



REPI

READINESS AND ENVIRONMENTAL
PROTECTION INTEGRATION PROGRAM

2021 | 15TH ANNUAL REPORT TO CONGRESS



SUBMITTED ON BEHALF OF THE SECRETARY OF DEFENSE BY THE UNDER SECRETARY OF DEFENSE FOR ACQUISITION AND SUSTAINMENT.

This document responds to the reporting requirements in accordance with 10 United States Code (U.S.C.) § 2684a(g) on 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 16 U.S.C. § 670c-1(b)(3) for methods of funding cooperative agreements under the Sikes Act.

SUPPORTING MISSION CAPABILITIES BY REDUCING ENCROACHMENT PRESSURES

The Department of Defense (DoD) must have the ability to rigorously test weapons systems and new technologies, conduct live-fire training that simulates combat, and seamlessly operate across installations and domains to maintain its agile and resilient warfighting force. Military preparedness and battlefield dominance require highly realistic test, training, and operational environments; however, encroachment threats with the potential to disrupt DoD access to test and training areas have posed challenges for more than 20 years. In the late 1990s, DoD identified two of the most significant encroachment threats: (1) nearby land uses that conflict with missions and (2) regulatory restrictions associated with the protection of vulnerable species and habitats.

In regions where development continues to increase, installations may face reduced access to land, air, water, and electromagnetic spectrum resources, and as a result, experience limits on their ability to conduct realistic test and training activities that improve warfighting tactics. For example, cellphone towers can impede flight training, light pollution from residential and commercial sites can restrict night vision exercises, and buildings can cause safety hazards near parachute zones. Weapons testing and aircraft operations can bring complaints from neighboring communities about noise, dust, smoke, and vibrations, leading to limits on how or when operations are conducted. Imperiled species may seek sanctuary on protected DoD lands as urban sprawl fragments or converts habitat near installations and ranges, creating or exacerbating regulatory constraints and increasing DoD's responsibility to manage threatened, endangered, and other at-risk species.

Congress enacted 10 U.S. Code (U.S.C.) § 2684a, or “the 2684a authority,” in fiscal year (FY) 2002 to help address encroachment pressures that could impair the Department's capacity to test, train, and operate. Congress amended the 2684a authority in FY 2019 to allow for activities that enhance military installation resilience in response to changing environmental conditions that contribute to the increased frequency and severity of events such as extreme weather, storm surge, flooding, drought, and wildfire. DoD executes the 2684a authority through the Readiness and Environmental Protection Integration (REPI) program to ensure the preservation of mission capabilities using long-term strategies that limit incompatible development near DoD lands. The Department promotes compatible land uses, enhances military installation resilience, and preserves habitat to relieve existing or prevent future restrictions on military activities by entering into cost-sharing agreements with state and local governments and private conservation organizations.

The REPI program enables DoD to efficiently and cost-effectively sustain military readiness. The program helps to prevent suboptimal workarounds, costly construction expenditures for new ranges to replace encroached assets, and time-consuming relocations (e.g., to less light-polluted areas). As DoD partners with local and regional communities in innovative ways, these collaborations help build installations' military value and resilience; increase the longevity of compatible working lands such as farms, forests, and ranchlands; promote species conservation and recovery; and expand recreational and public access opportunities for residents, active military families, and veterans.

The REPI program is an invaluable asset to the Department's operations, delivering the right strategies to ensure compatible land use, promote military installation resilience, and prevent encroachments that may hinder test, training, and operations critical to the DoD mission.



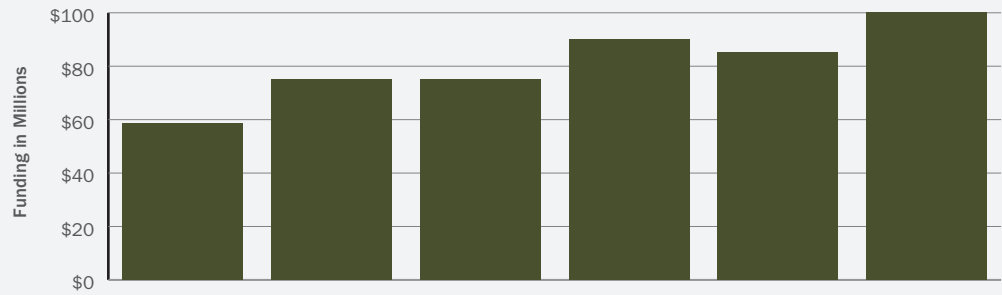
A Marine gets into a defensive position during a training exercise at Marine Corps Air Ground Combat Center Twentynine Palms, CA. (U.S. Marine Corps photo by Lance Cpl. Juan Carpanzano)

Table 1: Accomplishments by Service from the Enactment of 10 U.S.C. § 2684a through FY 2020

Military Service	Transactions	Acres Protected	REPI	Service	Partner	Total Expenditures
Army	990	420,754	\$317,119,278	\$323,310,208	\$510,519,077	\$1,150,948,564
Navy	717	132,115	\$155,746,965	\$36,818,177	\$229,738,239	\$422,303,382
Marine Corps	100	101,063	\$116,745,679	\$33,163,106	\$135,711,346	\$285,620,131
Air Force	449	103,365	\$78,973,168	\$21,765,455	\$99,377,843	\$200,116,466
Total*	2,256	757,297	\$668,585,090	\$415,056,946	\$975,346,506	\$2,058,988,542

*Subtotals may not sum to combined totals due to rounding.

Select Service totals reported in Table 1 may vary slightly from Service totals reported in Tables 3 through 6 because of consolidation due to Joint Basing.

