

Rogue Basin Partnership Proposal – OWEB Priority Consideration

The Rogue Basin Partnership (RBP) members identified several landscape-level critical habitat types in the region, the species they support, the strategies needed to conserve or restore the habitats, and the feasibility of delivering restoration strategies to these habitats over the next decade. Of the six habitat types considered (upland mixed-conifer forests, oak woodlands, grasslands/prairies, river/stream corridors, wetlands, and estuaries), three were determined to be the most important ecologically for the region – river/stream corridors, oak woodlands and mixed-conifer forests.

This proposal addresses OWEB's questions regarding river/stream corridors as an ecological priority of statewide significance, specifically in the context of the Rogue River Basin. And while RBP members support mixed-conifer forests and oak woodlands as ecological priorities in southern Oregon, other conservation organizations are in a stronger position to articulate why they should also be considered for a statewide priority. The RBP members anticipate that the Klamath Bird Observatory will prepare an oak woodlands priority proposal for Southern Oregon, coastal partners will prepare an estuary priority proposal and possibly a Southern Oregon Northern California Coastal Coho priority proposal, which the members also support.

1. Proposed Priority Description

a) What is the native fish or wildlife habitat to be conserved or other natural resource issue to be addressed?

RBP members suggest that river/stream corridors (inclusive of the water, in-stream habitat, riparian and floodplain habitats) be considered as a statewide priority. River/stream corridors are the arteries of the landscape. They deliver critical life-giving water, provide habitat, and benefit almost every species along their meandering paths to the ocean. River/stream corridors are connectors ecologically and socially, and provide the water that is critical to our economy. The resilience of these corridors must be improved to help buffer the state, and especially our region and its species, against the impacts of climate change.

Specifically here in the Rogue Basin, river/stream corridors support a diversity of native fish including spring and fall Chinook salmon, ESA listed coho salmon, ESA listed green sturgeon, white sturgeon, winter and summer steelhead, cutthroat trout, Pacific lamprey, among others. Summer steelhead in the Rogue are particularly unique with their expression of the half-pounder life history. Tens of thousands of young adult (usually sexually immature) steelhead rush back into the Rogue during the fall (following just several months in the ocean) before they run back out to the Pacific. This migration pattern only occurs in the southwestern corner of Oregon and northwestern corner of California (primarily in the Rogue and Klamath Rivers). The Rogue River is one of only three rivers in the world that support green sturgeon populations. River/stream dependent wildlife species found in the Rogue include: beaver, river otter, northern red-legged frog, and northwestern pond turtle, among others. The ESA listed spotted owl and gray wolf, and other species such as cougar, deer, elk, fisher, and coyote, utilize river/stream corridors for water and migration between upland habitats. The Rogue has exceptional biodiversity, and even supports an aquatic gilled mushroom found nowhere else in the world.

Riparian habitats cover a small percentage of land area in the Rogue Basin, yet they provide critical breeding areas, overwintering grounds, migration stopover habitat, and corridors for dispersal for many landbird species (Altman 2000). Greater bird species abundance and diversity is often found in riparian zones compared to adjacent habitats, especially at lower elevations (Stauffer and Best 1980, Knopf 1985). However, habitat loss and anthropogenic impacts have resulted in significantly declining population trends for birds breeding in riparian areas, including belted kingfisher, spotted sandpiper, Bullock's oriole, willow flycatcher, song sparrow, and wrentit (Breeding Bird Survey Southern Pacific Rainforest physiographic region; Altman 2000 and Sauer et al 2001). Willow flycatcher and yellow-breasted chat are additionally listed as Strategy Species in the Oregon

Conservation Strategy (ODFW 2006), while willow flycatcher and wrentit are identified as species of continental importance in the Pacific Avifaunal Biome in the Partners in Flight North American Landbird Conservation Plan (Rich et al 2004). Due to their biological importance and relative rarity, loss of riparian habitats may be the most important cause of population decline among Western landbird species (DeSante and George 1994), and thus represent a critical conservation priority. Another tenet of Partners in Flight is to keep common species common, and other riparian focal species laid out in the conservation plan for Oregon lowlands and valleys, including purple martin, tree swallow, and yellow warbler (Altman 2000), as well as riverine species such as American dipper, common merganser, osprey, green heron and great blue heron, would also benefit from restoration actions targeting riparian areas.

b) What are the specific expected ecological outcome(s) to be achieved after this priority is addressed?

