



# 2019 SENTINEL LANDSCAPES ACCOMPLISHMENTS REPORT

**Cover photo credits: (clockwise)**

*Taylor's checkerspot butterfly at Scatter Creek by USFWS; Shoreline by Nanticoke Watershed Alliance; Cows grazing by Gail Hendricks, USDA; Amphibious assault vehicles by U.S. Navy, Mass Communication Specialist 2nd Class Tom Gagnier/Released; Live fire training by U.S. Army, Ensign Lauren Karlewicz, 6th Squadron, 8th Cavalry Regiment, 4th IBCT, 3rd Inf. Div.; F-35B by U.S. Navy, photo courtesy of Lockheed Martin, Andy Wolfe/Released.*

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*Page 10: Fort Huachuca by U.S. Army*

*Page 13: F-35B by U.S. Navy, photo courtesy of Lockheed Martin, Andy Wolfe/Released*

*Page 16: Cows grazing by Gail Hendricks, USDA*

*Page 19: U.S. Army photo by Sgt. 1st Class Jon Soucy*

*Page 22: Amphibious assault vehicles by U.S. Navy, Mass Communication Specialist 2nd Class Tom Gagnier/Released*

*Page 25: Live fire training by U.S. Army, Ensign Lauren Karlewicz, 6th Squadron, 8th Cavalry Regiment, 4th IBCT, 3rd Inf. Div.*

*Page 28: Working lands workshop by Sarah Hamman, CNLM*

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# EXECUTIVE SUMMARY



The Sentinel Landscapes Partnership is a broad coalition of federal agencies, state and local governments, and non-governmental organizations that works with private landowners to advance sustainable land management practices around military installations and ranges. The United States (U.S.) Department of Agriculture (USDA), Department of Defense (DoD) and Department of the Interior (DOI) established the Sentinel Landscapes Partnership in 2013 to strengthen military readiness, bolster agricultural productivity, preserve natural resources, and increase access to recreation. This report outlines the accomplishments of the Sentinel Landscapes Partnership through fiscal year (FY) 2018.

This report's findings demonstrate that the USDA, DoD, and DOI align federal conservation funding to projects within sentinel landscapes which allows the agencies to mitigate internal resource constraints and advance their collective objectives. Through FY 2018, over \$115 million in DoD funds, \$177 million in USDA funds, and \$37 million in DOI funds have supported projects across seven sentinel landscapes. In addition to federal assistance, this report found that sentinel landscapes attract funding and program-specific support from participating states, local governments, and private organizations. To date, projects within sentinel landscapes have attracted \$91 million in state funds, \$13 million in local funds and \$59 million in private funds.

In total, federal, state, local, and private contributions have permanently protected over 224,000 acres of land and helped implement sustainable management practices on an additional 1,600,000 acres of land within sentinel landscapes. This crucial investment has advanced the Sentinel Landscapes Partnership's four main objectives. For example:

**Strengthen Military Readiness:** Eastern North Carolina Sentinel Landscape partners have worked together to alleviate environmental training restrictions at Marine Corps Base Camp Lejeune by supporting the recovery of the endangered red-cockaded woodpecker (RCW). Since 2015, the U.S.

Navy and Marine Corps, U.S. Fish and Wildlife Service, the National Fish and Wildlife Foundation, and the North Carolina Wildlife Resources Commission have collaborated on an effort to preserve 60 RCW clusters on two properties adjacent to the installation. Protecting the RCW and its habitat off base supports RCW recovery and reduces restrictions on the Marine Corps that were activated by the Endangered Species Act, thereby enhancing Camp Lejeune's ability to conduct realistic live fire training and weapon system testing. This "train as you fight" approach strengthens military readiness and supports the nation defense mission.

**Bolster Agricultural Productivity:** USDA's Natural Resources Conservation Service (NRCS) has worked with private landowners to plan and implement sustainable management practices across the seven sentinel landscapes. To date, NRCS has enacted conservation measures through Farm Bill programs on 245,638 acres within the Fort Huachuca Sentinel Landscape, 178,994 acres within the Eastern North Carolina Sentinel Landscape and 139,081 acres within the Georgia Sentinel Landscape—while farmers, ranchers, and other private landowners within sentinel landscapes have independently executed 27,000 conservation practices using NRCS technical assistance. In addition, Florida's NRCS State Technical Committee has opted to give parcels of land within the Avon Park Sentinel Landscape priority consideration in its Agricultural Land Easement Program, which will build upon the existing 15,200 acres of working land within the sentinel landscape that NRCS has already permanently protected.

**Preserve Critical Natural Resources:** Middle Chesapeake Sentinel Landscape partners have worked together to protect land surrounding the 65-mile Nanticoke River, a historically significant waterway that supports over 120 rare, threatened, and endangered species. Through an extended series of public-private partnerships, the U.S. Navy, Maryland Department of Natural Resources and Department of Agriculture, St. Mary's County, and several private organizations

have conserved 7,356 acres of land within the Nanticoke River Conservation Corridor, including 1,710 acres of imperiled species habitat and 293 acres of grassland habitat.

**Increase Access to Recreation:** Camp Ripley Sentinel Landscape partners have worked with a regional utility company to open the first 'Yellow Ribbon Forest' in the country. The Yellow Ribbon Forest is a large, permanently protected property that is open to the public for recreation and dedicated to the service and sacrifice of our nation's veterans. Furthermore, Avon Park Air Force Range Sentinel Landscape partners collaborated with the Florida Fish and Wildlife Conservation Commission to open the Everglades Headwaters National Wildlife Refuge and Conservation Area Hatchineha Unit for the 2018-2019 hunting season and are currently working with private landowners to open an additional 4,000 acres for future hunting opportunities.

# PARTNERSHIP OVERVIEW



The Sentinel Landscapes Partnership is a broad coalition of federal agencies, state and local governments, and non-governmental organizations (NGOs) that works with private landowners to advance sustainable land management practices around military installations and ranges. Members of the Partnership define sentinel landscapes as areas in which natural and working lands are well suited to protect defense facilities from land use that is incompatible with the military's mission.

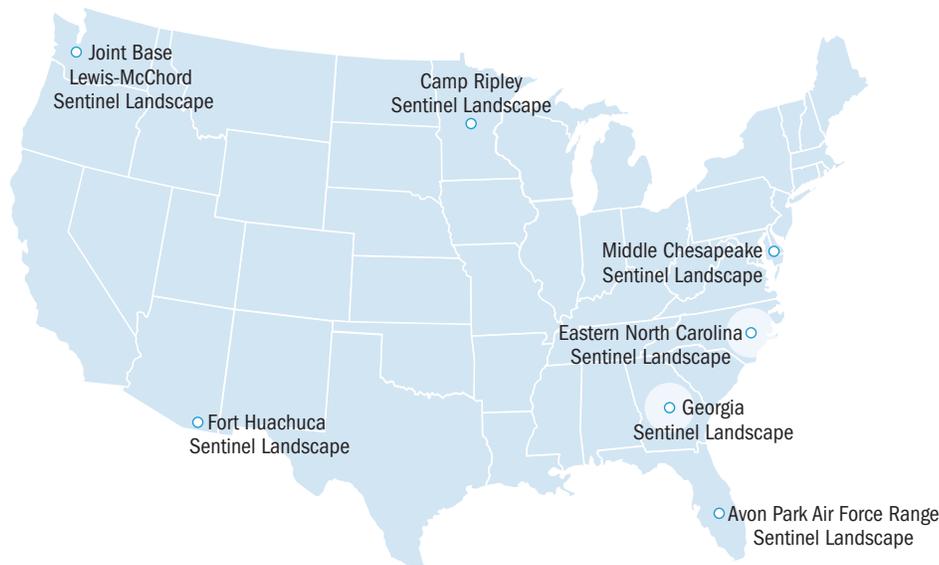
The United States (U.S.) Department of Agriculture (USDA), Department of Defense (DoD) and Department of the Interior (DOI) established the Sentinel Landscapes Partnership in 2013 to align federal landowner assistance programs in areas where the agencies have shared interests. The overarching goal of the Partnership is to preserve the natural amenities around defense facilities and thereby bolster agricultural productivity, protect biodiversity, increase access to recreation, and strengthen military readiness.

While the three founding agencies maintain oversight of the Partnership, sentinel landscapes are predominantly local enterprises. Each sentinel landscape relies on the expertise of surrounding communities and the enthusiasm of private landowners to carry out voluntary conservation projects on the ground. Local participation ensures that sentinel landscapes promote sustainable land management practices that benefit the area's economy and preserve local heritage.

To date, the Partnership has selected seven locations as sentinel landscapes:

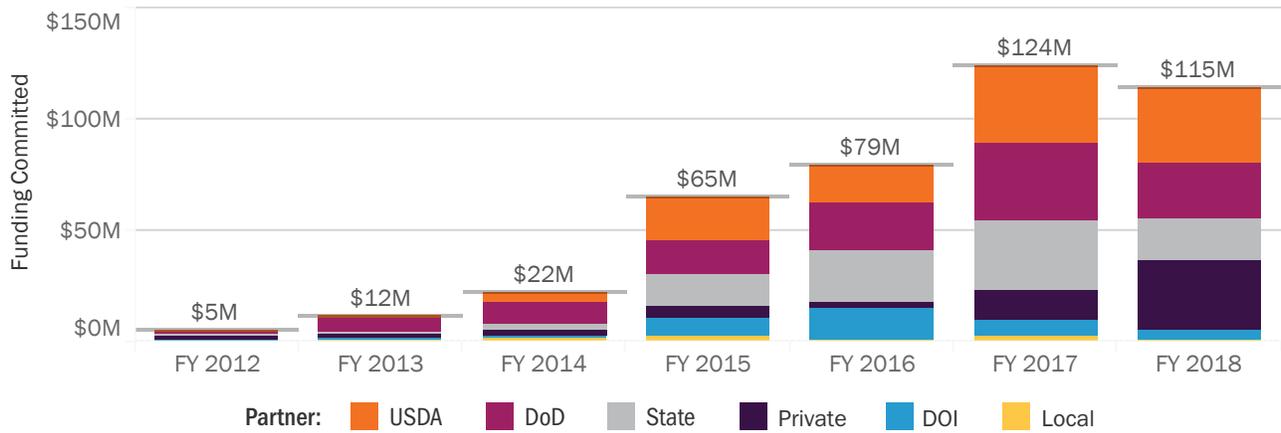
- ★ Joint Base Lewis-McChord (JBLM), Washington, est. 2013
- ★ Fort Huachuca, Arizona, est. 2015
- ★ Middle Chesapeake, Maryland, est. 2015
- ★ Avon Park Air Force Range (APAFR), Florida, est. 2016
- ★ Camp Ripley, Minnesota, est. 2016
- ★ Eastern North Carolina, est. 2016
- ★ Georgia<sup>1</sup>, est. 2018

Figure 1: Locations of Sentinel Landscapes



<sup>1</sup> The Georgia Sentinel Landscape includes natural and working lands around nine military installations and ranges and encompasses a large portion of central Georgia. The sentinel landscape does not cover the entire state.

**Figure 2: Funding Committed to Sentinel Landscapes through FY 2018 in Millions<sup>2</sup>**



Partner	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
USDA	\$0.6	\$0.5	\$4.9	\$19.1	\$16.6	\$34.7	\$34.6
DoD	\$1.5	\$6.5	\$9.6	\$15.0	\$21.7	\$35.3	\$25.0
State	\$0.8	\$0.6	\$2.4	\$14.8	\$22.9	\$31.5	\$18.4
Private	\$1.2	\$2.0	\$2.3	\$5.0	\$3.2	\$13.2	\$31.6
DOI	\$1.2	\$1.0	\$1.6	\$8.3	\$14.3	\$6.7	\$4.0
Local	\$0.1	\$1.0	\$1.5	\$2.8	\$0.7	\$2.9	\$1.0

### FEDERAL PROGRAM INVOLVEMENT

Representatives from the USDA, DoD, and DOI coordinate the Partnership at the national level through the Federal Coordinating Committee (FCC). The FCC designates locations as sentinel landscapes and then works to deliver voluntary federal assistance to landowners around defense facilities who sustainably manage their properties as farms, ranches, timberlands, or open space. Landowner assistance programs across the three federal agencies typically provide funding to permanently protect a property through a conservation easement or help to offset costs associated with protecting and improving natural resources. However, despite using similar funding mechanisms USDA, DoD, and DOI programs vary significantly with respect to size and mission.

By aligning landowner assistance programs around military installations and ranges, sentinel landscapes allow USDA, DoD, and DOI to mitigate internal resource constraints and address conservation challenges that extend beyond the

scope of any one organization. In 2018, the National Defense Authorization Act (NDAA) introduced language that formally recognized this concept in statute. Under Section 317 of the NDAA, the Secretary of Agriculture and the Secretary of the Interior are encouraged to give any eligible landowner or agricultural producer within a designated sentinel landscape, “priority consideration for participation in any easement, grant, or assistance programs administered by that Secretary’s department.”

