Washington State Department of Natural Resources

Olympic Experimental State Forest

CATALOG OF RESEARCH AND MONITORING

EFFECTS OF MANAGEMENT ON SPECIES POPULATIONS

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Effects of Management on Riparian Species Populations

Federal Agencies

NOAA Fisheries, Northwest Fisheries Science Center

Response of Aquatic Species to Instream Restoration

Roni, P. 2001. Responses of fishes and salamanders to instream restoration efforts in western Oregon and Washington. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Interagency Agreement No. 1422H952-A98-3007.

US Fish and Wildlife Service, Pacific Region

Effects of Fish Passage on Salmon Use

Zajac, D. 2002. An assessment of anadromous fish habitat use and fish passage above Makah national fish hatchery in the Sooes River. U.S. Department of Interior, Fish and Wildlife Service, Western Washington Fish and Wildlife Office, Division of Fisheries and Watershed Assessment. Unpublished report.

Zajac, D. 2004. An assessment of potential anadromous fish habitat use and fish passage above Quinault national fish hatchery in Cook Creek. U.S. Department of Interior, Fish and Wildlife Service, Western Washington Fishery Resource Office. Unpublished report.

Effects of Hatchery Supplementation

Hiss, J.M., R. Meyer, R. Boomer, and D. Cole. 1986. Hatchery winter steelhead contribution to the Hoh River fisheries and potential impacts on the native stock. U.S. Department of Interior, Fish and Wildlife Service, Fisheries Assistance Office. Unpublished report.

Peters, R.J., E. Knudsen, and G. Pauley. 1996. The effects of fry supplementation on the emigration of salmonids from tributaries of the Clearwater River, Washington. U.S. Department of Interior, Fish and Wildlife Service, Western Washington Fishery Resource Office. Unpublished report.

Wampler, P.L., J. Anderson, and E. Knudsen. 1990. Evaluation of planting native hatchery coho fry Into streams containing wild coho fry. U.S. Department of Interior, Fish and Wildlife Service, Fisheries Assistance Office. Unpublished report.

US Forest Service, Regional Ecosystem Office

Synthesis of NWFP Research and Monitoring

Bormann, B.T., R.W. Haynes, and J.R. Martin. 2007. Adaptive management of forest ecosystems: some rubber hits the road?. Bioscience. 57(2): 186-191.

Diaz, N.M. and R.W. Haynes. 2002. Highlights of science contributions to implementing the Northwest Forest Plan, 1994 to 1998. U.S. Department of Agriculture, Regional Ecosystem Office, Regional Implementation Monitoring Team. PNW-GTR-540.

Haynes, R. W., B.T. Bormann, D.C. Lee, and J.R. Martin. 2006. Northwest Forest Plan, the first 10 years (1994-2003), a synthesis of monitoring and research results. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. PNW-GTR-651.

Rapp, V. 2008. Northwest Forest Plan, the first 10 years (1994–2003), first-decade results of the Northwest Forest Plan. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. PNW-GTR-720.

State Agencies

Washingtion State Department of Natural Resources, Land Management Division

Salmon Validation Monitoring Assessments

Bocking, R. 2002. Clallam River coho salmon escapement enumeration, phase 1, feasibility assessment. LGL Limited. Unpublished report.

Dominguez, L.G. and D.A. Beauchamp. 2001. Validation monitoring, Olympic Experimental State Forest, riparian conservation strategy. Washington State Department of Natural Resources. Unpublished report.

Washington State Department of Fish and Wildlife

Intensively Monitored Watersheds Study

Washington State Department of Fish and Wildlife. 2007. Intensively monitored watersheds study. Washington State Department of Fish and Wildlife. Web site.

Recovery of Riparian Communities in Headwaters

Jackson, C.R. 2002. Recovery of amphibian and invertebrate communities in recently logged coastal range headwater streams. Washington State Department of Natural Resources. Unpublished report.

Academic Institutions

The Evergreen State College

Effects of Large Woody Debris Placement

Rudolph, J. 2002. The effects of large woody debris placement on the spawning distribution and physical habitat of chum salmon (Oncorhynchus keta). The Evergreen State College. Master's thesis.

Response to Wall-Based Channel Enhancement

Friesen, W. 1990. Winter dietary studies of juvenile coho salmon (Oncorhynchus kisutch) utilizing two enhanced wall-base channels along the Clearwater River in Jefferson County, Washington. The Evergreen State College. Master's thesis.

University of Chicago

Effects of Land Use on River Food Webs

Wootton, T. 1997. Running head: river response to land use effects of land use on river food webs: community- versus ecosystem-level responses. University of Chicago. Master's thesis.

