration with state partners to reduce wildfire risk on the Island of Hawai'i and increase climate change resilience at Pōhakuloa Training Area. Pōhakuloa Training Area received \$2.4 million in FY 2022 REPI Challenge funding to implement several wildfire management tools outside the training area, such as fuel reduction and firebreaks. By establishing these wildfire prevention strategies, the Army is working with local conservationists to enhance environmental and cultural stewardship while protecting critical logistics, public works, and airfield support for military training.

Reducing wildfire risk across installations and neighboring

communities in Hawai'i requires multi-agency cooperation and coordination. For instance, the State of Hawai'i Department of Land and Natural Resources received \$2.5 million in FY 2022 funding from the Office of Local Defense Community Cooperation's Defense Community Infrastructure Program to construct a new firefighting and conservation warehouse outside Pōhakuloa Training Area to improve emergency wildfire response times. This project complements the FY 2022 REPI Challenge project by fostering new partnerships to enhance landscape-scale resilience.

Across the entire Pacific region, the REPI Program has established eight projects at installations facing increased residential development, imperiled species challenges, and climate change hazards. These projects include Joint Base Elmendorf-Richardson (Alaska), Fort Wainwright (Alaska), Eielson AFB (Alaska), multiple installations at Joint Region Marianas (Guam), PMRF Barking Sands (Hawai'i), MCB Hawai'i (Hawai'i), JBPHH (Hawai'i), and U.S. Army Garrison Hawai'i, including Pōhakuloa Training Area (Hawai'i).

LOOKING AHEAD

In 2022, the REPI Program made great strides in working with partners to strengthen military readiness at installations, ranges, and testing and training centers. Partnerships at the local, state, and federal levels provide expanded opportunities for installations to leverage funding, resources, and expertise from organizations with shared priorities.

In section 317 of the FY 2022 NDAA, Congress encouraged other federal agencies with programs addressing conservation or resilience to participate in the activities of the Sentinel Landscapes Partnership and become full partners in the Sentinel Landscapes Partnership. Accordingly, the Sentinel Landscapes Partnership continues to establish new connections with the Federal Emergency Management Agency (FEMA) and other federal agencies with such programs. The FEMA Building Resilient Infrastructure and Communities (BRIC) Program shares the REPI Program's ability to enhance resilience across communities through disaster risk mitigation efforts. In the 2022 BRIC Notice of Funding Opportunity, the REPI Program is one of the few federal programs that can serve as a non-federal match for BRIC projects, greatly enhancing opportunities for installations to work alongside local communities in planning and developing climate resilience projects.

At the state level, the Southeast Regional Partnership for Planning and Sustainability (SERPPAS) and Western Regional Partnership (WRP) continued providing a forum for building working relationships, promoting collaborative decision-making, and supporting the conservation and resilience of national defense. SERPPAS, a six-state partnership covering Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina, rapidly generated newfound support for the South Atlantic Salt Marsh Initiative. This initiative aims to conserve one million acres of salt marsh across four of the SERPPAS states, overlapping with 14 installations. WRP, a six-state partnership across Arizona, California, Colorado, Nevada, New Mexico, and Utah, prioritized strategic planning for evolving climate change threats, including water quality and quantity improvements and wildfire prevention and management.

With the support of these dedicated partner organizations, the REPI Program continues to enhance the Nation's defense capabilities, positively impact surrounding communities and the environment, and maximize taxpayer benefits. The REPI Program's adaptability and innovation, shown through forward-thinking program policy and strategic planning, allow for effective and impactful on-the-ground problem-solving that protects DOD missions.

Figure 7: Army Projects through FY 2022

Project	State	Transactions	Acres	Expenditures
99th Armed Forces Reserve Center	CT	1	54	\$1,749,000
Aberdeen Proving Ground	MD	19	3,017	\$30,344,530
Camp Blanding	FL	29	29,364	\$90,838,841
Camp Butner	NC	14	1,614	\$5,719,882
Camp Navajo	AZ	1	245	\$1,748,950
Camp Rilea	OR	3	2,673	\$4,248,792
Camp Ripley	MN	310	48,461	\$130,664,262
Camp Roberts	CA	12	7,450	\$35,296,437
Camp San Luis Obispo	CA	11	3,488	\$10,192,904
Camp Shelby	MS	20	4,667	\$12,802,784
Camp Swift	TX	9	810	\$6,390,064
Camp Williams	UT	29	2,932	\$59,360,047
Fort A.P. Hill (Future Fort Walker)	VA	24	13,524	\$45,120,902
Fort Benning (Future Fort Moore)	GA	43	34,870	\$105,740,637
Fort Bliss	TX	3	7,441	\$2,754,015
Fort Bragg (Future Fort Liberty)	NC	74	23,613	\$78,347,586
Fort Bragg USASOC (Future Fort Liberty)	NC	15	3,152	\$13,450,409
Fort Campbell	TN	62	14,132	\$46,606,645
Fort Carson	CO	18	25,661	\$41,471,533
Fort Custer	MI	1	326	\$2,092,100
Fort Drum	NY	29	8,214	\$14,277,581
Fort Gordon (Future Fort Eisenhower)	GA	1	114	\$205,400
Fort Harrison, Limestone Hills	MT	8	3,216	\$9,645,143
Fort Hood (Future Fort Cavazos)	TX	27	5,956	\$22,544,204
Fort Huachuca†	AZ	23	23,447	\$59,590,060
Fort Indiantown Gap	PA	21	9,718	\$25,457,185
Fort Knox	KY	3	462	\$1,045,711
Fort Pickett (Future Fort Barfoot)	VA	113	21,019	\$50,837,223
Fort Polk (Future Fort Johnson)	LA	5	1,555	\$5,009,299
Fort Riley	KS	25	15,962	\$12,961,921
Fort Sill	OK	39	3,767	\$15,541,407
Fort Stewart	GA	86	42,337	\$95,846,394
Fort Wainwright	AK	20	629	\$5,071,440
Joint Base Lewis-McChord	WA	16	2,026	\$40,364,533
MAJIC	SC	42	22,751	\$24,717,928
Southeast Regional Army Project	GA	1	6,990	\$17,867,215
U.S. Army Garrison Hawai'i†	HI	7	13,157	\$108,796,164
White Sands Missile Range	NM	6	362,163	\$39,734,428
Army Totals#		1,170	770,977	\$1,274,453,553

