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WestFAST News

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Chair – Roger Gorke; Federal Liaison Officer – Heather Hofman

New Sentinel Landscapes to Strengthen Military Readiness, Address Climate Change and Other Natural Resource Challenges

USDA 2/15/22

Joint Base San Antonio's Camp Bullis, nestled at the base of the San Antonio foothills.

The Sentinel Landscapes Partnership, comprised of the U.S. Department of Agriculture (USDA), Department of Defense (DoD) and Department of Interior (DOI) today announced three new areas designated as sentinel landscapes, where natural and working lands thrive alongside military installations and ranges. These landscapes play a key role in strengthening the nation's military readiness while addressing natural resources concerns like climate change and contributing to the America the Beautiful initiative.

The three new sentinel landscapes are the Camp Bullis Sentinel Landscape in Texas, Northwest Florida Sentinel Landscape and Southern Indiana Sentinel Landscape.

"These new sentinel landscapes are a testament to the power of collaboration and partnership," said USDA's Natural Resources Conservation Service Chief Terry Cosby. "By using USDA's conservation programs to protect and enhance farmland, rangeland, forestland and grasslands around military installations, we can invest in critical water resources and wildlife habitat on working lands and support climate-smart agriculture, while also advancing military training and testing opportunities."

"The USDA Forest Service is proud to partner with the Sentinel Landscapes Partnership," said Forest Service Chief Randy Moore. "We are committed to investing in this collaborative conservation effort with our fellow federal partners in the spirit of shared stewardship. The Sentinel Landscapes Partnership provides a great opportunity to support military readiness while securing conservation benefits for communities."

"DoD is proud to support the growth of the Sentinel Landscapes Partnership and add Camp Bullis, Northwest Florida, and Southern Indiana to the list of designated sentinel landscapes," said Deputy Assistant Secretary of Defense for Real Property Ron Tickle. "These new landscape designations will leverage DoD funding and programs to protect the missions at 14 key DoD installations and ranges, protecting essential testing and training operations,

enhancing resilience to climate change, and preserving our nation's natural resources and working lands."

"The Service is a proud partner in this Sentinel Landscapes effort," said Martha Williams, U.S. Fish and Wildlife Service Principal Deputy Director. "Programs like the Sentinel Landscapes are shining examples of what the Biden Administration's America the Beautiful initiative can achieve through collaborative locally led conservation efforts. Working together our diverse federal, state and local partners can improve vital landscapes, wildlife habitat and natural resources that benefit all Americans."

About the New Sentinel Landscapes

The Camp Bullis Sentinel Landscape, based in the Texas Hill Country, encompasses ranch lands, spring-fed creeks, local and state parks and one of the fastest growing regions in the country. Joint Base San Antonio's Camp Bullis provides training opportunities for 266 mission partners, supporting all DoD enlisted and officer medical training, military intelligence, special forces, pre-deployment, national and international training requirements. The landscape boundary contains the Edwards and Trinity Aquifers that Camp Bullis, San Antonio and the surrounding communities depend on for clean drinking water. Partners are focused on building community and installation resilience to drought, flood and wildfire; improving water quality and quantity; maintaining and improving agricultural productivity; increasing the viability of threatened, endangered and at-risk species; and expanding access to public recreation opportunities.

The Northwest Florida Sentinel Landscape contains rural and agricultural lands, iconic longleaf pine forests, threatened and endangered species habitat and nine key DoD facilities, which are integral to U.S. Air Force training, weapons testing and special operations and also provide initial training to all Navy, Marine Corps and Coast Guard aviators. Partners will focus on addressing resilience and sustainability challenges; retain working agriculture and forest lands as compatible, resilient and sustainable land uses; increase the resilience and sustainability of natural systems by conserving and restoring habitat and water resources; and identify, implement and accelerate projects that mitigate coastal risks and increase the climate resilience of military installations and the landscapes that overlap mission footprints.

