

# Invasive Plant Management and Greater Sage-Grouse Conservation:



A Review and Status Report with Strategic Recommendations for Improvement  
*Western Association of Fish and Wildlife Agencies • Wildfire and Invasive Species Initiative – Working Group*

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## Invasive Species Advisory Committee Meeting

October 28-30, 2015

Presented by  
Mr. Mike Ielmini (USFS)  
and  
Mr. William Hyatt (AFWA/ISAC)

on behalf of the

**Western Association of Fish  
and Wildlife Agencies**

Wildfire and Invasive  
Species Working Group

U.S. Fish and Wildlife Service and the  
Western Association of  
Fish and Wildlife Agencies

# Wildfire and Invasive Species Initiative



# Wildfire and Invasive Species Initiative Working Group

## A 16 Member Working Group Representing Expertise in:

- **Fire Ecology and Fire Suppression:** (Pete Anderson-NV State Forester; Laurie Kurth-USFS; Ted Milesneck-BLM)
- **Restoration Ecology, Range Management:** Invasive Species (Chad Boyd-OSU/USDA-ARS; Jeanne Chambers-USFS; Mike Ielmini-USFS; Brian Mealar-UoWY; Mike Pellant-BLM; David Pyke-USGS Research; Jason Vernon-UTDW)
- **Wildlife Management and Sage-grouse Ecology:** (Tom Christiansen-WYGF; Dawn Davis-ODFW; Shawn Espinosa-NDOW; Don Kemner-IDFG; Jeremy Maestas-NRCS)
- **Federal Land Management and Planning:** (Joe Tauge-BLM)

# Objective

*(one of several workgroup objectives)*

- ❖ Identify what is going on across the range of the Greater Sage-grouse to manage or affect the wildfire/invasive threat (who, what, when, where and why?)



# WAFWA Working Group

## Products To Date

- ❑ **Great Basin Wildfire/Invasive Species Gaps Analysis Report** - (Wildfire and invasive species in the west: Challenges that hinder current and future management and protection of the sagebrush-steppe ecosystem.
- ❑ **A Conceptual Landscape Approach to Assessing the Wildfire/Invasive Threat** (Managing invasive annual grasses and altered fire regimes using resilience concepts – An integrated approach.
- ❑ **Fire and Fuels Management Contributions to Sage-Grouse Conservation** – (Havlina, D., et. al, 2014)
- ❑ **Initiation of the Greater Sage-Grouse Wildfire, Invasive Annual Grasses, and Conifer Expansion Assessments** (FIAT Assessments)
- ❑ **Invasive Plant Management and Greater Sage-Grouse Conservation: A Review and Status Report with Strategic Recommendations for Improvement** – (Ielmini, M.R, et. al, 2015)
- ❑ **Using Resistance and Resilience Concepts to Reduce Impacts of Invasive Annual Grasses and Altered Fire Regimes on the Sagebrush Ecosystem and Greater Sage-Grouse: A Strategic Multi-Scale Approach**– WAFWA Team Next Steps.
- ❑ **Collaborating Participant - Western Invasive Weed Summit.**



## Fire and Fuels Management Contributions to Sage-Grouse Conservation

A Status Report



### WAFWA Wildfire and Invasive Species Initiative Working Group.

Doug W. Havlina, P. Anderson, L. Kurth, K.E. Mayer, J.C. Chambers, C. Boyd, T. Christiansen, D. Davis, S. Espinosa, M. Ismini, D. Kemner, J.D. Maestas, B. Meador, M. Pellant, J. Tagoe, and J. Vernon. 2014.



## Using Resistance and Resilience Concepts to Reduce Impacts of Invasive Annual Grasses and Altered Fire Regimes on the Sagebrush Ecosystem and Greater Sage-Grouse: A Strategic Multi-Scale Approach

Jeanne C. Chambers, David A. Pyke, Jeremy D. Maestas, Mike Pellant, Chad S. Boyd, Steven B. Campbell, Shawn Espinosa, Douglas W. Havlina, Kenneth E. Mayer, and Amarina Wernschel



# Invasive Plant Management and Greater Sage-Grouse Conservation:

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# WAFWA Invasive Species Report Development Team

