



WRP REGIONAL STRENGTHS, AREAS OF COMMONALITY AND EMERGING ISSUES



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Western Regional Partnership (WRP)

Introduction

For the 2015-2016 year, WRP Principals specifically tasked the Steering Committee to work with the WRP Committees to identify WRP regional strengths, areas of commonality and potential emerging issues impacting WRP Partners' missions. That information is summarized in this report with recommended actions for WRP Principals' consideration at their 2016 meeting. The report includes:

- Energy Committee: New energy generation and transmission planning efforts and projects in WRP region and potential impacts on WRP Partners' missions
- MRHSDP&A Committee: Efforts to support the DoD Mission and serve as a forum for information exchange with focus on military operations, homeland security/disaster preparedness missions and aviation.
- Natural Resources Committee: Committee efforts to serve as a resource and forum for WRP Partners to more fully collaborate and address natural resources-related issues
- GIS Support Group: Provided GIS mapping support for this effort

The report is organized around the work done by the three substantive committees.

WRP REGIONAL STRENGTHS, AREAS OF COMMONALITY AND EMERGING ISSUES

WRP Overview

The mission of the WRP is to provide a proactive and collaborative framework for senior-policy level Federal, State and Tribal leadership to identify common goals and emerging issues in the states of Arizona, Colorado, California, Nevada, New Mexico and Utah and to develop solutions that support WRP Partners and protect natural resources, while promoting sustainability, homeland security and military readiness.

In 2007, representatives of Federal agencies and State and Tribal leadership in the States of Arizona, California, Nevada, New Mexico and Utah partnered with the Department of Defense to establish the Western Regional Partnership. At the 2015 WRP Principals' Meeting, it was decided to add Colorado to the WRP Region.

WRP provides a proactive and collaborative framework for senior-policy level Federal, State and Tribal leadership to identify common goals and emerging issues in the WRP states and to develop solutions that support WRP Partners and protect natural resources, while promoting sustainability, homeland security and military readiness.

WRP's Charter delineates the mission, goals, and responsibilities of the WRP collaborative process. The membership of the Steering Committee is composed of senior staff members representing WRP Principals; it coordinates with WRP Committee Co-Chairs. WRP Committees work to better improve regional and interagency cooperation among Federal agencies, Tribal leadership, States, and non-governmental organizations on critical Western regional issues. WRP Committees provide a forum for information exchange, issue identification, problem solving and recommendations across the WRP region. Committees are continually reviewed to maintain a resilient and dynamic organization. The focus of committee actions will be to move from knowledge gathering to collaborative action. Issues of common concern are addressed through the following Committees:

- Energy
- Military Readiness, Homeland Security, Disaster Preparedness and Aviation (MRHSDP&A)
- Natural Resources

A GIS Support Group works with the WRP Steering Committee to assist all Committees.

The WRP Region’s six states are home to 18% of the U.S. population and constitute 19% of the total U.S. land mass. Long range, sustainable planning is essential to accommodate growth, sustain the economic and environmental health of the region and protect public health and safety while at the same time securing the viability of the WRP Partners’ missions. To more effectively work together across geopolitical boundaries, common and emerging issues in the WRP region must be identified, along with potential conflicts and solutions.

Within the six-state region, there are:

- Significant amounts of Federally managed lands (Federal land ownership in these states ranges from 34.1% - 84.9%)
- Extensive Training Ranges, Premier Testing Facilities, Unmatched Military Air Space
- Approximately 172 Federally recognized Tribes
- Significant State Trust Landholdings

Breakout of Land Management in WRP Region

State	% of Federal Public Land (not including DoD managed lands)	% of DoD Managed Land	% of Indian Trust Land	Private Land	State Trust Land	Size of State in square miles and ranking by area
Arizona	35.5%	6.6%	27.6%	17.5%	12.7%	114,000 6 th largest state
California	40.2%	4.0%	.5%	50.3%	2.5%	160,000 3 rd largest state
Colorado	38.9%	0.7%	1.1%	54.9%	4.4%	104,100 8 th largest state
Nevada	78.8%	6.1%	1.42%	13.03%	.15%	110,561 7 th largest state
New Mexico	29.7%	4.4%	10.2%	43.9%	11.6%	121,593 5 th largest state
Utah	63.6%	3.4%	4.5%	21%	7.5%	84,904 13 th largest state

Within the WRP Region, there are many regional strengths, areas of commonality and emerging issues/trends. These are documented in the report and brief highlights are below.

Highlight of WRP Regional Regional Strengths, Areas of Commonality and Emerging Issues/Trends

Regional Strengths

- There are significant renewable energy resources in the region. The six States have climates that are conducive to alternative forms of energy, including wind, solar and geothermal, and they have significant hydroelectric resources, e.g., Hoover Dam.
- There are significant military assets and capabilities in the region, detailed below.
- Nearly year-round fair weather, enabling all types of flying missions. Within the region there are some of the nation's busiest airports.
- Incredible wealth of natural resources within the WRP Region.

Areas of Commonality

- Government funding for renewable energy projects remains steady
- Additional focus on protecting the electric grid and energy-related infrastructure
- Greater focus on energy impacts on the environment
- Agencies working together (e.g. signing of a Memorandum of Understanding by DOE and DOI to assist Indian Tribes in developing energy resources)
- Many agencies are concerned about cyber security issues and threats and devoting additional resources to address them
- Agencies have additional focus on national security issues and planning elements with more focus on threats to infrastructure
- Concerns over wildfires
- Many WRP Partners want to work proactively to address/preclude listing of species and desire regulatory predictability.
- More focus at the ecosystem/landscape level to address natural resource-related issues

Emerging Issues/Trends for WRP Partners awareness:

- Natural Gas generated more electricity than coal
- More focus on development of offshore wind in the United States
- Increase in energy technology
- Increase in governmental agencies' goals on clean energy power sources
- Federal government overall energy consumption is declining
- Conflict on Clean Power Plan
- Solar surpasses wind in California; Arizona loses solar jobs in 2015
- West-wind Energy Corridor efforts
- More focus on regionalizing energy planning and efforts

- BLM looking to expedite solar energy development on public lands
- U.S. solar installations hit a record high in 2015
- Testing of energy kites that reach altitudes of 80-350 meters
- Energy Storage Market is growing
- Increase in use of Remotely Piloted Airplanes for government use
- Increase in small, hobbyist and commercial Unmanned Aircraft Systems (FAA estimates may grow from 2.7 million purchased in 2016 to as many as 7 million by 2020).
- Potential DoD budget instability (many articles referencing leadership concerns)
- Potential DoD mission changes (new aircraft, operations, etc.)
- Continued increase in Cybersecurity threats (agencies reported 72,000 cyber incidents in 2015)
- Changes in airspace (e.g., to accommodate UAS operations, use of UAS for new operations such as first responders, FAA Metroplex, etc.)
- Potential changes in how frequency spectrum is managed/utilized
- The WRP Region is experiencing drought and it is anticipated to continue
- Changes in agency land use planning efforts and rules
- Continued need for federal and state land management collaboration

WRP ENERGY COMMITTEE

The WRP Energy Committee in 2015-2016:

- Continued to share information on new renewable energy projects and transmission lines and highlight State, Federal and Tribal energy planning efforts and resources in the WRP Region; and
- Enhanced WRP Partner awareness of new energy generation and transmission planning processes and opportunities for engagement to address/mitigate mission impacts, especially those impacts on the military's ability to test and train, natural and cultural resources, and Tribal lands.

To identify WRP regional strengths, areas of commonality and potential emerging issues impacting WRP Partners' missions, the Energy Committee reviewed existing WRP materials, received several presentations via webinar and considered external reports of energy projects in the region, trends around the country applicable to the west and other useful resources. The Energy Committee thanks the webinar presenters for sharing of time and insight and the various agencies that sent their press releases and other updates for the Committee's efforts.

Those presentations, significant reports and useful resources are summarized below in the following categories:

- Significance of Energy Efforts in the WRP Region – status and trends of renewable energy in the WRP Region
- WRP Energy Committee Webinars
- Potential areas where additional collaborative action might best support WRP agencies/areas for potential mitigation
- Energy-related external information organized by: new projects, trends and resources

WRP Energy Regional Strengths: Significance of Energy Efforts in the WRP Region

Within the WRP Region, each state has its own significant energy goals which help drive generation and transmission projects. The following tables show the status and trends in renewable energy in the WRP region as of April 2016.

Net Summer Capacity, Primarily Renewable Sources, April 2016 and 2015¹

	Wind		Solar		Solar Thermal		Hydroelectric		Biomass		Geothermal		Total		Change from Year Prior
	Apr-16	Apr-15	Apr-16	Apr-15	Apr-16	Apr-15	Apr-16	Apr-15	Apr-16	Apr-15	Apr-16	Apr-15	Apr-16	Apr-15	
Arizona	267.3	237.3	1,238.7	1,118.3	295.4	295.4	2,720.9	2,720.9	30.7	34.7	0.0	0.0	4,553.0	4,406.6	3.3%
California	5,722.5	5,914.2	6,360.8	4,694.3	1,284.0	1,302.8	10,187.0	10,175.9	1,354.1	1,332.7	1,934.2	1,955.2	26,842.6	25,375.1	5.8%
Colorado	2,961.8	2,566.1	192.0	129.0	0.0	0.0	676.5	676.3	27.4	27.4	0.0	0.0	3,857.7	3,398.8	13.5%
Nevada	150.0	150.0	897.9	649.6	178.5	68.5	1,051.4	1,051.4	3.2	3.2	444.0	443.9	2,725.0	2,366.6	15.1%
New Mexico	1,112.3	812.3	314.6	268.2	0.0	0.0	82.9	82.9	2.2	2.2	1.6	1.6	1,513.6	1,167.2	29.7%
Utah	386.5	324.4	166.4	4.2	0.0	0.0	256.4	256.4	14.2	12.0	73.0	73.0	896.5	670.0	33.8%
TOTAL	10,600.4	10,004.3	9,170.4	6,863.6	1,757.9	1,666.7	14,975.1	14,963.8	1,431.8	1,412.2	2,452.8	2,473.7	40,388.4	37,384.3	8.0%

¹ Source: U.S. Energy Information Administration, Monthly Energy Review, June 2016, Table 6.2.B

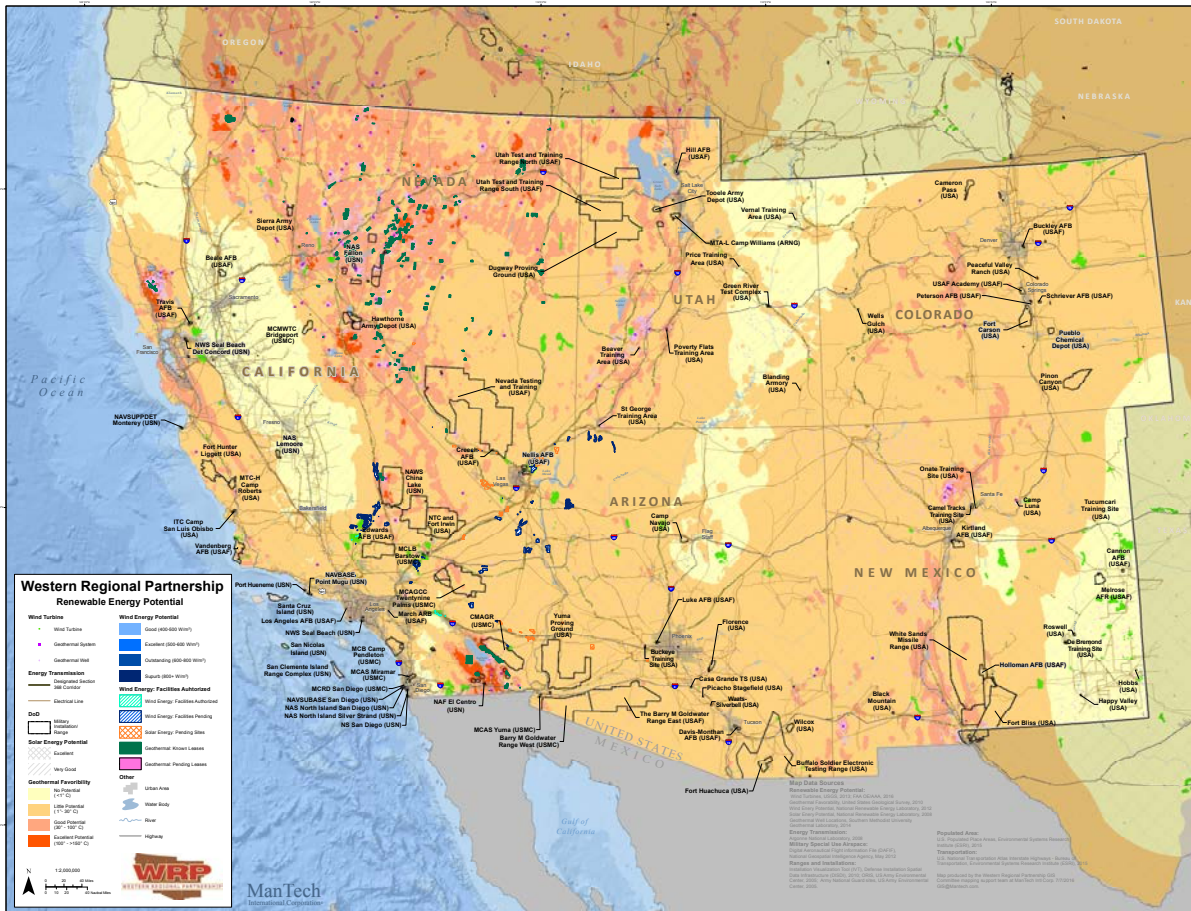
Net Summer Capacity, Solar, Utility Scale and Distributed, April 2016 and April 2015²

	Solar Photo-voltaic (Utility Scale)		Estimated Distributed Solar Photovoltaic		Total Solar Photovoltaic		Utility Scale Solar Thermal		Total Solar Capacity		Change from Year Prior
	Apr-16	Apr-15	Apr-16	Apr-15	Apr-16	Apr-15	Apr-16	Apr-15	Apr-16	Apr-15	
Arizona	1238.7	1118.3	680.0	559.9	1,918.7	1,678.2	295.4	295.4	2,214.1	1,973.6	12.2%
California	6360.8	4694.3	3611.5	2653.1	6,627.1	4,925.9	1,284.0	1,302.8	7,911.1	6,228.7	27.0%
Colorado	192.0	129.0	266.3	231.6	354.8	186.7	0.0	0.0	354.8	186.7	90.0%
Nevada	897.9	649.6	162.8	57.7	1,060.7	707.3	178.5	68.5	1,239.2	775.8	59.7%
New Mexico	314.6	268.2	81.1	66.0	395.7	334.2	0.0	0.0	395.7	334.2	18.4%
Utah	166.4	4.2	66.5	31.4	232.9	35.6	0.0	0.0	232.9	35.6	554.2%
TOTAL	9,170.4	6,863.6	4,868.2	3,599.7	10,589.9	7,867.9	1,757.9	1,666.7	12,347.8	9,534.6	29.5%

In addition, projects planned to go online in the balance of 2016 include 19 Solar Photovoltaic plants in California with a total capacity of 530.0 MWs, a 16.0 MW Solar Photovoltaic plant in Arizona, a 62.1 MW Wind plant in Utah, 12 landfill gas plants in California with a total capacity of 31.8 MW and an 8.0 MW battery storage plant in California.³

² *Ibid.*

³ *Ibid.*, Table 6.3



Renewable Energy Potential in the WRP States

Summaries of the energy situation in each of the WRP States follow⁴:

Arizona

- Palo Verde Nuclear Generating Station is the largest nuclear power plant and the second largest power plant of any kind in the nation.
- Second in utility-scale electricity generation from solar energy in 2014.
- Ranked 44th in the nation in per capita energy consumption in 2013.
- It has one operating coal mine, which supplies the Navajo Generating Station's three 750-megawatt units.
- Twenty-five percent of the energy consumed in homes is for air conditioning, more than four times the national average of 6 percent.
- Renewable Environmental Standard requires 15% of the state's electricity consumed in 2025 to come from renewable energy resources; in 2014, 8.9% of net electricity generation came from renewable resources, primarily hydroelectric.

⁴ Source: U.S. Energy Information Administration, U.S. Overview, <http://www.eia.gov/state/> Accessed July 21, 2016, except as otherwise indicated

California

- Ranked third in the nation in crude oil production (excluding federal offshore production) in 2014.
- Ranked third in oil refining capacity as of January 2015.
- In 2013, its per capita energy consumption ranked 48th in the nation.
- In 2014, ranked fourth in the nation in conventional hydroelectric generation, second in net electricity generation from other renewable energy resources, and first as a producer of electricity from both solar energy and geothermal energy.
- In 2014, ranked 16th in net electricity generation from nuclear power.
- Average site electricity consumption in California homes is among the lowest in the nation (6.9 megawatt hours per year.)
- Renewable Portfolio Standard (RPS) requires utilities to meet 33 percent of their energy supplies from eligible renewable energy resources by 2020. Additionally, in January 2015 Governor Brown identified several climate and energy goals the state would seek to accomplish by 2030, including increasing the amount of electricity produced from renewable resources to 50 percent.⁵ In April 2015, Governor Brown also issued an Executive Order establishing a greenhouse gas reduction target of 40 percent below 1990 levels by 2030.⁶

Colorado

- Has vast fossil fuel resources including the Niobrara Shale, with resource estimates running as high as 2 billion barrels of oil.
- From 2004 to 2014, crude oil production more than quadrupled and marketed natural gas production rose 51%.
- In 2014, 60% of the electricity generated in Colorado came from coal, 22% from natural gas, and 18% from renewable energy resources.
- Renewable Energy Standard requires investor-owned electric utilities to provide 30% of electricity sold from renewable energy sources by 2020, with 3% coming from distributed generation.
- In 2014, grid-connected solar photovoltaic capacity of 430 megawatts was the ninth largest in the United States.

Nevada

- Almost 90% of energy comes from outside the state.
- The 425-mile UNEV pipeline, opened in 2012, lets petroleum products from Salt Lake City area refineries flow to Las Vegas; previously, Las Vegas obtained petroleum products from California pipelines.
- Generated 63% of its electricity from natural gas in 2014.

⁵ Renewables Portfolio Standard (RPS), California Public Utilities Commission, <http://www.energy.ca.gov/portfolio/index.html>, accessed July 21, 2016.

⁶ Executive Order B-30-15, April 29, 2015

- Ranked second in the nation in utility-scale net electricity generation from geothermal energy and third in utility-scale net generation from solar energy in 2014; 11.1% of net electricity generation in 2014 came from those two sources.
- Energy Portfolio Standard requires that 25% of electricity sales come from renewable energy resources by 2025; in 2014, 18.6% of net electricity generation came from geothermal, solar, wind, and hydroelectric power sources.

New Mexico

- Excluding federal offshore areas, ranked sixth in crude oil production in the nation in 2014.
- Marketed production of natural gas accounted for 4.3% of U.S. marketed natural gas production in 2014, despite a decline in production of 30% from its 2001 peak.
- Has 26% of the nation's coalbed methane proved reserves, second only to Colorado in the United States.
- In 2014, ranked sixth in the nation in utility-scale electricity generation from solar energy.
- Renewable Portfolio Standard requires that 20% of all electricity sold by investor-owned electric utilities, and 10% sold by cooperatives, come from renewable energy resources by 2020; in 2014, renewable energy supplied 9.3% of the electricity generated in the state.

Utah

- Produced 1.7% of U.S. coal in 2013 and shipped 27% of that production out of the state.
- Its five refineries process crude oil primarily from Utah, Colorado, Wyoming, and Canada; the UNEV pipeline, opened in late 2011, is the first to connect Utah's refineries to Las Vegas.
- In 2014, for the first time, coal produced only 76% of Utah's net electricity generation and natural gas produced 19%.
- Had the 10th lowest average electricity prices in the nation in 2014.
- Has a voluntary goal of using cost-effective eligible renewable energy resources to provide 20% of their 2025 adjusted retail electric sales; in 2014, 4.3% of net electricity generation came from renewable resources.

For more information on State and Federal agency energy-related efforts within the WRP region please see [WRP Energy Overview 2015](#)

WRP Energy Committee Presentation Summaries

The WRP Energy Committee for the past several years has held dedicated one-hour webinars to focus on one-subject and provide WRP Partners an opportunity to learn more about available energy-related resources and planning efforts in the WRP Region. Listed below are summaries of three such webinars, all well-attended:

- Overview of Western Electricity Coordinating Council WECC mission and regionally significant transmission projects that have a high expectation of being in service in a 10-year timeframe given current trends
- (Joint with GIS Support Group): Energy Zone Mapping Tool (developed by Argonne National Laboratory)
- California-RETI 2.0 Objectives and progress to date, opportunities for engagement and next steps

For more information on past webinars and available energy-related resources please see WRP Report: [2014-2015 Energy Committee Webinar Summary](#)

Western Electricity Coordinating Council (WECC)

In May 2016, Western Electricity Coordinating Council (WECC) provided an overview of their organization and regionally significant transmission projects that have a high expectation of being in service in a 10-year timeframe given current trends. This presentation was made by Dr. Vijay Satyal, Sr. Policy Analyst; Colby Johnson, Associate Staff Engineer, and Byron Woertz, Manager System Adequacy Planning.

WECC leads transmission expansion planning for the Western Interconnection and conducts studies, technical analysis, modeling and scenario development. WECC's service territory



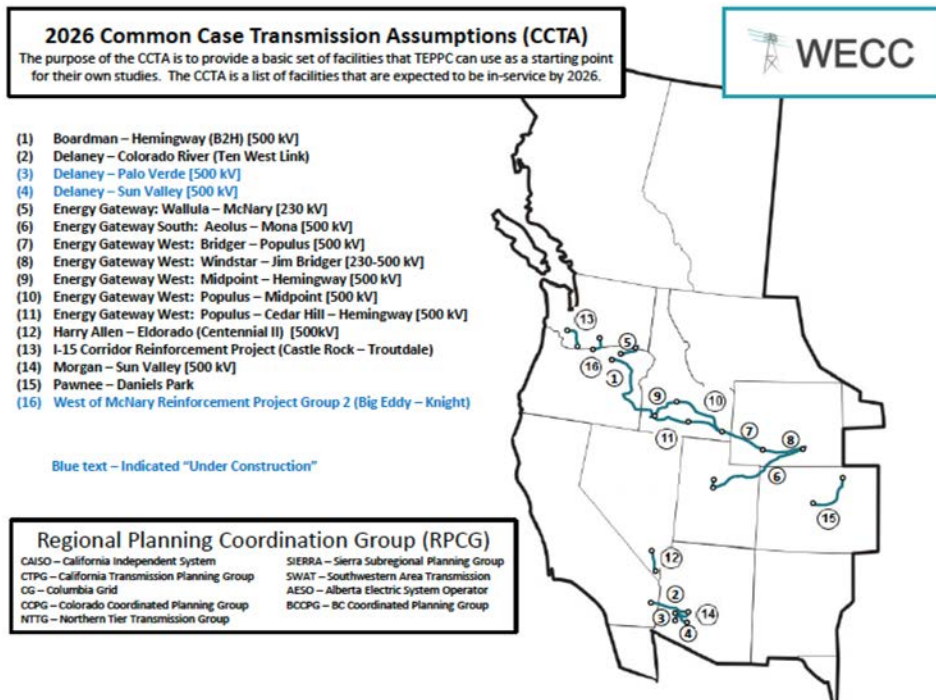
extends from Canada to Mexico. It includes the provinces of Alberta and British Columbia, the northern portion of Baja California, Mexico, and all or portions of the 14 Western states between. WECC has both non-planning functions (compliance monitoring/enforcement; standards development; market-operations interface; operator training; WREGIS) and planning functions (loads/resource assessments; reliability studies; transmission expansion planning).

WECC is designated to monitor and enforce compliance, develop standards and track Renewable Energy Certificates (REC). It does not site, permit, build or operate transmission, allocate cost or "pick winners." Its mission is to promote and foster a reliable and efficient bulk electric system. It engages in reliability planning and performance analysis to determine if the electric system is sound, stable and reliable during abnormal conditions, adequate to meet future demand, and considers risks to reliability. It does not plan the future state of the grid or determine whether additional transmission is needed.

Every 2 years, WECC undertakes a review of all "likely to be built" transmission projects in the Western Interconnection (WECC footprint) and implements a criteria driven process,

Common Case Transmission Assumptions (CCTA), that helps determine which projects to include in the next 10 year planning cycle for scenario-based case studies. WECC provided an update on the recently completed review of next cycle of transmission projects, CCTA 2026, and related overview of process used and inherent challenges. WECC also provided a snapshot of the kind of grid-level planning studies WECC may undertake in 2016 using this "expected to be built transmission topology." Projects are reviewed under five criteria: regional significance, construction status, finances, implementation status and dependency on other projects. Review of projects under these standards leads to two types of projects included in the CCTA:

- Projects that are of regional significance and under construction.
- Projects that are of regional significance and not under construction, but have sufficient indicators of development to conclude that there is a high expectation that the project will be in service in the 10-year timeframe.

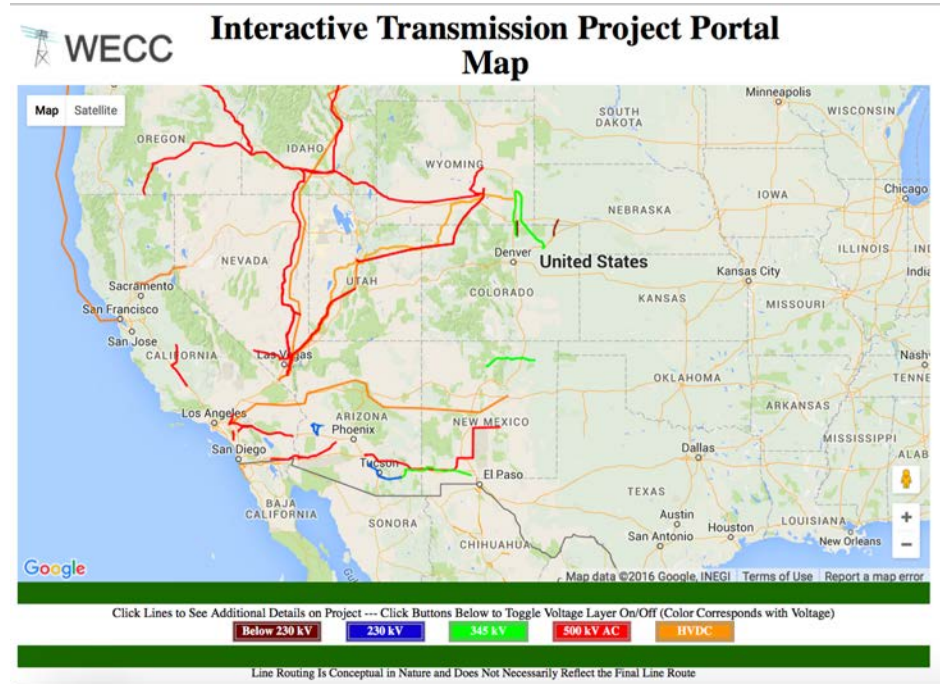


Applying those criteria, WECC considered the projects in the Western Interconnection and determined that 16 would be included in the CCTA 2026.

Of these 16 projects, three were under construction as of December 21, 2015.

[WECC's Interactive Transmission Project Portal Map](#)

WECC has compiled data regarding projects in the Western Interconnection to provide a map allowing users to interactively research existing projects. The portal includes publicly available project information for nearly 98 projects currently under development in the Western Interconnection.



[Energy Zones Mapping Tool Demonstration](#)

In June 2016, Jim Kuiper, Argonne National Laboratory, demonstrated the [Energy Zones Mapping Tool](#), a public web-based mapping application initially developed by Argonne National Laboratory (Project Lead), Oak Ridge National Laboratory, and National Renewable Energy Laboratory for the Eastern Interconnection States' Planning Council (EISPC), which serves most of the U.S. and Canada east of the Rockies. Sandia National Laboratories recently made energy-water enhancements. The work was funded by the U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability.

The Tool provides data, models, reports, and policy information for nine clean (low- or no-carbon) energy resource categories in the Eastern Interconnection.⁷ It was launched for EISPC users in March 2012; public access was extended in March 2013. In August 2013, a study on Energy Zones was completed. In 2015, Corridor and Energy-Water information was added, and in November of that year, DOE decided to begin extending the scope to the entire United States.

