



2026 Department of War

Environmental Awards

Natural Resources Conservation – Small Installation
Hanscom Air Force Base, Massachusetts

Introduction

Strategically positioned along “America’s Technology Highway,” just 20 miles northwest of Boston, Massachusetts, Hanscom Air Force Base (HAFB) is a cornerstone of the nation’s defense innovation ecosystem. The base spans the historic towns of Bedford, Concord, Lincoln, and Lexington, places where the opening shots of the American Revolution were fired. As the host unit, the 66th Air Base Group manages the installation and supports a complex and vital mission. Unlike many Air Force (AF) bases, HAFB’s primary mission does not involve flight operations, but rather the acquisition and development of cyberspace capabilities, command and control systems, and battlefield awareness technologies for the U.S. Air Force and allied nations. HAFB is a critical hub for engineering the future of air and space power. It is home to three Air Force Program Executive Offices (PEOs)—Cyber &

Networks; Electronic Systems; and Presidential & Executive Airpower—and two Portfolio Acquisition Executives (PAEs) for Command, Control, Communications and Battle Management (C3BM) and Nuclear Command, Control and Communications (NC3).

HAFB supports approximately 11,000 active-duty military, National Guard, civilians, contractors, and dependents who work and live at HAFB. A cornerstone of this community is the Massachusetts Institute of Technology Lincoln Laboratory, an on-base federally funded research and development center whose mission is to apply advanced technology to problems of national security. The Massachusetts National Guard Joint Force Headquarters also calls HAFB home. This synergy between Hanscom’s acquisition programs, the lab’s research, and the vast contractor workforce creates a powerful economic engine exceeding \$13.9B annually. HAFB and its properties reside on the

ancestral lands of the Mashpee Wampanoag Tribe, the Narragansett Indian Tribe, and the Wampanoag Tribe of Gayhead (Aquinnah). On base is Hanscom School, operated by the Town of Lincoln, serving the children of military connected members in preschool through 8th grade.

HAFB is a small installation in a semi-urban setting encompassing 947 total acres including the 804-acre main base, the 30-acre Sagamore Hill Solar Observatory located 25 miles to the north in Hamilton, MA, and the 39-acre Fourth Cliff Recreation Area located on the Atlantic coast 35 miles to the southeast in Scituate, MA. HAFB also operates the 74-acre Patriot Golf Course under permit which is part of the Bedford Veterans Hospital Historic District. The main base is 80% developed, with 164 acres undeveloped, 14 acres of which are wetlands. The base is situated within a landscape defined by history and nature. It shares a border with Minute Man National Historical Park (MMNHP) and encompasses the headwaters of the Shawsheen River. The Shawsheen is a major tributary of the Merrimack River, a drinking water source for over half a million people. This setting presents both unique challenges and extraordinary opportunities for HAFB to forge a legacy of conservation in a landscape where American history began.

Background

The Hanscom Natural Resources (NR) Program represents a story of remarkable transformation and rapid success. For decades, the program operated under a 1996 determination that the installation possessed limited natural resources to manage, which severely restricted its scope and funding. Following a comprehensive re-evaluation of the base's ecological assets, this determination was rescinded in 2021. Seizing the opportunity, the HAFB team moved quickly to develop the installation's first modern Sikes Act-compliant Integrated Natural Resources

Management Plan (INRMP), which was formally signed in February 2024.

The approval of the INRMP triggered an unprecedented 1,200% increase in program funding. Overnight, the NR team was empowered with resources to address conservation needs and build a program from the ground up. Staffed with one full-time, dual-hatted natural and cultural resources manager, aided part-time by a civilian biologist, two pest managers, and one grounds maintenance supervisor, the NR team's initial focus was to forge partnerships to assist in developing and executing its program. To achieve this, the NR program has cultivated a robust network of interagency partnerships, working closely with the U.S. Fish and Wildlife Service (USFWS), U.S. Department of Agriculture (USDA), the Massachusetts Division of Fisheries and Wildlife (MassWILDLIFE), and numerous regional academia and conservation organizations. This collaborative framework is the foundation upon which the program's many accomplishments have been achieved. In early 2025, during its first annual INRMP review, all parties assessed the effectiveness of the INRMP as exceptional.