The Southern Indiana Sentinel Landscape is anchored by four critical DoD installations and ranges that provide a variety of testing and training opportunities for the Army, Navy, Air Force, Marine Corps, National Guard, as well as federal and state partners. This vast landscape also contains six state parks, seven state forests, nine state fish and wildlife areas, 39 state-dedicated nature preserves, one National Forest and three National Wildlife Refuges. With the primary objective of preserving and protecting military mission readiness, operations, testing and training capabilities, the Southern Indiana Sentinel Landscape partners will also promote and support agricultural and working lands; provide for watershed and riparian corridor protections by promoting landscape resiliency; sustain and restore forest lands through sustainable land management and protections; and ensure endangered, threatened and at-risk species protection through habitat preservation and restoration.

More about Sentinel Landscapes

USDA, DoD and DOI define sentinel landscapes as areas in which natural and working lands are well suited to protect defense facilities from land use that is incompatible with the military's mission.

Once the partnership designates a location as a sentinel landscape, USDA, DoD and DOI work with local partners to support private landowners in accessing the resources necessary to carry out sustainable management practices on their properties. Sustainable management practices, such as farming, ranching and forestry not only offer economic and ecological benefits, but also protect defense facilities from incompatible development that can constrain the military's ability to carry out training and testing activities.

Sentinel landscapes accomplish their objectives by connecting private landowners with voluntary state and federal assistance programs that provide agricultural loans, disaster relief, educational opportunities, financial and technical assistance and funding for conservation easements.

Since 2013, sentinel landscapes have worked with private landowners to permanently protect over

515,000 acres and implement sustainable management practices on an additional 2.7 million acres around military testing and training areas. These efforts have preserved wildlife habitat, bolstered agricultural and forest production and reduced land use conflicts around military bases.

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A touches the lives of all Americans each day in so many positive ways. Under the Biden-Harris Administration, USDA is transforming America's food system with a greater focus on more resilient local and regional food production, fairer markets for all producers, ensuring access to safe, healthy and nutritious food in all communities, building new markets and streams of income for farmers and producers using climate smart food and forestry practices, making historic investments in infrastructure and clean energy capabilities in rural America, and committing to equity across the Department by removing systemic barriers and building a workforce more representative of America.

Tribes to Receive $1.7 Billion from President Biden's Bipartisan Infrastructure Law to Fulfill Indian Water Rights Settlements

Funding will help develop infrastructure projects that fulfill the terms of Tribal water settlements

DOI 2/22/2022

CHANDLER, Ariz. — Following a trip to the Gila River Indian Community with members of the Arizona congressional delegation today, Secretary of the Interior Deb Haaland announced the Department's plan to fulfill settlements of Indian water rights claims using historic funding from President Biden's Bipartisan Infrastructure Law.

The Law invests more than $13 billion directly in Tribal communities across the country and makes Tribal communities eligible for billions more in much-needed investments. That includes $2.5 billion to implement the Indian Water Rights Settlement Completion Fund, which will help deliver long-promised water resources to Tribes, certainty to all their non-Indian neighbors, and a solid foundation for future economic development for entire communities dependent on common water resources.

Following feedback received from Tribal consultation, the Department will allocate $1.7 billion of Infrastructure Law funding this year to enacted settlements that have outstanding federal payments necessary to complete their terms.

"Water is a sacred resource, and water rights are crucial to ensuring the health, safety and empowerment of Tribal communities. With this crucial funding from President Biden's Bipartisan Infrastructure Law, the Interior Department will be able to uphold our trust responsibilities and ensure that Tribal communities receive the water resources they have long been promised," said **Secretary Haaland**. "I am grateful that Tribes, some of whom have been waiting for this funding for decades, are finally getting the resources they are owed." Thanks to investments made by the Bipartisan Infrastructure Law's Indian Water Rights Settlement Completion Fund and funds available

from the existing Reclamation Water Settlement Fund, the following Tribes and settlements will receive funding this year: Aamodt Litigation Settlement (Pueblos of San Ildefonso, Nambe, Pojoaque, and Tesuque), Blackfeet Nation, Confederated Salish and Kootenai Tribes, Crow Nation, Gila River Indian Community, Navajo-Utah Water Rights Settlement and Navajo-Gallup Water Supply Project, San Carlos Apache Nation, Tohono O'odham Nation, and White Mountain Apache Tribe.

