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Dec 21, 2021

Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

Department of Defense Legacy Resource Management Program

HQ00341920002

National Public Lands Day 2020

NEEF-NPLD-20

Dabreon Darby
National Environmental Education Foundation
Washington, DC

April 31, 2021

**DEPARTMENT OF DEFENSE
LEGACY RESOURCE MANAGEMENT PROGRAM (NEEF-NPLD-20)**

National Public Lands Day 2020

The COVID-19 pandemic has fundamentally changed the way Americans are able to engage with public lands. From iconic national parks to local urban green spaces, the threat of COVID-19 has made it extremely difficult - if not impossible - for many land managers to host large in-person events on public lands. This has significantly impacted nationally recognized service events such as National Public Lands Day (NPLD).

The annual NPLD celebration is the largest single-day volunteer effort for America's public lands. Each year, hundreds of thousands of volunteers come together on the fourth Saturday in September to assist land managers with environmental projects designed to enhance and restore national parks, recreation areas, wildlife refuges, and other public lands and waters. In 2020, over 650 public lands sites across the US hosted NPLD events, and together they engaged more than 70,000 participants in both hands-on conservation and virtual activities.

This year, NPLD needed to look a little different. While public land sites were still able to register in-person events, the National Environmental Education Foundation (NEEF) encouraged the proposal of innovative virtual events designed to engage volunteers and connect people to public lands from the safety and comfort of their homes with the theme of "More Ways to Connect to Nature."

On September 26, 2020, NEEF celebrated NPLD along with 652 sites across the nation. As part of the 27th annual NPLD, approximately 77,267 participants either visited public lands sites across the nation or engaged in virtual events to contribute to improvement projects. Events took place in all 50 states, the District of Columbia, and US territories. Many NPLD events included an environmental education component to teach volunteers about land stewardship. In 2020, NPLD focused on conservation activities supporting in-person and virtual events designed to engage volunteers and connect people to public lands from their homes.

The Department of Defense (DoD) provides funds to NEEF for NPLD projects on military lands open to the public for recreation. To date, NPLD has received over \$3 million through the Legacy Resource Management Program (Legacy). In 2020, a total of \$98,000 was distributed to installations for materials and supplies. These funds were used to enhance DoD lands through various cultural and natural resource improvement projects. Participating in NPLD provides natural and cultural resource managers with the means and labor to complete small installation-specific projects that may not otherwise get done due to budget or staffing limitations. NPLD projects improve habitat and biodiversity for common and rare species alike, often reducing the need for intense management of these species.

NEEF received 18 applications for Legacy awards of up to \$9,000 each for 2020 NPLD projects. In September 2020, NEEF notified 16 sites that they were selected to receive an NPLD DoD Award. However, due to the mandates and public health guidance established because of the coronavirus pandemic, 2 sites withdrew from Legacy. Of the rejected funds, \$2,801 was redistributed to another 2020 NPLD project and the remaining \$2,000 was rolled into the 2021 DoD Park Rx award process.

Sites that withdrew:

- US Navy & Marine Corps Public Health Center Det at the Centers for Disease Control and Prevention
- Public Works Department (PWD) NSA Hampton Roads

Legacy funds were awarded by NEEF to sites via direct payments to the installation or reimbursements to vendors for all items purchased that pertained to the awarded project. The branches awarded Legacy funding consisted of one Air Force, two Army, three Army/Air National Guard, and four Navy sites.

Over 400 volunteers took part in over 330 hours of various natural and cultural resource improvement activities that were offered at the 14 funded Legacy installations. Many Legacy sites organized natural resource rehabilitation projects to improve habitat for pollinator species, remove invasive plants, reduce environmental degradation caused by human use, enhance waterways, reduce erosion, maintain trails, plant native trees and wildflowers, and more. The cultural resource activities included the continuation of building a traditional Hawaiian structure, collaborating with indigenous tribes of America to promote natural resource conservation and cultural appreciation, and hosting virtual educational programming around the cultural and environmental history of their local communities.

By helping to enhance natural and cultural resources on installations, the military took an active, hands-on role in caring for the environment. Participation in these projects also imparts a sense of ownership and familiarity with these lands, encouraging project participants—many of whom are neighboring community members – to return throughout the year. In turn, individuals enjoy the physical and mental health benefits of outdoor activity on NPLD and beyond. Award-funded projects support the enhancement and preservation of precious natural resources on installations, as well as the upkeep of other man-made assets. Since its inception, Legacy funding has subsidized maintenance projects such as the repair, rehabilitation, or installation of infrastructure such as roads and bridges, visitor centers, trails, benches, and signage. Investment in the ongoing upkeep of infrastructure is extremely important as maintenance that is not performed at the required intervals shortens the longevity of these assets and leads to disrepair that can result in inflated costs in the future should major reconstruction or replacement be required.

During the 2020 award program, the coronavirus continued to delay projects due to public health mandates and local ordinances. This reality significantly impacted Legacy in numerous ways, requiring a range of flexible approaches for completing projects. These approaches included requiring project managers to implement covid safety protocols for all in-person events and allowing project managers to engage participants through virtual events. In addition, when extensions were requested by installations due to COVID outbreaks, NEEF, with Legacy's approval, provided them. By taking these precautions, installations were still able to engage a significant number of volunteers despite having delayed projects. Once public health restrictions eased around the country heading into the new year, Legacy project managers were able to engage around 25% more volunteers than in the previous year.