- Nevada
- Utah
- Oregon
- Idaho
- Wyoming
- Great Basin Landscape Conservation Cooperative (GBLCC)
- U.S. Department of the Interior Geological Survey (USGS)
- Bureau of Land Management (DOI-BLM)
- U.S. Fish and Wildlife Service (DOI-USFWS)
- U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS)
- U.S. Department of Agriculture (USDA) Forest Service (USFS)
- USDA Natural Resources Conservation Service (NRCS)
- **Center for Invasive Species Management (Montana State Univ.)**
- **AFWA Invasive Species Committee**



**MONTANA**  
STATE UNIVERSITY

College of  
**AGRICULTURE**

## Survey of Weed Management Programs in the Range of the Greater Sage-Grouse

The Center for Invasive Species Management (CISM) is assisting the Western Association of Fish and Wildlife Agencies (WAFWA) Wildfire and Invasive Species Working Group with a survey study to gather and analyze data on agency and state weed management efforts within the range of the greater and Gunnison sage-grouse species. Results of this study will be important to decisions on the conservation of sage-grouse and other sagebrush dependent species. The questionnaire is available here: [surveymonkey.com/s/7QMF6DD](https://surveymonkey.com/s/7QMF6DD) until **August 30th**.

Please forward this email today and encourage participation of all appropriate leaders and staff of on-the-ground management units within your agency. These local units include refuges, park units, national forests and grasslands, national monuments, districts, facilities and installations, and other federal land holdings. Widespread participation will be important to reliable, valid, and actionable results.

The questionnaire should not take more than 20 minutes to complete and participation is voluntary. All information provided is anonymous and strictly confidential. Information will be analyzed at the group level only and results will be disclosed in summary form. **This survey will be available until August 30th**. Upon completion of the study, findings will be made available in the form of a summary report.

If you have any questions about this study, please contact Kim Goodwin, (406) 994-5698, [kgoodwin@montana.edu](mailto:kgoodwin@montana.edu). For more information on this WAFWA request, please see the [letter requesting your assistance](#) from Ken Mayer, WAFWA Committee chair.

Sincerely,

Tracy M. Sterling, Ph.D.  
Interim Director, CISM  
Professor & Department Head  
Department of Land Resources & Environmental Sciences

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334 Leon Johnson Hall | P.O. Box 173120 | Bozeman, MT 59717-3120  
[landresources.montana.edu](http://landresources.montana.edu) | [kgoodwin@montana.edu](mailto:kgoodwin@montana.edu) | 406-994-5698

