The Elwha River on Washington’s Olympic Peninsula once supported ten salmon runs representing all five species of Pacific Salmon, some of the richest runs outside of Alaska. Two dams constructed on the Elwha over 90 years ago dramatically changed the river ecology. Built without fish passage, the lower Elwha dam has limited salmon to the lower five miles of the river.

In 1992, the Elwha River Ecosystem and Fisheries Restoration Act authorized removal of the dams in order to restore the once-plentiful salmon runs. Dam removal is currently slated to begin in 2012, offering researchers an unprecedented opportunity to study ecosystem recovery. Since over 80 percent of the watershed lies within Olympic National Park, little has changed there since construction of the lower dam — except for the absence of anadromous fish.

The lack of salmon and steelhead for almost a century from all but the lower five miles of the river has likely had profound ecological effects. The dams formed two reservoirs that have acted as sediment traps, starving the lower river, the delta at the river mouth, and the nearshore and beach areas of material that would have naturally accumulated and

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Prairie Restoration and the Island Marble Butterfly

In 1998, a small population of the Island Marble butterfly (*Euchloe ausonides insulana*), thought to be extinct for nearly 90 years, was found in Washington state in San Juan Island’s National Historical Park on remnant prairies in the park’s American Camp. The Island Marble is a beautiful mostly white and yellow butterfly with a greenish marbled texture under the hind wing. The species had historically inhabited coastal grasslands and Garry Oak woodlands in the San Juan Islands, Vancouver Island, and the Gulf Islands; the earliest record is from Vancouver Island in the 1860s. Restoration ecology PhD candidate Amy Lambert is currently working with Professor Kern Ewing on a collaborative effort supported by the FW Cooperative Ecosystem Studies Unit to better understand the demographics and landscape requirements of the Island Marble to help park managers enhance its survival.

Lambert completed her master’s degree at the College in 2006, working on restoring native plant communities in American Camp, one of the last surviving natural prairies in the Northern Straits and Puget Sound regions. Now, in her PhD project, the prairie restoration project is adding a layer of complexity to the Island Marble research. Says Lambert, “Changes in and loss of prairie habitat and structure likely caused the Island Marble’s numbers to decline. These changes have had multiple causes, including grazing by livestock and the loss of open prairie grasslands through housing and urban development. Dependent on plants from the mustard family as a host and a food source for its larvae, the Island Marble now appears to be using introduced field mustard—an agricultural pest—as one of its primary food sources. The Island Marble has persisted, if only precariously, by switching to introduced host plants.”

After a formal review in November 2006, the U.S. Fish and Wildlife Service declined to add the Island Marble to the Federal list of threatened and endangered species but authorized a Conservation Agreement with the National Park Service to ensure the conservation of the butterfly. Lambert’s research will help answer the many questions that are crucial to the success of any conservation and management plan. At what stage in its life cycle—egg or caterpillar—is the Island Marble most vulnerable? If native mustard species are restored, will the Island Marble go back to using native mustards as a host plant? And perhaps clues can be found as to where other populations of the Island Marble may exist, and why and how it survived on San Juan Island.

“This is an exciting opportunity for research as well as public education,” says Lambert. “There are 36 species of butterfly recorded on San Juan Island, all on just 1,765 acres, and the rediscovery of the Island Marble on National Park Service land here makes this an even more special place.” Lambert also holds a degree in fine art and is interested in the intersections of public art, restoration ecology, and conservation biology. She was chosen by UW Bothell as one of five UW graduate students in the 2007-2008 Project for Interdisciplinary Fellows Program that gives doctoral students an opportunity to develop teaching skills in an interdisciplinary program that integrates the arts and sciences.

Elwha River Restoration

receded as part of a normal seasonal process. Erosion in the nearshore areas of the Strait of Juan de Fuca and an armoring of the river bed have reduced spawning areas. The anadromous fish community structure has changed from one dominated by pink salmon to one that is dominated by hatchery produced Chinook and coho. Between the dams and above the upper dams, the loss of marine-derived nutrients may have affected aquatic communities and caused population declines in many species of birds and mammals who feasted on salmon carcasses.