The long-term ecological outcome of restoring river/stream corridors will be clean water at sufficient volumes throughout the year to sustain aquatic life and maintain healthy, interconnected, native riparian and floodplain habitats. Restoration of the full suite of ecological processes (hydrologic/flood attenuation, sediment transport dynamics, nutrient cycling, temperature moderation, etc.) and the functions (food web support, water quality maintenance, flood storage, wildlife habitat) and values (aesthetics, recreation, foraging, water supply, wild and scenic, etc.) river/stream corridors provide when they are intact, is critical to sustaining resilient systems. The salmon originating in the Rogue River Basin are essential to the Pacific Coast fisheries and to the nutrient enhancement cycle, that feeds our river system.

c) What is the defined geographic location within which this proposed priority can be successfully addressed?

At the prioritization stage, the river/stream corridors throughout the state and specifically the Rogue Basin are suggested as a priority. The river/stream channels and their associated riparian and frequently activated floodplain areas form an often narrow, but interconnected network across the landscape that must function to protect our water. At the ensuing Focused Investment proposal stage, a subset of the corridors and/or a targeted restoration strategy to address one or two issues within the corridors will be proposed. The RBP members are in the process of evaluating the restoration and protection strategies and the specific corridors within the basin that offer the greatest ecological and economic leverage and have the necessary social and organizational capacity to achieve the desired restoration outcomes within approximately a decade. RBP is developing a Rogue Restoration Action Plan that will use spatial data to develop priorities.

2. Significance to the State

a) Why is this proposed priority of ecological significance to the state, even though it may not be present everywhere in the state?

There are over 111,000 river/stream miles in Oregon (OWRD, 2007). River/ stream corridors make up small fraction of the landscape in the state, yet they convey the most critical element to life – fresh water. Specifically for the 215 miles of the Rogue, the river and its tributary stream corridors drain a basin of immense ecological biodiversity, and one that is substantially intact over a majority of its landscape. The river/stream corridors connect the unique biological resources of the basin together.

The climate of the basin is much more closely related to northern California than the rest of western Oregon, with much hotter and drier summer weather. Our species have evolved with this hot and dry summer climate. The Rogue Basin is also unique socially, supporting a much larger human population than any other coastal watershed in Oregon. More habitat challenges come with the larger population.

The river/stream corridors support five species of native salmonids (one listed), pacific lamprey, ESA listed green sturgeon, and white sturgeon, which are all ecologically and culturally significant in the state. The Rogue is the second largest producer of salmon in Oregon, only behind the Columbia River System (NOAA, 2006). The

anadromous fish of the Rogue belong to evolutionary significant units (ESUs) separate from the bulk of Oregon coastal populations, and the Rogue is the anchor in Oregon for these ESUs. Our coho are part of the Southern Oregon Northern California Coho ESU (SONCC), and the Rogue is by far the largest producer in Oregon for SONCC. The corridors also provide refuge to the ESA listed spotted owl, (which is known to utilize north facing and less frequently burned forests (including riparian corridors)) and more recently the ESA listed gray wolf. It is the southernmost watershed that is almost entirely within the boundaries of the State of Oregon, increasing our ability to protect the investments that are made within it.

b) Are there any social and/or economic considerations that the Board should understand regarding this proposed priority?

Fresh water is an economic engine of the state, and of the Rogue Basin. Without water within healthy functional river/stream corridors, the 300,000 people that live in the Rogue Basin, and the hundreds of thousands that visit, would no longer be supported. The Rogue river/stream corridors deliver vital water resources that support an extensive native fishery. In a study on the economic benefits of Rogue salmon and steelhead, ECONorthwest calculated over \$1.5 billion in benefits across the State of Oregon and beyond, with \$17.4 million coming to the State specifically for fishing activities (ECONorthwest, 2009). The world-renowned rafting and other river/stream corridor dependent recreation in the Rogue (including its Wild and Scenic corridor) generate \$30 million annually in economic output statewide, including 445 jobs (EcoNorthwest, 2009). The Rogue Valley is an important economic region in the state, and is heavily dependent upon its natural resources to fuel its economy.