* This project has an established and funded REPI partnership but has not completed any real estate transactions through FY 2022.

† In addition to the real estate transactions reported here, this project has funded or obligated REPI funds through an agreement with the National Fish and Wildlife Foundation. See Figure 4.

^ In addition to the real estate transactions reported here, this project has expended REPI funds under authorities other than 10 U.S.C. § 2684a, including natural resources management activities under the IGSA authority, 10 U.S.C. § 2679; and under Section 103A of the Sikes Act, 16 U.S.C. § 670c-1, without necessitating an investment in land acquisition under 10 U.S.C. § 2684a. See Figure 5.

Subtotals may not sum to combined totals due to rounding.

Figure 8: Navy Projects through FY 2022

Project	State	Transactions	Acres	Expenditures
ARD Bayview*	ID	0	0	\$0
Atlantic Test Ranges	MD	61	9,423	\$32,401,946
El Centro Range Complex	CA	10	1,537	\$743,955
Fallon Range Training Complex^	NV	21	4,937	\$4,031,892
Guam Region	GU	0	0	\$150,000
Joint Base Pearl Harbor-Hickam†	HI	6	2,175	\$22,022,801
NAS Fallon	NV	100	9,426	\$25,072,259
NAS Jacksonville	FL	3	195	\$11,503,925
NAS JRB New Orleans	LA	1	202	\$7,322,419
NAS Lemoore	CA	1	57	\$907,000
NAS Meridian	MS	22	1,260	\$1,118,457
NAS Oceana	VA	50	2,859	\$44,327,813
NAS Patuxent River^	MD	36	3,703	\$22,310,187
NAS Pensacola†	FL	6	58	\$2,514,758
NAS Whidbey Island†	WA	9	168	\$4,621,123
NAS Whiting Field	FL	71	12,097	\$36,347,065
NAWS China Lake	CA	54	26,287	\$19,489,439
NB Coronado ATWTC	CA	25	4,518	\$16,414,158
NB Kitsap^	WA	167	18,185	\$60,425,284
NB Ventura County	CA	2	33	\$2,651,567
NCBC Gulfport	MS	0	0	\$9,500
NO Flagstaff^	AZ	2	300	\$7,323,000
NS Mayport	FL	11	16	\$1,289,454
NSA Annapolis	MD	1	19	\$7,825,495
NSA Crane-Lake Glendora*	IN	0	0	\$0
NSA Hampton Roads	VA	2	682	\$3,910,000
NSB Kings Bay^†	GA	11	27,258	\$85,781,413
NSF Dahlgren^	VA	13	3,608	\$22,282,754
NSF Indian Head	MD	2	294	\$1,107,990
NSY Portsmouth	ME	3	19,258	\$4,549,000
NWS Earle*^†	NJ	0	0	\$0
NWS Yorktown^	VA	2	654	\$12,477,000
NWSTF Boardman	OR	6	12,334	\$16,221,128
OLF Coupeville	WA	68	1,331	\$15,829,262
OLF Whitehouse	FL	29	3,015	\$22,092,657
PMRF Barking Sands*^	HI	0	0	\$0
Navy Totals#		795	165,889	\$515,074,699

Figure 9: Marine Corps Projects through FY 2022

Project	State	Transactions	Acres	Expenditures
Chocolate Mountain Aerial Gunnery Range*	CA	0	0	\$0
MCAGCC 29 Palms^	CA	11	5,433	\$8,096,574
MCAS Beaufort	SC	21	6,530	\$63,712,090
MCAS Cherry Point Piney Island	NC	19	12,772	\$41,078,854
MCAS Miramar	CA	1	409	\$9,525,761
MCAS Yuma and BMGR-W*	AZ	0	0	\$0
MCB Camp Lejeune, MCAS New River†	NC	18	19,705	\$43,759,701
MCB Camp Pendleton^	CA	13	3,451	\$44,557,694
MCB Hawai'i*	HI	0	0	\$0
MCB Quantico	VA	7	996	\$5,837,269
Townsend Bombing Range	GA	14	56,113	\$78,211,798
Marine Corps Totals#		104	105,409	\$294,779,741