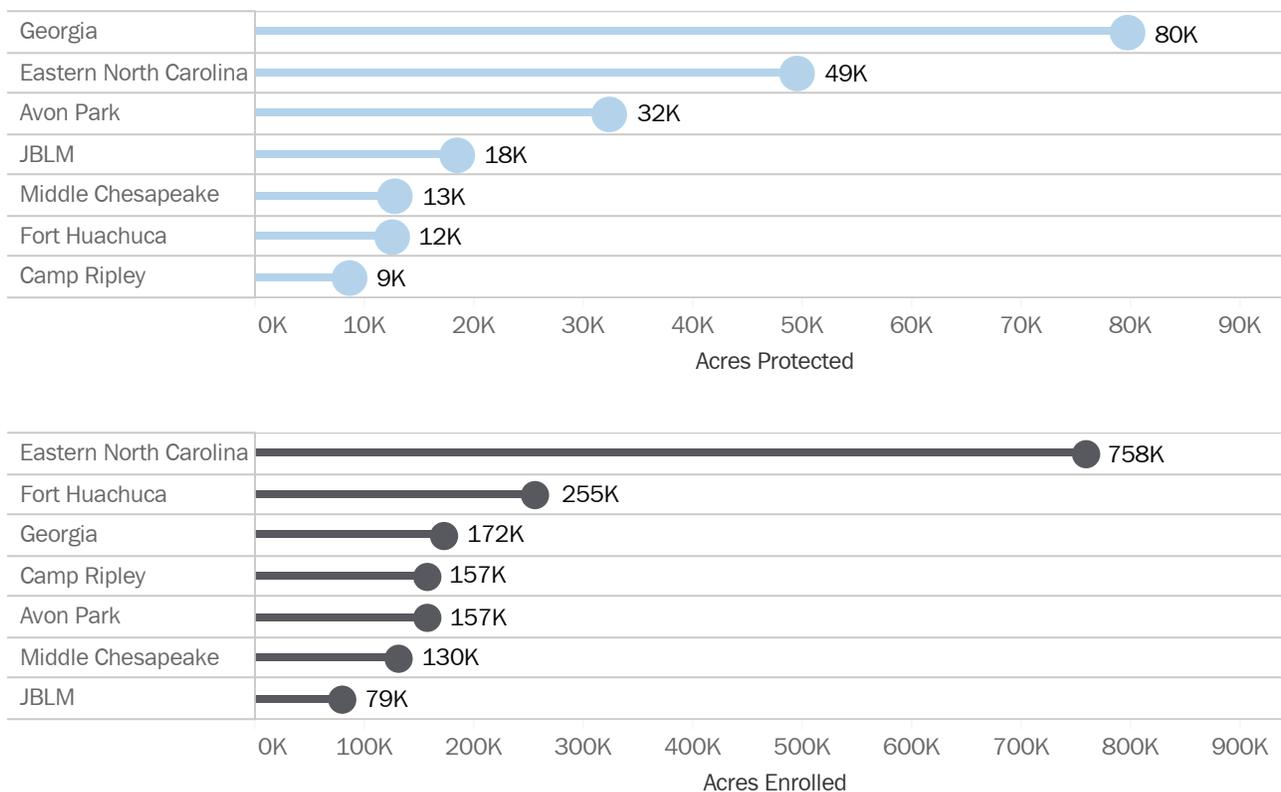
In addition to federal assistance, sentinel landscapes attract funding and program-specific support from participating states—Arizona, Florida, Georgia, Maryland, Delaware, Virginia, Minnesota, North Carolina, and Washington—local governments, and private organizations. Through Fiscal Year (FY) 2018, over \$115 million in DoD funds, \$177 million in USDA funds, \$37 million in DOI funds, \$91 million in state funds, \$13 million in local funds and \$59 million in private funds have supported projects within the seven sentinel landscapes. This crucial investment has permanently protected over 224,000 acres

<sup>2</sup> Funding contributions are counted starting one fiscal year prior to each sentinel landscape’s designation year to capture the activities that led to the federal designation.

**Table 1:** Federal Conservation Programs Active in Sentinel Landscapes

Federal Agency	Program	Mission
 DoD	Readiness and Environmental Protection Integration (REPI) Program	<p>The REPI Program protects military missions by helping to remove or avoid land-use conflicts near installations and address regulatory restrictions that inhibit military activities. The REPI Program helps to preserve agricultural and natural lands around installations that provide benefits to the military's mission.</p> <p>★ Through the 2014 NDAA, REPI funds are eligible to satisfy the non-federal match requirement of any USDA or DOI conservation program.</p>
 USDA	Natural Resources Conservation Service (NRCS) Regional Conservation Partnership Program (RCPP)	RCPP promotes coordination between NRCS and its partners to deliver conservation technical and financial assistance to producers and landowners through partnership agreements, conservation program contracts, or easements. RCPP projects achieve regional natural resource goals while also meeting complementary local conservation priorities.
	NRCS Conservation Stewardship Program (CSP)	CSP provides technical and financial assistance to agricultural producers for implementing conservation management activities related to a variety of key resource concerns, including soil and water quality and wildlife habitat, on cropland, pasture, rangeland, and forestland, in 5-year long contracts.
	NRCS Environmental Quality Incentives Program (EQIP)	EQIP provides technical and financial assistance to agricultural producers for implementing conservation practices related to a variety of key resource concerns, including soil and water quality, watershed protection, and wildlife habitat, in contracts up to 10 years long.
	NRCS Agricultural Conservation Easement Program (ACEP)	ACEP provides financial and technical assistance to help conserve agricultural lands, including cropland, rangeland, grassland, pastureland, wetlands, and nonindustrial private forestland.
	NRCS Conservation Technical Assistance	NRCS helps landowners develop conservation plans and implement conservation practices without additional farm bill program funding through its Conservation Technical Assistance program.
	U.S. Forest Service (USFS) Forest Legacy Program	The Forest Legacy Program targets ecologically and economically important forestlands that states identify for protection.
 DOI	U.S. Fish and Wildlife Service (USFWS) North American Wetlands Conservation Act (NAWCA) Grants	NAWCA administers a competitive grant program to benefit bird populations and wetland habitat while supporting local economies and American traditions such as hunting, fishing, family farming, cattle ranching, and birdwatching.
<p>Other programs that have the potential to support sentinel landscapes include:</p> <ul style="list-style-type: none"> <li>★ USFWS Wildlife and Sport Fish Restoration Program</li> <li>★ USFWS Partners for Fish and Wildlife Program</li> <li>★ USFWS Cooperative Endangered Species Conservation Fund Program</li> <li>★ USDA Farm Service Agency (FSA) Incentives and Conservation Program</li> <li>★ National Oceanic and Atmospheric Administration Coastal Estuarine Land Conservation Program</li> <li>★ Department of Transportation Recreational Trails Program</li> <li>★ Environmental Protection Agency (EPA) Wetlands Program Development</li> <li>★ DoD Legacy Resource Management Program</li> <li>★ DoD Office of Economic Adjustment</li> <li>★ DOI/USDA Land and Water Conservation Fund</li> <li>★ EPA Multipurpose Grants to States and Tribe</li> </ul>		

**Figure 3:** Acres Protected<sup>3</sup> and Enrolled<sup>4</sup> within each Sentinel Landscape through FY 2018



of land and helped implement sustainable management practices on an additional 1.6 million acres of land within sentinel landscapes. Furthermore, farmers, ranchers, and other private landowners across the seven sentinel landscapes have independently executed 27,000 conservation practices using USDA Natural Resource Conservation Service’s (NRCS) technical assistance.

### PARTNERSHIP BENEFITS

The diverse entities within the Sentinel Landscapes Partnership share data, work together on unified priorities, and institute channels of communication between private and public organizations. This collaboration provides tangible benefits to the military installation, conservation and working lands, and local communities that fall within a sentinel landscape’s boundary.

The FCC builds capacity at the local level by funding a partnership coordinator for each sentinel landscape. The

sentinel landscape coordinators not only serve as liaisons between local stakeholders and agency headquarters, but also bridge relationships amongst defense, conservation, and agricultural partners on the ground. In addition, sentinel landscape coordinators pursue additional project funding within the landscape. To date, the FCC has committed \$800,000–\$600,000 in funding from DoD and \$200,000 in funding from NRCS—matched by \$600,000 in funding from the U.S. Endowment for Forestry and Communities, to support the sentinel landscape coordinators.

Furthermore, sentinel landscapes improve communication and coordination between partner organizations and local communities. This increased engagement leads to greater landowner participation in voluntary land use programs and creates a larger pool of willing landowners with whom participating entities can engage. A designation also generates national attention and provides the sentinel landscape with a platform to advocate for additional funding for its projects.

<sup>3</sup> Protected acres are recognized as land acquisitions—fee simple or easement—that have completed the due diligence and closing actions necessary to obtain a real estate-interest.

<sup>4</sup> A property is recognized as enrolled if its respective landowner voluntarily participates in a federal or state land-management program that provides financial or technical assistance to promote sustainable agricultural practices, restore imperiled species and their habitat, or preserve critical natural resources; or if a landowner or an organization receives a federal or state grant to conduct a conservation project on said property.

# JOINT BASE LEWIS-MCCHORD SENTINEL LANDSCAPE

Washington | est. 2013



The JBLM Sentinel Landscape encompasses over 63,000 acres of military training area, including over 7,000 acres of impact area, 86 ranges and mortar points, 13 drop zones, and two airfields. In addition, the landscape supports the majority of the remaining native prairie habitat in the south Puget Sound. Once extending over 150,000 acres, this critical ecological asset now covers only 23,000 acres, 90 percent of which is located on JBLM.

For decades, native prairie lands have deteriorated throughout the region due to rapid urban sprawl and subsequent land use conversion. Conversely, the fire-dependent ecosystem has thrived on base where development is minimal and periodic fires caused by prescribed burning and military training activities maintain healthy vegetation. As a result, multiple species listed under the Endangered Species Act (ESA) that depend on prairie habitat—such as the Taylor’s checkerspot butterfly, the streaked horned lark, and the Mazama pocket gopher—persist on the installation. Environmental regulations activated by the ESA impact JBLM’s mission by restricting the time, location, and type of training activities that can occur on base. JBLM Sentinel Landscape partners have worked together to conduct conservation practices aimed at strengthening military readiness through the recovery of threatened and endangered species.

Figure 4: JBLM Sentinel Landscape Boundary

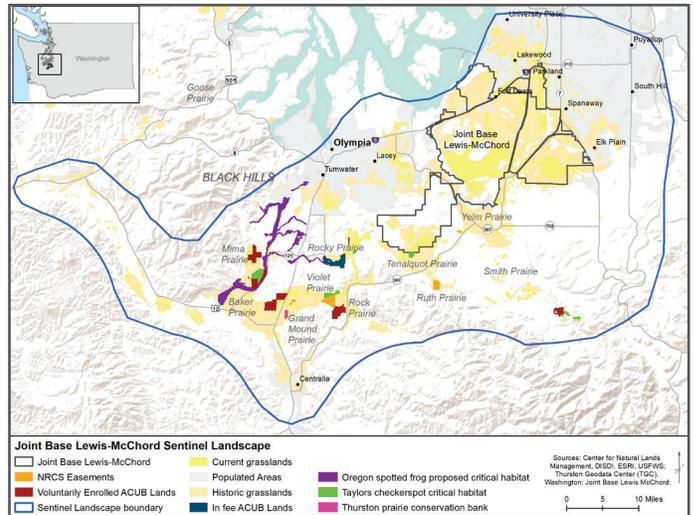


Table 3: JBLM Sentinel Landscape Footprint Details (acres)

<b>Total Protected Acres:</b> <sup>5</sup>	18,382.0
<b>Total Enrolled Acres:</b> <sup>6</sup>	78,874.0
<b>Active Base Area:</b>	91,322.3
<b>Total Sentinel Landscape Area:</b>	196,526.0

For example, in 2007, partners initiated the reintroduction of the Taylor’s checkerspot butterfly onto the Scatter Creek Wildlife Area, a 1,400-acre property owned by the Washington

