

DOE's National Environmental Research Parks

A POSITIVE LEGACY OF THE COLD WAR



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Created when NEPA was new

"A National Environmental Research Park is an outdoor laboratory where research may be carried out to achieve national environmental goals, as articulated by the National Environmental Policy Act (NEPA) ...

The...parks are actually field laboratories set aside for ecological research, for study of the environmental impacts of energy developments, and for informing the public of the environmental and land use options open to them" NERP Charter



Basic operating premises of the National Environmental Research Parks

The National Environmental Research Park concept is basic to an ecosystem based land-use management program

DOE has stewardship for lands representing a large array of the Nation's ecological regions;

A corresponding array of environmental activities (including impacts) are taking place on these lands;

A highly competent cadre of researchers are associated with these sites; and

By proper organization of research to achieve agency mandated environmental goals, we can simultaneously aid in resolving environmental problems on-site, locally, regionally, nationally, and globally.

1970s: DOE was AEC and then ERDA
and the interest in a national system of
“energy research preserves” was high

"The Parks, which are situated on [DOE](#) land holdings, are unique because they provide opportunities for research to study the compatibility of the environment with energy technology options."

The designation opens the site to scientists from other government agencies, universities, and private foundations for use as a protected outdoor laboratory where long-term projects can be set up to answer questions about man's impact on the natural environment."

AEC news release, Spring 1972

Notable NERP Developments

- 1970 - President Nixon implements ten recommendations after establishing CEQ - one is to “set aside representative locations for ecological research and wildlife preservation while there is still time.”
- 1972- Savannah River Site becomes first NERP designated by AEC
- 1992 - NTS (now NNSS) is last NERP designated
- 1997 - DOE OIG proposes disposal of surplus lands including a quarter of the NERP holdings
- Secretary of Energy (Clinton) Bill Richardson declares new preserves at DOE sites
- 2008 - little or no direct funding but NERPs still remain and are active at all 7 sites!
- 2009 - Conference on NERP futures held at Savannah River SC