Figure 1: REPI Fiscal Year Funding (in millions)

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Appropriation	\$58.57	\$75.00	\$75.17	\$90.00	\$85.00	\$100.00
Less DoD-wide Priorities	\$9.47	\$7.65	\$12.42	\$0.00	\$1.91	\$0.00
Less Program Management	\$4.04	\$4.19	\$5.13	\$3.46	\$5.54	\$4.96
Less Landscape Management	\$0.50	\$0.50	\$0.50	\$1.02	\$0.71	\$0.63
Additional Office of the Secretary of Defense (OSD) Funding	\$6.95*	\$2.81*	\$1.64*	\$1.20*	\$0.00	\$1.22**
Allocation to Services	\$51.51	\$66.60	\$58.76	\$86.72	\$76.84	\$95.62
Locations	32	45	39	42	38	51

* 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.

STRENGTHENING MILITARY READINESS BY LEVERAGING OVER \$975 MILLION IN NON-DOD FUNDS

This 15th annual report on the 2684a authority describes the REPI program's partnership activities and accomplishments across all projects, from the enactment of the 2684a authority in 2002, through FY 2020. This report includes:

- Congressional appropriations for the REPI program over the past six FYs (Figure 1);
- A summary of the Military Services' accomplishments using REPI partnerships at 115 locations across 35 states and territories (Table 1);
- 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 (Table 2);
- A summary of REPI, Military Service, and Partner cost-sharing through FY 2020 (Figure 2);
- A summary of 2020 REPI Challenge projects and locations (Figure 3);
- A map of REPI project locations (page 12); and
- Detailed information by individual project (Tables 3-6). 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 eight percent. Through FY 2020, DoD has leveraged \$1.08 billion with over \$975 million in non-Department partner contributions—nearly a 1:1 match—to protect over 757,000 acres of land, safeguarding vital test, training, and operational assets and capabilities.

The REPI program follows a process that enables the Military Services to execute funds for site-specific agreements with state and local governments and conservation organizations that meet the requirements

and objectives of the 2684a authority. Military Services first identify projects at the installation or range level in response to current or anticipated encroachment threats to mission capabilities and then develop them with local partners. The Military Services then request funding for their portfolio of projects from the REPI program annually. Due to the needs identified by the Military Services, funding requests have exceeded available REPI funding by \$98.5 million on average since FY 2015. The program must consequently evaluate and prioritize the projects based on several factors, including:

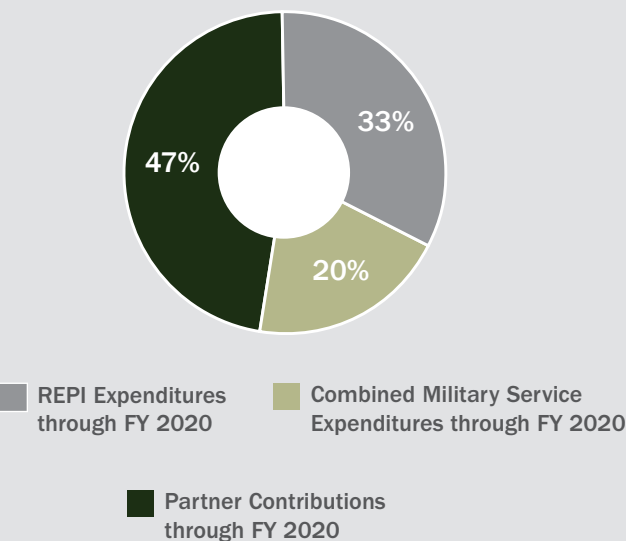
- Potential to mitigate encroachment and threats to military installation resilience that impact the military mission;
- Advancement of National Defense Strategy priorities;
- Capacity, usage, and uniqueness of the military capability being protected;
- Innovation that increases mission sustainability, leverages additional funds, or creates new tools to support readiness;
- Timeliness to complete land transactions;
- Community support and planning efforts that address land use and demonstrate significant participation in local and regional planning efforts (e.g., Compatible Use Program and sustained involvement in collaborative land use and resilience planning);
- Benefits to, and investments from, partner organizations and the community; and
- Advancement of designated Sentinel Landscapes goals.

The REPI program facilitates the management, coordination, and implementation of funding decisions while empowering the Military Services to tailor programs to meet their specific mission requirements.

REPI’s Innovative Partnerships Save DoD \$975 Million

The REPI program has garnered support from over 500 partners, including many private organizations, resulting in a cost savings of \$975 million over the lifetime of the REPI program. As shown in Figure 2, partner contributions account for 47 percent of dollars spent since the program’s inception allowing REPI to preserve and enhance valuable DoD assets for a small fraction of what it costs to build, modernize, and replace them. REPI and partner investments help to sustain key DoD assets and capabilities, many identified as high priorities in the National Defense Strategy. These investments enable unrestricted access to DoD installations and training, testing, and operating areas, and sustain military readiness.

Figure 2: Cost-Share through FY 2020



	Funding Amount
REPI Expenditures through FY 2020	\$668,585,090
Combined Military Service Expenditures through FY 2020	\$415,056,946
Partner Contributions through FY 2020	\$975,346,506

SENTINEL LANDSCAPES AS STRATEGIC INVESTMENTS FOR THE MILITARY AND FEDERAL AGENCIES

While the REPI program has had considerable success in strengthening military readiness, DoD actions alone are insufficient to guarantee long-term mission sustainability and resilience. Land use conversion will continue to occur across the country, reducing agricultural, forested, and open lands and increasing habitat loss and natural resource degradation. Additionally, threats to military installation resilience are projected to worsen in the coming years. These risks will not only affect military readiness, but also threaten food security, water security, and environmental security, which are critical to national security.