Figure 10: Air Force Projects Executed through FY 2022

Project	State	Transactions	Acres	Expenditures
Altus AFB*	OK	0	0	\$0
Avon Park AFR	FL	13	14,171	\$29,580,502
Beale AFB	CA	6	7,650	\$11,490,612
Buckley AFB	CO	6	663	\$20,755,656
Cannon AFB*	NM	0	0	\$0
Cape Canaveral AFS	FL	11	190	\$3,693,258
Columbus AFB*	MS	0	0	\$0
Dare County Range	NC	24	21,618	\$26,857,854
Davis-Monthan AFB	AZ	123	356	\$12,675,485
Dyess AFB*	TX	0	0	\$0
Edwards AFB	CA	1	14,631	\$5,527,153
Eglin AFB^	FL	5	24,027	\$24,862,365
Eielson AFB*	AK	0	0	\$0
Ellsworth AFB	SD	75	2,874	\$17,512,825
Fairchild AFB	WA	1	150	\$600,000
Hill AFB	UT	2	14	\$2,103,421
Homestead AFB*	FL	0	0	\$0
Joint Base Andrews	MD	2	142	\$1,271,441
Joint Base Charleston	SC	2	363	\$390,177
Joint Base Elmendorf-Richardson	AK	1	402	\$529,778
Joint Base Langley-Eustis	VA	6	60	\$1,190,537
Joint Base McGuire-Dix-Lakehurst	NJ	62	9,329	\$43,350,402
Joint Base San Antonio-Camp Bullis	TX	8	8,046	\$35,063,200
Joint Base San Antonio-Lackland	TX	0	0	\$0
Joint Base San Antonio-Randolph	TX	18	222	\$11,474,379
Melrose AFR	NM	1	30,493	\$3,072,289
Robins AFB	GA	215	736	\$19,676,270
Scott AFB*	IL	0	0	\$0
Selfridge ANGB*	MI	0	0	\$0
Tinker AFB	OK	2	19	\$493,707
Travis AFB	CA	2	321	\$3,678,500
Tyndall AFB†	FL	1	3,047	\$5,250,000
U.S. Air Force Academy*	CO	0	0	\$0
Vandenberg AFB	CA	2	951	\$5,221,000
Warren Grove Range	NJ	5	179	\$444,301
Air Force Totals#		594	140,656	286,765,112

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^ In addition to the real estate transactions reported here, this project has expended REPI funds under authorities other than 10 U.S.C. § 2684a, including natural resources management activities under the IGSA authority, 10 U.S.C. § 2679; and under Section 103A of the Sikes Act, 16 U.S.C. § 670c-1, without necessitating an investment in land acquisition under 10 U.S.C. § 2684a. See Figure 5.

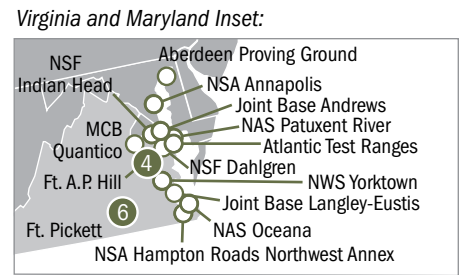
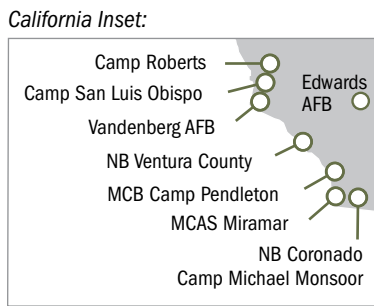
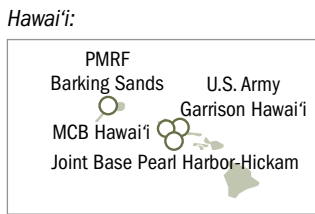
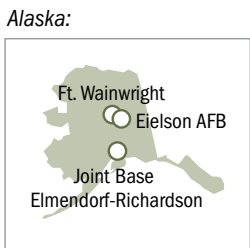
Subtotals may not sum to combined totals due to rounding.

Figure 11:

2022 REPI Project Locations

Installation Name Updates:
The following Army installations will undergo name changes in 2023.

- ① Fort Benning (Future Fort Moore), Georgia
- ② Fort Bragg (Future Fort Liberty), North Carolina
- ③ Fort Gordon (Future Fort Eisenhower), Georgia
- ④ Fort A.P. Hill (Future Fort Walker), Virginia
- ⑤ Fort Hood (Future Fort Cavazos), Texas
- ⑥ Fort Pickett (Future Fort Barfoot), Virginia
- ⑦ Fort Polk (Future Fort Johnson), Louisiana





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