That process will consist of several phases.

- Phase 1: Mapping Library

⁷ Wind, Biomass, Clean Coal, Geothermal, Natural Gas, Nuclear, Solar, Storage, Water

Approximately 10% of the mapping library was extended to the entire U.S., prioritized by level of usage of data and use in reports. Additional funding was requested to accelerate the process. Data layers completed include annual average wind speed for North America and several layers from the Energy Information Administration, including power plants and pipelines. About 25 layers were in process at the time of the presentation.

- Phase 2: Power Plant and Corridor Models, and Policy Database
These items currently only cover the Eastern Interconnection. The Models generate maps showing suitability of areas for developing clean energy resources. Data includes energy resources, land cover/landforms, environmental factors, population density, existing infrastructure and other factors. Models are user-configurable and fully customizable. Users can design new models using any of the 75 data layers. For convenience, default models have been configured.

Corridor Routing Tools also exist only for the Eastern Interconnection. The Tools allow for sketching and revising corridors on a map or through a modeling approach. Models depict corridor suitability surface (with three default models/strategies) and use a corridor route generation tool, providing a corridor report and viewshed sample data as proof of concept for minimizing scenic impacts. The tool is used by private companies, federal, state and local governments, regional transmission organizations, public utility commissions, non-governmental organizations, national laboratories and universities.

Renewable Energy Transmission Initiative V.2.0

In June 2016, Brian Turner, RETI 2.0 Project Director, California Natural Resources Agency presented on the Renewable Energy Transmission Initiative (RETI) v. 2.0.

RETI is a cooperative project of five agencies, four state and one federal. It is a non-regulatory planning effort to help meet state greenhouse gas (GHG) and renewable energy goals. It explores combinations of renewable generation resources in California and throughout the West that can best meet these goals. The initiative builds understanding of transmission implications of renewable scenarios, and identifies common transmission elements, land use, environmental opportunities and constraints to accessing these resources. It is an accelerated, agency-driven, high-level assessment to inform future planning and regulatory proceedings.

California Governor's Executive Order B-30-15 established a 40% GHG reduction goal by 2030. It requires state agencies to pursue this goal, and created a California Air Resources Board Scoping Plan. SB 350 required that utility renewable energy requirements be increased from 33% by 2020 to 50% by 2030. The California Independent System Operator has completed the transmission planning needed for the 33% requirement but has "considerable work" necessary to plan for the 50% requirement.

There have also been several items in the works in the west, including the Clean Power Plan, developments in Oregon, Washington and Nevada, and reforms to electricity in Mexico.

While RETI 1.0 in 2008-2010 was a stakeholder-driven process for increasing renewable power from 20% to 33 RETI 2.0 was an accelerated, agency-driven version to inform the Public Utilities Commission and the California Independent System Operator (CAISO.) It leveraged existing studies with an emphasis on long-term resource portfolio optimization and GHG reduction. The goal is to estimate the scale of renewable energy that may be needed to reach 2030 energy and GHG goals. It is to be used as a guide for the scale of demand for renewable resources from specific geographic areas. It uses a hypothetical range for a Renewable Portfolio Standard (RPS) of at least 50% by 2030 and at most a 40% GHG reduction by 2030, on track to reach 80% by 2050.

The following are highlights from RETI 2.0.

Renewable Resources

In California-

- Solar Photovoltaic is widespread and generally of good quality throughout the state, with a cost reduction of 82% over the last six years. Costs now range from \$35 to \$57 per MWh, less expensive than the best case scenario in RETI 1.0. Wind Resources with high technical potential wind power are concentrated in a few areas. Most of the highest potential sites are already developed. There is skepticism about many remaining undeveloped areas. CalWEA estimates a maximum potential undeveloped resource of 1,000-2,000 MW.
- Geothermal is concentrated in very few areas. Costs are very site-specific, and subject to considerable dispute, but there is a high capacity factor and potential flexibility,
- Biomass is very much dispersed across the state. Current tree mortality planning does not suggest large new facilities.

In the West-

- Solar is in active development in Arizona and Nevada with advances in solar land use planning, including BLM lands. Wind resources are best in California, New Mexico and Wyoming. Colorado and Montana are also good, but remote. Geothermal is found in northern Nevada southeastern Oregon.
- CA utilities are signing contracts for Arizona and Nevada solar resources and New Mexico wind resources. Multiple projects are in advanced permitting in Wyoming and New Mexico. Proposals are evolving to phase development and access multiple markets using existing transmission.

Low cost solar is ubiquitous, but raises long-term integration challenges. Determining environmental feasibility and transmission access for remaining in-state wind may be a

priority. Geothermal may offer important benefits by 2030 but costs and benefits need further work, especially transmission access. Environmental and land use constraints tend to favor in-state solar and out-of-state wind. There is broad support for further assessment of out-of-state resources.

Transmission Assessment Focus Area considers how much renewables might be needed, which resources might be important, what areas the resources come from, and whether this requires additional transmission. Several areas are focused on in-state and out-of-state, with their necessary import and export paths.

Out of State Resources

Developments in the West outside of California could have substantial effect on accessibility of other resources. Renewables development proposals and projects include generation by wind in New Mexico and Wyoming, solar in Arizona and Nevada and New Mexico geothermal; transmission that delivers wind from New Mexico and Wyoming to California interconnections; and network transmission that may increase access to a variety of renewables and export markets.

Transmission Technical Input Group published a revised interim report "[Existing and Planned Transmission Capability Information to Support the RETI 2.0 Process.](#)" It is gathering existing studies and data to use to assess in-state resources and import-export paths, generation interconnection studies, transmission planning studies and any specific 33% RPS or 50% renewable studies. These will be used to evaluate "transmission implications" of each Focus Area study range including infrastructure requirements, path-level corridor options, costs and permitting.

RETI 2.0 has requested that the Western Interstate Energy Board convene a short "regional consultation" to summarize the existing, planned, and potential capability of the out-of-state transmission network to deliver renewable energy to California, to deliver California excess renewables to western load centers, and to support more renewable energy trade across the west generally.

RETI 2.0 staff will conduct outreach to stakeholders, including local communities, military, and tribes, to further refine understanding of the Focus Areas and to make sure appropriate issues and perspectives are captured.

New Energy Generation and Transmission Projects' Potential Impacts on WRP Partners' Missions

There is considerable interest in the development of additional renewable energy projects and energy infrastructure. Federal and state agencies have set aggressive goals to increase the proportion of energy derived from renewable sources. Many energy projects are

needed to address increases in renewable energy demand caused by population increases and renewable energy portfolio standards. Such projects are promoted to ensure better energy reliability and resiliency and help promote economic well-being of a particular governmental jurisdiction. However, without collaborative planning, certain projects in some locations could impact military operations, be located on sensitive lands (environmental or cultural) or impact the use of water. An example of helpful coordination is WECC's [Long-Term Planning Tool \(LTPT\)](#). WECC uses data such as environmental, cultural, risk and terrain to visualize land data and analyze that data to reveal relationships, patterns and trends important in determining where to place new transmission. The goal is to minimize the cost and impacts (e.g., environmental, financial) of building new transmission paths.

DoD Renewable Energy Goals

Congress established a goal that DoD produce or procure not less than 25 percent of the total quantity of facility energy it consumes 15 percent by FY 2018 and 25 percent during FY 2025 and each fiscal year thereafter from renewable energy sources.⁸ In May 2014, DoD's renewable energy use for facilities was 12.3 percent.⁹

Additionally, Congress set another goal for the DoD in the EAct 2005.¹⁰ That goal measures consumption of renewable electricity as a percentage of total facility electricity consumption. The EAct 2005 goal for FY 2014 is 7.5 percent.¹¹

Following announcements by the Navy, Army and Air Force of obtaining 1 GW from renewables, the Executive Office made official that DoD had committed to having 3 GWs of renewable energy deployed on its installations by FY 2025. Additionally, by Executive Order, the President established a goal of 30 percent renewable electric energy by FY 2025.¹²

Impacts to the DoD Mission

Some energy projects can interfere with ground and airborne radar systems or create thermal sources that may be detrimental to sensitive testing of weapons systems. The military would like to proactively engage early in the process of energy infrastructure siting to minimize and mitigate potential impacts to the military mission. DoD is a chain-of-command organization; therefore, early communication of a proposed project helps DoD properly coordinate the project review and provide an appropriate response. DoD's input is very important since the military testing, training and operations missions are unique to each command and without their timely input it is hard to discern the impacts of a proposed project to those missions.

⁸ 10 U.S.C. § 2911(e)

⁹ Department of Defense Annual Energy Management Report-Fiscal Year 2014 (May 2015)

¹⁰ 42 U.S.C. 15852

¹¹ Department of Defense Annual Energy Management Report-Fiscal Year 2014 (May 2015)

¹² EO 13693, March 19, 2015, "Planning for Federal Sustainability in the Next Decade"

Renewable energy and energy infrastructure can impact military operations in a number of ways, such as:

- Wind turbines may interfere with ground and airborne radar systems, preventing safe and effective terminal radar control or airborne operations.
- Vertical structures located in or beneath low altitude military airspace restrict certain types of training, testing and operations, such as terrain following. For example, some solar facilities include towers over 600 feet tall (and there are plans for much higher) and wind turbines reach well over 400 feet. The lighting on these structures can also impact Low Level Night Vision training.
- Solar power-generating towers create thermal images that may be detrimental to sensitive testing of weapons systems.
- Evaporative ponds may cause a flight hazard by attracting birds beneath low altitude airspace.
- Transmission infrastructure can create electromagnetic interference to military test operations.
- Development in certain areas may impact the military's ability to conduct ground maneuver training for large forces of troops and equipment over large areas.
- The temporary but often undisclosed installation of Meteorological Evaluation Towers (METs), used to determine the suitability of locations for wind turbine installations, may affect airspace.

For more information on potential solution sets, including best practices for DoD engagement and best practices for State Mechanisms (in support of DoD coordination/compatibility), as well as detailed information on State's Statutes or Administrative Actions to Facilitate Development of Energy Projects Compatible with DoD Mission, please see: [Renewable Energy and Transmission Siting Coordination and Potential Impacts on the Military Mission 2015](#)

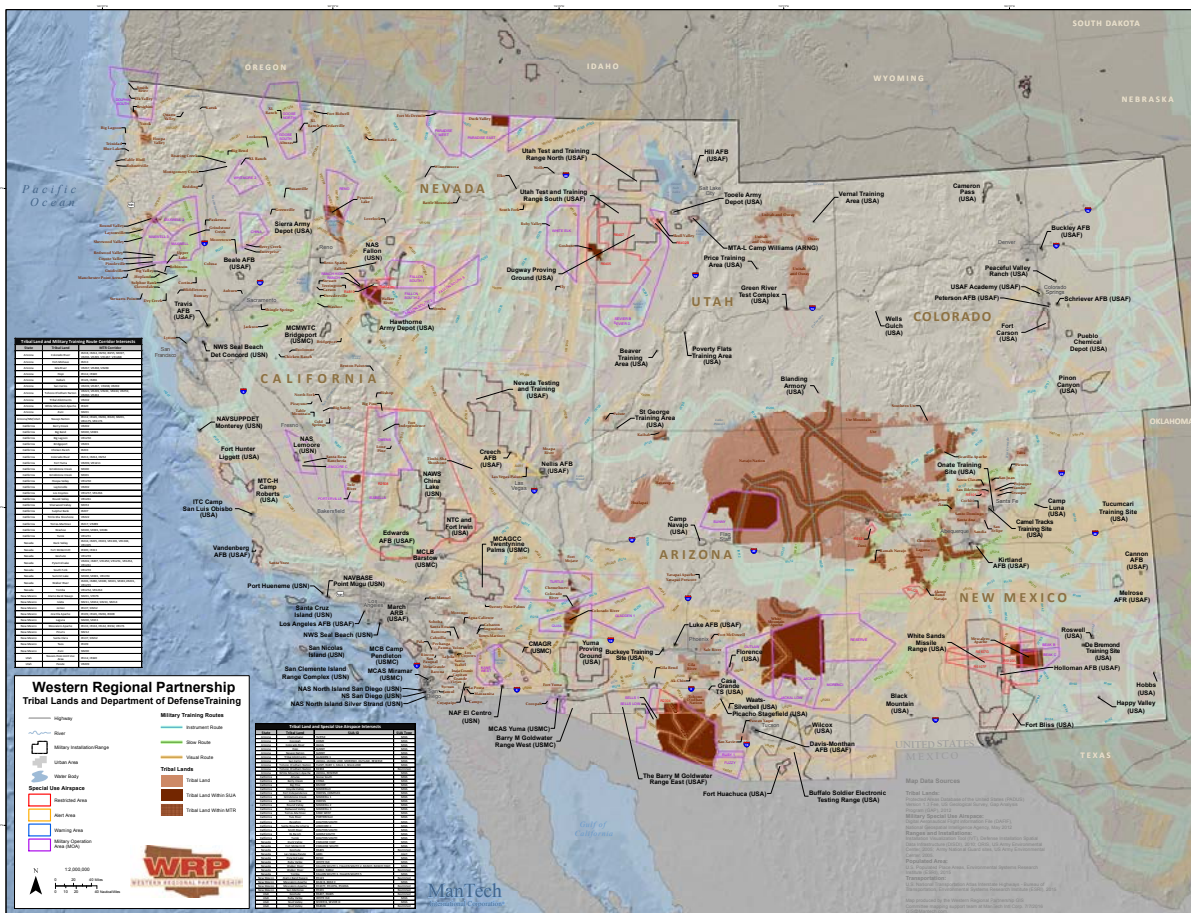
Tribal Lands

Tribal lands possess renewable energy resources (including wind, solar, geothermal and biomass) that could generate power, provide revenue, and create jobs in Indian Country while supporting the goals of clean energy and energy independence. According to the Department of Energy Office of Indian Energy Policy and Programs¹³, Tribal lands comprise less than two percent of the land in the United States and possess around five percent of all renewable energy resources available for development. The leasing of Tribal lands to developers and their subsequent development is a complex and lengthy process requiring longer lead times than projects on non-Tribal lands. Renewable energy (including generation, access roads) projects may have environmental (water, air, wildlife habitat and

¹³ [U.S. Department of Energy Office of Indian Energy Policy and Programs, "Strategic Roadmap 2025" March 2016.](#)

other resources) or cultural (sacred sites, plants, burial grounds) impacts. The WRP Report [Renewable Energy Development on Tribal Lands 2015](#) highlights the following challenges and recommendations regarding development of renewable energy on Tribal lands as well as provides information on resources for such development.

- Federal and State Guidance and Assistance
- Land Use for Renewable Energy Projects
- Interconnection to Transmission Systems
- Ability of Tribal governments to compete at an economically feasible level - Rate Structure/rate parity
- Need for Awareness of Natural Resources and Tribal Cultural and Religious Sites



New Projects, Trends and Resources

The following news articles and press releases occurred since the last WRP Principals' Meeting. Clearly there are numerous articles and agency press releases and it is not feasible to include all, but the following are illustrative to highlight new projects, trends and

resources within the WRP Region. The Energy Committee thanks those that shared the following information.

New Projects

[Utah lawmakers take first step to have more say in plans for regional power grid](#)

The Salt Lake Tribune - July 13, 2016 - By Emma Penrod

Utah lawmakers began the process of drafting legislation that could allow them to block the state's participation in California's proposed regional electrical grid.

[Energy Department Projects Protecting Electric Grid and Oil and Gas Infrastructure](#)

The Energy Department's Office of Electricity Delivery and Energy Reliability announced more than \$34 million for two projects that will help protect the U.S. electric grid and oil and natural gas infrastructure from cyber threats.

[DOE Seeking State and City Partners to Improve Building Energy Performance Data Management](#)

Throughout the US, state and local governments are implementing policies or voluntary programs that track building performance data to better understand market trends and identify energy investment opportunities.

[Navy Signs Agreement for Largest Purchase of Renewable Energy by Federal Entity](#)

Department of Navy's 210 megawatt (MW) direct current solar facility will benefit 14 installations (Naval Base (NB) San Diego, NB Coronado, NB Point Loma, NB Ventura County, Naval Postgraduate School (NPS) Monterey, Naval War Station (NWS) Corona, NWS Seal Beach, NWS Fallbrook, Marine Corps Base Camp Pendleton, Marine Corps Air Ground Combat Center (MCAGCC) 29 Palms, Marine Corps Air Station (MCAS) Miramar, Marine Corps Logistics Base (MCLB) Barstow, Marine Corps Recruitment Depot (MCRD) San Diego and Marine Corps Mount.) The agreement is the largest purchase of renewable energy ever made by a federal entity.

[Western Governors again seek partnership with BLM, Forest Service in Section 368](#)

Western Governors' Association - May 18, 2016

Western Governors have reiterated their desire to work with the Bureau of Land Management (BLM) and U.S. Forest Service (USFS) on the energy corridor designation process for Section 368 of the Energy Policy Act of 2005.

[Possible supplier bankruptcy could delay SunZia power line](#)

Arizona Daily Star - April 16, 2016

A global renewable-energy developer that is the only publicly known supplier for the proposed \$2 billion SunZia power line is on the edge of filing for reorganization under federal bankruptcy law, news reports and a subsidiary say.

[DOI Approves 287-Megawatt Soda Mountain Solar Project in Southern California](#)

DOI - April 5, 2016

As part of President Obama's Climate Action Plan to reduce carbon pollution, create jobs and move our economy toward clean energy, Assistant Secretary for Land and Minerals Management Janice Schneider today announced approval of the Soda Mountain Solar Project on public lands managed by the Bureau of Land Management (BLM) in California.

[Interior Department Takes Next Step in Comprehensive Review of Federal Coal Program](#)

DOI - March 24, 2016

The U.S. Department of the Interior today launched the next step in the comprehensive review of the federal coal program to identify and evaluate potential reforms to ensure the program is properly structured to provide a fair return to taxpayers and reflect its impacts on the environment, while continuing to help meet the nation's energy needs.

[Notice of Intent To Prepare an Environmental Impact Statement for the Proposed Ten West Link 500- Kilovolt Transmission Line Project and Potential Amendment to the Yuma Field Office Resource Management Plan in Maricopa and La Paz Counties, AZ, and Riverside County, CA](#)

BLM - March 23, 2016

In compliance with the National Environmental Policy Act of 1969 (NEPA), as amended, and the Federal Land Policy and Management Act of 1976, as amended, the Bureau of Land Management (BLM), Arizona State Office, Phoenix, Arizona, with the possibility of Western Area Power Administration serving as a co-lead agency, intends to prepare an environmental impact statement (EIS) for the proposed Ten West Link 500- kilovolt (kV) Transmission Line Project (Project) and potential amendment to the Yuma Field Office Resource Management Plan pursuant to the BLM's land use planning regulations.

[Conflict of interest taints power-line plan, critics say](#)

Arizona Daily Star - March 19, 2016

A contractor that helped prepare a key federal environmental report for the proposed \$2 billion SunZia power line had past ties to a major project investor — and works for SunZia today.

[BLM takes key steps to expedite solar energy development on public lands](#)

BLM - March 2, 2016

As part of President Obama's Climate Action Plan to cut carbon pollution and spur renewable energy development on public lands, the Bureau of Land Management (BLM) today announced key milestones in implementing the Western Solar Plan with the release of mitigation strategies that will expedite the safe and responsible development of solar energy zones in Colorado, Arizona and Nevada.

[Arizona regulators approve \\$2B SunZia power line over objections from greens](#)

Utility Dive - February 5, 2016

The Arizona Corporation Commission (ACC) voted 3-2 on Thursday to approve construction of the SunZia Southwest Transmission Project even though it will traverse the environmentally sensitive San Pedro River Valley. The line will deliver high-value New Mexico wind and Arizona solar to cities in California and Arizona.

[3 phases to grid modernization](#)

Smart Grid News - January 28, 2016

Moderating demand, aging infrastructure, clean energy mandates, and the proliferation of distributed energy resources are creating the need for an increasingly intelligent grid

[First Solar and this California utility sign agreements for 4 new solar projects, including one in Arizona](#)

Phoenix Business Journal - January 18, 2016

First Solar Inc. and Southern California Edison Co. have signed an agreement that will make the California utility the largest single energy buyer in the world from First Solar projects.

[Energy Department Announces \\$220 Million in Grid Modernization Funding](#)

Energy.gov - January 14, 2016

The U.S. Department of Energy (DOE) today built on its Grid Modernization Initiative – an ongoing effort that reflects the Obama Administration’s commitment to improving the resiliency, reliability, and security of the nation’s electricity delivery system.

[Google is ramping up hiring for its ambitious plan to make ‘energy kites’](#)

Business Insider - December 1, 2016

GoogleX is ramping up recruiting at Makani, hinting that the ambitious project to create "energy kites" that generate cheap wind power is moving closer to reality.

[Power microgrid coming for MCAS-Yuma region](#)

Yuma Sun - November 2015

Marine Air Corps Station-Yuma and the surrounding area will get a backup "microgrid" out of a partnership between the base and Arizona Public Service, the first of its kind in the country.

[Energy Department to Sign MOU with Interior Department to Assist Indian Tribes to Develop Energy Resources](#)

Announced on November 5, 2015, the Memorandum of Understanding (MOU) will assist Indian Tribes to manage energy resources on approximately 56 million acres of land and natural resources. The Energy Department and DOI will develop and share policies, technical information, strategic plans, and best practices in Indian Country in the lower 48 states and Alaska to enhance the reliability and security of the North American energy infrastructure, and to better serve and create market opportunities for Indian Country. This will include exploring partnerships among the Energy Department’s national laboratories, research institutes, and other organizations to promote energy efficiency and clean energy development and deployment in Indian Country.

[Reducing Costs for Communities and Businesses Through Integrated Demand-Side Management and Zero Net Energy Demonstrations](#)

California offered up to \$31 million for Demand-Side Management and Zero Net Energy demonstration projects.

[BLM and Western Announce the Final Environmental Impact Statement for the Southline Transmission Project](#)

On November 9, 2015, the Bureau of Land Management (BLM) and Western Area Power Administration (Western) issued the Final Environmental Impact Statement (EIS) for the Southline Transmission Project, a 360-mile electric transmission line proposed to run from New Mexico to Arizona.

[First U.S.-Mexico Wind Energy Project Sees Legal Challenge](#)

A project providing San Diego with wind energy from Baja California faces federal court challenge based on environmental concerns over transmission.

Trends

[California lawmakers announce news CPUC reforms](#)

Energize Weekly - July 6, 2016

California Gov. Jerry Brown and members of the California legislature have agreed to a major overhaul of the California Public Utilities Commission (CPUC), striking a compromise deal after a year of gridlock over the fate of the beleaguered agency.

Department of Energy, Western Governors' Association renew agreement to ensure safe transportation of transuranic waste

Western Governors' Association - June 30, 2016

The Western Governors' Association and U.S. Department of Energy (DOE) this week renewed their cooperative agreement to coordinate and oversee shipments, and provide training to safety officials for transportation of transuranic (TRU) waste to the Waste Isolation Pilot Plant (WIPP) near Carlsbad, N.M

US, Canada, Mexico to pledge 50% clean energy sources by 2025

Smart Grid News - June 28, 2016

President Barack Obama is expected to announce that the U.S., partnering with Canada and Mexico, will help North America achieve a goal of obtaining half its electricity from clean power sources by 2025. Current clean power generation from the three countries is at 37 percent. Wind, solar, hydropower, nuclear plants, carbon capture and storage and energy efficiency methods will help move the needle toward this new goal.

Indian Energy Development: Interior Could Do More to Improve Its Process for Approving Revenue-Sharing Agreements

GAO- June 13, 2016 - The Department of the Interior (Interior) recently issued guidance intended to streamline the review process and reduce the approval times of oil and gas revenue-sharing agreements—called a communitization agreement (CA)—that include Indian resources. Under the revised guidance, for example, oil and gas operators are to provide simplified, less detailed information in their CA applications. In addition, the revised guidance eliminates some duplication in the Bureau of Indian Affairs' (BIA) and the Bureau of Land Management's (BLM) review processes.

The EPA Clean Power Plan and State RPS Programs

Clean Energy States Alliance - May 18, 2016

A new report aims to help inform how state Renewable Portfolio Standards (RPS) policies might interact with the Environmental Protection Agency's (EPA's) Clean Power Plan (CPP). The Clean Energy States Alliance RPS Collaborative published the report, which includes topics such as options for states developing plans; the role of RPS programs in helping states achieve emission targets under the CPP; EPA requirements for demonstrating state performance in meeting CPP emission standards; and more.

As coal bows out, will natural gas reign supreme?

By Energize Weekly - For only the second time ever, natural gas was responsible for generating more electricity than coal, according to statistics released by the U.S. Energy Information Administration (EIA). The fact natural gas has produced more megawatts than coal only twice in 239 years is a testament to the power of king coal and the old guard of U.S. electricity markets. The fact natural gas has actually produced more electricity than coal twice this year is indicative of how fast that old guard is changing.

NREL Assesses Costs of Adding New Generation to Existing Power Systems

The Energy Department's Wind Program commissioned the National Renewable Energy Laboratory (NREL) to investigate three integration cost-related questions: (1) How does the addition of new generation affect a system's operating costs? (2) How do changes in generation mix and operating parameters and procedures affect costs? and (3) How do increases in variable generation (non-dispatchable wind and solar) impact the accuracy of natural gas orders? The study, designed and executed in collaboration with industry experts, examined how production costs vary with the addition of new baseload generation; increases in the amount of variable generation; and changes in generation mix, gas prices, and self-scheduling practices.

[Revolution . . . Now-The Future Arrives for Five Clean Energy Technologies-2015 Update](#)

On November 13, 2015, the Department of Energy released this report, detailing the state of several clean energy technologies available today in the United States. The report shows increasing deployment and decreasing costs of four technologies: wind turbines, solar technologies, electric vehicles (EVs), and light-emitting diodes (LEDs). The report shows that cost reductions continue to drive adoption of clean energy technologies and covers the rapid growth of photovoltaic (PV) solar modules for both large, utility-scale PV plants and smaller, rooftop, distributed PV systems.

[White House Summit on Offshore Wind](#)

On September 28, 2015, the White House hosted the Summit on Offshore Wind, a gathering of leading federal, state, and industry stakeholders committed to the long-term and sustainable development of offshore wind in the United States.

[2014–2015 U.S. Offshore Wind Technologies Market Report](#)

This report provides data and analysis to assess the status of the U.S. offshore wind industry through June 30, 2015.

[Agency Energy Use Reduced to 40-Year Low](#)

Government Executive - December 7, 2015

The federal government's overall energy consumption has been cut to its lowest level since recordkeeping began in 1975, the U.S. Energy Information Administration announced on Monday.

[Hammack wants Army off grid](#)

Army News Service - Dec. 3, 2015

If a tsunami ever hits Oahu, Hawaii, where tens of thousands of troops are stationed, power would be knocked out across the island and military operations would be impacted because all of the electrical generators are located along the shore, Katherine Hammack said.

[Federal fuel consumptions hit new low](#)

Federal Times - Federal fuel consumption for fiscal 2014 fell to the lowest level since the data was first measured in 1975, according to the Energy Information Administration.

[Arizona shuts energy program](#)

November 2015 - azcentral.com

The 40-year old State Energy Program was closed.

[Governor Brown Issues Statement on Efforts to Block President Obama's Clean Power Plan](#)

October 23, 2015 - Governor Edmund G. Brown Jr. issued a statement after numerous states took legal action to block the Obama Administration's Clean Power Plan, which sets nationwide limits on greenhouse gas emissions from power plants.

New Mexico Clean Energy Plan

At the end of September, 2015, the New Mexico Energy, Minerals, and Natural Resources department released the New Mexico Comprehensive State Energy Plan.

Nevada PUC's Renewable Portfolio Standard Compliance

Nevada's Renewable Portfolio Standard ("RPS") increases every two years until it reaches 25 percent in 2025. Electric service providers must submit annual reports to the PUCN providing evidence of their compliance with the RPS, which are available by [clicking here](#).

Record response: CPUC hit hard on net metering

Smart Grid News - November 9, 2015 - By Barbara Vergetis Lundin
More than 130,000 signatures in support of net metering were delivered to the California Public Utilities Commission, the largest number of public comments ever recorded at the CPUC on any issue.

