



FOCUS

on Renewable Natural Resources

Annual Report
1997 - June 1999

Volume 22

College of Forestry, Wildlife and Range Sciences
Idaho Forest, Wildlife and Range Experiment Station

Moscow, Idaho 83844-1130



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What Did Fiscal 1997 Look Like?

Research support, shown by funding source, totaled \$10,225,100 for fiscal 1997.

Federal Appropriations	\$ 428,700	4.2%
Miscellaneous Research***	\$ 904,400	8.85%
Research Funding Support*	\$1,172,000	11.5%
State Appropriations**	\$2,805,600	27.4%
Grants & Contracts	\$4,914,400	48.1%

*Includes overhead allowances, external matching, outside federal unit support, and external cooperative research support

**Includes FWR Experiment Station, Wildlife, Wilderness, and Forest Utilization research

***Includes Forest Research Nursery, UI Experimental Forest, Idaho Research Foundation, Taylor Ranch, and Clark Fork Field Campus

Support

What Did Fiscal 1998 Look Like?

Research support, shown by funding source, totaled \$11,120,000 for fiscal 1998.

Federal Appropriations	\$ 441,400	4%
Miscellaneous Research***	\$ 893,300	8%
Research Funding Support*	\$1,201,300	10.8%
State Appropriations**	\$2,833,900	25.5%
Grants & Contracts	\$5,750,300	51.7%

*Includes overhead allowances, external matching, outside federal unit support, and external cooperative research support

**Includes FWR Experiment Station, Wildlife, Wilderness, and Forest Utilization research

***Includes Forest Research Nursery, UI Experimental Forest, Idaho Research Foundation, Taylor Ranch, and Clark Fork Field Campus

Grants & Contracts 5,750,300 51.7%

-Private	1,048,500	18.2%
-Federal	4,248,300	73.9%
-State	453,500	7.9%



Where Do We Transfer Technology?



- New Master's of Natural Resources offered for working professionals in Boise
- 14 communities served across Idaho in one year
- Courses delivered in Washington, Montana, Wyoming, and Central America

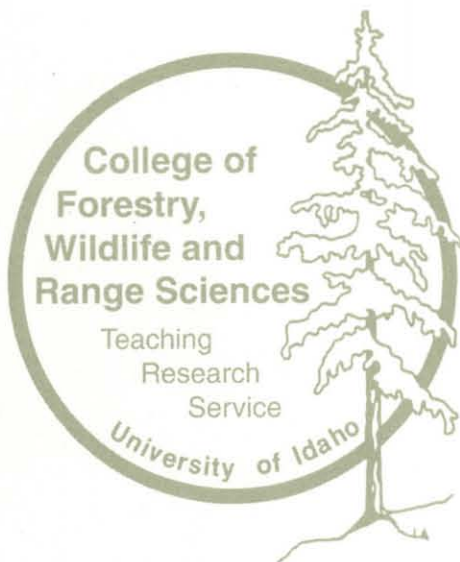
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Focus

on Renewable Natural Resources
Annual Report 1997 - June 1999



Idaho Forest, Wildlife and Range Experiment Station

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Richard F. Bottger, Assistant Director

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CONSERVATION BIOLOGY & ENDANGERED SPECIES

SCIENTISTS

Theodore C. Bjornn

Specialties: Salmonid stream ecology, salmon and steel-head migrations, wild trout management

Steven J. Brunsfeld

Specialties: Ecology, genetics, synecology, dendrology

Brian Dennis

Specialties: Statistics, wildlife population analyses, chaos theory

Maurice G. Hornocker

Specialties: Population ecology, predator/prey interactions

Dennis L. Murray

Specialties: Predator/prey interactions, big game ecology

chinook salmon against *Aeromonas salmonicida* following exposure to heat killed *Renibacterium salmoninarum* or the soluble proteins produced by *R. salmoninarum*. *Journal of Aquatic Animal Health* 9:180-189. J.L. Congleton, D. Siegel.

1998. Phase switching in population cycles. In: *Proceedings of the Royal Society of London B* 265:2229-2234. B. Dennis, S. Henson, J. Cushing, R. Costantino, R. Desharnais.

1998. Joint density dependence. *Ecology* 79:426-441. B. Dennis, W. Kemp, M. Taper.

1998. Moving toward an unstable equilibrium: Saddle nodes in population systems. *Journal of Animal Ecology* 67:298-306. B. Dennis, J. Cushing, R. Desharnais, R. Constantino.

1997. Transitions in population dynamics: Equilibria to periodic cycles to aperiodic cycles. *Journal of Animal Ecology* 66:704-729. B. Dennis, R. Desharnais, J. Cushing, R. Constantino.



1997. Chaotic dynamics in an insect population. *Science* 25:389-391. B. Dennis, R. Costantino, R. Desharnais, J. Cushing.

Ecoregions as a level of ecological analysis. *Biological Conservation* 86:207-213. R.G. Wright, M. Murray, T. Merrill.

Using micropropagation to conserve threatened rare species in sustainable forests. *Journal of Sustainable Forestry* (5(2)):285-296. J.L. Edson, D.L. Wenny, A.D. Leege-Brusven, R.L. Everett.

Increasing the Supply of Western White Pine Stock Through Micropropagation. Report to the Inland Empire Tree Improvement Cooperative, White Pine Species Group. J.L. Edson, D.L. Wenny, L. Fins.