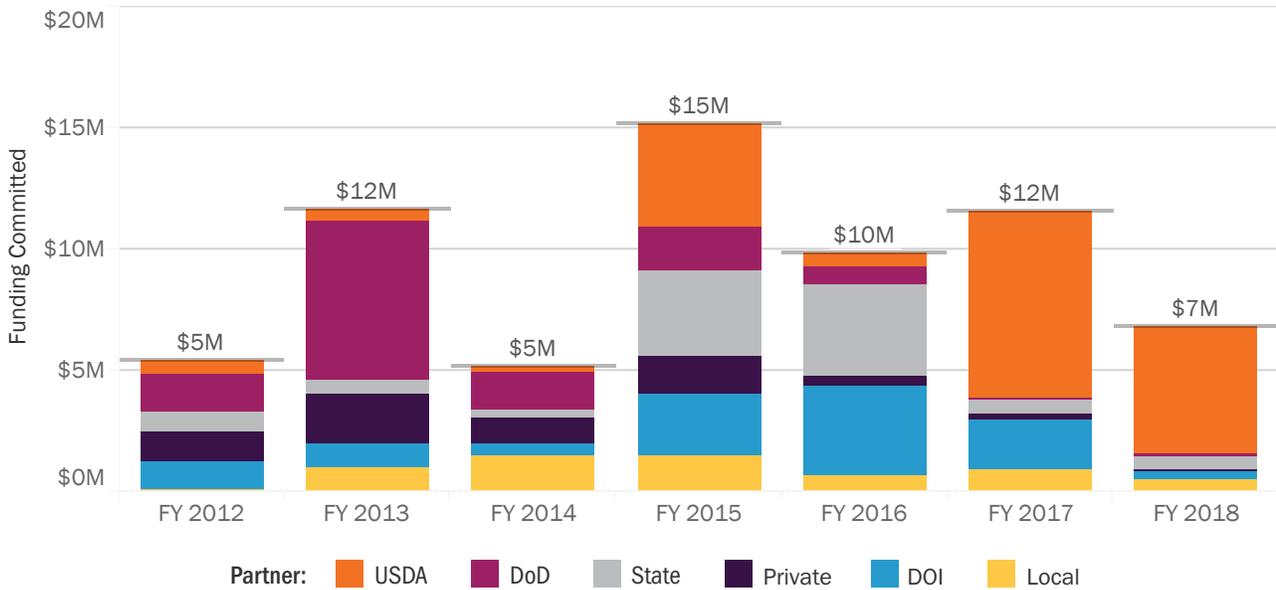
Table 2: JBLM Sentinel Landscape Total Funding by Partner in Millions

Partner	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
USDA	\$0.6	\$0.5	\$0.3	\$4.3	\$0.6	\$7.7	\$5.3
DoD	\$1.5	\$6.5	\$1.6	\$1.7	\$0.8	\$0.0	\$0.0
State	\$0.8	\$0.6	\$0.3	\$3.5	\$3.7	\$0.7	\$0.7
Private	\$1.2	\$2.0	\$1.1	\$1.6	\$0.5	\$0.2	\$0.1
DOI	\$1.2	\$1.0	\$0.4	\$2.5	\$3.7	\$2.1	\$0.3
Local	\$0.1	\$1.0	\$1.5	\$1.5	\$0.7	\$0.9	\$0.5

<sup>5</sup> Represents total acres protected through projects administered by sentinel landscape partners since FY 2012.

<sup>6</sup> Represents total acres enrolled in state and federal conservation programs since FY 2012.

**Figure 5:** JBLM Sentinel Landscape Total Funding by Partner



The federally endangered Taylor's checkerspot butterfly at Scatter Creek, an enrolled ACUB property. (Photo by: USFWS)

Department of Fish and Wildlife and enrolled in the Army Compatible Use Buffer Program. For years, partners have leveraged funding from the REPI Program to restore and maintain Scatter Creek's native prairie habitat. These efforts culminated in 2013, when the Taylor's checkerspot butterfly population increased significantly and expanded its boundaries beyond the original introduction point at the Scatter Creek Wildlife Area. Building off this success, JBLM and USFWS are now working together to develop a formal species-crediting strategy<sup>7</sup> that will ease ESA-related restrictions on the installation.

The rich landscape of working farms, forests, and ranches within the JBLM Sentinel Landscape offers additional opportunities to preserve south Puget Sound's critical natural resources. In 2018, a research collaborative consisting of Thurston County, the Center for Natural Lands Management, Washington State University, and others received a grant from USDA's Western Sustainable Agriculture Research and Education Institution (WSARE) to evaluate how agricultural practices can improve the conservation value of working lands for prairie ecosystems. The objective of the project is to quantify the ecological benefits associated with such practices, thereby increasing opportunities for working landowners to receive technical or financial assistance related to habitat management. Lastly, USFWS and NRCS recently established a working group to develop a framework to incentivize and streamline agricultural easements within the sentinel landscape. Increasing the number of easements in the area would preclude development, preserve natural resources, and reduce encroachment pressures on JBLM.

<sup>7</sup> A species crediting strategy is a tool that federal agencies can use to benefit threatened and endangered species on non-federal lands by creating a "bank" of credits. That is, a federal agency may develop and store conservation credits that can be used later to offset negative impacts of its actions.

**Table 4: JBLM Sentinel Landscape Goals and Progress**

Goal	Progress
<p><b>Goal #1</b> Increase military training flexibility at JBLM and enhance biodiversity by creating opportunities to conserve prairie habitat and imperiled species outside of the installation's fence-line</p>	<ul style="list-style-type: none"> <li>★ Sentinel landscape partners have restored and maintained imperiled species habitat on over 5,000 acres of land outside of JBLM that are enrolled in the Army Compatible Use Buffer(ACUB) Program.</li> <li>★ The Army, in coordination with USFWS, is developing a species crediting strategy for the Taylor's checkerspot butterfly, the streaked horned lark, and the Mazama pocket gopher.</li> <li>★ The Center for Natural Lands Management is working with USFWS to establish a conservation bank<sup>8</sup> for the Yelm pocket gopher that can be used by Thurston County and private developers.</li> <li>★ Sentinel landscape partners actively participate in a regional prescribed fire program that supports prescribed burns on and off the installation.</li> <li>★ Thurston County recently drafted a Habitat Conservation Plan (HCP) that focuses the county's efforts on restoring native prairie habitat and imperiled species within the sentinel landscape. The City of Tumwater and the Port of Olympia are also in the process of preparing a joint HCP.<sup>9</sup> Collectively, these actions will deter the loss of native prairie habitat and reduce ESA-related restrictions on military training on JBLM.</li> </ul>
<p><b>Goal #2</b> Maintain the south Puget Sound agricultural landscape by promoting mutually beneficial projects that support local agricultural viability, sustainable community development, and prairie conservation on working lands.</p>	<ul style="list-style-type: none"> <li>★ NRCS has administered conservation measures on over 20,000 acres of working land within the sentinel landscape.</li> <li>★ A recently established USFWS-NRCS working group is developing a framework to incentivize and streamline conservation easements within the sentinel landscape.</li> <li>★ A research collaborative funded by USDA's WSARE is examining opportunities to restore prairie habitat and prairie-dependent species on working lands. Three active ranches within the sentinel landscape will implement NRCS rotational grazing regimes and native seed mixes as part of the experimental study.</li> </ul>



*Prescribed burns at Wolf Haven, an enrolled ACUB property. Prescribed burning is an essential conservation tool for restoring native prairie within the JBLM Sentinel Landscape. (Photo Credits: Sanders Freed, CNLM)*



*Native prairies at Scatter Creek, an enrolled ACUB property and site of first Taylor's checkerspot butterfly reintroduction. (Photo by: USFWS)*

<sup>8</sup> Conservation banks are permanently protected lands that contain natural resource values. These lands are conserved and permanently managed for species that are endangered, threatened, or at-risk. Conservation banks function to offset adverse impacts to these species that occurred elsewhere. In exchange for permanently protecting the land and managing it for these species, USFWS approves a specified number of habitat or species credits that bank owner can sell.

<sup>9</sup> A Habitat Conservation Plan is required to apply for an Incidental Take Permit, a permit issued under the Endangered Species Act to non-federal entities undertaking projects that might impair threatened and endangered species habitat.

# FORT HUACHUCA SENTINEL LANDSCAPE

Arizona | est. 2015



It is easy to find unconventional partners working together in rural southern Arizona, home to the Fort Huachuca Sentinel Landscape. The region's long history of cattle ranching, remote location, and unique high-altitude and mountainous geography has created an environment where local stakeholders collaborate to solve shared problems. This tradition continues today as Fort Huachuca Sentinel Landscape partners strive to tackle critical regional issues such as water conservation, long-term agricultural viability, habitat restoration, and military mission protection.

The Army's Fort Huachuca features the premier restricted military airspace for unmanned aircraft system training in the Western U.S. and supports operations for the U.S. Air Force, Marine Corps, and Border Patrol. Funding acquired through the DoD REPI Program has helped the Army conserve 13,857 acres within Fort Huachuca's Buffalo Soldier Electronic Test Range, decreasing the probability of incompatible development within the range complex and beneath the installation's restricted airspace. Additionally, partners used funds from the Arizona Military Installation Fund and private organizations to preserve local wetlands, which in turn created 4,371 acre-feet of water savings for Fort Huachuca and significantly lessened the burden on groundwater within the Upper San Pedro River watershed.

Figure 6: Fort Huachuca Sentinel Landscape Boundary

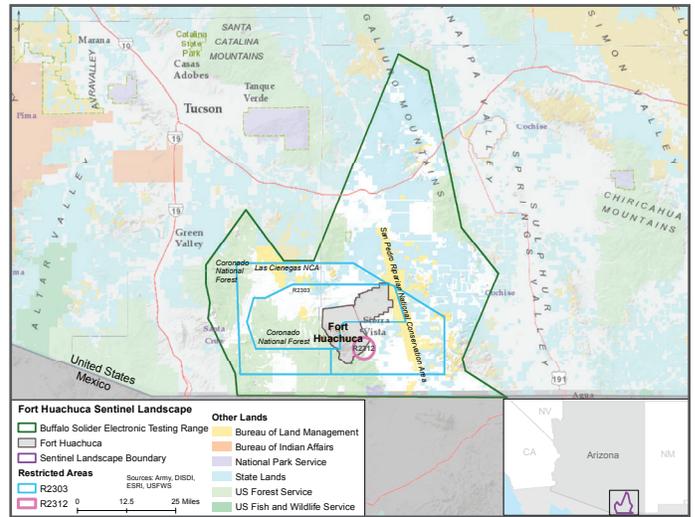


Table 6: Fort Huachuca Sentinel Landscape Footprint Details (acres)

<b>Total Protected Acres:<sup>10</sup></b>	12,447.4
<b>Total Enrolled Acres:<sup>11</sup></b>	254,804.6
<b>Active Base Area:</b>	81,172.1
<b>Total Sentinel Landscape Area:</b>	1,680,895.0

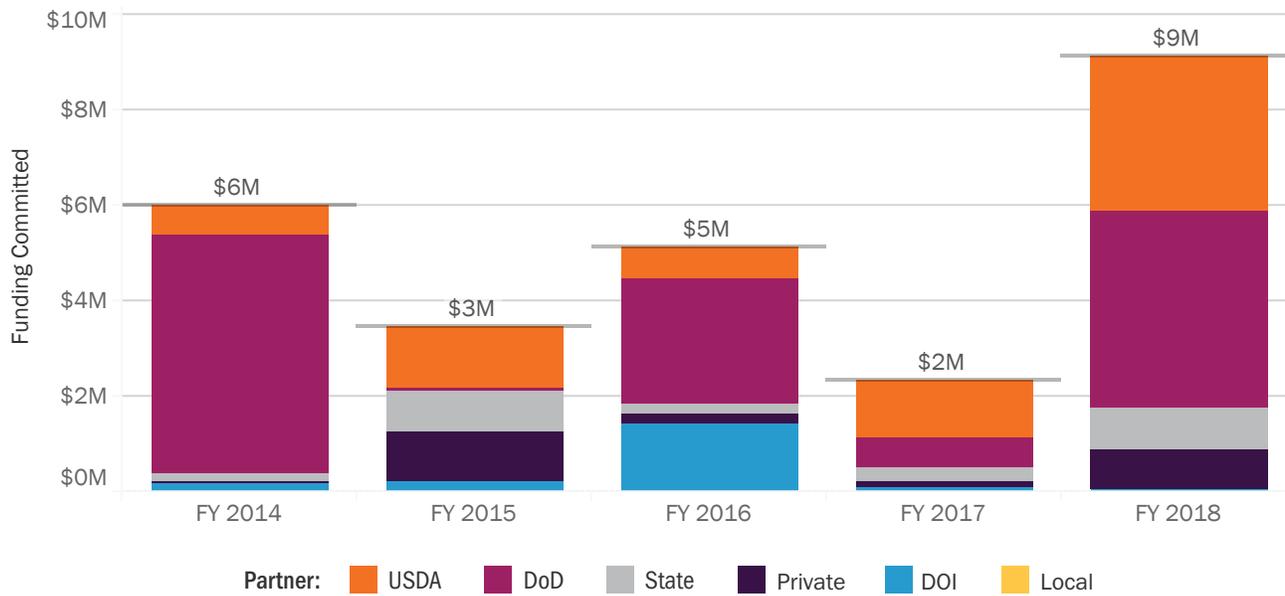
Table 5: Fort Huachuca Sentinel Landscape Total Funding by Partner in Millions

Partner	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
USDA	\$0.6	\$1.3	\$0.7	\$1.2	\$3.3
DoD	\$5.0	\$0.0	\$2.7	\$0.6	\$4.1
State	\$0.2	\$0.9	\$0.2	\$0.3	\$0.9
Private	\$0.0	\$1.1	\$0.2	\$0.1	\$0.8
DOI	\$0.2	\$0.2	\$1.4	\$0.1	\$0.1
Local	\$2.7	\$0.0	\$0.0	\$0.0	\$0.0

<sup>10</sup> Represents total acres protected through projects administered by sentinel landscape partners since FY 2014.