How Colorado's Energy Revolution Continues to Take Shape

Route Fifty - June 29, 2016
As the shift away from coal continues, "pay attention to the activity in the states, because that's where the primary activity is," says former Gov. Bill Ritter.

LBNL Report: Existing State Laws Collectively Require a 50% Increase in U.S. Renewable Electricity

Researchers at Lawrence Berkeley National Laboratory (LBNL) announced the release of U.S. Renewables Portfolio Standards: 2016 Annual Status Report, a review of key trends in state renewable portfolio standards (RPS). This annual report, published in slide-deck format, describes recent legislative revisions, key policy design features, past and projected impacts on renewables development, compliance trends, and costs. According to the report, almost 150 RPS-related bills have been introduced since the beginning of 2015, divided almost evenly between those that would strengthen, weaken, or have a neutral impact on RPS requirements.

Good news or bad? Solar surpasses wind in California

Smart Grid News - April 29, 2016
In 2015, energy from grid-connected, utility-scale solar plants surpassed wind for the first time in California, according to analysis from environmental and industrial measurement company Vaisala. While this is an exciting milestone for the solar industry, the rise of solar also brings with it a demand for better forecasting information to cope with the challenges that the increase in variable generation poses to the regional energy system.

Meeting renewable requirements third on NV Energy's list of priorities

Smart Grid News - April 7, 2016
NV Energy has exceeded its renewable energy requirements for 2015, according to a recent filing of its required 2015 Renewable Portfolio Standard Annual Report with the Public Utilities Commission of Nevada.

Arizona loses 25 percent of solar jobs in 2015

Phoenix Business Journal - February 15, 2016

Arizona lost 2,248 solar industry jobs in 2015 according to a report from the Solar Foundation. The nearly 25 percent job drop from 2014 reported in the Arizona Solar Job Census dropped the state four places in rankings from third to seventh place among states with solar-related jobs.

Skewed priorities in grid investments increase vulnerability

Smart Grid News - June 30, 2016

Federal and state investment in the electric grid is lopsided in favor of renewable energy development, increasing vulnerability of power grids given that significantly less funding is devoted to cybersecurity.

US energy storage market to grow 9x by 2021

Smart Grid News - June 29, 2016

The energy storage market is on track to grow nine times in the next five years, exceeding 2 GW for the first time, according to new research from GreenTechMedia.

Proposed Renewable Fuel Standards for 2017, and the Biomass-Based Diesel Volume for 2018.

EPA - May 31, 2016

EPA proposed increases in renewable fuel volume requirements across all types of biofuels under the Renewable Fuel Standard (RFS) program. These increases would boost production and provide for ambitious yet achievable growth. The proposed volume requirements and associated percentage standards for are for calendar year 2017 for cellulosic biofuel, biomass-based diesel, advanced biofuel, and total renewable fuel. EPA also proposed the volume requirement for biomass-based diesel for 2018.

EI's Aaronson discusses government, utility coordination on cyberthreats

GRID - May 26, 2016

How are the public and private sectors coordinating to address the increasing global threat of cyber and physical attacks on the grid? During today's OnPoint, Scott Aaronson, managing director for cyber and infrastructure security at the Edison Electric Institute, discusses the vulnerabilities facing the U.S. grid and the latest strategic planning between the federal government and utility industry on managing these threats.

Facing the inevitable: Wind turbines reaching end of useful life

Smart Grid News - May 18, 2016

As a critical component of the electrical infrastructure, wind turbines are one of the workhorses of clean energy. Being that they are exposed to all of nature's elements and produce power under many different conditions, wind turbines, unfortunately, won't last forever – and many are nearing the end of their useful life.

Energy Department Launches Five New Solar Ready Vets Training Locations, Announces \$10 Million for National Solar Training

Energy.gov - May 17, 2016

Today, the Energy Department announced five additional military bases will join Solar Ready Vets, a solar jobs training program that prepares service members for careers in the solar industry when they leave active duty.

Oil and Natural Gas Air Pollution Standards-Regulatory Actions

EPA - May 12, 2016

EPA has issued three final rules that together will curb emissions of methane, smog-forming volatile organic compounds (VOCs) and toxic air pollutants such as benzene from new, reconstructed and modified oil and gas sources, while providing greater certainty about Clean Air Act permitting requirements for the industry.

Senate passes energy bill granting DOE secretary emergency cyber powers

Politico - April 21, 2016

The Senate on Wednesday passed legislation granting emergency authority to the Energy secretary to issue orders to the North American Electric Reliability Corp. when the bulk-power system is under dire cyber threat.

Cleaner, Cheaper, Stronger: Industrial Efficiency in the Changing Utility Landscape

This report, commissioned by the Pew Charitable Trusts, details the trends shaping the nation's power generation, and the impact policies could have on deployment of industrial energy efficiency technologies.

Utilities hitting the Energy Superhighway

Smart Grid News - April 6, 2016

Utilities will increasingly depend on the Energy Superhighway to evolve with the industry and drive industry evolution, according to Navigant Research.

Wind and Solar Data Projections from the U.S. Energy Information Administration: Past Performance and Planned Enhancements

U.S. Energy Information Administration - March 22, 2016

EIA's data for renewable electricity, in particular wind and solar generators, are one of the largest areas of interest among EIA data users, as well as one of the more frequent targets of criticism.

U.S. wind bigger business than America's favorite pastime

Smart Grid News - February 26, 2016

U.S. solar installations hit a record high in 2015, supplying 29.5 percent of all new generating capacity Building new wind farms in the United States has added \$13 billion a year, on average, to the American economy over the past five years -- more than the annual revenue generated by Major League Baseball each year, according to new information from the American Wind Energy Association (AWEA).

Fifteen Accomplishments Worth Celebrating in 2015

U.S. Energy Information Administration - December 2015

With the year drawing to a close, we've identified Fifteen Accomplishments Worth Celebrating in 2015 that highlight another productive year for EIA. I look forward to continuing to work with you in 2016 to fulfill EIA's mission: to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment.

BLM Releases Statistics on Oil and Gas Activity on Federal, Indian Lands

The Bureau of Land Management (BLM) today released fiscal year (FY) 2015 statistics for oil and gas permitting, leasing and drilling activity on lands where BLM permits are required. Production from

those lands, both Federal and Indian, increased 10 percent over FY 2014 and went up more than 108 percent since 2008. This compares to an 88 percent increase in oil production nationally over the same period, based on data obtained from the Office of Natural Resources Revenue and the Energy Information Administration.

Renewable Energy in the 50 States: Western Region Report

On November 5, 2015, the nonprofit American Council On Renewable Energy (ACORE) released this annual report, examining state energy programs, investment, and markets in the renewable energy sector in Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. The region attracted nearly half of the country's combined venture capital, private equity, and asset finance investment in clean energy. Clean energy produced roughly one third of the region's total electricity generation, compared to about 13% nationally.

Resources

DOI Releases Final Valuation Rule

July 1, 2017 - The Department of Interior (DOI) finalized its final valuation rule for oil, gas and coal extracted on federal lands. The rule is part of ongoing federal energy regulation reform and will update valuation and revenue collection for mineral resources for the first time in two decades. The final rule was published in the Federal Register on July 1, effective January 1, 2017.

CA's energy conservation blueprint

California Weekly - June 13, 2016

A plan is about to be finalized that will speed up the process of bringing new clean energy online. The Desert Renewable Energy Conservation Plan (commonly called the DRECP) is a strategy that will help conserve desert lands and plan for a clean energy future. It will provide permanent protection to the desert's public lands while also identifying those areas where development of renewable energy will conflict least with natural or cultural values.

BLM Releases Solar Energy Monitoring Strategy

BLM - May 24, 2016

BLM released the final strategy for monitoring the impacts of solar energy development in eastern Riverside County. Public comments from the October draft strategy were considered into this final strategy which is part of the implementation of the Western Solar Plan.

Spot on: New website tracks clean energy policy

Smart Grid News - May 5, 2016

The Center for the New Energy Economy at Colorado State University and the Nature Conservancy have released the State Policy Opportunity Tracker (SPOT) for Clean Energy -- a publicly available database that allows users to quickly review the status of 38 clean energy policies across all 50 states.

BOEM Initiates Planning for California Offshore Renewable Energy Task Force

BOEM recently announced that it will initiate planning with the State of California to establish an Intergovernmental Renewable Energy Task Force to examine opportunities for offshore renewable energy development. The task force will facilitate coordination and communication in a partnership between BOEM and state, local, and tribal governments and federal agencies concerning potential

renewable energy leasing for research activities and commercial development on federal submerged lands on the Outer Continental Shelf, offshore California.

Department of Defense Instruction (DODI) 4180.02, Implementation and Management of the DOD Mission Compatibility Evaluation Process

Establishes policy, assigns responsibilities, and prescribes procedures to evaluate energy projects and identify techniques to mitigate the impact of proposed projects on military operations and readiness.

West Wide Energy Corridor Study

On May 20, 2016, the Bureau of Land Management (BLM), Department of Energy (DOE) and U.S. Forest Service (USFS) released a study providing a foundation for regional reviews of energy corridors on western public lands, beginning with southern California, southern Nevada and western Arizona, for transmission siting. The study was done under Section 368(a) of the Energy Policy Act of 2005, which directed several federal agencies to designate corridors on federal lands in Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming to provide linear pathways for siting oil, gas and hydrogen pipelines and high voltage transmission and distribution facilities. From 2006 through 2009, BLM, USFS, DOE and others undertook a landscape scale effort, including a Programmatic Environmental Impact Statement, that designated nearly 6,000 miles of corridors. Litigation about the corridors identified resulted in a 2013 [Memorandum of Understanding](#) among the BLM, USFS and DOE regarding the process for conducting corridor reviews, the types of information and data to be considered, and the process for incorporating resulting recommendations in BLM and USFS land use plans.

The full-text of the corridor study is available online at: [West-wide Energy Corridor Information Center](#). Maps of the corridors may be found at:

*[Map of Priority Regions for Review of Section 368 Energy Corridors](#)
[Section 368 Corridor Study](#)*

Draft 2015 Integrated Transmission and Resource Assessment

The draft [2015 Integrated Transmission and Resource Assessment](#) identifies potential risks to reliability that could result from changes in loads, resources and transmission topology in the next 10-20 years. The report also attempts to understand the impacts of evolving public policies affecting the Bulk Electric System (BES) in the Western Interconnection.

EPA Releases Decision Tree Tool to Help Site Renewable Projects on Degraded Land

The U.S. Environmental Protection Agency (EPA) released the [RE-Powering Electronic Decision Tree Tool](#) to guide interested parties through a process to screen sites for their suitability for solar photovoltaics or wind installations. The tool addresses the following types of sites: potentially contaminated sites; landfills; and underutilized sites (e.g., abandoned parcels and parking lots).

Energy Department Publishes Energy Sector Vulnerability Report

As part of the Administration's efforts to support national climate change adaptation planning and to advance the Energy Department's goal of promoting energy security, the Department published this report.

[Estimating Renewable Energy Economic Potential in the United States: Methodology and Initial Results](#)

Analysts at the Energy Department's National Renewable Energy Laboratory (NREL) are providing a method for measuring the economic potential of renewable energy across the United States.

The report describes a geospatial analysis method used to estimate the economic potential of several renewable resources. Analysis to date includes photovoltaics (PV), wind, geothermal, biomass and hydropower resources.

[Wind Energy Integration Slideshow](#)

As part of a stakeholder outreach effort, WINDEXchange published a slideshow about integrating wind energy into the electricity grid.

[Distributed Wind Policy Comparison Tool](#)

Version 3.2 of this tool is now available, revised with several improvements to reflect changes in market conditions. The Policy Tool, funded by the Energy Department, provides information related to cost, policies, incentives, and other details associated with on-site wind for policy makers, industry representatives, and advocates.

[REPI Webinar-Energy Development and the DoD Siting Clearinghouse](#)

November 18, 2015 - Wind and solar energy development is increasing rapidly across the country, and can interfere with military test, training, and operational capabilities. This webinar detailed how the DoD Siting Clearinghouse works to protect DoD mission capabilities by collaborating with DoD Components, energy developers, and communities to prevent, minimize, or mitigate adverse impacts on military test, training, and operations.

[Wind Vision Report](#)

This report assesses the potential economic, environmental, and social benefits of a scenario where U.S. wind power supplies 10% of the nation's electrical demand in 2020, 20% in 2030, and 35% in 2050. The American Wind Energy Association (AWEA) published a series of [fact sheets](#) using the Wind Vision data to summarize impacts to each state. The fact sheets are available for download and can be freely distributed.

[DOE Office of Indian Energy Overview Brochure](#)

The brochure highlights the Office's mission, vision, approach, and accomplishments

[National Tribal Energy Summit](#)

A National Tribal Energy Summit, held Sept. 23–25, 2015, focused on energy policy priorities important to American Indian Tribes. Tribal and state governments, federal agencies, tribal corporations, private industry, utilities and academia explored energy development and security issues identified by tribes and DOE's Indian Country Energy and Infrastructure Working Group.

[New Office of Indian Energy Website](#)

As of this week, all of the offerings, services, and resources the Office of Indian Energy provides in support of that shared mission and vision are now available to Indian tribes on a single website, streamlined and redesigned to offer visitors an optimal user experience.

[Wind Energy Fact Sheet](#)

The Four Corners Wind Resource Center, which is partially funded by the Energy Department, recently published these wind energy statistics for Nevada, Colorado, Utah, Wyoming, Arizona, and New Mexico, including installed capacity, number of homes powered, millions of gallons of water saved annually, and economic impacts.

Evaluate State Clean Energy Policies with SPOT

The Center for the New Energy Economy (CNEE), in partnership with The Nature Conservancy (TNC), built the State Policy Opportunity Tracker (SPOT) for Clean Energy to serve as a hub of information on both existing state clean energy policies and, uniquely, future policy opportunities

Updated Small Wind Guidebook Available

As part of its stakeholder engagement and outreach efforts, WINDEXchange offers a Small Wind Guide that includes information on how to find certified small wind turbines and how to site small wind turbines for optimum performance, as well as state-specific contacts who can provide further guidance for consumers.

RENA Releases Revised Global Atlas for Renewable Energy

The International Renewable Energy Agency (IRENA) launched a revised Global Atlas for Renewable Energy. The online renewable energy mapping platform now allows users to download resource data for offline analysis and to print and export map images. The atlas provides more than 2,000 datasets for free, and now users can also download the raw data in selected datasets for further analysis and use.

WRP MILITARY READINESS, HOMELAND SECURITY, DISASTER PREPAREDNESS AND AVIATION (MRHSDP&A) COMMITTEE

The WRP MRHSDP&A Committee in 2015-2016:

- Supported military readiness by providing information on the DoD mission in the WRP region and serving as a forum to address compatible land uses in the vicinity of military operations;
- Provided a forum for collaboration and information sharing on members' respective homeland security/disaster preparedness missions to foster awareness of the interdependence among Partners; and
- Served as a forum for aviation users.

To identify WRP regional strengths, areas of commonality and potential emerging issues impacting WRP Partners' missions, the Military Readiness, Homeland Security, Disaster Preparedness and Aviation Committee reviewed existing WRP materials, received several presentations via webinar and considered external reports of events and resources. Those presentations and significant reports are summarized below.

Those presentations, significant reports and useful resources are summarized below in the following categories:

- Military Readiness Information including WRP resources when working with DoD
- Homeland Security and Disaster Preparedness Updates
- Aviation
- WRP MRHSDP&A Committee presentation summaries
- WRP MRHSDP&A Committee-Related articles and resources

Military Readiness

The mission of the Department of Defense (DoD) is to *"provide the military forces needed to deter war and to protect the security of our country."* The WRP region is very important to the military; it has extensive training ranges, premier testing facilities and unmatched military air space. For the services, it includes:

- Army: ~55% of the Army's landholdings
- Navy: Over 33% of Navy's landholdings
- Marine Corps: 85% of Marine Corps' airspace; 67% of Marine Corps' Live Fire Ranges
- Air Force: Includes four of the largest USAF range complexes - Edwards, Nellis/Creech/NTTR; Luke/Goldwater; and UTTR
- 75% of DoD Special Use Airspace is located within the WRP Region

WRP Resources Available When Working with DoD

Military installations and ranges provide the platform for testing and training so that military members are best prepared for times of war. Encroachment can impact DoD's use of land, sea, airspace, frequency spectrum and other resources; it is the cumulative impact of

development that hampers DoD’s ability to carry out its testing and training mission. For more information on issues of importance to DoD and other useful information please see WRP [Guide to Working with DoD 2015](#)

Many tools have been developed to equip the military and communities to proactively work together on these issues. Tools developed in partnership at the state and local level can be very effective. For the states, military installations represent a sustainable benefit to their economies and their local communities, one that is typically consistent and unaffected by market forces and most economic cycles. In addition, the installations contribute to national security and military members tirelessly provide many volunteer hours each year in support of local communities.

[WRP State Support for Military Testing and Training 2015](#) highlights WRP States’ laws and executive-level administrative support of the military testing and training mission. It highlights state laws supporting military and aviation coordination as well as outlining DoD encroachment factors and best practices used by the states to address such issues. This document serves as a tool for policy makers to assist in supporting the military testing and training mission within their state in a proactive and collaborative fashion.

Military Asset Listing

Within the Western Regional Partnership (WRP) region, there are significant military testing and training installations and ranges. WRP developed Military Asset Listing (MAL) summaries from all of the Services and the National Guard, describing the history, missions, and importance of these assets. These summaries use only publicly available information and are written for the policy maker new to military issues and for the military-savvy person needing specific military information. These military summaries are for general planning purposes and were developed and updated through inputs and involvement with installation and Services-level contributors, including public affairs officers, intergovernmental liaisons, regional environmental coordinators, sustainability officers and community plans and liaison officers from Air Force, Army, Marine Corps, National Guard and Navy throughout the six-state region. WRP appreciates all the military’s review, coordination and input to develop the following 80 MAL summaries:

By State

Arizona:	18
California:	29
Colorado:	9
Nevada:	9
New Mexico:	9
Utah:	6

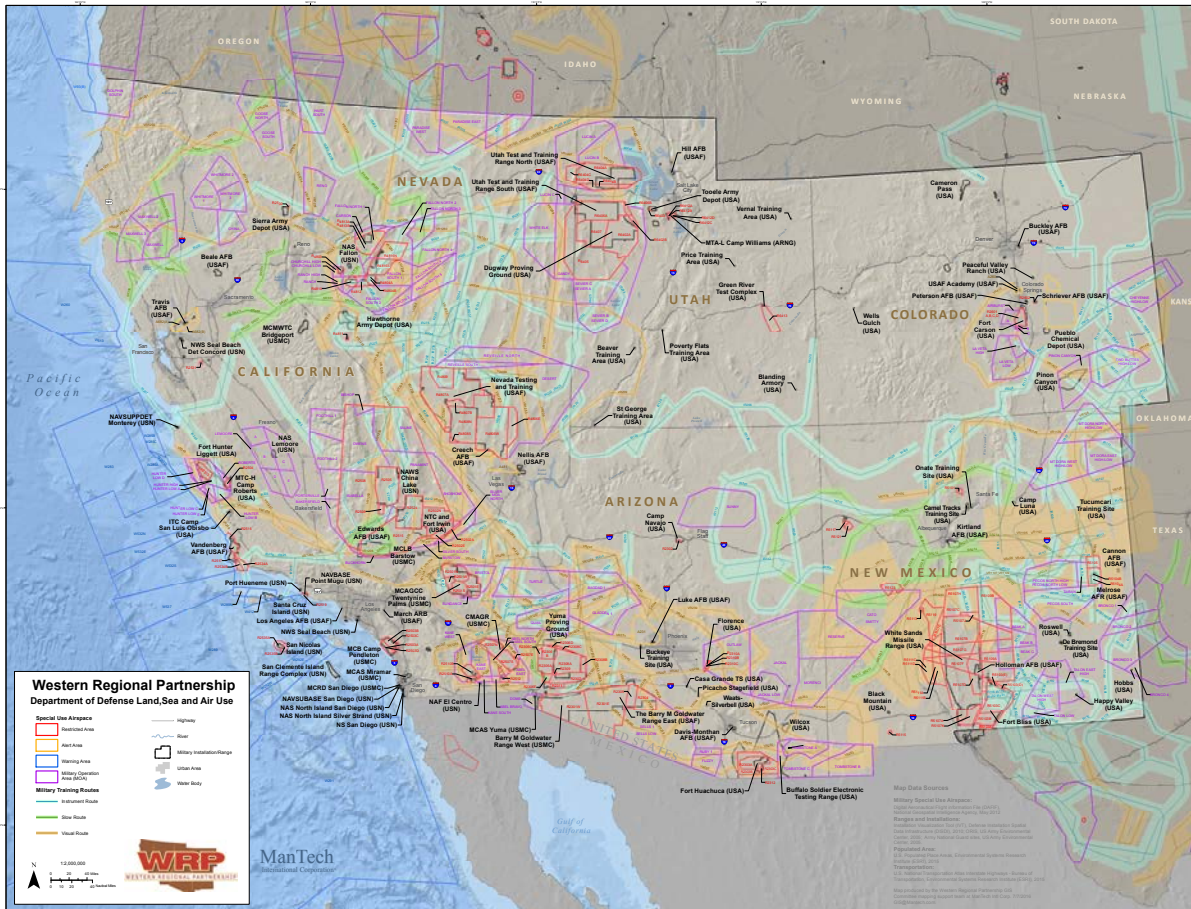
By Service

Air Force:	23
Army:	16
Marine Corps:	9
National Guard:	20
Navy:	12

For information regarding specific military installations and ranges in the WRP area please see: <https://wrpinfo.org/Pages/MAL/MilitaryAssets.aspx>

WRP DoD Management Team

The WRP DoD Management Team consists of representatives from OSD and the military services to coordinate issues and best support WRP efforts. This team serves as a resource to WRP members on DoD-specific issues.



Homeland Security and Disaster Preparedness

Throughout the year, WRP Steering Committee met with WRP Committee Co-Chairs and discussed and provided updates on related homeland security and disaster preparedness issues such as:

- Fire seasons; wildfire issues
- Much focus on Cyber security issues
- The State of Colorado is putting \$8 million into funding a cyber security center in partnership with the University of CO in Colorado Springs to focus on support with private sector security; the State is working closely with DHS to create the center.

- Focus on responding to chemical, biological, radiological (nuclear, etc.)
- FEMA continues to work threat procedures with states' capabilities to be supportive; and support communities with development of their Threat and Hazard Identification and Risk Assessment (THIRA)
- FEMA, FHWA and others working together have developed best practices for air support (RPAs) for disaster response coordination.
- DHS provided additional resources:
 - The Department of Homeland Security's National Protection and Programs Directorate (NPPD) has created the Hometown Security page(www.dhs.gov/hometown-security) providing incident-preparedness tools
 - Updated [National Planning Frameworks](#) for each mission area: Prevention, Protection, Mitigation, Response, and Recovery

Aviation

Within the Western Regional Partnership (WRP) region there are significant numbers of aviation users (military, business and general aviation, commercial, etc.) with diverse missions. The WRP region appreciates nearly year-round fair weather, enabling all types of flying missions. Within this region are some of the nation's busiest airports (Los Angeles, San Francisco, Las Vegas and Phoenix Sky Harbor) in terms of passenger boardings and passenger traffic. Airspace is a finite resource and competition for its use is increasing. The region's interconnected military airspace supports air-to-air, air-to-ground, ground-to-ground and air-to-sea operations. Changes in aviation operations and types of users along with changes in land use patterns can impact aviation missions. The [WRP Airspace Sustainability Overview 2015](#) document provides information on the main encroachment/sustainability challenges for aviation operations as well as outlining recommendations and resources available.

Meteorological Evaluation Towers (METs) are being built more frequently and at an increasing height. Many towers are built lower than 200 feet Above Ground Level (AGL) to avoid the Federal Aviation Administration (FAA) rule requiring coordination of any structure 200 feet or taller. In many areas such development does not require notification, which may result in a pilot first learning of the new tower while flying. On July 15, 2016, the President signed into law the FAA Extension, Safety and Security Act of 2016¹⁴ (the Act.) Section 2110, "Tower Markings," mandates that the FAA, within a year, develop regulations requiring marking of towers between 50 and 200 feet AGL. Additionally, this law directs the FAA to maintain a database of the location and height of covered towers. This new law directly addresses marking of METs that previously were of concern to aviation users. WRP Partners are encouraged to monitor the new FAA regulations and determine where and if appropriate additional disclosure and notification of METs would promote aviation safety.

¹⁴ Pub. Law 114-190.

State UAS Legislation

Since 2013, State Legislatures have been passing laws to address the growing use of Unmanned Aircraft Systems (UAS.) A list of state legislation may be found here:

<http://www.ncsl.org/research/transportation/current-unmanned-aircraft-state-law-landscape.aspx>

Although the legal ability of States to regulate military activity of any kind, including the use of UAS, is highly doubtful, nevertheless it may be valuable for military members to engage early on such legislation if, as and when it arises and for state leaders to proactively engage with DoD, especially given the significant increase in UAS operations with the WRP Region. Specific language in the legislation that clarifies that the State does not intend to regulate the use of UAS by the military would be a helpful addition to such legislation so that there is no uncertainty attached to state UAS regulation.

WRP MRHSDP&A Committee Presentation Summaries

The WRPMRHSDP&A Committee for the past several years has held dedicated one-hour webinars to focus on one-subject and provide WRP Partners an opportunity to learn more about available energy-related resources and planning efforts in the WRP Region. Listed below are summaries of three such webinars, all well-attended. The Committee also held two joint webinars with the Natural Resources Committee, detailed in the next section.

Marine Corps Air Ground Combat Center (MCAGCC) Twentynine Palms

In March 2016, Major Brian Welsh, Regional Airspace Coordinator, Marine Corps Installations West and Mr. Jim Ricker, Assistant Chief of Staff, G5 Plans, Community Liaison/Public Affairs MCAGCC presented on the mission of the Marine Corps Air Ground Combat Center Twentynine Palms and land acquisition and airspace expansion.

The Commanding General, MCIWEST-MCB CAMPEN serves as both the Regional MCIWEST Commanding General and the Installation Commanding General of MCB CAMPEN. MCIWEST-MCB CAMPEN is a Regional Marine Corps Installations (MCI) Command under the command of the Commanding General, MCICOM. CG MCIWEST-MCB CAMPEN has a single staff to conduct MCIWEST Regional and MCB CAMPEN Installation command and staff actions. The mission of the G-3/5 Aviation Operations is to coordinate, develop, and implement Regional Aviation Policies, Programs and Operations as the Regional Aviation advocate. The webinar provided an overview of Marine Corps aviation mission, including types of aircraft currently flying and their roles, airspace challenges that impact DoD's ability to carry out its flying mission and why the southwest region provides a unique environment to conduct their mission.

MCAGCC Twentynine Palms (29Palms) is the Marine Corps' premier live-fire training installation. It is located in the Mojave Desert near Joshua Tree National Park, and is the only place with enough land and airspace to carry out the Marine Corps' mandate to conduct

realistic, combined-arms training at the Marine Expeditionary Brigade level. The webinar provided the history, purpose and need for 29Palms' Expansion and the types of airspace needed to conduct the mission.

The Marine Corps is working with the FAA to acquire permanent additional joint-use Special Use Airspace (SUA) above these new lands to meet the MEBEX training requirement which will be used no more than two one-month periods each year. Gaining permanent joint-use SUA can take several years to complete; therefore, temporary measures are being pursued to accommodate a MEB Large Scale Exercise (LSE) in August 2016. The Temporary SUA proposal to support LSE 16 is for no more than 19 days. It will be activated only in support of the planned LSE and proposed utilization of Temporary SUA above 18,000' MSL is confined to no more than 8 days or less. The Temporary SUA will be described and activated via Notice to Airmen (NOTAM) and may also be circularized and/or published in the same manner as Temporary Flight Restriction (TFR) notices. During the remainder of the year, not to exceed 200 days; the airspace directly over the new lands of the MCAGCC training range complex would be under a planned Controlled Firing Area (CFA) which will not impact civilian or commercial aviation.

National Transportation Safety Board (NTSB)

In April 2016, Dr. Kristi Dunks, Analyst/Senior Investigator, National Transportation Safety Board (NTSB) presented a webinar on the National Transportation Safety Board (NTSB,) hazards associated with Meteorological Evaluation Towers (MET) and what the NTSB is doing to address them.