University of Washington

Effects of Landslide Siltation on Trout Resources

Cederholm, C.J and E.O. Salo. 1979. Observations of the effects of landslide siltation on salmon and trout resources of the Clearwater River, Jefferson County, Washington, 1972-1978. University of Washington. Final report Part III, FRI-UW-7915.

Cederholm, C.J. and L.C. Lestelle. 1974. Observations of the effects of landslide siltation on salmon and trout resources of the Clearwater River, Jefferson County, Washington, 1972-1973. University of Washington. Final report Part I, FRI-UW-7404.

Cederholm, C.J., L.C. Lestelle, B.G. Edie, D.J. Martin, J.V. Taggart, and E.O. Salo. 1978. Observations of the effects of landslide siltation on salmon and trout resources of the Clearwater River, Jefferson County, Washington, 1972-1975. University of Washington. Final report Part II, FRI-UW-7804.

Effects of Logging on Cutthroat Trout

Martin, D.J., E.O. Salo, S.T. White, J.A. June, W.J. Foris, and G.L. Lucchetti. 1981. The impact of managed streamside timber removal on cutthroat trout (Salmo clarki) and the stream ecosystem. University of Washington. FRI-UW-8108.

Osborn, J.G. 1980. Effects of logging on resident and searun populations of cutthroat trout in small tributaries of the Clearwater River, Jefferson County, Washington, 1978-1979. University of Washington. FRI-UW-8018.

Osborn, J.G. 1981. The effects of logging on cutthroat trout (Salmo clarki) in small headwater streams. University of Washington. Master's thesis.

Effects of Organic Debris Removal

Lestelle, L.C. 1978. Effects of forest debris removal on a population of resident cutthroat trout in a small headwater stream. University of Washington. Master's thesis.

Lestelle, L.C. and C.J. Cederholm. 1984. Short-term effects of organic debris removal on resident cutthroat trout. American Institute of Fisheries Research Biologists. Pages 131-140 in W.R. Meehan, T.R. Merrell, Jr, and T.A. Hartley, editors. Fish and wildlife relationships in old-growth forests. American Institute of Fisheries Research Biologists, Symposium, Juneau, AK.

Effects of Salmon Carcass Placement

Bilby, R.E. 1998. Response of juvenile coho salmon (Oncorhynchus kisutch) and steelhead (Oncorhynchus mykiss) to the addition of salmon carcasses to two streams in southwestern Washington, U.S.A. Canadian Journal of Fisheries and Aquatic Sciences. 55: 1909-1918.

Cederholm, C.J, D.B. Houston, D.L. Cole, and W.J. Scarlett. 1989. Fate of coho salmon (Oncorhynchus kisutch) carcasses in spawning streams. Canadian Journal of Fisheries and Aquatic Sciences. 46: 1347-1355.

Ehinger, W. 2000. Effect of marine derived nutrients on insect production in salmon spawning streams. University of Washington. Unpublished report.

Effects on Coho Salmon in the Clearwater

Cederholm, C.J. and L.M. Reid. 1987. Impact of forest management on coho salmon (Oncorhynchus kisutch) populations of the Clearwater River, Washington: a project summary. University of Washington. Pages 373-398 in E.O. Salo and T.W. Cundy, editors. Streamside management: forestry and fishery interactions. University of Washington, Symposium, Seattle, Washington.

Effects on Sediment and Salmonid Populations

Bash, J., C. Berman, and S. Bolton. 2001. Effects of turbidity and suspended solids on salmonids. University of Washington. Unpublished report.

Cederholm, C.J. and E.O. Salo. 1979. Effects of logging road sedimentation on the salmonid populations and their habitats. University of Washington, Fisheries Research Institute. Unpublished report.

Fluharty, D. and W. Jaeger. 1995. Land use impacts on salmon abundance. University of Washington. Unpublished report.

Morrill, D. 1994. Spawning gravel quality, salmonid survival and watershed characteristics of five Olympic Peninsula watersheds. University of Washington. Master's thesis.

Morrill, D.C., M.L. McHenry, R.J. Naiman, and E. Currence. 1996. Spawning gravel quality, salmonid survival and characteristics of intensively managed watersheds, Olympic Peninsula, Washington. University of Washington. Unpublished report.

Noggle, C.C. 1978. Behavioral, physiological, and lethal effects of suspended sediment on juvenile salmonids. University of Washington. Master's thesis.

Evaluation of Habitat Enhancement on Coho Salmon

Peters, R.J. 1996. An evaluation of habitat enhancement and wild fry supplementation as a means of increasing coho salmon production of the Clearwater River, Washington. University of Washington. Doctoral dissertation.

Monitoring Salmon Conservation and Restoration

Botkin, D.B, K. Cummins, P. Parker and M. J. Sobel. 1997. Monitoring and salmonid restoration on the Olympic Peninsula. University of Washington, Olympic Natural Resources Center. Unpublished report.