There is a strong social connection to the Rogue river/stream corridors (please view its history <http://www.opb.org/television/programs/ofg/segment/river-of-the-rogues/>). And there is significant social support among conservation organizations, the Cow Creek Band of the Umpqua Tribe, and recreation enthusiasts to restore the Rogue. The logical place to initiate a strategy around restoring the health of the Rogue Basin is within the corridors – where the water and habitats all connect and flow through communities on the way to the ocean.

Rogue Basin Partnership members have been working together for the last 21 months, with support from the Laird Norton Family Foundation, to develop a comprehensive and actionable Rogue Restoration Action Plan to deliver the vision: “The Rogue River Basin remains resilient and supports viable populations of native fish and wildlife. Ecological processes, as well as social and economic benefits, are conserved and enhanced through collaborative, coordinated efforts of willing stakeholders.” The voluntary and proactive efforts of these conservation organizations to further restoration activities, and build upon the successful removal of three main-river dams, is a testament to the commitment of local partners to preserve and restore the Rogue.

c) In addition to its significance to the state, identify how the proposed priority fits within regional & local ecological priorities.

The priority proposal to focus on river/stream corridors aligns with regional and local priorities, given almost every local watershed council plan, agricultural water quality management plan, urban stormwater plan, and forest management plan identifies restoration or management of river/stream corridors as a strategy element. In addition, other conservation organizations have identified flow/instream/riparian/floodplain restoration strategies as important (see Restore the Rogue, KS Wild 2010). Federal and local programs (such as the Conservation Reserve and Enhancement Program and Environmental Quality Incentives Program) exist in some areas for river/stream corridor related restoration activities and those investments should be leveraged with state dollars. Focusing on river/stream corridors offers the opportunity for partner organizations to focus their interests and pull together and restore a common ecological habitat type that touches every community and conservation organization working in the region.

3. Limiting Factors

a) What ecological limiting factors exist that relate to the proposed priority identified?

For river/stream corridors in general, there are a large number of limiting factors including: hydrological modification, water availability, water quality impacts (temperature, sediment, bacteria), invasive species, riparian fragmentation, connectivity, habitat complexity loss, and migration barriers (Oregon Conservation Strategy ODFW 2006).

Specifically for the Rogue Basin, the above noted limiting factors are all represented across various parts of the basin with the greatest limiting factors being water quality - temperature, sediment, bacteria, dissolved oxygen, pH, nuisance weeds and algae (ODEQ, 2008), flow over-allocation, loss of channel complexity, and loss of fire regime in upland forests (RBCC, 2006). A conceptual model (attached) has been developed as part of the Rogue Restoration Action Plan process. The model outlines the major ecological and social limiting factors to achieving restoration in the basin and was built with input from RBP members and existing literature.

b) Reference any framework(s) that exist (Recovery Plans, Implementation plans, etc.).

There are numerous water, watershed, and species specific recovery plans that apply to all or part of the Rogue Basin including: conservation plans for fall and spring Chinook in the Rogue Management Unit (ODFW 2013, 2007), SONCC Coho Salmon Recovery Plan (NOAA 2014), Restoring the Rogue (KS Wild, 2010), the Water for Irrigation, Streams, and Economy (WISE) project, among others (please see a sampling listed in the Literature section). These plans each identify actions to address the critical limiting factors in the basin. However, most are not formatted nor were produced in a manner that facilitates ownership of the specific actions or accountability among the partners to deliver on the actions proposed.

The Rogue Restoration Action Plan process underway will help the partners to integrate the prioritization of restoration, and assign leadership responsibilities for action, while incorporating previous planning efforts. To facilitate greater information sharing among partners, existing GIS data and plans have been made universally available. The partners will also develop restoration data management infrastructure for future activities, to help support and manage an increase in the scale and quality of restoration actions across the basin.

4. Threats and Benefits

a) What overall threats exist to the proposed priority identified?

The threats to river/stream corridors are extensive and come from direct as well as indirect threats. The condensed conceptual model provided highlights primary threats such as: road/stream crossings, development encroaching on riparian areas, floodplains, and stream margins, invasive species expansion, water management practices, point and nonpoint source pollution, channel manipulation, beaver removal, vegetation removal, climate change, limited funding, inadequate implementation effectiveness, and loss of social connectivity to the resources, among others.

b) What will happen if the threats aren't addressed?

