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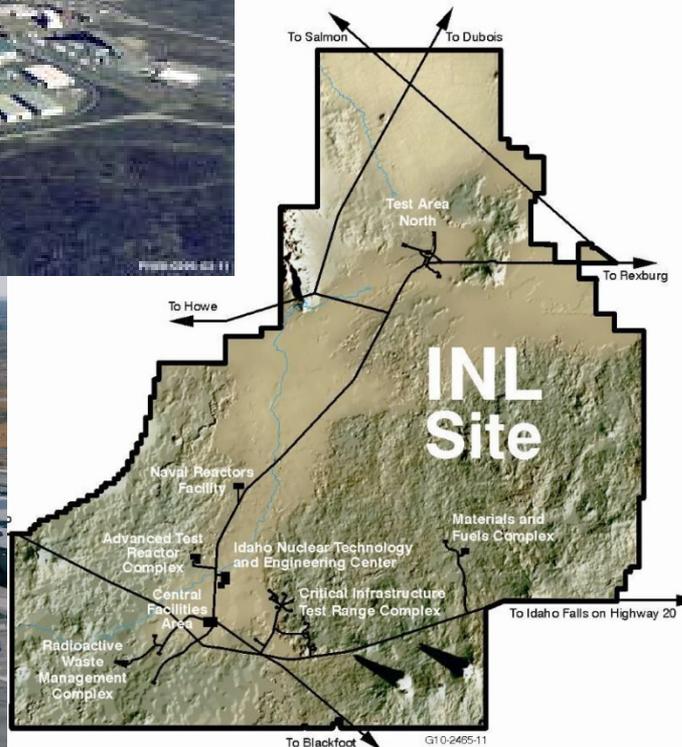
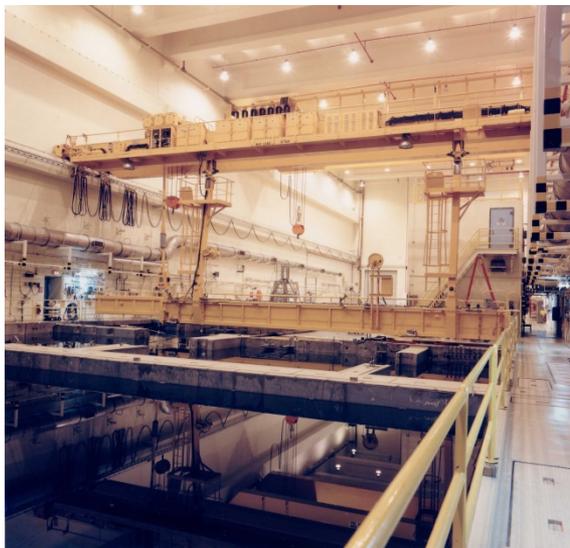
Nuclear Energy

Wildlife Monitoring at the INL Site

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Office of Nuclear Energy
U.S. Department of Energy
June 23, 2015**



The INL Site...



Idaho National Laboratory



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...and the INL Site

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INL Site Environment





Long History of Ecological Monitoring

- Studies and datasets date back to 1950's
- National Environmental Research Park (NERP) – 1975
- 80 MS theses; 22 PhD dissertations; 298 professional papers; 312 refereed journal papers; numerous INL Site reports





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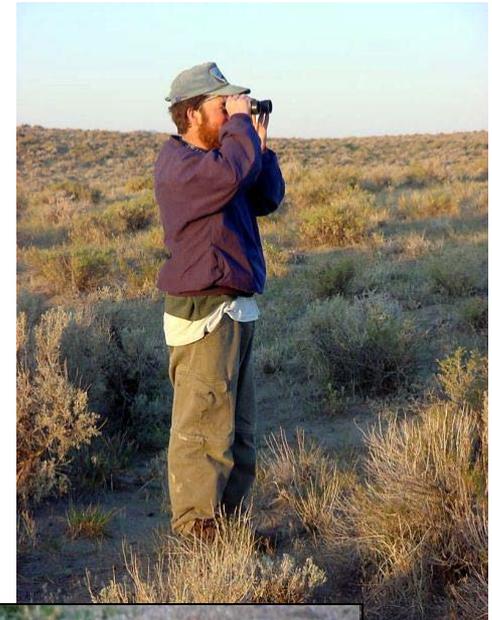
Purpose