The NTSB is required to investigate every civil aviation accident and significant accidents in other transportation modes to determine probable cause and issue safety recommendations. It also investigates U.S. designated or manufactured aircraft and engines involved in accidents outside the U.S. The NTSB has a five-member Board and four regions. New Mexico and Colorado are in the Central Region based in Denver; the other WRP states are in the Western Pacific Region based in Seattle.

For incidents, the NTSB produces a preliminary report within 5 business days of the event, a factual report within 6-12 months of the incident and a probable cause finding one to two months thereafter. It also issues safety alerts to address broader issues and provide guidance and safety recommendations, over 11,000 of which have been issued for all modes of transportation.

Regarding METs, FAA provides guidance regarding structures below 200 feet. (Note this webinar was prior to the passage of the FAA Reauthorization Act, which contains the requirement noted above that the FAA pass rules regarding the marking of towers between at least 50 feet but not 200 feet above ground level.) The FAA issued a safety alert on METs in March 2011, followed by Safety Recommendations issued March 2013, which encouraged

voluntary marking to increase visibility. FAA also recommended amending the federal regulations to require registration, marking and lighting (where feasible) of METs. FAA also recommended that states enact their own marking and registration requirements.

2016 DOD T&E Spectrum Activity

In July 2016, Chris Mazur, DoD T&E Ranges Sustainability Lead, providing information on Spectrum Policy Developments Affecting the U.S. Department of Defense DoD Test Ranges.

Radiofrequency spectrum is a finite resource that is increasingly in high demand by many users, including state and federal government, and the private sector, for such uses as wireless broadband service (smart phones, laptops, tablets, e-readers, etc.). As data usage becomes more intensive (cell phones are used for more than talk service, but also for internet searches, etc.) more competition arises for spectrum that was previously used by aviators for radar and voice communication systems and for national security purposes such as by the Department of Defense. DoD is using new weapons systems that tend to need a higher data rate for spectrum. There is a vital need to have a secure communications network for new aircraft to ensure information security is protected.

The briefing was provided to inform regional and local leaders of actions the DOD T&E community is taking relative to electromagnetic spectrum (EMS) management which may be helpful during consideration and development of regional plans which may rely on EMS resources to execute.

MRHSDP&A Committee-Related Articles, New Releases and Resources

The following news articles and press releases occurred since the last WRP Principals' Meeting. Clearly there are numerous articles and agency press releases, making it not feasible to include be comprehensive, but the following are illustrative to highlight efforts within or affecting the WRP Region. The MRHSDP&A Committee thanks those that shared the following information.

Military Readiness Related Articles and Resources

[Military aviation readiness is in 'a deep hole,' top brass says](#)

(Air Force Times) A high operational tempo and uncertain budgets have damaged aviation readiness across all four services and have leaders concerned about pilot safety, top brass told Congress Wednesday.

[Air Force plans 100 enlisted drone pilots by 2020](#)

(Air Force Times) The Air Force will send its first 10 enlisted airmen to drone pilot training this October — and by 2020, there could be as many as 100 of them.

Should Cyber Warfare Have Its Own Branch?

(Carl Forsling in Task & Purpose) If cyber warfare remains just a niche within military services, the U.S. will never be able to develop the talented warriors it needs.

Army secretary again casts fear of constant budget instability

(Army Times) The Army's new civilian leader on Tuesday again called for steady, predictable funding as the service trains and prepares to face a growing array of threats around the world.

The Air Force fighter pilot shortage is already a crisis — and it could soon get worse

(Washington Post) An acute shortage of Air Force fighter pilots could grow even worse, with nearly a third of all jobs becoming vacant in the coming years, senior service officials said Wednesday.

Outgoing Navy secretary still urging a base-closing round

(The Day) Secretary of the Navy Ray Mabus said submarines have become more important to the national defense and the Navy has less excess capacity than the other armed services, but he also said all Navy facilities would be on the table — even sub bases — if there is a new base-closing round.

2-star: F-35 delays could force further extension of Super Hornets

Navy Times - Joint strike fighter delays may force the carrier Navy to fly F/A-18 Super Hornets even longer into coming decades, a predicament that could reduce training hours and strain airframes.

REPI State Factsheets

An overview of REPI activities by state, installation case studies, and DoD economic impact within states with REPI projects. Fact sheets reflect data and information current through the end of fiscal year 2015 and will be updated on a yearly basis. Maine, Montana, and Utah do not appear in this list as state fact sheets are created for states where REPI projects have completed at least one transaction.

FY 2014 Defense Spending by State

The OEA has released their report on FY 2014 Defense Spending by State.

2016 Index of U.S. Military Strength

Defense News - Lt. Col. Dakota Wood, USMC (Ret.), of the Heritage Foundation and principal author of the "2016 Index of U.S. Military Strength," which grades U.S. military capabilities.

National Guard to stand up 13 new cyber units in 23 states

Army Times - The National Guard will activate 13 new cyber units across 23 states as part of ongoing efforts to grow its cyber force.

DoD to Issue Revamped Spouse Transition Program

Military.com - A program being overhauled by the Defense Department aims to arm military spouses with tools to help their families' transitions out of the military and back into civilian life.

Air Force chief of staff: 40,000 to 60,000 more airmen needed

Air Force Times - As his tenure as Air Force chief of staff winds down, Gen. Mark Welsh is becoming increasingly blunt about where he thinks manpower levels should be - and that's at full manning, 40,000 to 60,000 more airmen.

Corps May Need 5,000 More Marines to Combat New Threats: Paxton

Military.com - The Marine Corps is projected to remain a force of 182,000 in coming years, but the four-star assistant commandant of the Marine Corps said new threats may require an increase of 5,000 troops or more.

Air National Guard rapidly boosts cyber capabilities

Air Force Times - Air National Guardsmen will have an increasing role in the cyber defense of the nation, top generals told Congress Tuesday.

Air Force expanding flights, training and bases for drones, top general says

Air Force Times - The Air Force will increase its number of remotely piloted aircraft flights to 70 a day, service Chief of Staff Gen. Mark Welsh told reporters Monday.

DoD Official: BRAC Round Will Save Money

Defense News - The US Congress' reluctance to close and consolidate military bases is standing in the way of the Defense Department's efficiency efforts, a senior Pentagon official said Monday.

Sixth-gen fighter likely won't be common across U.S. services, Air Force general says

Military Times - In a departure from the dual-service F-35 effort, the Pentagon's sixth-generation fighter likely won't be common between the Air Force and the Navy, a top Air Force general said Friday.

When will the Air Force's F-35 be ready for battle?

Defense One - July 8, 2016

Gen. Herbert "Hawk" Carlisle, head of Air Combat Command who will make that decision, gave a whole lot of clues for when he'll declare the Joint Strike Fighter war ready during an international media day hosted by the plane-maker Lockheed Martin at RIAT.

Military aviation readiness is in 'a deep hole,' top brass says

Air Force Times - July 6, 2016

A high operational tempo and uncertain budgets have damaged aviation readiness across all four services and have leaders concerned about pilot safety, top brass told Congress Wednesday.

Defense Civil Support: DOD Has Made Progress Incorporating the Homeland Response Force into the Chemical, Biological, Radiological, and Nuclear Response Enterprise

June 28, 2016 - The National Guard has determined, through established capabilities and readiness measures, that the Homeland Response Force (HRF) is ready to conduct the HRF mission if called upon. The Department of Defense's (DOD) National Guard Bureau uses an

evaluation of necessary tasks and actions as a primary measure of HRF capabilities and DOD's Defense Readiness Reporting System as a primary measure of readiness status.

Taking flight: MCAS Yuma Harrier squadron converted to F-35B Strike fighters

Yuma Sun - June 30, 2016

Marine Attack Squadron (VMA) 211, known as the Wake Island Avengers, became the first AV-8B Harrier squadron in the U.S. Marine Corps to be converted to a F-35B Lightning II Joint Strike Fighter squadron during a re-designation ceremony Thursday morning at Marine Corps Air Station Yuma.

Army secretary again casts fear of constant budget instability

Army Times - June 28, 2016

The Army's new civilian leader on Tuesday again called for steady, predictable funding as the service trains and prepares to face a growing array of threats around the world.

Military Training: DOD Met Annual Reporting Requirements in Its 2016 Sustainable Ranges Report

GAO - June 15, 2016

DOD's 2016 report provides updates to the plan required by the act, specifically: (1) proposals to enhance training range capabilities and address any shortfalls, (2) goals and milestones to describe DOD's progress in implementing its comprehensive training range sustainment plan, and (3) projected funding requirements for each of the military services to implement their planned actions.

US Air Force Gen. Mark Welsh Pessimistic About Defense Budget Outlook

Defense News - June 14, 2016

The outgoing Air Force chief of staff is bracing for a continuing resolution this year, and is generally pessimistic that the Pentagon will be able to keep its modernization programs going forward without budget stability.

US Marine Corps recovering 'boneyard' Hornets to plug capability gap

IHS Jane's 360 - June 10, 2016

The US Marine Corps (USMC) is having to recover Boeing F/A-18C Hornet combat aircraft from the 'boneyard' at Davis-Monthan Air Force Base (AFB) in Arizona to bridge the delayed introduction into service of the Lockheed Martin F-35B Lightning II Joint Strike Fighter (JSF), a Boeing official said on 10 June.

Carter Visit Highlights Army's Cybersecurity

Breaking Defense - May 31, 2016

On his way west for a major Pacific summit, Defense Secretary Ashton Carter made sure to stop here in the Arizona desert to visit a new cybersecurity center. The nascent "fusion center," which reached Initial Operating Capability (IOC) in the last three months, will monitor Army networks in new ways.

New Army secretary: Budget instability threatens soldier readiness

Army Times - May 29, 2016

With less than two weeks on the job, Army Secretary Eric Fanning is already focused on providing soldiers and their families with more predictability amid increasing demands on the force and ongoing budget constraints.

Pentagon to Cut Secretary's Staff By 300—In Four Years

Defense One - May 27, 2016

Mandated 1,600-job cut will come via relocations, attrition.

Hill AFB has \$3.3 Billion Economic Impact on Utah

Standard-Examiner - May 23, 2016

A new report says Hill Air Force Base pumped nearly \$3.3 billion into Utah's economy in 2015.

Utah Air National Guard wants to move to Hill Air Force base, but it may not be able to

The Salt Lake Tribune - May 17, 2016

A new refueling jet may require the Utah Air National Guard to move to Hill Air Force Base, but the state's top soldier on Tuesday told the Utah Legislature that it also needs to consider keeping its airmen next to Salt Lake City International Airport. "If we do nothing, we will be irrelevant in about 20 years," Maj. Gen. Jeff Burton, the commander of the Utah National Guard, told the Executive Appropriations Committee. By "we," Burton meant the 151st Air Refueling Wing, which flies the KC-135.

Secretary Carter Opposes Restarting F-22 Production

National Defense - May 13, 2016

Secretary of Defense Ashton Carter weighed in on the recently revived debate about the F-22, telling reporters May 12 that he is against resuming production of the stealthy fighter jet.

Talking Tech: DoD's New Cyber Force 'Needs to be Born Cyber' – Frank DiGiovanni

GovTechWorks - April 27, 2016

The cyber mission touches every aspect of military operations, from back office support to front line combat. But it can no longer be seen only as a defensive tool, says Frank DiGiovanni, director of Force Training within the Office of the Secretary of Defense. Cyber must be an offensive military capability, making skilled cyber forces a necessity. The challenge is how to develop such a force.

New Air Force policy sets roles for cyber offense, defense ops

Federal Times - April 21, 2016

A new directive from Air Force Secretary Deborah Lee James outlines how the branch will "fully [exploit] the man-made domain of cyberspace to execute, enhance and support Air Force core missions," including offensive and defensive operations.

F-35 Full Combat Capability Will Be Four Months Late

Defense News - April 18, 2016

The F-35 will not get its full combat capability package until late fall of 2017, a delay of about four months from the original plan, according to a top general.

Beyond the Fighter Jet: The Air Force of 2030

Air Force Times - April 18, 2016

In its quest to dominate the air battlefield of the future, the US Air Force may look to replace the traditional fighter jet with a network of integrated systems disaggregated across multiple platforms.

Budget cuts leaving Marine Corps aircraft grounded

Fox News - April 17, 2016

Since 1775, the U.S. Marine Corps has prided itself on being "The Few" and "The Proud." But while the Corps takes pride in doing more with less, senior Marine officers are warning that the Corps' aviation service is being stretched to the breaking point.

The Southwest Defense Complex: The First Line in the Nation's Defense

It is a core principle of the U.S. military that you must train as you fight. One of the enduring advantages the U.S. military possesses is the quality of its personnel based largely on their training. Maintaining this advantage will depend heavily on access to a set of training, test and experimentation facilities that are part of what is called the Southwest Defense Complex.

Pentagon to Congress: We Need Base Closures

DefenseNews.com - April 15, 2016

Pentagon officials say the Defense Department is wasting money on excess facilities and needs Congress to step in and close them, but they face an uphill fight.

Army Planning: Comprehensive Risk Assessment Needed for Planned Changes to the Army's Force Structure

GAO - April 13, 2016

The Army prioritized retaining combat units, such as brigade combat teams (BCT) and combat aviation brigades, when planning to reduce its end strength to 980,000 soldiers, and as a result plans to eliminate proportionately more positions from its support (or "enabler") units, such as military police and transportation units.

Defense Infrastructure: DOD Has Made Limited Progress in Assessing Foreign Encroachment Risks on Federally Managed Land

GAO - April 13, 2016

The Department of Defense (DOD) has made limited progress in addressing foreign encroachment--foreign investment in industries located in proximity to military training and testing ranges--on federally managed land since GAO last reported on this issue in December 2014. In that report, GAO recommended that DOD (1) develop and implement guidance for conducting a risk assessment on foreign encroachment and (2) collaborate with other federal agencies to obtain additional information on transactions near ranges. DOD concurred with both recommendations, and has since begun to take some steps toward assessing the national security risks and effects of foreign encroachment.

Civil Support: DOD Needs to Clarify Its Roles and Responsibilities for Defense Support of Civil Authorities during Cyber Incidents

GAO - April 4, 2016

The Department of Defense (DOD) has developed overarching guidance about how it is to support civil authorities as part of its Defense Support of Civil Authorities (DSCA) mission, but DOD's guidance does not clearly define its roles and responsibilities for cyber incidents.

Cyber Report: 2015 Was the Year of Collateral Damage

National Defense - April 2016

With the Office of Personnel Management hack and other intrusions affecting tens of millions of people last year, a recent cybersecurity report dubbed 2015 the "year of collateral damage." The annual cyber risk report - which was produced by Hewlett Packard Enterprise and released in February - said breaches affected citizens who never dreamed they would be involved in such an intrusion.

F-35 Joint Strike Fighter: Preliminary Observations on Program Progress.

GAO- March 23, 2016

GAO's ongoing work on the F-35 Joint Strike Fighter (F-35) program shows that the Department of Defense (DOD) has begun planning and funding significant new development work to add to the F-35's capabilities, an effort known as Block 4.

Air Force gets more time to answer lawsuit over D-M training

Arizona Daily Star - March 22, 2016

The Air Force has been given an extra month, until late April, to respond to a federal lawsuit alleging that the service failed to adequately study the environmental effects of expanding a military training program at Davis-Monthan Air Force Base.

Interoperability: The key to Army readiness

C4ISR - March 18, 2016

As the Army shifts its focus and increasingly emphasizes readiness, leaders are looking to interoperability - in systems, in teams, in networks and elsewhere - to help accelerate preparedness to fight anywhere, anytime.

2016 Readiness and Environmental Protection Integration Program

The 2016 Report to Congress was delivered to the House and Senate Committees on Armed Services (HASC and SASC) on March 16. The report highlights the partnerships that serve as the foundation of the REPI program, which has protected 437,985 acres in 88 locations across 30 states through Fiscal Year 2015.

America's F-16 Turns 42: The Viper's Enduring Legacy

The National Interest - January 20, 2016

Even after the stealthy Lockheed Martin F-35 Joint Strike Fighter enters service with the U.S. Air Force later this year, the F-16 will remain the backbone of the service's tactical fighter fleet for decades to come.

Notice of Intention To Relinquish Lands Withdrawn for Military Purposes; California

BLM - December 24, 2015

Pursuant to the National Defense Authorization Act for Fiscal Year 2014, the Department of the Navy has submitted a Notice of Intention to Relinquish 1,958.49 acres of lands in Riverside

County, California, withdrawn from the public domain by the California Desert Protection Act of 1994. The lands were withdrawn for military purposes on behalf of the Department of the Navy for the Chocolate Mountain Aerial Gunnery Range.

Senate Confirms Conger to Deputy Comptroller Post

Defensecommunities.org - December 15, 2015

The Senate on Monday confirmed John Conger, who has led DOD's installations office for the past three years, to be the principal deputy to the Pentagon comptroller.

Peter Potochney, currently Conger's principal deputy, will take over on an interim basis, according to the DOD public affairs office.

All combat jobs open to women in the military

Military Times - December 3, 2015

The Defense Department will lift all gender-based restrictions on military service starting in January, Defense Secretary Ash Carter announced Thursday.

Navy Seeking to Extend Use of Training Ranges in California, Hawaii

USNI News - December 3, 2015

With a trio of public informational meetings this week in San Diego and Hawaii, the Navy embarked on a familiar trek: Get federal approval to keep using sonar and explosives, along with conducting other fleet training and operations, in two key training regions off Hawaii and Southern California.

Kendall: 'Disproportionate' Cuts Planned to Modernization, R&D

Defense News- December 3, 2015

The Pentagon expects to make "disproportionate" cuts to modernization and research and development funding in its fiscal 2017 budget request, while personnel and readiness remain stable, according to the department's top acquisition official - cuts which may well include a slowdown in F-35 production.

Nevada attorney general program offering legal help for service members

Associated Press - November 18, 2015

Nevada Attorney General Adam Laxalt is launching a program to provide free legal assistance to members of the military.

Generals discuss military complexity during MAC lunch

Colorado Springs Business Journal - October 14, 2015

The Military Affairs Council, part of the Colorado Springs Regional Business Alliance, hosted a military speakers' forum Wednesday afternoon that featured a discussion with three retired military generals about the complicated nature of today's military, the effects of federal budget cuts and how those things affect the local community. The forum's panel was composed of retired Army Gen. Charles Jacoby, retired Air Force Gen. William Shelton and retired Air Force Lieutenant Gen. Michael Gould.

General: US Military Can't Force States To Comply With Education Compact

Military Times - October 12, 2015

Now that all 50 states have adopted the Interstate Compact for Educational Opportunity for Military Children, states are in various stages of implementing aspects of the agreement regarding transitions of military children from school to school.

US Army's New Chief Sets Three Goals

Defense One - October 8, 2015

Readiness, modernizing the force, and taking care of soldiers — and that means more time practicing complex scenarios.

3-star: Guard must remain 'operationally involved'

Army Times - October 7, 2015

As the Army National Guard prepares to reduce its force by 8,200 soldiers this year, the component is seeking new ways to grow its leaders while ensuring its formations receive the right training and resources for its missions at home and overseas.

WSMR leaders attend Western Regional Partnership meeting

Army.mil - September 30, 2015

White Sands Missile Range Commander Brig. Gen. Timothy Coffin and Strategy and Long-Range Plans Director Dan Hicks attended the Western Regional Partnership Principals meeting Aug. 11 and 12 at the University of Nevada in Reno.

Homeland Security and Disaster Preparedness Related Updates

FEMA and Partners Release Second Edition of the National Preparedness Goal

FEMA and its partners released the Second Edition of the National Preparedness Goal. The National Preparedness Goal describes a vision for preparedness nationwide and identifies the core capabilities necessary to achieve that vision across the five mission areas: Prevention, Protection, Mitigation, Response and Recovery.

House Speaker Releases National Security Plan

House Speaker Paul Ryan released the national security portion of his proposed multi-part agenda for the 115th Congress. The report contains a suggested strategy to enhance the nation's critical infrastructure and augment its cybersecurity defenses by facilitating data exchanges nationwide and improving federal assistance to state, local and private sector entities to protect networks. The document also outlines a plan for securing U.S. borders, changing the immigration system and developing a more aggressive foreign policy to combat religious terrorism abroad.

Written testimony of FEMA Region II Deputy Regional Administrator Michael Byrne for a House Committee on Homeland Security, Subcommittee on Emergency Preparedness, Response, and Communications field hearing titled "A Prepared Community is a Resilient Community"

July 11, 2016 - Federal Emergency Management Agency (FEMA) Region II Deputy Regional Administrator Michael Byrne addresses the lessons learned from Hurricane Sandy, and how best practices have since been applied to promote resiliency and expedite the disaster recovery process.

[FAA Reauthorization to Bolster Cybersecurity Efforts](#)

The Hill - July 8, 2016

The Federal Aviation Administration reauthorization, introduced Thursday and likely to pass next week, will require the agency to mull improvements to cybersecurity.

[FY 2016 Countering Violent Extremism \(CVE\) Grant Program](#)

On Wednesday, July 6, 2016, Secretary of Homeland Security Jeh Johnson announced the Fiscal Year (FY) 2016 Countering Violent Extremism (CVE) Grant Program, with \$10 million in available funds. This is the first federal assistance program devoted exclusively to providing local communities with the resources to counter violent extremism in the homeland.

[Written testimony of DHS Secretary Jeh Johnson for a Senate Committee on the Judiciary hearing titled "Oversight of the Department of Homeland Security"](#)

June 30, 2016 - U.S. Department of Homeland Security (DHS) Secretary Jeh Johnson addresses counterterrorism, immigration/border security, Syrian refugees, aviation security, and cybersecurity.

[DHS Announces Grant Allocations for Fiscal Year 2016 Preparedness Grants](#)

June 29, 2016 - As part of the U.S. Department of Homeland Security's (DHS) ongoing efforts to support state, local, tribal, and territorial partners, Secretary Jeh Johnson today announced final allocations of \$275 million for six Fiscal Year (FY) 2016 DHS competitive preparedness grant programs. These allocations, in addition to the more than \$1.3 billion in non-competitive grant funding announced by Secretary Johnson in February, total more than \$1.6 billion in FY 2016 to assist states, urban areas, tribal and territorial governments, nonprofit agencies, and the private sector with their preparedness efforts.

[Watch out for these 4 types of cyber attacks](#)

Pensacola News Journal - June 29, 2016

It turns out that despite all the hackers in the world and technological mischief flying around cyberspace at any given minute, the biggest threat to a company, large or small, is you.

[US Still Has No Definition for Cyber Act of War](#)

Military.com - June 22, 2016

Pentagon leaders are still working to determine when, exactly, a cyber-attack against the U.S. would constitute an act of war, and when, exactly, the Defense Department would respond to a cyber-attack on civilian infrastructure, a senior Defense Department official told lawmakers on Wednesday.

[National Planning Frameworks](#)

On June 16, 2016, FEMA and its partners released the updated [National Planning Frameworks](#) for each mission area: Prevention, Protection, Mitigation, Response, and Recovery. The National Planning Frameworks, which are part of the [National Preparedness System](#), set the strategy and doctrine for building, sustaining, and delivering the core capabilities identified in the National Preparedness Goal of building a secure and resilient nation.

Farenthold: Cyber Will Be Next Administration's Greatest Challenge

Nextgov - June 14, 2016

Reports that the shooter responsible for 49 deaths in Orlando was self-radicalized by online information could force lawmakers to confront the boundaries of the freedom of speech, Rep. Blake Farenthold, R-Texas, said Tuesday.

Written testimony of USCG Vice Commandant Admiral Charles Michel for a House Committee on Transportation and Infrastructure, Subcommittee on Coast Guard and Maritime Transportation hearing titled "Coast Guard Mission Needs & Resources Allocation"

June 14, 2016 - U.S. Coast Guard (USCG) Vice Commandant Admiral Charles Michel addresses Coast Guard mission needs and resource allocation.

Homeland Security Advisory Council Final Report of the Cybersecurity Subcommittee

This report offers recommendations to meet a poorly understood but absolutely vital challenge for U.S. cybersecurity: ensuring that interdependent infrastructure sectors can work together to restore critical services after a cyberattack, in partnership with the Department of Homeland Security (DHS) and other Federal and state agencies.

Coordination key to state cyber responses

GCN - May 26, 2016

Like their federal counterparts, state cybersecurity teams are challenged by the velocity and variety of threats, which are growing in sophistication, Connecticut CIO Mark Raymond told a joint House Homeland Security subcommittee panel. "The top three are malicious code, hacktivism and zero-day attacks."

Border Security: DHS Surveillance Technology Unmanned Aerial Systems and Other Assets

GAO - May 24, 2016

GAO reported in March 2014 and April 2015 that U.S. Customs and Border Protection (CBP), within the Department of Homeland Security (DHS), had made progress in deploying programs under the Arizona Border Surveillance Technology Plan (the Plan), but could take additional actions to strengthen its management of the Plan and its related programs.

Written testimony of NPPD Office of Cyber and Infrastructure Analysis Director Brandon Wales for a House Committee on Homeland Security, Subcommittee on Oversight and Management Efficiency hearing titled "Oversight of Federal Efforts to Address Electromagnetic Risks"

May 17, 2016 - U.S. Department of Homeland Security (DHS) National Protection and Programs Directorate (NPPD) Office of Cyber and Infrastructure Analysis Director Brandon Wales addresses the threat posed by electromagnetic pulse events to the Nation and its critical infrastructure, including its cyber, communications, and electric-grid assets.

Written testimony of FEMA Deputy Administrator Joseph Nimmich for a House Committee on Transportation and Infrastructure, Subcommittee on Economic

[Development, Public Buildings, and Emergency Management hearing titled “Controlling the Rising Cost of Federal Responses to Disaster”](#)

FEMA - May 12, 2016

Federal Emergency Management Agency (FEMA) Deputy Administrator Joseph Nimmich addresses FEMA's efforts to control the costs of federal disaster response and serve as good stewards of taxpayer dollars.

[DHS Is Under the Gun to Collect Data About Threats to Infrastructure, Networks](#)

Nextgov - May 11, 2016

The Homeland Security Department is under the gun to collect massive amounts of data about threats to the nation's physical and network infrastructure, according to contracting documents

[First Responders: We Can't Wait for FirstNet](#)

Route Fifty - May 11, 2016

Apps developed for first responders need to account for the fact that those professionals are often under pressure.

[USDOT and Industry Efforts to Address Vehicle Cybersecurity](#)

Transportation Research Board - May 1, 2016

The U.S. Government Accountability Office has released a report that discusses cybersecurity vulnerabilities in modern vehicles that could impact passenger safety; practices and technologies to mitigate vulnerabilities and potential attacks; and the U.S. Department of Transportation's (USDOT's) efforts to address vehicle cybersecurity.

[State and Local Officials Stress Need for Better Coordination to Target Cyber Disruptions](#)

Route Fifty - May 1, 2016

Training, technology and partnerships are critical to infrastructure defense, according to a new white paper, but do encryption and privacy concerns really stand in government's way?

[Statement for the record of CBP for a House Committee on Natural Resources, Subcommittee on Oversight and Investigations hearing titled “The Consequences of Federal Land Management Along the U.S. Border to Rural Communities and National Security”](#)

Customs and Border Patrol - April 28, 2016

U.S. Customs and Border Protection (CBP) addresses CBP U.S. Border Patrol's access to, and use of, Federal lands as part of CBP's critical border security mission.

[Written testimony of NPPD Office of Cybersecurity and Communications Assistant Secretary Andy Ozment for a House Committee on Oversight and Government Reform, Subcommittee on Information Technology hearing titled “Federal Cybersecurity Detection, Response, and Mitigation”](#)

DHS - April 20, 2016

U.S. Department of Homeland Security (DHS) National Protection and Programs Directorate (NPPD) Office of Cybersecurity and Communications Assistant Secretary Andy Ozment

addresses the Department's role in protecting civilian federal departments and agencies from cybersecurity.

Written testimony of TSA Office of Security Policy and Industry Engagement Surface Division Director Sonya Proctor for a House Committee on Homeland Security, Subcommittee on Transportation Security hearing titled "Pipelines: Securing the Veins of the American Economy"

DHS - April 19, 2016

Transportation Security Administration (TSA) Office of Security Policy and Industry Engagement Surface Division Director Sonya Proctor addresses TSA's role in securing the Nation's pipeline systems.

