Wildland Fire in Ecosystems--

Fire and nonnative invasive plants

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Thank you:
Joint Fire Science Program
All our Partners
Wildland Fire in Ecosystems

1. Fire Effects on Fauna
2. Fire Effects on Flora
3. Fire Effects on Cultural & Archaeological Resources
4. Fire Effects on Soils and Water
5. Fire Effects on Air
6. Fire and Nonnative Invasive Plants
Objectives

1. Synthesize scientific knowledge about fire & nonnative invasive plants

2. For each bioregion:
   ~ Describe species & plant communities of greatest concern
   ~ Discuss emerging issues

Audience: Managers
Literature Review

Get to the primary source:

So much is based on so little.

The hedges are there for a reason.

Scientists, use hedges.

Managers, think about them.
Part I. Concepts

Chap. 2
Chap. 3
Chap. 4
Part II. Bioregional Issues

Chapter 10. Northwest Coast & Alaska
Chapter 8. Interior West
Chapter 9. Southwest Coastal
Chapter 11. Hawaiian Islands
## Central Bioregion (subset of columns & rows)

<table>
<thead>
<tr>
<th>Sci. name</th>
<th>Common name</th>
<th>Mesic tallgrass prairie subregion</th>
<th>Northern &amp; Central Tallgrass Prairie</th>
<th>Southern Tallgrass Prairie</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Arundo donax</em></td>
<td>giant reed</td>
<td></td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td><em>Bothriochloa ischaemum</em></td>
<td>yellow bluestem</td>
<td></td>
<td>P</td>
<td>H</td>
</tr>
<tr>
<td><em>Bothriochloa bladhii</em></td>
<td>Caucasian bluestem</td>
<td></td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td><em>Bromus inermis</em></td>
<td>smooth brome</td>
<td></td>
<td>H</td>
<td>N</td>
</tr>
<tr>
<td><em>Bromus japonicus</em></td>
<td>Japanese brome</td>
<td></td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td><em>Bromus tectorum</em></td>
<td>cheatgrass</td>
<td></td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td><em>Centaurea spp.</em></td>
<td>knapweeds</td>
<td></td>
<td>L</td>
<td>N</td>
</tr>
<tr>
<td><em>Cirsium arvense</em></td>
<td>Canada thistle</td>
<td></td>
<td>H</td>
<td>L</td>
</tr>
</tbody>
</table>
Part III. Emerging Issues

12. Patterns in knowledge gaps
13. Fuel reduction treatments
14. Post-wildfire emergency stabilization & rehabilitation
15. Monitoring strategies
16. Closeout Discussion
Common Language – Invasive

A species that

1. Establishes in a plant community
2. Persists
3. Spreads

... and causes ecological harm

(John M. Randall, The Nature Conservancy)

(Westbrooks 1998, Randall 1997)
Common Language – Invasibility

Susceptibility of plant community to invasion

John M. Randall, The Nature Conservancy

Invasive ----- Invasibility

John M. Randall, The Nature Conservancy

Photo: Steve Smith
<table>
<thead>
<tr>
<th>Int. West</th>
<th>Sagebrush</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Bromus tectorum</em></td>
<td>cheat grass</td>
</tr>
<tr>
<td><strong>Int. West</strong></td>
<td><strong>-----Central-----</strong></td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------</td>
</tr>
<tr>
<td><strong>Bromus tectorum</strong></td>
<td>cheat grass</td>
</tr>
<tr>
<td><strong>Sagebrush</strong></td>
<td>Mesic tallgrass, N. Mixed prairie, S. Mixed prairie, Shortgr. steppe, Riparian</td>
</tr>
<tr>
<td></td>
<td>H, N, P, P, H, N</td>
</tr>
</tbody>
</table>
Common Language – Fire Regime

1. Type
2. Frequency
3. Intensity
4. Severity
5. Size
6. Spatial complexity
7. Seasonality

(Sugihara and others 2007)