Botkin, D.B., D.L. Peterson, and J.M. Calhoun. 2000. The scientific basis for validation monitoring of salmon for conservation and restoration plans. University of Washington, Olympic Natural Resources Center. Unpublished report.

River Ecology and Management

Naiman, R. J., H. Décamps, and M. E. McClain. 2005. Riparia: Ecology, Conservation and Management of Streamside Communities. Elsevier/Academic Press. San Diego, CA, USA.

Naiman, R.J. 1998. Biotic stream classification. Pages 97-119, in R.J. Naiman and R.E. Bilby (editors). River Ecology and Management: Lessons from the Pacific Coastal Ecoregion. Springer-Verlag, New York.

Naiman, R.J. and R.E. Bilby (eds.). 1998. River Ecology and Management: Lessons from the Pacific Coastal Ecoregion. Springer-Verlag. New York, New York, USA.

Naiman, R.J., K.L. Fetherston, S. McKay, and J. Chen. 1998. Riparian forests. Pages 289-323, in R.J. Naiman and R.E. Bilby (editors). River Ecology and Management: Lessons from the Pacific Coastal Ecoregion. Springer-Verlag, New York, New York, USA.

Naiman, R.J., P.A. Bisson, R.G. Lee, and M.G. Turner. 1997. Approaches to management at the watershed scale. Pages 239-253, in: K. Kohm and J.F. Franklin (editors). Creating Forestry for the 21st Century: The Science of Ecosystem Management, Island Press, Washington, D.C.

Naiman, R.J., P.A. Bisson, R.G. Lee, and M.G. Turner. 1998. Watershed management. Pages 642-661, in R.J. Naiman and R.E. Bilby (editors). River Ecology and Management: Lessons from the Pacific Coastal Ecoregion. Springer-Verlag, New York.

Naiman, R.J., R.E. Bilby, and P.A. Bisson. 2000. Riparian ecology and management in the Pacific coastal rain forest. BioScience. 50(11): 996-1011.

Effects of Management on Spotted Owl Populations

Federal Agencies

US Forest Service, Pacific Northwest Experiment Stations

Ecology and Management of Spotted Owls

Gutierrez, R.J. and A.B. Carey. 1984. Ecology and management of the spotted owl in the Pacific Northwest. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. PNW-GTR-185.

US Forest Service, Regional Ecosystem Office

Synthesis of NWFP Research and Monitoring

Bormann, B.T., R.W. Haynes, and J.R. Martin. 2007. Adaptive management of forest ecosystems: some rubber hits the road?. Bioscience. 57(2): 186-191.

Diaz, N.M. and R.W. Haynes. 2002. Highlights of science contributions to implementing the Northwest Forest Plan,1994 to 1998. U.S. Department of Agriculture, Regional Ecosystem Office, Regional Implementation Monitoring Team. PNW-GTR-540.

Haynes, R. W., B.T. Bormann, D.C. Lee, and J.R. Martin. 2006. Northwest Forest Plan, the first 10 years (1994-2003), a synthesis of monitoring and research results. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. PNW-GTR-651.

Rapp, V. 2008. Northwest Forest Plan, the first 10 years (1994–2003), first-decade results of the Northwest Forest Plan. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. PNW-GTR-720.

State Agencies

Washington State Department of Natural Resources, Olympic Region

Spotted Owl Validation Monitoring Plan

Horton, S. and J. Buchanan. 2000. A plan for validation monitoring, spotted owl conservation strategy for the Olympic Experimental State Forest. Washington State Department of Natural Resources. Unpublished report.

Effects of Management on Marbled Murrelet Populations

Federal Agencies

US Forest Service, Pacific Northwest Experiment Stations

Ecology and Conservation of Marbled Murrelet

Ralph, C.J., G.L. Hunt, Jr., M.G. Raphael, and J.F. Piatt. 1995. Ecology and conservation of the marbled murrelet. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. PSW-GTR-152.

US Forest Service, Regional Ecosystem Office

Synthesis of NWFP Research and Monitoring

Bormann, B.T., R.W. Haynes, and J.R. Martin. 2007. Adaptive management of forest ecosystems: some rubber hits the road?. Bioscience. 57(2): 186-191.

Diaz, N.M. and R.W. Haynes. 2002. Highlights of science contributions to implementing the Northwest Forest Plan, 1994 to 1998. U.S. Department of Agriculture, Regional Ecosystem Office, Regional Implementation Monitoring Team. PNW-GTR-540.

Haynes, R. W., B.T. Bormann, D.C. Lee, and J.R. Martin. 2006. Northwest Forest Plan, the first 10 years (1994-2003), a synthesis of monitoring and research results. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. PNW-GTR-651.