- To conduct surveys that track and trend plant and animal populations and distribution to evaluate ecosystem health and impacts from INL Site operations and natural/man-made events (such as wildland fires, drought, etc.)
- Supports: national and state programs; regulatory compliance (NEPA, endangered species); address stakeholder concerns; supports land management decisions and planning for new projects; scientific research
- Different than CERCLA ecological monitoring



ESER Routine Wildlife Monitoring

- **Bald Eagles & Other Raptors**
- **Breeding Birds**
- **Bats**
- **Sage-grouse**
- **Raven Nests**

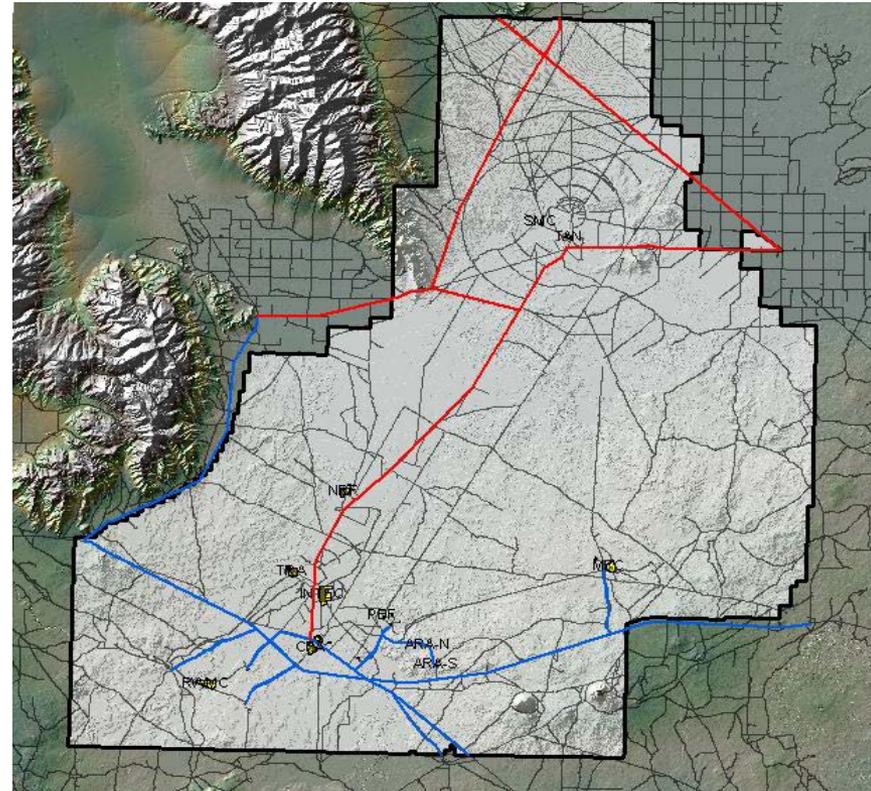




Midwinter Bald Eagle and Raptor Surveys



- Conducted on the INL Site since 1983
- Bald eagle, former endangered species
- Part of the program managed by USGS and Army Corps of Engineers to determine bald eagle wintering distribution nationwide
- Surveys are conducted on two established routes on the INL Site (January)
- 109 birds counted in 2014
- 1 bald eagle, 7 golden eagles; raven and rough-legged hawk – most abundant species