The Reclamation Water Settlement Fund was created by Congress in 2009 and receives $120 million in mandatory funding annually from 2020 through 2029. Pending congressional action on the President's FY 2022 budget, additional Tribes will also see investments to address ongoing federal obligations such as operation, maintenance and repair costs under existing settlements.

There are 34 congressionally enacted Indian Water Rights settlements as of November 15, 2021, when the Infrastructure Law was signed. Indian reserved water rights are vested property rights for which the United States has a trust responsibility. Federal policy supports the resolution of disputes regarding Indian water rights through negotiated settlements. Settlement of Indian water rights disputes breaks down barriers and helps create conditions that improve water resources management by providing certainty as to the rights of all water users who are parties to the disputes.

As part of the implementation strategy, an Indian Water Rights Settlement Completion Fund Executive Committee has been established, comprised of the Commissioner of the Bureau of Reclamation, Chairperson of the Working Group on Indian Water Settlements, Director of the Bureau of Indian Affairs, Assistant Secretaries of Water and Science and Indian Affairs, and the Solicitor. The Executive Committee will recommend future allocations of the remainder of the Completion Fund to the Secretary based on current project needs.

Contact: Interior_Press@ios.doi.gov

Reclamation investing in small water efficiency projects

Bipartisan Infrastructure Law will help water users improve water management projects

USBR 2/24/22

Huntington Cleveland Canal, Emery County Project, Utah

WASHINGTON – The Bureau of Reclamation announced that the WaterSMART Small-Scale Water Efficiency Projects grant opportunity is now available for small, on-the-ground projects that conserve, better manage or use water more efficiently in the West. The Bipartisan Infrastructure Law and, when enacted, 2022 appropriations will fund the selected projects.

"Today's announcement illustrates how the funding provided by the Bipartisan Infrastructure Law will allow Reclamation to leverage and amplify successful and proven tools," said **Assistant Secretary for Water and Science Tanya Trujillo**. "These additional funds will expand the number of on-the-ground projects and further support western communities to improve water conservation and reliability."

"These small, community-led projects can help western communities address some of their water management issues," said **Reclamation Acting Commissioner David Palumbo**. "The Bipartisan Infrastructure Law is allowing us to reach many Western communities where they have identified a need but not necessarily the funding to complete the work."

The Bipartisan Infrastructure Law contains $400 million over five years for WaterSMART grants, including small-scale water efficiency projects. In 2022, Reclamation is making $160 million available and will release other funding opportunities this spring. To learn more about how Reclamation is implementing the Bipartisan Infrastructure Law, please visit www.usbr.gov/bil.

For more than 100 years, Reclamation and its partners have developed sustainable water and power solutions for the West. This funding opportunity is part of the Department of the Interior's WaterSMART Program, which focuses on improving water conservation and reliability while helping water resource managers make sound decisions about water use.

Find out more information at Reclamation's WaterSMART program webpage.

Additional information on how to apply for funding

The funding opportunity released today is available at www.grants.gov by searching for opportunity number R22AS00195. Applications are due on April 28, 2022, at 4 p.m. MDT. Eligible applicants include states, Indian Tribes, irrigation districts, or any other organization with water or power delivery authority in the Western United States or territories. An applicant is eligible for up to $100,000, and the total project costs should be $225,000 or less.

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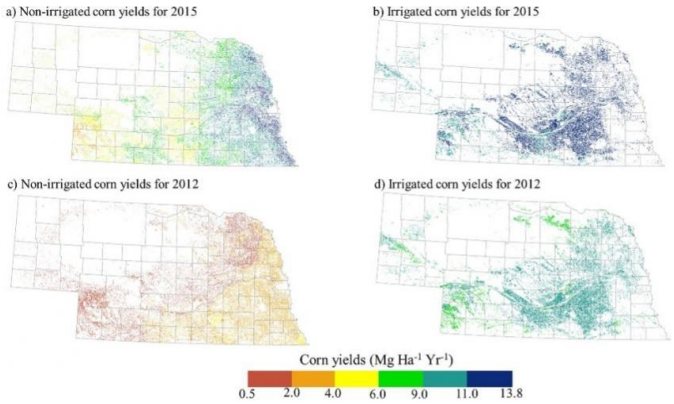
GEO-CropSim: A New Water Use and Crop Yield Simulator

NASA 2/25/22

A new modeling framework for assessing water use and estimating crop yields at the regional level is now available. Called GEO-CropSim, it integrates Earth observations into process-based crop models, so decision-makers can monitor and improve crop production while simultaneously analyzing water consumption.