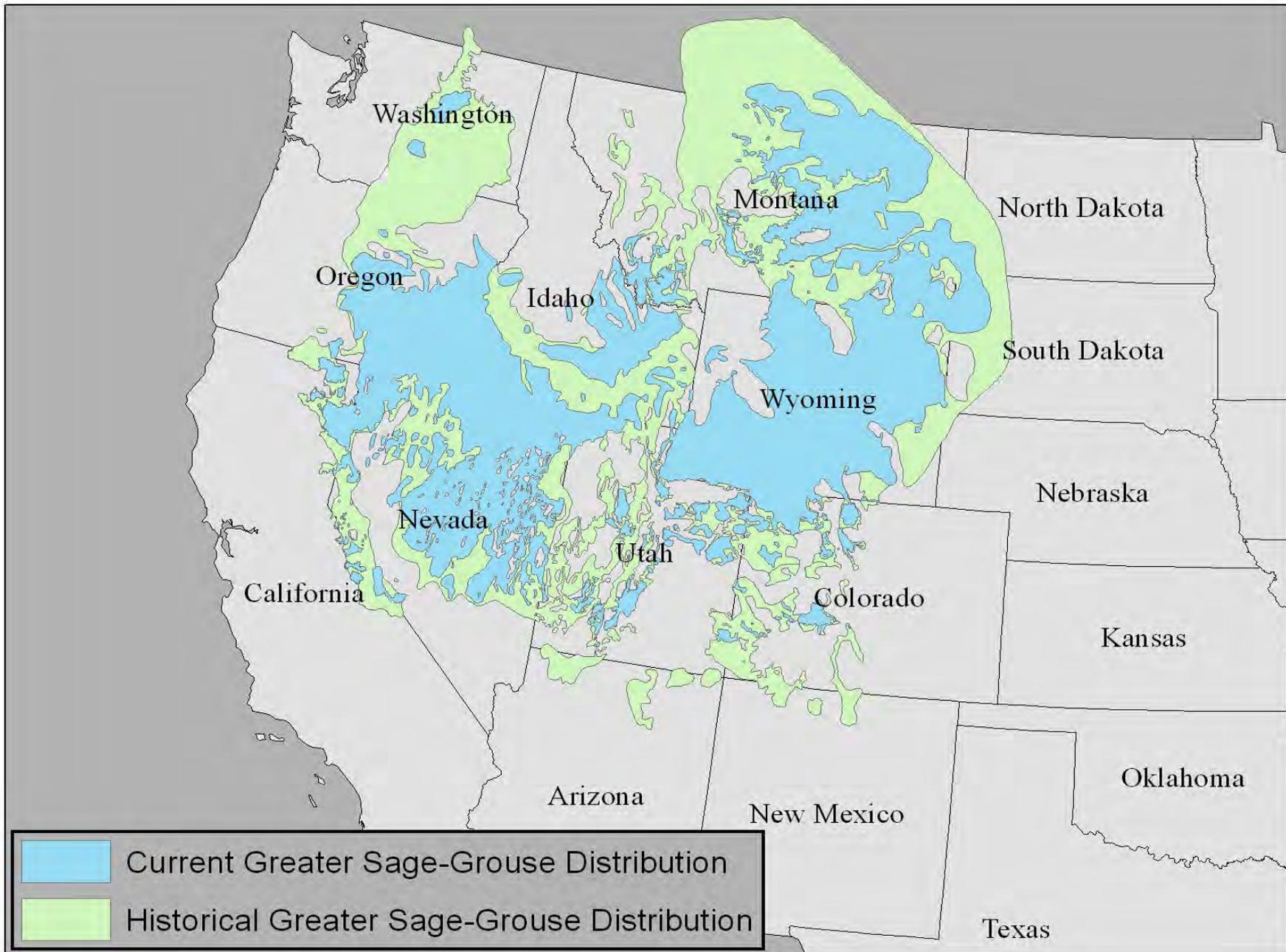


**Center for Invasive  
Species Management**

- ❑ 2014 targeted survey of local, state, and federal weed management organizations across the entire 11-state range of the Greater Sage-grouse.
- ❑ Led and Analyzed by the Center for Invasive Species Management – Montana State University, Bozeman, MT.
- ❑ Funding from the Great Basin Landscape Conservation Cooperative (GBLCC)
- ❑ Responses to the survey were recorded from nearly 300 individuals and organizations.

# Additional Information Gathered

- ❖ Federal, State, and County Weed Managers, and other Professionals
- ❖ Western Weed Coordinating Committee
- ❖ North American Invasive Species Network
- ❖ North American Exotic Pest Plant Council
- ❖ Missouri River Watershed Coalition
- ❖ North American Invasive Species Management Association
- ❖ Federal Interagency Committee for the Management of Noxious and Exotic Weeds
- ❖ Aquatic Nuisance Species Task Force
- ❖ Center for Invasive Species and Ecosystem Health
- ❖ Tamarisk Coalition
- ❖ The National Invasive Species Advisory Committee (ISAC)
- ❖ The National Invasive Species Council (NISC)
- ❖ The Government Accountability Office (GAO)
- ❖ Congressional Reports and Hearings
- ❖ National Fish and Wildlife Foundation (NFWF)
- ❖ University Research Programs and Professional Societies



# Organizational Structure of the WAFWA Report

- ⦿ Why Invasive Plants Matter
- ⦿ What's Being Done
  - Federal
  - State
  - Local
- ⦿ Challenges and Barriers
- ⦿ Strategic Recommendations for Improvement
- ⦿ Management and Policy Implications

# Why Invasive Plants Matter?

- Invasive annual grasses fuel the wildfire threat and cause degradation of sagebrush communities, resulting in habitat loss and negative effects on GRSG populations, as well as other sagebrush-dependent wildlife species.
- The invasion and spread of invasive plants across the western landscape have resulted in significant ecosystem transformations....10's of millions of acres infested within the range of the GRSG.
- Invasive species transform ecosystems by altering their basic species composition and function.