raven



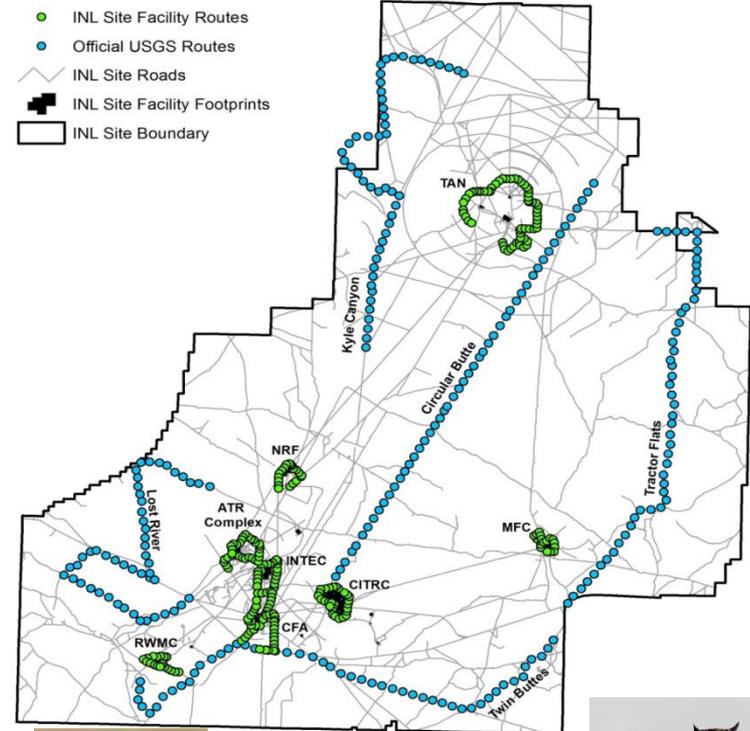
rough-legged hawk



Breeding Birds



- Established routes on the INL Site in 1985
- Part of a nationwide program managed by the USGS; tracks status and trends of North American bird populations
- Five official USGS routes and eight “facility” routes developed specifically for the INL are surveyed annually (June)
- 2,677 birds counted in 2014 representing 38 species



Brewer's sparrow



sage sparrow



sage thrasher



western meadowlark



horned meadowlark



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Bat Monitoring Video

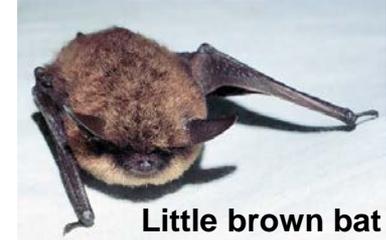




Bats



- INL Site provides suitable habitat for bats
- Fourteen species occur in Idaho, 9 documented on the Site, 1 has been petitioned for ESA listing
- Recent increased importance due to white-nose syndrome (WNS)
- Routine bat monitoring and mitigating actions initiated since 2011 (DOE-ID & NR partnership):
 - Restricted cave access
 - Cave surveys (“hibernacula”) – Jan.- March
 - Passive & active acoustical monitoring – Apr. – Oct.
 - Cave biota & soil sampling
 - Bat protection plan



