



# Department of Defense Legacy Resource Management Program

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## National Public Lands Day 2017

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**DEPARTMENT OF DEFENSE  
LEGACY RESOURCE MANAGEMENT PROGRAM (17-086)**

**National Public Lands Day 2017**

On September 30, 2017, the National Environmental Education Foundation (NEEF) celebrated National Public Lands Day (NPLD) along with 2,108 sites across the nation. As part of the 24<sup>th</sup> annual NPLD, approximately 168,640 volunteers visited public lands sites across the nation to contribute an estimated \$16.7 million in 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 2017, NPLD continued to focus on promoting the health benefits of outdoor recreation and the interconnectedness of human health and the wellbeing of our nation's public spaces. Sites were encouraged to integrate recreational activities for adults and youth into their events, such as hiking, birding, biking and fishing.

The Department of Defense (DoD) provides funds to NEEF for NPLD projects on military lands open to the public for recreation. Since 1999, NPLD has received \$2,765,367.68 through the Legacy Resource Management Program (Legacy). In 2017, a total of \$134,459.54 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 the natural and cultural resource managers 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 28 applications for Legacy awards of up to \$6,500 each for 2017 NPLD projects. In September 2017, NEEF notified 28 sites that they were selected to receive an NPLD DoD Award. Funds were accepted by only 26 of these sites. Unfortunately, two of the awarded sites were not able to implement their NPLD projects as the timing came during the aftermath of natural disasters in their regions.

Legacy funds were awarded by NEEF to sites via direct payments to the installation or reimbursing vendors for all items purchased that pertained to the awarded project. The branches awarded Legacy Resource Management Program funding consisted of eight Air Force, six Army, six Army/Air National Guard, one Marine Corps and five Navy sites.

Approximately 1,105 volunteers took part in various natural and cultural resource improvement activities that were offered at the 26 funded Legacy installations. Many Legacy sites organized natural resource rehabilitation projects to improve habitat for pollinator species, remove of invasive plants, reduce environmental degradation caused by human use, enhance sand dunes, reduce erosion, maintain trails, plant native trees and wildflowers, and more. The cultural resource activities included preserving burial sites, honoring war veterans, and holding educational programming around the history and culture of installations.

In addition to receiving funds, upon request, participating DoD installations also received 2017 Federal Fee Free Coupons to distribute to their volunteers. Each year, NEEF distributes these coupons to volunteers at NPLD sites on lands managed by five federal land management agencies (Bureau of Land Management, National Park Service, U.S. Army Corps of Engineers, US Fish and Wildlife Service and US Forest Service). While DoD installations technically are not open to the public, NEEF chose to honor the agency's continued partnership by offering this special incentive.

# Legacy Sites 2017

<b><u>United States Air Force</u></b>	<b><u>Amount Awarded</u></b>
Beale Air Force Base   California	\$4,388.00
Bellows Air Force Station   Hawaii	\$6,500.00
Bellows Air Force Station, Hawaii Army National Guard   Hawaii	\$6,500.00
Dover Air Force Base   Delaware	\$3,837.70
Eglin Air Force Base   Florida	\$6,498.60
Fort Eustis   Virginia	\$5,170.00
Hill Air Force Base   Utah	\$6,500.00
Hurlburt Field Air Force Base   Florida	\$1,063.50
<b><u>United States Army</u></b>	
Fort Bragg   North Carolina	\$4,500.00
Fort Hood   Texas	\$6,500.00
Fort Leavenworth Environmental Division   Kansas	\$1,100.00
Fort Leavenworth Environmental Division   Kansas	\$2,839.50
Joint Base Lewis McChord   Washington	\$6,500.00
Makua Military Reservation   Hawaii	\$6,467.85
<b><u>United States Army/Air National Guard</u></b>	
Camp Mabry   Texas	\$6,500.00
Camp McCain Training Center   Mississippi	\$2,227.16
Camp Murray   Washington	\$6,500.00
Camp Ripley   Minnesota	\$4,250.00
Fort Custer Training Center   Michigan	\$6,500.00
Fort George G. Meade   Maryland	\$3,000.00
<b><u>United State Marine Corps</u></b>	
Marine Corps Air Ground Combat Center   California	\$5,553.36
<b><u>United States Navy</u></b>	
Fort Belvoir   Virginia	\$3,250.00

Joint Base Pearl Harbor-Hickam   Hawaii	\$5,246.00
Joint Expeditionary Base Little Creek-Fort Story   Virginia	\$4,283.00
Naval Support Activity Hampton Roads, Lafayette River Annex and Portsmouth Annex   Virginia	\$4,799.02
Pacific Missile Range Facility   Hawaii	\$6,230.00



# United States Air Force



## Beale Air Force Base | California Natural Resource Project: Beale AFB NPLD Pollinator Habitat Restoration

**Project Date:** November 16-17, 2017

**Project Summary:** In commemoration of NPLD 2017, Beale Air Force Base staff and volunteers conducted a pollinator habitat restoration project on a two-acre plot within the base conservation area, which is located adjacent to an established nature trail.

Prior to the workdays, base staff prepared the project site for planting by weed-whacking invasive vegetation, removing duff and trash, and compiling brush piles of dead tree limbs removed from the nearby nature trail. These brush piles will later serve as habitat for wildlife. Staff then applied herbicide to the project area to reduce competition from non-native weeds.

During the two project workdays, staff and volunteers planted 500 native shrubs and trees of 12 different species, along with mulch and large rocks which will denote the location of the new plants, as well as provide them with shade during the dry season. Participants also removed weeds and constructed a foot trail through the site.

On Friday, December 1<sup>st</sup>, staff and volunteers seeded the site with native grasses and forbs. Staff also installed browse cages to protect the newly-planted shrubs from deer. Sand piles were built at two locations within the work site to provide appropriate nesting sites for native ground-nesting bees.

Benefits of the project to the site were seen almost immediately. As of December 8<sup>th</sup>, native wildflower seedlings were sprouting and native wildlife had begun to visit the site. Native songbirds such as western bluebird and black phoebe were also seen foraging within days of the site being planted. Lizards have colonized the newly open areas now that weeds had been removed and could be seen on warm fall days basking on newly-added rocks that marked the trail. Native bee burrows were evident at both the sand piles.

This project provided a chance for volunteers to learn about the unique plant life of California's Mediterranean climate and to gain a greater appreciation for the importance of intact native vegetation to pollinator species. During the event, base staff led educational







discussions on the value of native plants in landscaping and on habitat connectivity to wildlife like birds and pollinating insects.

The location of the restoration area will have long-term benefits for base personnel. It is along an easily accessible, well-used trail near base housing. Service members, their families, retirees, and veterans also use the nature trail on a regular basis. The native pollinator species that were planted will result in a flowering season that will last throughout the year, attracting both pollinator species and trail users year-long. Project staff are hopeful that participating volunteers left the workdays with an appreciation for California's biological diversity and that this respect for the outdoors will inspire them to continue to engage with the site and its natural resources.

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## **Bellows Air Force Station | Hawaii**

### **Cultural and Natural Resource Project: Malama Pu'ewai Wetland at Bellows AFS**

**Project Date:** August 19, September 9, 16, and 23, and October 14, 2017

**Project Summary:** Bellows Air Force Station (BAFS) implemented a cultural and natural resource project over the course of four separate work days. Volunteers cleared invasive plants and out-planted native Hawaiian flora on the wetland perimeter of Pu'ewai wetlands and the adjacent Hawaiian burial vault.

The main NPLD event occurred on Saturday, October 14<sup>th</sup>. A diverse group of over 300 volunteers from local universities, community groups, grade schools, as well as Navy, Marine, Air Force, and Army personnel participated in the wetland restoration project. Volunteers removed hundreds of invasive Brazilian pepper, Opiuma, Koa haole, and Milo trees and collected cuttings from native plants to be used to propagate future plants. Volunteers also worked to remove invasive species, load green waste into a chipper, spread mulch, assemble an irrigation system, and water plants.