Quadrennial Homeland Security Review: Improved Risk Analysis and Stakeholder Consultations Could Enhance Future Reviews

GAO- April 15, 2016

The Department of Homeland Security (DHS) assessed risk for the second Quadrennial Homeland Security Review (QHSR) and considered threats, vulnerabilities, and consequences; however, DHS did not document how its various analyses were synthesized to generate results, thus limiting the reproducibility and defensibility of the results.

Obama names appointees to new cyber commission

Washington Examiner - April 14, 2016

President Obama on Wednesday announced the members of his federal commission on cybersecurity, just one day ahead of their first scheduled meeting in Washington.

U.S. government worse than all major industries on cyber security: report

Reuters - April 14, 2016

U.S. federal, state and local government agencies rank in last place in cyber security when compared against 17 major private industries, including transportation, retail and healthcare, according to a new report released Thursday.

Written testimony of NPPD Office of Infrastructure Protection Assistant Secretary Caitlin Durkovich for a House Committee on Transportation and Infrastructure, Subcommittee on Economic Development, Public Buildings and Emergency Management hearing titled "Blackout! Are we Prepared to Manage the Aftermath of a Cyber-Attack or Other Failure of the Electrical Grid?"

DHS - April 14, 2016

U.S. Department of Homeland Security (DHS) National Protection and Programs Directorate (NPPD) Office of Infrastructure Protection Assistant Secretary Caitlin Durkovich addresses how the NPPD fulfills its responsibility to support the Federal government's response to and recovery from all-hazards events, including the physical impacts of cyber incidents.

Written testimony of FEMA Protection and National Preparedness Deputy Administrator Timothy Manning for a Senate Committee on Homeland Security and Governmental Affairs, Subcommittee on Federal Spending Oversight and Emergency

Management hearing titled “FEMA: Assessing Progress, Performance, and Preparedness”

DHS - April 12, 2016

Federal Emergency Management Agency (FEMA) Protection and National Preparedness Deputy Administrator Timothy Manning addresses FEMA’s efforts to assist states in preparing for natural disasters and terrorism.

DHS: Cyberattack on the Ukraine Power Grid Could Happen Here

Nextgov - April 6, 2016

A type of cyberattack that recently turned off the lights in Ukraine could bring any vital U.S. sector to its knees, cautioned a top Homeland Security Department official.

Public Safety Agencies Switching From Analog Radios Must Combat the 'Digital Cliff'

Route Fifty- March 22, 2016

Emergency response personnel not used to a high-quality signal cutting out can quickly find themselves in life or death situations.

White House Says Agencies Reported 77,200 Cyber Incidents in 2015

Nextgov - March 21, 2016

The annual performance review for agency information security is in and, while it does not mention there were big breaches this year, the scores reflect an executive branch in need of a significant IT tune-up.

Developing a Cyberattack Curriculum to Improve Emergency Response

Route Fifty - February 8, 2016

A pilot version of a new course was offered for the first time in January to Utah’s state government.

Federal Emergency Management Agency: Strengthening Regional Coordination Could Enhance Preparedness Efforts.

GAO - February 4, 2016

GAO found that the Department of Homeland Security’s (DHS) Federal Emergency Management Agency (FEMA) has taken some steps, but has not fully addressed, preparedness grant management coordination challenges between headquarters and its regions

State and Local Governments Misperceive the Risk of Cyber Attacks

ROUTE FIFTY - February 1, 2016

In an age of increasingly subtle and stealthy cyber attacks, state and local government officials must prepare for the worst. They should start by assuming that they’ve already been hacked.

Critical Infrastructure Protection: Measures Needed to Assess Agencies’ Promotion of the Cybersecurity Framework

GAO - December 17, 2015

In accordance with requirements in a 2013 executive order which were enacted into law in 2014, the National Institute of Standards and Technology (NIST) facilitated the development of

a set of voluntary standards and procedures for enhancing cybersecurity of critical infrastructure.

Federal cyber strategy plan released

Federal Times - October 30, 2015

Cybersecurity has become a central focus for the federal government and now agencies have new guidance on where their cybersecurity posture should be and how to get there.

What It Would Really Take to Knock Out the Power Grid

Defense One - October 30, 2015

As our electrical system lifts itself out of the stone age, the defense built around it will require added vigilance.

Former Air Force base aiming to be Western hub for firefighting aircraft

Sacramento Bee- October 28, 2015 Sacramento's massive McClellan Park, a former Air Force base turned business park, is in the running to become the hub for aircraft fighting fires in the Western states.

Update: Nevada's Cohesive Strategy Summit

National Association of State Foresters - October 23, 2015

Nevada's Cohesive Strategy Summit met September 29 to October 1, 2015. The Cohesive Strategy planning committee (Federal, State and Local) developed a summit meeting of fire agencies, science community, policy makers, NGOs, members of Nevada's Fire-adapted Community Network, mixed governmental agencies and public members with the intent to create specific action steps on what does the National Cohesive Strategy look like in Nevada. The goal was to take the national strategy and make it resonate with all Nevada stakeholders.

States Confront a New Era of Crazy Wildfires

Route Fifty - October 22, 2015

Although wildfires rage across the West again this year, few states require residents to follow best practices that could protect their homes.

Drought Stokes Wildfires in Western States

State Net Capitol Journal - October 16, 2015

Fueled by a drought in the western states that's now in its fourth year, wildfires have burned nine million acres nationwide this year, well over the five million-acre average for the past decade, according to National Geographic and the National...

Making the Case for Cyber Defense Spending in Local Government

Route Fifty - October 14, 2015

Here's how IT leaders in one Arizona county are working to demonstrate the return on cybersecurity investments: "When [decision makers] see that value, it makes sense."

When it Comes to Cyber Defense, Colorado Spends to Secure Its Information Resources

Route Fifty - October 6, 2015

Faced with 8.4 million security events a day, the Governor's Office of Information Technology

continues to identify controls in need of additional funding.

Aviation

[Will the FAA's Upgrade of the Air Traffic Control System Be the Next Generation of Cybersecurity Threats?](#)

It's called NextGen, and if not properly protected, the system designed to make aviation safer, may present the most dangerous risk to the national airspace system and even the nation itself, particularly if attacked by an insider threat.

[FAA Acts to Reduce Bird Fatalities](#)

State Aviation Journal - The Federal Aviation Administration (FAA) expects thousands of birds may be saved each year because of changes the agency has made to its communication tower lighting standards. The FAA has developed a number of tower lighting configurations for tall structures to warn pilots they are approaching an obstruction, particularly during nighttime hours and in bad weather.

[Memorandum of Understanding between the NM Indian Affairs Department \(IAD\) and the NM National Guard \(NMNG\)](#)

A historic MOU between the NM Indian Affairs Department (IAD) and the NM National Guard (NMNG) was signed to address the on-going concern of military over-flights within pueblo communities of the State of New Mexico. The goal of this MOU is to expand and build upon the current communication about military low level overflight of tribal lands. For more information:

[Phoenix Sky Harbor Sets New Passenger Record](#)

State Aviation Journal - Phoenix Sky Harbor International Airport set a new for total passengers in 2015, serving more than 44 million travelers. Year-end numbers have been released and show a 4.5 percent increase in total passengers compared to 2014. The previous record for annual passengers at America's Friendliest Airport had been set in 2007 when Sky Harbor served nearly 42.2 million passengers.

[Aviation Rulemaking Advisory Committee-New Task](#)

The FAA assigned the Aviation Rulemaking Advisory Committee (ARAC) a new task to provide recommendations regarding occupant protection rulemaking in normal and transport category rotorcraft for older certification basis type designs that are still in production.

[Consumer drone sales predicted to increase tenfold by 2021](#)

General Aviation News - July 6, 2016

Falling prices and increased capabilities are driving strong consumer interest in unmanned aerial systems (UAS) — also known as drones or remotely piloted aircraft (RPA) — for aerial imaging, recreation, and aerial games, according to a new report.

[Data, Drones and Apps: States Debate Privacy Protections as Technology Speeds Ahead](#)

The Pew Charitable Trusts - July 1, 2016

Twelve states placed new restrictions on drone users this year.

NextGen benefits at LAX

General Aviation News - June 30, 2016

NextGen is bringing new benefits to Los Angeles International Airport (LAX) through a technology called Data Comm. According to FAA officials, Data Comm revolutionizes communications between air traffic controllers and pilots by replacing some traditional voice communications with digital information exchanges – like texting versus talking over the phone.

Drones Have a Role in Your Company's Future

The Wall Street Journal - June 27, 2016

Drones already have disrupted aerial photography, replacing cranes, helicopters and planes on film and TV sets. The breadth of industries where they are gaining purchase is striking, and their use is poised to explode.

Airports Recruiting Falcons to Keep Runways Safe

Field & Stream - June 24, 2016

Falcons are being used to keep other birds away from airport runways and to prevent collisions with planes. At airports across the country, using peregrine falcons to keep gulls and geese away from runways is gaining in popularity.

FAA releases small drone rules

AOPA Online - The FAA on June 21 released its final rule for the operation of small unmanned aircraft systems (UAS) weighing less than 55 pounds along with new airman certification standards for small UAS operators.

Cathey Named New NASAO Chairman

State Aviation Journal - Members of the National Association of State Aviation Officials (NASAO) have elected Gary Cathey, Division of Aeronautics Chief for the California Department of Transportation, as Chairman of the Board of Directors for 2016. Cathey has been a member of NASAO since January 2009 and previously served as NASAO's vice chairman, treasurer and secretary of the board. "These are very important times for aviation," said Cathey. "A new FAA authorization could contain major changes in how our system is funded and governed."

FAA releases drone registration location data

General Aviation News - May 24, 2016

The FAA has posted a large database showing the city, state and zip code of each registered drone owner. Release of the database responds to a number of Freedom of Information Act (FOIA) requests submitted since the new unmanned aircraft registration system began operating on Dec. 21, 2015, according to FAA officials.

Aerial photography, inspection tops list of FAA-approved RPA use

General Aviation News - April 15, 2016

The Association for Unmanned Vehicle Systems International (AUVSI) has released an interactive analysis that finds 38 types of business operations have been approved by the FAA

to fly remotely piloted aircraft (RPA) — also known as drones and unmanned aerial systems (UAS) — commercially in the National Airspace System (NAS).

GA groups say local drone regulations would compromise safety

AVweb - April 13, 2016

AOPA, the General Aviation Manufacturers Association and the National Business Aviation Association were among 10 aviation advocacy groups who sent a letter to US senators this week saying that allowing state and local governments to make drone rules would compromise aviation safety.

Drones Eyed as First Responders

The Hill - April 10, 2016

One of the world's largest drone manufacturers is working to develop a blueprint for using unmanned aircraft for emergency response efforts.

FAA tasks panel with TFR issues

AOPA online - April 4, 2016

The Federal Aviation Administration has formally tasked an industry committee with making recommendations for improving temporary flight restriction graphics in response to AOPA concerns about inconsistencies and errors in the way the airspace is depicted.

Move to OK commercial drone flights over people

PhysOrg.com - April 4, 2016

A government-sponsored committee is recommending standards that could clear the way for commercial drone flights over populated areas and help speed the introduction of package delivery drones and other uses not yet possible, The Associated Press has learned.

FAA releases 2016 to 2036 Aerospace Forecast

General Aviation News - April 3, 2016

The FAA has released its annual Aerospace Forecast Report Fiscal Years 2016 to 2036 that finds a sustained increase in overall air travel and the use of Unmanned Aircraft Systems (UAS). A key portion of the forecast focuses on projections for the growth in the use of unmanned aircraft, also known as drones or remotely piloted aircraft. The FAA estimates small, hobbyist UAS purchases may grow from 1.9 million in 2016 to as many as 4.3 million by 2020.

Cybersecurity for Unmanned Aerial Vehicle Missions

Signal AFCEA - April 1, 2016

An ongoing effort is discovering new factors for protecting remote-controlled or autonomous craft. This threat can come from signals beamed into a control stream or even embedded software containing a Trojan horse. Researchers are addressing this challenge from traditional and innovative directions as the use of unmanned aerial vehicles continues to expand into new realms. But the issues that must be accommodated are growing as quickly as threat diversity.

States using drones to improve safety, collect data and cut costs

General Aviation News - March 28, 2016

WASHINGTON, D.C. – A growing number of state departments of transportation are leveraging drone technology to improve safety, reduce traffic congestion and save money.

Unmanned Aircraft Systems (UAS) at Airports: A Primer

Transportation Research Board - March 23, 2016

TRB's Airport Cooperative Research Program (ACRP) Report 144: Unmanned Aircraft Systems (UAS) at Airports: A Primer provides airports of all sizes with information about unmanned aircraft systems (UAS) and their potential use and impact on airports. The report includes a glossary of key terms, a background on the current state of UAS operations, UAS costs and benefits to airports, regulatory and community considerations, UAS infrastructure and operational considerations, UAS safety and security issues, and more.

Drone 101: FAA rules explained

AOPA Online - March 22, 2016

Drone pilots operating near airports can get help deciphering FAA guidance and learn more about best practices from a new AOPA fact sheet.

FAA Releases Updated UAS Sighting Reports

State Aviation Journal - The Federal Aviation Administration (FAA) today released an updated list of pilot, air traffic controller and citizen reports of possible encounters with unmanned aircraft systems (UAS). The latest report covers August 22, 2015 through January 31, 2016..

All the Federal Agencies that Fly Drones over US Soil

Nextgov - March 11, 2016

A little more than a decade ago, the border patrol started using surveillance drones. The technology and the mission were a perfect match, and few did any worrying—almost no one objects to closely monitoring America's southern border.

FAA: Drone registration eclipses that of regular planes

USA Today - February 8, 2016

The number of drones potentially flying in U.S. skies has eclipsed the number of piloted aircraft - from Cessnas to Dreamliners, the Federal Aviation Administration said Monday.

FAA registers nearly 300,000 drones

General Aviation News - January 25, 2016

Nearly 300,000 owners have registered their small unmanned aircraft in the first 30 days after the FAA's online registration system went live.

AOPA Air Safety Institute releases video aimed at collision avoidance

General Aviation News - January 19, 2016

The Aircraft Owners and Pilots Association (AOPA) Air Safety Institute (ASI) has released a new video aimed at informing pilots about how to avoid midair collisions. Collision Avoidance: See, Sense, Separate helps pilots to know when and where most midair collisions occur, as well as steps to reduce the risk, officials note.

FAA releases B4UFLY app

General Aviation News - January 6, 2016

The FAA has released the B4UFLY mobile application to the public following an initial beta testing period. B4UFLY tells users about current or upcoming requirements and restrictions in areas of the National Airspace System (NAS) where they may want to operate their unmanned aircraft system (UAS).

GAO Report Sheds New Light on FAA NextGen Funding

Aviation Today - December 10, 2015

The Government Accountability Office (GAO) has released a new report analyzing regulatory control of funding for foundational and progressive initiatives within the FAA's NextGen airspace modernization program. According to the report, lawmakers have several key issues to consider upon confirming the FAA's next Reauthorization bill.

Aviation Finance: Observations on the Effects of Budget Uncertainty on FAA

GAO - November 19, 2016

According to the Federal Aviation Administration (FAA), its ability to perform its mission has been affected by budget uncertainty resulting from the 2013 government shutdown, sequestration, 2011 authorization lapse, continuing resolutions, and multiple short-term reauthorizations.

FAA Metroplex

<http://www.faa.gov/nextgen/snapshots/metroplexes/>

FAA has proposed 5 within the WRP region with the goal to "improve regional traffic movement by optimizing airspace and procedures built on precise satellite-based navigation."

FAA sees record number of laser strikes

Dallas Morning News- November 12, 2015

The Federal Aviation Administration has received 5,352 reports of laser strikes on aircraft so far this year, compared to 3,894 for all of 2014. "We routinely see between 15 and 25 or 30 a night," said FAA spokesperson Lynn Lunsford.

Record membership for House GA Caucus

AOPA Online- November 10, 2015

Membership in the House General Aviation Caucus has reached an all-time high, with 274 representatives taking part in the group.

EAA: Manned aircraft must have priority over drones

General Aviation News - November 5, 2015

While the number of unmanned aerial systems (UAS), also known as drones or remotely piloted aircraft (RPA), is rising rapidly, their entrance into the national airspace system cannot come to the detriment of manned aircraft operations, say officials with the Experimental Aircraft Association (EAA).

Colorado Airport Selected as First FAA-Sanctioned Test for Virtual Tower

Coloradoan - October 2, 2015

The Fort Collins-Loveland Municipal Airport, which lost Allegiant Air in 2012 in part because it didn't have a control tower, will pilot a virtual tower beginning next year.

Introduction to the National Airspace System published

General Aviation News Staff - September 22, 2015

University Aviation Press has just released Introduction to the National Airspace System by Dr. Donna F. Wilt. The book explains relevant National Airspace System (NAS) topics pertinent to students studying for careers in air traffic control (ATC), dispatch, unmanned aerial systems (UAS), airport planning, and airport management.

Frequency Updates

NTIA Provides Guidance to States Seeking Authority to Enter Into a Spectrum Lease with FirstNet, Receive Grant Funds

Remarks of Deputy Assistant Secretary Simpson at the NTCA 2016 Legislative and Policy Conference

Joint statement following the Biannual Spectrum Planning meeting on Friday, April 1, 2016, between FCC Chairman Tom Wheeler and Assistant Secretary of Commerce for Communications and Information and NTIA Administrator Lawrence E. Strickling

Remarks of Assistant Secretary Strickling at Digital Northwest Broadband Summit

Testimony of Douglas Kinkoph, Associate Administrator, Office of Telecommunications and Information Applications, NTIA, on Removing Barriers to Wireless Broadband Deployment

WRP NATURAL RESOURCES COMMITTEE

The WRP Natural Resources Committee in 2015-2016:

- Served as a resource for the DoD Legacy Funded Project regarding “*Coordinated multi-species management plans for high priority species at risk on or near DoD lands in the Southwestern U.S.*;”
- Served as a resource to the Fort Huachuca Sentinel Landscape Committee;
- Served as a forum for WRP Partners to more fully collaborate and address natural resources-related issues; and
- Assisted WRP Partners in engaging in ongoing dialogue on Western water sustainability.

To identify WRP regional strengths, areas of commonality and potential emerging issues impacting WRP Partners’ missions, the Natural Resources Committee reviewed existing WRP materials, received several presentations via webinar and considered external reports and useful resources. The Natural Resources Committee thanks the webinar presenters for their sharing of time and insight and to the various agencies that sent their press releases and other updates for the Committee’s efforts.

Those presentations, significant reports and useful resources are summarized below in the following categories:

- Species-related information and updates
- Updates on Sentinel Landscape, Water, and infrastructure planning
- WRP Natural Resources Committee Presentation Summaries
- Natural Resources Committee-Related Articles, News Releases and Resources

There are incredible natural resources within the WRP Region. WRP seeks to encourage better information sharing to foster awareness of the interdependencies between Partners and provide for a more symbiotic relationship. WRP Partners spend significant resources to assist with environmental planning.

Species

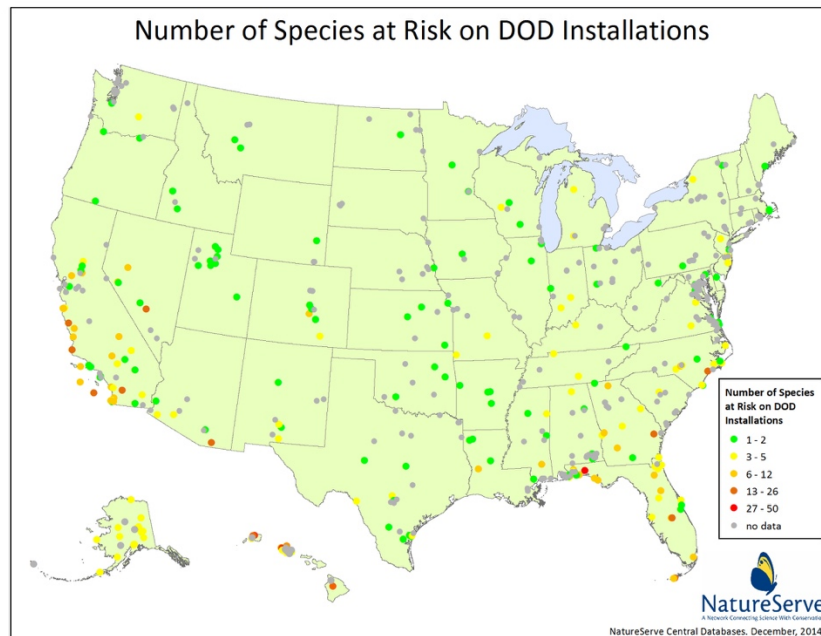
Through enhanced collaboration among WRP Partners it may be possible to more effectively benefit the species and land in a non-regulatory environment.

[WRP Partner Input on Species of Concern August 2015](#) details WRP Partners’ unofficial review and assessment on species of concern that, if listed, could result in delays or increases in cost to program of work and mission. With the request for input, the following supporting documents were circulated: USFWS Endangered Species Act Listing Work plan (FY13 - FY18 MDL packages and other court settlement agreements) and the USFWS report on active petitions (dated March 3, 2015). Over 40 agencies provided input; over 50 species were noted. The process of collecting input was itself interesting. Many WRP Partners immediately responded with their species of concern and were thankful their input was

sought. Others asked many questions and expressed the concern that providing input might impact whether a species became listed. Through this effort a few observations could be made:

- Many WRP Partners would like additional information about the USFWS process
- There appear to be many misunderstandings about the listing process including timing, regulatory certainties, and the need for a forum for more information sharing
- Entities involved in efforts supporting species seem to be under many constraints

Continuing this collaborative effort, WRP Natural Resources Committee, has served as a resource for the DoD Legacy Funded Project regarding *“Coordinated multi-species management plans for high priority species at risk on or near DoD lands in the Southwestern U.S.”* This project is managed by NatureServe which detailed the following map on number of species at risk on DoD installations.



This Legacy grant awarded to NatureServe to launch a coordinated regional effort in 2016 to:

- Help halt the decline of multiple species at-risk (SAR) on/near DoD lands in the WRP region
- Prevent the need for federal species listing and subsequent potential restrictions on DoD’s military testing, training and operations
- Implement SAR conservation practices and develop proactive conservation partnerships before species become federally listed
- Build on past efforts to develop single species management plans by designing multi-species plans

WRP DoD Management Team, WRP Natural Resources Committee Co-Chairs and WRP Steering Committee provided input on species for this effort and additionally provided 2015 report on “WRP Partner Input on Species of Concern.”

It was originally envisioned that this project would have been completed by the 2016 WRP Principals’ Meeting, but efforts are still underway. Currently NatureServe is asking for WRP input on proposed species groups of several species that may share similar habitats/management needs:

- Arizona: on / near Fort Huachuca
 - Animals:
 - Ft. Huachuca tree frog, Ft. Huachuca spring snail, Huachuca skipper
 - Plant:
 - Lupinus huachucanus (Huachuca Mountain Lupine)
- California: – in coastal CA
 - Animals:
 - Rothelix warnefontis (snail) on Naval Base Coronado; Helminthoglypta coelata (snail) on NB Point Loma, Agelaius tricolor (tricolor blackbird) – in marshes and habitat is threatened; is petitioned for listing now.
 - Plant:
 - Mobergia calculiformis (lichen) on NB Point Loma

Updates will be provided through the WRP Natural Resources Committee; Partners are encouraged to provide their input on next steps.

Listed species believed to or known to occur in WRP Region

According to the U.S. Fish and Wildlife [Environmental Conservation Online System](#), as of May 2016 there were the following numbers of species listed as threatened or endangered believed or known to occur in the WRP states:

- Arizona: 65 (of which 44 are animals and 21 are plants)
- California: 305 (of which 122 are animals and 183 are plants)
- Colorado: 43 (of which 27 are animals and 16 are plants)
- Nevada: 38 (of which 28 are animals and 10 are plants)
- New Mexico: 53 (of which 40 are animals and 13 are plants)
- Utah 42 (of which 17 are animals and 25 are plants)

The full listing of species is in the following resource section.

[Endangered Species Act Petitions Received by Fish and Wildlife Service](#) details the following information: date petition was received by the FWS; where the species is believed to or known to occur; petitioner name; requested action and petition finding(s).

Many WRP Partners have expressed the need for regulatory predictability and seek to work together to proactively address/preclude listing of species. It appears that more WRP

members are focused on addressing species at the ecosystem/landscape level instead of species by species. Such practices help to more holistically address threats such as non-native, invasive plants and non-listed predators and land use fragmentation. Landscape level focus it is a more effective way to plan for wildlife movement corridors, especially when species movement shifts. By working together and development of key species data, that would better inform land-use planning efforts to avoid and/or minimize the threats/impacts associated with development and land use activities.

Stakeholders working together and their tremendous efforts resulted in the [U.S. Fish and Wildlife Service Removes Lesser Prairie-Chicken from List of Threatened and Endangered Species in Accordance with Court Order.](#)

Additionally, the Western Governors' Association Special Report "[Western Governors' Species Conservation and Endangered Species Act Initiative](#)" was issued June 2016. It describes the efforts of the WGA first begun in June 2015, the result of which has been creating a mechanism for states and other stakeholders to share best practices in species management, promoting the role of states in species conservation and exploring improvements to the Endangered Species Act.

Sentinel Landscape

WRP's Natural Resources Committee's SoAZ/NM Project (now the Fort Huachuca Sentinel Landscape)

There is one designated Sentinel Landscape within the WRP Region. WRP's Natural Resources Committee's SoAZ/NM Project was a significant reason that Fort Huachuca was designated a Sentinel Landscape in 2015. WRP Natural Resources Committee continues to serve as a Fort Huachuca Sentinel Landscape Committee; the WRP SoAZ/NM Project continues to keep WRP updated on efforts. Additionally, WRP has sent letters of support in the past year for Arizona Land and Water Trust (ALWT) in their efforts to support Fort Huachuca and receive Regional Conservation Partnership Program (RCPP) funding. Other results of the SoAZ/NM project include:

- Received funding from the Arizona Military Installation Fund for conservation easement/deed restriction for 1,208 acres within WRP SoAZ/NM Project priority Focus Area 1 (Two rounds of funding; leveraged efforts)
- Heightened awareness of the region's importance for natural resources and military operations
- Won the 2014 and 2015 REPI Challenge (over \$7.6 million) and received \$5.9 million in Regional Conservation Partnership Program (RCPP) funding
 - *ALWT, in partnership with Fort Huachuca, submitted the proposal*
- Over \$15 million in partnership funding with the focus of restricting development on 3,500 acres, thereby supporting the military mission, preventing degradation of

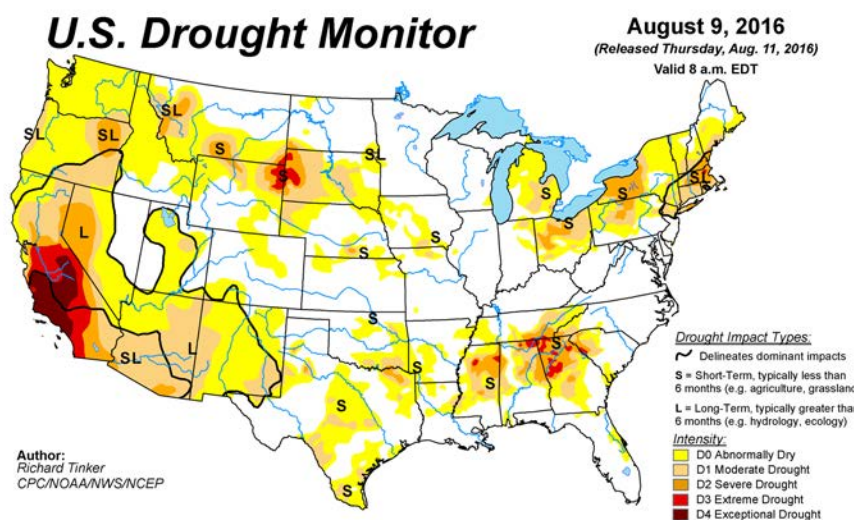
water resources and supporting critical/proposed habitat supporting endangered species

The [Sentinel Landscape](#) Partnership is an initiative of the U.S. Departments of Agriculture, Defense and Interior, working nationwide with federal, local and private entities dedicated to promoting natural resource sustainability in areas surrounding military installations. The Partnership identifies opportunities that benefit national defense, local economies, and the conservation of natural resources.