To encourage strategic collaboration to address land use and resilience challenges and develop comprehensive, integrated solutions, DoD partnered with the U.S. Department of Agriculture (USDA) and the U.S. Department of the Interior (DOI) in 2013 to form the Sentinel Landscapes Partnership. The Partnership is a coalition of federal agencies, state and local governments, and non-governmental organizations that works to advance mutually beneficial land use objectives in designated project areas known as sentinel landscapes.

The Partnership’s overarching mission is to strengthen military readiness, bolster agricultural and forestry productivity, conserve natural resources, and increase access to recreation. The Partnership accomplishes this mission by connecting private landowners in sentinel landscapes with government assistance programs that offset the cost of implementing sustainable management practices or conservation projects on their properties.

Each sentinel landscape is anchored by at least one military installation or range, encompasses agricultural and forested lands, and is an appropriate size to address natural resource restoration and resilience objectives. To date, the Partnership has designated seven locations across the country as sentinel landscapes, including: Avon Park Air Force Range, Florida; Camp Ripley, Minnesota; Eastern North Carolina anchored by Fort Bragg, Dare County Bombing Range, Marine Corps Base (MCB) Camp Lejeune, Marine Corps Air Stations (MCAS) Cherry Point and New River, and Seymour Johnson Air Force Base (AFB); Fort Huachuca, Arizona; Joint Base Lewis-McChord, Washington;

“By helping to hold back encroachment on the boundaries of our training area as well as the recreational surroundings we all enjoy...we can work to ensure the readiness of our armed forces and the positive quality of everyone’s precious free time for years to come.”

—Brigadier General Lowell Kruse
Senior Commander
Camp Ripley

Middle Chesapeake, Maryland, anchored by Naval Air Station Patuxent River-Atlantic Test Ranges; and significant areas in Georgia anchored by Fort Stewart, Fort Benning, Townsend Bombing Range, Robins AFB, and Naval Submarine Base Kings Bay.

The REPI program has been able to achieve more on the ground with fewer DoD resources by participating in the Sentinel Landscapes Partnership. From FY 2012 through FY 2019, DoD has leveraged \$141 million in funds with \$223 million in USDA funds, \$41 million in DOI funds, \$169 million in state funds, \$15 million in local funds, and \$80 million in private funds to support projects across sentinel landscapes, a 4:1 match. This crucial investment has permanently protected over 467,000 acres of land around high-value military testing and training areas and implemented sustainable management practices on an additional 2.3 million acres.

These projects support the National Defense Strategy by protecting against development that may negatively impact current or planned mission capabilities, such as heavy armor maneuver areas at Fort Benning, air-to-ground training at Avon Park Air Force Range, and full frequency cyberwarfare testing at Fort Huachuca. Over the next year, the Sentinel Landscapes Partnership will continue to enhance military installation resilience by expanding its scope. In January 2021, the Partnership announced an application cycle to solicit and designate new sentinel landscapes by the end of the year.

For more information about the Sentinel Landscapes Partnership, view a short documentary at:

<https://sentinellandscapes.org/about/resources/>.

Federal Agency Partners Advancing Shared Interests

In FY 2020, USDA's Natural Resource Conservation Service (NRCS) contributed to accomplishing shared goals through REPI projects across the country. NRCS offers financial and technical assistance to landowners, commonly farmers and ranchers, through a number of voluntary programs with the goal to conserve the nation's soil, water, air, and other natural resources. These types of land uses are often compatible with DoD missions, creating areas of overlapping interest and opportunities for NRCS and DoD to leverage funds and accomplish more on the ground.

For example, in April 2020, NRCS committed \$1.3 million to match \$1.0 million in Air Force funds and \$300,000 committed by The Conservation Fund to a project at Eielson AFB, near Fairbanks, Alaska. Eielson is home to 5th generation F-35A fighters, an essential element of U.S. Indo-Pacific Command power projection. Using project funding, The Conservation Fund will acquire conservation easements on critical wetland sites on private lands adjacent to Eielson AFB and the Tanana River. In a quickly urbanizing area, this land will be preserved in perpetuity, protecting Eielson AFB from incompatible development and limiting non-point source pollution in the Tanana River watershed.

In Utah, NRCS and the Conservation Fund partnered with the REPI program to protect roughly 400 acres of working agricultural lands near Camp Williams, just south of Salt Lake City, with NRCS contributing \$1.9 million. Population growth and urban sprawl encroaching close to the installation has threatened the training mission at Camp Williams. Protecting this land has preserved the viability of current and future operations at Camp Williams, while also maintaining a migration corridor for mule deer, and protecting the operational farmland of a local family.



Over 7,000 Air and Army National Guardsman celebrate the 65th Annual Governors Day ceremony, one of Utah's proudest traditions at Camp Williams, Utah. (U.S. Army Photo by Sgt. 1st Class Whitney C. Houston)

"This accomplishment is truly a win-win for military readiness, land conservation, community growth, and more. Protecting the viability of current and future training operations at Camp Williams, while simultaneously guiding community growth, sustains the environmental and economic health of the region and protects public health and safety. We're thrilled by the success of this initiative."