Accomplishments

Armed with its first Sikes Act-compliant INRMP, the Hanscom NR program launched a series of high-impact initiatives, the results of which exemplify a focus on proactive, mission-integrated conservation, setting the program on a strong foundation and directly contributing to the installation's resiliency and operational readiness.

Creating a Baseline

Due to the 1996 determination that limited resources were present on HAFB and an INRMP was not necessary, the last ecological surveys of HAFB were conducted in the mid-1990s leaving a 30-year gap of information. With the help of MassWILDLIFE's Natural Heritage and Endangered Species Program

and the Colorado State University Center for Environmental Management of Military Lands, HAFB began initial reconnaissance and research identifying 21 species of conservation concern having the potential to occur on HAFB. Beginning in 2024, HAFB's NR program embarked on the task of conducting comprehensive surveys to understand what resources are present and should be afforded proactive management.

Bat and Frog Surveys

Not waiting for funding to catch up with its needs, the HAFB NR team sourced excessed acoustic monitors to begin surveying for bats and frogs. New Boston Space Force Station, New Hampshire, transferred three acoustic bat monitors and Naval Facilities Engineering Systems Command, San Diego loaned one acoustic frog monitor to HAFB enabling the team to conduct monitoring with existing resources at no cost to the Air Force. Over 2 years of monitoring and partnering with the North American Bat Monitoring Program to analyze the data, surveys confirmed 8 bat species in various parcels, including the federally endangered northern long eared bat and the tri-colored bat, a candidate for listing. The effort also resulted in over 30 acres being formally declared free of protected bats, removing restrictions for future mission-related development and saving 12-18 months in project execution timelines. These surveys also made a potentially significant scientific discovery: recording the presence of the federally endangered Indiana bat on the installation for the first time, leading the NR team to initiate new research collaborations with USFWS's National Indiana Bat Recovery Lead in Bloomington, Indiana. The frog monitor was initially deployed for three weeks in February 2025 and will be redeployed in 2026, with analysis being aided by the Partners in Amphibian and Reptile Conservation (PARC) partnership and its affiliates. By forging innovative partnerships across CONUS, HAFB has created a replicable model for securing critical research

and mission support at little to no cost—a blueprint for success for other Department of the Air Force (DAF) and Department of War (DoW) installations.

eDNA and blue-spotted salamanders

Following positive environmental DNA (eDNA) sampling for the blue spotted salamander (BSS), a Species of Special Concern in Massachusetts, the NR team engaged biologists with the USFWS in the spring of 2025 to conduct trapping and determine presence, population size and distribution. Twenty-two funnel traps were deployed across six wetlands, discovering BSS egg masses in two wetlands, providing conclusive and previously unknown evidence that the species is actively present and reproducing on the base. The discovery led to publication on the USFWS website of a unique article connecting the two properties and two periods in time, "Red Coats and blue-spotted salamanders: USFWS partners with HAFB to survey for a rare salamander in a Revolutionary War landscape" which has reached over 2,000 readers. During the trapping effort, fairy shrimp were also discovered, which led the team to program new surveys in 2026 to search for protected intricate fairy shrimp.



Blue Spotted Salamanders

Biologists examine amphibians collected in HAFB wetlands. Utilizing advanced survey techniques, the team discovered the first-ever known presence of this state-protected species on the installation ensuring future proactive management.