The WRP Natural Resources Committee continues to seek additional areas where similar projects may result in additional Sentinel Landscape designations.

Water

To assist WRP Partners in engaging in ongoing dialogue on Western water sustainability, WRP Natural Resources Committee developed a report [Brief Overview of Water-Related Resources Available to WRP Partners 2015](#). This document highlights 17 water-related data resources and 23 water-related resources. The purpose of this document is to highlight the agencies involved in water in the west as it relates to the missions of WRP Partners and to assist in integrating WRP into an ongoing dialogue on water issues.



The [U.S. Drought Monitor map](#) provides information on drought conditions. Clearly areas of the WRP Region ranges from areas of exceptional drought to abnormally dry.

Infrastructure

In the West, there are significant resources and the West's population growth exceeds that of all other regions. This increasing population puts more pressure on infrastructure systems such as energy, transportation and wildlife ecosystems. Long range, sustainable planning is essential to accommodate growth, sustain the economic and environmental health of the region and protect public health and safety while at the same time securing the viability of the WRP's Partners' missions.

Listed below, details the transportation infrastructure currently in place in the WRP Region.¹⁵

	miles of public road	bridges	miles of freight railroad	border ports of entry	Major Airports	Population
Arizona	66,441	8,031	1,643	6	13	6,600,000
California	174,989	25,315	5,295	6	35	38,400,000
Colorado	88,565	8,666	2,662	0	15	5,300,000
Nevada	40,139	1,896	1,192	0	5	2,800,000
New Mexico	70,772	3,951	1,837	2	10	2,100,000
Utah	46,254	3,014	1,343	0	9	2,900,000
	487,160	50,873	13,972	14	87	58,100,000

FHWA Eco-Logical is a helpful tool to *"help guide agencies and partners to work proactively in developing and implementing an ecosystem approach for mitigating the effects of infrastructure projects – the public works that provide the basic facilities and services on which communities depend."*¹⁶

WRP Natural Resources Committee Presentation Summaries

The WRP Natural Resources Committee for the past several years has held dedicated one-hour webinars to focus on one-subject and provide WRP Partners an opportunity to learn more about collaborative natural resources efforts in the WRP Region. Listed below are summaries of three such webinars, all well-attended:

U.S. Border Patrol Public Lands Liaison Agent Program & Efforts to "Secure the U.S. Border & Protect Environmental & Cultural Resources for Future Generations"

The WRP Natural Resources Committee and WRP Military Readiness, Homeland Security, Disaster Preparedness and Aviation Committee jointly sponsored webinars in February and June 2016, on the work accomplished by the Public Lands Liaison Agent (PLLA) Program, the Ajo U.S. Border Patrol Station and the Organ Pipe Cactus National Monument. Presentations were made by Assistant Chief Rafael Cano and (A)Assistant Chief Bryon Strom, National Public Lands Liaison Agent Program Manager at U.S. Border Patrol Headquarters; Superintendent Brent Range of the Organ Pipe Cactus National Monument; and Patrol Agent in Charge Anthony Good of the Ajo U.S. Border Patrol Station.

The Office of Field Operations (OFO) has 24,000 officers covering air, sea and land ports. The Air and Marine Operations involve 1,200 agents supporting the United States Border Patrol (USBP) and other partners. It is the largest civilian air and marine force in the world The USBP has 21,370 Agents performing interdiction and enforcement operations between the

¹⁵ <http://www.rita.dot.gov/bts/node/560766>

¹⁶ Source: FHWA- <https://www.environment.fhwa.dot.gov/ecological/ecological.pdf>

ports of entry and coastal littoral areas of the United States, its outlying possessions, and territories. Its law enforcement authority is anywhere in the U.S.

The Public Lands Liaison Agent (PLLA) program is national in scope. It was established in December 2005 to enhance operational capability. In 2006 there was an MOU between DHS, DOI and USDA. In 2009, the Chief of the U.S. Border Patrol made the PLLA program national policy. All Sector Chiefs have on-staff PLLAs who are the Border Patrol Sector Chiefs' subject matter experts on environmental and cultural issues. Their major duties include active engagement with personnel from DOI, USDA and other federal, state, local, tribal, and NGOs involved in land management, resource protection and access issues. They collaborate to identify mutually beneficial activities, outcomes, and joint environmental education, border security and border safety training. PLLAs are trained on National Environmental Policy Act (NEPA), Endangered Species Act (ESA), Wilderness Act (WA/WSA), National Historic Preservation Act (NHPA), Archeological Resources Protection Act (ARPA), Archeology and Paleontology for Law Enforcement Officers (A&P), Tribal Consultation, Intelligence Coordination and other specialized training.

The Border Patrol Strategic Plan grew out of a 1994 BP Strategy of Prevention thru Deterrence, followed by the resource based 2004 National Strategy. The 2012-2016 Border Patrol Strategic Plan is risk-based, managing risk through use of information, integration, and rapid response to leverage the USBP's greatest capabilities to combat the greatest risk.

In addition to the PLLA training, USBP has several outreach and education initiatives including annual Environmental & Cultural Stewardship Training (ECST), Capstones (A&P, NEPA, ESA, Wilderness), ECST Outreach and Education Initiative - Pilot Program that provides new personnel with sector specific information, Border Security and Safety Briefings - Pilot Program.

The USBP employs Rescue Beacons. These are strategically located outside of wilderness areas where death and rescue patterns have emerged. They are low signature, low light intensity, environmentally friendly, solar powered and able to be relocated. Each beach costs less than \$4,000 and have proven to save lives.

US Army Corps of Engineers Threatened and Endangered Species Team (TEST)

In March 2016, US Army Corps of Engineers Threatened and Endangered Species Team (TEST) activities in the WRP region. The U.S. Army Corps of Engineers (USACE) mission is "Deliver vital public and military engineering services; partnering in peace and war to strengthen our Nation's security, energize the economy and reduce risks from disasters." This presentation was conducted by Dr. Richard A. Fischer, Research Wildlife Biologist, U.S. Army Engineer R&D Center, Environmental Laboratory.

USACE Threatened and Endangered Species conservation and compliance spending averages approximately \$230 million per year. Its ten most costly species made up nearly 90% of spending in FY14:

- 1 Salmon, chinook
- 2 Sturgeon, pallid
- 3 Steelhead
- 4 Salmon, sockeye
- 5 Tern, least
- 6 Plover, piping
- 7 Flycatcher, southwestern willow
- 8 Salmon, coho
- 9 Salmon, chum
- 10 Trout, bull

Eighty-five percent of USACE expenditures are on fish, and about 10% is on birds.

TES conservation concerns currently exist at over 430 USACE projects, for over 300 different species. An additional 250 species listings or critical habitat designations are expected to occur by 2018. USACE has no formal and organized strategy to address TES.

The purpose of TEST is to accelerate the development of solutions to priority threatened and endangered species issues to improve operational flexibility, reduce future costs, improve budget planning capabilities, reduce adverse impacts to mission execution and improve species conservation outcome. Test's objectives are to identify and document TES with biggest impacts to USACE mission (monetarily and operationally), prioritize resolvable TES issues with respect to potential ROI, investigate system-level approaches with high ROI, identify needed R&D with high impact to TES recovery or decreased mission impact, develop a R&D investment plan based on priorities and ROI and integrate *EWN and ESA 7(a)(1)* as proactive tools for conservation and recovery.

TEST's action items include developing a comprehensive long-term strategy for addressing TES within USACE, establishing a prioritized TES list to better inform how to make investments (and subsequent ROI), develop a proactive strategy for predicting unlisted species likely to impact future missions, exploring modeling frameworks with concurrent monitoring, adaptive management and risk assessment, designing big picture projects (rather than piecemeal) that will make a difference, modernizing internal and external communication.

In more than 40 years of using the ESA Formal Consultation process, USACE believes a new approach would allow it to be proactive in consultation and conservation processes rather than reactive. It would reduce surprises and conflicts, USACE would commit to actions it would be predisposed to undertake and reduce future consultations. Actions would be

contingent upon availability of funds, providing budget predictability, and the likelihood of species recovery would be improved.

Conservation Management Agreements are explicit plans for specific management actions. These formal agreements enable long-term management. Any combination of agencies and organizations with legal authority for management could participate. Funding mechanisms must be addressed, and the agreements must be legally enforceable. De-listing must be possible if protections of the Endangered Species Act are not needed.

Monarch Conservation: A Focus on the Southwest

In August 2016, Julie McIntyre, Southwest Region Monarch Lead, U.S. Fish and Wildlife Service, presented on the Monarch Butterfly current status and efforts undertaken as well as opportunities to help support the Monarch.

In 2015, WRP Natural Resources Committee asked WRP partners for their input on species of concern. This unofficial review and assessment of top three species was compiled and shared. The Monarch Butterfly was one of the top species of concern if it were to become listed as threatened or endangered.

There are a number of reasons that the monarch butterfly is under scrutiny at this time. There has been a 20-year decline in numbers, with the lowest ever reported in 2014. Winter colony areas in Mexico and numbers in the U.S. are down. The U.S. is losing more than 5000 acres per day to real estate and energy development. Over 1 million acres of prairie that had contained milkweed and other nectar plants were converted to cropland (mostly corn and soy) in the period from 2006-2011. In 2010, the World Wildlife Fund placed it on its Top 10 Species to watch list. One study has estimated a range of quasi-extinction of the Eastern monarchs up to 57%.

In 2014, a petition was received by the USFWS to list the species as threatened. In December of that year, the USFWS determined there was enough information to begin reviewing the available information. The deadline for this process is June 30, 2019. There remains considerable process to list the species if it is determined by USFWS that the listing is warranted. In the meantime, states have management authority.

In May 2015, the President's Pollinator Health Task Force issued a National Strategy to Promote the Health of Honey Bees and Other Pollinators, which would include the monarch. Among the goals is that 7 million acres of habitat be restored and that monarchs recover by 225 million by 2020. Milkweed is a particularly significant part of the habitat as larvae develop in it and adults use the nectar.

Among the threats to the monarch are habitat conversion, changes to agricultural process, logging in Mexico, climate/weather, pesticides and invasive species, predation and

pathogens. To achieve goals for monarchs, the plan includes increasing the population, decreasing mortality, increasing knowledge, and increasing nectar and milkweed resources. To do this, increasing milkweed availability at the right places, providing females with more nectar at the right times and locations to increase their lifespan, decreasing pesticide exposure, increasing monitoring and managing for favored conditions are the management tactics.

Increasing habitat is being accomplished in collaboration with many partners, both on the small-scale (e.g., schools) and large-scale (e.g., working with Landscape Conservation Cooperatives (LCCs).) Research and monitoring is also taking place with various partners, including citizens, universities and others. A monitoring pilot project has begun in USFWS Regions 2, 3, and 6. There remains a list of other research that needs to be done.

There is a role for states to, among other things, highlight the pollinator species and habitats, conduct status review of pollinator groups, emphasize habitat conservation and restoration, and develop outreach.

Integrated Rangeland Fire Strategy (Implementation of DOI Secretarial Order 3336)

In August 2016, DOI presented on the Integrated Rangeland Fire Strategy (Implementation of DOI Secretarial Order 3336). This was a joint WRP Natural Resources and Military Readiness, Homeland Security, Disaster Preparedness and Aviation Committee's webinar. This webinar was presented by Mike Haske, DOI, SO 3336 Implementation Manager; Karen Prentice, BLM, National Healthy Lands Coordinator, Steve Hanser, USGS, Sage-grouse Specialist; and Victoria Smith-Campbell, BLM, Fire Management Specialist (GIS).

This presentation covered three topics. The first was "A Landscape Approach to Land Management in the Sagebrush Ecosystem." Much Greater Sage Grouse habitat is found in Nevada, Utah, Colorado, with small sections in northern New Mexico and northeastern California. It is also found outside the WRP States in the West. Over 60% of its habitat throughout its range is owned by the federal government; 5% is owned by state and local government and about 31% is privately held.

[Secretarial Order \(SO\) 3336](#) was issued January 5, 2015. Its purpose is to enhance policies and strategies for preventing and suppressing rangeland fires in order to conserve habitat for the greater sage-grouse, other species and economic activity including ranching and recreation. The Integrated Rangeland Fire Strategy was adopted to implement SO 3336. Among the key features are integrated response plans, allocation of resources, integrating science into project design and implementation, post-fire restoration, multi-year investments in restoration, large-scale removal of invasive grasses and a national seed strategy.

Next steps include completing the conservation and restoration strategy and a geospatial portal, development of the actionable science plan, institutionalizing the strategy and fire operations.

The second portion of the presentation covered “Developing a Science Framework for the Integrated Rangeland Fire Strategy & Mitigation Strategies.” The Framework is to provide a holistic, science-based foundation for assessing resource values and threats in the sagebrush biome. The first step is to identify species to prioritize for addition to the Framework. In October 2016, BLM and WAFWA are planning a workshop to develop a conservation and restoration strategy for the biome. Soil temperature and moisture are indicators of resilience and resistance in the biome. In addition, the distribution of probability of breeding habitat also diverges in the biome. Where there is high likelihood of breeding habitat, the potential for restoration and recovery of the species is high. This allows for prioritizing areas for management with the highest likelihood of success.

Threats to the ecosystem include things that can be regulated by policy, such as some grazing activity, crop conversion, oil and gas development, exurban development and recreation. There are opportunities to comment on both the science and the implications of the science through the Fall of 2016.

The final portion of the presentation dealt with the Geospatial Framework to support the strategy. The concept is to develop a geospatial tool highlighting areas of concern and priority habitats in order to provide a common framework to support the SO. The tool uses BLM Landscape Approach Data and a USGS Science Base. The result is a data portal to provide access to data layer, map viewers and analytical tools to support the Strategy. It allows for visualization of data to support decisions, including large-scale assessment and prioritization to assist with regional and project level plans. The tool will continue to develop its catalog of data along with viewers and decision support tools.

Natural Resource Committee-Related Articles, News Releases and Resources

The following news articles and press releases occurred since the last WRP Principals’ Meeting. Clearly there are numerous articles and agency press releases and it is not feasible to include all, but the following are illustrative to highlight natural resources-related issues within the WRP Region. The Natural Resource Committee thanks those that shared the following information.

Listed species believed to or known to occur in WRP Region

According to the U.S. Fish and Wildlife [Environmental Conservation Online System](#), as of May 2016, there are the following listed species believed to or known to occur in the WRP Region by state.

Arizona

Animals

- E Ambersnail, Kanab (*Oxyloma haydeni kanabensis*)
- E Bat, lesser long-nosed (*Leptonycteris curasoae yerbabuenae*)
- E Bobwhite, masked (quail) (*Colinus virginianus ridgwayi*)
- T Catfish, Yaqui (*Ictalurus pricei*)
- E Chub, bonytail (*Gila elegans*)
- E Chub, Gila (*Gila intermedia*)
- E Chub, humpback (*Gila cypha*)
- T Chub, Sonora (*Gila ditaenia*)
- E Chub, Virgin River (*Gila seminuda (=robusta)*)
- E Chub, Yaqui (*Gila purpurea*)
- E Condor, California (*Gymnogyps californianus*)
- T Cuckoo, yellow-billed Western U.S. DPS (*Coccyzus americanus*)
- E Ferret, black-footed population, except where EXPN (*Mustela nigripes*)
- E Flycatcher, southwestern willow (*Empidonax traillii extimus*)
- T Frog, Chiricahua leopard (*Rana chiricahuensis*)
- T Gartersnake, narrow-headed (*Thamnophis rufipunctatus*)
- T Gartersnake, northern Mexican (*Thamnophis eques megalops*)
- E Jaguar Wherever found (*Panthera onca*)
- E Minnow, loach (*Tiaroga cobitis*)
- E Mouse, New Mexico meadow jumping (*Zapus hudsonius luteus*)
- E Ocelot wherever found (*Leopardus (=Felis) pardalis*)
- T Owl, Mexican spotted (*Strix occidentalis lucida*)
- E Pikeminnow (=squawfish), Colorado (*Ptychocheilus lucius*)
- E Pronghorn, Sonoran (*Antilocapra americana sonoriensis*)
- E Pupfish, desert (*Cyprinodon macularius*)
- E Rail, Yuma clapper (*Rallus longirostris yumanensis*)
- T Rattlesnake, New Mexican ridge-nosed (*Crotalus willardi obscurus*)
- E Salamander, Sonora tiger (*Ambystoma tigrinum stebbinsi*)
- T Shiner, beautiful (*Cyprinella formosa*)
- E Spikedace (*Meda fulgida*)
- T Spinedace, Little Colorado (*Lepidomeda vittata*)
- T springsnail, San Bernardino (*Pyrgulopsis bernardina*)
- E Springsnail, Three Forks (*Pyrgulopsis trivialis*)
- E Squirrel, Mount Graham red (*Tamiasciurus hudsonicus grahamensis*)
- E Sucker, razorback (*Xyrauchen texanus*)
- E Sucker, Zuni bluehead (*Catostomus discobolus yarrowi*)
- E Tern, California least (*Sterna antillarum browni*)
- E Topminnow, Gila (incl. Yaqui) (*Poeciliopsis occidentalis*)
- T Tortoise, desert, except in Sonoran Desert (*Gopherus agassizii*)
- T Trout, Apache (*Oncorhynchus apache*)
- T Trout, Gila (*Oncorhynchus gilae*)
- E Vole, Hualapai Mexican (*Microtus mexicanus hualpaiensis*)
- E Wolf, Mexican (*Canis lupus baileyi*)
- E Woundfin, except EXPN (*Plagopterus argentissimus*)

Plants

- E Blue-star, Kearney's (*Amsonia kearneyana*)
- E Cactus, Acuna (*Echinomastus erectocentrus* var. *acunensis*)
- E Cactus, Arizona hedgehog (*Echinocereus triglochidiatus* var. *arizonicus*)
- E Cactus, Brady pincushion (*Pediocactus bradyi*)
- T Cactus, Cochise pincushion (*Coryphantha robbinsiorum*)
- E Cactus, Fickeisen plains (*Pediocactus peeblesianus fickeiseniae*)
- E Cactus, Nichol's Turk's head (*Echinocactus horizontalonius* var. *nicholii*)
- E Cactus, Peebles Navajo (*Pediocactus peeblesianus* var. *peeblesianus*)
- E Cactus, Pima pineapple (*Coryphantha scheeri* var. *robustispina*)
- T Cactus, Siler pincushion (*Pediocactus* (= *Echinocactus*, = *Utahia*) *sileri*)
- E Cliffrose, Arizona (*Purshia* (= *Cowania*) *subintegra*)
- T Cycladenia, Jones (*Cycladenia humilis* var. *jonesii*)
- T Fleabane, Zuni (*Erigeron rhizomatus*)
- E Ladies'-tresses, Canelo Hills (*Spiranthes delitescens*)
- E mallow, Gierisch (*Sphaeralcea gierischii*)
- E Milk-vetch, Holmgren (*Astragalus holmgreniorum*)
- E Milk-vetch, Sentry (*Astragalus cremnophylax* var. *cremnophylax*)
- T Milkweed, Welsh's (*Asclepias welshii*)
- T Ragwort, San Francisco Peaks (*Packera franciscana*)
- T Sedge, Navajo (*Carex specuicola*)
- E Water-umbel, Huachuca (*Lilaeopsis schaffneriana* var. *recurva*)

California

Animals

- E Abalone, White (*Haliotis sorenseni*)
- E Albatross, short-tailed (*Phoebastria* (= *Diomedea*) *albatrus*)
- E Beetle, Casey's June (*Dinacoma caseyi*)
- T Beetle, delta green ground (*Elaphrus viridis*)
- E Beetle, Mount Hermon June (*Polyphylla barbata*)
- T Beetle, valley elderberry longhorn (*Desmocerus californicus dimorphus*)
- T Butterfly, bay checkerspot (*Euphydryas editha bayensis*)
- E Butterfly, Behren's silverspot (*Speyeria zerene behrensii*)
- E Butterfly, callippe silverspot (*Speyeria callippe callippe*)
- E Butterfly, El Segundo blue (*Euphilotes battoides allyni*)
- E Butterfly, Lange's metalmark (*Apodemia mormo langei*)
- E Butterfly, lotis blue (*Lycaeides argyrognomon lotis*)
- E Butterfly, mission blue (*Icaricia icarioides missionensis*)
- E Butterfly, Myrtle's silverspot (*Speyeria zerene myrtleae*)
- T Butterfly, Oregon silverspot (*Speyeria zerene hippolyta*)
- E Butterfly, Palos Verdes blue (*Glaucopsyche lygdamus palosverdesensis*)
- E Butterfly, Quino checkerspot (*Euphydryas editha quino* (= *E. e. wrighti*))
- E Butterfly, San Bruno elfin (*Callophrys mossii bayensis*)
- E Butterfly, Smith's blue (*Euphilotes enoptes smithi*)
- E Chub, bonytail (*Gila elegans*)

E Chub, Owens Tui (*Gila bicolor* ssp. *snyderi*)
 E Condor, California (*Gymnogyps californianus*)
 E Crayfish, Shasta (*Pacifastacus fortis*)
 T Cuckoo, yellow-billed Western U.S. DPS (*Coccyzus americanus*)
 E Fairy shrimp, Conservancy (*Branchinecta conservatio*)
 E Fairy shrimp, longhorn (*Branchinecta longiantenna*)
 E Fairy shrimp, Riverside (*Streptocephalus woottoni*)
 E Fairy shrimp, San Diego (*Branchinecta sandiegonensis*)
 T Fairy shrimp, vernal pool (*Branchinecta lynchi*)
 E Flycatcher, southwestern willow (*Empidonax traillii extimus*)
 E Fly, Delhi Sands flower-loving (*Rhaphiomidas terminatus abdominalis*)
 E Fox, San Joaquin kit wherever found (*Vulpes macrotis mutica*)
 E Fox, San Miguel Island wherever found (*Urocyon littoralis littoralis*)
 E Fox, Santa Catalina Island Wherever found (*Urocyon littoralis catalinae*)
 E Fox, Santa Cruz Island wherever found (*Urocyon littoralis santacruzae*)
 E Fox, Santa Rosa Island wherever found (*Urocyon littoralis santarosae*)
 T Frog, California red-legged (*Rana draytonii*)
 E Frog, mountain yellow-legged Northern California DPS (*Rana muscosa*)
 E Frog, mountain yellow-legged Southern California DPS (*Rana muscosa*)
 T Frog, Oregon spotted (*Rana pretiosa*)
 E Frog, Sierra Nevada Yellow-legged (*Rana sierrae*)
 T Gnatcatcher, coastal California (*Polioptila californica californica*)
 E Goby, tidewater (*Eucyclogobius newberryi*)
 E Grasshopper, Zayante band-winged (*Trimerotropis infantilis*)
 E Kangaroo rat, Fresno (*Dipodomys nitratooides exilis*)
 E Kangaroo rat, giant (*Dipodomys ingens*)
 E Kangaroo rat, Morro Bay (*Dipodomys heermanni morroensis*)
 E Kangaroo rat, San Bernardino Merriam's (*Dipodomys merriami parvus*)
 E Kangaroo rat, Stephens' (*Dipodomys stephensi* (incl. *D. cascus*))
 E Kangaroo rat, Tipton (*Dipodomys nitratooides nitratooides*)
 E Lizard, blunt-nosed leopard (*Gambelia silus*)
 T Lizard, Coachella Valley fringe-toed (*Uma inornata*)
 T Lynx, Canada Contiguous U.S. DPS (*Lynx canadensis*)
 T Moth, Kern primrose sphinx (*Euproserpinus euterpe*)
 E Mountain beaver, Point Arena (*Aplodontia rufa nigra*)
 E Mouse, Pacific pocket (*Perognathus longimembris pacificus*)
 E Mouse, salt marsh harvest wherever found (*Reithrodontomys raviventris*)
 T Murrelet, marbled CA, OR, WA (*Brachyramphus marmoratus*)
 T Otter, southern sea (*Enhydra lutris nereis*)
 T Owl, northern spotted (*Strix occidentalis caurina*)
 E Pikeminnow (=squawfish), Colorado (*Ptychocheilus lucius*)
 T Plover, western snowy Pacific coastal pop. (*Charadrius alexandrinus nivosus*)
 E Pupfish, desert (*Cyprinodon macularius*)
 E Pupfish, Owens (*Cyprinodon radiosus*)
 E Rabbit, riparian brush (*Sylvilagus bachmani riparius*)
 E Rail, California clapper (*Rallus longirostris obsoletus*)

E Rail, light-footed clapper (*Rallus longirostris levipes*)
 E Rail, Yuma clapper (*Rallus longirostris yumanensis*)
 E Salamander, California tiger U.S.A. (CA - Santa Barbara County) (*Ambystoma californiense*)
 E Salamander, California tiger U.S.A. (CA - Sonoma County) (*Ambystoma californiense*)
 T Salamander, California tiger U.S.A. (Central CA DPS) (*Ambystoma californiense*)
 E Salamander, desert slender (*Batrachoseps aridus*)
 E Salamander, Santa Cruz long-toed (*Ambystoma macrodactylum croceum*)
 T Salmon, Chinook California Coastal ESU (*Oncorhynchus* (=Salmo) *tshawytscha*)
 E Salmon, coho Central California Coast ESU (*Oncorhynchus* (=Salmo) *kisutch*)
 T Salmon, coho Southern Oregon - Northern California Coast ESU (*Oncorhynchus* (=Salmo) *kisutch*)
 T Seal, Guadalupe fur (*Arctocephalus townsendi*)
 E Sea turtle, leatherback (*Dermochelys coriacea*)
 T Sea turtle, olive ridley Except where endangered (*Lepidochelys olivacea*)
 E Sheep, Peninsular bighorn Peninsular CA pop. (*Ovis canadensis nelsoni*)
 E Sheep, Sierra Nevada bighorn Sierra Nevada (*Ovis canadensis sierrae*)
 E Shrew, Buena Vista Lake ornate (*Sorex ornatus relictus*)
 E Shrike, San Clemente loggerhead (*Lanius ludovicianus mearnsi*)
 E Shrimp, California freshwater (*Syncaris pacifica*)
 E Skipper, Carson wandering (*Pseudocopaeodes eunus obscurus*)
 E Skipper, Laguna Mountains (*Pyrgus ruralis lagunae*)
 T Smelt, delta (*Hypomesus transpacificus*)
 E Snail, Morro shoulderband (=Banded dune) (*Helminthoglypta walkeriana*)
 T Snake, giant garter (*Thamnophis gigas*)
 E Snake, San Francisco garter (*Thamnophis sirtalis tetrataenia*)
 T Sparrow, San Clemente sage (*Amphispiza belli clementeae*)
 T Steelhead Central California Coast DPS (*Oncorhynchus* (=Salmo) *mykiss*)
 T Steelhead Northern California DPS (*Oncorhynchus* (=Salmo) *mykiss*)
 E Steelhead Southern California DPS (*Oncorhynchus* (=Salmo) *mykiss*)
 E Stickleback, unarmored threespine (*Gasterosteus aculeatus williamsoni*)
 T sturgeon, green Southern DPS (*Acipenser medirostris*)
 E Sucker, Lost River (*Deltistes luxatus*)
 E Sucker, razorback (*Xyrauchen texanus*)
 T Sucker, Santa Ana 3 CA river basins (*Catostomus santaanae*)
 E Sucker, shortnose (*Chasmistes brevirostris*)
 T Sucker, Warner (*Catostomus warnerensis*)
 E Tadpole shrimp, vernal pool (*Lepidurus packardi*)
 E Tern, California least (*Sterna antillarum browni*)
 E Tiger beetle, Ohlone (*Cicindela ohlone*)
 E Toad, arroyo (=arroyo southwestern) (*Anaxyrus californicus*)
 T toad, Yosemite (*Anaxyrus canorus*)
 T Tortoise, desert , except in Sonoran Desert (*Gopherus agassizii*)
 T Towhee, Inyo California (*Pipilo crissalis eremophilus*)
 T Trout, Lahontan cutthroat (*Oncorhynchus clarkii henshawi*)
 T Trout, Little Kern golden (*Oncorhynchus aguabonita whitei*)