Threats that are not addressed will continue to degrade natural resources and contribute to the loss of species that need functional river/stream corridors. At some point, the valued resource of clean water will no longer be present or become so toxic and degraded that it cannot be utilized by species that depend on it for survival.

c) Describe the economic, social, iconic and cultural benefits of addressing the outcome and impacts of not addressing it.

There are significant economic, social, and cultural benefits to protecting the availability of clean water across the landscape via river/stream corridors. Without access to clean water, the cooperative social fabric of our communities, and the businesses (recreation-based, agriculture, industry) that rely on clean water to operate, will suffer. For the Rogue, the social, cultural, and economic consequences of allowing further degradation of the resource will have profound impacts (see section 2b), and could diminish the momentum built by local conservation organizations with the restoration efforts already implemented (dam removals, riparian corridor restoration, instream habitat projects, etc).

d) Briefly summarize how much has been done already, how much is remaining.

Members of the RBP and other collaborations of conservation organizations have been collaborating on efforts to restore river/stream corridors for more than 15 years. Over 40 fish passage barriers have been removed in the basin opening over 500 of miles of habitat highlighted by the removal of Savage Rapids, Gold Ray, Elk Creek, and Gold Hill Diversion dams in the past six years

The amount of work remaining is being assessed and prioritized as part of the Rogue Restoration Action Plan process currently underway. Recovery of the system will take decades, but our strategy will target the highest value activities within the corridors to be completed within the next decade, and will be informed by the Rogue Basin Ecological Integrity Assessment (OBIC, 2014), which is modeling the likely ecological impacts to the Rogue due to climate change. Our charge will be to focus efforts on areas and practices that build resiliency in the system in the face of climate change.

e) What is your best estimate of cost to address the priority, and as a result, how economically feasible do you believe it is to address this priority over time?

The costs associated with addressing the health and function of river/stream corridors are highly dependent on the degree to which each focal corridor is impaired and the measures necessary to assist its recovery. Based on the work completed in the Deschutes and Willamette SIP – for recovery of a positive trajectory of a healthy stream/riparian corridor, it has averaged between \$250,000 and \$1 million per mile for instream/riparian/floodplain work. The all-inclusive cost of riparian revegetation has averaged \$8-10,000 per acre to achieve a free to grow state after 5-7 years. Resources from other funding programs will need to be utilized to leverage any resources provided by the state to achieve the desired outcomes.

For the mainstem Rogue dam removals, the cost averaged \$3 million. However, the target of future dam and barrier removals will be smaller in scale, but a higher number of barriers will need to be addressed to optimize fish access throughout the Basin.

5. Opportunities

a) Ecological:

1. What are the measures of ecological success? What's the likelihood of ecological success in the short (6-year), medium and long-term (define the term lengths)?

The outcomes of ecological improvement of river/stream corridors can take a decade or more to observe and a well-grounded monitoring strategy will be required to document changes in conditions over time. Ecological measures such as: degree of connectivity within the corridor, vegetative composition and health, hydrologic and water quality conditions and their associated improvements to stream corridor processes and function, are elements you would want to track to demonstrate change over time in the long term (on 10 year intervals

for at least 50 years). However, for the short term, measures of the outputs of activities (miles of habitat opened for access, acres of corridors treated, amount of water restored, landowner agreements secured, amount of canopy cover and functional buffer, etc.) can be readily and inexpensively measured through the implementation process on an annual basis and maintained in a secure on-line programmatic database.

Although dramatic improvements in stream corridor processes can be accomplished over the near-term (within 10 years), the response of the system to these improved processes will not manifest in ecological health until the mid-term (20 to 30 years) time frame. While sediment transport, stream corridor connectivity, floodplain connectivity, and instream water acquisitions are all somewhat instantaneous upon completion of individual project activities, their impact on the overall ecology of the system accumulates over the exposure to multiple high and low flow events, several generations of fish runs, and interactions with other restoration targets that take longer to have an effect (like riparian forest restoration). For these reasons, ecological success: a river and near-stream ecosystem that sustains sufficient flows, suitable water quality, and high quality habitats for native species, will not be accomplished under any timeframe but the long-term (50 years).