Zoo New England and Northeast Turtle Working Group

In March 2024, the NR team reached out to Zoo New England to discuss opportunities for conducting surveys for the Blandings turtle, wood turtle, and spotted turtle. At no cost to the AF, the Zoo's Field Conservation Department conducted reconnaissance of the main base and Patriot Golf Course. While no specimens were identified in the one-day search, the biologists did identify suitable habitat. Subsequently, the NR team joined the Northeast Turtle Working Group charged with better understanding population status and habitat use of Blandings and spotted turtles at two areas in Massachusetts: One comprised of HAFB and nearby Great Meadows National Wildlife Refuge; the other at Fort Devens Army installation and Oxbow National Wildlife Refuge. This effort combined diverse resources from the USFWS, Army, Massachusetts Port Authority, and HAFB with graduate research support from University of Massachusetts – Amherst. The first surveys on HAFB began in June 2025 and will continue through 2026 providing important data into presence on the installation and the larger region. This cross-service partnership with the U.S. Army exemplifies the DoW's commitment to maximizing resources, creating a unified front to protect vulnerable species while supporting mission readiness.

Leadership in Invasive Species Defense

Recently, the invasive spotted lanternfly (SLF) has emerged as the significant environmental threat to the regional ecosystem and the agricultural economy of the northeastern United States, posing a direct risk to the installation's operational readiness. Through the HAFB Environmental Management System's risk assessment process, the potential arrival of the SLF was assessed as the greatest environmental risk to the installation mission as an infestation could trigger quarantine measures, halting the movement of personnel and materials.

Recognizing the threat, in April 2025 the Hanscom NR team established and leads a multi-agency SLF Working Group, creating a united front to combat the insect's spread. The group's charter and early detection protocols will serve as a ready-made framework, providing a blueprint for any DoW installation to rapidly stand up its own defense against this or similar emerging threat.



Invasive Spotted Lanternfly

To combat the installation's top environmental risk, HAFB launched the "See it? Stomp It!" campaign to stop the invasive spotted lanternfly. Public awareness effort is a key part of a multi-agency strategy to protect the regional ecosystem and prevent mission-halting quarantines through early detection and rapid response.

The group is a coalition of stakeholders, including representatives from internal and external agencies such as security forces, logistics, emergency management, the Massachusetts Department of Agricultural Resources, MMNHP, the Massachusetts National Guard, the U.S. Army at Fort Devens, Joint Base Cape Cod, Westover Air Reserve Base, and the Joint Personal Property Shipping Office Northeast. A key initiative was the development of a two-pronged strategy to combat the spotted lanternfly: first, by mapping and eradicating most of its primary host, the invasive 'tree of heaven,' and second, by intentionally retaining a few specimens to serve as sentinel 'trap trees' for monitoring and early detection. The team also initiated the "See it? Stomp It!" public awareness campaign which included briefings to installation leadership and newcomers, email blasts, and a first-of-its kind video

podcast (vodcast) at HAFB to educate personnel and solicit their engagement. These efforts are not only designed to prevent infestation but avoid mission stoppages through early detection and advance planning of response actions.

Fourth Cliff Recreation Area

Fourth Cliff, located on the Atlantic coast in Scituate, Massachusetts, is managed as a recreational annex by HAFB for military families and DoW personnel. It exemplifies the NR program's ability to balance mission-essential recreation for military families with successful endangered species conservation. The site encompasses sensitive coastal resources and serves as one of the most protected and crucial nesting grounds for protected shorebird species, including Piping Plovers, Least Terns, and Rufa Red Knots.

In early 2025, HAFB partnered with USDA Wildlife Services, in sustaining habitat for at-risk shorebirds through a targeted predator management strategy. HAFB documented predation through the installation of 2 trail cameras and in March 2025, USDA specialists lethally removed four coyotes. HAFB then pioneered the first-time use of fladry in Massachusetts—a non-lethal deterrent of brightly colored flags—which proved highly effective in protecting nesting areas for several crucial weeks. These interventions contributed to a substantial increase in nesting success. Piping Plover productivity rose from 1.25 fledglings per pair in 2024 to a reasonable 1.75 in 2025. The results for Least Terns showed significant growth, with the colony expanding from 21 pairs in 2024 to 96 pairs in 2025, and fledged chicks more than doubling from 12 to 28. HAFB shared the results and lessons learned with USDA field offices for implementation at other shorebird nesting sites.