The impending dam removals have accelerated research and monitoring by scientists from federal and state agencies, the Lower Elwha Klallam Tribe, and several universities. The baseline information being collected will represent the existing conditions of a river ecosystem that dramatically changed when the dams were constructed.

Assistant Professor Christian Torgersen, a USGS research landscape ecologist with the Forest and Rangeland Ecosystem Science Center’s Cascadia Field Station, is collaborating with biologists from the USGS, the National Park Service, the Lower Elwha Klallam Tribe, the U.S. Fish & Wildlife Service, NOAA’s Northwest Fisheries Science Center, Peninsula College, and the Wild Salmon Center on a large-scale survey of adult fish in the mainstem Elwha from its headwaters to the sea. Torgersen, one of 12 new faculty hired by the College in the last two years, has a PhD from Oregon State University and an interdisciplinary background in fisheries science and geography. His research uses geospatial applications, such as remote sensing and GIS, and statistical modeling to quantify spatial patterns of animal distribution and identify how scale of observation influences our understanding of ecosystems.

Says Torgersen, “The project’s first survey took place in August 2007. With a goal of establishing a baseline of adult fish distribution and patterns of abundance for each species throughout the entire river, 21 snorkelers surveyed 42 miles of river, beginning at 2,350 feet in the upper Elwha Valley and ending where the Elwha enters the Strait of Juan de Fuca. Unlike other whole-river efforts that may occur over an entire summer, this survey was conducted in a single week.” In addition to snorkelers, the expedition required aerial reconnaissance surveys to scout remote canyons, and a string of miles to haul 1,000 pounds of fisheries sampling and camping equipment into remote locations. “We’re analyzing the data collected and planning for a similar effort this year,” says Torgersen. “The main difference is that we will be mapping both fish distribution and aquatic habitat in a high-resolution, spatially continuous manner. Last year we just enumerated fish in reaches that were several kilometers long. This year we’ll be attempting to quantify and map every pool and riffle and their physical characteristics to relate to fish abundance.”

The Cascadia Field Station, housed in the College of Forest Resources, was originally established as the Cooperative Park Studies Unit in 1970 to provide scientific support for the National Park Service and to complement the teaching and research missions of the College. “This survey on the Elwha is a great example of collaboration among natural resource practitioners and researchers to conduct coordinated research across an entire watershed,” says Torgersen, who helped collect the data and provided guidance on geospatial methods and analysis. For more information see http://faculty.washington.edu/crest/pub/USGS_FAB_fall_2007.pdf; and a special issue on Elwha River restoration in the journal Northwest Science. http://www.pc.ctic.edu/coe/publications.htm.
Alumni Focus

Ronald Kortlever (‘66) is superintendent of the Bureau of Indian Affairs’ Siletz Agency in Siletz, OR.

Raymond Guries (‘73) is professor and chair of the University of Wisconsin, Madison’s Department of Forest Ecology and Management.

Dawn Neuman (‘80) was recently appointed provost and vice president for academic affairs at California State University Channel Islands.

Peter Crimp (‘82) is project manager for the Alaska Energy Authority’s alternative energy and energy efficiency programs.

Patricia Grantham (‘82) is the forest supervisor for the Klamath National Forest in Yreka, CA.

Brian Carbaugh (‘83) oversees forest operations in the state of Washington for the forest management firm, Forest Systems.

David Ek (‘83) is assistant chief of resource management at Death Valley National Park.

Eric Hoberg (‘83) is zoologist and curator of the USDA Agricultural Research Service’s National Parasite Collection in Beltsville, MD.

Barbara Cole (‘83) is professor of wood chemistry at the University of Maine, Orono.