- T Trout, Paiute cutthroat (*Oncorhynchus clarkii seleniris*)
- E Tui chub, Mohave (*Gila bicolor ssp. mohavensis*)
- E Vireo, least Bell's (*Vireo bellii pusillus*)
- E Vole, Amargosa (*Microtus californicus scirpensis*)
- E Whale, blue (*Balaenoptera musculus*)
- E Whale, finback (*Balaenoptera physalus*)
- E Whale, humpback (*Megaptera novaeangliae*)
- E Whale, Sei (*Balaenoptera borealis*)
- E Whale, sperm (*Physeter catodon (=macrocephalus)*)
- T Whipsnake (=striped racer), Alameda (*Masticophis lateralis euryxanthus*)
- E Wolf, gray (*Canis lupus*)
- E Woodrat, riparian (=San Joaquin Valley) (*Neotoma fuscipes riparia*)

Plants

- E Allocarya, Calistoga (*Plagiobothrys strictus*)
- E Alopecurus, Sonoma (*Alopecurus aequalis var. sonomensis*)
- E Ambrosia, San Diego (*Ambrosia pumila*)
- T Amole, purple (*Chlorogalum purpureum*)
- T Baccharis, Encinitas (*Baccharis vanessae*)
- E Barberry, island (*Berberis pinnata ssp. insularis*)
- E Barberry, Nevin's (*Berberis nevinii*)
- E Bedstraw, El Dorado (*Galium californicum ssp. sierrae*)
- E Bedstraw, island (*Galium buxifolium*)
- E Bird's beak, palmate-bracted (*Cordylanthus palmatus*)
- E Bird's-beak, Pennell's (*Cordylanthus tenuis ssp. capillaris*)
- E Bird's-beak, salt marsh (*Cordylanthus maritimus ssp. maritimus*)
- E Bird's-beak, soft (*Cordylanthus mollis ssp. mollis*)
- E Bladderpod, San Bernardino Mountains (*Lesquerella kingii ssp. bernardina*)
- T Bluecurls, Hidden Lake (*Trichostema austromontanum ssp. compactum*)
- E Bluegrass, Napa (*Poa napensis*)
- E Bluegrass, San Bernardino (*Poa atropurpurea*)
- T Brodiaea, Chinese Camp (*Brodiaea pallida*)
- T Brodiaea, thread-leaved (*Brodiaea filifolia*)
- E Buckwheat, cushenbury (*Eriogonum ovalifolium var. vineum*)
- E Buckwheat, lone (incl. Irish Hill) (*Eriogonum apricum (incl. var. prostratum)*)
- E Bush-mallow, San Clemente Island (*Malacothamnus clementinus*)
- E Bush-mallow, Santa Cruz Island (*Malacothamnus fasciculatus var. nesioticus*)
- T Butterweed, Layne's (*Senecio layneae*)
- E Button-celery, San Diego (*Eryngium aristulatum var. parishii*)
- E Cactus, Bakersfield (*Opuntia treleasei*)
- E Ceanothus, coyote (*Ceanothus ferrisae*)
- E Ceanothus, Pine Hill (*Ceanothus roderickii*)
- T Ceanothus, Vail Lake (*Ceanothus ophiochilus*)
- E Checker-mallow, Keck's (*Sidalcea keckii*)
- E Checker-mallow, Kenwood Marsh (*Sidalcea oregana ssp. valida*)
- E Checker-mallow, pedate (*Sidalcea pedata*)
- E Clarkia, Pismo (*Clarkia speciosa ssp. immaculata*)

E Clarkia, Presidio (*Clarkia franciscana*)
 T Clarkia, Springville (*Clarkia springvillensis*)
 E Clarkia, Vine Hill (*Clarkia imbricata*)
 E Clover, Monterey (*Trifolium trichocalyx*)
 E Clover, showy Indian (*Trifolium amoenum*)
 T Crownbeard, big-leaved (*Verbesina dissita*)
 E Crownscale, San Jacinto Valley (*Atriplex coronata* var. *notatior*)
 T Cypress, Gowen (*Cupressus goveniana* ssp. *goveniana*)
 T Cypress, Santa Cruz (*Cupressus abramsiana*)
 T Daisy, Parish's (*Erigeron parishii*)
 T Dudleya, Conejo (*Dudleya abramsii* ssp. *parva*)
 T Dudleya, marcescent (*Dudleya cymosa* ssp. *marcescens*)
 E Dudleya, Santa Clara Valley (*Dudleya setchellii*)
 T Dudleya, Santa Cruz Island (*Dudleya nesiotica*)
 T Dudleya, Santa Monica Mountains (*Dudleya cymosa* ssp. *ovatifolia*)
 T Dudleya, Verity's (*Dudleya verityi*)
 T Dwarf-flax, Marin (*Hesperolinon congestum*)
 E Evening-primrose, Antioch Dunes (*Oenothera deltooides* ssp. *howellii*)
 E Evening-primrose, Eureka Valley (*Oenothera avita* ssp. *eurekensis*)
 T Evening-primrose, San Benito (*Camissonia benitensis*)
 E Fiddleneck, large-flowered (*Amsinckia grandiflora*)
 E Flannelbush, Mexican (*Fremontodendron mexicanum*)
 E Flannelbush, Pine Hill (*Fremontodendron californicum* ssp. *decumbens*)
 E Fringepod, Santa Cruz Island (*Thysanocarpus conchuliferus*)
 E Fritillary, Gentner's (*Fritillaria gentneri*)
 E Gilia, Hoffmann's slender-flowered (*Gilia tenuiflora* ssp. *hoffmannii*)
 E Gilia, Monterey (*Gilia tenuiflora* ssp. *arenaria*)
 E Goldfields, Burke's (*Lasthenia burkei*)
 E Goldfields, Contra Costa (*Lasthenia conjugens*)
 T Grass, Colusa (*Neostapfia colusana*)
 E Grass, Eureka Dune (*Swallenia alexandrae*)
 E Grass, Solano (*Tuctoria mucronata*)
 T Howellia, water (*Howellia aquatilis*)
 T Indian paintbrush, San Clemente Island (*Castilleja grisea*)
 T Ivesia, Webber (*Ivesia webberi*)
 E Jewelflower, California (*Caulanthus californicus*)
 E Jewelflower, Metcalf Canyon (*Streptanthus albidus* ssp. *albidus*)
 E Jewelflower, Tiburon (*Streptanthus niger*)
 E Larkspur, Baker's (*Delphinium bakeri*)
 E Larkspur, San Clemente Island (*Delphinium variegatum* ssp. *kinkiense*)
 E Larkspur, yellow (*Delphinium luteum*)
 E Layia, beach (*Layia carnosa*)
 E Lessingia, San Francisco (*Lessingia germanorum* (=L.g. var. *germanorum*))
 E Lily, Pitkin Marsh (*Lilium pardalinum* ssp. *pitkinense*)
 E Lily, Western (*Lilium occidentale*)
 T Liveforever, Laguna Beach (*Dudleya stolonifera*)

- E Liveforever, Santa Barbara Island (*Dudleya traskiae*)
- T Lotus, San Clemente Island (*Acmispon dendroideus* var. *traskiae* (=Lotus d. ssp. *traskiae*))
- E Lupine, clover (*Lupinus tidestromii*)
- E Lupine, Nipomo Mesa (*Lupinus nipomensis*)
- E Malacothrix, island (*Malacothrix squalida*)
- E Malacothrix, Santa Cruz Island (*Malacothrix indecora*)
- E Mallow, Kern (*Eremalche kernensis*)
- E Manzanita, Del Mar (*Arctostaphylos glandulosa* ssp. *crassifolia*)
- E Manzanita, Franciscan (*Arctostaphylos franciscana*)
- T Manzanita, lone (*Arctostaphylos myrtifolia*)
- T Manzanita, Morro (*Arctostaphylos morroensis*)
- T Manzanita, pallid (*Arctostaphylos pallida*)
- E Manzanita, Presidio (*Arctostaphylos hookeri* var. *ravenii*)
- E Manzanita, Santa Rosa Island (*Arctostaphylos confertiflora*)
- T Mariposa lily, Tiburon (*Calochortus tiburonensis*)
- E Meadowfoam, Butte County (*Limnanthes floccosa* ssp. *californica*)
- E Meadowfoam, Sebastopol (*Limnanthes vinculans*)
- E Mesa-mint, Otay (*Pogogyne nudiuscula*)
- E Mesa-mint, San Diego (*Pogogyne abramsii*)
- E Milk-vetch, Applegate's (*Astragalus applegatei*)
- E Milk-vetch, Braunton's (*Astragalus brauntonii*)
- E Milk-vetch, Clara Hunt's (*Astragalus clarianus*)
- E Milk-vetch, Coachella Valley (*Astragalus lentiginosus* var. *coachellae*)
- E Milk-vetch, coastal dunes (*Astragalus tener* var. *titi*)
- E Milk-vetch, Cushenbury (*Astragalus albens*)
- T Milk-vetch, Fish Slough (*Astragalus lentiginosus* var. *piscinensis*)
- E Milk-vetch, Lane Mountain (*Astragalus jaegerianus*)
- T Milk-vetch, Peirson's (*Astragalus magdalenae* var. *peirsonii*)
- E Milk-vetch, triple-ribbed (*Astragalus tricarinatus*)
- E Milk-vetch, Ventura Marsh (*Astragalus pycnostachyus* var. *lanosissimus*)
- E Monardella, willowy (*Monardella viminea*)
- E Monkeyflower, Vandenberg (*Diplacus vandenbergensis*)
- E Morning-glory, Stebbins' (*Calystegia stebbinsii*)
- E Mountain balm, Indian Knob (*Eriodictyon altissimum*)
- E Mountain-mahogany, Catalina Island (*Cercocarpus traskiae*)
- E Mustard, slender-petaled (*Thelypodium stenopetalum*)
- E Navarretia, few-flowered (*Navarretia leucocephala* ssp. *pauciflora* (=N. *pauciflora*))
- E Navarretia, many-flowered (*Navarretia leucocephala* ssp. *plieantha*)
- T Navarretia, spreading (*Navarretia fossalis*)
- E Niterwort, Amargosa (*Nitrophila mohavensis*)
- E Onion, Munz's (*Allium munzii*)
- E Orcutt grass, California (*Orcuttia californica*)
- E Orcutt grass, hairy (*Orcuttia pilosa*)
- E Orcutt grass, Sacramento (*Orcuttia viscida*)
- T Orcutt grass, San Joaquin (*Orcuttia inaequalis*)

T Orcutt grass, slender (*Orcuttia tenuis*)
 T Owl's-clover, fleshy (*Castilleja campestris* ssp. *succulenta*)
 E Oxytheca, cushenbury (*Oxytheca parishii* var. *goodmaniana*)
 T Paintbrush, ash-grey (*Castilleja cinerea*)
 E Paintbrush, soft-leaved (*Castilleja mollis*)
 E Paintbrush, Tiburon (*Castilleja affinis* ssp. *neglecta*)
 E Penny-cress, Kneeland Prairie (*Thlaspi californicum*)
 E Pentachaeta, Lyon's (*Pentachaeta lyonii*)
 E Pentachaeta, white-rayed (*Pentachaeta bellidiflora*)
 E Phacelia, island (*Phacelia insularis* ssp. *insularis*)
 E Phlox, Yreka (*Phlox hirsuta*)
 E Piperia, Yadon's (*Piperia yadonii*)
 E Polygonum, Scotts Valley (*Polygonum hickmanii*)
 E Potentilla, Hickman's (*Potentilla hickmanii*)
 T Pussypaws, Mariposa (*Calyptridium pulchellum*)
 E Rock-cress, Hoffmann's (*Arabis hoffmannii*)
 E Rock-cress, McDonald's (*Arabis macdonaldiana*)
 E Rockcress, Santa Cruz Island (*Sibara filifolia*)
 T Rush-rose, island (*Helianthemum greenei*)
 T Sandwort, Bear Valley (*Arenaria ursina*)
 E Sandwort, Marsh (*Arenaria paludicola*)
 E Seablite, California (*Suaeda californica*)
 E Sedge, white (*Carex albida*)
 E Spineflower, Ben Lomond (*Chorizanthe pungens* var. *hartwegiana*)
 E Spineflower, Howell's (*Chorizanthe howellii*)
 T Spineflower, Monterey (*Chorizanthe pungens* var. *pungens*)
 E Spineflower, Orcutt's (*Chorizanthe orcuttiana*)
 E Spineflower, Robust (*Chorizanthe robusta* var. *robusta*)
 E Spineflower, Scotts Valley (*Chorizanthe robusta* var. *hartwegii*)
 E Spineflower, slender-horned (*Dodecahema leptoceras*)
 E Spineflower, Sonoma (*Chorizanthe valida*)
 T Spurge, Hoover's (*Chamaesyce hooveri*)
 E Stonecrop, Lake County (*Parvisedum leiocarpum*)
 E Sunburst, Hartweg's golden (*Pseudobahia bahiifolia*)
 T Sunburst, San Joaquin adobe (*Pseudobahia peirsonii*)
 E Sunflower, San Mateo woolly (*Eriophyllum latilobum*)
 E Sunshine, Sonoma (*Blennosperma bakeri*)
 E Taraxacum, California (*Taraxacum californicum*)
 E Tarplant, Gaviota (*Deinandra increscens* ssp. *villosa*)
 T Tarplant, Otay (*Deinandra* (= *Hemizonia*) *conjugens*)
 T Tarplant, Santa Cruz (*Holocarpha macradenia*)
 E Thistle, Chorro Creek bog (*Cirsium fontinale* var. *obispoense*)
 E Thistle, fountain (*Cirsium fontinale* var. *fontinale*)
 E Thistle, La Graciosa (*Cirsium loncholepis*)
 E Thistle, Loch Lomond coyote (*Eryngium constancei*)
 E Thistle, Suisun (*Cirsium hydrophilum* var. *hydrophilum*)

- T Thornmint, San Diego (*Acanthomintha ilicifolia*)
- E Thornmint, San Mateo (*Acanthomintha obovata* ssp. *duttonii*)
- E Tuctoria, Greene's (*Tuctoria greenei*)
- T Vervain, Red Hills (*Verbena californica*)
- E Wallflower, Ben Lomond (*Erysimum teretifolium*)
- E Wallflower, Contra Costa (*Erysimum capitatum* var. *angustatum*)
- E Wallflower, Menzies' (*Erysimum menziesii*)
- E Watercress, Gambel's (*Rorippa gambellii*)
- T Wild-buckwheat, southern mountain (*Eriogonum kennedyi* var. *austromontanum*)
- E Woodland-star, San Clemente Island (*Lithophragma maximum*)
- E Woolly-star, Santa Ana River (*Eriastrum densifolium* ssp. *sanctorum*)
- E Woolly-threads, San Joaquin (*Monolopia* (= *Lembertia*) *congdonii*)
- E Yerba santa, Lompoc (*Eriodictyon capitatum*)

Colorado

Animals

- E Butterfly, Uncompahgre fritillary (*Boloria acrocneuma*)
- E Chub, bonytail (*Gila elegans*)
- E Chub, humpback (*Gila cypha*)
- T Cuckoo, yellow-billed Western U.S. DPS (*Coccyzus americanus*)
- E Flycatcher, southwestern willow (*Empidonax traillii extimus*)
- T Lynx, Canada (*Lynx canadensis*)
- E Mouse, New Mexico meadow jumping (*Zapus hudsonius luteus*)
- T Mouse, Preble's meadow jumping (*Zapus hudsonius preblei*)
- T Owl, Mexican spotted (*Strix occidentalis lucida*)
- E Pikeminnow (=squawfish), Colorado (*Ptychocheilus lucius*)
- T Plover, piping except Great Lakes watershed (*Charadrius melodus*)
- T Prairie-chicken, lesser (*Tympanuchus pallidicinctus*)
- T sage-grouse, Gunnison (*Centrocercus minimus*)
- T Skipper, Pawnee montane (*Hesperia leonardus montana*)
- E Sucker, razorback (*Xyrauchen texanus*)
- E Tern, least interior pop. (*Sterna antillarum*)
- T Trout, Greenback Cutthroat (*Oncorhynchus clarki stomias*)

Plants

- T beardtongue, Parachute (*Penstemon debilis*)
- E Beardtongue, Penland (*Penstemon penlandii*)
- T Bladderpod, Dudley Bluffs (*Lesquerella congesta*)
- T Butterfly plant, Colorado (*Gaura neomexicana* var. *coloradensis*)
- T Cactus, Colorado hookless (*Sclerocactus glaucus*)
- E Cactus, Knowlton's (*Pediocactus knowltonii*)
- T Cactus, Mesa Verde (*Sclerocactus mesae-verdae*)
- T Ladies'-tresses, Ute (*Spiranthes diluvialis*)
- E Milk-vetch, Mancos (*Astragalus humillimus*)
- E milkvetch, Osterhout (*Astragalus osterhoutii*)
- T Mustard, Penland alpine fen (*Eutrema penlandii*)

- T Phacelia, DeBeque (*Phacelia submutica*)
- E Phacelia, North Park (*Phacelia formosula*)
- E Skyrocket, Pagosa (*Ipomopsis polyantha*)
- T Twinpod, Dudley Bluffs (*Physaria obcordata*)
- E wild buckwheat, clay-loving (*Eriogonum pelinophilum*)

Nevada

Animals

- E Butterfly, Mount Charleston blue (*Icaricia (Plebejus) shasta charlestonensis*)
- E Chub, bonytail (*Gila elegans*)
- E Chub, Pahrnagat roundtail (*Gila robusta jordani*)
- E Chub, Virgin River (*Gila seminuda (=robusta)*)
- T Cuckoo, yellow-billed Western U.S. DPS (*Coccyzus americanus*)
- E Cui-ui (*Chasmistes cujus*)
- E Dace, Ash Meadows speckled (*Rhinichthys osculus nevadensis*)
- E Dace, Clover Valley speckled (*Rhinichthys osculus oligoporus*)
- T Dace, desert (*Eremichthys acros*)
- E Dace, Independence Valley speckled (*Rhinichthys osculus lethoporus*)
- E Dace, Moapa (*Moapa coriacea*)
- E Flycatcher, southwestern willow (*Empidonax traillii extimus*)
- T Naucorid, Ash Meadows (*Ambrysus amargosus*)
- E Poolfish, Pahrump (*Empetrichthys latos*)
- E Pupfish, Ash Meadows Amargosa (*Cyprinodon nevadensis mionectes*)
- E Pupfish, Devils Hole (*Cyprinodon diabolis*)
- E Pupfish, Warm Springs (*Cyprinodon nevadensis pectoralis*)
- E Skipper, Carson wandering (*Pseudocopaeodes eunus obscurus*)
- T Spinedace, Big Spring (*Lepidomeda mollispinis pratensis*)
- E Spinedace, White River (*Lepidomeda albivallis*)
- E Springfish, Hiko White River (*Crenichthys baileyi grandis*)
- T Springfish, Railroad Valley (*Crenichthys nevadae*)
- E Springfish, White River (*Crenichthys baileyi baileyi*)
- E Sucker, razorback (*Xyrauchen texanus*)
- T Sucker, Warner (*Catostomus warnerensis*)
- T Trout, bull (*Salvelinus confluentus*)
- T Trout, Lahontan cutthroat (*Oncorhynchus clarkii henshawi*)
- E Woundfin (*Plagopterus argentissimus*)

Plants

- T Blazingstar, Ash Meadows (*Mentzelia leucophylla*)
- E Buckwheat, steamboat (*Eriogonum ovalifolium* var. *williamsiae*)
- T Centaury, spring-loving (*Centaureum namophilum*)
- T Gumplant, Ash Meadows (*Grindelia fraxinipratensis*)
- T Ivesia, Ash Meadows (*Ivesia kingii* var. *eremica*)
- T Ivesia, Webber (*Ivesia webberi*)
- T Ladies'-tresses, Ute (*Spiranthes diluvialis*)
- T Milk-vetch, Ash meadows (*Astragalus phoenix*)
- E Niterwort, Amargosa (*Nitrophila mohavensis*)

T Sunray, Ash Meadows (*Enceliopsis nudicaulis* var. *corrugata*)

New Mexico

Animals

- E Amphipod, Noel's (*Gammarus desperatus*)
- E Bat, lesser long-nosed (*Leptonycteris curasoae yerbabuenae*)
- E Bat, Mexican long-nosed (*Leptonycteris nivalis*)
- T Chub, Chihuahua (*Gila nigrescens*)
- E Chub, Gila (*Gila intermedia*)
- T Cuckoo, yellow-billed Western U.S. DPS (*Coccyzus americanus*)
- E Ferret, black-footed population, except where EXPN (*Mustela nigripes*)
- E Flycatcher, southwestern willow (*Empidonax traillii extimus*)
- T Frog, Chiricahua leopard (*Rana chiricahuensis*)
- E Gambusia, Pecos (*Gambusia nobilis*)
- T gartersnake, narrow-headed (*Thamnophis rufipunctatus*)
- T gartersnake, northern Mexican (*Thamnophis eques megalops*)
- E Isopod, Socorro (*Thermosphaeroma thermophilus*)
- E Jaguar Wherever found (*Panthera onca*)
- T Lynx, Canada Contiguous U.S. DPS (*Lynx canadensis*)
- E Minnow, loach (*Tiaroga cobitis*)
- E Minnow, Rio Grande Silvery (*Hybognathus amarus*)
- E Mouse, New Mexico meadow jumping (*Zapus hudsonius luteus*)
- T Owl, Mexican spotted (*Strix occidentalis lucida*)
- E Pikeminnow (=squawfish), Colorado (*Ptychocheilus lucius*)
- T Plover, piping except Great Lakes watershed (*Charadrius melodus*)
- T Prairie-chicken, lesser (*Tympanuchus pallidicinctus*)
- T Rattlesnake, New Mexican ridge-nosed (*Crotalus willardi obscurus*)
- E Salamander, Jemez Mountains (*Plethodon neomexicanus*)
- T Shiner, Arkansas River Arkansas R. Basin (*Notropis girardi*)
- T Shiner, beautiful (*Cyprinella formosa*)
- T Shiner, Pecos bluntnose (*Notropis simus pecosensis*)
- E Snail, Pecos assiminea (*Assiminea pecos*)
- E Spikedace (*Meda fulgida*)
- E Springsnail, Alamosa (*Tryonia alamosae*)
- E Springsnail, Chupadera (*Pyrgulopsis chupadera*)
- E Springsnail, Koster's (*Juturnia kosteri*)
- E Springsnail, Roswell (*Pyrgulopsis roswellensis*)
- E Springsnail, Socorro (*Pyrgulopsis neomexicana*)
- E Sucker, razorback (*Xyrauchen texanus*)
- E Sucker, Zuni bluehead (*Catostomus discobolus yarrowi*)
- E Tern, least interior pop. (*Sterna antillarum*)
- E Topminnow, Gila (incl. Yaqui) (*Poeciliopsis occidentalis*)
- T Trout, Gila (*Oncorhynchus gilae*)
- E Wolf, Mexican (*Canis lupus baileyi*)

Plants

- E Cactus, Knowlton's (*Pediocactus knowltonii*)

- E Cactus, Kuenzler hedgehog (*Echinocereus fendleri* var. *kuenzleri*)
- T Cactus, Lee pincushion (*Coryphantha sneedii* var. *leei*)
- T Cactus, Mesa Verde (*Sclerocactus mesae-verdae*)
- E Cactus, Sneed pincushion (*Coryphantha sneedii* var. *sneedii*)
- T Fleabane, Zuni (*Erigeron rhizomatus*)
- E Ipomopsis, Holy Ghost (*Ipomopsis sancti-spiritus*)
- E Milk-vetch, Mancos (*Astragalus humillimus*)
- E Pennyroyal, Todsens's (*Hedeoma todsenii*)
- E Poppy, Sacramento prickly (*Argemone pleiacantha* ssp. *pinnatisecta*)
- T Sunflower, Pecos (=puzzle, =paradox) (*Helianthus paradoxus*)
- T Thistle, Sacramento Mountains (*Cirsium vinaceum*)
- T Wild-buckwheat, gypsum (*Eriogonum gypsophilum*)

Utah

Animals

- E Ambersnail, Kanab (*Oxyloma haydeni kanabensis*)
- E Chub, bonytail (*Gila elegans*)
- E Chub, humpback (*Gila cypha*)
- E Chub, Virgin River (*Gila seminuda* (=robusta))
- T Cuckoo, yellow-billed Western U.S. DPS (*Coccyzus americanus*)
- E Flycatcher, southwestern willow (*Empidonax traillii extimus*)
- T Lynx, Canada Contiguous U.S. DPS (*Lynx canadensis*)
- T Owl, Mexican spotted (*Strix occidentalis lucida*)
- E Pikeminnow (=squawfish), Colorado , except EXPN (*Ptychocheilus lucius*)
- T Prairie dog, Utah (*Cynomys parvidens*)
- T sage-grouse, Gunnison (*Centrocercus minimus*)
- E Sucker, June (*Chasmistes liorus*)
- E Sucker, razorback (*Xyrauchen texanus*)
- T Tortoise, desert , except in Sonoran Desert (*Gopherus agassizii*)
- T trout, Greenback Cutthroat (*Oncorhynchus clarki stomias*)
- T Trout, Lahontan cutthroat (*Oncorhynchus clarkii henshawi*)
- E Woundfin , except EXPN (*Plagopterus argentissimus*)

Plants

- E Bear-poppy, Dwarf (*Arctomecon humilis*)
- E Bladderpod, kodachrome (*Lesquerella tumulosa*)
- E Buttercup, autumn (*Ranunculus aestivalis* (=acriformis))
- T cactus, Pariette (*Sclerocactus brevispinus*)
- E Cactus, San Rafael (*Pediocactus despainii*)
- T Cactus, Siler pincushion (*Pediocactus* (=Echinocactus,=Utahia) *sileri*)
- T cactus, Uinta Basin hookless (*Sclerocactus wetlandicus*)
- T Cactus, Winkler (*Pediocactus winkleri*)
- E Cactus, Wright fishhook (*Sclerocactus wrightiae*)
- T Cycladenia, Jones (*Cycladenia humilis* var. *jonesii*)
- T Ladies'-tresses, Ute (*Spiranthes diluvialis*)
- E mallow, Gierisch (*Sphaeralcea gierischii*)
- T Milk-vetch, Deseret (*Astragalus desereticus*)

T	Milk-vetch, heliotrope (<i>Astragalus montii</i>)
E	Milk-vetch, Holmgren (<i>Astragalus holmgreniorum</i>)
E	Milk-vetch, Shivwits (<i>Astragalus ampullarioides</i>)
T	Milkweed, Welsh's (<i>Asclepias welshii</i>)
E	Phacelia, clay (<i>Phacelia argillacea</i>)
T	Primrose, Maguire (<i>Primula maguirei</i>)
E	Reed-mustard, Barneby (<i>Schoenocrambe barnebyi</i>)
T	Reed-mustard, clay (<i>Schoenocrambe argillacea</i>)
E	Reed-mustard, shrubby (<i>Schoenocrambe suffrutescens</i>)
E	Ridge-cress, Barneby (<i>Lepidium barnebyanum</i>)
T	Sedge, Navajo (<i>Carex specuicola</i>)
T	Townsendia, Last Chance (<i>Townsendia aprica</i>)

Tribal Related-Updates

[Acting Assistant Secretary Roberts Announces Updates to BIA Handbook to Improve Land-into-Trust and Reservation Proclamation Processes](#)

WASHINGTON – Acting Assistant Secretary – Indian Affairs Lawrence S. Roberts announced today that the Bureau of Indian Affairs (BIA) has improved its Fee-to-Trust Handbook to reduce the processing time for requests from federally recognized tribes to have land taken into trust for their benefit and proclamations that declare the lands are part of their tribal reservations. Under the revised guidance, these requests may now be submitted simultaneously.

[Acting Assistant Secretary Roberts Announces Launch of BIA's Tribal Leaders Directory as a Searchable Electronic Map](#)

WASHINGTON – Acting Assistant Secretary – Indian Affairs Lawrence S. Roberts today announced that the Bureau of Indian Affairs' popular publication, the Tribal Leaders Directory, is now available as an electronic searchable map. The map provides up-to-date contact information for the nation's 567 federally recognized tribes and all BIA regional offices and agencies. The map can be accessed via the bia.gov and indianaffairs.gov websites using the Tribal Leaders Directory link.

[Indian Affairs Announces \\$6.5 Million for Tribal Climate Change Adaptation and Ocean and Coastal Management Planning Projects](#)

WASHINGTON — As part of the Obama Administration's effort to prepare communities nationwide for the impacts of a changing climate, acting Assistant Secretary – Indian Affairs Lawrence S. Roberts today announced that Indian Affairs will provide nearly \$6.5 million to fund tribal projects that promote climate change adaptation and ocean and coastal management planning.