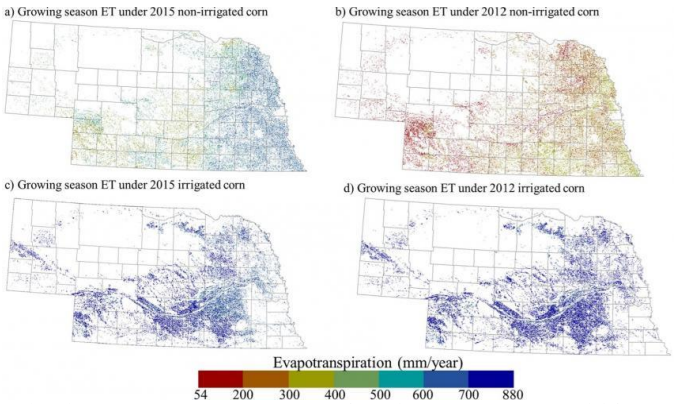
GEO-CropSim is a product created by NASA Harvest, in partnership with the U. S. Department of Agriculture (USDA) Agricultural Research Service. This hybrid method of modeling uses satellite imagery, climate data, and farm management information. With the rise in the number of food insecure populations around the world and increasing pressure on limited water resources, resources like GEO-CropSim are vital to identify areas with struggling production while improving management techniques to increase crop yields and better use resources like water.



Nebraska estimated yields of corn in irrigated and non-irrigated areas in 2012 and 2015, lower yield areas begin in red and move through yellow to green and blue being higher yield.

Designed by a group of researchers at the University of Maryland's Department of Geography and the USDA's Agricultural Research Center, the model uses a combination of biophysical and meteorological input data to estimate crop yields. This gives advanced warning of low potential yields and allows farmers and policymakers to evaluate the effectiveness of different management strategies.

Estimating yield also assists in crop insurance, land rental agreements, market stabilization, and informing agricultural policies. GEO-CropSim also allows researchers to study the evapotranspiration (ET) rate of croplands. ET is the rate of transfer of water vapor between the ground and the atmosphere and includes evaporation of water from the soil and through plant transpiration. It provides a useful measure of the total consumption of water within cropland - thus allowing for analysis of the efficiency of water use.

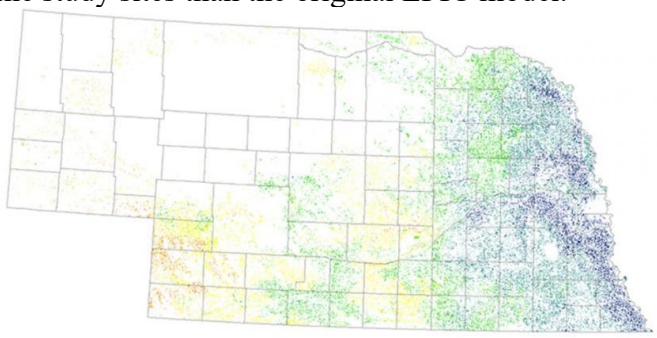


Nebraska evapotranspiration estimates from the GEO-CropSim model for maize crops in 2012 (drought year) and 2015 (non-drought year) with less evapotranspiration in red and yellows, moving through higher levels in green and blue.

Being a hybrid-type of crop yield model, GEO-CropSim uses climate, soil, and management decisions while filling in data gaps with satellite imagery that has high spatial and temporal resolution. This combines two common methods of yield estimation.

One is a process-based model which combines climate and soil data with management decisions, such as irrigation and fertilizer application, to simulate crop growth in a series of timesteps. Process based models can be very accurate when input data is available but suffer from an unfortunately common lack of data at the necessary scales. The other is a remote-sensing model. This monitors crops from space and the data is then used to estimate different crop characteristics like leaf area index, land surface temperature, or water content within leaves. These characteristics are then extrapolated to predict overall crop condition and future yield. Remote sensing-based models limit labor costs, have lots of available data and can be very useful when correctly calibrated. However, as these models are trained within specific climate, crop, and environmental conditions, they tend to suffer transferability issues in areas that are different from their training location.