Erik Anderson (‘87, ‘84) is chief executive officer of Louis Dreyfus Commodities North American region, in Wilton, CT, where he coordinates worldwide grain activities.

Susan Frankel (‘91, ‘83) directs the Sudden Oak Death Research Project at USFS Pacific Southwest Research Station in Albany, CA.

Heather Erickson (‘94, ‘84) is an ecosystem ecologist for the USDA Forest Service in Portland, OR.

Kevin Zobrist (‘01, ‘00) is Washington State University’s forest stewardship extension educator for Snohomish and Skagit Counties.

Sherri Stephanson (‘04) is the Social Measures program officer for the World Wildlife Fund in Washington, DC.

Robin Lesher (‘05) has worked as an ecologist for MT. Baker-Snoqualmie National Forest’s Ecology Program since 1984, her specialty is investigating the forest’s fishens, inverteours, and mosses.

Mort Lauridsen, Jr. (1910-2010)

In Memoriam

Morten Lauridsen, Jr. (1910-2010)

V.G.

The College Welcome New Wildlife Science Faculty

The College welcomed Assistant Professor of Wildlife Conservation Aaron Wirsing to the CFR faculty in September 2008. Wirsing was previously a postdoctoral fellow at Florida International University. His wide interests in predator-prey dynamics span the terrestrial and marine realms and include substantial statistical modelling; he is currently leading a long-term assessment of the indirect effects that tiger sharks exert on a seagrass community by altering grazer habitat use in a coastal marine ecosystem in Australia. He is also exploring the implications of rare habitat preferences for lynx management and recovery in the northwestern U.S.

Denman Series on Ecosystem Restoration

Established by the College in 2000, the Denman Forestry Issues Series provides information and discussion for the UW community and the public on timely forestry and natural resource issues. A program on Sector Modeling: State-of-the-Art and Sea Change on November 10, 2008 by 50 percent. The North American Plant Collection Consortium granted Member Status to the UW Botanic Gardens’ Acer (maple) collection at the Washington Park Arboretum. The consortium’s decision recognizes the collection as one of the best in North America. The Pacific Connections Gardens grand opening was celebrated with a public event on September 20, 2008.

Conference on Forest Sector Modeling

Professor John Perez-Garcia is chairing the organizing committee that will bring a conference of the International Union of Forest Research Organizations (IUFRO) to the UW in November 2008. Entitled "Forest Sector Modeling: State-of-the-Art and Future Challenges in an Expanding Global Marketplace," conference co-sponsors include the College’s Center for International Trade and Development, the European Forest Institute, the International Institute for Applied Systems Analysis, the USDA Forest Service, and Oregon State University. Birger Solberg of the Norwegian University of Life Sciences will give the keynote address. Discussion topics will include short-term versus long-term modeling, use of econometric results as modeling input, integrating forest sector and biological system models, treatment of uncertainty, and incorporating wood-based bioenergy models.

Highlights

New faculty appointments include Assistant Professor of Wildlife Science Aaron Wirsing, and Research Associates Barbara Clucas and Jim Lutz, effective September 2008, and affiliate faculty Cara Nelson and Kevin Zobrist, effective June 2008. Gregory Wirtz has been appointed the first James Rigby Endowed Professor, Affiliate Associate Professor and PMW Cooperative Ecosystems Unit co-leader Darryl Johnson retired in July. Faculty awards included the election of Don Hanley as a Fellow in the Society of American Foresters. The College appointed Barbara Wright as the Denman Forestry Issues Series Director, and appointed the Board, to the College Visiting Committee. The Center for Sustainable Forestry at the UW hosted 125 high school students from around the state on May 1-2, 2008 for the state finals of the Future Farmers of America’s Natural Resources and Forestry contests. The College’s student clubs sponsored the annual Garb Day celebration on May 17, 2008, at the Center for Sustainable Forestry at Park Forest. Events included a salmon barbecue, logging sports, and a forestry quiz bowl. The Washington Pulp and Paper Foundation held its Annual Meeting and Banquet on May 22, 2008 on the UW campus. Along with WSU Extension and King County, the College co-sponsored a Summer Youth Forestry Institute in July 2008. Eleven high school students set up forest survey plots in rural King County, and learned about forest ecology, forestry, and natural resource management. They also entered data and ran treatment simulations using the College’s Landscape Management System. The Byron and Alice Lockwood Foundation recently pledged funding over the next five years for a Byron and Alice Lockwood Endowed Professorship for a faculty member with expertise in the sustainable management of natural resources. The W.G. Reed Fellowship in Sustainable Resource Sciences, established in 2004, received a $50,000 matching gift from The UW Founders on July 1, 2008, increasing the principle value by 50 percent.