Although NEEF received funding from Legacy in September 2020, NEEF was able to launch the 2020 NPLD process and award installations by the agreed-upon schedule outlined in the cooperative agreement. However, due to extension requests related to the pandemic, three sites will now complete their project in June 2021 instead of the original November 2020 timeline. Awardees cited engaging volunteers as a huge challenge during the pandemic because of local increases in coronavirus cases and mandated restrictions. Specific details on those delays can be found in the following summaries:

- Texas Military Department
- Arizona Army National Guard
- AZDEMA/AZARNG

This year focused on agile engagement approaches and virtual events designed to engage and connect people to public lands. In total, this year's DoD NPLD sites hosted approximately 400 volunteers who donated over 330 hours of volunteer time to accomplish the following:

2020 DoD Legacy Award Project Output Totals by the Numbers:

1,000,000 square feet of land restored or maintained

5,227 native plants added

1,085 pounds of trash collected and disposed

31,616 square feet of invasive vegetation removed

1 mile of waterway restored or maintained

6 cultural resources or historical properties affected

4 installation structures and facilities built, rebuilt, or repaired

Legacy Sites 2020

United States Air Force

Beal Air Force Base | California

Bellows Air Force Station | Hawaii

Eglin Air Force Base | Florida

Amount Awarded

\$7,500.00

\$7,500.00

\$7,000.00

United States Army

Joint Base Lewis-McChord | Washington

Joint Base Lewis-McChord | Washington

Fort Leavenworth | Kansas

Amount Awarded

\$9,000.00

\$4,900.00

\$4,000.00

United States Army/Air National Guard

Arizona Army National Guard | Arizona

Arizona Army National Guard | Arizona

Texas Military Department | Texas

Camp Ripley | Minnesota

New Jersey Army National Guard | New Jersey

Amount Awarded

\$7,500.00

\$7,500.00

\$7,600.00

\$6,000.00

\$7,000.00

United States Navy

Naval Air Station Key West | Florida

US Marine Corps Base Hawaii Kaneohe Bay | Hawaii

NAVFAC Hawaii | Hawaii

Amount Awarded

\$7,500.00

\$7,500.00

\$7,500.00

TOTAL

\$98,000.00

The United States Air Force



Beale Air Force Base | California Beale Clinic Pollinator Site Expansion

Project Date: October 19, 2020 – October 24, 2020

Project Summary: The Beale Air Force Base project addressed the need for increased coverage of native plants on base. Native plants provide habitat, nectar resources, and host sites for native pollinator species. In turn, pollinators are important for the reproduction of native plant species. Increasing native plant coverage also increases carbon sequestration which is important for combating climate change. The base has an extensive population of monarch butterflies that forage and breed at the site during the spring and summer. Through the planting of a variety of native plants with various blooming periods, this project has enhanced habitat for pollinators by extending the bloom time of available nectar sources.

Through the duration of the project volunteers were provided an educational history of the site and a description of the project and provided the overall goal of the Clinic Pollinator Planting project. Then the event coordinators provided instructions to volunteers who were going to be planting native plants. Plants were then installed, mulched, and watered by hand. The event coordinators and Environmental Element personnel assisted volunteers, answered questions, and provided natural history information about the plants and wildlife that occur on Beale Air Force Base. The installation of the native plants will help to increase coverage of native pollinator host plants and nectar sources, extend the blooming period of these resources from February to December, and increase local biodiversity.

Project Output Totals:

- **35 volunteers**
- **1,268 native plants added**
- **18,322 square feet of invasive vegetation removed**
- **18,322 square feet of land restored or maintained**

Contact: Ethan Snee, Wildlife Biologist | 530-844-0590 | ethan.snee@colostate.edu

Eglin Air Force Base | Florida Borrow Pit B-33 Restoration Native Vegetation Planting

Project Date: November 5th, 2020; November 11th, 2020; November 12th, 2020; November 18th, 2020; November 19th, 2020; November 20th, 2020; November 23rd, 2020

Project Summary: Eglin Air Force Base restored forest habitat and provided wildlife habitat in a former borrow pit surface mine. The achievement of this project support the United Nations Decade on Ecosystem Restoration outlined in the creation of the One Trillion Tree Initiative.

On the first event day, November 5th, Eglin AFB, hosted volunteers to perform reforestation and to restore a pit mine. During this day volunteers helped to produce a new grid layout for the trees to be planted. The health and survival of forests and woodlands are tied to air quality, climate, and a host of other factors which is why it is important to cultivate and steward forests. The next few event days shifted to focusing on grass cutting, restoring the mine and finally, the planting of the trees. Lastly, on November 23rd volunteers added mulch to the newly planted sites. Eglin AFB successfully planted trees, shrub, and forbs on a restored borrow pit fill area along with producing methods for continued follow-up monitoring of the revegetated forest.

