

## Research Priorities for Oregon/Washington BLM

Program Area	Research Topic	Research Questions	Where Needed	Why is Research Needed?	Priority
Botany, Weeds	Exotic plants	What are the impacts of invasive plant species on the habitats of rare plants, wildlife, & fish?	OR & WA	To understand the competitive dynamics between weeds & native special status plant species in order to determine methods that would most effectively control weeds & improve habitat for wildlife, fish, & special status plant species	H
Fire, Botany	Prescribed fire	What are the effects of wildland & prescribed fire on fungi?	Western OR	To determine the effects of fire in order to complete NEPA on prescribed fire projects, especially for Bureau Sensitive Species	H
Fisheries, Hydrology, Forestry	Cumulative watershed effects from timber harvest	How are peak & base flows affected by NWFP-logging practices (i.e., regeneration logging with wide stream buffers; and thinning within riparian areas)? If there are changes, then what are the effects on fish species, aquatic habitat and water quality?	Throughout OR & WA (compelling need for NWFP area)	To provide information during consultations under the Endangered Species Act for listed fish species and to meet requirements of the Clean Water Act	H
Range, Weeds, Botany, Fire	Sagebrush steppe restoration	What species & planting techniques are best suited for the re-establishment of native grasses, forbs, & shrubs in the low to mid-precipitation zones (5-8" & 8-12")?	Eastside OR & WA	To determine effective techniques for the reestablishment of native vegetation, for all its values, following wildfire, grazing, & weed invasion	H
Range, Weeds, Botany, Wildlife	Weed control	What methods & techniques (mechanical, cultural, biological) are best suited to control invasive weeds on low & mid-elevation rangelands (given limited availability of chemicals for use in weed control)?	Eastside OR & WA	To address questions related to control of invasive weeds in order to: 1) maintain or restore native plant communities & ecological processes, 2) maintain or improve wildlife habitat, & 3) improve success of restoration treatments. There is a need to look at individual species & sites, with a focus on cheat grass & medusahead.	H
Socioeconomic & Recreation	Public land users	How many individuals are using public lands based on activity type (e.g., wildlife viewing, off-highway vehicle use, subsistence use, etc.)?	OR & WA	To augment existing data to conduct NEPA analysis	H
Socioeconomic & Recreation	Public land users	What are the defining characteristics of public land users, including attitudes, values, beliefs, and economic dependency on public lands?	OR & WA	To obtain much needed information on local/regional communities, economic trends, etc. to synthesize and augment existing data to conduct NEPA analysis	H
Wildlife	Sage-grouse landscapes	What are the critical differences in habitat for sage-grouse populations that are stable vs. those that are declining?	Eastside OR, ID & NV	Long-term, multi-scale research is needed to characterize habitat differences between stable & declining populations	H

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Wildlife, Botany	Habitat modeling	What models can be developed to predict potential habitat for key rare species in the Pacific Northwest?	OR & WA	To develop models that are cost-effective, using representative species as case studies. These models could help reduce the cost of surveying & monitoring species.	H
Fire, Botany, Forestry	Mechanical fuels treatment	What are the effects of various fuel treatments (e.g., masticating, chopping, grinding, mowing, & similar treatments) on germination, resprouting, & survival of native forbs & grasses? What are the effects on native plant productivity of the site? Are there significant nutritional changes to the site?	Southern OR, Western OR	To understand effects of various fuel treatments and to document effects in project-level environmental analyses for National Fire Plan projects. This methodology is being used in SW OR instead of methods that are more traditional. We need to understand whether site productivity is decreased with the build-up of residue.	M-H
Range, Fisheries, Hydrology, Riparian	Grazing utilization triggers & riparian/stream channel condition	What is the relationship between common utilization triggers (e.g., 4" stubble height) & bank, riparian vegetation, & instream channel characteristics?	Eastside OR & WA	It is assumed that triggers are effective at protecting riparian, streambank & instream conditions. However, the relationship of utilization to impact is unclear. This issue also relates to water quality compliance. Research results could help us modify triggers or find alternative triggers that will protect resource values.	M-H
Wilderness, Range	Juniper treatment in wilderness	What is the most effective method of treating invasive juniper in Wilderness & wilderness study areas (given that cutting is not considered acceptable in these designated areas)? Examples could include herbicide, girdling without chain saws, prescribed fire, etc.	Eastside OR & WA	Some Wilderness & wilderness study areas contain juniper communities that represent an expansion beyond natural historical range (to the detriment of other native plant communities). Research is needed to develop techniques that are appropriate to use within Wilderness areas and that are effective at controlling invasive juniper.	M-H
Wildlife	Pygmy rabbits	What are the movements, home range, & dispersal patterns of pygmy rabbits?	Eastside OR	To better understand basic life history info for the species	M-H
Wildlife	Spotted owls	Can prescribed burns be used to reduce catastrophic wildfire in northern spotted owl nesting habitat (& 100-acre cores)? What is the productivity & habitat use of spotted owls in relation to fire severity?	SW OR	To evaluate the effects of smoke, prescribed fire, and wildfire on owls; to determine trade-offs between prescribed fire and potential wildfire; and to determine effective techniques for maintaining owl habitats and populations.	M-H
Botany, Weeds	Invasive species	What are the factors that contribute to community resistance to invasion?	OR & WA	To develop effective techniques to restore degraded plant communities	M