The College appointed Barbara Wright, Arboretum Foundation Board Member, to the College Visiting Committee. The College co-sponsored a Summer Youth Forestry Institute in July 2008. Eleven high school students set up forest survey plots in rural King County, and learned about forest ecology, forestry, and natural resource management. They also entered data and ran treatment simulations using the College’s Landscape Management System. The Byron and Alice Lockwood Foundation recently pledged funding over the next five years for a Byron and Alice Lockwood Endowed Professorship for a faculty member with expertise in the sustainable management of natural resources. The W.G. Reed Fellowship in Sustainable Resource Sciences, established in 2004, received a $50,000 matching gift from The UW Founders on July 1, 2008, increasing the principle value by 50 percent. The North American Plant Collection Consortium granted Member Status to the UW Botanic Gardens’ Acer (maple) collection at the Washington Park Arboretum. The consortium’s decision recognizes the collection as one of the best in North America. The Pacific Connections Gardens grand opening was celebrated with a public event on September 20, 2008.
Josh Lawler is one of twelve new faculty members recently recruited by the College; he was appointed Assistant Professor of Quantitative Landscape Science in March 2007 following a nationwide search. He holds MS and PhD degrees in ecology from Utah State University, has been a postdoctoral fellow at the University of Maine and Oregon State University, and served as a National Research Council Associate at the U.S. Environmental Protection Agency.

Lawler says, “My interests lie mainly in the fields of conservation biology and landscape ecology — I’m interested in how human activities affect ecological systems at large spatial scales. My recent research includes projecting climate-induced shifts in species distributions, investigating the effects of climate change on protected lands, modeling population dynamics in changing landscapes, developing tools for conservation planning, and modeling watershed recovery from acidification.”

In a current project funded by The Nature Conservancy, Lawler is developing tools that can be used to help conservation planners address climate change. These tools include information about recent past and projected future climate changes; projected changes in hydrology and disturbance regimes such as fire, flooding, and extreme weather events; assessments of the vulnerability of sites and species to climate change; and clear and illustrative examples of the impacts of climate change on both ecological and human systems.

Alumni Focus continued

Alberta, and Jack Corley’s wife Vada May, as the College’s first endowed chair. The Chair, currently held by David Briggs in support of the College’s Precision Forestry Cooperative, will continue to inspire College faculty to make a scientific impact on the economic, social, and ecological sustainability of the world’s forest resources for the benefit of future generations.

Alumni Annual Meeting and Banquet

The College’s Alumni Association (CFRAA) held its annual meeting and banquet on October 11, 2008. For more than 90 years, CFR alumni, faculty, staff, and students have gathered every year to reconnect, honor achievement, learn from each other, and share a meal. Events included a meeting and a College Research Showcase featuring faculty and staff, and the production of an e-newsletter with information about alumni and College activities. Update your email address at http://www.washington.edu/alumni/address_change.html, and help promote environmental literacy and a robust exchange of ideas.

We hope to continue to participate with CoE; our College remains committed to educating the next generation of leaders, scientists, and informed citizens who will help solve the natural resource and environmental challenges facing society. I welcome your input on this potentially historic change for the College of Forest Resources.

B. Bruce Bare