Project Output Totals:

- **30 volunteers**
- **30 native plants added**
- **20 pounds of trash collected and disposed**
- **849,400 square feet of land restored or maintained**

Eglin AFB was able to involve the community by engaging citizens to enjoy the outdoors and experience the natural aesthetics of a restored land area. Volunteers included members from military families, active-duty airmen, retirees and veterans, the Florida Trail Association, and students of all age groups. Educational materials were given to volunteers on proper tree planting techniques and the benefits of healthy native forests. This project addressed several aspects of reforestation with the objective of land conservation and increased carbon sequestration. The long-term goal of reforestation and recovery dynamics was achieved through the restoration of the borrow pit mine and the planting of native vegetation in that area.

Contact: William Pizzolato, Soil Conservation Project Manager | 850-883-1190 | william.pizzolato@us.af.mil

Bellows Air Force Station | Hawaii Malalma Dunes and Wetlands at Bellows AFS

Project Dates: September 26th, 2020; October 17th, 2020; November 14th, 2020; November 17th, 2020; November 19th, 2020; December 15th, 2020; December 17th, 2020

Project Summary: Bellows AFS created virtual volunteer programming designed to engage the public with educational topics about Hawaiian coasts wetlands and forests. They also provided COVID safe in-person volunteer projects that provided small groups of participants with hands-on learning experiences.

These conservation projects focused on Coastal Restoration at Bellows Air Force Station (BAFS). The fine white sandy beaches at BAFS are receding. Northern beach sections are already gone and a U.S. Geological Survey reports erosion of up to a foot (30 cm) per year for other parts of the BAFS shoreline. The observed primary causes of beach erosion are hardened shoreline (rock jetty and revetments), human foot traffic, sea level rise, and invasive species like the shallow-rooted ironwood tree (*Casuarina equisetifolia*). Ironwood trees produce a phenolic compound that is often toxic to other plants. The loss of sand dunes and native ecology leaves the coast vulnerable to natural and human disturbances, from 500,000 annual beachgoers to hurricanes and tsunamis. The events hosted by Bellows AFS incorporated multiple dune invasive plant removal and beach clean-up days. The focus of the NPLD project was to remove invasive plants and out-plant the cleared sites with native Hawaiian plants. Temporary irrigation was set up to help the native plants establish themselves. Out-planted dunes with native flora has been documented to capture wind-blown sand which can help rebuild healthy dunes. Healthy out-planted dunes are important to mitigate beach erosion, restore native dune ecosystem habitat, increase the population of pollinator species,

Project Output Totals:

- **79 volunteers**
- **8,625 square feet of land restored or maintained**
- **445 pounds of trash collected and disposed**
- **100 native plants added**
- **8,625 square feet of invasive vegetation removed**
- **1 cultural resources or historical properties affected**

protect sensitive native Hawaiian burial sites, and improve the overall recreational experience. The format of the volunteer projects was changed this year to follow procedures for COVID safe events. The volunteer's primary tasks were to remove coastal invasive plants and out-plant native Hawaiian plants.

This year's NPLD project connected volunteers through the BAFS Website and the BAFS Facebook page. Volunteers included students from the *Malama Honua* Charter School in Waimanalo, BAFS Service Members, BAFS Security Forces, and Joint base Pearl Harbor Hickam 747 Communications Squadron (747 CS/SCOST). The virtual educational events that were designed engaged the public with online opportunities to learn about the coastal and wetland natural resources at the station. The virtual educational materials included a BAFS electronic library and trail signage. The interpretative signage along the nature loop trail will provide an interactive educational opportunity about Hawaiian scrub forest, local flora and fauna, and wetland ecosystems. The electronic library materials included: virtual *Pu'ewai* wetland tour, sea turtle viewing guidelines, Hawaiian Monk Seal viewing guidelines, coastal dune ecology, wetland ecology and native and invasive plant identification charts, field guide to coastal birds, and leave no trace principles. This gave volunteers background information on the importance of the site's efforts to preserve and restore the coastal and wetland habitats of Hawaii. There was also a variety of field work of varying degrees of difficulty for all volunteers to engage in despite age. At the in-person volunteer events a biologist taught the participants about wetland ecology and identified native species. Participants were encouraged to clear invasive plants, pick up trash, and out-plant native plants. Additional activities included beach cleanups, sifting beach sand for plastics, native plant scavenger hunts, bird identification, and participating in the outdoor Hawaiian sport called *'Ula Maika*. The broader Waimanalo community benefitted from participating in a regional conservation project that preserves their eroding coastline and enhances the local biodiversity of the region.

Contact: Craig Gorsuch, CSU CEMML Conservation Program | 808-259-4213 | gorsuch.craig_ctr@us.af.mil



Credit: Bellows Air Force Station, Craig Gorsuch

United States Army



Joint Base Lewis-McChord | Washington Habitat Restoration for Rare Birds, Bats, and Butterflies at Halverson Marsh

Project Dates: September 23rd, 2020; September 24th, 2020; November 19th, 2020

Project Summary: The installation undertook a full-circle ecological restoration and species conservation project. JBLM provides crucial habitat for over 35 declining or threatened animal species and hosts several extremely rare lowland habitat types.