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Fire	Fuels Inventory	What is a simple, yet reasonably accurate, method for inventorying fuel loading of live shrubs?	OR & WA	To provide the fuels management program better tools for estimating live & dead fuel loadings in shrubs, especially in sagebrush, for use in fire behavior modeling & effectiveness monitoring	M
Fire	Vegetation dynamics & post-fire recovery	Is there a need to refine the existing ecoregions into seed zones for native plant materials used in post-fire & post-fuels treatment activities in rangeland ecosystems? If so, what should those zones be?	OR & WA	To develop and implement effective rehabilitation & restoration activities	M
Fire, Range, Wildlife	Vegetation dynamics & post-fire recovery	What are the successional pathways & recovery rates for Wyoming & mountain big sagebrush following wildland fire?	Southeast OR	To address important questions of effects that must be documented in environmental analyses for wildland fire use & for post-fire restoration activities	M
Fire, Soils	Ecosystem Restoration	What activities need to occur to restore areas with dense juniper encroachment & severe erosion? How has site potential changed in these areas?	Southeast OR	To determine effective restoration management techniques and priorities in areas with dense juniper encroachment	M
Fire, Wildlife	Mechanical fuels treatment	In what ways and to what extent do sage-grouse use areas that have been treated with various fuel treatments (e.g., masticating, chopping, grinding, mowing, or similar treatments) to meet their life history needs?	Southeast OR	Long-term research is needed to determine effects of fuel treatment techniques on sage-grouse habitat. Results of this research would be used for validation monitoring, adaptive management, etc. .	M
Fire, Wildlife, Botany	Mechanical fuels treatment	What are the decay rates of material created by various fuel treatments (such as chopping, grinding, masticating, & mowing) in sagebrush & interior chaparral ecosystems?	Southern OR	To understand effects of various fuel treatments and to document effects in project-level environmental analyses for National Fire Plan projects	M
Forestry	Landscape models	What are the key biological drivers that determine priority forest landscapes for the conservation of biodiversity, where are these features located across the landscape, and what are the most effective methods for conserving these high priority areas? Important factors to consider include habitat type and quality, continuity of habitats, etc.	Western OR	To determine restoration and conservation priorities	M