Pu'ewai wetlands and the adjacent Hawaiian burial vault are focal points for cultural and natural resource activities on BAFS. The NPLD volunteers removed hundreds of invasive shrubs and trees and out-planted native Hawaiian flora around a wetland that provides roosting, loafing, foraging and breeding habitat for endangered native Hawaiian water birds.

The volunteer program also involved various cultural elements. BAFS was one of the first locations settled by Polynesians in Hawai'i. Some of the oldest Hawaiian artifacts in Hawai'i have been found on the edge of the wetlands and near the burial vault. Volunteers were briefed on Hawaiian customs and mentored to act respectfully



while working in sacred soil and around the burial vault to protect the 'āina (land). Educational components also included lessons on native plant and native water bird identification. Upon the culmination of the project, BAFS interns updated the Integrated Natural Resources Management Plan while Air Force environmental professionals provided critical feedback and mentoring.



*“The Hawaiian ceremonial practice conducted before the start of each project emphasized the cultural and spiritual aspect of the planting event; it provided greater meaning to the project. “Ka wa ma mua, Ka wa ma hope” (The future is in the past). To move forward we need to look back to the past. It is critical to restore native Hawaiian ecology in order to be able to preserve native Hawaiian habitats before invasive species eradicate the unique and fragile ecosystems of Hawaii. As caretakers of the planet, we need to restore, preserve, and protect the ‘āina we inhabit,”* Craig Gorsuch, BAFS Environmental Program Manager.

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## Bellows Air Force Station, Hawaii Army National Guard | Hawaii Cultural and Natural Resource Project: Bellows Sand Dune Restoration Project

**Project Date:** October 14, 2017

**Project Summary:** The Hawaii Army National Guard (HIARNG) conducted their NPLD volunteer event on Saturday, October 14<sup>th</sup> along Bellows Beach in Waimanalo, Oahu. HIARNG manages a Youth Challenge Academy (YCA) program that helps troubled youth get a GED and find a positive life path. For the NPLD event, two platoons of YCA cadets, totaling 48 boys, assisted with the sand dune out-planting event. Participants were able to stage and then plant over 500 native plants, trees, and grasses around the 3,000 sq. ft. sand dune. They then spread mulch and installed a drip irrigation system to ensure survival of the native Hawaiian plant species. Later in the workday, the YCA cadets cleared plastic trash and debris from the shore line and removed approximately 100 pounds of invasive species.



On a previous occasion, Bellows beach shoreline was planted with Ironwood trees (*Casuarina equisetifolia*) as a coastal windbreak, before the impacts of this non-native tree were known. These Ironwood trees actually exacerbate shoreline erosion by suppressing plant growth below them and exacerbating sand dispersal by heavy winds. This NPLD project advanced efforts to remove the Ironwood trees and to replace them with a mix of native Hawaiian shrubs and groundcovers. These native Hawaiian plants are perfectly suited for the shoreline location and create a natural sand dune that retains the sand in place and protects against erosion.

By removing invasive trees and replacing them with native Hawaiian plants, the project reduces water usage and opens up shoreline access for visitors to enjoy. It also reduces shoreline erosion over the long-term. There is also an aesthetic aspect to his project, as the newly added plants beautify the landscape and promote the growth of both native and non-native pollinator species.

Project staff educated volunteers on the cultural and natural history of Waimanalo, and on the importance of caring for and sustaining the island's biodiversity and culture. Volunteers learned about the early Hawaiian civilizations that settled Waimanalo and the history and uses of the different species of native Hawaiian plants they were planting. Staff and volunteers discussed the importance of eliminating single-use plastic items in reducing the ever-growing accumulation of plastic items in our oceans. After the volunteers collected plastic debris off the shoreline, they sorted through the items and talked about where they came from and how they could contribute to reducing plastic pollution.

This program has successfully retained sand and improved erosion conditions along the shoreline, which in turn, facilitates visitors' enjoyment of the shoreline for sun tanning, relaxing, and other recreational activities. These native plant dunes also attract pollinator species and give an opportunity for Bellows staff to educate visitors of Bellows of the importance, both naturally and culturally, of these native plant sand dunes. This project reminds visitors and locals of the importance of the Hawaiian culture as well as the beauty and benefit of native Hawaiian plants. NPLD staff and volunteers benefited from being outdoors and enjoying the healing properties of the ocean.

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## **Dover Air Force Base | Delaware**

### **Cultural and Natural Resource Project: Landscaping at Bergold Farm and John Wesley Methodist Episcopal Cemetery**

**Project Date:** November 15-18, 2017

**Project Summary:** Several work days were required to complete the NPLD project on Dover Air Force Base.

#### Wednesday, November 15<sup>th</sup>:

- The 436th Civil Engineering Squadron completed site surveys at both the John Wesley Methodist Episcopal Cemetery and the Bergold Farm. The site surveys confirmed that excavations at the Cemetery and Bergold Farm sites would not disrupt local utility services.
- NPLD project planners purchased trees, compost, wheel barrows, shovels and safety gloves from local vendors.

#### Thursday, November 16<sup>th</sup>:

- A mechanical auger was delivered to Dover AFB by Sun Belt Rentals and airman stationed at Dover AFB bored 25 holes at the cemetery site.

#### Friday, November 17<sup>th</sup>:

- Trees and compost were delivered to Dover AFB.
- Twenty-five additional holes were bored at the Bergold Farm planting site.

#### Saturday, November 18<sup>th</sup>:

- The official NPLD project was executed on Dover AFB.
- Twelve volunteers worked in groups of three to complete the project at the John Wesley Methodist Episcopal cemetery site. Each group was responsible for planting 12 trees, 6 of which were planted at Bergold Farm site and the remaining at the John Wesley Methodist Episcopal cemetery site.



The John Dickinson Plantation is located about 2,000 feet from Dover AFB. Its namesake, John Dickinson, served as the President of Delaware and was a co-signer of the Declaration of Independence. In the late 18th Century, the plantation encompassed more than 3,000 acres and spanned from Dover Delaware to the Delaware Bay (nearly 18 miles). The land that was formerly the plantation now encompasses the property that is Dover AFB, as well as the Bergold Farm and the John Wesley Methodist Episcopal Cemetery.

The Bergold Farm and the Cemetery are visible from the front gate of the Dickinson Plantation. On May 9, 2014 the Delaware State Historic Preservation Office expressed concern about the building construction activity on Dover AFB and the negative impact it was having on the Dickinson Plantation view shed. Dover AFB proposed to install evergreen trees along the Bergold Farm perimeter fence and the John Wesley Methodist Episcopal Cemetery to supplement the existing foliage and to provide a long-term solution to the problem.

The trees were scheduled to be planted in phases. The first phase was completed in June, 2014. The funding made available by NEEF enabled Dover AFB to complete the second phase in 2017. The end result of this project is the enhancement of a property listed on the National Register of Historic Places.

In addition to the 436 CES Squadron Commander and his children, representatives from Public Affairs, Explosive Ordinance Disposal, Environmental, and a cadre of Civil Engineering Technicians participated in this year's work project.

*"NPLD participants enjoyed a cardio workout. Undoubtedly, heart rates were increased while engaged in transporting trees and compost from the truck to where they would be planted. Participants undoubtedly met new friends and the comradery was evidence of a low-stress project... I recall one participant exclaimed that [she's] not used to this kind of work.' She had a big grin on her face while she was saying it. Several participants brought their children along. Many remarked on how the children are learning a skill they would use over and over throughout the rest of their lives,"*  
NPLD Site Manager, Thomas Creaven.



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## **Eglin Air Force Base | Florida**

### **Natural Resource Project: Spence Parkway Ramp Loop Longleaf Pine Native Planting**

**Project Date:** October 28 and 31 and November 27-28, 2017

**Project Summary:** NPLD DoD Award funding enable Eglin Air Force Base to complete two projects:

#### Project 1:

- Volunteers constructed and installed bat houses at two Eglin AFB pond areas which are home to federally-listed salamander habitat. This project was an opportunity to educate middle and high school participants about species conservation, the importance of pollinators, and the function that bats perform in a healthy, diverse environment.