Volunteers primarily consisted of active-duty service members, military families, biologists, and college students. They were recruited through social media (the JBLM FB page), a list-serv post through the Cascadia Prairie-Oak Partnership, intra-departmental group emails, and word of mouth from current participants in their volunteer internship program. Volunteers were educated on the importance of wildlife habitat, preserving endangered species, ecological processes, and the environmental history of the area. Participants enjoyed themselves and even expressed an interest in joining their internship program once coronavirus restrictions are eased denoting real attitude and behavioral changes in their volunteers.

Project Output Totals:

- **19 volunteers**
- **4,000 square feet of land restored or maintained**
- **2,400 native plants added**

On September 23rd volunteers assembled 22 western purple martin house boxes from wood material. Constructing these boxes helps to recover a species of conservation concern on JBLM, an old growth associated bird with a cavity limited population due to the lack of decaying mature trees. Some participants had never used tools or general wood shop equipment and expressed "gaining life skills" during the event. Building the boxes allowed volunteers to directly contribute to species conservation which is a rare opportunity for volunteers. Participants spent several hours with a professional biologist learning about habitat restoration efforts and rare species management on JBLM. The volunteers also with the help and guidance of the biologists disassembled a decommissioned balsamroot (balsamroot is a hard-to-establish but key nectar resource) watering array reusing parts for the newly NPLD-funded array. The new array will improve several key components of the design, and if successful, could make a huge difference in conserving the federally endangered Taylor's checkerspot butterfly.

On September 24th participants installed the purple martin house boxes and performed tree girdling. At Halverson Marsh a bat tower and the purple martin houses were installed, then they girdled four large Douglas fir trees. This provides short- and long-term sustainable shelter for the purple martins. Hopefully, they will colonize the site this summer, and as the trees decay, provide long term habitat resources.



Credit: Joint Base Lewis-McChord, Dennis Buckingham

“Participants really got a lot out of working with our interns and biologists to erect habitat enhancement for rare species at a beautiful site overlooking Halverson Marsh.” – Dennis Buckingham

Finally, on November 19th, volunteers worked together to plant rare prairie plants at a Taylors checkerspot reintroduction and recovery site. The Washington Department of Fish and Wildlife biologists as well as those from JBLM were in attendance teaching volunteers how to use their new NPLD-funded survey tablets to map plant populations in the area so that they can monitor how the newly augmented native plant populations interact with butterfly populations over the next several years. This event also helped to prepare the site for the new watering array for *arrow leaf balsamroot*, a key nectar resource. They are postponing installation of the array until balsamroot planting season in the spring to avoid any damage that could occur over the winter. These activities helped JBLM to meet its goals of helping to preserve all rare and listed species in the Puget lowland ecoregion. It also helped community members and concerned citizens contribute to, and learn about, conservation measures undertaken by JBLM land managers.

JBLM was able to enhance habitat for rare birds, bats, and butterflies at the Halverson Marsh, a conjunction of prairie, wetland, and forest. The area itself hosts federally endangered Taylors checkerspot butterflies, so enhancing habitat on the perimeter was a key step in protecting the existing population and providing space for population expansion. The tree girdling on the wetland edge was a very effective way to restore habitat for multiple species preventing future species declines. These events were important in conserving rare species, and this project has helped them to further conservation on a highly impactful area of the installation and community.

Contact: Dennis Buckingham, Wildlife Specialist | 360-631-8556 | dennis.buckingham@colostate.edu

Joint Base Lewis-McChord | Washington Community and Restoration Gardens at Joint Base Lewis-McChord

Project Dates: September 29th, 2020; November 16th, 2020

Project Summary: The installation provided volunteers and community members with an educational tour of the installation and adjacent environmental restoration project sites. Volunteers learned topics about the installation's conservation and restoration efforts. Volunteers then returned to build 8 planting beds and a picnic table for the community garden.

On the first project day volunteers were brought to the developing community gardens on the McChord Airfield side of JBLM to talk about the vision for the Ft. Lewis gardens and what they are hoping to accomplish for this year's project. Then they provided volunteers with a tour of the habitat restoration projects and educated them about native species, ecosystem dynamics, JBLM's conservation/restoration efforts, and ways for them to contribute. Volunteers returned in November to design and build planting beds and a picnic table for the community gardens. The planting beds were then installed and the outcome was the tripling of planting bed space and the enhancement of the space through the installation of the new picnic table.

Project Output Totals:

- **11 volunteers**
- **500 square feet of land restored or maintained**

Contact: Dennis Buckingham, Wildlife Specialist | 360-631-8556 | dennis.buckingham@colostate.edu

Fort Leavenworth | Kansas Fort Leavenworth Trolley Screening and trail message board

Project Dates: October 24th, 2020; December 6th, 2020

Project Summary: Fort Leavenworth hosted volunteers including local girl scout troops to plant 14 large native trees to create a visual screen between the Historical Trolley Line and a new car wash expansion and sign. The trees serve as a preservation barrier between the car wash and the trolley line preserving its historical integrity. On the next project date Fort Leavenworth hosted the local Masons lodge to construct a trail sign board for the 15 miles of trail available at the installation. The new trail sign will provide users information on the extent of the trail, directions, different habitat types that may be encountered, and other nearby trails.