<sup>11</sup> Represents total acres enrolled in state and federal conservation programs since FY 2014.

**Figure 7:** Fort Huachuca Sentinel Landscape Total Funding by Partner



A dismounted tester and a Humvee with the SRW-A radio mounted inside collect evaluation data on the radio with the Huachuca Mountains in the background. The radio is part of a vendor qualification event at the U.S. Army Electronic Proving Ground, the Army's designated developmental tester for Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR) systems that include radio and military telecommunications. (Photo by: Capt. Ray K Ragan (ATEC))

Outside of the installation, the Huachuca Mountains rise almost 4,500 feet above the desert floor and dominate the arid, remote landscape. The Coronado National Forest manages most of the mountain range, which offers terrain similar to current conflict zones. In 2018, Fort Huachuca partnered with the USFS Sierra Vista Ranger District office, an active participant in the sentinel landscape, to conduct a Joint Operational Integration Assessment on 14,000 acres of USFS-managed land. The no-impact exercises allowed Soldiers and Marines to perform signals intelligence collection and active electronic warfare operations in a realistic combat environment. The USFS has also helped Fort Huachuca implement prescribed

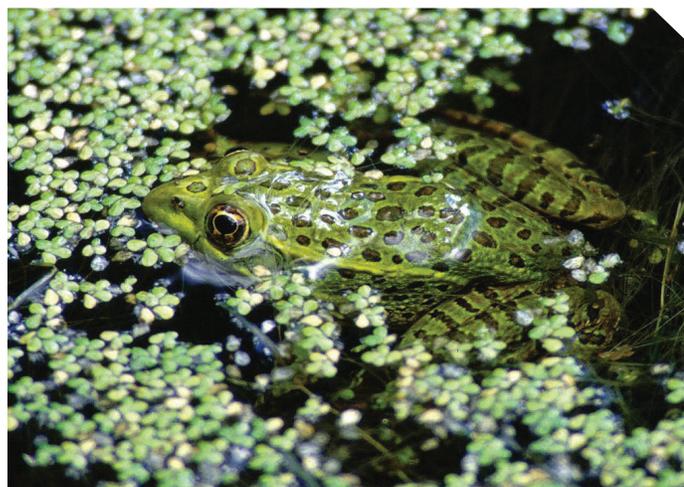
fires on base. Since 2015, Fort Huachuca and USFS crews have administered over 14,000 acres of prescribed fire, significantly contributing to fuel reduction, habitat improvement, and wildfire mitigation in the region.

The Fort Huachuca Sentinel Landscape partners are committed to preserving southern Arizona's wealth of biodiversity. For example, USFWS-led partnerships across the landscape contributed to the delisting of the lesser long-nosed bat from the ESA—making it the first bat in history to be removed due to recovery efforts. At the time of its initial listing in 1988, fewer than 1,000 of the nectar-feeding bats existed in the region. Today, there are an estimated 200,000 bats at 75 roosts throughout the Southwestern U.S. and Mexico. To ensure that the lesser long-nosed bat continues to thrive following its delisting, USFWS is working with partner organizations and private landowners to increase the accessibility of food and resources for the bat.

USFWS and Arizona Game and Fish Department have undertaken similar measures to restore habitat for the Chiricahua leopard frog, a species federally listed as threatened. By working with private landowners to improve ponds and livestock tanks, the partners hope to relocate the frogs to recovery units within the Fort Huachuca Sentinel Landscape. This relocation would not only benefit the Chiricahua leopard frog, but also ensure that Fort Huachuca continues to have the flexibility necessary to support its national defense mission.

**Table 7: Fort Huachuca Sentinel Landscape Goals and Progress**

Goal	Progress
<p><b>Goal #1</b> Strengthen mission sustainability at Fort Huachuca by protecting the annual dispatch of over 160,000+ sorties from the R-2303 Military Airspace and preserving the diverse capabilities of the Buffalo Soldier Electronic Testing Range</p>	<p>Sentinel landscape partners permanently protected 13,857 acres under the R2303 Military Airspace using funding acquired through the DoD REPI Program.</p>
<p><b>Goal #2</b> Protect historic and economically important ranches and farms that sustain Arizona's food and fiber production and contain rare, native grassland habitat</p>	<ul style="list-style-type: none"> <li>★ NRCS has administered conservation measures on over 245,000 acres of working lands within the sentinel landscape.</li> <li>★ NRCS approved a 2016 RCPP project proposal submitted by the Arizona Land and Water Trust committing ACEP funds for conservation easement acquisition and EQIP funds for implementation of conservation practices.</li> </ul>
<p><b>Goal #3</b> Restore critical natural resources and wildlife habitat that will benefit imperiled species and improve the region's water quality</p>	<ul style="list-style-type: none"> <li>★ Sentinel landscape partners installed 29 watering facilities and 30 miles of wildlife friendly fencing through the 2014 Farm Bill.</li> <li>★ Sentinel landscape partners permanently protected 8.7 acres of wetlands, 478 acres of upland, and 1 mile of stream habitat that will directly benefit the Chiricahua leopard frog, Northern Mexican garter snake, Sonoran tiger salamander, Gila topminnow, and Huachuca water umbel.</li> <li>★ USFWS and Arizona Game and Fish are collaborating to monitor grassland species in order to establish metrics for evaluating grassland health.</li> <li>★ Sentinel landscape partners restored 141 acres of grassland and prairie dog habitat within Las Cienegas National Conservation Area.</li> </ul>
<p><b>Goal #4</b> Conserve "forested" lands and lands adjacent to or within Coronado National Forest</p>	<ul style="list-style-type: none"> <li>★ Sentinel landscape partners have treated 300 acres within the Coronado National Forest with mastication and 14,000 acres of forested land with prescribed fire.</li> <li>★ Sentinel landscape partners completed pollinator planning on 326 acres within the watershed surrounding Coronado National Forest and established 1.8 acres of wetlands.</li> </ul>
<p><b>Goal #5</b> Protect water quantity and quality in the Upper San Pedro River watershed by preventing new well drilling and promoting efficient water technologies on agricultural lands</p>	<ul style="list-style-type: none"> <li>★ Funding acquired from the Arizona Military Installation Fund was used to create 4,371 acre-feet of water savings for Fort Huachuca.</li> </ul>



*The Chiricahua leopard frog, a federally listed threatened species.  
(Photo by: Jim Rorabaugh/USFWS Sycamore Canyon, Arizona)*

# MIDDLE CHESAPEAKE SENTINEL LANDSCAPE

Maryland | est. 2015

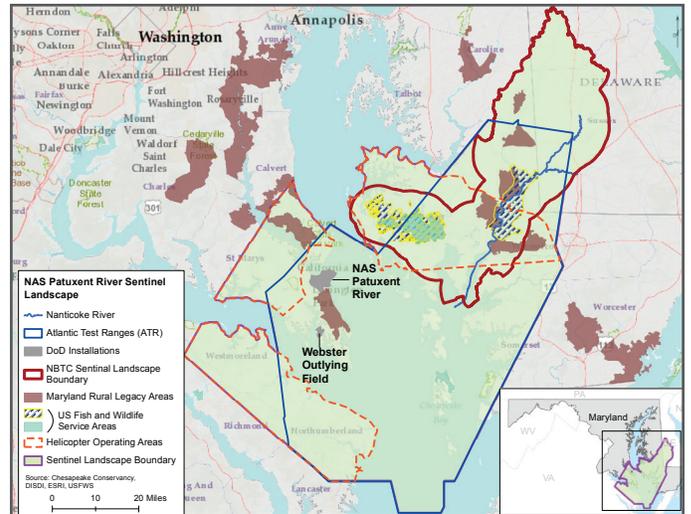


The Chesapeake Bay is one of America’s treasures, beloved for its natural beauty and valued for its economic productivity and ecological vitality. It is also home to one of the Navy’s premier aircraft testing locations. In 2015, a diverse group of stakeholders came together to form the Middle Chesapeake Sentinel Landscape to help protect the military mission, preserve the natural resources, and promote the economic vitality of the area.

This sentinel landscape is considered the most “urban” of the seven designated landscapes. Despite its historic agricultural and fishing traditions, it is less than two hours driving distance from Washington, D.C. and is a coveted location for weekend or summer homes. This dynamic presents a challenge for the partners within the sentinel landscape, whose individual missions can conflict with unfettered development. The primary goal of the Middle Chesapeake Sentinel Landscape is to protect critical land that serves wildlife, agricultural production, and the Navy’s mission.

The Navy conducts over 150,000 annual critical testing and research flights within its 1.5 million-acre special use airspace in the region. This averages out to more than 410 aircraft operations occurring per day out of Naval Air Station (NAS) Patuxent River. While residential and commercial development on land located underneath protected airspace is inherently

**Figure 8:** Middle Chesapeake Sentinel Landscape Boundary



**Table 9:** Middle Chesapeake Sentinel Landscape Footprint Details (acres)

<b>Total Protected Acres:<sup>12</sup></b>	12,686.4
<b>Total Enrolled Acres:<sup>13</sup></b>	130,326.0
<b>Active Base Area:</b>	6,687.9
<b>Total Sentinel Landscape Area:</b>	2,074,006.0

incompatible with NAS Patuxent River’s mission, wildlands and working lands are excellent neighbors for the installation.

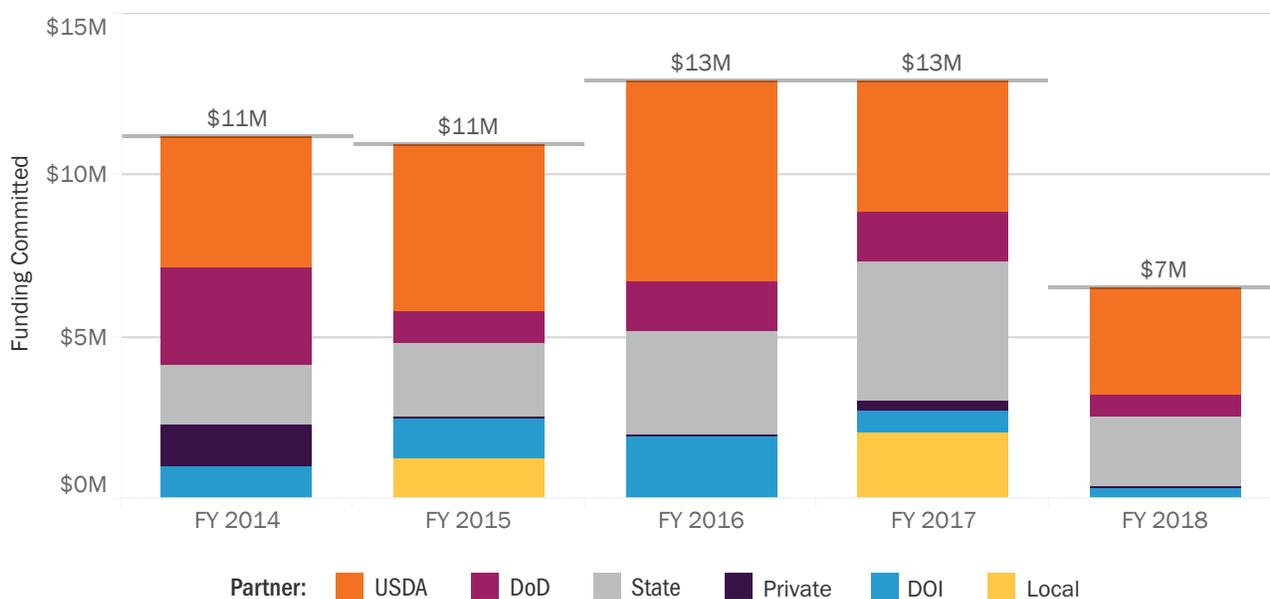
**Table 8:** Middle Chesapeake Sentinel Landscape Total Funding by Partner in Millions

Partner	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
USDA	\$4.0	\$5.1	\$6.2	\$4.1	\$3.4
DoD	\$3.0	\$1.0	\$1.5	\$1.5	\$0.7
State	\$1.9	\$2.3	\$3.2	\$4.3	\$2.2
Private	\$1.2	\$0.0	\$0.0	\$0.3	\$0.0
DOI	\$1.0	\$1.3	\$1.9	\$0.7	\$0.4
Local	\$0.0	\$1.3	\$0.0	\$2.0	\$0.0

<sup>12</sup> Represents total acres protected through projects administered by sentinel landscape partners since FY 2014.