# Greater sage-grouse Conservation Major Threats (Fire and Invasives)



Fire Management  
and Restoration

Invasive Weed  
Management

Regulatory Framework:  
BLM and USFS ROD's and  
State Regulations

# Challenges and Barriers

## Information Management and Science Challenges:

- ✓ Barrier: Lack of emphasis on surveys, inventories, and monitoring activities
- ✓ Barrier: Failure to re-establish desired perennial vegetation
- ✓ Barrier: Inadequate collection, retrieval, and sharing of invasive plant data
- ✓ Barrier: Lack of certainty for actions under a changing climate

# Challenges and Barriers

- Leadership, Coordination, and Communication Challenges:
  - ✓ Barrier: Insufficient governmental leadership and emphasis for invasive species management at nearly all levels
  - ✓ Barrier: Very limited coordination and collaboration with non-traditional stakeholders
  - ✓ Barrier: Lack of effective communication and engagement with the public.
  - ✓ Barrier: Low level of public awareness and support for invasive species management

# Challenges and Barriers

- ◎ **Policy and Regulatory Challenges:**
  - ✓ Barrier: Lack of effective legal and regulatory framework for invasive species management
  - ✓ Barrier: Insufficient evaluation, compliance monitoring, and enforcement

# Challenges and Barriers

## ◎ Operational Capacity and Program Management Challenges:

- **Barrier:** Highly variable management prioritization of high risk invasive plants; Programs do not emphasize sagebrush restoration when targeting invasive plants across the range of the GRSG
- **Barrier:** Lack of internal structure and capacity for weed management programs at all levels
- **Barrier:** Lack of federal funding at the field level, which transfers risk to state and local governments
- **Barrier:** Inconsistent and fragmented prevention operations
- **Barrier:** Lack of an effective early detection and rapid response (EDRR) system across the landscape
- **Barrier:** Inadequate restoration strategies, implementation, and approaches

# Recommendations

- **INFORMATION MANAGEMENT AND SCIENCE RECOMMENDATIONS:**

**Recommendation 1.** The ISAC should establish a standing committee dedicated to promoting research and adaptive management to determine how we can a) prevent spread of existing weed infestations, and b) consistently re-establish desired perennial plants in invaded sites.

# Recommendations

## ○ LEADERSHIP, COORDINATION, AND COMMUNICATION RECOMMENDATIONS

**Recommendation 1.** Convene a summit of federal Departments (i.e., DOI, USDA, DOC, etc.) and agencies, state government agencies, and key non-government organizations to review existing invasive species mandates (e.g., 1999 Presidential Executive Order 13112), overarching policies, and agency budgets.

**Recommendation 2.** Re-engage NISC at the Department level to establish a high-level multi-federal agency working group and charge them with drafting a National Invasive Species Strategy in the U.S.

# Recommendations

- **POLICY AND REGULATORY RECOMMENDATIONS:**

**Recommendation 1.** Establish a subcommittee within ISAC to review the current legislative and regulatory framework (federal and state) on invasive species, including coordination with AFWA.

**Recommendation 2.** Establish a working group to review federal, state, and provincial rules, procedure's, work contract and permit clauses, and Best Management Practices (BMPs) designed to prevent the spread of invasive plants.

# Recommendations

## ◎ PROGRAM MANAGEMENT AND OPERATIONAL CAPACITY RECOMMENDATIONS:

**Recommendation 1.** Conduct a comprehensive evaluation, including potential restructuring, of the funding and personnel model for invasive species management programs at all levels across federal, state, and county agencies and governments.

**Recommendation 2.** Develop funding mechanisms at state and federal levels to significantly increase program capacity to accelerate invasive plant prevention and control activities at all levels, with the goal of achieving a measurable net reduction of priority invasive plant populations each year.

# Recommendations

## ◎ PROGRAM MANAGEMENT AND OPERATIONAL CAPACITY RECOMMENDATIONS (Con't)

**Recommendation 3.** A new approach needs to be developed and funded to provide for early detection, rapid management response (EDRR) and restoration of areas to prevent invasive plant species from becoming established or spreading.

**Recommendation 4.** Develop a nationally consistent public awareness and education program for the prevention and management of invasive species, similar to the successful national fire prevention program campaign, coordinated across public and private sectors.