The vegetation screen for the trolley line will shield the expanded car wash and new sign from the trolley line and the main post road. This will provide a more aesthetically pleasing drive and preserve more of the historical views from the trolley line. Furthermore, the trail sign board will alert trail users to the extent of the trail system and let them choose trails more suited to their needs or habitat preferences.

Project Output Totals:

- **20 volunteers**
- **2,330 square feet of land restored or maintained**
- **19 native plants added**
- **1 cultural resource or historical properties affected**

Contact: Michael Bass, Natural Resource Specialist | 913-684-8979 | Michael.n.bass.civ@mail.mil

United States Air/Army National Guard



Camp Ripley, Minnesota Army National Guard | Minnesota Planting for the Future

Project Date: September 22nd, 2020; November 4th, 2020

Project Summary: This project engaged participants both in-person and virtually. The in-person event using public participation was for collecting seeds from sites on Camp Ripley. The virtual event was developed for a short six-minute video/podcast, and live screening.

Camp Ripley utilized an integrated project approach with a project that involved natural resource management and cultural or historical preservation. In September volunteers collected native prairie seeds from several sites to be transported and later planted in a prairie restoration site. This is a continuation of conservation efforts by Camp Ripley from the 2019 DoD Legacy award program. Then in November, Mille Lacs Tribal Preservation Officer Terry Kemper met with leadership from several directorates on Camp Ripley to talk about cultural heritage and the values of the local *Ojibwe* tribes. However, due to coronavirus limitations, local schools were unable to participate in an in-person event. To accommodate, the Camp Ripely public affairs office filmed the event and produced three videos that were used by Mille Lacs and Leach Lake Tribal schools for their distance learning curriculum. The video highlighted the management of native grasslands on Camp Ripely and the role of specific plants to their culture and the Senior Commander of Camp Ripley, Brigadier General Lowell Kruse spoke on the National Guards commitment to being good stewards of the environment and respecting cultural diversity. These activities promoted an understanding within the National Guard leadership about important tribal considerations and provided local tribal schools with an awareness that their culture is valued within the National Guard. This event provided continued cultural awareness and understanding between the indigenous tribe of the *Ojibwe* and Camp Ripley. Camp Ripley has been a leader in initiatives that promote Native American consciousness, natural resource conservation and diversity, equity, and inclusion.

Project Output Totals:

- **35** *volunteers*
- **40,000** *square feet of land restored or maintained*
- **2** *cultural resource or historical properties affected*

Contact: Joshua Pennington, Environmental Supervisor | 320-616-2720 | joshua.a.pennington4.nfg@mail.mil

Arizona Army National Guard | Arizona

Florence Military Reservation Natural and Cultural Resources Education and Outreach

Project Date: October 2021 – October 2022

Project Summary: This project addressed the need to provide education and outreach to the users of the Florence Military Reservation while engaging local and tribal children (Tohono O'odham, Salt River Pima-Maricopa Indian Community [SRP-MIC], Ak-Chin Indian Community, and the Gila River Indian Community), about the cultural and natural resources that exist on the installation.

Arizona Army National Guard accomplished this by the development of 14 full color interpretative metal signs to be placed in 7 existing double-sided kiosks located on the Florence Military Reservation. Each sign includes both natural and cultural awareness information as well as do's and don'ts for users as a reminder on how to respect their surrounding environment while on the installation. To reach the local community and tribal children (3rd and 4th graders), 300 full size 32-page coloring books were created in direct coordination with the Tribes and professional designers. The coloring book includes a list of plants and animals found on the installation including their Tohono O'odham name and pronunciation. It also includes several activity pages and a double-sided tear out page to return to the Guard for posting. Unfortunately, the original sign designer for the project withdrew and a new sign designer with more local hands-on experience with environmental interpretative signs was hired. Furthermore, complications with COVID 19 and its impact on the installation's ability to interact and engage with the local tribes have held up the project the most. Project meetings had to take place over zoom, the phone and email causing further delays to the sign design. The signs were then created as planned and the installation was able to integrate the sign designs with the childrens coloring book.

As an activity, the students were asked to color one page and on the back (pages are double-sided) are asked what they learned and if they wish to provide a message to the National Guard Soldiers working at the Florence Training Site. The pages were then submitted to the Training Site and posted for soldiers to see and read. Both the signs and 300 coloring books are completed and are awaiting final tribal approval. The Arizona Army National Guard has a future planned ceremony at the installation with tribal members in January of 2022. There the coloring books will be distributed to 300 3rd and 4th graders in the Florence School District and at the O'odham tribal schools once school is back in session after the holidays.

Contact: Janet Johnson, Natural Resources Program Manager | 602-717-2769 | johnsonj@emo.azdema.gov

Arizona Army National Guard | Arizona Camp Navajo POW Camp Landscape Design Project and Outreach

Project Date: May 14, 2021; May 4th 2021; April 19th 2021; January 12th, 2021; January 16th, 2021

Project Summary: The installation's project was to engage volunteers in building nest boxes and bee houses as well as a path from the road to a monument within the POW. The first project task of building habitat engaged children within their community. Third and eighth grade classes from Pine Forest Charter School in Flagstaff Arizona participated in the two different events throughout the duration of the project. The eighth graders constructed the bee and Kestrel nest boxes while the third graders decorated the bee houses and prepped the wood for the Kestrel nests. The third grade event was virtual while the eighth grade event was in-person. Both groups received an education on the importance of bees and Kestrels as well as the knowledge of the roll that the Arizona Army National Guard plays within their community.