#### Project 2:

- Eglin AFB Natural Resources personnel improved 5.1 acres of land on the Spence Parkway by incorporating 682 cubic yards of offsite topsoil, 5,075 pounds straw mulch, 1,664 pounds fertilizer and 128 pounds of wildflower seed. Volunteers added 1,650 pounds of fertilizer and broadcast 225 bales of straw mulch at the site. The addition of longleaf pine, saw palmetto, and wildflower seeding will enhance the aesthetics of the area. Visitors and local citizens frequently travel past the site and will now be able to admire the natural beauty of the landscape adjacent to major highway intersection. Restoring the site will also provide habitat for pollinators.

These projects benefited the installation by enhancing habitat for pollinator species and landscape diversity at the project sites.

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## **Fort Eustis | Virginia**

### **Cultural and Natural Resource Project: Joint Base Langley-Eustis Works Progress Administration Cemetery Clean-up and Restoration Project**

**Project Date:** January 18-20, 2018

**Project Summary:** On January 18<sup>th</sup> and 19<sup>th</sup>, staff from the Cultural Division of the Environmental office prepared the work site – the base’s upper plot – by staging a wooden border and mowing the area. These preparations readied the site for the volunteers. On January 20<sup>th</sup>, 14 volunteers from Boy Scout Troop #45 installed new wooden borders and mulched two cemetery plots. The mulch will serve multiple purposes, as it enhances the aesthetics of the plots, while also helping to reduce erosion.

In addition, volunteers from the 210th Aviation Regiment, 128th Aviation Brigade, and Environmental Element staff installed six interpretive signs along the nearby nature trail. The signs were placed at existing rest areas which will instruct visitors about the extensive cultural and natural heritage on Fort Eustis. The signs will highlight archaeological sites, erosion control, and the forested woodland on Fort Eustis. The signs along the nature trail will be updated seasonally, providing information on trees, plants, and animals habitats along the route. The signs also include historical information about the installation dating back several thousand years.



This project was especially important as Fort Eustis will be commemorating its centennial year in 2018. Part of the celebrations will be to highlight one of the lesser known periods in the installation’s history. This is an important part of the installation’s public outreach.

The workday was also an opportunity for the Boy Scouts to protect and preserve these sites while learning about the extended history of Fort Eustis.

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## **Hill Air Force Base | Utah**

### **Natural Resource Project: Habitat Restoration and Invasive Species Control**

**Project Date:** November 9 and 22, 2017

**Project Summary:** The site designated for this year’s NPLD project was located on an area of Hill Air Force Base that had been degraded by concrete and other discarded trash. The project sought to restore the area with trees, shrubs, forbs, and grasses, which would benefit deer, birds and insects.

Air Force personnel brought in top soil and covered the site in preparation for the restoration efforts. USFWS staff then assisted with the preparation of soil, which involved disking, harrowing and compacting. On November 9<sup>th</sup>, the volunteers planted seedlings and seed mix for about 4 hours. The following week, three volunteers returned to the site to do further planting and to place bamboo and plastic cages around the seedlings. Finally, USFWS staff planted the seed mix over the entire site using a drill seeder and broadcast seeder. Ultimately, 2,500 seedlings were planted, 40 pounds of trash were removed, and 400 pounds of invasive vegetation were pulled.



This project had major impacts on the natural resources of this DoD site. Prior to the project, the site was completely overtaken by weeds and did not offer any benefits to the wildlife or people on-base. Now that plants have been added, wildlife will benefit from the species richness of the site and humans will be able to enjoy the enhanced aesthetics. The added plants will also stabilize the hillside below the site which will prevent erosion.



This project benefitted both the military lands, as well as those participating. Over the course of the workdays, biologists guided volunteers and gave further context about what they were doing and its anticipated impact. As the project progressed, participants gained a sense of accomplishment, which established an emotional connection with these military lands.

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## Hurlburt Field Air Force Base | Florida Natural Resource Project: Birdhouses on Hurlburt

**Project Date:** October 21 and 23, 2017

**Project Summary:** Hurlburt Field Air Force Base personnel worked with on-base residents, as well as Corvias Housing, the Youth Center, and the Choctawhatchee Audubon Society, to celebrate National Public Lands Day. NPLD participants built 30 birdhouses and then installed them on-base.

Residents came with their families on Saturday, October 21<sup>st</sup> to build their own birdhouses and to listen to Choctawhatchee Audubon Society's guest speaker. The speaker gave a talk about outdoor recreation, conservation, and natural resource stewardship and presented nests, egg shells, feathers and photos. In addition, the NPLD project leader spoke about the physical and mental health benefits of checking on the nests and other outdoor activities. At the end of the day, participants took their birdhouses home to be installed. The Natural Resources Office (NRO) worked with Corvias Housing to assist residents with the installation.



On Monday, October 23<sup>rd</sup>, The NRO worked with the Youth Center to teach two classes on birdhouse construction. Teachers installed these birdhouses at the Youth Center for teachers and students to monitor. The NRO and the Youth Center will administer a citizen science component – NestWatch – during 2018, when nesting activity begins for the season. All participants have instructions on how to collect the data for NestWatch and the NRO will teach them how to check the birdhouses and how to collect the necessary information for the citizen science project.



In addition to the birdhouses installed on this year's NPLD, there are also additional safe nesting places on Hurlburt which will support migratory bird conservation on-base. Nesting season is spring-summer, so the project will likely not affect birds until the 2018 season, though the birdhouses will provide safe roosting sites for birds migrating this fall, and for birds caught outside at night away from their usual nightly roosts. These safe nesting sites will decrease the risk of depredation or exposure to the elements. In the long-term, these safe and monitored birdhouses will provide nesting sites for migratory birds that require cavities (a limited resource on the landscape). Safe nesting sites will likely increase the nesting success of the two focal species for this project: prothonotary warblers and eastern blue-birds.



The citizen science aspect of this project (NestWatch) will also have long-lasting effects. Volunteers participating in the NestWatch project will learn important scientific skills like observation, research, note-taking, and reporting. Base personnel's hope is that the young participants will learn to love science, natural resource conservation, outdoor recreation, and that this project will inspire them to become scientific leaders themselves.

*"[The Natural Resource Office] oversaw [the building of] 30 birdhouses: 20 for residences/main base locations and 10 for conservation areas. This project supports environmental education, conservation awareness, outdoor recreation and health, and natural resources management for base personnel. [Their] drive to make this a successful program for all the volunteers will have long lasting effects on Hurlburt Field and its residents,"* John Turner, Hurlburt Field Environmental System Program Manager.

*"The birdhouse project is a big success with the residents in housing on Hurlburt. It serves so many different purposes. It definitely is a great way to educate the families regarding the wildlife in the area and how important each species is to our area. It has provided a resident's son an opportunity to use his Eagle Scout knowledge and teach his younger brother as well. Many of the residents have their children involved in the project, therefore, teaching them at a young age to respect nature,"* Julie Crowell, CORVIAS Assistant Community Manager.

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# United States Army



## Fort Bragg | North Carolina Natural Resource Project: United States Army Reserve Command Marshall Hall Pollinator Gardens Phase 2

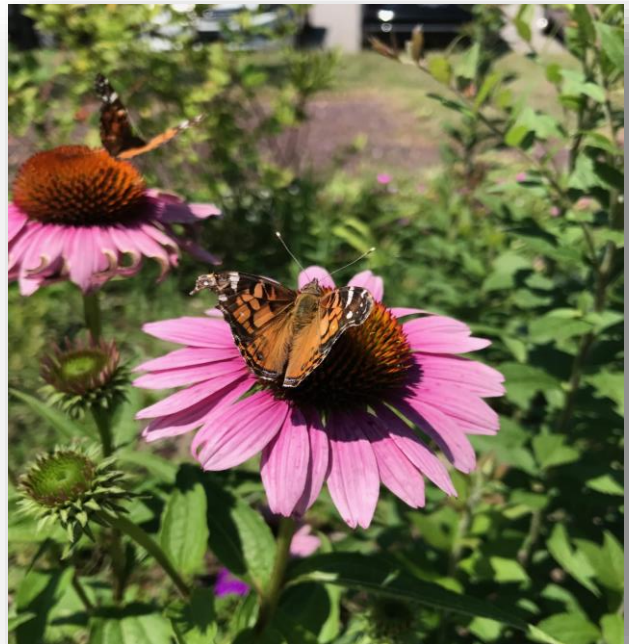
**Project Date:** October 24 – 25, 2017

**Project Summary:** Army Reserve Sustainability Program utilized their grant funds to maintain improvements implemented during last year's NPLD. On last year's NPLD, Fort Bragg personnel installed three raised bed pollinator gardens on the campus of Marshall Hall (headquarters of United States Army Reserve Command). This year, funds supported phase two of the project.