[Secretary Jewell Announces Obama Administration's Largest Land into Trust Acquisition for Tribal Nations](#)

ISLETA PUEBLO, N.M. – As part of President Obama's goal of placing half a million acres of tribal homelands into trust for the benefit of tribal nations, U.S. Secretary of the Interior Sally Jewell today announced that the Bureau of Indian Affairs has placed 89,978 acres of land into trust status for the Pueblo of Isleta. The Administration's single largest trust acquisition to date

brings to nearly 400,000 the total acreage placed in trust on behalf of federally recognized tribes since 2009.

[U.S. Fish and Wildlife Service Native American Policy](#)

On January 20, 2016, the FWS adopted an updated policy regarding relations between tribes and the agency.

[Forest Service Releases Interactive Tribal Connections Map](#)

Provides Historical and Current Tribal Lands in Relation to National Forests and Grasslands

Federal Related Updates

[NPS turns 100 Years](#)

The National Park Service turns 100 on August 25, 2016, and everyone can take part in the celebration! The centennial will kick off a second century of stewardship of America's national parks and engaging communities through recreation, conservation, and historic preservation programs.

[U.S. Fish and Wildlife Service's National Wetlands Inventory Mapper](#)

The U.S. Fish and Wildlife Service developed a new version of the Wetlands Mapper tool for mobile devices with GPS location services. Users can simply touch the screen and the mapper will zoom to the user's location, bringing interactive wetland data to the field.

[Greater Sage-Grouse and Sagebrush Conservation](#)

The Bureau of Land Management (BLM) and the U.S. Forest Service (USFS) have finalized land use plans that will conserve key sagebrush habitat, address identified threats to the greater sage-grouse and promote sustainable economic development in the West. The plans were a critical component that helped the U.S. Fish and Wildlife Service (FWS) to conclude that the rangeland bird no longer warrants protection under the Endangered Species Act (ESA).

[How the Antiquities Act Has Expanded the National Park System and Fueled Struggles Over Land Protection](#)

Government Executive - June 25, 2016

As Americans anticipate summer vacation, many are planning trips to our nation's iconic national parks, such as the Grand Canyon, Zion, Acadia and Olympic. But they may not realize that these and other parks exist because presidents used their power under the Antiquities Act, enacted on June 8, 1906, to protect those places from exploitation and development.

[Environmental Protection: Status of GAO Recommendations to EPA](#)

GAO - June 14, 2016

As of May 23, 2016, the U.S. Environmental Protection Agency (EPA) had implemented 174 of the 325 recommendations GAO made in fiscal years 2006 through 2015. EPA had not yet implemented the remaining 151 recommendations. The figure below shows the status of the 325 recommendations, which fall into six broad categories that relate to EPA programs and operations. These are: (1) management and operations; (2) water issues; (3) environmental contamination and cleanup; (4) toxics, chemical safety, and pesticides; (5) air quality, climate

change, and energy efficiency; and (6) public health and environmental justice. Almost three-fourths of the recommendations fall into the first three categories and include actions to better manage grants, improve regulation of drinking water contaminants, and better manage hazardous waste cleanup.

Secretary Jewell Announces \$10 Million for Projects to Increase Wildfire Resilience Across America and Calls on Congress to Fix Wildfire Suppression Fund

DOI - May 24, 2016

U.S. Secretary of the Interior Sally Jewell today announced \$10 million in funding to help increase the resiliency of critical landscapes across the country to better mitigate the impacts of wildfire and climate change. The Wildland Fire Resilient Landscapes Program is a new approach to achieve fire resiliency and help restore public lands nationwide through multi-year investments in designated landscapes.

National Leaders Meet and Commit to Cohesive Strategy

U.S. Secretary of the Interior Sally Jewell led a discussion last week with federal firefighting agencies at the White House regarding the increasing danger to communities in wildland-urban interface (WUI) areas as fire seasons become hotter, drier and longer. Jewell also highlighted the need for greater collaborative action to enhance community resilience against these risks and strengthen federal firefighter safety and preparedness.

National Fish and Wildlife Foundation 2015 Annual Report

NFWF - The National Fish and Wildlife Foundation is dedicated to sustaining, restoring and enhancing the nation's fish, wildlife, plants and habitats for current and future generations. NFWF will advance its mission through innovative public and private partnerships, and by investing financial resources and intellectual capital into science-based programs designed to address conservation priorities and achieve measurable outcomes. In the following pages, we share a few examples of our work from 2015.

EPA Releases Online Mapping Tool to Help Protect Drinking Water Sources

EPA - The U.S. Environmental Protection Agency released DWMAPS – the Drinking Water Mapping Application to Protect Source Waters. This robust, online mapping tool provides the public, water system operators, state programs, and federal agencies with critical information to help them safeguard the sources of America's drinking water.

House Votes to Create Charity to Fill Funding Gaps at Bureau of Land Management

Government Executive - July 5, 2016

New foundation would foster public-private partnerships.

State Foresters Disappointed about USFWS Revisions to Petition Process

National Association of State Foresters - May 18, 2016

The National Association of State Foresters (NASF) submitted comments this week in response to the U.S. Fish and Wildlife Service (USFWS) revisions to the proposed rule for those who want to file petitions for listing under the Endangered Species Act (ESA) (81 Fed. Reg. 23448).

BLM boss: Wild horse program facing future \$1B budget crisis

Aurora Sentinel

May 13, 2016

The head of the U.S. Bureau of Land Management says it's time to admit his agency has a \$1 billion problem. BLM Director Neil Kornze says the administration can't afford to wage an increasingly uphill battle to protect the ecological health of federal rangeland across the West while at the same time properly managing tens of thousands of wild horses and caring for tens of thousands more rounded up in government corals

Long-Term Drought Resilience- Federal Action Plan of the National Drought Resilience Partnership

The White House - March 22, 2016

On World Water Day, March 22, the administration released a Federal Action Plan of the National Drought Resilience Partnership which accompanied the Presidential Memorandum on Drought. It lays out a series of activities to fulfill the President's Drought Resilience goals. These actions will be carried out in FY 16 and FY 17 by the federal agencies of the National Drought Resilience Partnership- including USDA.

Military to check for water contamination at 664 sites

Associated Press - March 11, 2016 The military plans to examine hundreds of sites nationwide to determine whether chemicals from foam used to fight fires have contaminated groundwater and spread to drinking water, the Defense Department said.

Statutory changes to ESA unlikely, experts say

Capital Press - March 8, 2016

Western Governors' Association panel sees the best opportunity for improvements in regard to the Endangered Species Act through administrative policy.

BLM's New Policy Will Reduce Threats to Migratory Birds

BLM - February 25, 2016

The Bureau of Land Management (BLM) today released a new policy to reduce a common hazard to migratory birds and other wildlife that can become trapped and die in uncapped pipes on public lands. When fully implemented the new guidance could save more than 100,000 birds a year.

Establishment of the Castle Mountains., Mojave Trails and Sand to Snow National Monuments

Federal Register -February 18, 2016.

The President proclaimed three new National Monuments on February 12, 2012.

Fact Sheet: BLM's Proposed Planning Rule

BLM - February 11, 2016

The Bureau of Land Management (BLM) has prepared a proposed rule to improve the resource management planning process. The proposed rule would revise existing regulations which describe how the BLM conducts its planning activity. The proposed regulations are part of the

BLM's ongoing Planning 2.0 initiative, an effort that strives to rethink the resource management plans that provide the framework for the management of public lands.

Bee Health: USDA and EPA Should Take Additional Actions to Address Threats to Bee Populations.

GAO - February 10

The U.S. Department of Agriculture (USDA) conducts monitoring, research and outreach, and conservation that help protect bees, but limitations in those efforts hamper the department's ability to protect bee health.

Pentagon orders commanders to prioritize climate change in all military actions

The Washington Times - February 7, 2016

The Pentagon is ordering the top brass to incorporate climate change into virtually everything they do, from testing weapons to training troops to war planning to joint exercises with allies

Obama Administration Seeks to Curb Methane Emissions on Public Lands

Reuters - January 22, 2016

The proposal by the Interior department's Bureau of Land Management would require oil and gas producers to use currently available technology to limit flaring at oil wells on federal land. It would also require operators to regularly check for natural gas leaks and replace outdated equipment that allows large quantities of gas and methane to escape into the air.

NOAA: 2015 is Earth's Warmest Year by Widest Margin on Record

NOAA- December 2015

The National Oceanic and Atmospheric Administration (NOAA) reported that the globally averaged temperature over land and ocean surfaces for 2015 was the highest among all years since record keeping began in 1880. During the final month, the December combined global land and ocean average surface temperature was the highest on record for any month in the 136-year record.

Endangered and Threatened Wildlife and Plants; Withdrawal of Proposed Rule To Reclassify the Arroyo Toad as Threatened

U.S. Fish and Wildlife Service - December 23, 2015

*We, the U.S. Fish and Wildlife Service (Service), withdraw the proposed rule to reclassify the arroyo toad (*Anaxyrus californicus*) as threatened under the Endangered Species Act of 1973, as amended (Act). This withdrawal is based on our conclusion that the types of threats to the arroyo toad remain the same as at the time of listing and are ongoing, and new threats have been identified.*

I-11 Extension Proposal Clears Another Congressional Hurdle

Las Vegas Review-Journal - December 1, 2015 - By Jim Myers

A proposed interstate highway directly connecting Las Vegas and Reno won a major boost Tuesday when key lawmakers formally announced a compromise on a huge five-year transportation bill authorizing funding for the nation's highway, bridge, transit and rail programs.

Feds extend comment period on plan to close areas to mining

By Keith Ridler, Associated Press - Nov. 27

The U.S. Bureau of Land Management has extended the public comment period on the agency's plan to withdraw 10 million acres of public lands in six western states from potential mineral extraction to protect habitat for the greater sage grouse.

BLM Announces Signing of West Mojave Route Network Programmatic Agreement

On November 23, 2015, the Bureau of Land Management announced the formal signing of the National Historic Preservation Act Section 106 Programmatic Agreement (PA) for the West Mojave Plan Environmental Impact Statement and West Mojave Route Network. The agreement, which expires in 2025, will aid in the protection of California's cultural resources and the BLM's goals of sustainable use of public lands. It provides the framework for the BLM's identification, evaluation and management of historic properties on more than 15,000 miles of routes of travel currently being considered for designation as part of the West Mojave Plan revision across 3.1 million acres of the West Mojave Desert.

For more information, see: http://www.blm.gov/ca/st/en/fo/cdd/west_mojave_wemo.html

Field Staff Continue to Make a Big Difference for Wildlife and People

Sage Grouse Initiative - November 3, 2015

The latest achievements of SGI partner staff include:

2,190,662 acres of rangeland improvement to increase sage grouse hiding cover during nesting season. Additional grass cover is expected to increase sage grouse populations by eight to ten percent.

FWS Declines to List Sonoran Desert Tortoise

On October 5, 2015, the U.S. Fish and Wildlife Service announced that it has determined that listing the Sonoran Desert tortoise as threatened or endangered under the Endangered Species Act (ESA) is not warranted at this time. The tortoise has been a candidate for ESA protection since December 2010 when the Service's initial status assessment indicated protection was warranted. Its candidate status is being withdrawn.

BLM Announces Leadership Appointments in Three Key States, New Mexico, Nevada and California

Bureau of Land Management (BLM) Director Neil Kornze announced September 30, 2015, that he has selected three veteran land managers to serve in state director positions in New Mexico (Amy Lueders), Nevada (John Ruhs) and California (Jerome (Jerry) Perez.)

Administration Expedites Infrastructure Permitting Processes

On September 22, 2015, the Administration announced new guidance and metrics aimed at expediting the federal environmental review and permitting process and expanding the use of the Federal Infrastructure Permitting [Dashboard](#). Under the guidance, 11 federal agencies will begin posting new qualifying projects on the dashboard and be required to coordinate schedules with other reviewing agencies starting in October 2015. The dashboard will serve as a public tool for tracking target and actual milestone dates for applications, permits and reviews. The Administration also released an updated [Red Book](#), which provides practical assistance for agencies when coordinating environmental reviews and permits.

[FWS Declines to List Greater Sage-Grouse](#)

On September 22, 2015, the Department of Interior announced:

An unprecedented, landscape-scale conservation effort across the western United States has significantly reduced threats to the greater sage-grouse across 90 percent of the species' breeding habitat and enabled the U.S. Fish and Wildlife Service (FWS) to conclude that the charismatic rangeland bird does not warrant protection under the Endangered Species Act (ESA). This collaborative, science-based greater sage-grouse strategy is the largest land conservation effort in U.S. history.

[USFS Strategic Plan](#)

The U.S. Forest Service released its Strategic Plan in July 2015 to provide large scale direction for the agency from a strategic perspective.

State and Regional Updates

[CA Tree Mortality Task Force](#)

The Tree Mortality Task Force is comprised of state and federal agencies, local governments, utilities, and various stakeholders that will coordinate emergency protective actions, and monitor ongoing conditions to address the vast tree mortality resulting from four years of unprecedented drought and the resulting bark beetle infestations across large regions of the State.

[Which U.S. states have the most endangered species? \[Infographic\]](#)

Mother Nature Network - Here's a graphical glimpse at America's most endangered wildlife, where they live and how many are left.

[Western Governors request Interior establish preference for state-based mitigation programs](#)

Western Governors have requested that the Department of the Interior (DOI) establish a preference for state-based mitigation programs...

[Fire season underway](#)

AOPA Online - Wildfires have razed hundreds of homes and blackened hundreds of thousands of acres across the western states, and the 2016 fire season is just getting started. Hazards affecting airmen include smoke, convection, and potential conflicts with aircraft working to contain the fires. Pilots are urged to pay particular attention to temporary flight restrictions, and give them a wide berth.

[Agreement: Monarch Butterfly to Get Endangered Species Act Protection Decision by 2019-Butterfly Declined by 80 Percent Over Past Decades](#)

Center for Biological Diversity - July 5, 2016

The U.S. Fish and Wildlife Service is now legally bound to determine whether to protect imperiled monarch butterflies under the Endangered Species Act, according to the terms of an agreement reached today with conservation groups. The agreement with the Center for

Biological Diversity and Center for Food Safety requires the agency to decide by June 2019 whether the butterflies will receive federal protection. The two conservation groups and allies petitioned in 2014 for protection of the species, which has declined by 80 percent over the past two decades.

Wildfires burn over 50,000 acres in California

latimes.com - July 5, 2016

Nearly 3,000 firefighters are battling wildfires across California. Hot, dry weather and a mass die-off of vegetation are expected to continue to fuel large fires.

Officials announce over 66 million trees dead in California

CAL Fire News - June 22, 2016

Coordinated effort continues to remove dead trees

As wildfires burn across California, new estimates on the number of dead trees in California were announced, prompting continued concern for California's forest health and wildfire danger. Today, the US Forest Service released the outcome of its latest aerial surveys over California forestland, finding that over 66 million trees have now died due to drought and bark beetles since 2010. That number is up from 29 million dead trees in 2015 and 3.3 million in 2014.

Mead: Fix is needed for fed wildlife laws

Jackson Hole News & Guide - June 15, 2016

The ongoing federal protection of Wyoming's wolves is an example of the failures of the Endangered Species Act, Gov. Matt Mead charged Monday during the 2016 Western Governors' Association's meeting held at Snow King

Interior Secretary Sees More Collaborations From States, Locals

Bloomberg BNA - June 14, 2016

Interior Secretary Sally Jewell said the ongoing Bureau of Land Management Planning 2.0 process will "make more space, not less" for collaboration between the federal agency and state and local governments, especially with respect to land-use planning such as that involved in the decision last fall not to list the greater sage grouse under the Endangered Species

Western Governors Set Priorities Through Resolutions

Western Cohesive Fire Strategy - June 14, 2016

Governors from the Western U.S. met this week in Jackson, WY to set the path forward for the upcoming year. The Wildland Fire Management and Resilient Landscapes policy resolution is one of seven new resolutions that support and/or call for action to address a variety of natural resource issues including an end to "fire borrowing", full implementation of the FLAME Act and the Cohesive Strategy and full implementation of the Regional Action Plans.

Old aircraft from the DM boneyard to help fight wildfires

Tucson News Now - June 10, 2016

The Davis-Monthan Air Force Base is dusting off some old military aircraft from its boneyard to help fight the U.S. Forest Service fight wildfires.

Court Enjoins Releases of Mexican Gray Wolves in New Mexico

June 10, 2016 - A federal district court in New Mexico granted a preliminary injunction preventing the reintroduction of gray wolves into New Mexico. Judge William P. Johnson's ruled that the U.S. Fish and Wildlife Service "cannot import or release any Mexican wolves into the State without first obtaining the requisite importation and release permits from the New Mexico Department of Game and Fish." The case is New Mexico Department of Game and Fish v. U.S. Department of the Interior, et al, U.S. District Court, District of New Mexico, No. CV 16-00462.

County Commissioners Learn and Share How to Work Across Jurisdictional Boundaries to Become More Fire Adapted

Western Cohesive Fire Strategy - June 9, 2016

In late May, the WRSC and the Western Interstate Region of the National Association of Counties coordinated a panel presentation of federal, state and local leaders to share experiences about working across jurisdictions to help their communities become more fire adapted.

Shifting the Paradigm to Managing Fires

Western Cohesive Fire Strategy - June 6, 2016

The paradigm around managing wildland fire is beginning to shift. The vision of the Cohesive Wildland Fire Management Strategy is to safely and effectively extinguish fire, when needed; use fire where allowable, manage our natural resources; and as a nation, live with wildland fire. In order to fully realize this vision, stakeholders must acknowledge their risk and be willing to take some risk in the short-term for the longer term benefit of landscape resiliency, fire adapted communities and a safe and effective wildfire response.

Implementing the Cohesive Strategy

Western Cohesive Fire Strategy - June 6, 2016

The Southern Utah Resilient Landscapes Collaborative has embraced the principles and tenets of the Cohesive Strategy as they engage a new approach to achieve fire resiliency goals across landscapes based on collaborative goals. This "all hands - all lands" approach is strengthening fire management's ability to restore and maintain landscapes across all jurisdictions, while increasing their overall resistance to disturbance.

California's Catastrophic, Drought-Driven Tree Deaths Threaten Wildfires This Summer

Route Fifty - May 30, 2016

Bark beetles have killed more than 29 million trees among the Sierra Nevada mountains, putting the state's wildlife, water supply and air quality all at risk.

Communities at Risk Report-Fiscal Year 2016

National Association of Foresters - May 2016

This report helps provide a national snapshot of wildland fire risk, preparedness and capacity.

Governors encourage development of western drought relief legislation

Western Governors' Association

May 16, 2016

Western Governors have reiterated the need for a "comprehensive, west-wide response to drought and water security" to the Senate Committee on Energy and Natural Resources

Arizona Land and Water Trust awarded \$3.5M in federal, state military grants Awards exceed \$15M over past two years

May 16, 2016 - Arizona Land and Water Trust was awarded an additional \$3.5 million in federal and state grants last month to advance its land and water conservation efforts in partnership with Fort Huachuca. The Trust has now been awarded more than \$15 million in federal and state grants in the last two years for its work with Fort Huachuca and has protected nearly 3,000 acres of working ranch lands around the Fort with more projects on the horizon.

Western Energy Alliance Challenging Federal Sage Grouse Land Use Plans

Western Energy Alliance - May 12, 2016

Commentary: Western Energy Alliance, along with the North Dakota Petroleum Council, today filed a lawsuit challenging Bureau of Land Management (BLM) and U.S. Forest Service land use plan amendments for the Greater Sage Grouse that impose top-down, centralized conservation plans, ignore sound science and cost jobs. The litigation, filed in the U.S. District Court for the District of North Dakota, covers four Records of Decision signed by Interior Secretary Sally Jewell and Agriculture Secretary Tom Vilsack last September involving land use plans in California, Colorado, Idaho, Montana, Nevada, North Dakota and Utah.

California revises water restrictions

latimes.com - May 9, 2016

Democratic Gov. Jerry Brown and top water regulators laid out a revised plan for dealing with California's persistent drought, making some conservation rules permanent while also moving to give communities more of a say in deciding how much water they must save.

Why Cities Need to Care About Native Plants

Route Fifty - May 5, 2016

Across the U.S., groups are working to fend off invasive species by helping local ones take root.

California weighs sharing 'pain' of Colorado River cuts

The Desert Sun - April 26, 2016

With the Colorado River tapped beyond its limits and the level of Lake Mead in decline, representatives of California, Arizona and Nevada say they've been making progress in negotiating an agreement for all three states to share in water cutbacks in order to stave off a more severe shortage.

State Parks Find New Ways to Save, Make Money

The Pew Charitable Trusts - April 14, 2016

After years of cutbacks, many of the nation's state parks have been forced to cut programming and sometimes shut their gates. These shrinking budgets have prompted park officials to look for new sources of funding.

The Economic Value of 'Quiet Recreation' on BLM Lands

The Pew Charitable Trusts - April 9, 2016

Non-motorized activities like backpacking, research of 11 western states in 2014 shows, generated around \$1.8 billion in spending in communities within 50 miles of "quiet recreation" sites.

Introducing California's Newest National Monuments

National Recreation and Park Association - April 1, 2016

The presidential declaration mandates that each monument, consisting of land already owned by the federal government, be given a higher protective status and be managed with the overarching goal of preserving and protecting it for generations to come. All current use of the land — existing mining operations, recreational off-road travel, utility corridors and military training drills — continue to be allowed in these areas now defined as national monuments. The monuments will be managed by the U.S. Forest Service, Bureau of Land Management and National Park Service.

Groundwater law and winter rain trigger flood of aquifer-recharge projects around California

The Mercury News

March 25, 2016

A historic 2014 law requiring water agencies across California to replenish the state's imperiled aquifers created a new problem: Many local officials just weren't sure how to do it.

But this winter's abundant rains are triggering a flood of experiments that have turned the state's agricultural regions into aquifer-recharge laboratories

NOAA Releases Draft of Western Regional Action Plan Draft version 22 March 2016

The Western Regional Action Plan (WRAP) is a product of the Northwest and Southwest NOAA Fisheries Science Centers that outlines current efforts to increase the production, delivery, and use of climate-related information. The WRAP identifies strengths, weaknesses, priorities, and actions to implement the NOAA Fisheries Climate Science Strategy on the U.S. West Coast over the next 3 - 5 years.

Marine Corps Postpones Plans to Translocate 1,185 Tortoises

Los Angeles Times

March 21, 2016

The Marine Corps base at Twenty-Nine Palms said Friday it had postponed plans to move 1,185 tortoises off prospective combat training grounds until wildlife agencies can determine whether the plan complies with the Endangered Species Act.

State Water Project Allocation Increased: Storms Improve Conditions, but Drought Remains

CA Dept of Water Resources - March 17, 2016

With March storms boosting reservoir levels, the Department of Water Resources (DWR) on March 17 increased its water delivery estimate (allocation) for most recipients to 45 percent of requests for the calendar year.

Notice of Proposed Withdrawal Extension, Red Rock Canyon State Park; California

BLM - March 16, 2016.

The Assistant Secretary for Land and Minerals Management proposes to extend the duration of Public Land Order (PLO) No. 7260 for an additional 20-year term. PLO No. 7260 withdrew 8,896 acres of public lands from settlement, sale, location, or entry under the general land laws, including the United States mining and mineral leasing laws, except for conveyances under Section 701 of the California Desert Protection Act of 1994, to protect the Red Rock Canyon State Park resources in Kern County, California, until the lands can be conveyed to the State of California.

Marines to fly tortoises from new training grounds, Environmental group threatens to sue

Hi-Desert Star - March 11, 2016

The Marine Corps plans to move more than 1,100 desert tortoises from its new Johnson Valley training area this spring, drawing threats of a lawsuit from an environmental nonprofit.

Notice of Areas of Critical Environmental Concern in the Desert Renewable Energy Conservation Plan Proposed Land Use Plan Amendment, California

BLM - March 11, 2016.

In accordance with the National Environmental Policy Act of 1969, as amended, and the Federal Land Policy and Management Act of 1976, as amended, the Bureau of Land Management (BLM) announced availability of the Proposed Land Use Plan Amendment (LUPA) and Final Environmental Impact Statement (EIS) for the Desert Renewable Energy Conservation Plan (DRECP) with a Notice of Availability published in the Federal Register on November 13, 2015 (80 FR 70254).

Why Some Governors Are Annoyed By Federal Land-Use Policies

Route Fifty

February 22, 2016

"Rather than shutting coal down," Wyoming Gov. Matt Mead said, "let's find solutions to make it better."

Are there cracks forming in Arizona's 100-year water supply rule?

Arizona Republic

February 16, 2016

Legislation that could eliminate a rule requiring builders in two rural Arizona counties to document a development's 100-year supply of water has cleared its first hurdle.

Officials say desalting plant still feasible to operate

January 31, 2016 - Yuma Sun

As the ongoing drought continues its grip on the desert Southwest, a lingering question is what - if any - role the Yuma Desalting Plant might play in keeping water flowing to thirsty cities and farmland.

AP Newsbreak: Nevada seeks change in sage grouse mining rule

San Jose Mercury News - January 28, 2016

The governor of gold-rich Nevada is pressing the Obama administration to alter its sage grouse protection plan to free up thousands of mining claims by shrinking the restricted area in

exchange for making other unprotected areas off limits, restoring burned out rangeland and reining in wild horse herds. Gov. Brian Sandoval maintains his alternative would exclude only about 6 percent of the federal land the government has temporarily withdrawn from future mineral development in Nevada.

Featured Friend: Utah Watershed Restoration Initiative

Sage Grouse Initiative - January 7, 2016

In Utah, as well as states across the West, conifers are marching into sage-steppe habitats and choking out wildlife communities. Due to past suppression of naturally occurring wildfires, these trees are taking hold in places where they never used to grow, pushing out sage grouse that don't tolerate them. This habitat change is one of the primary factors erasing the bird's habitat range-wide. But in Utah, a dynamic partnership is making colossal strides to cut back the trees for sage grouse, mule deer, elk, songbirds, and many other sagebrush-dependent critters.

Western Governors' Association issues National Forest and Rangeland Management policy statement

Western Governors' Association - December 4, 2015.

NM Environment Inks Agreement With U.S. Air Force

December 2, 2015 -New Mexico Environment Department

Today the New Mexico Environment Department and U.S. Air Force executed a Memorandum of Agreement worth \$750,000 to fund continuing regulatory activities associated with clean-up of the jet fuel leak at Kirtland Air Force Base in Albuquerque. The agreement resolves a Notice of Violation that the Environment Department issued on January 15, 2015 after the Air Force failed to meet a December 2014 deadline for installation and implementation of an interim measure for cleanup of the Ethylene Dibromide (EDB) plume.

Nevada neighborhood first to feel sting of sage grouse rules

AP - November 14, 2015

One of the first, actual on-the-ground disruptions caused by new U.S. efforts to protect the greater sage grouse isn't on a cattle ranch in Oregon or an oil field in Colorado. It's in the backyard of a residential neighborhood north of Reno, Nevada, where plans to acquire federal land to build a badly needed school are on hold because the government considers it sage grouse habitat. . .

States Find Their Voice on Federal Land Use

Rebecca Boettich - The Pew Charitable Trusts - October 29, 2015

Some states are arming counties with money and expertise to help them convince Washington to hew more closely to residents' interests in managing federal land.

In defense of the Bark Beetle: a keystone species of Western forest ecosystems

Chad Hanson - October 28, 2015

Bark beetles are invariably presented as terrible, forest killing pests, writes Chad Hanson. But in truth forest biodiversity depends on them to create the snags for insects to burrow in,

woodpeckers to feed off, and countless birds and even pine martens to nest in. So when you hear politicians calling for bark beetle 'salvage' logging, send them off with a flea in the ear!

California governor signs ambitious climate change law

Latimes.com - October 7, 2015

Democratic Gov. Jerry Brown signed ambitious new goals that will require California to generate half its electricity from renewable sources such as solar and wind by 2030, while doubling energy efficiency in homes, offices and factories.

Western Governors tell House Natural Resources Committee states are the experts on resource management

Western Governors promote respect for state authority before House Natural Resources

Western Governors told the House Natural Resources Committee on Sept. 30 that states are the experts on resource management and energy development.