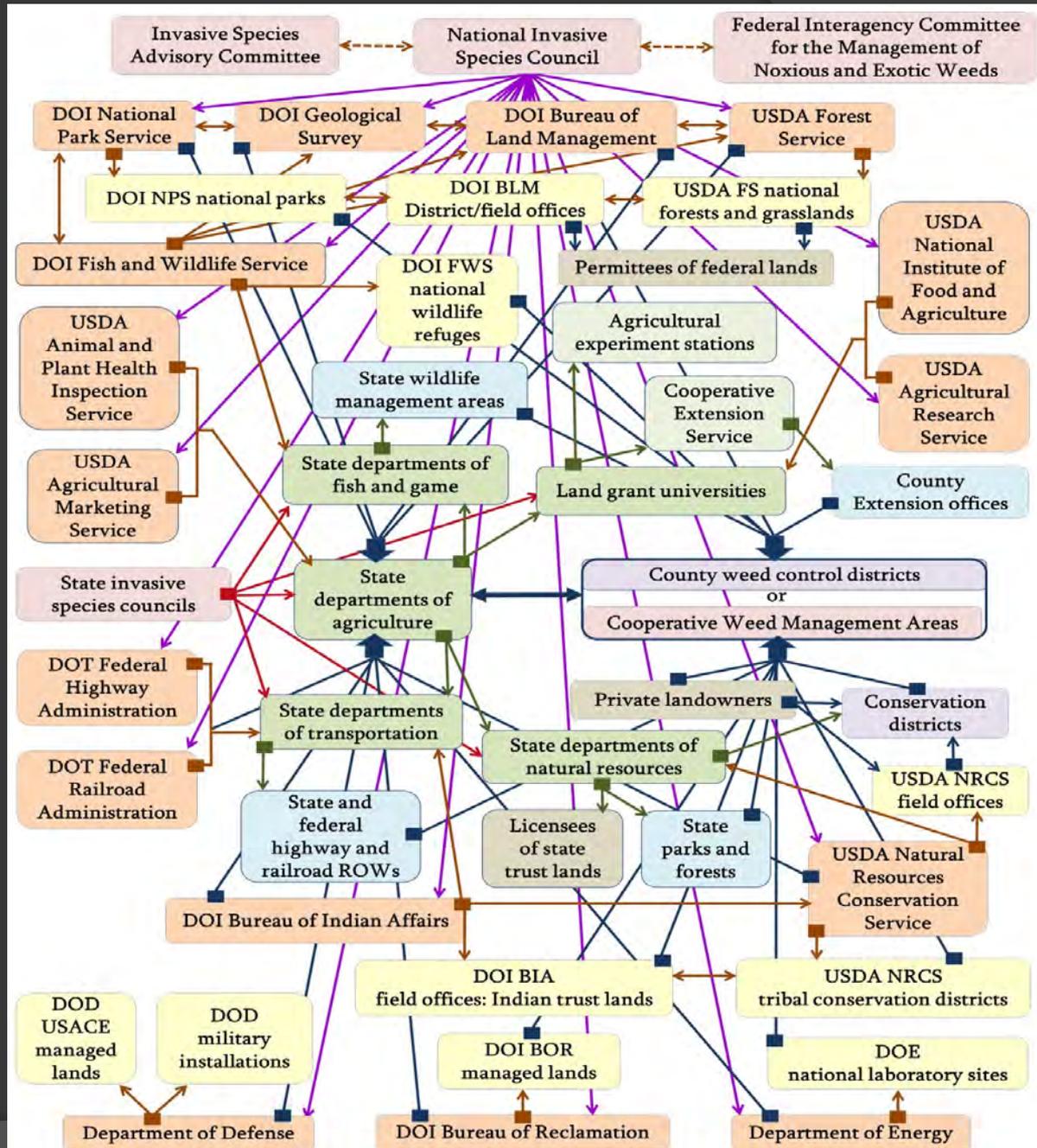
# Recommendations

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**Recommendation 5.** As stated in the WAFWA Gaps Report, coordination between the public and private landowners to manage invasive plants across landscapes is essential and managed through County Weed Management Areas. These CWMA's need to be supported and expanded.

**Recommendation 6.** Wherever feasible, maximize niche occupation with desired native species to allow for long-term recovery of sagebrush and other native species.

# Current Invasive Plant Management Network Structure



# Challenges and Barriers for Landscape Scale Invasive Species Management-

Barrier: Insufficient governmental leadership and emphasis for invasive species management at nearly all levels.