The main goals of the 2017 NPLD project at Marshall Hall were:

- removal of invasive grasses and weeds that infiltrated the raised bed pollinator gardens over the summer;
- replacement of perennial plants that did not survive;
- expansion of bird habitat expand.

During the course of the workdays, volunteers removed invasive grasses and weeds, installed landscaping fabric to prevent invasive growth, and added pollinator plants to the raised beds. Volunteers also built bird habitat (including trees and berry producing shrubs) adjacent to the raised beds to significantly expand the pollinator habitat on the campus of Marshall Hall. The raised bed pollinator gardens and bird habitat area have enhanced the aesthetics of the high visibility Marshall Hall campus and have greatly contributed to the integrity of its natural resources.



Staff and volunteers installed 60 perennials and 10 butterfly bushes in the raised beds, which will help augment the pollinator garden and replace the plants that did not make it through last year's winter season

The most significant addition to the pollinator habitat at Marshall Hall has been the bird garden. The installation of 20 needlepoint holly shrubs will provide both shelter and food for the birds around campus. The holly shrubs have also created a barrier between hardscapes and landscapes on the campus, which prevents excessive foot traffic on delicate landscaped areas and reduces resulting erosion. The newly-added crape myrtle trees and maple trees will provide nesting habitat for birds and will support the natural water management of a flood-prone area. They have also greatly enhanced the aesthetics in the courtyard of the facility.

All participating volunteers expressed a desire to work on the pollinator garden project in the future. Army Reserve Sustainability Program personnel plan to hold regularly scheduled maintenance days throughout the coming year to provide those opportunities.

Many facility occupants - even those who did not volunteer to work on the project - have expressed their gratitude for staff and volunteer efforts and have commented that the gardens significantly enhance the natural resources

and aesthetics of the facility. Soldiers and Civilians who work in Marshall Hall have been enjoying the picnic areas adjacent to the gardens. Several people have noted that they enjoy watching the wildlife and monitoring the plant growth in the habitat that we have created.



*"[Army Reserve Sustainability Programs] was honored to receive our first NEEF grant [in 2016]. We were excited to further our efforts to enhance natural resources across the Army Reserve in 2017. National Public Lands Day establishes valuable partnerships with advocates for sustainability at many levels – from the volunteers who lend their hands to build these habitats to the Soldiers who enjoy these gardens to the agencies that support these projects. It is a great opportunity to educate our communities about all of our sustainability initiatives. We hope that we can contribute to this event and to the protection of our pollinators for years to come," Paul Wirt, Chief of Army Reserve Sustainability Programs.*

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## Fort Hood | Texas

### Natural Resource Project: The Fort Hood Bird, Bee, Butterfly and Bat Nature Walk

**Project Date:** October 27, 2017

**Project Summary:** Fort Hood hosted their National Public Lands Day event in conjunction with Make a Difference Day (MADD) on Friday, October 27<sup>th</sup>. Combining the NPLD project with MADD created a unique opportunity for soldiers and their families to work collaboratively toward a common goal. Service members and natural resource staff worked together to build a trail, clean up trash, plant trees, and enhance a grassland area. Airmen from the 3rd Weather Squadron and the Sgt. Audie Murphy Club also volunteered their time and Dominion Energy provided in-kind support through project supplies. Participation in this natural resource project taught participants about the value of pollinators, native vegetation and ethical land stewardship.

The project addressed the recent Monarch butterfly conservation crisis and the need for a native pollinator walking trail on-base. Staff and volunteers restored a 3-acre area overtaken by invasive vegetation and trash by planting ten trees and adding native pollinator grass and flower mix. Large planters were used to display native flowers that will serve as pollen and nectar sources by a variety of pollinators. Project participants also installed a trail with various stations that will provide information about native plants and pollinators. This trail will serve as a nature walk and will be an extension of the native plant demonstration garden. It will also be used as an interactive learning tool for school aged children. One stop on the nature walk will be a greenhouse that will house native milkweed seedlings and be used as a Monarch butterfly nursery.

The project will have far reaching impacts for the base and its surrounding community. The natural area can now be experienced more fully via the newly-installed trails. The greenhouse will be an asset to the base as it will enhance its offerings as an outdoor classroom and a research center. All of the project's objectives were completed with the exception of adding herbaceous plants in the ground. The weather was not favorable for this plant's survival so the plants will be housed in the aforementioned greenhouse until next spring.



Quotes from a [Fort Hood Sentinel news article](#):

*"It will be a tool to show the community aesthetically pleasing and economically beneficial native landscaping. Therefore serving as a demonstration for Soldiers, civilians and contractors ... inspiring the use of native plants across the installation and in neighborhoods,"* Carla Picinich, DPW agronomist, said. *"Native grasslands compared to mowed lawns are more beneficial to wildlife."*

*"Monarch populations are in steep decline. We initiated part of our Military Monarch Management Plan this fall and have already tagged and collected data on over 900 monarchs. We will use this garden to show that monarch conservation will help sustain habitats for other important pollinators, animals and plants,"* Jacky Ferrer-Perez, program manager, Natural Resources' Adaptive & Integrative Management program.

*"Sgt. Audie Murphy did a lot for the community and the military,"* Sgt. 1st Class Sean Prater, president of the Sgt. Audie Murphy Club, said. *"For members that are fortunate enough to receive this honorable award to be a part of this club, we make sure to give back through community service and outreach with Soldiers and civilians."*

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## **Fort Leavenworth Environmental Division | Kansas**

### **Natural Resource Project: Establishing pollinator friendly shrubs and herptile monitoring transects**

**Project Date:** December 1, 2017

**Project Summary:** On December 1<sup>st</sup>, twelve girl scouts and four adult leaders participated in Fort Leavenworth's second annual NPLD project. Volunteers cleared invasive bush and honeysuckle; planted 300 flowering shrubs, and cut sheets of plywood into herptile cover boards for herp surveys. The planting of native shrubs will provide better structural heterogeneity for nesting birds as well as nectar sources for early season pollinators. Two of the species that were planted will provide fruit that will be utilized by neo-tropical migrants and other wildlife on the Fort. At a later date, additional cover boards will be created from plywood and placed in transects in the area. This will provide habitat for local reptile and amphibians as well as provide an easy method for surveying resident herptile populations.

This project removed several hundred bush honeysuckle plants from a riparian corridor adjacent to a housing area and fitness trail and replaced them with native flowering shrubs. This added diversity will be more appealing to housing residents and trail users. The species richness will also benefit the post's natural resources. The native shrubs will spread out the flowering times for pollinators, increase vertical heterogeneity for nesting birds, and impede the reestablishment of the invasive bush honeysuckle.

During the course of the workday, the Natural Resources Specialist briefed participants on the dangers of invasive species and the plight of neo-tropical songbirds and native pollinators. The Specialist explained the negative impacts of bush honeysuckle and the positive impacts of native shrubs on pollinators and nesting birds. These lectures helped get volunteers to think about how this project will directly impact habitat and benefit songbirds and native pollinators.

Invasive species are a concern on all public lands and E.O. 13112 directs resource managers of these federal lands to limit the spread and reduce the acreage of invasive species. Prior to the NPLD project, Fort Leavenworth had several riparian areas that were invaded by bush honeysuckle. Bush Honeysuckle crowds out native shrubs in the understory and is known to create habitats that increase chick mortality in birds nesting in these monotypic environments. It also suppresses the growth of the native trees in the overstory.