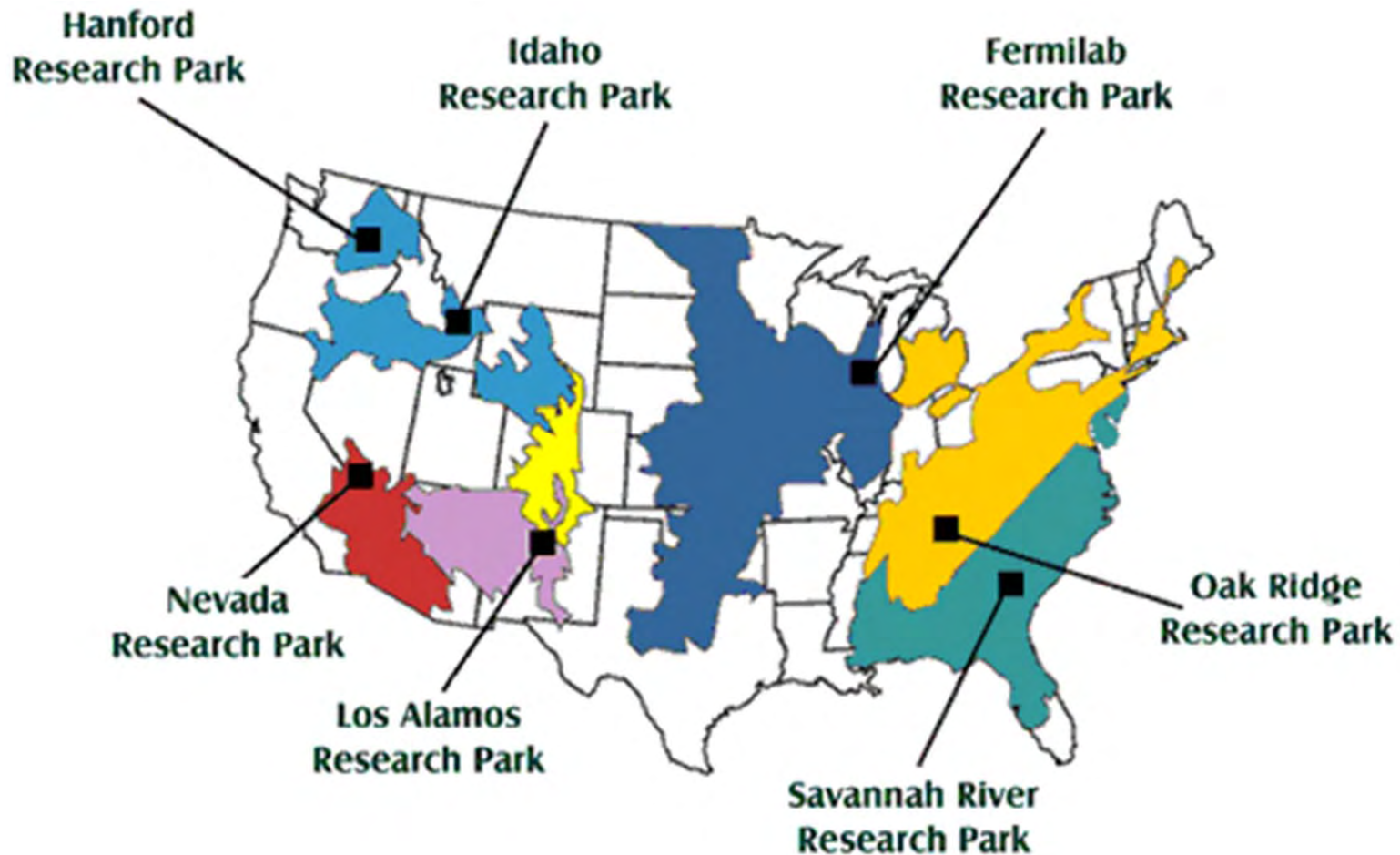
NERP Program Directives

- Assessment and Monitoring
 - develop methods to assess and monitor the environmental impact of human activities
- Prediction
 - develop methods to estimate or predict environmental responses to human activities
- Demonstration
 - demonstrate the effects human activities have on the environment and evaluate methods to minimize any adverse effects

As a result of security measures and mission requirements, many of the DOE sites have become centers of biological diversity, with populations of endangered species and ecosystems that have recovered from past disturbances.

