

# SOCIO-ECOLOGICAL RESEARCH TOPICS FOR THE BLUE MOUNTAINS

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Stakeholder Forum to Identify Research Topics  
and Specific Questions and Issues of High  
Priority for Natural Resource Management



# Topics

- 1. Rural Community Sustainability**
- 2. Management of Wildland Disturbances: Fire, Insects, Disease, Invasive Species, and Herbivory**
- 3. Commercial Timber Management and Production on Public Lands**
- 4. Management of Tribal First Foods**

# Topics

5. **Recreation, Hunting, and Access Management on Public Lands**
6. **Forest, Rangeland, and Riparian Restoration**
7. **Sustaining Biodiversity and Recovering T & E Species**
8. **Sustainable Livestock Grazing, Production, and Predator Management on Public Lands**

# Rural Community Sustainability

- Populations in smaller towns are declining or have high potential for declines for a variety of reasons related to changing natural resource management and resource availability.
- Traditional lifestyles are highly valued and a foundation of rural communities in the Blue Mountains.





# Rural Community Sustainability

- Climate change will affect ecosystem services and lifestyles.
  - Warmer temperatures year-round
  - Reduced winter snowpack
  - Longer period of summer drought



## Example Research Questions

- What is the current level of economic dependence of each Blue Mountains community on natural resource availability on public lands?
- How will climate change projections affect each Blue Mountains community, given their current types of employment?



# Management of Wildland Disturbances: Fire, Insects, Disease, Invasive Species, and Herbivory

- Fire suppression and lack of active silviculture in forest environments has led to uncharacteristically high fuel loads and increased risk of widespread, stand-replacement fires and insect outbreaks.



- Invasive plant species and high levels of ungulate herbivory can also contribute to high fuel loads in some environments.



# Management of Wildland Disturbances: Fire, Insects, Disease, Invasive Species, and Herbivory

- The cumulative effects of diverse disturbance agents, and their integrated management, has rarely been addressed.
- The frequency, extent, and intensity of these disturbances is increasing in some areas, often with undesirable effects.





# Management of Wildland Disturbances: Fire, Insects, Disease, Invasive Species, and Herbivory

- What are the organizational obstacles among governments for effective integration of fire management programs to reduce high fuel loadings and stand-replacement fire risk?
- What is the effect of wild and domestic ungulate herbivory on fuel loading and fire risk in forest and rangeland environments, and what are the interactive effects of herbivory with other wildland disturbances?



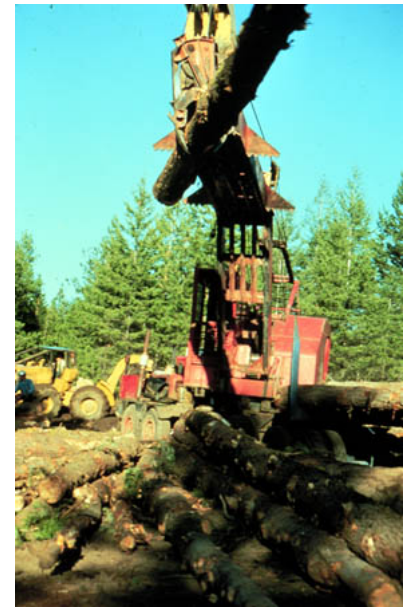
# Commercial Timber Management and Production on Public Lands

- Timber harvest in the Blue Mountains has declined for a variety of reasons.
- Overstocked forests need treatment to restore desired resource conditions, and timber harvest is one method to help pay for a variety of silvicultural treatments that could be applied simultaneously with timber harvest.



# Commercial Timber Management and Production on Public Lands

- New options for commercial timber management warrant further discussion and resolution as part of multiple use management goals on public lands and focus on sustainable communities.
- Effective integration of commercial timber harvest with management of plant and animal species of concern remains a major need and knowledge void for public land management.



## Example Research Questions

- Using a manipulative, landscape-based research experiment, how can levels of regeneration timber harvest be sustained in a manner compatible with goals for fish and wildlife?
- What types of optimization models are needed for public land planning to evaluate a wide variety of silvicultural scenarios in time and space to effectively integrate multiple resource management objectives and mitigate negative effects?





# Management of Tribal First Foods

- Native American tribes in the Blue Mountains traditionally have relied on both animal and plant “first foods” for their survival and as a foundation for their culture.
- Traditional hunting and gathering remain integral to the social and cultural foundation of Tribes in the Blue Mountains.
- Management to sustain first foods on ceded lands and reservation lands is a priority for public and tribal land managers.

## Example Research Questions

- What invasive plant species pose major threats to availability of specific first foods?
- What land treatments might be tested to manage these invasive plants?



# Recreation, Hunting, and Access Management on Public Lands



# Recreation, Hunting, and Access Management on Public Lands

- Blue Mountains landscapes offer wide variety of traditional recreational opportunities:
  - Hunting
  - Fishing
  - Hiking
  - Camping
  - Rafting
  - Skiing
  - Mountain biking
  - 4-wheeling
  - Berry-picking and mushrooming
  - Etc.



# Recreation, Hunting, and Access Management on Public Lands

- These activities contribute substantially to quality of life and rural economies in the Blues
- Motorized access is popular for firewood cutting, recreation (e.g., 4-wheeling), and hunting, but has become a flashpoint on public lands



# Example Research Questions

- What are the barriers to use of published roads/big game research results in travel management planning and public understanding and acceptance of results?
- How will newly established multi-predator systems affect harvestable populations of deer and elk in the Blue Mountains?

# Forest, Rangeland, and Riparian Restoration



# Forest, Rangeland, and Riparian Restoration

- Historical land uses have altered some landscapes in ways that reduce ecosystem function and resiliency
- These include:
  - Timber harvest
  - Development of extensive road networks
  - Conversion of native plant communities to perennial non-native grasses for livestock forage



# Forest, Rangeland, and Riparian Restoration

- Restoration science is not exact – actions that benefit one resource may impact others in undesirable ways
- Despite millions of dollars spent to restore degraded systems, the ecological and economic efficacy of these efforts is not always known
- Formal long-term monitoring is lacking for many projects

# Example Research Questions

- What are the effects of grazing by native ungulates on riparian restoration for salmon and other fish?
- How effective is accelerated forest restoration in a complex system of overstocked stands, sensitive wildlife species, and uncertain timber markets?

# Sustaining Biodiversity and Recovering T&E Species



# Sustaining Biodiversity and Recovering T&E Species

- Past management and land uses have sometimes resulted in large losses of habitat area and quality for species of concern in the Blue Mountains
  - Steelhead
  - Spring chinook
  - White-headed woodpecker
- Some habitat types have experience more dramatic declines, such as old forests and sagebrush



# Sustainable Livestock Grazing, Production, and Predator Management





# Sustainable Livestock Grazing, Production, and Predator Management

- Livestock grazing has been a dominant land use in the Blue Mountains since the late 1800s
- Changing markets and high demand for beef cattle may require new grazing systems for sustainable beef production

# Example Research Questions

- How does the presence of wolves affect weight gain of beef cattle grazed on public lands?
- How will climate change, especially prolonged summer drought, affect grazing resources for cattle on public lands in the Blue Mountains?