- NISC, ISAC & Federal Agencies uncoordinated
- Inconsistency among States
- Inefficiencies within States & among state agencies
- Insufficient & inconsistent on-the-ground capacity for CWMA's and County Weed Districts

“federal invasive species research and management programs remain largely uncoordinated, and highly variable in structure, capacity, and functionality.”

”federal agencies and programs address invasive species ... under an uncoordinated and complex federal legal framework.”

“The current state of the law is fragmented and uncoordinated. Invasive species policy is a mixture of state and federal rules and regulations ... allocating responsibilities to many different agencies.”

”Interstate and regional coordination ... is complex and often difficult to accomplish due to the wide differences between state priorities, program capacities and jurisdictional authorities.”

“In most states, management activities are often conducted ... with no shared, central goals ... or measurable benchmarks to demonstrate progress”

# Recommendations

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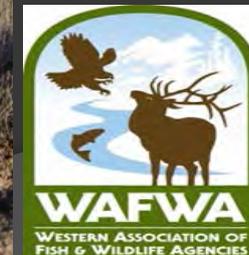
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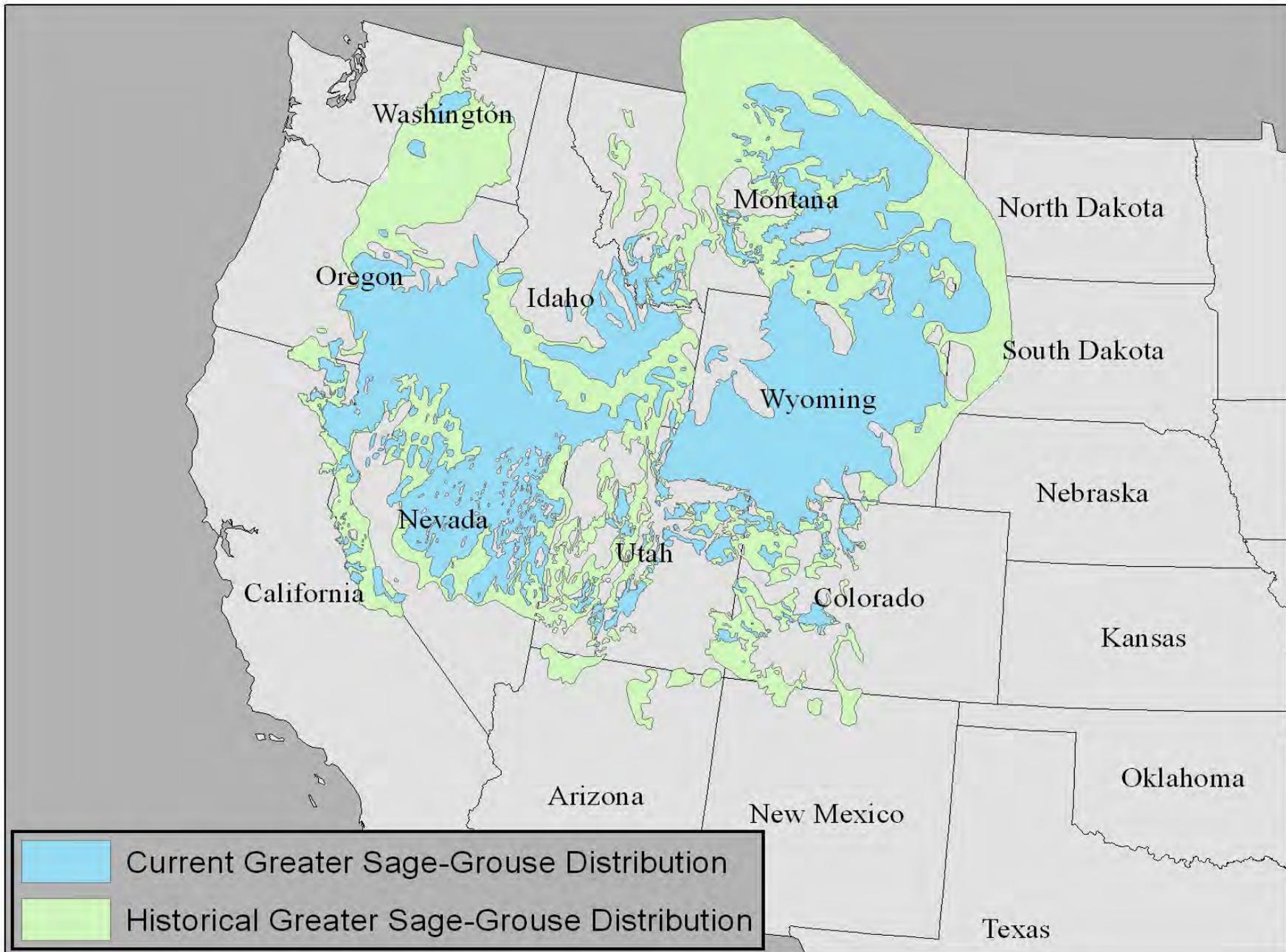
# Western Invasive Weed Summit