Seven “Parks” in Seven Bioregions

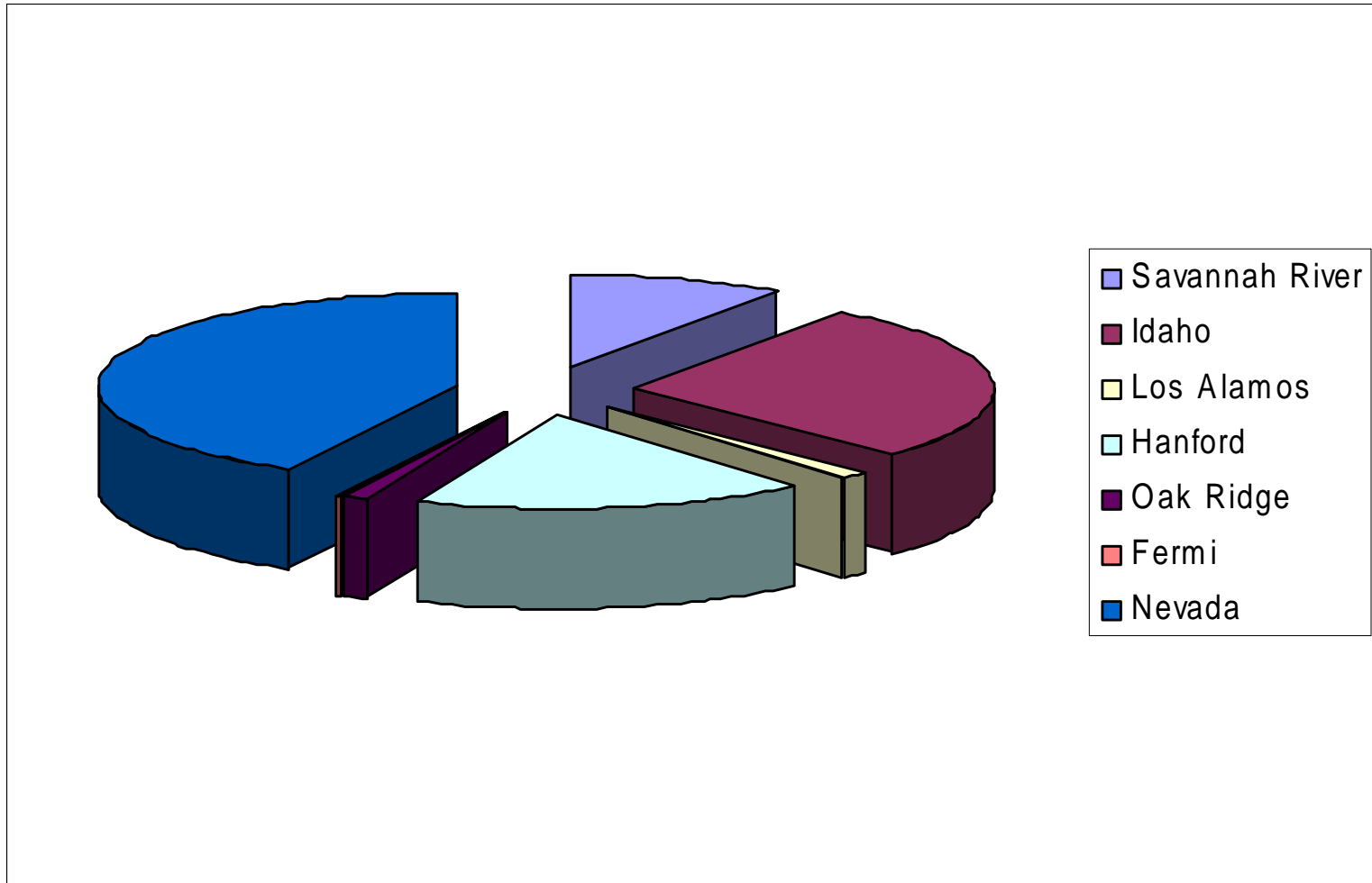
Four largest parks are in the west



**The United States Department of Energy's
National Environmental Research Parks
More than 2 million acres (3200 square miles)**

Site	Year Designated	Acres (approximate)	<u>EcoRegion</u>
<u>Savannah River</u>	1972	198,000	<u>Southeastern Mixed Forest</u>
<u>Idaho</u>	1975	568,000	<u>Shrub-steppe</u>
<u>Los Alamos</u>	1976	25,600	<u>Juniper-Pinyon and Grassland</u>
<u>Hanford</u>	1976	366,000	<u>Shrub-steppe and riverine</u>
<u>Oak Ridge</u>	1980	21,500	<u>Eastern Deciduous Forest</u>
<u>Fermi Lab</u>	1989	6,800	<u>Tallgrass Prairie</u>
<u>Nevada</u>	1992	865,000	<u>Desert Shrub</u>

NERFs by Area



The objectives of the research parks are to conduct research and education activities that will:

Develop methods for assessing and documenting the environmental consequences of human actions related to energy and weapons use.