Project Output Totals:

- **37 volunteers**
- **129 square feet of land restored or maintained**
- **1 cultural resources or historical properties affected**

This project provided nest boxes for kestrels and housing for bees. Kestrels are important species to ecosystems around Flagstaff. It is thought that their populations are in decline, and they would benefit from providing nest boxes for breeding pairs to use. These boxes were placed around Camp Navajo to enhance the biodiversity of the area. Similar to the kestrel nest boxes, the mason bee populations are in decline and the bee houses will encourage the mason bees to nest in the area. The POW Camp is a significant Cultural site on Camp Navajo. This project was the first phase in improving the site to highlight cultural resources and educate the soldiers and community of the military presence in Northern Arizona and how the military conserves and restores the environment.

Contact: Hannah Telle, Natural Resources Manager | 928-773-3318 | telleh@emo.azdema.gov

Texas Military Department | Texas Camp Mabry Public Education and Outreach Project

Project Date: September 26th, 2020; October 2nd-3rd, 2020; October 24th-25th, 2020; November 7th-8th, 2020; February 20th-21st, 2021; April 10th, 2021; April 24th, 2021

Project Summary: The project tasks all helped to restore habitat for sensitive species like freshwater Mussels or protect areas like the raingarden, stream banks and wildflower areas at the installation.

The Texas Military Department engaged local groups who enjoy working with the military and scouts looking for their Eagle Badge. They advertised through local neighborhood newsletters and in the "Things to Do in Austin" section of the Austin Statesman. Each day the event coordinators for the Texas Military Department explained why they are tree planting and how their project will benefit not only the community but the environmental resources and biodiversity of the installation site. The volunteers were involved in tree planting, rain garden maintenance, and water conservation, as well as creating educational resources about the local wildflowers. The next year in February after the holidays there was a fishing etiquette demonstration provided and then a fishing derby was held with families, then in April, a planting and invasive species removal event was executed. The goal of these projects was to improve the public education and recreation areas for the installation as well as improve wildlife habitat. With these improvements, the public now has several additional recreation sites on Texas Military Department lands as well as signage to improve understanding of habitat protection.

Contact: Jacqueline Jackson, Grant Coordinator | 512-782-5408 | jacqueline.jackson@military.texas.gov

Project Output Totals:

- **104 volunteers**
- **1,245 square feet of land restored or maintained**
- **500 pounds of trash collected and disposed**
- **1,200 square feet of invasive vegetation removed**
- **1 miles of waterway restored or maintained**
- **800 native plants added**
- **4 structures rebuilt or repaired**
- **1 cultural resources or historical properties affected**

New Jersey Army National Guard | New Jersey Low Impact Infiltration Development

Project Dates: September 25th, 2020; October 3rd, 2020; October 5th-7th, 2020; October 19th, 2020

Project Summary: The overall objective of the project was to implement a low impact storm-water best management practices (BMPS) by installing two roadside rain gardens at the Sea Girt National Guard Training Center.

On September 25th, 2020, the New Jersey Army National Guard provided volunteers with a webinar on storm-water best management practices (BMPs), project background, design specifics, and expectations for on site days. This presentation focused on the benefits of rain gardens, rain garden design techniques, strategic species selections, and challenges and considerations specific to our project area. Over the next three event dates volunteers participated in garden installation processes, including plant staging and planting, mulching, placing river rock, installing educational signage, and curb painting. Many volunteers had no prior knowledge or understanding of rain gardens. This project provided participants with valuable skills and knowledge that they can use to design and install smaller-scaled rain gardens of their own. One of the primary objectives of this project was to provide an educational, fun, and engaging experience for as many participants as possible. Through our partnership with Stockton University, we arranged to have volunteers who are undergraduate and graduate level students in several environmental courses, including physical geography, watershed hydrology, environmental pollution and regulation, and environmental sustainability. The non-technical nature of our project enabled us to attract a wide variety of participants from all age groups with different experience levels and backgrounds.

This project fit into a broader strategic initiative of climate resiliency by the installation. As coastal communities attempt to adapt to changing climate and increased storm events it is of utmost importance to promote the infiltration of storm-water. Storm-water runoff and flooding is a concern along all of the New Jersey coast. The low impact designs of the two rain gardens will absorb storm water runoff in a very natural way by increasing filtration. By allowing water to infiltrate into the ground the native plants will filter the pollutants that are often found in storm-water runoff. Furthermore, the rain garden incorporates plants that beautify the area and increase habitat for wildlife. The gardens are located at the entrance of our facility and will be enjoyed by both the public and installation personnel. The gardens will also serve as a long-term educational tools and study sites for students, with several year-round projects planned for these gardens, including soil sampling and analysis for roadway contaminants. The installed signage will allow viewers to understand the purpose of rain gardens as a storm water management technique.

Project Output Totals:

- **30 volunteers**
- **3,004 square feet of land restored or maintained**
- **350 native plants added**

Enacting stormwater management practices or best management practices are pivotal to decreasing the amount of pollution found in stormwater runoff. These two gardens were planted with species specific plants based on key factors to increase infiltration while providing beneficial habitat to wildlife and pollinators.

