Using Natural Infrastructure to Support the Sustainability and Resilience of Installation Missions

MCAS YUMA EWN® WORKSHOP
MARCH 1-3, 2022
FACT SHEET

Above: ERDC presentation on Santa Clara Canyon Recovery. Below: Deb Loomis, Senior Advisor to SECNAV (Climate Change) discussing EWN solutions

Background

Military installations in the desert Southwest are grappling with the challenges posed by a range of natural hazards, such as drought, heat, winds, wildfire, desertification, earthquakes and soil erosion.

In response, an Engineering With Nature® (EWN®) workshop was conducted in conjunction with the Department of the Navy at Marine Corps Air Station (MCAS) Yuma on March 1-3, 2022. The workshop focused on tools for mitigating critical climate change impacts and the increasing natural disaster issues of the desert Southwest. It featured subject matter experts who are actively addressing climate vulnerabilities in the region. Climate vulnerabilities were addressed through a series of breakout group exercises which included the identification of shocks and stressors, opportunities and constraints and potential EWN solutions to mitigate vulnerabilities and increase mission assurance and resilience.

The Department of the Navy (DoN), US Army Corps of Engineers' (USACE) Engineering Research and Development Center (ERDC), academia and the private sector came together to consider and identify opportunities for using natural infrastructure (NI) to support the sustainability and resilience of installation missions. The workshop was conducted and facilitated by the USACE's EWN Program (www. engineeringwithnature.org) in partnership with Jacobs, a global engineering and solutions company. Workshop participants included a diverse group of installation personnel, resource managers, scientists, engineers, landscape architects, resilience planners and stakeholders.

The goal of the workshop was to provide awareness building exercises and group discussions that would result in identification of large-scale NI solutions that could be implemented on DoN installations or with the assistance of stakeholders in the larger community. Workshop outcomes and products will be used to identify opportunities for follow-on efforts, including demonstration projects and full-scale implementation.

Guest speakers included

Cole Bush
Shepherdess, Regenerative Agriculture Advocate, Entrepreneur and Educator (Shepherding Landscapes), and Member, California Board of Forester's Range Management Advisory Committee

Christopher Haring, Ph.D., P.G. CFM
Research Engineer US Army ERDC (Managing Wildfire Consequences)

Laura Norman, Ph.D. Supervisory Research Physical Scientist, USGS, Western Geographic Science Center (Natural Infrastructure in Arid Settings)

Gabe Brown and Alejandro Carrillo
Understanding Ag, (Re-greening the desert, one hoof print at a time)

Ricardo Aguirre, P.E., CFM, AP
Director of Land Management and Water Security Executive Director of Drylands Alliance Addressing Water Needs (DAAWN) West Consultants, Inc. (Managing Soil, Land and Water)

Ryan Busby, Ph.D.
Research Ecologist, US Army ERDC (Compost for Climate Resilience)

For more information contact:

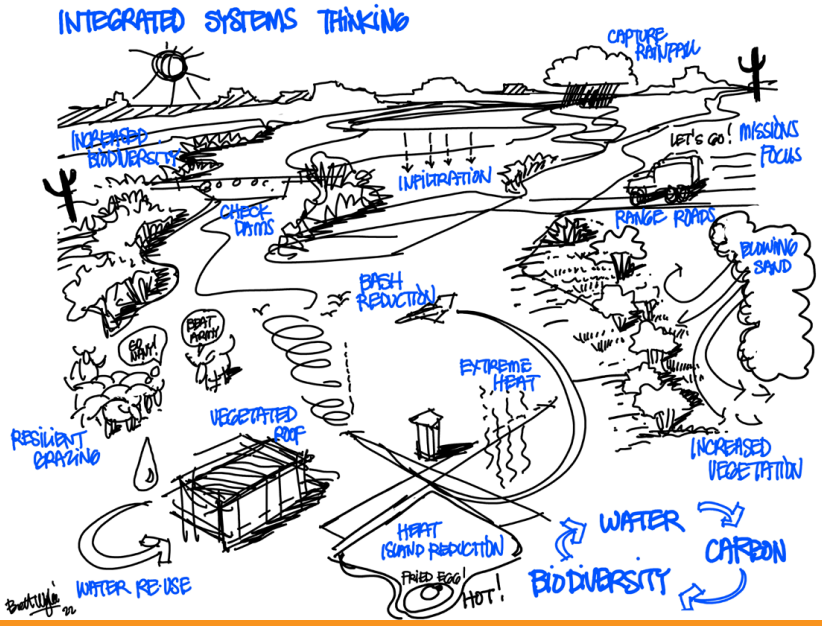
Todd S. Bridges, Ph.D. Senior Research Scientist, Environmental Science and National Lead Engineering With Nature US Army Corps of Engineers

Jeffrey K. King, Ph.D., P.E.
Program Manager Engineering With Nature US Army Corps of Engineers

(www.engineeringwithnature.org)

Workshop Outcomes/Resilience Solutions

- Using the water, carbon cycles and biodiversity as the foundation to build climate resilience
- Recharging groundwater through a watershed systems approach to include check dams and other natural water systems
- Maintaining, enhancing and securing stressed groundwater resources through water "spreading", recharging wells, and reservoir releases
- Regenerative grazing as a tool to build carbon in soils and restore the water cycle and biodiversity
- Using compost to minimize waste and reuse to improve water infiltration, soil moisture and carbon sequestration
- Managing wildfire consequences and building ecosystem health to prevent wildfires
- Identifying resilient strategies that deliver carbon sequestration to offset DoN/USMC footprint



Vision

Several profound challenges face DoN installations in the desert southwest, just as they threaten the rest of the region. Working together and welcoming others, DoN and EWN seek to increase groundwater recharge and climate resilience for DoN installations and the region.

What's Next

Based on a review of installation data/inputs and workshop outputs, the EWN study team will collaborate with DoN/USMC personnel to generate a NI Assessment Report that will include a set of planning and/or engineering concepts to inform NI application to western DoN/USMC installations.