—Brigadier General Tyler B. Smith
Assistant Adjutant General for Army
Utah Joint Force Headquarters

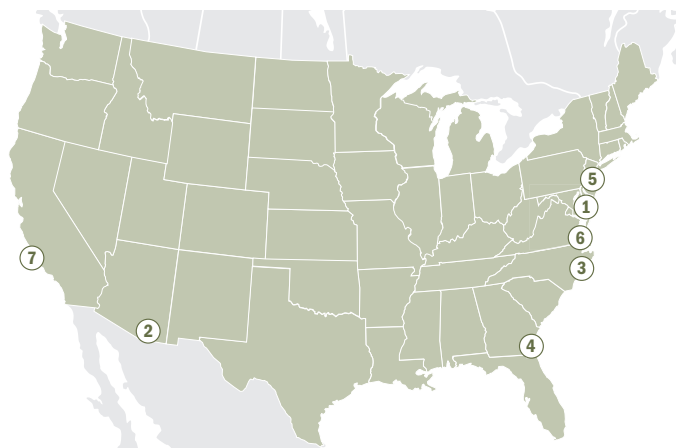
ENHANCING MILITARY INSTALLATION RESILIENCE THROUGH REPI AND THE REPI CHALLENGE

For the tenth consecutive year, the REPI program hosted the annual REPI Challenge, a competition with dedicated funding to accelerate REPI project results through large-scale innovation. The goal is to encourage recipients to look beyond traditional conservation tools and consider creative approaches that develop new partner engagement and attract new sources of funding, including market-based strategies and private investment.

To date, the DoD has leveraged approximately \$73 million in REPI Challenge funds over 4:1 with \$300.1 million contributed by partners to protect over 532,000 acres across 22 locations.

In FY 2020, the REPI Challenge focused on projects that will preserve or enhance key capabilities identified in the National Defense Strategy through investments in natural infrastructure improvements that promote installation resilience. The new authority granted under 10 U.S.C. § 2684a(a)(2)(B)(ii) by Congress in FY 2019, and the further amendments to 10 U.S.C. § 2684a enacted in FY 2021, authorize for REPI projects to engage in activities to plan, prepare, recover, and minimize the effects from extreme weather events or unanticipated changes in environmental conditions such as the increase in frequency of extreme weather, storm surge, floods, and wildfires. While traditional REPI projects are starting to leverage this new authority, the FY 2020 REPI Challenge showcased the opportunities to enhance the resilience of installations across the country by protecting them from increased wildfires, which endanger lives in local communities, destroy valuable habitat, and damage existing infrastructure; sea level rise, storm surge, and recurring flooding, which result in the loss of coastal training infrastructure or interruption of operations at low-lying bases; and extreme weather, which significantly impacts existing infrastructure and ranges and disrupts base-wide operations. See Figure 3, below, for more information.

Figure 3: 2020 REPI Challenge Award Locations



Marine Unmanned Aerial Squadron 2 launches one of the squadrons RQ-7B Shadows at Marine Corps Air Station Cherry Point, NC. (U.S. Marine Corps photo by Lance Cpl. S.T. Stewart)

Located in Arizona's Sonoran Desert, Fort Huachuca is accustomed to periodic drought and wildfires that threaten the unmanned aircraft system training and electronic warfare testing missions of this once remote installation. The threat to the installation's physical infrastructure and water security led Fort Huachuca to partner with the Arizona Land and Water Trust (ALWT) to conduct an extensive Water Supply and Use Assessment which included an analysis of groundwater levels and surface flows, a survey of current irrigation and water use, and a comprehensive review of historic pumping records and water rights. In FY 2020, Fort Huachuca and ALWT completed this survey and were awarded \$2 million in REPI Challenge funding that coupled with \$4.3 million in partner funding will protect over 2,000 acres of working ranches and forests from incompatible development that would increase demand for groundwater pumping in the area. Funds will also support installation efforts with the U.S. Forest Service to reduce hazardous fuels within the adjacent Coronado National Forest, resulting in the reduced threat of wildfires in the area and at Fort Huachuca.

On the other side of the country, MCAS Cherry Point, North Carolina, is impacted by other environmental pressures. This coastal installation's electronic and special warfare training mission is threatened by significant shoreline erosion and storm-related flooding. In FY 2020, MCAS Cherry Point along with the North Carolina Sentinel Landscape Committee and the North Carolina Coastal Federation were awarded \$1 million in REPI Challenge funding to build a living shoreline along the adjacent Neuse River. This living shoreline will protect 2,100 linear feet of eroding shoreline, curtail erosion, promote ecosystem health, provide water quality benefits to the public, and enhance installation resilience at MCAS Cherry Point. The installation is also working to protect an

1. Atlantic Test Ranges - Naval Air Station Patuxent River, MD (4,000 acres protected; \$3.0M)
2. Fort Huachuca, AZ (2,191 acres protected; \$2.1M)
3. Marine Corps Air Station Cherry Point, NC (2,100 linear feet of living shoreline created; \$1.0M)
4. Naval Submarine Base Kings Bay, GA (16,082 acres protected; \$5.0M)
5. Naval Weapons Station Earle; Joint Base McGuire-Dix-Lakehurst; AEGIS Technical Representative; New Jersey National Guard Sea Girt; and Warren Grove Gunnery Range, NJ (1,600 acres restored; \$1.9M)
6. Naval Weapons Station Yorktown, VA (3.5 acres of shoreline restoration and stabilization; \$1.0M)
7. Vandenberg Air Force Base, CA (24,247 acres protected; \$3.0M)

additional 5,600 linear feet using \$8 million in hurricane recovery commitments after significant flooding from Hurricane Florence.

The Navy faces challenges similar to those at MCAS Cherry Point at Naval Weapons Station (NWS) Yorktown, Virginia, which is bounded by shoreline, wetlands, and piers, being degraded by erosion and storm-related flooding. Potential damage to on-installation infrastructure threatens NWS Yorktown’s mission of supporting the Atlantic Fleet and Joint Commands. Leveraging \$1 million in FY 2020 REPI Challenge funding with over \$10 million in partner funding, NWS Yorktown will work with the Virginia Institute of Marine Science to restore over 3 acres of coastal land and stabilize over 900 feet of shoreline within nearshore areas critical to NWS Yorktown’s mission. This project will incorporate natural and artificial oyster reefs to protect the shoreline from erosion and contribute to ongoing habitat and oyster restoration efforts being carried out in the York River.