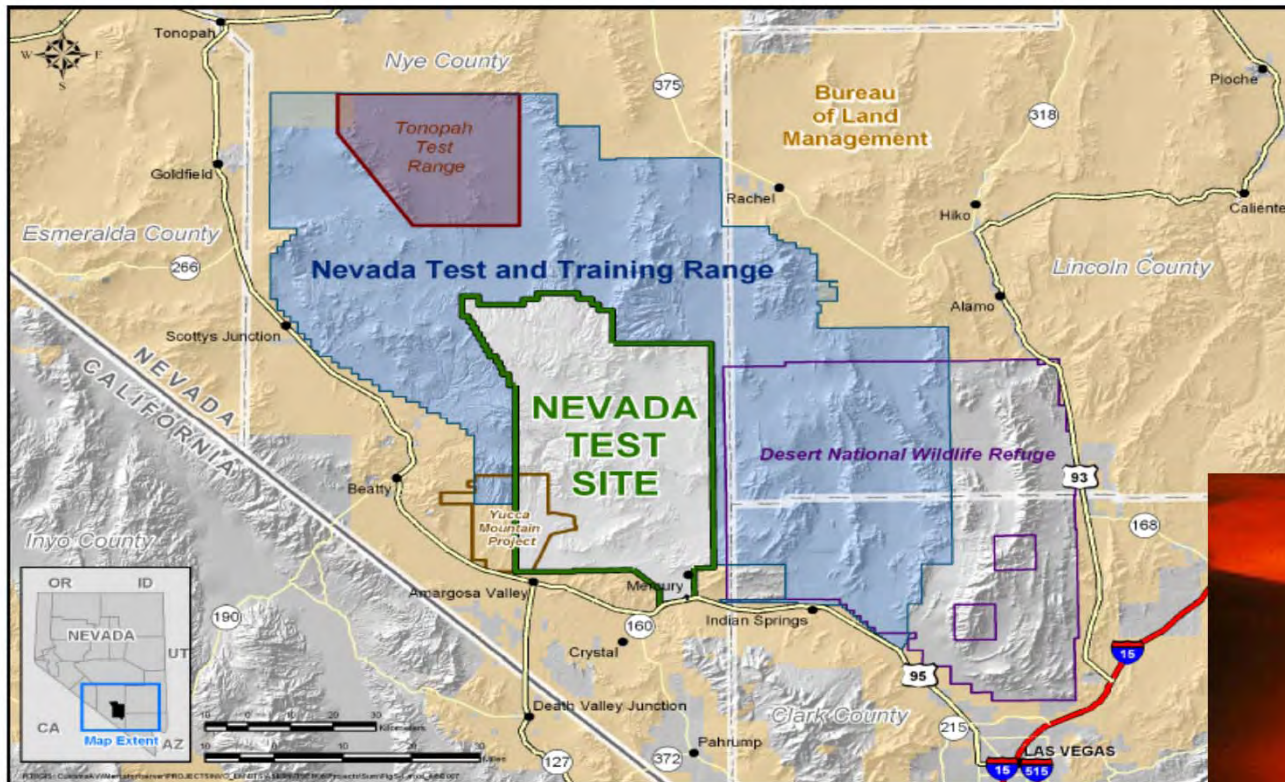
Develop methods for predicting the environmental consequences of ongoing and proposed energy development.

Explore methods for eliminating or minimizing predicted adverse effects of various energy and weapons activities on the environment.

Train people in ecological and environmental sciences.

Use the parks for educating the public on environmental and ecological issues.

Nevada National Security Site (NNSS)



The site formerly known as NTS



NNSS



- 1375 square-miles of Mohave Desert
- 45% of NNSS unused or provides buffer zones
- only 7% of the site has been disturbed
- Remote but only about an hour from Las Vegas area
- Long-term desert eco-data has been collected



**NNSS Frenchman Flat –
Desert Tortoise habitat**



The Hanford Site is 586 square miles. About 200 square miles of that is designated as the Hanford Reach National Monument and about 77 square miles of that is designated a research natural area - the Arid Land Ecology Reserve (ALE). It includes both shrub-steppe and riverine landscapes.

Hanford Site NERP

“A wealth of activities ongoing routinely”:

Biology:

The Nature Conservancy through a grant from the DOE did a biodiversity inventory of the Site which is a very useful tool in our NEPA process. During the survey three plants new to science were discovered as well as over 100 new insect species.

Vegetation plots, point counts and avian studies are being conducted continuously. Much of the Hanford Site has been designated an Important Bird Area by the National Audubon Society. Research conducted on Ferruginous Hawks, Sage Sparrows, Burrowing owls, and Loggerhead Shrikes.

Amphibian, clam, and salmon studies are being conducted in and along the Columbia River which flows through the site.

Geology:

Research on the Missoula Floods is being conducted. Erratic, wave bars, and gravel depositional features are being studied as possible inclusion in the Missoula Floods National Trail. Other research is being conducted on mammoth remains, former river channels and seismic activities.

Physics:

The National Science Foundation placed a multimillion dollar LIGO Interferometer. Gravitational Wave Observatory at Hanford a few years ago due to the remoteness it needed. Also on the ALE there is a small underground facility that is working on the gravitational constant.