<sup>13</sup> Represents total acres enrolled in state and federal conservation programs since FY 2014.

**Figure 9:** Middle Chesapeake Sentinel Landscape Total Funding by Partner



Through the sentinel landscape framework, NRCS, USFWS, and Delaware’s Agricultural Land Preservation Foundation have protected 5,336 acres of working lands within the landscape’s footprint, including 1,592 acres that partners recognized as having a high development potential.

The Middle Chesapeake Sentinel Landscape also encompasses the Nanticoke River, a historically significant waterway that extends 65 miles. The natural amenities that surround the river form the Nanticoke River Conservation Corridor, an 8,500-acre tract that lies beneath the Navy’s Atlantic Test Range airspace. Through an extended series of public-private partnerships, the Navy, Maryland Department of Natural Resources and Department of Agriculture, St. Mary’s County, and several private organizations have conserved 7,356 acres of land within the Nanticoke River Conservation Corridor, including 1,710 acres of imperiled species habitat and 293 acres of grassland habitat. By protecting large swaths of land with prime agricultural soil and forest cover, these partnerships have enhanced an ecosystem that supports over 120 rare, threatened, and endangered species and improved the region’s water quality. Furthermore, projects within the Nanticoke River Conservation Corridor have strengthened military readiness by reducing noise and safety concerns for the Navy’s premier Research, Development, Test, and Evaluation facility.

Adjacent to the Nanticoke River lies the Blackwater National Wildlife Refuge, a 28,000-acre unit of the Chesapeake Marshlands National Wildlife Refuge Complex, which constitutes



*Blackwater National Wildlife Refuge was established in 1933 as a waterfowl sanctuary for birds migrating along the Atlantic Flyway. (Photo provided by: U.S. Fish and Wildlife Service)*

the nation’s largest estuary. Building on the success of the Nanticoke River Conservation Corridor, in 2018, the USFWS collaborated with the Chesapeake Conservancy and the Land and Water Conservation Fund to permanently protect 155 acres as part of the Blackwater National Wildlife Refuge. The protected land will deter development within critical wetlands and improve the pristine character of the Nanticoke River watershed.

**Table 10:** Middle Chesapeake Sentinel Landscape Goals and Progress

Goal	Progress
<p><b>Goal #1</b> Protect more than 150,000 annual aviation Research, Development, Test, and Evaluation operations from NAS Patuxent River by ensuring continued use of 1,505,687 acres of Special Use Airspace and 743,194 acres of Helicopter Operating Areas.</p>	<p>Sentinel landscape partners have permanently protected 6,811 acres using funding acquired through the DoD REPI Program that will protect the Navy’s Special Use Airspace within the sentinel landscape.</p>
<p><b>Goal #2</b> Prevent the conversion of working lands to non-agricultural uses and improve water quality, supporting local fisheries by preserving working lands in perpetuity and providing technical assistance to farmers. Create connected corridors of working lands with prime agricultural soil and existing forest cover.</p>	<ul style="list-style-type: none"> <li>★ Sentinel Landscape partners have permanently protected 5,336 acres of working land, including 1,592 acres with a high probability of development.</li> <li>★ NRCS has administered conservation measures on an additional 130,326 acres of working lands within the sentinel landscape.</li> </ul>
<p><b>Goal #3</b> Conserve and protect land in the Chesapeake Bay watershed (in accordance with EO 13508), including the pristine character of the Nanticoke River and St. Mary’s River watersheds. Improve habitat and increase natural defenses against the effects of sea-level rise.</p>	<p>Sentinel landscape partners have conserved 7,356.99 acres of wildlife habitat in the Nanticoke River Conservation Corridor, including 1,710 acres of imperiled species habitat and 293 acres of grassland.</p>



*Wetland area in the Chesapeake Bay. On May 12, 2009, President Barack Obama signed Executive Order 13508, which recognizes the Chesapeake Bay as a national treasure and calls on the federal government to restore and protect the nation’s largest estuary and its watershed. EO 13508 established a Federal Leadership Committee to oversee the development and coordination of programs and activities to protect and restore the bay. It also set goals for water quality, protection, storm water management, climate change, public access, scientific support, and habitat research. The committee is chaired by the Administrator of the Environmental Protection Agency and includes senior representatives from the departments of Agriculture, Commerce, Defense, Homeland Security, Interior, Transportation and others. (Photo by: Eric Vance)*

# AVON PARK AIR FORCE RANGE SENTINEL LANDSCAPE

Florida | est. 2016

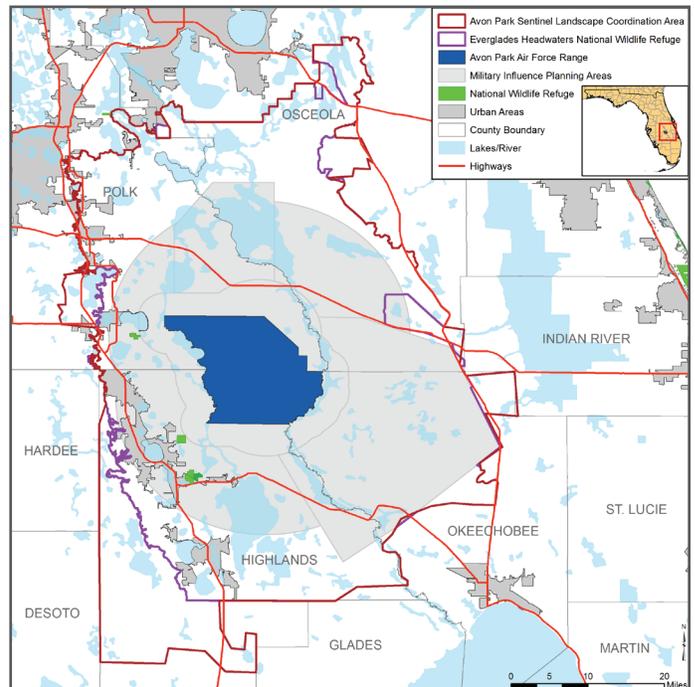


The APAFR Sentinel Landscape encompasses nearly 1.5 million acres of land in south central Florida and is anchored by the Air Force’s largest primary air-to-ground training range east of the Mississippi River. The installation’s restricted airspace and operating area, including a 106,000-acre bombing and gunnery range, provide training infrastructure that is used by the U.S. Air Force, Army, Navy, Marine Corps, and state and local law enforcement.

Designated in 2016, the APAFR Sentinel Landscape has quickly become an example of how Sentinel Landscapes can enhance coordination between federal agencies. In 2018, partners created the first joint REPI-NRCS easement by merging Air Force easement language with NRCS Agricultural Conservation Easement Program’s requirements. Under the easement, DoD matched \$1.6 million in REPI funds with \$740,000 in NRCS Regional Conservation Partnership Program (RCPP) funds to acquire 1,600 acres of ranch lands within Avon Park’s highest-priority Military Influence Planning Area. This groundbreaking project eliminated redundancies in government spending, strengthened the installation’s air mission, and protected central Florida’s water resources.

Outside of the APAFR is the Everglades Headwaters National Wildlife Refuge and Conservation Area. The Refuge is a high priority area for the DOI and is known as an excellent destination for hunting, fishing, camping, hiking, birding, and

**Figure 10:** APAFR Sentinel Landscape Boundary



**Table 12:** APAFR Sentinel Landscape Footprint Details (acres)

<b>Total Protected Acres:<sup>14</sup></b>	32,259.8
<b>Total Enrolled Acres:<sup>15</sup></b>	156,542.6
<b>Active Base Area:</b>	108,213.6
<b>Total Sentinel Landscape Area:</b>	1,443,560.0

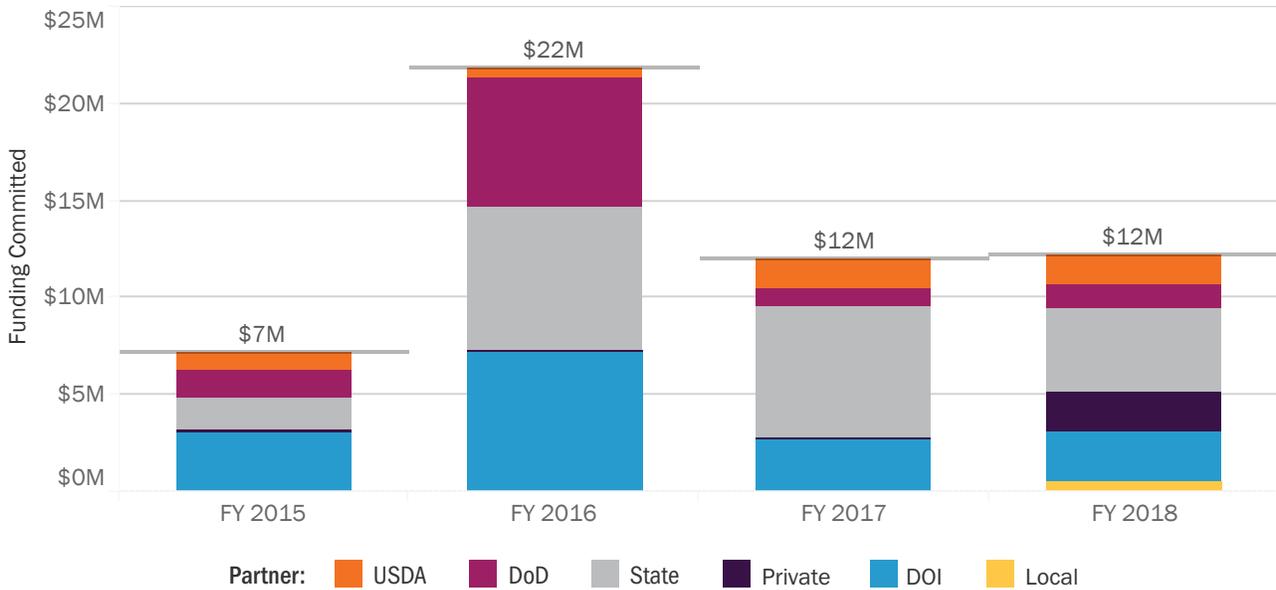
**Table 11:** APAFR Sentinel Landscape Total Funding by Partner in Millions

Partner	FY 2015	FY 2016	FY 2017	FY 2018
USDA	\$0.9	\$0.6	\$1.5	\$1.6
DoD	\$1.5	\$6.6	\$1.0	\$1.2
State	\$1.6	\$7.4	\$6.7	\$4.3
Private	\$0.0	\$0.1	\$0.1	\$2.0
DOI	\$3.1	\$7.2	\$2.7	\$2.6
Local	\$0.0	\$0.0	\$0.0	\$0.5

<sup>14</sup> Represents total acres protected through projects administered by sentinel landscape partners since FY 2015.

<sup>15</sup> Represents total acres enrolled in state and federal conservation programs since FY 2015.

**Figure 11:** APAFR Sentinel Landscape Total Funding by Partner



*The Everglades “After the Storm” (Photo by: Brian Call, NPS)*

outdoor educational opportunities. The sentinel landscape partners are committed to supporting the Everglades by improving the water quality, quantity, and storage capacity in the upper Everglades watershed. In pursuit of this objective, partners have enrolled 8,700 acres within the sentinel landscape in NRCS’ Wetland Reserve Program and Wetlands Reserve Easements and 1,064 acres in South Florida Water Management District’s Dispersed Water Management Program.

Private agricultural lands are interspersed among the Sentinel Landscape’s military and refuge lands. To date, the Florida Forest Service’s Rural and Family Lands Protection Program has conserved over 22,000 acres of working lands within the landscape’s footprint. In an effort to protect more of these

properties and keep them compatible with the military’s training mission, NRCS’s State Technical Committee has opted to give parcels within the APAFR Sentinel Landscape priority consideration in its Agricultural Land Easement Program. In effect, this decision will lead NRCS to increase its existing 15,200 acres in easements within the sentinel landscape.