Concurrently, the NR team partnered with the North and South Rivers Watershed Association (NSRWA) to quantify the blue mussel beds around Fourth Cliff to monitor changes over a five-year period. Blue mussel

spat is the primary food source for foraging shore birds at Fourth Cliff and without it, the site's productivity would not be feasible. Initial surveys in 2024 quantified the blue mussel bed at 0.58 acres and 1.5 acres in 2025. To ensure viability of the beds, in June 2025, the NR team and NSRWA obtained commitments from nearby private landowners to allow for future mussel harvesting from private boat docks and assembled a team of volunteer divers who will initiate a translocation, moving collected mussels to the primary bed to increase population density and enhance the site's overall ecological viability.



Fladry as Predator Deterrent

In a pioneering effort for Massachusetts, HAFB and USDA installed fladry, a non-lethal deterrent, to shield nesting areas for protected shorebirds. This strategy proved highly effective, contributing to a significant rise in Piping Plover productivity and a more than four-fold expansion of the Least Tern colony sites in 2025.

While Fourth Cliff provides critical habitat for protected species, its 30-foot-high coastal bank is eroding at a severe rate, losing an average of one foot per year and as much as ten feet during major storms. Since 2008, HAFB has been planning a cliff stabilization project, finalizing the design in 2023. To implement the project, the Air Force must ensure that it will not negatively impact the nesting habitat of protected shorebirds. In July 2024, the NR team hosted a field tour for the Natural Resources Conservation Service's Northeast Cooperative Soil Survey Conference, including over 60 scientists,

which to the Air Force's benefit, helped analyze the soils and characterize the erosion at Fourth Cliff.



Fourth Cliff Coastal Bank

In July 2024, HAFB hosted the USDA's Northeast Cooperative Soil Survey Conference to analyze erosion at Fourth Cliff. This site visit helped inform a comprehensive sediment transport study which will provide a baseline to ensure future cliff stabilization can be executed without impacting protected species.

In March 2025, the HAFB NR team engaged the University of Massachusetts, Boston's Center for Coastal Studies CaPE Lab (Coastal Processes and Ecosystems Laboratory) to conduct a comprehensive sediment transport study. The study currently underway will have created a detailed, repeatable analysis of the site's sediment volume and littoral system using precise mapping tools like drones, sonar, and ground-penetrating radar, along with sediment and subsurface data analysis. The findings, expected in early 2026, will be used as a baseline to monitor the effects of erosion control measures and to calculate the necessary volume of compensatory sediment, if required. Completing this crucial study ensures the mission-supporting stabilization project can be executed without delay once funding is secured.

Innovative Solutions through Student Mentorship

Bridging the gap between community outreach and operational necessity, the HAFB NR program forged a unique and highly successful partnership with local schools in which it takes great pride. Each year, the NR team leads Hanscom School students on a tour

of its new cutting-edge facilities, followed by an annual cleanup of the Shawsheen River, now in its 25th year. In June 2025, the program elevated this partnership from outreach to applied science. The NR Program mentored students on a hands-on STEM (Science, Technology, Engineering, and Math) research project, challenging them to find an effective and environmentally safe alternative to conventional herbicides for weed control along the installation's perimeter fence line where growth can compromise security and impede patrols.

The students collected and analyzed data on three small plots of land with three different non-toxic, biodegradable, and inexpensive alternatives, concluding that a 30% vinegar and soap solution was highly effective. Based on this student-provided data, HAFB's Civil Engineer grounds maintenance team officially adopted the solution, generating an estimated \$8,000 in annual cost avoidance and saving over 150 labor-hours per year. This HAFB effort demonstrates that DoW installations can harness the ingenuity of local students to solve real-world operational challenges with minimal investment.