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Forestry	Old-growth characteristics	What are the critical attributes of old-growth forest ecosystems that enhance the conservation of biodiversity? What are the desired future conditions that are essential for the effectiveness of old-growth forests in managing for biodiversity? What are the thresholds in terms of age, tree heights and diameters, size of stands, continuity of stands, etc. that facilitate conservation of biodiversity?	OR & WA	To develop targets for writing prescriptions so that there is a desired future condition to aim towards, and so that the sites can be monitored to see if progress is being made towards achieving the desired future condition	M
Forestry	Prey species for the northern spotted owl	What are the critical landscape components that enhance prey populations for the northern spotted owl and what are the most effective silvicultural prescriptions to enhance the populations of those prey species?	Western OR	To define basic habitat requirements to guide future land management decisions	M
Forestry	Young conifer stands	What are the most effective silvicultural prescriptions for the conservation of biodiversity in stands that are 15 to 80 years of age, i.e., what management activities would facilitate achievement of desired future conditions and conservation of biodiversity while harvesting timber?	Western OR (coastal & interior)	To develop density management prescriptions to provide desired habitat and some level of timber production	M
Forestry, Botany	Thinning & timber Harvest	What are the effects of thinning & timber harvest on fungi?	Western OR	Several Species of fungi are now Bureau Sensitive Species. There is a need to determine the effects of thinning & timber harvest to complete NEPA on forestry projects.	M
Range, Weeds, Botany, Hydrology	Juniper hydrology	What are the effects of western juniper on the hydrology of western watersheds (at the site-scale & watershed-scale)?	Eastside OR	This research is needed to address important questions related to: 1) moisture availability for sagebrush-steppe restoration, & 2) moisture availability to support stream, spring & seep flow.	M
Wildlife	Pygmy rabbits	What are the habitat requirements for pygmy rabbits?	Eastside OR	To define basic habitat requirements to guide future land management decisions	M
Wildlife	Land birds	What is the nest success of land bird species that are associated with deciduous vegetation?	Eastside OR	To understand the extent, type, & distribution of deciduous riparian vegetation associated with nest success of selected land birds	M

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Botany	Response of <u>Silene spaldingii</u> to grazing	What is the effect of grazing on habitat for <u>Silene spaldingii</u> ?	Spokane District	<u>Silene spaldingii</u> is a federally listed threatened species. It occurs in several of the Spokane District grazing allotments. As part of the recovery plan, it needs to be determined whether grazing is improving habitat for <u>Silene spaldingii</u> or if it is creating greater impacts.	L
Fire, Botany	Fuels reduction	Will short-term effects of fuels reduction on Bureau Sensitive Species plants be offset by long-term gains?	Western OR	Listed & Bureau Sensitive Species occur in many of the sites intended for fuel reduction activities. For the recovery plan, it is important to determine the effects of these activities on habitat.	L
Fisheries	Fish passage	Are state-of-the-art culvert replacements successful at passing juvenile fish upstream at a range of flows?	OR & WA	To determine if assumptions about culvert designs passing juvenile fish are correct. Research results will be used to modify culvert designs, if necessary.	L
Fisheries, Hydrology, Forestry	Cumulative watershed effects from road construction & obliteration	What are the changes to water quality & quantity from spur roads with no stream crossings built on ridge tops & flats? If there are changes, then what are the effects on fish species, & aquatic habitat?	Western OR	To provide information during consultations under the Endangered Species Act for listed fish species and to meet requirements of the Clean Water Act	L
Forestry	Canopy closure	What is the most effective standard technique for measuring canopy closure that can be implemented in the field and has relevance to physical conditions of the habitat?	Western OR	Regulatory agencies are using canopy closure as a measure of habitat quality. However, a given canopy closure has different effects based on slope, aspect, and other conditions. Results would be used for developing effective techniques for measuring canopy closure.	L
Forestry	Dead wood	How can the DecAID model be used across a landscape of BLM ownership to estimate how much dead wood is needed & when it is needed?	Western OR	To develop silvicultural prescriptions that effectively incorporate coarse woody debris for the conservation of habitat	L
Forestry	Disturbance	What are the relative impacts of various disturbances across forested landscapes?	Western OR	To determine where sensitive areas are across the landscape to facilitate the conservation of habitat	L
Forestry	Disturbance regimes	What is the most effective way to develop resilient forests in landscapes that are highly susceptible to natural disturbances (e.g., fire, insect damage, and disease)?	Southwest OR	To develop silvicultural prescriptions to manage landscapes in southwest Oregon for desired future habitat conditions	L
Forestry	Fertilizer	What is the impact of fertilizers on stream ecology?	Western OR	To determine whether fertilization of sites can be conducted with minimal impact on stream ecology	L