In total, DoD awarded \$17.1 million in 2020 REPI Challenge funding to seven projects that attracted almost \$142 million in partner contributions.

By spreading funding across seven projects, the awards will contribute to limiting incompatible development, enhancing installation resilience, preserving habitat, and protecting missions that support key National Defense Strategy priorities at 11 installations across the country: Naval Air Station Patuxent River and Atlantic Test Ranges, Maryland; Fort Huachuca, Arizona; MCAS Cherry Point, North Carolina; Naval Submarine Base Kings Bay, Georgia; NWS Yorktown, Virginia; Vandenberg AFB, California; and NWS Earle; Joint Base McGuire-Dix-Lakehurst; AEGIS Technical Representative-New Jersey National Guard Sea Girt; and Warren Grove Gunnery Range, New Jersey.

Measuring Program Outcomes and Benefits to Mission Capabilities

The REPI program continuously assesses its preservation ability to enhance key DoD capabilities. This year, the Department published a metrics report, summarizing over 15 years of REPI data submitted by the Military Services to quantify the program’s value to the military mission. The data shows the extent of known or potential land use conflicts, the REPI projects that address these conflicts, and overall investments in and benefits to military capabilities. The following table groups capabilities by value to display the variation in assets and capabilities that the REPI program safeguards from encroachment based on information provided by the Military Services for projects requesting FY 2020 funding. Overall, installations have reported over \$640 billion in assets and capabilities that have benefited from the REPI program’s protection and mitigation.

Estimated Value of Military Capability ¹	Number of DoD Investments in Military Capabilities Preserved or Enhanced by REPI	Total Value of DoD Investments in Military Capabilities Preserved or Enhanced by REPI
> \$1B	80	\$593.75B
\$100M-1B	118	\$40.74B
\$1M-100M	233	\$5.97B
\$100K-1M	20	\$9.00M
< \$100K	7	\$59K

¹ Projects may not provide monetary values for mission capabilities. These examples reflect a small sample of mission capability value data reported by the Military Services in their proposals requesting FY 2020 funding and should not be interpreted as comprehensive statistics for the entirety of REPI projects nationwide.

As highlighted in the report, Naval Base Kitsap, the Nation’s third-largest U.S. Navy installation, is home to several research, development, testing, and evaluation (RDT&E) commands that ensure the Navy maintains a technological edge. Sensitive underwater testing activities at the installation require an undisturbed acoustic environment. However, encroachment from nearby residential development, recreational boating, and commercial activity threatens these capabilities by creating noise pollution. With a strategy to secure critical land along the Dosewallips and Duckabush Rivers, the REPI project at Naval Base Kitsap has protected 13,649 acres in support of the base’s RDT&E capabilities, strengthening torpedo, unmanned underwater vehicle, and ship systems. Naval Base Kitsap has leveraged \$24.5 million in DoD funding with \$22.2 million in partner contributions to preserve or enhance at least \$40.9 billion in critical assets and mission capabilities.

As part of the annual proposal process for REPI funding, the Military Services are required to identify all land use challenges and readiness impacts that each project addresses. The REPI program has directed investments to prevent or mitigate the types of land use conflicts that most frequently threaten the mission. The following table displays the five most prevalent land use challenges among REPI projects that requested funding in FY 2020.

Top Land Use Challenges	Number of Projects with Challenge ²	DoD Expenditures Addressing Challenge
Noise	54	\$40M
Tall structures	32	\$24M
Danger or safety concerns	32	\$12M
Species	31	\$30M
Radar or Spectrum	31	\$16M

² Projects may select multiple land use challenges. Projects that reported more than one land use challenge are included in all categories selected. Installations that did not submit an FY 2020 proposal are not included. These totals do not reflect the severity of the challenge, nor do they include encroachment pressures mitigated by other means.

These investments have countered encroachment threats at multiple locations and helped to preserve military readiness. The following table displays the number of acres protected in FY 2019 to support testing, training, or operational capabilities.

Top Military Capabilities Preserved or Enhanced	Total Acres Protected at Projects with Capability in FY 2019 ³
Flight	40K
Unmanned Aircraft Systems	30K
Radar and Navigation	28K
Testing	16K

³ The Military Services may select multiple mission capabilities for each parcel. Acres protected are included in all categories reported if the Military Services reported more than one for any given parcel. REPI began collecting parcel-level mission capability data in FY 2017; as a result, many executed parcels still do not contain this information even though the data gap is improving each year.

To learn more about REPI program benefits to military mission capabilities, view the 2020 REPI Metrics Report at: <https://www.repi.mil/Resources/Reports-and-Fact-Sheets/>.

LEVERAGING NEW AUTHORITIES TO ADDRESS ENCROACHMENT CHALLENGES TO THE MILITARY MISSION

In unique circumstances, there may be other authorities available to address encroachment challenges in addition to 10 U.S.C. § 2684a. Specifically, the Sikes Act under 16 U.S.C. § 670c-1 and intergovernmental support agreements (IGSA) under 10 U.S.C. § 2679 offer unique opportunities to address encroachment pressures without the necessity to acquire a real property interest.