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United States Navy



US Marine Corps Base Hawaii Kaneohe Bay | Hawaii NPLD Restoration at MCTAB

Project Dates: October 10th, 2020; December 5th, 2020

Project Summary: The objectives of this project were to: Remove non-native invasive vegetation; Plant native coastal vegetation; Install signage to educate the local community on the MCBH's restoration efforts and measures taken to preserve and protect Hawaii's threatened and endangered wildlife species; Educate community members on native and non-native invasive species, best planting practices, species ecological function, and the laws and regulations protecting endangered species.

MCHB engaged volunteers by utilizing social media and all official USMC platforms. Platforms utilized ranged from Facebook and Instagram to intranet notification boards and official emails. Volunteers engaged were active and retired military personnel, youth, families, and college students. In October the event objectives centered on these volunteers clearing invasive vegetation for native vegetation. Vegetation cleared included *ironwood* trees along the shoreline and *Opiuma*. Educational topics covered with the volunteers included safety and plant identification, information about the ironwood's allelopathic capabilities and the purposes behind removing invasive weeds.

Project Output Totals:

- **69 volunteers**
- **64,584 square feet of land restored or maintained**
- **60 pounds of trash collected and disposed**
- **3229 square feet of invasive vegetation removed**
- **25 native plants added**

In December, volunteers participated in activities that included additional removing invasive species, planting of native species, watering, sign installation, and debris pickup. The Natural Resources manager began the day with a briefing on activities. The Natural Resources manager explained the importance of restoring the coastal habitat and the connections between a healthy ecosystem and native wildlife. Then the environmental history of the site was explained as well as more details about the species being planted by volunteers. Shortly after, a representative from the Explosive Ordnance Division (EOD) gave a required briefing in case any unexploded munitions were uncovered during the digging. With volunteers and staff combined, they were able to clear several truckloads of invasive species, plant numerous native plants, install educational signs, and cleared the beach of marine debris. Ultimately this restoration project removed invasive ironwoods as well as other invasive species and replaced them with native plants to capture more sand along the crest of the dune. This will reduce and slow the shoreline erosion that is expected from sea level rise, preserving wildlife habitat and training grounds. Hawaii's shorelines provide habitat for iconic wildlife species such as the threatened Hawaiian green turtle and the Hawaiian monk seal, both of which use the beaches to rest and reproduce. The majority of Hawaiian green turtle nesting habitat and Hawaiian monk seal pupping grounds in the Hawaiian archipelago is in the North-western Hawaiian Islands. However, because of more frequent storm surges and sea level rise from global climate change, the low-elevation islands in the northwest are eroding away, reducing preferred habitat. Therefore, preserving the nesting habitat in the main Hawaiian Islands has been critical in their continued survival. Invasive species like ironwood trees do not hold the sand as well as native plants and produce toxic compounds that inhibit intra and interspecific competition, a strategy known as allelopathy. This reduces the number of mature plants in each area by increasing the spacing from ironwood to ironwood.

Performing critical conservation efforts such as removing invasive species also provides the Marine Corps Training Area Bellows (MCTAB) on the island of Oahu with important shoreline habitat for these threatened and endangered wildlife species as well as training grounds to prepare armed forces for combat. There has been a continued focus on stabilizing the beachfront to prevent or slow erosion rates from sea level rise, thereby preserving shoreline habitat and training grounds.

This project benefitted the community through the collaboration efforts to improve community awareness about the consequences of global climate change and resulting sea level rise. The event helped to restore native coastal areas in the community, preserving and enhancing wildlife habitat while simultaneously preserving military training grounds for future generations of marines. This project also improved the rapport between community members and the Marine Corps in the local community, helping to foster positive relationships. MCBH also played a role in educating community members on the importance of the training grounds, the existing local ecosystem, and how the Marine Corps responsibly stewards the land as well as the additional benefits included in conservation and natural resource projects such as reduced sediment and pollutant runoff, protecting nearshore reef environments and fisheries as well as increased aesthetic appeal for recreational users.

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Credit: US Marine Corps Base Hawaii Kaneohe Bay, Dain Christensen

NAVFAC Hawaii Traditional Hawaiian House (hale) construction

Project Dates: September 26th, 2020; October 3rd, 2020; October 10th, 2020; October 17th, 2020; October 24th, 2020; November 7th, 2020; November 8th – 18th, 2020; December 5th, 2020

Project Summary: NAVFAC Hawaii located in Hickam Field, Hawaii hosted an educational program and restoration project for the Loko Paaiau Fishpond to identify and remove invasive plant species around a traditional Hawaiian structure. The Hawaiian structure also had a stone foundation constructed for its future preservation. This structure will transform one of the few national lands that can be accessed by the public, service members and their families, alike, on Pearl Harbor, into an active sanctuary for the cultivation of peace, healing, and nature-connectedness.