Idaho National Laboratory (INEL)



Elk in Grass



pygmy rabbit
ESA candidate



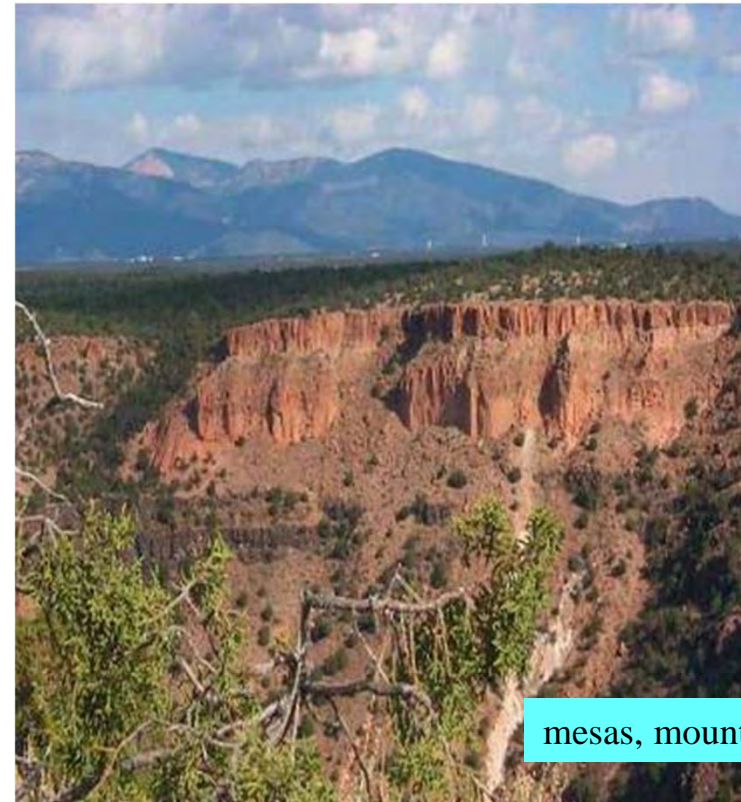
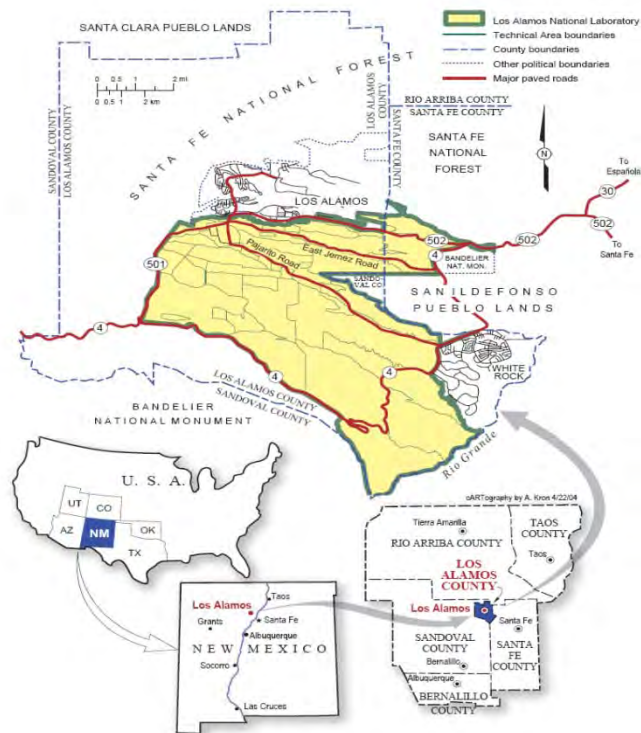
sage grouse – ESA candidate



INEL NERP

- The Idaho NERP covers the entire Idaho National Laboratory (about 890 sq mi)
- Very little of the INL is developed as laboratory facilities and the remainder is primarily undisturbed sagebrush steppe
- Strategy for bringing research to the Idaho NERP is to facilitate its use as an outdoor laboratory by university researchers.
- Management of the Idaho NERP is through the Environmental Surveillance and Research Program.

Los Alamos National Laboratory



mesas, mountains, canyons

LANL NERP

- 40 square miles (entire site is included)
- 3 square miles conveyed to county and Pueblo in past few years – more not likely
- Landscape of canyons, mesas, mountains and Rio Grande provides diverse ecosystems – Pajarito Plateau was originally considered for a national park
- Mostly off-limits to public for past 65 years