**Table 13:** APAFR Sentinel Landscape Goals and Progress

Goal	Progress
<p><b>Goal #1</b> Increase opportunities for hunting, fishing, wildlife observation, wildlife photography, and other passive recreation activities within the sentinel landscape</p>	<ul style="list-style-type: none"> <li>★ USFWS collaborated with the Florida Fish and Wildlife Conservation Commission to establish the 1460-acre Hatchineha Unit of the Everglades Headwaters Wildlife Management Area for the 2018-19 hunting season.</li> <li>★ Sentinel landscape partners Florida Department of Environmental Protect and USFWS acquired 4,000 acres of land and are currently working with the Florida Fish and Wildlife Conservation Commission to offer hunting opportunities for the public on the properties.</li> </ul>
<p><b>Goal #2</b> Improve the water quality, water quantity, and water storage capacity of the upper Everglades watershed</p>	<ul style="list-style-type: none"> <li>★ 8,700 acres within the Sentinel Landscape and Northern Everglades Watershed that are in the MIPA-Military Influence Planning Area are enrolled in the NRCS' Wetland Reserve Program and Wetlands Reserve Easements.</li> <li>★ 1,064 acres of permanently protected land are enrolled in the South Florida Water Management District's Dispersed Water Management Program.</li> </ul>
<p><b>Goal #3</b> Increase the vitality of agricultural activities by reducing the pressure of land use conversion on working landowners</p>	<ul style="list-style-type: none"> <li>★ Florida's Forest Services' Rural and Family Lands Protection Program has permanently protected 22,549 acres of working lands within the sentinel landscape (18,900 of which are in the MIPA-Military Influence Planning Area) through conservation easements.</li> </ul>
<p><b>Goal #4</b> Prevent or avoid incompatible land uses near APAFR through innovation and partnerships. Protect annual dispatch of over 14,000 sorties and over 200 ground training events</p>	<p>Sentinel landscape partners coordinated with the Polk County Property Appraiser to publish a disclaimer on Polk County's website that outlined the risks posed by low level aircraft and training noise on properties within a three mile radius of the APAFR.</p>



Staff Sgt. Cody McNorton and Senior Airman Joseph Flynn call in information during exercise Atlantic Strike at Avon Park Air Force Range, Fla. Atlantic Strike is a coalition air-to-ground training exercise that simulates a deployed environment. Sergeant McNorton and Airman Flynn are members of the 14th Air Support Operations Squadron. (Photo by: U.S. Air Force, Senior Airman Amber Williams)

# CAMP RIPLEY SENTINEL LANDSCAPE

Minnesota | est. 2016



Located along the northern stretch of the Mississippi River, Camp Ripley is the primary National Guard Training Center for units from Minnesota, North Dakota, South Dakota, Wisconsin, Iowa, Ohio, and Illinois. The installation is surrounded by agricultural and recreational lands that protect the quality of water entering the Mississippi River and enable the base to conduct winter training activities with limited restrictions.

Despite enjoying a history of solitude, mounting development pressure from urban sprawl and population growth threatens to undermine Camp Ripley's mission. To prevent that, in 2014 the Minnesota State Legislature forged a coalition of conservationists, community leaders, military personnel, and business owners to promote land management practices that are compatible with the installation's training activities. One year later, the USDA, DoD, and DOI followed suit and officially designated the Camp Ripley Sentinel Landscape.

Since its inception, the Camp Ripley Sentinel Landscape has engrained itself in the fabric of its community by encouraging partnerships among personnel from the installation, NRCS, local businesses, the public school system, and individual citizens. In October 2018, Minnesota Power, a regional utility company and ardent supporter of veteran's issues, dedicated land as the first Veteran Memorial Yellow Ribbon Forest. Located within the landscape's footprint, the protected forest increases public access to recreational activities and provides

Figure 12: Camp Ripley Sentinel Landscape Boundary

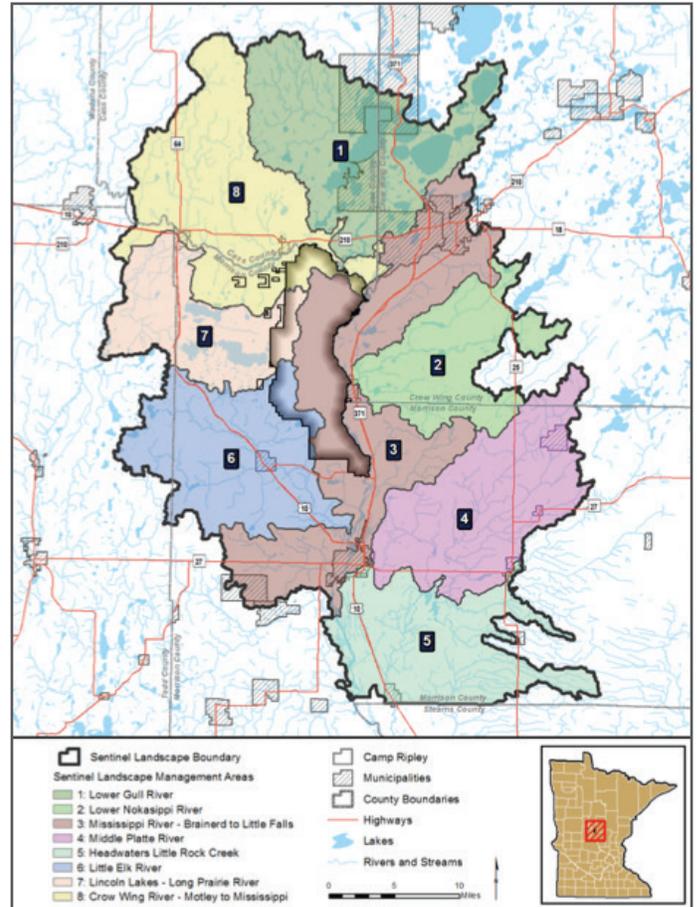


Table 14: Camp Ripley Sentinel Landscape Total Funding by Partner in Millions

Partner	FY 2015	FY 2016	FY 2017	FY 2018
USDA	\$0.8	\$0.8	\$0.5	\$1.2
DoD	\$2.8	\$3.6	\$8.9	\$4.1
State	\$6.4	\$8.3	\$3.7	\$6.9

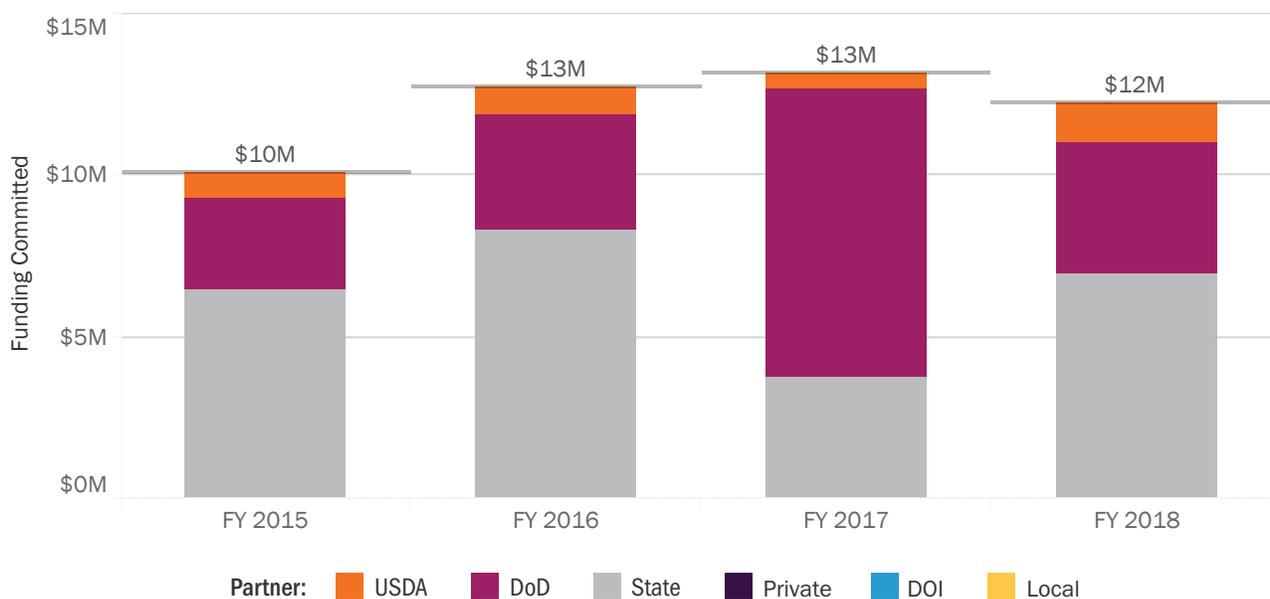
Table 15: Camp Ripley Sentinel Landscape Footprint Details (acres)

Total Protected Acres: <sup>16</sup>	8,556.0
Total Enrolled Acres: <sup>17</sup>	156,542.6
Active Base Area:	52,758.3
Total Sentinel Landscape Area:	719,829.0

<sup>16</sup> Represents total acres protected through projects administered by sentinel landscape partners since FY 2015.

<sup>17</sup> Represents total acres enrolled in state and federal conservation programs since FY 2015.

**Figure 13:** Camp Ripley Sentinel Landscape Total Funding by Partner



citizens with the opportunity to reflect on the service and sacrifice of veterans. Additionally, in 2018, Camp Ripley and Minnesota Power partnered with a local brewery to host several events that raised funds for reforestation efforts on and around the base. The Minnesota business community’s enthusiasm for the partnership and willingness to facilitate conservation projects demonstrates that there are significant economic benefits associated with operating in an intact ecosystem.

In addition to harnessing the support of local industry, Camp Ripley Sentinel Landscape partners have also built a strong relationship with the Brainerd Public School System. Leveraging funding from the DoD REPI Program, Camp Ripley and the City of Baxter are in the process of acquiring a large property along the Mississippi River that provides a local middle school with access to an ‘outdoor classroom’. The project grants children the opportunity to explore nature, while also preventing large-scale residential development adjacent to the installation.

The Camp Ripley Sentinel Landscape encompasses 40 minor watersheds, 50 miles of the Mississippi River, 49,000 acres of water bodies, the 2,000-acre Crane Meadows National Wildlife Refuge, and 42,000 acres of public land. Over one million people reside between Camp Ripley and Minneapolis, a vast majority of which rely on the Mississippi River for drinking water. This makes the sentinel landscape one of Minnesota’s most important drinking water source protection areas. As a result, local communities are deeply committed to projects that enhance the quality of the region’s water resources. In



*U.S. Army officer candidates, from the Minnesota National Guard Officer Candidate School, conduct a 10-mile ruck march at Camp Ripley, Minnesota. (Photo by: U.S. Army. Staff Sgt. Anthony Housey)*

2017, NRCS RCPP granted a network of 11 partners within the sentinel landscape—led by the Morrison Soil and Water Conservation District—\$2.8 million in Healthy Forest Reserve Program funds to execute conservation easements that will promote clean water, prevent erosion, and enhance wildlife habitat. These projects will build upon the existing 39,000 acres of working lands that landowners have voluntarily enrolled in conservation programs through NRCS.

**Table 16:** Camp Ripley Sentinel Landscape Goals and Progress

Goal	Progress
<p><b>Goal #1</b> Protect 78,000 acres within Camp Ripley's Army Compatible Use Buffer program boundary from incompatible development</p>	<p>Sentinel landscape partners have permanently protected 30,000 acres using funding acquired through the DoD REPI Program that will protect Camp Ripley's training mission.</p>
<p><b>Goal #2</b> Work with private citizens, local businesses, and conservation organizations to protect, restore and improve forest and water resources in the sentinel landscape</p>	<ul style="list-style-type: none"> <li>★ Partners hosted several events in 2018 to raise awareness on the scope and mission of the Camp Ripley Sentinel Landscape.</li> <li>★ In October of 2018, local breweries sponsored an event to raise funds and promote reforestation efforts within the landscape.</li> </ul>
<p><b>Goal #3</b> Restore, manage and protect the viability of historic agricultural and forest lands within the Camp Ripley Sentinel Landscape</p>	<ul style="list-style-type: none"> <li>★ NRCS RCPP awarded the sentinel landscape \$2.8 million in 2017 to execute conservation easements on working lands within the landscape.</li> <li>★ NRCS has administered conservation measures on over 39,000 acres of working lands within the sentinel landscape to date.</li> </ul>
<p><b>Goal #4</b> Institutionalize the sentinel landscape's mission to leverage additional resources for projects within its geographic footprint</p>	<p>In 2015, the Minnesota legislature passed M.S. 190.33, which convened four state agencies, the Minnesota Department of Natural Resources, the Board of Water and Soil Resources, the Department of Military Affairs, and the Department of Agriculture, to develop a suite of tools that can provide technical and financial assistance to landowners within Camp Ripley Sentinel Landscape.</p>

# EASTERN NORTH CAROLINA SENTINEL LANDSCAPE

est. 2016

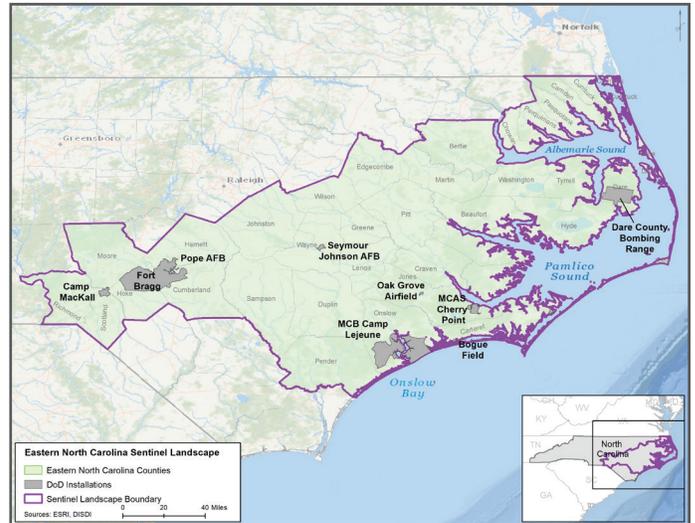


The Eastern North Carolina Sentinel Landscape is home to five key military installations and ranges: Fort Bragg, Dare County Bombing Range, Marine Corps Base Camp Lejeune, Marine Corps Air Stations (MCAS) Cherry Point and New River, and Seymour Johnson Air Force Base (AFB). Behind agriculture, military-related activity is the second largest economic driver in the state. Following the creation of the Onslow Bight Conservation Forum in 2003, North Carolinians from defense, agricultural, and conservation communities have carried out collaborative, locally grounded projects that promote sustainable land management. Therefore, to many, the 2016 Eastern North Carolina Sentinel Landscape designation, which encompasses nearly 11 million acres across a 33-county region, was a natural progression in what has been a fruitful and positive history of cooperation.