2. What types of voluntary conservation actions could be undertaken to address the proposed priority?

There are numerous voluntary conservation and restoration actions that can be undertaken in river/stream corridors to improve their health and function, including: instream flow restoration, passage and barrier removals, instream habitat improvements, floodplain re-connectivity and activation of side channels and other off-channel habitats, invasive species management, exclusion fencing, riparian revegetation, conservation acquisition and easements, enforcement of protection laws, among others. Not all of these actions are needed everywhere and the Restoration Action Plan will guide the most impactful actions needed in different corridors. At a programmatic implementation level, one or two basinwide critical actions will need to be selected and acted upon to move the system towards recovery, while allowing of leverage from other funding opportunities. While those one or two programs are being implemented, the other necessary programs can be developed for implementation at a later time.

3. Should the proposed priority be divided into geographic areas that are appropriate for partners to address?

At the prioritization level, we suggest that the basinwide network of river/stream corridors is most important to acknowledge. At a programmatic implementation stage (such as a focused investment proposal) a decision will be made about which activities will be most beneficial (and in which corridors and by when). The RBP anticipates implementing the Rogue Restoration Action Plan in a manner that delivers maximum ecological uplift, while also aligning and engaging its members in delivery of critical elements of the plan.

b) Social:

1. Do partnerships exist to address the proposed priority? If so, briefly describe. If not, note why this proposed priority is important enough that partnerships may form to address it.

The RBP, as well as sub-partnerships among its members, have been working on restoration of river/stream corridors for over a decade. The documentation of critical barriers to remove (Rogue Basin Fish Access Team), a limiting factors analysis (Rogue Basin Watershed Health Factors Analysis), and the implementation of the removal of over 40 barriers, including three large dams (Gold Hill, Gold Ray, and Salvage Rapids), and the ban on suction mine dredging legislation, are a few examples of efforts to improve river/stream corridor health completed by organizations that are or are likely to become partnership members. The Rogue Basin Partnership is pursuing an OWEB TA grant to develop a strategy to address fish passage issues at the 30 highest priority barriers identified by ODFW. Other partnership members are pursuing in-stream projects, and restoration of riparian corridors.

The RBP will serve as the backbone organization for the Rogue Basin, to facilitate collective impact and Restoration Plan delivery by: facilitating partner member dialogue, convening technical expertise and peer to peer learning, securing and administering basinwide programmatic-level funding, and engaging broad conservation-oriented members in delivering each element of the Restoration Action Plan. The Partnership recycled the 501c3 status of the Rogue Basin Coordinating Council, and is in the process of expanding its membership and altering its governance structure to accommodate its new function in the Basin – as guided and designed by Partnership members.

2. *What social opportunities exist to address the proposed priority? Is there momentum built?*

There is substantial momentum and interest among the partners to focus on river/stream corridors, as highlighted by their swift decision to submit corridors as a priority. Landowner engagement in some areas of the basin has created a strong network of local interest. And the recent drought has galvanized interest and support to more effectively conserve our water resources in the basin. In other areas, strategic outreach is needed. The lessons learned from successful programs will be utilized in areas not yet engaged. In some watersheds, large swaths of the river/stream corridor are in public ownership, but the condition of these corridors is often degraded. Significant opportunities exist on local, state, and federal public lands to lead the way in showcasing what healthy river/stream corridors should look like and how they should function.

This selection of this priority is particularly meaningful for urban areas (Grants Pass, Medford, Ashland), because it opens the opportunity to work together with social services organizations who are often managing social issues that concentrate in river /stream corridors such as illegal camping, homelessness, littering, native vegetation removal, and drug use. In more rural areas, stronger relationships with the boating and fishing communities will also be facilitated to help get more eyes on the river and streams, and have a positive outlet for stakeholders to engage in restoration action. RBP member organizations and volunteers regularly participate in Rogue River cleanups, invasives removal and revegetation projects, to build ongoing support and connection to this valuable resource.

3. *Describe educational benefits, if any.*

Demonstration of healthy, functional river/stream corridors will have long term benefits to the stewardship ethic of any community that is given the opportunity to concentrate its efforts streamside. One challenge identified by stakeholders was that river/streamside landowners are damaging riparian corridors for views, access, flood control, or animal forage. Working with owners to meet their needs while preserving corridor function will be critical to long-term success of any restoration effort. There is a targeted campaign of awareness and education being proposed in the Restoration Action Plan to specifically address this limiting factor. In addition, it is important to note that members of the RBP have been ambassadors of water resource outreach and education for many years. Their activities range from on the ground restoration projects, to educational presentations and workshops, specifically for peers involved with water resource management. This will continue to be an integral part of the collective educational programming of the basin.