Congress expanded the Department's authorities under Section 103A of the Sikes Act in Section 670c-1 of Title 16 U.S.C in FY 2015, allowing for natural resource management and improvement activities beyond installation boundaries. The Sikes Act expansion allows DoD to provide partners with lump sum funding that may be invested to ensure for long-term natural resource management. These funds may be applied without the requirement for DoD to hold a real property interest. Within a REPI project, the authority can be used to protect off-installation threatened and endangered species' habitats, offering potential relief from restrictions on installation activities imposed by the Endangered Species Act (ESA). At MCB Camp Pendleton, the installation and its partners are leveraging the Sikes Act to protect off-installation populations of the Pacific pocket mouse through natural resource management practices. In FY 2020, a Sikes Act cooperative agreement was awarded for management of some of the only remaining off-installation habitat for the Pacific pocket mouse. The Pacific pocket mouse is currently listed as endangered under the ESA, and this project is part of a strategy to address species impacts to training on base by protecting off-installation populations.

The FY 2013 National Defense Authorization Act (NDAA) provided DoD the statutory authority for installations to enter into agreements with state and local governments to provide, receive, or share installation-support services. These IGSA are beneficial to installations as they create economies of scale, effectively reducing the installation's costs, and directly benefitting the operations of the installation. In FY 2020, with REPI support the Navy signed its first IGSA designed to fund natural infrastructure improvements that maintain or improve military installation resilience. This IGSA with the State of New Jersey



Protecting off-installation populations of the endangered Pacific pocket mouse is essential in maintaining the current level of training at MCB Camp Pendleton. (U.S. Fish and Wildlife Photo)

will provide installation resilience services across 1.6 million acres, benefiting a consortium of six strategic DoD facilities including, NWS Earle, Joint Base McGuire-Dix-Lakehurst and Warren Grove Gunnery Range. These installations were awarded \$1.9 million in REPI Challenge funds which were leveraged with \$61 million in partner contributions to fund beach nourishment, living shoreline establishment, storm surge protection, stormwater management and storage capacity enhancement, and wildfire mitigation.

Both the Sikes Act and IGSA represent innovative and cost-effective encroachment mitigation and installation resilience enhancement strategies to ensure military readiness. Table 2 shows that the REPI program has committed or expended over \$10 million under authorities other than 10 U.S.C. § 2684a, such as the Sikes Act and IGSA authority. Of this amount, as of the end of FY 2020, DoD has deposited a total of \$1 million into interest-bearing accounts under the Sikes Act for the long-term management of natural resources beyond installation boundaries.

Table 2: REPI Expenditures and Remaining 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 2020	REPI Obligations Remaining Through FY 2020	Authority Used
Navy	Fallon Range Training Complex	NV	\$0	\$200,000	Sikes Act (16 U.S.C. § 670c-1(b)(3))
Navy	Guam Region	GU	\$0	\$1,850,482	Sikes Act (16 U.S.C. § 670c-1(b)(3))
Navy	NWS Earle	NJ	\$0	\$1,935,565	IGSA (10 U.S.C. § 2679)
Navy	Naval Base Kitsap	WA	\$3,000,000	\$0	Sikes Act (16 U.S.C. § 670c-1(b)(3))
Navy	Pacific Missile Range Facility Barking Sands	HI	\$1,000,000*	\$0	Sikes Act (16 U.S.C. § 670c-1(b)(3))
Marine Corps	MCB Camp Pendleton	CA	\$0	\$826,000	Sikes Act (16 U.S.C. § 670c-1(b)(3))
Air Force	Eglin AFB	FL	\$2,107,931	\$0	Sikes Act (16 U.S.C. § 670c-1(b)(3))
Totals			\$6,107,931	\$4,812,047	

* Denotes that the funds were deposited into an interest-bearing account.

REPI Projects Supporting DoD Priorities in the Indo-Pacific Region

DoD's focus on developing a greater presence in the Pacific has grown increasingly clear in the past year. Policy leaders within DoD have emphasized the strategic importance of strengthening DoD's posture within the Indo-Pacific region and developing a network of cooperation among the region's allies and partners in hopes of developing a free and open region.

Historically, REPI has supported several projects in the Indo-Pacific region. At U.S. Navy Pacific Missile Range Facility (PMRF) Barking Sands in Kauai, Hawaii, one of the world's largest instrumented multi-environment ranges, the Navy is using the Sikes Act to manage natural resources and recover threatened and endangered species. Through this REPI project, the installation works closely with the National Fish and Wildlife Foundation (NFWF), U.S. Fish and Wildlife Service (USFWS), and the state of Hawaii in an unprecedented island-wide partnership to collectively reduce predation from invasive species and expand native bird populations on state-owned lands on Kauai. By implementing actions that support the survival and recovery of native bird species on Kauai, especially federally listed species, this project will allow PMRF training and testing operations to continue and may ultimately reduce restrictions currently in place.

The Military Departments are also developing additional REPI partnerships in both Guam and Hawaii, protecting critical operational, test and training locations. Because of the limited availability of land on these small islands, encroachment threats and restrictions relating to threatened and endangered species have a greater impact on the installations' ability to conduct their missions. In Guam, the Navy is working with the Government of Guam, NFWF, and USFWS to enhance forest and watershed habitats to support species recovery goals to relieve current constraints related to a

high number of ESA-listed species. At Marine Corps Base Hawaii and Joint Base Pearl Harbor Hickam, the encroachment threats are driven primarily by incompatible development, so these projects will focus on protecting critical training areas and support Navy, Marine Corps, and Army activities by establishing compatible land use buffers. With the help of the REPI program, DoD can ensure that these installations are able to continue to conduct their missions and continue acting as strongholds in the Indo-Pacific region.