The Eastern North Carolina Sentinel Landscape partners work to address priority encroachment concerns identified by the military, including restrictions related to species conservation. In 2015, the U.S. Navy and Marine Corps partnered with USFWS, the National Fish and Wildlife Foundation (NFWF), and the North Carolina Wildlife Resources Commission to establish the Red-Cockaded Woodpecker (RCW) Recovery and Sustainment Program Partnership (RASP). RASP seeks to enhance training flexibility and capacity at Camp Lejeune by conserving RCW habitats in the coastal region of North Carolina.

The objective of the partnership is to help Camp Lejeune reach and maintain its recovery goal of 173 RCW clusters. In 1996, Camp Lejeune supported 43 RCW clusters on base; today, due to partnership efforts, over 130 RCW clusters thrive with fewer restrictions on routine infantry training. Moving forward in support of critical range development requirements, RASP will target its resources towards preserving 60 RCW clusters across two protected properties that lie adjacent to the installation,

**Figure 14:** Eastern North Carolina Sentinel Landscape Boundary



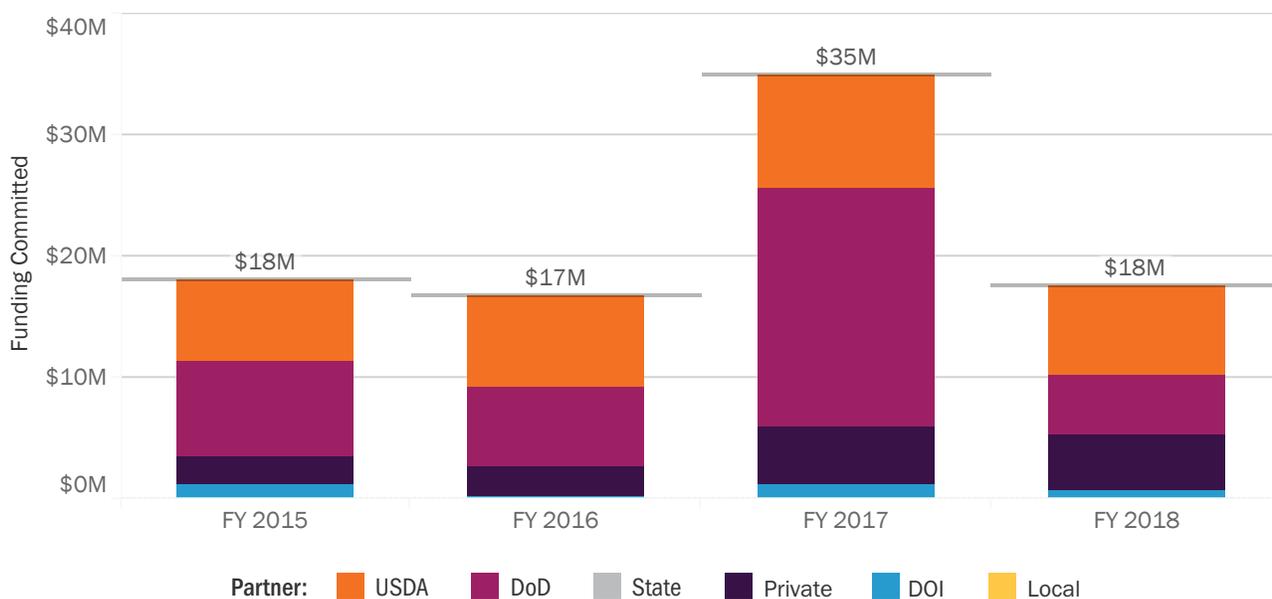
**Table 17:** Eastern North Carolina Sentinel Landscape Footprint Details (acres)

<b>Total Protected Acres:<sup>18</sup></b>	49,400.2	
<b>Total Enrolled Acres:<sup>19</sup></b>	757,786.5	
<b>Active Base Area:</b>	MCAS Cherry Point	10,266.3
	MCB Camp Lejeune	54,964.2
	Dare County Range	46,625.2
	Seymour Johnson AFB	3,220.3
	Fort Bragg	152,837.4
	<b>Total</b>	<b>267,913.2</b>
<b>Total Sentinel Landscape Area:</b>	<b>10,990,233.0</b>	

<sup>18</sup> Represents total acres protected by projects administered by sentinel landscape partners since FY 2015.

<sup>19</sup> Represents total acres enrolled in state and federal conservation programs since FY 2015.

**Figure 15:** Eastern North Carolina Sentinel Landscape Total Funding by Partner



**Table 18:** Eastern North Carolina Sentinel Landscape Total Funding by Partner in Millions

Partner	FY 2015	FY 2016	FY 2017	FY 2018
USDA	\$6.7	\$7.6	\$9.3	\$7.4
DoD	\$7.9	\$6.6	\$19.6	\$4.9
Private	\$2.4	\$2.5	\$4.8	\$4.7
DOI	\$1.1	\$0.1	\$1.1	\$0.6

the 13,000-acre Bear Garden tract and the 3,000-acre Stones Creek Game land. The 60 clusters will count towards Camp Lejeune’s ESA requirement, thereby alleviating training restrictions that Marine Corps Installations East currently shoulders. RASP is emblematic of the Sentinel Landscapes Partnership’s mission as it expands the landscape that is devoted to endangered species recovery while simultaneously strengthening the military’s mission.

Protecting working lands that support agriculture and agribusiness is also a top priority for the Eastern North Carolina Sentinel Landscape partners, as these industries contribute approximately \$87 billion annually to the state’s economy. In 2018, NRCS’s Regional Conservation Partnership Program (RCPP) awarded \$7 million in federal Agricultural Conservation Easement funding to help stand up the North Carolina Sentinel Landscapes High Priority Protect Program, a partnership between the Army, Air Force, Marine Corps, and the North Carolina Department of Agriculture and Consumer Services, and other sentinel landscape partners. Through this program, agricultural, conservation, and defense stakeholders

work with willing landowners to place easements on properties that defense communities have identified as high priority for protection.

In addition to protecting land through conservation easements, Eastern North Carolina Sentinel Landscape partners are pursuing opportunities to acknowledge private landowners for their stewardship practices. In 2018, the North Carolina Forest Service collaborated with several other sentinel landscape partners to develop a landowner recognition and appreciation letter that will be distributed to individuals who have demonstrated a commitment to sustainably managing their working lands. By voluntarily implementing practices related to prescribed fire, wildlife restoration, and recreational management, these landowners have directly contributed to the Sentinel Landscapes Partnership’s mission.

**Table 19:** Eastern North Carolina Sentinel Landscape Goals and Progress

Goal	Progress
<p><b>Goal #1</b> Restore habitat for the endangered RCW around Camp Lejeune and thereby alleviate environmental training restrictions on the installation</p>	<ul style="list-style-type: none"> <li>★ The RASP partnership is helping Camp Lejeune meet its ESA-mandated recovery goal of 173 RCW clusters on base. In 2011, Camp Lejeune supported 100 RCW clusters; as of 2018, the installation supports 131 clusters.</li> <li>★ The RASP partnership is expanding recovery efforts off base through the restoration of 60 RCW clusters across two protected properties adjacent to the installation. These efforts will count towards Camp Lejeune's ESA-requirement, thereby alleviating training restrictions.</li> </ul>
<p><b>Goal #2</b> Streamline the process to acquire a conservation easement for government agencies, private organizations, and willing landowners</p>	<ul style="list-style-type: none"> <li>★ The Agricultural Development and Farmland Preservation Program Trust Fund collaborated with defense partners to develop a single easement template for the Eastern North Carolina Sentinel Landscape that can streamline resources from multiple sentinel landscape partners.</li> <li>★ The partners designed the template to reduce the anticipated easement acquisition timeline from 3-4 years to 1-2 years by having legal and logistical negotiations pre-approved by all potential funding resources.</li> </ul>
<p><b>Goal #3</b> : Improve the vitality of private working lands around the sentinel landscape's military installations and ranges</p>	<p>NRCS has administered conservation measures on over 178,000 acres of working lands throughout the sentinel landscape.</p>
<p><b>Goal #4</b> Communicate the value of Sentinel Landscapes to the publics of North Carolina and beyond</p>	<ul style="list-style-type: none"> <li>★ The <b>COLLEGE OF NATURAL RESOURCES AT NORTH CAROLINA STATE UNIVERSITY</b> collaborated with sentinel landscape partners to produce and disseminate two publications that demonstrate the value of landscape-scale conservation. The publications are: the <b>LANDOWNER GUIDE FOR WORKING LANDS CONSERVATION</b> and <b>ESTABLISHING A PARTNERSHIP FOR SENTINEL LANDSCAPES: THE NORTH CAROLINA EXPERIENCE</b>.</li> <li>★ Sentinel Landscape partners conducted educational workshops about working land conservation with private landowners and piloted a Working Lands Outreach Program in five counties near MCIEAST.</li> </ul>
<p><b>Goal #5</b> Develop a conservation footprint in North Carolina that identifies lands that support wildlife, conservation, and military compatibility in the sentinel landscape</p>	<p>Sentinel landscape partners are working with the Southeast Regional Partnership for Planning and Sustainability to develop a geospatial map that identifies overlapping interests between the military, conservation, and working lands in the Southeast region. The map will provide a visual model that enables the sentinel landscape partners to prioritize resources in the region.</p>



*This endangered red-cockaded woodpecker is feeding young at the nest, in a cavity of a longleaf pine. Active management and restoration of longleaf forests can help recover this species. (Photo by: John Maxwell, USFWS)*



*A route-reconnaissance team of cavalry scouts with the 82nd Airborne Division's 1st Brigade Combat Team reacts to machine-gun fire during field training at Fort Bragg, N.C. (Photo by: U.S. Army, Sgt. Michael J. MacLeod)*

# GEORGIA SENTINEL LANDSCAPE

est. 2018



The newly designated sentinel landscape encompasses a network of nine key military installations and ranges, including Fort Benning, Fort Stewart, Townsend Bombing Range, Fort Gordon, Robins AFB, Naval Submarine Base (NSB) Kings Bay, Hunter Army Airfield, Moody AFB, and Marine Corps Logistics Base Albany. Together, these defense facilities provide heavy armor maneuver areas, unimpeded air-to-ground ranges, live-fire training facilities, and low-level flight routes to service men and women. The military accounts for a significant portion of the state's economic activity, with annual defense spending totaling roughly \$13.7 billion in FY 2017.

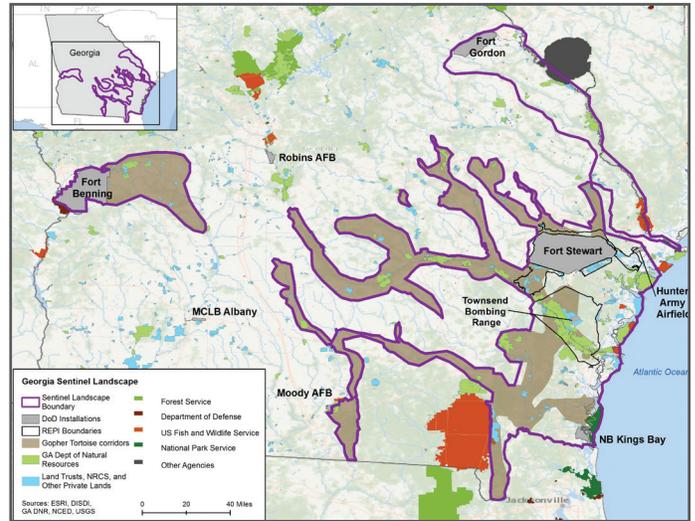
The Georgia Sentinel Landscape also supports a high concentration of prime timber and agricultural working lands. Interspersed amongst them are longleaf pine forests, an exceptionally diverse ecosystem that provides habitat to a suite of 29 imperiled species. Despite once extending across the Southeast, only three percent of the original 90 million acres of longleaf pine remain today.