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## Fort Leavenworth Environmental Division | Kansas

### Cultural and Natural Resource Project: Beautification of Old Disciplinary Barracks

**Project Date:** November 11, 2017 and December 1, 2017

**Project Summary:** On Saturday, November 11<sup>th</sup>, eleven individuals representing the 40th, 705th, MEDDAC and Fort Leavenworth Garrison removed weedy growth from flower beds in the Old Disciplinary Barracks at Fort Leavenworth and replaced it with an assortment of day lilies. Ultimately, volunteers cleaned and re-mulched 823 linear feet of flower beds. They also began planting a portion of the 450 plants that will eventually be added to the area. On Friday, December 1<sup>st</sup>, twelve girl scouts and four adult leaders returned to the site to finish the planting and install more mulch over the area.

In 2003, the Old Disciplinary Barracks at Fort Leavenworth were repurposed as office space. Since then, the Barracks' three flower beds have been overgrown with weeds. This project aimed to remove these weeds and to replace them with perennial day lilies. This will cut down on maintenance requirements and herbicide use by the Fort's maintenance crews. It will also provide nectar sources for humming birds, butterflies, and other pollinators in the area. Lastly, the day lilies will be much more aesthetically pleasing than previous vegetation.

The Presidential Memorandum on Environmentally Beneficial Landscaping states that landscaping at federal facilities should: "use locally adapted plants; plants that minimize the use of pesticides and supplemental watering; and prevent pollution from fertilizer and pesticide runoff." It also states that "DoD will maintain pesticide reduction goals and...Reduce the use of chemical pesticides." This year's NPLD project will help Fort Leavenworth meet these mandates and goals.



Ultimately, this project provided an opportunity for volunteers to beautify a historical property that has been repurposed as office space while learning about the historical significance of the building and the natural resource benefits of projects such as these.

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## Joint Base Lewis McChord | Washington

### Natural Resource Project: Habitat enhancement for birds, bees, and reptiles at Joint Base Lewis-McChord

**Project Date:** October 17 – 18, 2017

**Project Summary:** On October 17<sup>th</sup> and 18<sup>th</sup>, 25 volunteers from Joint Base Lewis McChord (JBLM) and its surrounding community helped build owl boxes, bat towers, and mason bee blocks. Volunteers included participants in JBLM's Environmental Restoration Warriors, an internship program for active duty personnel, as well as family members of JBLM Soldiers, and students from The Evergreen State College, Tacoma Community College, University of Washington Tacoma, and Pacific Lutheran University. Several staff biologists provided information about local flora and fauna, as well as an overview of JBLM Fish & Wildlife's efforts to conserve over 35 rare species on base. It was especially meaningful for student participants to have the opportunity to see first-hand the rare habitats that they are currently studying in school.

The main objective of the project was to build and install nest boxes for Saw-whet owls. This species is heavily impacted by rural and suburban development, so this project will increase the functionality of JBLM as a refuge for them. On the day of the project, JBLM staff were prepared with pre-cut boxes for volunteers to assemble and cover boards to be painted. Volunteers worked under supervision of interns and biologists in the wood shop while the outdoor work crews cut underbrush and marked trails. These improvements will facilitate monitoring access to wetlands for owls, amphibians, and wood ducks.

Biologists installed the majority of the nest boxes during the two-day event, and the rest will be put up throughout the winter. Then for the foreseeable future, monitoring and upkeep will become part of JBLM's year-round internship program for injured and retiring active-duty service members.



Other workday activities involved the assembly and installation of cover boards for a reptile population mapping study. Volunteers cut, painted, and installed the boards under the instruction of biologists. Mason bee blocks were drilled and prepared and interns will install the blocks later in the year.

These grant-funded activities accomplished significant improvements to the habitats of several rare species. Furthermore, volunteer participants benefited by witnessing first-hand the work being done to steward the landscape and protect the base's valuable natural resources.

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## Makua Military Reservation | Hawaii

### Natural Resource Project: Kahanahaiki Weed Control and Restoration Project with Live Broadcast

**Project Date:** September 30 and November 14, 2017

**Project Summary:** Makua Military Reservation hosted two events for this year's NPLD. The first occurred on Saturday, September 30<sup>th</sup> and was an 8.5-hour workday, during which staff and volunteers removed invasive species including strawberry guava, Koster's curse and lilikoi within the designated restoration area. The group was able to accomplish impressive invasive weed control, ultimately clearing an area of 793m<sup>2</sup>. This weeding effort was vital for the fragile native plants that were uncovered within the area, which now have a chance to access more sunlight, nutrients and water. In addition, it paved the way for the planting efforts planned for the next stage of the NPLD project.



The second event took place on Tuesday, November 14<sup>th</sup> and involved seed collection and picking of fruit from aalii trees within arm's reach. In addition, volunteers helped plant over 350 common native plants such as *manono*, *kolea*, *kookoolau* and *maile* in order to restore the weeded area. During the event, staff and volunteers were able to plant approximately 100 koa (*Acacia koa*), 40 kolea (*Myrsine sp.*), 120 manono (*Kadua sp.*), 33 awikiwiki (*Canavalia pubescens*), 4 maile (*Alyxia stellata*), and 57 kookoolau (*Bidens torta*) in previously weeded areas.

During the workday, participants stopped to admire an endangered haha (*Cyanea grimesiana*) and discussed its role within the Hawaiian ecosystem as a lobelioid species (*Campanulaceae*). Many lobelioids are either entirely extinct or extinct in the wild, making those that remain very precious to view in person. They also viewed the haha's cousin, oha wai (*Clermontia persicifolia*), so that volunteers could see the differences between *Clermontia spp.* and *Cyanea spp.* Staff led tours of the North Shore and Makua Valley overlooks and shared the unique resources of Kahanahaiki. Volunteers were familiar with these locations because of their prevalence in Hawaiian folklore.



In addition to the planting and collection activities, the NPLD workdays also included an environmental education component. NPLD project managers used Periscope and an Teradek encoding device to broadcast the day's activities live to approximately 100 fourth grade students from Daniel K. Inouye Elementary School, located on the Schofield Barracks installation. Project managers provided an introduction to the site, discussed why the Army manages endangered species in Hawaii, described what volunteers were doing, and answered student questions about the forest. The Periscope broadcast enabled Makua Military Reservation to connect the children of military families with information about the precious and fragile forests of Oahu. Students' thoughtful questions and interest during the broadcast allowed them to gain a greater understanding of what they can do to protect the natural resources on their island home. The hope is that participants will continue to share what they learned with their families to improve military stewardship of the islands.

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# United States Army/Air National Guard



## Camp Mabry | Texas Natural Resource Project: Native Tree Restoration Project

**Project Date:** November 17, 2017

**Project Summary:** The Texas Military Department (TMD) coordinated a native tree planting restoration event at Camp Mabry to assist in restoring the base's rangeland to its native vegetation community. A total of 750 native tree species (Texas Red Oak, Texas Pecan, Texas Red Bud, Desert Willow, Texas Ash, and Roughleaf Dogwood) were planted by six TMD staff, three adult volunteers, and 40 students from Travis ISD. Student volunteers were recruited through outreach to local schools and Boy Scout troops. Participants were split into groups of 2-3 and provided with guidance and instruction on the types of trees they were planting, how to plant them, and where to place them. After the volunteers departed, TMD staff remained on site to complete the planting of the remaining trees that day.

The addition of native tree species near and along hiking trails will enhance Camp Mabry's landscape. These additions will augment the vegetation of Camp Mabry and will also assist in mitigating erosion challenges and further define the established hiking trails on base. Additionally, the native tree species will serve as examples of the types of trees native to the region during educational tours of Camp Mabry.

Participants were from the surrounding community and were excited to get the chance to explore Camp Mabry and to learn about native vegetation and exotic species native to their ecoregion.