4. *Summarize the social, community, political, regulatory or other factors that will help lead to the success of this proposed priority.*

Strong conservation partnerships, a community willing to participate and engage, an ethic of water based recreation in the region, ESA-listed fish and wildlife species, water quality mandates under the TMDL, and water management agreements underway via the WISE project, all add leverage to helping achieve restoration success in river/stream corridors. The commitment of local and regional foundations, OWEB, and federal agencies, in supporting the efforts of local conservation organizations is also a significant contributing factor to the success of the Rogue restoration efforts. The RBP members want to elevate their restoration success, through thoughtful planning and strategic implementation in priority areas. It is learning from the lessons of others, while charting a course that is the right fit for the Rogue.

5. What can be leveraged to address the proposed priority (funding, acreage impacts, other resources)?

The RBP members are actively pursuing additional foundation funding to leverage our collective efforts. Currently the Laird Norton Family Foundation has played an instrumental role in helping the partners move to define and align their niches, and develop a scientifically sound basinwide Restoration Action Plan for the partners to implement. Other foundations including: Bullitt Foundation, Ford Family Foundation, Meyer Memorial Trust, Wilburforce Foundation, Carpenter Foundation, Jubitz Foundation have invested in various RBP member organizations, and other outside entities actively working to advance understanding and restoration of the Rogue, over the last decade.

At the implementation level, conservation organizations within the Partnership regularly pursue non-OWEB funding to advance the conservation and restoration of river/stream corridors. Local SWCD's and NRCS staff implement agricultural water quality management plans and programs such as CREP and EQIP. The City of Medford has funded and contracted for the creation of riparian shade to meet some of its water quality regulatory obligations. This and other city/agency/utility funding will be utilized to leverage the collective efforts in river/stream corridors. The Wild Rivers Coast Alliance also commits money towards stream/river corridor restoration each year.

c) Economic Benefits

1. Describe the economic benefits of addressing the ecological proposed priority, including ecosystem services.

The restoration economy is a significant economic driver in the state, and its trickle-down impacts to other industry sectors is enormous, especially when one considers the impact of access to clean and abundant water supplies. The proposed priority focus on river/stream corridors is intended, in part, to support a continued build of the restoration infrastructure needed in this region (and state) to successfully implement restoration actions at scale. Without a critical mass of restoration activity, it is difficult to achieve the economies of scale needed to increase restoration production and lower per unit costs of our efforts over time. The technical expertise within organizations can only be strengthened if there is demand for their services. By investing in river/stream corridors, and a handful of critical actions within them, the restoration practitioners can elevate the overall quality and quantity of restoration in the basin.

Ecosystem services are both the quantified and unquantifiable functions and values provided by a resource. Because management actions within a watershed eventually concentrate in river/stream corridors (and in water especially), the functions and values the corridors provide tend to be the most substantial on a landscape. Measuring these services, and quantifying their value in a restored state, is an exercise being utilized in the basin by local cities as well as federal agencies. And while there is much debate over the validity of the methods, the restoration credits, and its role in a regulatory construct, the RBP is capable of leveraging the ecosystem services market in whatever form it ultimately takes over time.

6. Quadrant Assessment

Describe why the proposed priority falls into a chosen quadrant.

The act of restoring river/stream corridors is mostly well understood, but complex (upper left quadrant). There are many pressures that converge on these ecological systems, including: land ownership, complex disturbance regimes (flood, fire, wind throw, keystone species utilization), working landscape consumptive use (mining, water use, forage), invasive species dispersal, etc. Restoration efforts need to be coordinated to ensure the greatest ecological uplift in the face of these pressures. The limiting factors that impede a

river/stream corridor's ability to cycle through its normal processes and provide its beneficial functions must be addressed if we are to achieve the desired outcomes with a reasonable investment over a given timeframe.