U.S. Naval Base Guam at Apra Harbor supports commercial operations and Navy activities for mooring and unit-level training. Its deep-water port can accommodate the Navy's largest vessels. (U.S. Navy photo by Mass Communication Specialist 2nd Class Jasen Moreno-Garcia)

THE WAY FORWARD

Over the past year, DoD has sustained ongoing engagement and education opportunities for key stakeholders through a variety of virtual channels, such as the 35th annual Land Trust Alliance Rally and the 2020 REPI Webinar Series. Through these varying avenues of education and connection, the Department had the opportunity to discuss the effects of encroachment, threats to military installation resilience, and the associated impacts on the National Defense Strategy's military mission requirements. REPI has continued to work with traditional partners, such as the Department's Office of Defense Community Cooperation (previously designated the Office of Economic Adjustment) but has also undertaken new efforts to expand reach and impact. For example, this year the REPI program, in partnership with the Southeast Regional Partnership for Planning and Sustainability and the Western Regional Partnership, coordinated a resilience-focused webinar series to discuss new partnership opportunities, such as the Federal Emergency Management Agency's Building Resilient Infrastructure and Communities program. These efforts, and the new authority granted by Congress in FY 2021 that expands the REPI program's ability to use funds to satisfy any matching funds or cost-sharing requirement of any conservation or resilience program of any federal agency, will significantly expand the REPI program's partnership opportunities to protect military installations and promote resilience from the effects of changing environmental conditions.

The REPI program primarily focuses on the protection of military installations and their missions, but the benefits of the program do not stop there. The work between OSD, the Military Service headquarters, the installations, and other partner organizations, opens doors to many opportunities. With the help of the REPI program's dedicated partner organizations, REPI continues to enhance the Nation's defense capabilities, positively impact surrounding communities and the environment, and maximize taxpayer benefits. These opportunities are driven by the REPI program's adaptability and innovation, shown through forward-thinking legislation and program policy to allow for effective and impactful on-the-ground problem solving.



A C-17 Globemaster III gets an early morning start on the flightline at Travis Air Force Base, CA. A C-17 has a maximum takeoff weight of 585,000 pounds and a wingspan of more than 169 feet. (U.S. Air Force photo by Staff Sgt. Amber Carter)

Table 3: Army Projects through FY 2020

Project	State	Transactions	Acres	Expenditures
99th Armed Forces Reserve Center	CT	1	54	\$1,749,000
Aberdeen Proving Ground	MD	16	1,839	\$20,350,676
Camp Blanding	FL	22	27,966	\$84,707,878
Camp Butner	NC	11	1,392	\$4,696,184
Camp Navajo	AZ	0	0	\$1,729,960
Camp Rilea	OR	2	124	\$2,098,971
Camp Ripley	MN	218	40,811	\$124,445,711
Camp Roberts	CA	11	19,145	\$31,209,667
Camp San Luis Obispo	CA	10	3,099	\$8,550,651
Camp Shelby	MS	20	4,667	\$12,802,784
Camp Swift	TX	6	634	\$3,669,185
Camp Williams	UT	17	2,180	\$43,738,712
Fort A.P. Hill	VA	23	13,151	\$44,383,351
Fort Benning	GA	42	34,670	\$96,775,202
Fort Bliss	TX	3	7,441	\$2,754,015
Fort Bragg	NC	81	23,845	\$78,296,307
Fort Bragg USASOC	NC	15	3,152	\$13,443,209
Fort Campbell	TN	60	13,826	\$45,391,983
Fort Carson	CO	18	25,661	\$41,471,533
Fort Custer	MI	1	326	\$2,092,100
Fort Drum	NY	27	8,028	\$12,998,397
Fort Gordon	GA	1	114	\$205,400
Fort Harrison, Limestone Hills	MT	4	685	\$4,752,163
Fort Hood	TX	18	3,978	\$18,520,684
Fort Huachuca	AZ	19	16,345	\$37,529,277
Fort Indiantown Gap	PA	16	9,429	\$18,720,036
Fort Knox	KY	3	462	\$1,045,711
Fort Pickett	VA	97	19,107	\$45,212,329
Fort Polk	LA	5	1,555	\$5,009,299
Fort Riley	KS	25	15,962	\$12,939,804
Fort Sill	OK	38	3,607	\$15,541,407
Fort Stewart	GA	78	40,952	\$92,447,505
Fort Wainwright	AK	20	629	\$4,533,723
Joint Base Lewis-McChord	WA	16	2,026	\$32,964,175
Joint Base San Antonio-Camp Bullis	TX	6	7,687	\$33,830,506
MAJIC	SC	35	21,548	\$23,057,191
Southeast Regional Army Project	GA	1	6,990	\$17,867,215
U.S. Army Garrison Hawaii	HI	7	13,157	\$108,796,164
White Sands Missile Range	NM	2	24,524	\$5,474,293
Army Totals*		995	420,763	\$1,155,802,358