Little brown bat



Western small-footed myotis



Big brown bat



Silver-haired bat



Western long-eared myotis



Hoary bat



Townsend's big-eared bat

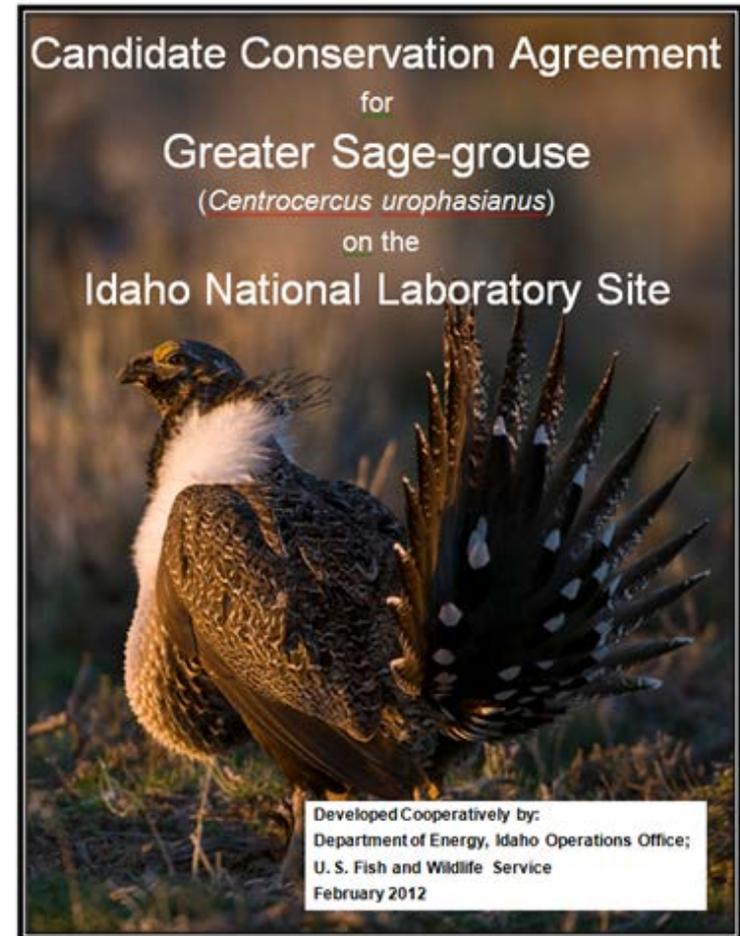




Candidate Conservation Agreement (CCA) for Greater Sage-Grouse



- Candidate species
- Voluntary Agreement with U.S. Fish & Wildlife Service, signed in 2014
- Protects Sage-grouse and their habitat
- Allows flexibility to meet mission needs
- DOE agrees to implement Conservation Measures
- Requires sage-grouse population, habitat, and threat monitoring