Volunteers were recruited by advertising in the Navy (MWR) bulletin and announced during community meetings including the Aiea Neighborhood Board and Aiea Community Association. The volunteers were recruited using social media platforms, community meetings and Hawaiian civic club meetings. Volunteers were educated by the native Hawaiian master hale builder and native Hawaiian cultural practitioners. Homeschooled children from the adjacent Navy housing area participated in the activities as part of their curriculum which continued from the 2019 DoD Legacy award program. By participating in this event, volunteers became involved in local Hawaiian culture and strengthened the relationship between the Navy and the native Hawaiian community.

Volunteers on NPLD cleared vegetation from the adjacent location near the fishpond and leveled the ground surface which will also be used for traditional Hawaiian hale house. Then came the prepping, moving, and lashing of the wood needed to construct the house. Volunteers in November then helped to construct the hale and then installing poles and pouring in cement for stability. The project participants then successfully installed the hale. The hale will provide a place for veterans and community members to meet and learn about traditional Hawaiian culture, practices and to host educational programming. The local community including native Hawaiian organizations (NHOs) benefited by working in collaboration with the Navy to preserve and protect important cultural resources. Community groups associated with the hale construction effort educated the surrounding neighbors about protecting the environment and the adjacent fishpond. Also, due to donations from Kamehameha Schools, community members and organizations, the hale was built larger than originally proposed. This larger hale will provide sufficient space for meetings and conducting educational activities.

The hale construction project had a positive impact on cultural resources. The adjacent Loko Paaiau is an ancient Hawaiian fishpond that dates over 400 years old. It is one of the three remaining fishponds around Pearl Harbor that has survived. Over 22 fishponds once existed at Pearl Harbor, but development and neglect have reduced the number of fishponds to three. Pearl Harbor, traditionally known as Puuloa, was once the main settlement on Oahu, and residence to many Alii, or chiefs. Many of the native Hawaiians who participate with us in restoration are descendants of royalty who once resided in Puuloa. This project reproduced a traditional Hawaiian architectural structure that might have served the 'caretaker' of the adjacent fishpond over 400 years ago. Purposed in contemporary times as a space for traditional healing practices of land, spirit, and body, the hale will transform one of the few national lands that can be accessed by the public, service members and their families into an active sanctuary for the cultivation of peace, healing, and connection to nature. The creation of a traditional structure on a part of the ancient fishpond wall aligning the harbor is a place where visitors can quietly gather and share their experiences, join in restoring vitality to Pearl Harbor's water and animal life. Users will also receive traditional healing teachings to help address emotional anxiety, identity issues, post-traumatic stress disorder (PTSD) and situational conflict. It is well recognized that the burden of suffering from PTSD can weigh heavily on veterans and their families. Studies call for society to drive forward the development of new and better

Project Output Totals:

- **38 volunteers**
- **240 square feet of land restored or maintained**
- **35 native plants added**
- **240 square feet of invasive vegetation removed**
- **60 pounds of trash collected and disposed**
- **1 cultural resources or historical properties affected**

evidence-based treatment programs for veterans with PTSD. Nature-based therapy of this kind grounded in traditional indigenous practices will have a tremendous impact on our community.

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Naval Air Station Key West | Florida Installation of a Pollinator Garden at Naval Air Station Key West

Project Dates: October 17th, 2020; October 26th, 2020; October 27th, 2020; October 30th, 2020; November 11th, 2020; November 14th, 2020; November 21st, 2020; November 26th, 2020; November 27th, 2020; December 5th, 2020; December 12th, 2020

Project Summary: The Naval Air Station Key West created a pollinator butterfly garden and due to COVID-19 restrictions the garden was constructed over several days with a limited numbers of volunteers. Site preparation was completed by members of the United States Naval Construction Battalion, who had access to the equipment needed to prepare the garden site. While working along side the installation's Environmental Division personnel, young sailors were educated on the ecological benefits of planting native plants that will provide habitat for native animals.

"With that said while installing the garden they all felt a strong sense of accomplishment as they watched birds and butterflies take advantage of the new habitat."

-Edward Barham

Placement of the pollinator garden converted an unproductive area into a native habitat for wildlife and created a green space for the Air Station's workforce to experience the local flora and fauna of Florida. Furthermore, the installation of park benches and new native flora in the garden will enhance the human experience by providing a gathering location for the workforce and quiet greenspace. Unfortunately due to COVID-19 restrictions, only individuals who had current base access could participate in this event. However, the broader community will also benefit from the creation of this pollinator garden for years to come. The installation's environmental office will invite local schools and youth organizations to visit the garden in the future to learn about the native plants and animals on and around the installation.

Project Output Totals:

- **13 volunteers**
- **3000 square feet of land restored or maintained**
- **200 native plants added**

This project transformed a curated grass field, providing no native habitat or ecological benefits to native species into a garden of native plant species providing habitat for native pollinators and animals. The garden also provides a natural resource focal point in the administrative area of the installation for installation personnel to enjoy and experience nature. Furthermore, project impacts has been seen in groundskeeping maintenance requirements, where mowing has been reduced. The increase of local native plants and animals will result in the uptake of runoff and the filtration of pollutants. The Florida Keys native plants used in this project contributes to local biodiversity and the support migratory birds within the Gulf/Caribbean Flyway. The garden will serve as an ongoing education and demonstration project to inspire DOD personnel to implement native plant gardens in their home environments.

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