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Forestry	Forestry products	What is the probable role of forest products from BLM-administered lands in the future? Given the projected role, what are the best management practices to develop that role effectively?	OR & WA	To determine what scenarios should be considered to best meet future product needs	L
Forestry	Future forests	What are the probable future forest conditions, in terms of Pacific decadal oscillations, global warming, etc., and how should we consider these projections in managing forests to meet desired future conditions?	OR & WA	To develop management scenarios that will be effective in the future for conserving habitat and producing forest products	L
Forestry	Remnant patches	What is the effective size, shape, and location of remnant patches for conserving biological diversity?	Western OR	To develop management scenarios that will effectively conserve biodiversity	L
Forestry	Resilient forests	What are the critical features of resilient forests, in terms of wildfire, in areas of frequent fire intervals? For example, what is needed for biological retention (fuel ladders, etc.)? What are the tradeoffs between canopy layering, dead wood, and wildfires?	OR & WA	To develop management scenarios that will conserve biodiversity while minimizing loss of habitat, forest products, and other values to wildfire	L
Forestry	Riparian prescriptions	What are the most effective management techniques in riparian areas to maintain/develop the hardwood component, retain water quality, and retain/develop the large woody debris component for conserving species?	Western OR	To develop conservation strategies for riparian areas	L
Forestry, Botany	Buffer sizes	What are the most effective buffer sizes in riparian areas (with respect to temperature, humidity, and aspect) for conserving biodiversity?	Southwest OR	To develop a flexible set of management prescriptions within riparian areas to reflect diverse landscape conditions	L
Range, Botany	Microbiotic crusts	What is the long-term effect of grazing on microbiotic crusts & what role does this play in the decline of native plant communities? What are the related restoration opportunities?	Eastern OR	To develop effective restoration techniques for native plant communities	L
Botany	Habitat components of special status plant species	What are the environmental variables that support various special status plant species on a site?	OR & WA	To determine the environmental components that support special status plants on a site & thereby help focus inventory efforts & restoration projects.	L

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Wildlife	Barred owl/spotted owl interaction	What are the competitive interactions between barred owls & spotted owls relative to prey, habitat, & space?	OR & WA	To better understand the influence of increasing barred owl populations on the spotted owl populations	L
Wildlife	Conservation strategies	What are the opportunities for multi-species conservation & ecosystem management approaches in the Pacific Northwest?	OR & WA	To synthesize & evaluate conservation strategies for multiple species within the Pacific Northwest	L
Wildlife	Townsend's bat	What is an effective dual frame sampling design that would aid in tracking Townsend's bat ( <i>Corynorhinus townsendii</i> ) populations over time? What is an effective model to predict habitat use by the Townsend's bat?	OR & WA	Townsend's bats are sensitive & secretive. They require specialized techniques for survey in caves/mines & Research is needed to determine if current land management activities contribute to the need to list.	L
Hydrology, Watershed	Watershed health	How should we analyze watershed data & indicators of watershed function to consider integrated & synergistic effects?	OR & WA	To determine synergistic effects of watershed components (e.g., pools, riffles, wood, substrates, etc.)	Not ranked
Hydrology, Watershed	Cumulative effects—watersheds	What analytical processes are most effective to link sub-basins to watersheds & to assess cumulative effects over time? How should we analyze tradeoffs of short-term risk for long-term benefits?	OR & WA	To examine long-term, cumulative effects of logging & other management activities	Not ranked
Hydrology, Fisheries	Analysis	At what scale should water quality, fish demographics & peak flow be analyzed?	OR & WA	To determine the appropriate scale for watershed analysis & multi-scale analysis	Not ranked

### Contact information:

**Botany: Joan SeEVERS (503) 808-6048**

**Fire: LouSA EVERS (503) 808-6377**

**Fisheries: JOE MOREAU (503) 808-6418**

**Forestry: LARRY LARSEN (503) 808-6080**

**Hydrology: ROSEMARY MAZAIIKA (503) 808-6076**

**Range: CRAIG MACKINNON (503) 808-6157**

**Socioeconomic: CHRISTINA CASWELL McElROY (503) 808-6050**

**Wildlife: GEORGE BUCKNER (503) 808-6382**