Table 4: Navy Projects through FY 2020

Project	State	Transactions	Acres	Expenditures
ARD Bayview*	ID	0	0	\$0
Atlantic Test Ranges	MD	46	8,048	\$27,456,626
El Centro Range Complex	CA	10	1,536	\$743,955
Fallon Range Training Complex^	NV	21	4,936	\$4,019,102
Guam Region**	GU	0	0	\$0
Joint Base Pearl Harbor-Hickam	HI	6	2,175	\$22,022,801
NAS Fallon	NV	86	8,152	\$22,344,925
NAS Jacksonville	FL	1	100	\$5,887,125
NAS JRB New Orleans	LA	1	202	\$7,322,419
NAS Lemoore	CA	1	57	\$907,000
NAS Meridian	MS	20	1,110	\$1,027,738
NAS Oceana	VA	50	2,859	\$44,327,813
NAS Patuxent River	MD	27	2,993	\$18,847,483
NAS Pensacola	FL	6	58	\$2,514,758
NAS Whidbey Island	WA	7	128	\$3,499,189
NAS Whiting Field	FL	69	8,109	\$28,168,760
NAWS China Lake	CA	53	24,147	\$18,629,302
NB Coronado, Camp Michael Monsoor	CA	21	2,367	\$8,714,158
NB Kitsap, NAVMAG Indian Island^	WA	157	17,625	\$53,446,076
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	7	11,176	\$44,940,010
NSF Dahlgren	VA	8	2,299	\$15,403,625
NSF Indian Head	MD	2	294	\$1,107,990
NSY Portsmouth SERE School	ME	3	19,258	\$4,549,000
NWS Earle**	NJ	0	0	\$0
NWS Yorktown	VA	1	403	\$3,327,000
NWSTF Boardman	OR	4	5,193	\$9,188,743
OLF Coupeville	WA	58	1,150	\$14,222,900
OLF Whitehouse	FL	23	2,993	\$21,656,157
PMRF Barking Sands**	HI	0	0	\$0
Navy Totals*		706	128,417	\$407,283,670

Table 5: Marine Corps Projects through FY 2020

Project	State	Transactions	Acres	Expenditures
Chocolate Mountain Aerial Gunnery Range*	CA	0	0	\$0
MCAGCC Twentynine Palms	CA	11	5,433	\$8,096,574
MCAS Beaufort	SC	19	3,718	\$56,039,740
MCAS Cherry Point Piney Island	NC	18	11,836	\$40,540,404
MCAS Miramar	CA	1	410	\$9,525,761
MCAS Yuma and BMGR-W*	AZ	0	0	\$0
MCB Camp Lejeune, MCAS New River	NC	18	19,705	\$43,758,951
MCB Camp Pendleton^	CA	13	3,228	\$44,557,694
MCB Hawaii*	HI	0	0	\$0
MCB Quantico	VA	7	996	\$5,566,388
Townsend Bombing Range	GA	13	55,738	\$77,534,620
Marine Corps Totals*		100	101,063	\$285,620,131

Table 6: Air Force Projects through FY 2020

Project	State	Transactions	Acres	Expenditures
Altus AFB*	OK	0	0	\$0
Avon Park AFR	FL	10	11,502	\$22,254,669
Beale AFB	CA	5	6,055	\$9,398,711
Buckley AFB	CO	6	663	\$20,755,656
Cape Canaveral AFS	FL	11	190	\$3,693,258
Dare County Bombing Range	NC	16	16,111	\$19,267,188
Davis-Monthan AFB	AZ	18	55	\$1,707,760
Edwards AFB*	CA	0	0	\$0
Eglin AFB^	FL	5	24,027	\$24,850,865
Eielson AFB*	AK	0	0	\$0
Ellsworth AFB	SD	72	2,872	\$17,266,732
Fairchild AFB	WA	1	150	\$600,000
Hill AFB*	UT	0	0	\$0
Joint Base Andrews	MD	2	142	\$1,271,441
Joint Base Charleston	SC	1	242	\$316,000
Joint Base Elmendorf-Richardson*	AK	0	0	\$0
Joint Base Langley-Eustis	VA	4	56	\$1,027,037
Joint Base McGuire-Dix-Lakehurst	NJ	58	9,192	\$43,841,360
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	\$1,745,050
Robins AFB	GA	216	737	\$19,676,270
Scott AFB*	IL	0	0	\$0
Tinker AFB	OK	2	19	\$493,707
Travis AFB	CA	1	147	\$539,000
Tyndall AFB	FL	1	3,047	\$4,438,000
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*		455	107,053	\$210,282,384

* This project has an established and funded REPI partnership but has not completed any real estate transactions through FY 2020.

^ In addition to the real estate transactions reported here, this project has expended REPI funds under authorities other than 10 U.S.C. § 2684a such as natural resources management activities under 10 U.S.C. § 2679 under the IGSA authority or 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 Table 2.

Subtotals may not sum to combined totals due to rounding.

Select Service totals reported in Table 1 may vary slightly from Service totals reported in Tables 3 through 6 because of consolidation due to Joint Basing.

2020 REPI Program Locations



Cover photo credits: (left to right)

- (top row)** 1. A soldier signals his team toward the breach point during a live-fire exercise at Fort Polk, LA, Released, Army Sgt. Thomas Calvert; 2. Camp Ripley continues to implement its Wellhead Protection Plan, U.S. Army; 3. Air Force Global Strike tests Minuteman III missile with launch from Vandenberg, Released, Senior Airman Clayton Wear 30th Space Wing Public Affairs;
- (middle row)** 1. USS Germantown (LSD 42) and USS America (LHA 6) Conduct a RAS with USNS Washington Chambers (T-AKE 11), Approved for Release by Lt. Cmdr. Sherrie Flippin, Public Affairs Officer, Amphibious Force 7th Fleet; 2. Four F-35A Lightning IIs, assigned to the 388th Fighter Wing at Hill Air Force Base, Utah, fly in formation over Denali National Park, Alaska, U.S. Air Force photo by Tech. Sgt. Jerilyn Quintanilla;
- (bottom row)** 1. Marine Corps Cpl. Sathya Breckinridge and Lance Cpl. Keavious Blackmon provide simulated cover during an integrated training exercise at Marine Corps Air Ground Combat Center Twentynine Palms, CA, Released, Marines Corps Lance Cpl. Zachary Zephir; 2. Marines conduct a simulated amphibious assault during a combat readiness evaluation at Marine Corps Base Camp Pendleton, CA, Released, Marine Corps Cpl. Jailine Alicea Santiago.