As a combination of the two, GEO-CropSim is based on a widely used process-based model that has seen a lot of success in crop yield estimation over the years. The model, Environmental Policy Integrated Climate (EPIC) crop simulation uses farmer decision data like irrigation and fertilizer application along with soils and climate data. Two important climate data inputs for EPIC are leaf area index and crop emergence dates. The leaf area index is a measure of the size, or area, of the leaves of a plant and is an important indicator of the condition and future potential yield of a crop. Crop emergence dates refers to the timeline of when planted crops first sprout and the rate at which they grow. This is also useful for understanding the health of crops and their likely size at harvest. GEO-CropSim expands on the EPIC model by using remote sensing data for both the leaf area index and crop emergency dates. The team tested GEO-CropSim at three locations in Nebraska for both maize and soybean fields. Further, the team wanted to evaluate how the model would work in different growing conditions, so they used data from one drought year (2012) and a non-drought year (2015). After modeling predicted yields for the state in both years, the estimates were compared to historical yield data and ET observations from the USDA's National Agricultural Statistics Service (NASS). GEO-CropSim was found to produce a higher "granularity" or more specific results across the study sites than the original EPIC model.



Nebraska corn yield in non-irrigated areas in 2015 with red to yellow showing lower yield than green to blue areas.

GEO-CropSim represents the combining of process and remote sensing-based crop yield models and brings benefits of both to researchers, farmers, and policymakers. With ever growing food insecurity, the need for more reliable crop yield models is only increasing.

Additionally, as access to water becomes more scarce and variable due to climate change, efficient use of water in agriculture is necessary to ensure future access to this vital resource remains available. GEO-CropSim is an effective tool for both of these purposes and can find much use for those invested in a food secure future.

More details about this work is available at the NASA Harvest story, NASA Harvest And USDA Release Water Use And Crop Yield Simulator.

The original study from the team at the University of Maryland and USDA can be read at the journal article titled, "Geo-CropSim: A Geo-spatial crop simulation modeling framework for regional scale crop yield and water use assessment."

By: Keelin Haynes, NASA Harvest writer, Varaprasad Bandaru, NASA Harvest

Upcoming Meetings and Webinars

WestFAST Webinars: WestFAST is hosting a series of webinars to discuss the importance of water resources related to wildfire prevention, reduction, recovery, and rehabilitation:

March 2, 2022 10:00 am MT - **Does Community Driven Strategic Planning Reduce Impact of Large Wildfires?**

2022 WSWC Spring (198th) Meetings and Washington Roundtable
April 5-7, 2022 – Crystal City, VA

Other Federal News

USDA 2/1/22. USDA Announces Inaugural Federal Advisory Committee on Urban Agriculture

ACOE 2/4/22. National Levee Safety Program hosts virtual workshops to capture stakeholder insights

USDA 2/7/22. USDA to Invest $1 Billion in Climate Smart Commodities, Expanding Markets, Strengthening Rural America

NOAA 2/8/22. U.S. saw its coolest, driest January in 8 years

NOAA 2/14/22. January 2022 was Earth's 6th warmest on record

FWS 2/16/22. Bipartisan Infrastructure Law Funds Proven Projects for Fish and Wildlife

EPA 2/18/22. EPA Announces Availability of $20 Million to Reduce Lead in Drinking Water

EPA 2/23/22. EJ4Climate 2022 Grant Winners Announced -- $2 Million Environmental Justice and Climate Resilience Grant Program

BOR 2/24/22. Federal water leaders focus on Bipartisan Infrastructure Law during Family Farm Alliance annual conference

EPA 2/28/22. EPA Announces New Science Advisory Board Process to Strengthen Science Supporting EPA Decisions

NOAA 2/28/22. Statement from NOAA Administrator Dr. Rick Spinrad on the IPCC Climate Change 2022 Impacts Report

People

NOAA 2/1/22. NOAA welcomes new members of the agency's leadership team

EPA 2/8/22. EPA Announces Appointment of Robin Morris Collin as EPA Senior Advisor to the Administrator for Environmental Justice