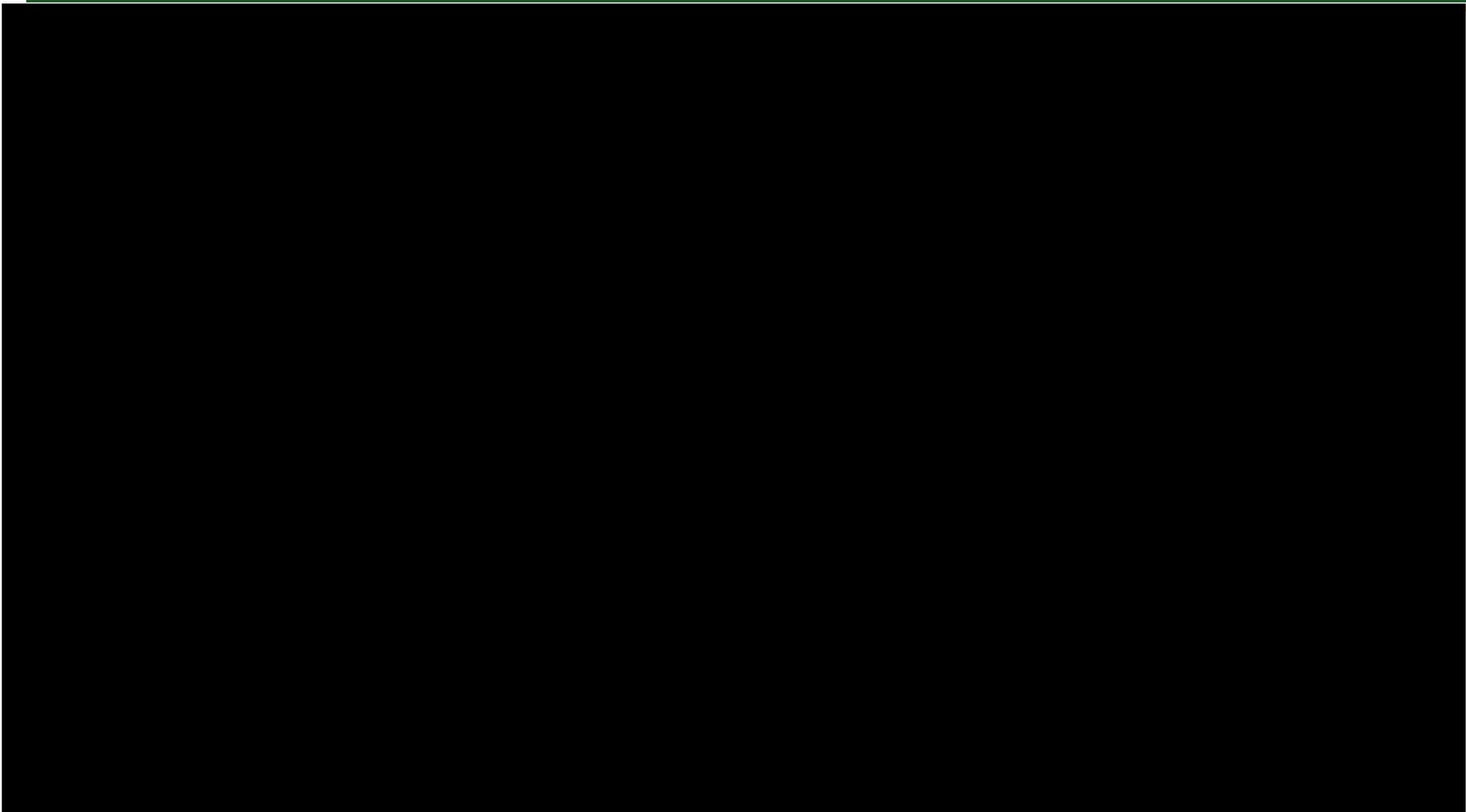




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Sage-grouse video





CCA Annual Wildlife Monitoring



■ Conducted March-May; reported annually to USFWS

■ Lek Surveys

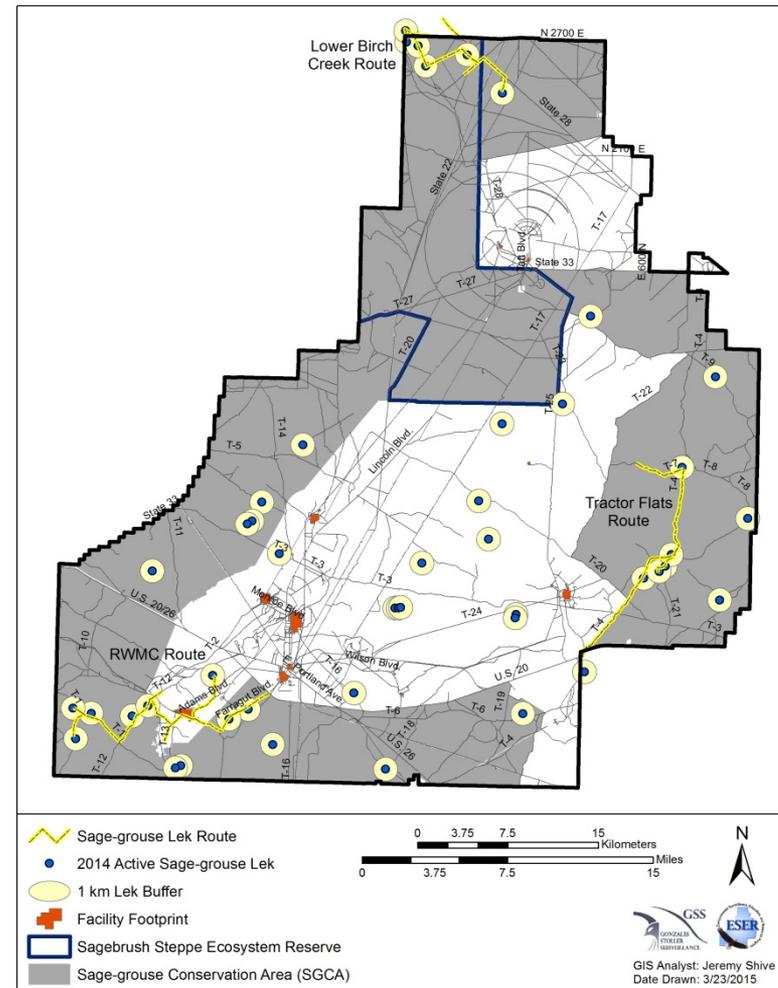
- # of males on active, historical, & new leks
- 2014: local population shows no decline; 3 new leks discovered

■ Raven Nest Surveys

- # of active nests on human structures (e.g. power poles)
- 2014: more raven nests observed in than 2013

Active lek: 2 or more male sage-grouse have attended in 2 or more of the previous 5 years.