Student STEM Innovation

Mentored by the HAFB NR team, Hanscom School's 7th grade science class conducted hands-on research to find an effective and environmentally safe alternative to conventional herbicides. Their solution was officially adopted by the 66th Civil Engineer Division grounds maintenance team, saving both labor and financial resources.

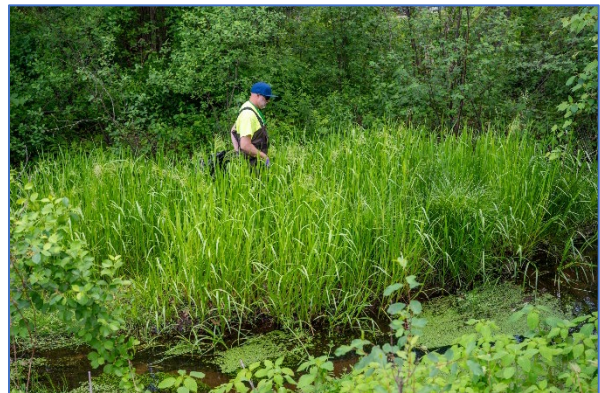
In a modern approach to outreach, the team partnered with Public Affairs to create a new

vodcast series, "Sustaining the Mission," to explain the vital link between environmental health and mission readiness. In 2024, the team partnered with the NSRWA and the Whale and Dolphin Conservation charity to launch a major annual educational event at Fourth Cliff. Students from nearby schools learned about conservation through hands-on science, including blue mussel surveys, mock endangered species 'crime scene investigations,' and plankton analysis. The students then assist the NR team in a beach clean-up of the Fourth Cliff property. In separate efforts, AF servicemembers volunteer to clean and maintain the grounds around the Chief Masconomet grave site adjacent to Sagamore Hill Solar Observatory, demonstrating respect for the region's heritage and enhancing DAF/Tribal relations.

Optimizing Landscape Management

The NR program is executing a long-term strategy to create a more resilient and low-maintenance urban landscape. One of the first major successes was the identification of extensive, high maintenance turfgrass areas for conversion to native habitat. In August 2025, the team incorporated language into demolition projects to restore six acres of land with conservation seed mixes that contain native grasses and flowering pollinators. The NR team incorporated similar requirements into leases of up to 33 areas of land for large solar arrays on base, at no extra cost to the government. These initiatives will reduce mowing requirements by over 90% in those areas, saving an estimated 500 gallons of fuel and \$15,000 in labor costs annually. Two Air Force volunteers with beehive training were recently approved by the installation commander to install and maintain two bee hives to aid in the conversion's success. Hanscom joined the Monarch Joint Venture and in October 2023 was selected for a partner-funded research effort through its legacy program. That effort began with initial geospatial data analysis, soon to be followed by on-site planning.

The NR program also addressed a chronic flooding issue on the base's golf course by removing three obsolete stream crossings and reconstructing two others that permanently resolved the flooding, averting an estimated \$50,000 in recurring storm damage repair costs and restoring natural stream flow. Additional wetland improvements were made during the construction of the new gate entry complex where suitable wetland habitat increased by 2.5 times.



Wetland and Floodplain Restoration

A Natural Resources Specialist of HAFB conducts an assessment of critical wetlands habitat. HAFB's recent wetland restoration efforts both solved chronic flooding issues and expanded suitable wildlife habitat on base.

Excellence in Urban Forestry

Recognized for its 38th consecutive year as a "Tree City USA," Hanscom's NR program employs modern forestry practices to protect this vital resource. The program also prioritizes safety by systematically removing hazardous trees while enforcing a strict 1:1 replacement policy, ensuring no net loss of habitat. The NR program implemented strict tree removal restrictions during sensitive roosting seasons to protect three federally listed or candidate bat species: the northern long-eared bat, the tri-colored bat, and the recently detected Indiana bat. This measure ensures the urban forest, even when intermixed with mission-enabling facilities, remains a habitat capable of supporting these protected species long-term.