Boise, Idaho  
November 17-19, 2015



# Western Invasive Weed Summit Agenda

- ❖ **Welcome Address from the State of Idaho** - Lt. Governor Brad Little
- ❖ **The Greater Sage-grouse Listing Decision:** *Timing, planning, and the importance of providing strategic actions to address the invasive plant threat across the range of the Greater sage-grouse and the link to fire in the West*
- ❖ **Invasive Plant Management in the West** – A Scientific Assessment
- ❖ **Impacts of Invasive Species on Greater Sage-grouse Habitat** – Risks and Considerations
- ❖ **Overview of WAFWA Invasive Species Report,** *“Invasive Plant Management and Greater Sage-grouse Conservation: A Review and Status Report with Strategic Recommendations for Improvement”*
- ❖ **Management of Invasive Plants across the Range of the Greater Sage-grouse**
- ❖ **Setting the Stage for Breakout Sessions** – Andrus Center Facilitation
- ❖ **Presentation by Executive Director of the National Invasive Species Council** – Dr. Jamie Reaser
- ❖ **Breakout Session** – Challenges and Barriers
  - Group 1: Information Management and Science
  - Group 2: Leadership, Coordination, and Communication
  - Group 3: Policy and Regulatory
  - Group 4: Program Management and Operational Capacity
- ❖ **Breakout Session** – Developing Actions to Address/Resolve Challenges and Barriers
  - Group 1: The Great Basin
  - Group 2: The Eastern Portion of the Greater Sage-grouse Range
  - Group 3: WAFWA Invasive Plant Management and Greater Sage-grouse Conservation Report
- ❖ **Conference Summary and Next Steps**