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## Camp McCain Training Center | Mississippi Cultural and Natural Resource Project: Cemetery Cleanup and Beautification

**Project Date:** November 9, 2017

**Project Summary:** Camp McCain Training Center is comprised of 13,000 acres, a portion of which was procured by the War Department during the early 1940's for use in training soldiers during World War II. There are four known historical cemeteries on Camp McCain that pre-date US Government ownership of the property. There is a vested interest in the upkeep of the cemeteries among surviving family members, military veterans, and those with an interest in genealogy. Past restoration efforts succeeded in clearing the cemeteries of dense brush understory and installing barbed wire fencing around the perimeter. Because of those efforts, large granite post markers inscribed with the cemetery name have been emplaced at each corner of all four cemeteries and tombstones list the names of some of the earliest pioneers who settled the area during the 1830's.

This year's project focused on the restoration of three historical cemeteries that had been overtaken by invasive species and underbrush. The workday involved the removal of dead underbrush, limbs, etc. in the cemeteries and the planting of 32 fruit trees and flowering hardwoods. The addition of the trees helps to beautify the area and enhance wildlife habitat. The trees also provide needed soft mast for wildlife and additional flowers for pollinator species. Students from the Grenada High School's chapter of the National Honor Society and the Green Thumb Garden Club served as volunteers on this project. Volunteers were given a briefing that included past history and current use of Camp McCain as well as information on trees, tree planting and care, and the Natural Resources program of the MS Army National Guard.



This project will benefit soldiers, veterans, the family members of the deceased, sportsmen, genealogists, and other visitors. All will have easier access to headstones. Natural resource improvements benefit pollinators, birds, mammals, and more.

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## **Camp Murray | Washington** **Cultural and Natural Resource Project: Restoration Expansion 2017**

**Project Date:** September 30 and October 28, 2017

**Project Summary:** Camp Murray administered two workdays in honor of this year's NPLD. On Saturday, September 30<sup>th</sup> volunteers rehabilitated and expanded a pollinator garden. The day started with a brief lecture on the importance of pollinators. Volunteers from Washington Youth Academy improved the pollinator garden by removing invasive species, creating pathways, laying cardboard in those pathways for weed control, planting over 100 native plant shrub starts, and laying mulch.

On Saturday, October 28, Camp Murray partnered with the Pierce Conservation District to do some expansion work in a riparian area along Murray Creek. The volunteers worked through unforgiving weather to clear the area of invasive species and to install native plant starts. They were also able to replant an area that was recently disturbed for a construction project.

In total, 200 plants were added and 60 pounds of invasive vegetation were removed from the project sites as a result of the participants' efforts.

Both projects were focused on enhancing the natural resources of Camp Murray, both in the pollinator garden and in the riparian area. The volunteer work expanded the areas that had existed previously and gave them fresh material for the coming spring. Camp Murray's Environmental Offices hopes that these natural resources will evolve into cultural resources as well, and that they will become places that everyone can enjoy and appreciate.

*"I'm sure each individual had their own experience, but from what I observed the volunteers had a great time despite the weather. That's what being outside in nature is all about. Working up a sweat, breathing in the smell of the earth, and learning something you didn't know yesterday. I certainly hope that their experiences here at Camp Murray will encourage them to seek out other volunteer opportunities like this one that greatly improve their quality of life,"* Rowena Valencia-Gica, NPLD Project Manager.



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## Camp Ripley | Minnesota

### Natural Resource Project: Camp Ripley Prairie Restoration

**Project Date:** September 30, 2017

**Project Summary:** Camp Ripley's project transformed a field of mixed fescue (which had previously been a gravel borrow pit) into a native tall grass prairie. Camp Ripley environmental staff spent approximately 54 hours preparing the site. Work included removing fescue, conducting a prescribed burn, and preparing the site for seed. On the main workday on Saturday, September 30<sup>th</sup>, volunteers seeded a 62-acre, 10 Mega Watt solar field with native forbs and grasses. Volunteers removed more than 200 pounds of knapweed by hand, and loaded the bags into a truck. Their efforts successfully cleared the area of an invasive encroachment of spotted knapweed. Volunteers completed the planting of more than 6 acres of seed and more than 2,000 plants in approximately four hours. Participants included those from Minnesota Department of Military Affairs, Minnesota National Guard, University of Minnesota Extension Office, Minnesota Master Naturalist, and Prairie Restorations Inc.



In addition, Camp Ripley environmental staff, the University of Minnesota extension, and Prairie Restorations Inc. hosted a public educational workshop on converting fescue and farm fields to native prairie. A display was developed with an accompanying educational booth that described the process for converting a fescue field to a native prairie. Environmental staff from Camp Ripley, prairie restorations and the university were on site discussing the process and opportunities available to assist landowners.

The Integrated Natural Resource Management Plan (INRMP) of Camp Ripley focuses on developing habitat-based conservation actions that protect species of greatest conservation need. Pollinators are among the species that are critically declining in Minnesota. The prairie landscape is part of Minnesota's cultural history and a significant piece of Minnesota's landscape. It is also the most critically declining landscape throughout all of Minnesota. This restoration project showcases Camp Ripley's commitment to its natural resources.



This volunteer activity provided an active opportunity to engage in a natural resource restoration project, but more importantly, it taught volunteers of the benefit of this type of activity and of native grassland. Educational signage will be placed at the amphitheater that showcases the benefits of native prairie to the natural environment and its contributions to water quality and the human environment.

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## Fort Custer Training Center | Michigan Natural Resource Project: Fort Custer Training Center - National Public Lands Day Habitat Enhancement

**Project Date:** September 23-24 and November 4, 2017

**Project Summary:** Fort Custer Training Center hosted two separate National Public Lands Day events. The first event was held over September 23<sup>rd</sup> and 24<sup>th</sup> and coincided with another partner event on post: an all-age hunter's safety course. During the first NPLD event, Fort Custer staff worked with two local Boy Scout troops to plant native trees in the Fort Custer cantonment area, conduct maintenance on trails, and to construct several wildlife viewing platforms.

Due in part to extreme heat, staff opted to hold another NPLD event on Saturday, November 4<sup>th</sup>, during which they completed construction of the wildlife viewing platforms and planted native pollinator seed mix. Volunteers included employees from Lowes Home Improvement of Battle Creek and the local chapter of the National Wild Turkey Federation.

Staff and volunteers achieved some impressive accomplishments over the course of the three workdays, including the planting of 13 trees in the cantonment area. The planting sites were predominantly among the barracks, but several were along the parade grounds or administrative offices. The trees were placed strategically in order to improve shade and to provide an aesthetic component to





the area. The native pollinator planting strove to restore some of the forage areas that had been converted to cantonment or that had reverted to a forested landscape under past management.

The project was as much a learning experience for the volunteers as it was a vehicle for work. The post's environmental staff spoke about the renewable energy projects that are being implemented on post and the environmental division's mission to restore and maintain the post's natural resources for future missions. Additionally, Fort Custer staff demonstrated how to properly plant and maintain trees so that the volunteers could carry that knowledge forward in their future environmental work.

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## **Fort George G. Meade | Maryland** **Natural Resource Project: Stormwater Low Impact Development Natural Enhancement**



**Project Date:** September 30, 2017

**Project Summary:** Fort George G. Meade's project was featured by NEEF as a signature site for this year's NPLD. The event commenced with some informative words from NEEF President, Diane Wood, who talked about the history of NPLD. Ms. Maureen Sullivan, Deputy Assistant Secretary of Defense, Department of Defense and Mr. Thomas Brennan, Acting Associate Administrator, EPA also talked about what they do at their respective agencies and the Department of Defense's involvement in NPLD. Before the project commenced, project staff conducted a brief presentation for volunteers with visual aids on how to identify the invasive and native species they would encounter that day.

NPLD project participants beautified an existing environmental site design (ESD) using stormwater best management practices (BMPs) – specifically, rain gardens and

microbioretention facilities - in a highly visible portion of Fort Meade. The project provided cleanup, weeding of invasive species, and replenishment of existing native plant species that have died. The native plant species would function as stormwater pollutant removers. Approximately 800 plugs of switchgrass, a native grass, and Black-eyed Susan, the native flower of Maryland, were planted. These additions will begin to revitalize the beds of 22 facilities that filter about 3 acres of impervious area at the Defense Information School. Many of the volunteers were the same soldiers who frequent the school. The event served as an educational opportunity regarding stormwater management impacts and met NPDES MS4 permit requirements.