Active nest: At least 1 raven was present and exhibiting behaviors typical of a nest occupant (e.g. incubating, carrying sticks to the nest).



GIS Analyst: Jeremy Shive
Date Drawn: 3/23/2015



Reporting

■ Data are shared with state and federal agencies

■ Major Reports

- Annual Site Environmental Report
- Long-Term Vegetation Transects Survey Report
- Candidate Conservation Agreement Monitoring Report

☀ ESER Reports: <http://www.gsseser.com/index.htm>

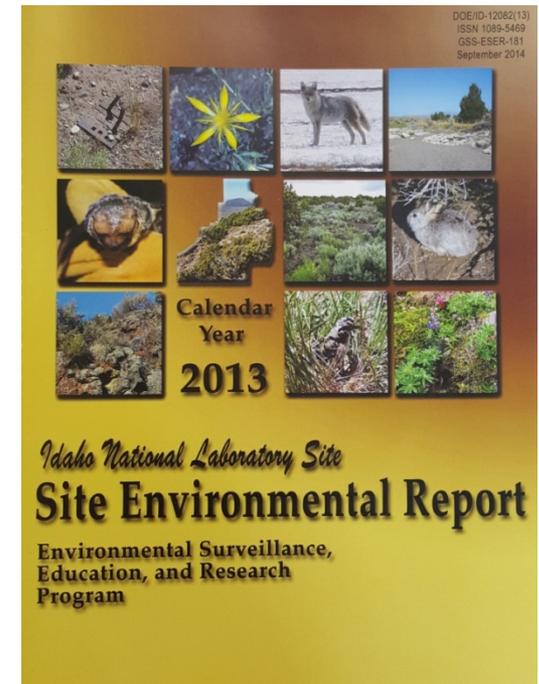
■ Midwinter Bald Eagle Counts: <http://gis.nacse.org/eagles/>

■ North American Breeding Bird Survey: <https://www.pwrc.usgs.gov/bbs/>

■ USFWS Endangered Species: <http://www.fws.gov/endangered/>

■ Sage-grouse: <http://fishandgame.idaho.gov/public/wildlife/sageGrouse/>

■ Bats: http://www.nwhc.usgs.gov/disease_information/white-nose_syndrome



QUESTIONS?

BACKUP SLIDES



White-nose Syndrome in Bats



- Caused by a cold-loving fungus – *Pseudogymnoascus destructans* (formerly *Geomyces destructans*)
- 25 states from northeastern to central U.S. and 5 Canadian provinces
- Nearly 6 million bats killed, population declines of 80% in some regions
- Thought to have originated in Europe
- Huge impact to agricultural industry—bats save farmers about \$23 billion/year by eating crop pests
- Cave entry controls, including decontamination, to minimize human-related spread
- Nationwide state and federal multi-agency coordinated monitoring and research
- Common bacterium, *Rhodococcus rhodochrous*, may hold promise for treating the disease



DOE National Environmental Research Parks (NERP)

DOE's National Environmental Research Parks More than 2 million acres (3200 square miles)			
Site	Year Designated	Acres	EcoRegion
Savannah River	1972	198,000	Southeastern Mixed Forest
Idaho	1975	568,000	Shrub-steppe
Los Alamos	1976	25,600	Juniper-Pinyon and Grassland
Hanford	1976	366,000	Shrub-steppe and riverine
Oak Ridge	1980	21,500	Eastern Deciduous Forest
Fermi Lab	1989	6,800	Tallgrass Prairie
Nevada	1992	865,000	Desert Shrub

More Info:

- <http://www.nerp.ornl.gov/>
- <http://www.gsseser.com/NERP.htm>





Vegetation/Habitat Monitoring



■ Long-Term Vegetation Transects

- 90 plots established in 1950
- Conducted every five years
- 2011 survey shows: increases in crested wheatgrass; sagebrush cover has stabilized from 2006-2011

■ CCA Habitat Monitoring

- Sagebrush habitat condition trends
- Sagebrush amount and distribution
- Inventory and monitoring of non-native annual grasses
- 2014: no reduction in sagebrush habitat within the SGCA