**Table 20:** Georgia Sentinel Landscape Total Funding by Partner in Millions

Partner	FY 2017	FY 2018
USDA	\$10.4	\$12.5
DoD	\$3.5	\$10.1
State	\$15.8	\$3.4
Private	\$7.6	\$24.0
DOI	\$0.0	\$0.1

The degradation of the longleaf pine threatens the gopher tortoise, an imperiled species whose burrows provide habitat for an additional 360 species. The Georgia Department of Natural Resources recognized that listing the gopher tortoise under the ESA would impose economic challenges on the state

**Figure 16:** Georgia Sentinel Landscape Boundary



**Table 21:** Georgia Sentinel Landscape Footprint Details (acres)

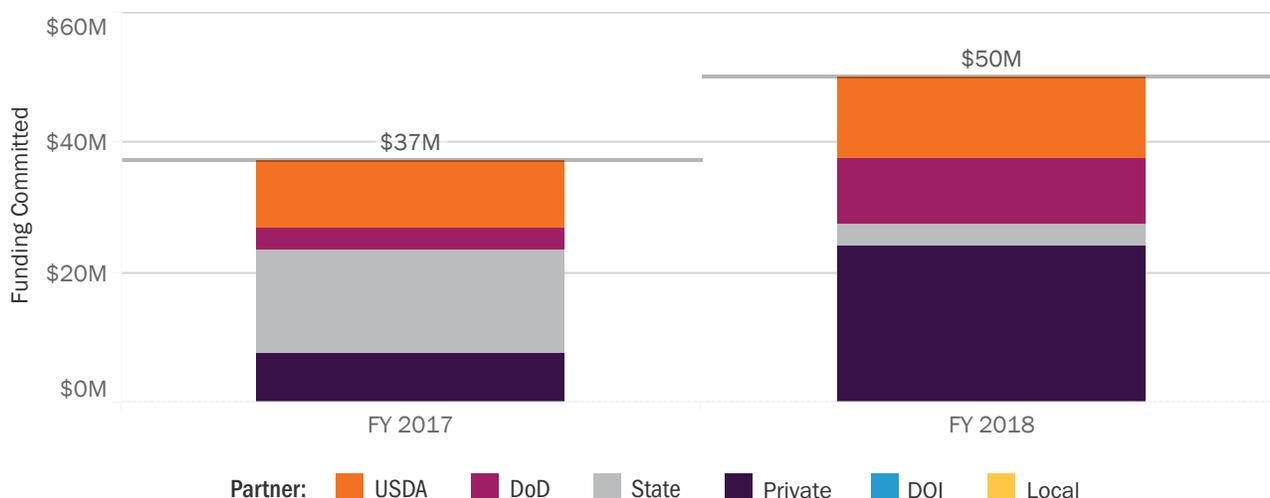
<b>Total Protected Acres:</b> <sup>20</sup>	79,566.2	
<b>Total Enrolled Acres:</b> <sup>21</sup>	171,794.4	
<b>Active Base Area:</b>	Robins AFB	6,730.4
	Fort Benning	169,943.3
	Fort Stewart	279,671.9
	Townsend Bombing Range	33,834.0
	NSB Kings Bay	17,566.9
	<b>Total</b>	<b>615,290.5</b>
<b>Total Sentinel Landscape Area:</b>	<b>6,318,263.0</b>	

and constrain the military's ability to conduct critical training and testing activities. In response, the agency partnered with the DoD, NRCS, USFWS, other state agencies, and multiple NGOs to develop the Gopher Tortoise Initiative in 2015. The

<sup>20</sup> Represents total acres protected through projects administered by sentinel landscape partners since FY 2017.

<sup>21</sup> Represents total acres enrolled in state and federal conservation programs since FY 2017.

**Figure 17:** Georgia Sentinel Landscape Total Funding by Partner



A baby gopher tortoise walks through grasses found in the longleaf ecosystem. (Photo by: Randy Browning, USFWS)

goal of the initiative is to protect 65 of the 122 viable gopher tortoise populations on 100,000 acres throughout the state. To date, the partners have permanently protected 49 viable populations, two of which occurred since the sentinel landscape’s designation.

The Gopher Tortoise Initiative complements a similar project that operates within the Georgia Sentinel Landscape’s geographic footprint, the DoD Gopher Tortoise Conservation Crediting Strategy. Under the Strategy, the DoD voluntarily preserves off-base gopher tortoise habitat to generate ‘conservation credits’ that it can use to compensate for impacts

to the longleaf pine ecosystem and other critical gopher tortoise habitat on military installations if the species were to be listed under the ESA<sup>22</sup>. The strategy is predicated on the belief that proactive conservation is a cost-effective, long-term solution to the military’s habitat-related training challenges. The Army’s decision to pursue credits for the gopher tortoise at Fort Benning will ensure that the installation has the regulatory predictability it needs to carry out its national defense mission for the foreseeable future.

In addition to restoring gopher tortoise populations, the Georgia Sentinel Landscape partners are also actively working to implement prescribed fire on private properties. Fire is an important agent of renewal in longleaf pine forests, and when introduced effectively it can reduce the risk of catastrophic wildfires, protect air quality, and improve species’ habitats. To increase awareness and implementation of prescribed fire, the Georgia Sentinel Landscape partners established the Chattahoochee Fall Line Prescribed Fire Cooperative, which leverages funding from The Nature Conservancy, USFWS, NRCS, NFWF, and local utility companies to increase prescribed fire on properties surrounding Fort Benning. Since its inception, the cooperative has served over 500 private landowners. And in 2018 alone, the cooperative conducted 52 prescribed burns on 5,400 acres and provided prescribed fire training for 100 members of the public.

<sup>22</sup> The credits apply if the gopher tortoise were to be listed under the ESA in its eastern range. USFWS has already listed the gopher tortoise under the ESA in parts of Louisiana, Mississippi, and Alabama.

**Table 22:** Georgia Sentinel Landscape’s Goals and Progress

Goal	Progress
<b>Goal #1</b> Protect at least 65 viable gopher tortoise populations and thereby alleviate environmental training restrictions on military installations and ranges	Through efforts undertaken by two innovative partnerships—the Gopher Tortoise Initiative and the Gopher Tortoise Crediting Strategy—sentinel landscape partners have protected 49 gopher tortoise populations to date.
<b>Goal #2</b> Protect critical testing and training activities at Fort Benning, Fort Stewart, Townsend Bombing Range, Fort Gordon, Robins AFB, and NSB Kings Bay	Sentinel landscape partners have used funding acquired through the DoD REPI Program to permanently protect 26,216 acres around the six installations.
<b>Goal #3</b> Protect water quality in the Savannah River	<ul style="list-style-type: none"> <li>★ The Savannah River Clean Water Fund is using a tool called the Watershed Management Priority Index to detail land cover, soil, and elevation of the river. This tool will enable sentinel landscape partners to identify the areas of the river that require water quality maintenance.</li> <li>★ Landowner outreach to encourage sound stewardship in these priority areas is ongoing.</li> </ul>
<b>Goal #4</b> Improve the health of local ecosystems by increasing the amount of prescribed fire in the region	<ul style="list-style-type: none"> <li>★ Sentinel landscape partners established an interagency burn team that conducted prescribed burns on private lands surrounding Fort Benning.</li> <li>★ The burn team has conducted 52 prescribed burns on 5,400 acres to date. The burn team has also hosted prescribed fire training events for nearly 100 citizens.</li> </ul>



*The distance between individual longleaf pines in the forest allows the sun to nourish a biologically rich understory. Research indicates longleaf pine trees are the southern pine best suited for a changing climate with more intense storms, longer droughts, and increased risk of beetle infestation. (Photo by: Randy Browning, USFWS)*

# PARTNERSHIP OUTLOOK



## SENTINEL LANDSCAPE APPLICATION PROCESS

The Sentinel Landscapes Federal Coordinating Committee (FCC) has created an application process for future sentinel landscape designations that is open to all eligible entities interested in advancing mutually beneficial working lands, natural resources, and military mission protection goals. The sentinel landscape application process is only open during periods selected by the FCC and will occur on a biennial basis. The FCC will officially announce future application windows prior to their start-dates. In the past, application windows have lasted approximately 3–4 months.

To be considered for designation, potential sentinel landscapes must possess all three of the following components: (1) an anchor military installation whose mission benefits from compatible land uses outside of the installation's boundaries, (2) A defined boundary associated with the anchor installation where federal, state, local and private organizations will work together and coordinate programs and efforts to support voluntary conservation and landowner's involvement, and (3) specific goals to achieve a desired end state that conserves working and natural lands and sustains compatible land uses for military operations within the defined boundary.

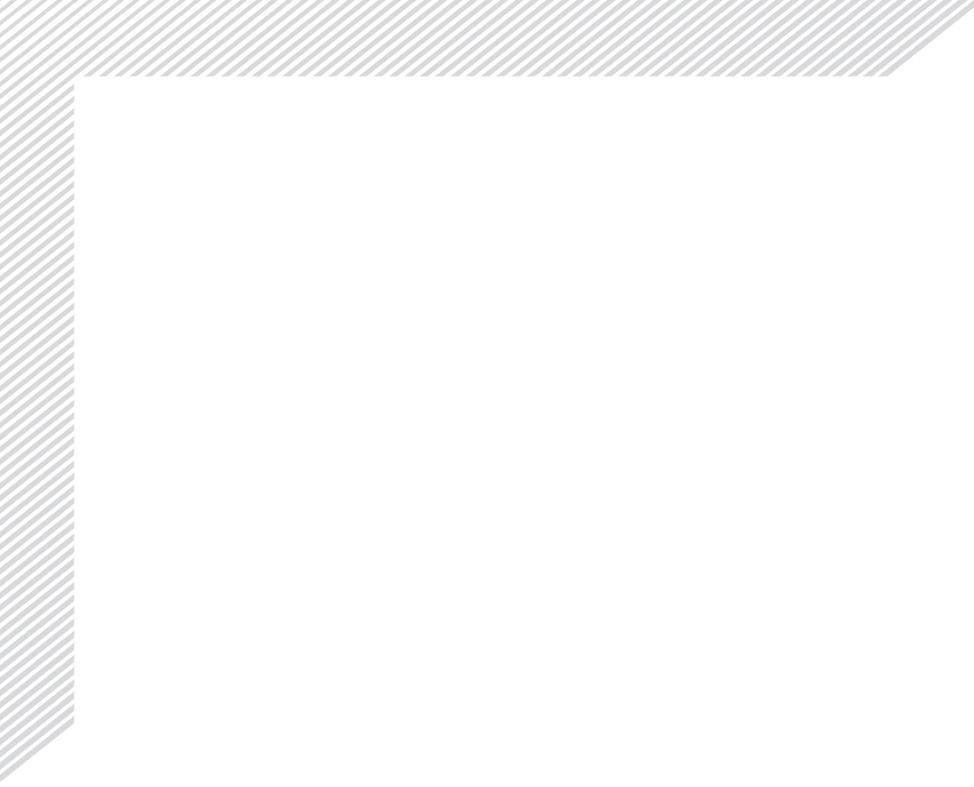
Any entity whose mission aligns with or otherwise supports the goals of the Sentinel Landscapes Partnership is eligible to submit an application. Examples of eligible entities include but are not limited to: state and local governments; federally-recognized American Indian tribes; for-profit and not-for-profit organizations or associations with conservation agricultural, or silvicultural missions; municipal water treatment entities; water irrigation districts; and soil conservation districts. Eligible partners are not limited to the list of eligible applicants. All partners named in the submitted application are required to submit a signed letter of commitment to verify engagement.

Interested parties are encouraged to begin coordinating locally and download the application, available at [HTTPS://SENTINELLANDSCAPES.ORG/](https://sentinellandscapes.org/). Any questions about the

application process, or sentinel landscapes in general, can be directed to the FCC through the website.

## STRATEGIC PRIORITIES

Moving forward, the FCC will continue to work with its local partners to advance the Partnership's core mission of bolstering agricultural productivity, preserving critical natural resources, and strengthening military readiness through landscape-scale conservation. Over the next two years, the Partnership will accomplish this objective by targeting its efforts towards several strategic priorities. First, the USDA, DoD, and DOI will continue to develop procedures for giving landowners and agricultural producers within designated sentinel landscapes priority consideration for participation in federal landowner assistance programs. In doing so, the FCC will recognize and reward private landowners for their stewardship practices. Second, the FCC will continue to refine metrics for measuring the success of Partnership and will also take strides to institutionalize an efficient and effective data collection process across the existing sentinel landscapes. These efforts will enable the FCC to demonstrate the value of sentinel landscapes, while also securing additional buy-in from leadership at the federal, state, and local level, and within the private sector. Lastly, the FCC will work with its state, local, and private partners to explore opportunities for pilot projects within the seven sentinel landscapes that take advantage of the benefits and efficiencies associated with landscape-scale conservation.





# 2019 SENTINEL LANDSCAPES ACCOMPLISHMENTS REPORT

[SENTINELLANDSCAPES.ORG](http://SENTINELLANDSCAPES.ORG)