# SAGEBRUSH ECOSYSTEM ENVIRONMENTAL GRADIENTS



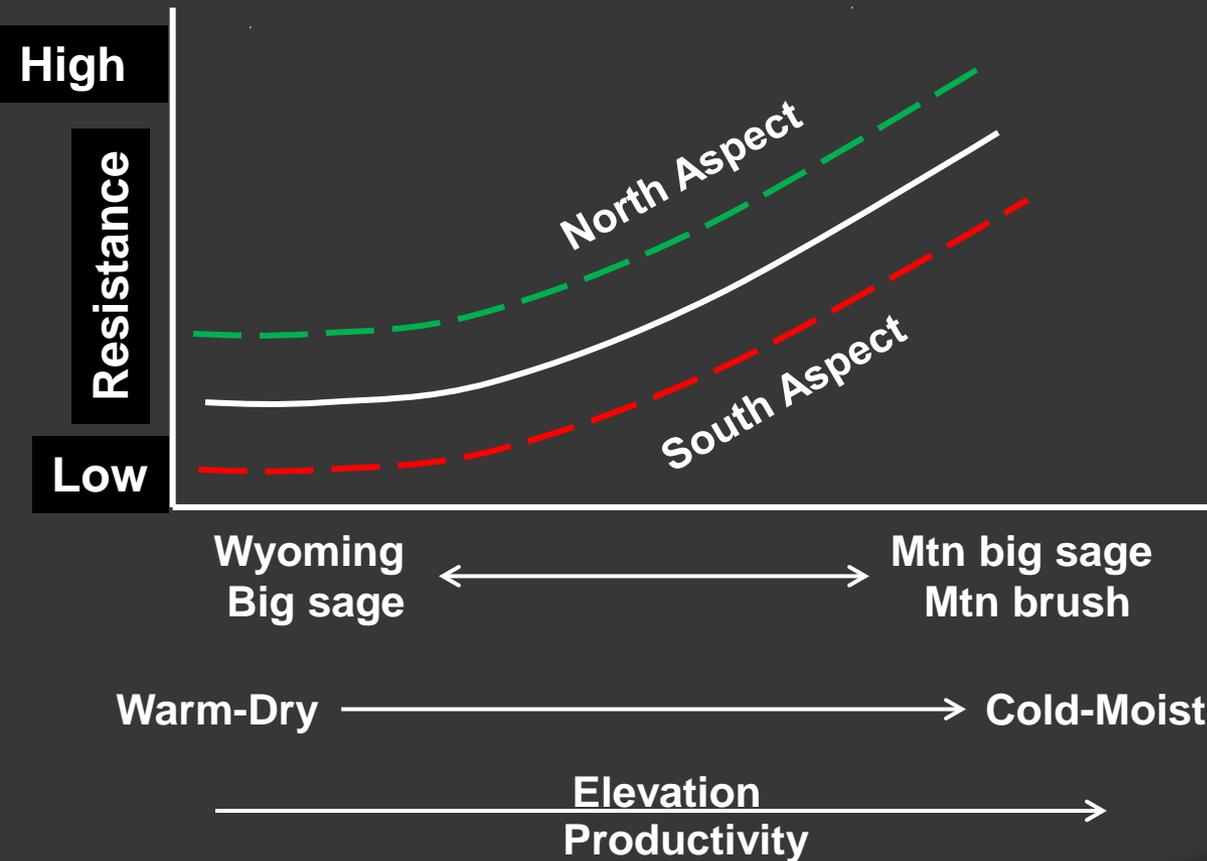
Warm-Dry

Cold-Moist

Elevation/Productivity



# RESISTANCE TO CHEATGRASS



**Resistance reflects environmental suitability**

- Suitability is greater with warm-dry conditions
- Highest- Wyoming sage
- Lowest- Mountain sage/shrub

(Adapted from Chambers et al. 2007)

# Proportion of Landscape Dominated by Sagebrush

Resilience to Disturbance & Resistance to Invasive Annual Grasses

	<i>Low</i> <b>&lt; 25% Sagebrush-Dominated Landscape</b>	<i>Medium</i> <b>25-65% Sagebrush-Dominated Landscape</b>	<i>High</i> <b>&gt; 65% Sagebrush-Dominated Landscape</b>
<i>High</i>	<p>Sagebrush lacking Natural recovery likely Sufficient PNH Low annual invasive risk</p> <p><b>Strategies - M1, M5, M6, M7, R1, R2</b></p>	<p>Sagebrush limiting Natural recovery likely Sufficient PNH Low annual invasive risk</p> <p><b>Strategies - M5, M6, M7, R1, R2, R3</b></p>	<p>Sagebrush sufficient Natural recovery likely Sufficient PNH Low annual invasive risk</p> <p><b>Strategies - M2, M5, M6, M7, R3</b></p>
<i>Medium</i>	<p>Sagebrush lacking Natural recovery possible PNH site dependent Invasive risk site dependent</p> <p><b>Strategies - M1, M4, M5, M6, M7, R1, R2, R3, R5</b></p>	<p>Sagebrush limiting Natural recovery possible PNH site dependent Invasive risk site dependent</p> <p><b>Strategies - M4, M5, M6, M7, R1, R2, R3</b></p>	<p>Sagebrush sufficient Natural recovery possible PNH site dependent Invasive risk site dependent</p> <p><b>Strategies: M2, M4, M5, M6, R3</b></p>
<i>Low</i>	<p>Sagebrush lacking Natural recovery unlikely PNH lacking High annual invasive risk</p> <p><b>Strategies - M1, M2, M3, M4, M7, R4, R5, R6</b></p>	<p>Sagebrush limiting Natural recovery unlikely PNH lacking High annual invasive risk</p> <p><b>Strategies - M1, M2, M3, M4, M7, R4, R5, R6</b></p>	<p>Sagebrush sufficient Natural recovery unlikely PNH lacking High annual invasive risk</p> <p><b>Strategies - M1, M2, M3, M4, M6, M7, R3, R5, R6</b></p>