Participants in the day's events included volunteers from the Navy and Army, as well as



employees of NEEF, Johnson and Johnson, among many other members of Fort George G. Meade's surrounding community.

The project taught volunteers the importance of stormwater management and the value of infiltration and filtration systems such as microbioretentions. These facilities are becoming common landscape features in the state of Maryland and the Chesapeake Bay Region. In addition, volunteers learned about native vegetation which can help them feel a bit more connected to the natural resources that surround them.

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## United States Marine Corps



### Marine Corps Air Ground Combat Center | California Cultural and Natural Resource Project: Enhancement of the APCC Cultural Heritage Garden

**Project Date:** September 30, 2017

**Project Summary:** The Natural Resources and Environmental Affairs Division (NREA) of the Marine Corps Air Ground Combat Center's (MCAGCC) NPLD project aimed to enhance the Cultural Heritage Garden at the Archeology and Paleontology Curation Center (APCC). The goal of the project was to add native Mojave Desert plants to the garden that had significance because of their role in Native American cultural identity.

Participating volunteers installed approximately 100 square feet of field stone footpath using flagstone from Whitewater Rock. They also planted trees and native desert ground covers and shrubs in existing raised garden beds and erected a permanent shade structure in the form of two cedar pergolas. New plant signs were installed to identify the desert flora, irrigation lines that had been chewed by coyotes were repaired or replaced, and butterfly "guzzlers" were installed.

The project will have long-term benefits for the participants as well as the surrounding community. Volunteers had the opportunity to tour the indoor exhibits that provide an educational display of the archeology and paleontology that exists out in the MCAGCC training areas. In addition, the resulting natural resource rehabilitation will provide additional plant resources for NREA to use in their Native Americans of the Mojave Subsistence education program. NREA is currently developing a curriculum for community schoolchildren who visit the Archaeology and Paleontology Curation Center. The curriculum will demonstrate the harvesting, processing, and consumption of native plants of the Mojave Desert, not just for food but for shelter, basketry, medicine, and clothing. The Curation Center is frequented by student groups from Twentynine Palms, Yucca Valley, and local home-schooled groups. Area Boy Scout and Girl Scout youth groups have, in the past, volunteered with planting the gardens and building tortoise burrows for the ambassador tortoises, Thelma and Louise. NREA also hosts youth and elders from the Colorado River Indian Tribe who have been very enthusiastic about the Cultural Heritage and Tortoise Gardens. NREA's goal is to continue offering a "living" desert exhibit outdoors to complement their prehistoric and historic artifact exhibit indoors.

The Curation Center's improved gardens will demonstrate how native plant species of the desert provide food and shelter for migrating birds and butterflies, local species of reptiles and mammals, and human residents of the Mojave Desert. The gardens will also demonstrate how gardening is possible even in the harsh environment of the desert. Many of the Marines and their families come to Twentynine Palms without any knowledge of the desert. These gardens provide some insight into the ecology, including the human ecology, of desert life.

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# United States Navy



## Fort Belvoir | Virginia Natural Resource Project: Truman Hall Pollinator Gardens

**Project Date:** November 16 - 17, 2017

**Project Summary:** On November 16<sup>th</sup> and 17<sup>th</sup>, a group of 20 volunteers created two 90 square foot pollinator gardens at one of the entrances of the Truman Building, which serves as the Office of the Chief of the Army Reserve. The volunteers spent the first workday clearing the area of weeds and turning the soil. They then laid down weed-blocking fabric to help keep weeds at bay and to reduce the maintenance requirements of the beds. After that, the volunteers created two large soil mounds and kept the soil level for planting. On the second day, the volunteers completed the soil mounds, topping them with weed-blocking fabric, and planted the four types of pollinator plants available for the season. These plants included little bluestem, coreopsis, yarrow and purple coneflower. The two gardens face one another from across a pedestrian pathway, so the plants were laid out as mirror images. The beds were covered in a layer of mulch and the plants watered to help them establish within the beds.



The project has enhanced the beauty of the Truman Building and project managers have seen a high level of interest in the project and the plants. Every Army Reserve soldier, family member, personnel or guest who enters the building is greeted by the pollinator garden and it will be a beautiful site in the spring when the flowers bloom. After completing the garden, the NPLD project team sent a notice to the entire building explaining what had been done and

what to expect in the coming months. Come spring, there will be additional opportunities to share with Army Reserve personnel the importance of pollinators and their habitats.

*“Every volunteer was engaged throughout the two days of the event. Everyone participated in the planning, measuring, weed removal, dirt movement and planting. We had to be creative problem solvers since our original plan was no longer possible and every idea was considered and evaluated before moving forward. We had wonderful weather for the two days and everyone enjoyed being out in the sun instead of at their desks. Building the pollinator garden required a lot of physical labor which was enjoyed by everyone since they normally would be sitting at their desks. The sunshine and cool weather brightened everyone's spirits and the camaraderie between coworkers made the labor seem minor and fun. The event not only provided physical exercise but*





brought mental stimulation and engaged people in ways they normally do not experience at work,” Teresa Barlow, NPLD Project Manager.

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## **Joint Base Pearl Harbor-Hickam | Hawaii Natural Resource Project: Habitat enhancement for birds, bees, and reptiles at Joint Base Lewis-McChord**

**Project Date:** October 7, 2017

**Project Summary:** Joint Base Pearl Harbor-Hickam commemorated NPLD on October 7<sup>th</sup> by conducting an Invasive Species Removal and Native Vegetation Planting project at Loko Paaiau. In order to ensure the long-term preservation of the fishpond, invasive vegetation needed to be removed. Invasive plant roots impede the surface structural component of the fishpond, resulting in the wall tumbling. Removing the vegetation ensures that the walls will remain intact. Traditionally, Pearl Harbor was surrounded by over 22 fishponds. Today only three remain, including Loko Paaiau. This project ensures long-term protection and enhancement of these precious cultural resources for future generations to visit and study.

Prior to commencing field activities, staff briefed the participating volunteers. Ms. Rebecca Smith, the Navy Natural Resources Specialist, described the native plants as well as well as bird and fish species that use the fishpond for feeding and nesting. Ms. Kehaulani Lum, a Native Hawaiian cultural practitioner, explained the cultural significance of the fishpond, constructed over 400 years ago by Hawaiian royalty residing in the area. Mr. Jeff Pantaleo, the Navy Cultural Resources Manager, spoke about the archaeological significance of the fishpond. The volunteers were then divided into four teams. One team cleared invasive vegetation from the fishpond wall;

another team cleared vegetation from the interior of the fishpond; another team planted native vegetation; and the last team constructed an ahu, a traditional Hawaiian alter to present offerings, on top of the fishpond wall. A total of 112 volunteers participated in the event. Of the total volunteers, about 60% were from the DoD and the remaining volunteers were from native Hawaiian organizations and the local community.

This project succeeded in adding 85 trees and plants and removing 200 pounds of trash and 1,000 pounds of invasive vegetation. Before these efforts, there were no birds nor fish present in the area. However, following the maintenance to the area, birds and fish have returned. The Hawaiian stilt, an endangered species, now frequents the fishpond to feed on the fish and nest. The Loko Paaiau fishpond project has evolved from an archaeological restoration project to a community restoration project. This project is an example how the DoD and the local Hawaiian community can work together to preserve the cultural and natural resources on base.

The goal of the Loko Paaiau restoration project was to educate the volunteers about the significant cultural and natural resources on the base and to assist in preserving these resources for future generations to enjoy. During the fieldwork, volunteers demonstrated their investment in the restoration project by inquiring about future work at the fishpond. Not only did Navy cultural and natural resources specialists successfully accomplish the work, they also gathered a list of volunteers for future activities at the site.