LANL

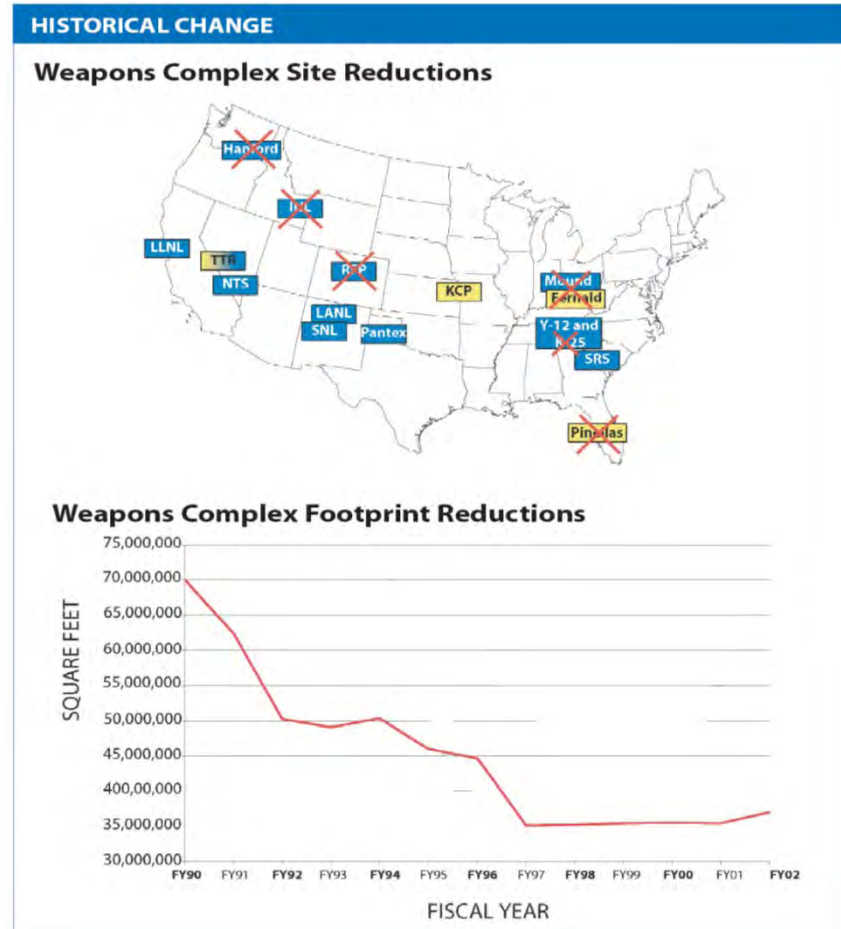
- Ongoing environmental monitoring and surveillance work includes:
 - Interaction of ecosystems and hydrologic cycle
 - Contaminant transport, soil moisture, effluent dispersion, landfill cap performance
 - Elk, deer and raptor population dynamics
 - Pinyon-juniper woodland productivity studies
 - Non-invasive ecological field testing (water vapor over vegetated terrain)
 - Long-term data sets and data bases developed for climate, soil moisture, fire ecology provide “baseline” reference invaluable to climate change study

What Does The Future Hold for the NERPs – “Paradox Lost”?

- They are more of a resource now than ever before - providing study of sensitive habitats that are being lost throughout the West
- Could play a role in each site's EMS and sustainability planning programs
- None are directly funded but all have projects ongoing – lack of funding is a constant
- Some are threatened by DOE land conveyance

Conclusions

- The future of DOE and DOD sites in the west will be one caught between the need to preserve lands for continuing missions; and to transfer lands no longer needed in compliance with continuing federal efforts to reduce inventories and expenditures.
- Congress had mandated that approximately half the lands now held by the DOD need to be disposed through further base realignment and closures.
- Lands remaining under federal stewardship or being disposed will all be subject to continuing environmental clean up and this work has two benefits: one is that problems are remediated, and the environment improved; and the other is that a good deal of money enters the local economy to accomplish this goal.



Conclusions



- In some cases, such as Lowry Air Force Base near Denver, these federal lands may be the places where new master-planned communities will provide well-planned homes and locations for inevitable western growth.
- Western planners should work to reuse these former federal lands through master planning in order to direct and shape growth that provides choices while minimizing impacts.
- This may also help to preserve some of the places where the *future west* is bumping up against what we chose to preserve of the old western landscapes and ecosystems.

For Further Information

- <http://nerp.esd.ornl.gov/overview.html>

Links at this site will take you to each DOE installation's NERP web page(s)

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