Rapp, V. 2008. Northwest Forest Plan, the first 10 years (1994–2003), first-decade results of the Northwest Forest Plan. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. PNW-GTR-720.

Academic Institutions

University of Washington

Effects of Forest Fragmentation on Nest Predation

Bradley, J.E. and J.M. Marzluff. 2003. Rodents as nest predators: influences on predatory behavior and consequences to nesting birds. The Auk. 120(4): 1180-1187.

Luginbuhl, J.M., J.M. Marzluff, J.E. Bradley, M.G. Raphael, and D.E. Varland. 2001. Corvid survey techniques and the relationship between corvid relative abundance and nest predation. Journal of Field Ornithology. 72(4): 556-572.

Marzluff, J. M., J.J. Millspaugh, P. Hurvitz, and M.S. Handcock. 2005. Relating resources to a probabilistic measure of space use: forest fragments and Steller's jays. Ecology. 85(5): 1411-1427.

Marzluff, J.M, J.M. Luginbuhl, J.E. Bradley, M.G. Raphael, D.M. Evans, D.E. Varland, L.S. Young, S.P. Horton, and S.P. Courtney. 1997. The influence of stand structure, proximity to human activity, and forest fragmentation on the risk of predation to nests of marbled murrelets on the Olympic Peninsula. Interagency Project. Unpublished report.

Marzluff, J.M. and E. Neatherlin. 2006. Corvid response to human settlements and campgrounds, causes, consequences and challenges for conservation. Biological Conservation. 130(2): 301-314.

Marzluff, J.M. and M. Restani. 1999. Effects of forest fragmentation on avian nest predation. Brill Academic Publishers. Pages 155-169 in J.A. Rochelle, L.A. Lehmann, and J. Wisniewski, editors. Forest Fragmentation: Wildlife and Management Implications.

Marzluff, J.M., M.G. Raphael, and R. Sallabanks. 2000. Understanding the effects of forest management on avian species. Wildlife Society Bulletin. 28(4): 1121-1143.

Marzluff, J.M., M.G. Raphael, D.M. Evans, D.E. Varland, L.S. Young, S.P. Horton, and S.P. Courtney. 1997. The influence of stand structure, proximity to human activity, and forest fragmentation on the risk of predation to nests of marbled murrelets on the Olympic Peninsula, 1996 annual report. Interagency Project. Unpublished report.

Neatherlin, E.A. and J.M. Marzluff. 2004. Responses of the american crow populations to campgrounds in remote native forest landscapes. Journal of Wildlife Management. 68(3): 708-718.

Raphael, M.G., D.E. Mack, J.M. Marzluff and J.M. Luginbuhl. 2002. Effects of forest fragmentation on populations of the marbled murrelet. Studies in Avian Biology. 25: 221-235.

Vigallon, S.M. and J.M. Marzluff. 2005. Abundace, nest sites, and nesting success of Steller's jays along a gradient of urbanization in western Washington. Northwest Science. 79(1): 22-27.

Vigallon, S.M. and J.M. Marzluff. 2005. Is nest predation by Steller's jays (Cyanocitta stelleri) incidental or the result of a specialized search strategy. The Auk. 122(1): 36-49.

Effects of Management on Other Species Populations

State Agencies

Washington State Department of Natural Resources, Forest Practices Division

Landscape Use of Hairy Woodpeckers

Ripper, D., J.C. Bednarz, and D.E. Varland. 2000. Landscape use and ranging patterns of hairy woodpeckers in the managed forests of western Washington. Washington State Department of Natural Resources, Cooperative Monitoring, Evaluation, and Research Committee. TFW-LWAG3-00-001.

Tribal Governments

Northwest Indian Fisheries Commission

Effects on Roosevelt Elk Populations

Hutchins, N.R. 2006. Diet, nutrition, and reproductive success of Roosevelt elk in managed forests of the Olympic Peninsula, Washington. Humboldt State University. Master's thesis.

Storlie, J.T. 2006. Movements and habitat use of female Roosevelt elk in relation to human disturbance on the Hoko and Dickey game management units, Washington. Humboldt State University. Master's thesis.

Private Timberlands

Rayonier

Habitat Use by Hairy Woodpeckers in Managed Forests

Ripper, D. 2002. Habitat use by the hairy woodpecker (Picoides villosus) in managed forests of the Olympic Peninsula, Washington. Arkansas State University. Master's thesis.

Ripper, D., J.C. Bednarz, and D.E. Varland. 2007. Landscape use by hairy woodpeckers in managed forests of northwestern Washington. Journal of Wildlife Management. 71(8): 2612-2623.

Academic Institutions

University of Washington

Effects of Forest Roads on Elk Habitat Use

Hansen, C.A. 1993. Habitat use by Roosevelt elk in relation to roads on the Olympic Peninsula. University of Washington. Master's thesis.