7. Other Information

The habitat type of river/stream corridors was purposely blended, to suggest an integrated approach to aquatic and transitional terrestrial habitats. These habitats are often separated in analysis, but they clearly are dependent upon one another to function properly, and therefore we believe should be considered as an interconnected network – and as one habitat type at a landscape level view.

The restoration actions proposed for the Rogue will be informed by the Rogue Ecological Integrity Assessment being conducted by the Institute of Natural Resources, Defenders of Wildlife, among others. The Assessment (complete, but under review until December) is evaluating the resiliency of habitats in the Rogue in the face of climate change. Several of the partners are pursuing additional foundation grant resources to conduct finer scale modeling along the river/stream corridors to build off the current research and further support our adaptive management approaches.

8. Support Documentation

The following organizations support this priority proposal:

RBP Member Organizations: Applegate Partnership and Watershed Council, Bear Creek Watershed Council, Illinois Valley Watershed Council and SWCD, Jackson County SWCD, Lower Rogue Watershed Council, Seven Basins Watershed Council, Southern Oregon Forest Restoration Collaborative, The Freshwater Trust, Williams Creek Watershed Council.

RBP Partner Organizations: Bonneville Environmental Foundation, Cow Creek Band of the Umpqua Tribe, Geos Institute, Klamath Bird Observatory, Rogue Riverkeeper, Southern Oregon Land Conservancy, The Nature Conservancy, WaterWatch of Oregon.

In closing, the Rogue Basin Partnership members are continuing to pursue additional private foundation funding to solidify its organizational capacity and niche alignment, develop a comprehensive basin-wide Restoration Action Plan, and increase the technical expertise needed to deliver restoration outputs and outcomes at the pace and scale envisioned when one funds a restoration program over time. The partners are assessing the strategies within this ecological priority that are most conducive to programmatic funding, are ripe for implementation, and offer the greatest ecological uplift at the present time. The Rogue Basin Partnership looks forward to pursuing higher level implementation strategies starting in the summer of 2015.

Literature

- Altman, B. 2000. Conservation strategy for landbirds in lowlands and valleys of western Oregon and Washington. Version 1.0. Oregon-Washington Partners in Flight. http://www.orwapif.org/sites/default/files/western_lowlands.pdf.
- Conservation Biology Institute, January 2003. Assessment of Aquatic Habitat Monitoring Data in the Rogue River Basin and Southern Oregon Coastal Streams.
- DeSante, D.F. and T.L. George. 1994. Population trends in the landbirds of western North America. Pages 173-190 in J.R. Jehl, Jr., and N.K. Johnson (eds.). A century of avifaunal change in western North America. Studies in Avian Biology No. 15. The Cooper Ornithological Society, Lawrence, KS.
- ECONorthwest, January 2009. Regional Economic Impacts of Recreation on the Wild and Scenic Rogue River.
- ECONorthwest, January 2009. The Economic Value of Rogue River Salmon.
- Hamlin, Samantha- Portland State University. 2014. Literature Review and Synthesis of Ecological, Social, and Economic Studies Relevant to the Rogue Basin.
- Inland Rogue Basin Local Advisory Committee, Oregon Department of Agriculture. May 2010. Inland Rogue Agricultural Water Quality Management Plan.
- Klamath – Siskiyou Wildlands Center, August 2010. Restoring the Rogue, A Plan to Prioritize Restoration on Federal Lands in the Rogue River Basin.
- Knopf, F.L. 1985. Significance of riparian vegetation to breeding birds across an altitudinal line. Pages 105-111 in R.R. Johnson, C.D. Ziebell, D.R. Patton, P.F. Ffolliott, and R.H. Hamre (tech. cords.) Riparian ecosystems and their management: reconciling conflicting uses. USDA Forest Service General Technical Report RM-120, Fort Collins, CO.
- National Marine Fisheries Service. 2012. Public Draft Recovery Plan for Southern Oregon/Northern California Coast Coho Salmon (*Oncorhynchus kisutch*). National Marine Fisheries Service. Arcata, CA.
- National Marine Fisheries Service. 2006. Salmon Habitat.
- Oregon Biodiversity Information Center, et al. 2014. Ecological Integrity Model in The Rogue Basin.
- Oregon Department of Environmental Quality. December 2008. Rogue Basin TMDL.
- Oregon Department of Fish and Wildlife. 2006. Oregon Conservation Strategy. Oregon Department of Fish and Wildlife, Salem, OR.
- Oregon Department of Fish and Wildlife. 2013. Conservation Plan for Fall Chinook in the Rogue Management Unit.
- Oregon Department of Fish and Wildlife 2007. Rogue Spring Chinook Salmon Conservation Plan.
- Oregon Water Resources Department, 2007. Water in Oregon: Educational Handout – Oregon.gov.
- Rich, T.D., C.J. Beardmore, H. Berlanga, P.J. Blancher, M.S.W. Bradstreet, G.S. Butcher, D.W. Demarest, E.H. Dunn, W.C. Hunter, E.E. Inigo-Elias, J.A. Kennedy, A.M. Martell, A.O. Panjabi, D.N. Pashley, K.V. Rosenberg, C.M. Rustay, J.S. Wendt, T.C. Will. 2004. Partners in Flight North American Landbird Conservation Plan. Cornell Lab of Ornithology. Ithaca, NY.
- Rogue Basin Coordinating Council (RBCC). March 2006. Watershed Health Factors Assessment.
- Rogue Basin Fish Access Team (RBFAT). 2000. RBFAT Strategic Plan.