The location of the fishpond at McGrew Point Navy Housing is of great significance for many military families. Numerous families home school their children in this area. These families were involved in the project, and expressed a desire to continue working at the site as part of their home schooling curriculum.

*“Although field conditions were challenging on a warm, sunny day and muddy ground, the volunteers were enthusiastic and energized. Following the field activities, everyone gathered in the gazebo to share food and drink. This time was spent sharing stories and getting to know each other. The volunteers from local community members to military families showed how people from diverse backgrounds and lifestyles can get together and make a difference in the world...Native Hawaiian cultural practitioners expressed their sincere gratitude for allowing this event to take place on base. Loko Paaiau is a very significant site and preserving this site is important. The native Hawaiians built an ahu, or alter, on the fishpond wall dedicating the area to their ancient ancestors,”* Dennis Buckingham, NPLD Project Manager.

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## **Joint Expeditionary Base Little Creek-Fort Story | Virginia Natural Resource Project: Dune Planting and Nature Trail Maintenance**

**Project Date:** Several days during the week of October 30, 2017

**Project Summary:** Two projects were executed at Joint Expeditionary Base (JEB) Little Creek-Fort Story for this year's NPLD. The first project involved planting dune grasses to help stabilize a dune for military training access at JEB Fort Story. The project site was a sand dune positioned to ensure training access for military personnel and emergency access for first responders. A total of 10,000 American beach grass sprigs (*Ammophila breviligulata*) were purchased and planted by military and civilian volunteers. Military personnel included soldiers from the US Army, 11<sup>th</sup> Transportation Battalion stationed at Fort Story, and Navy personnel under the Training and Range Operations command.

The other project involved the revitalization of a nature trail at JEB Little Creek. Work completed during this project included cleaning trail debris and tree branches, installation of interpretive and trail marker posts, and repairs to a damaged foot bridge. Funding for the project was also used to develop memorial plaques for fallen heroes from JEB Little Creek-Fort Story. Since 9/11, 94 military personnel from the installation have been killed in action or during training accidents. Funding supported development of memorial plaques for the first 16 heroes. The nature trail was renamed "Heroes Circle Nature Trail" in honor of these individuals.

The dune project at JEB Fort Story supports enhancement of a vulnerable ecosystem along the coast of the installation. It provides habitat for wildlife, protects access and Installation infrastructure, and offers realistic training environments for military personnel.



Enhancing the features of and access to the Heroes Circle Nature Trail at JEB Little Creek ensures that installation personnel and visitors have access to one of the remaining natural areas located on the base. Maintenance to the trail ensures safe access and efficient use for visitors. Development and inclusion of fallen hero memorial plaques on the trail adds to the cultural value and importance of the area for all visitors; a reminder of the sacrifices made for our country and the privilege of having public natural areas to enjoy.



This habitat enhancement project provided volunteers the opportunity to learn more about the JEB Little Creek's Natural Resources program and how the program supports the military's mission. During the dune project, a brief discussion was held, examining the Environmental Division's efforts to protect coastal dunes and why the conservation of dunes is so important for wildlife and shoreline protection.

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## Naval Support Activity Hampton Roads, Lafayette River Annex and Portsmouth Annex | Virginia Natural Resource Project: Pollinator Garden and Tree Planting Project

**Project Date:** October 12 and November 16, 2017

**Project Summary:** For this year's NPLD, NSA Hampton Roads executed two projects. The first project was to replant a pollinator garden at Portsmouth Annex. Several days of site preparation were needed to remove undesirable vegetation, prepare the soil, and make repairs to lattice and other garden components. Over 25 Navy personnel helped with preparations by spending over three days pulling weeds, repairing lattice, pruning existing pollinator plants, and disposing of weed vegetation. Over 14 trash bags of weeds, trash, and undesirable vegetation was recovered and disposed of. The planting was conducted on Thursday, October 12<sup>th</sup>. Five



employees from local Navy civilian Environmental divisions and at least eight Navy personnel participated in the planting of eight different species of pollinator plants (212 pollinator plants total) and the placement of 13 bags of mulch. A decorative fence was also installed once materials were available. An interpretive sign is currently in production and should be delivered for placement in the garden in the coming months.

The Lafayette River Annex project involved the planting of five different species of native trees (including 28 trees total) along the shoreline area of the installation, which will enhance the riparian buffer width of the coastline to the Lafayette River. The planting locations were identified and prepared before the planting date. Then the trees were delivered and planted on November 16, 2017. Larger trees were staked and watered using tree gators. The event engaged 36 volunteers from local Navy commands.

This project had a positive impact on the DoD site's natural resources. The pollinator garden and shoreline of each installation are some of the most valuable resources located on these smaller annex bases. Each aspect of the project complimented and enhanced previous NPLD projects on the sites. The pollinator garden that had been installed during a previous year's NPLD was functioning but was in need of some maintenance and restoration. The revitalization of the Portsmouth pollinator garden will enable easier and more efficient maintenance of the site moving forward. The shoreline at Lafayette River Annex had been planted before but attempts to create a wider buffer allowing grasses to grow was always thwarted because it required constant mowing. The spacing of trees along the existing buffer will create a full forested buffer that will not require mowing. This area will also enhance some edge habitat for birds and other wildlife, and reduce some open grass area used by resident Canada geese; a nuisance to the installation.

This project enabled those that work on the installation to directly participate in efforts to enhance its natural resources. Volunteers at Portsmouth Annex were able to learn about the importance of pollinators and the value these habitats have on the environment. Sustaining the pollinator garden at Portsmouth will provide a long-lasting educational and aesthetically enjoyable area for volunteers, personnel, and hospital visitors to frequent along the shoreline of the Elizabeth River.

Volunteers at Lafayette River Annex were able to learn about the Chesapeake Bay Program and the Navy's involvement in supporting Chesapeake Bay Program goals (for example, initiative to increase riparian buffer on the installation). Additionally, volunteers were able to learn some basic arbor skills and techniques for planting and caring for urban trees. This knowledge can help them positively influence their family and friends by planting and caring for trees.

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## Pacific Missile Range Facility | Hawaii Natural Resource Project: PMRF Bee Project Community Outreach

**Project Date:** November 30, 2017

**Project Summary:** A joint activity with the Pacific Missile Range Facility (PMRF) Child Development Center (CDC) and the PMRF Youth Development Program (YDP) was held on November 30<sup>th</sup>. The event aimed to teach children about the importance of pollinators and to provide a hands-on introduction to the practice of beekeeping and making honey. The PMRF environmental program, PMRF pest management shop, and PMRF bee club demonstrated the use of different beekeeping equipment for the attendees. Attendees also learned about the importance of pollinators and the basic biology of honey bees. They interacted with empty bee boxes and racks, touched actual honeycombs, tried on bee protective clothing, and tasted honey made from bee colonies on the base. Members of PMRF's bee club gave a presentation about the club and encouraged parents to explore beekeeping.



The project helped raise awareness of PMRF's bee program, which saves feral bee colonies from being exterminated. Instead of killing feral bees that pose safety hazards, as was the longstanding practice, the base now relocates them to one of four sites where bees are then maintained by the bee club and other volunteers. The additional bee boxes and equipment that were purchased for the event will now be used in the future to create space for additional bee colonies and provide a means for additional volunteer beekeepers to help manage the bees.

Approximately 20 children, ages 5 to 10, attended the event along with about 12 adults (parents, teachers, etc.). The event taught the young participants to appreciate bees and to not be afraid of them, but rather to respect them for their roles in nature and in agriculture.



The project provided an opportunity for the 40 participating volunteers to share their passion for pollinators and beekeeping with kids and to promote the base bee club which is almost fully staffed by volunteers.



*"Children have a very real reaction to insects, either positive or negative, so the topic of pollinators elicited a lot of emotion and energy from them. Sharing knowledge and experience with eager minds that ready to sponge up information is a very gratifying experience. This is particularly true when the subject is an important one - in this case the conservation of*

*pollinators for the benefit the surrounding landscape. This was a great opportunity for the volunteers to get outside and teach young people about a very timely and important subject,”* Cory Campora, Natural Resources Specialist.

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