Sauer, J. R., J. E. Hines, and J. Fallon. 2001. The North American Breeding Bird Survey, Results and Analysis 1966 - 2000. Version 2001.2 [USGS Patuxent Wildlife Research Center](http://www.mbr-pwrc.usgs.gov/bbs/bbs/html), Laurel, MD. www.mbr-pwrc.usgs.gov/bbs/bbs/html.

Southern Oregon Forest Restoration Collaborative. December 2013. The Rogue Basin Action Plan for Resilient Watersheds and Forests in a Changing Climate.

Stauffer, D.F. and L.B. Best. 1980. Habitat selection by birds of riparian communities: evaluating effects of habitat alterations. *Journal of Wildlife Management* 44:1-15.

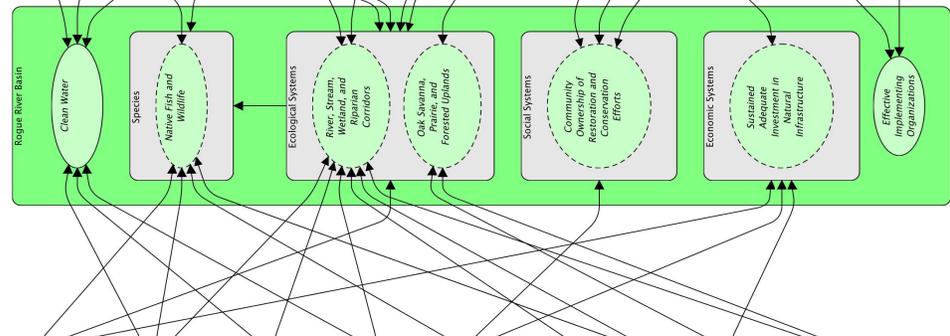
University of Oregon et al. November, 2008. Preparing for Climate Change in the Rogue River Basin of Southwest Oregon.

Rogue Basin Restoration Conceptual Model

Enhancement Strategies

- Manage invasive species to minimize impacts on target systems
- Engage landowners and public through outreach and education programs
- Restore and maintain adequate stream flows via water rights management
- Support persistence of beavers in appropriate areas
- Increase channel complexity, side channels, alcoves, and remainder
- Revegetate riparian areas
- Reconnect floodplains/wetlands features
- Reduce hatchery production over time
- Install riparian fencing to exclude livestock
- Remove fish passage and sediment barriers
- Use prescribed fire to restore and maintain fire adapted systems
- Reduce forest fuel loads
- Remove unnecessary roads

- Introduction of non-native species
- Water management Practices
- Beaver Removal
- past and future simplification of stream and wetland systems
- Hatchery Production
- removal of native riparian vegetation
- existing artificial instream structures
- altered fire management regime
- Excessive road networks



- climate change
- Urban and Road Development
- non point source pollution and runoff
- Point source pollution
- intensive land management for commodity production and river use
- conversion of diverse landscapes to monocultures
- Limited funding availability
- loss of social connectivity
- limited access to usable ecological knowledge
- Inadequate Implementation Effectiveness

Policy, People, and Land Conservation Strategies