Use of non-lethal procedures to detect and manage *Aeromonas salmonicida* in potentially threatened and endangered populations of salmon. *Diseases of Aquatic*

2

Conservation Biology

James M. Peek

Specialties: Big game habitat, ecology, and management

Howard Quigley

Specialties: Field studies of North American big cat populations (jaguar, cougar), leopards, brown and black bears, mountain sheep, Siberian tiger (Russia), and giant panda (China); radio-telemetry; endangered species

J. Michael Scott

Specialties: GAP Analysis, conservation ecology, reserve design, endangered species, condors/Hawaiian birds

Lisette Waites

Specialties: Wildlife conservation, biology and genetics, molecular ecology, evolutionary biology

RELATED PUBLICATIONS

1997. Genetic analyses to establish captive breeding priorities for endangered Snake River sockeye salmon. *Conservation Biology* 11(3):662-669. E.L. Brannon, et al.

1997. Bacterial activity of macrophages of juvenile

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Organisms 27:233-236. L.A. Ford, *et al.*

1997. Non-invasive genetic tracking of the endangered Pyrenean brown bear population. *Molecular Ecology* 6:869-876. L. Waits, P. Taberlet, J. Camarra, S. Griffin, E. Hanotte, C. Dubois-Paganon, T. Burke, J. Bouvet.

RELATED THESES AND DISSERTATIONS

Michael Joseph Wisdom. Assessing Life-Stage Importance and Resource Selection for Conservation of Selected Vertebrates. *Thesis major professor: E.O.Gorton*

ONGOING RESEARCH

Passage of adult salmon and steelhead at dams. T.C. Bjornn

Survival of salmonid embryo in relation to sediment. T.C. Bjornn

Redfish Lake sockeye salmon genetics. E.L. Brannon

Restoration of species at risk of extinction. E.L. Brannon

Conservation genetics of *Asarum* and *Botrychium*. S.J. Brunsfeld

Hybridization and evolution in North American willows. S.J. Brunsfeld

Genetic mapping of rust resistance in western white pine. S.J. Brunsfeld

Role of interferon in resistance to IHN virus comparative physiology of wild and hatchery-reared salmonids. J.L. Congleton

Modeling in conservation biology. B.C. Dennis

Genetic mapping of blister rust resistance in white pine. L. Fins

Genetic and environmental causes of willow hybrid plant resistance to herbivores and a pathogen. S.J. Brunsfeld

Geographic patterns of genetic and adaptive variation in northern Rocky Mountain whitebark pine. S.J. Brunsfeld

Socioeconomic factors influencing biodiversity loss. G.E. Machlis

Survival analysis of reintroduced red wolves. D.L. Murray

Reserve identification, selection, and design in North America. J.M. Scott

Use of translocation as a tool for establishing or augment-

ing animal populations. J.M. Scott

Limiting factors in an endangered population of California Condors. J.M. Scott

Analyses of genetic diversity and gene flow in the Scandinavian brown bear population. L. Waites

Phylogeography and genetic diversity of North American brown bears. L. Waites

Genetic analyses of bear scat and hair collected in the field. L. Waites

Historical analysis of brown bear genetic diversity in the lower 48 states. L. Waites

Genetic methods for monitoring the size of small populations. L. Waites

Micropropagation of endangered plants. D.L. Wenny

Using DNA to monitor grizzly bear population trends. L. Waites

CONTINUING EDUCATION

Native Flora of North Idaho--Clark Fork

Exotic and Native Plants of North Idaho --Clark Fork



ECONOMICS OF IDAHO RESOURCES

SCIENTISTS

Charles Harris

Specialties: Resource recreation and amenity values, market analysis, tourism impacts

Charles W. McKetta

Specialties: Forest policy, economics, and finance; land use allocation

Jay O'Laughlin

Specialties: Natural resource economics and policy analysis

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RELATED THESES AND DISSERTATIONS

Lawrence E. Caldwell. The Impact of Growth Projection Variability on FORPLAN Optimality. *Thesis major professor: C.W. McKetta*

Mark R. Rohweder. Determining Whether Timber Harvesting is Incompatible with Other Noncommodity Management Goals. *Thesis major professor: C.W. McKetta*

ONGOING RESEARCH

Economic and social impacts of resource-based tourism on small Idaho communities. C.C. Harris

The economies of rural timber communities in the Pacific Northwest. C.C. Harris

Implications of deeper psychological values in managing natural areas for their amenity values. C.C. Harris

Economic Research

Economic evaluation on the socio-economic impacts of breaching of the four dams on the Lower Snake River. C.C. Harris

Economic development of under-utilized species. R.L. Mahoney

Price formation in imperfect markets. C.W. McKetta

Economics of ecosystem management. C.W. McKetta



ECOSYSTEM MANAGEMENT

SCIENTISTS

David L. Adams

Specialties: Silviculture, forest health, forest regeneration, agroforestry

Charles C. Harris

Specialties: Resource recreation and amenity values, market analysis, tourism impacts

Katie Kavanaugh

Specialties: Silviculture

Gary E. Machlis

Specialties: Survey development, public opinion measurement, natural resource sociology

James A. Moore

Specialties: Forest growth and yield modeling, mineral nutrition of forest trees, quantitative silviculture

Penny Morgan

Specialties: Fire ecology and management, landscape ecology, ecological modeling, forest health

Harold L. Osborne

Specialties: Silviculture, harvesting, forest regeneration

Karl J. Stoszek

Specialties: Silviculture, forest protection and health

RELATED PUBLICATIONS

1998. Chaotic dynamics in an insect population. *Science* 25:389-391. B.C. Dennis, R. Costantino, R. Desharnais, J. Cushing.

1998. How resilient are rural communities in the Interior Columbia Basin Ecosystem? *Journal of Forestry* 96(2):11-15. C.C. Harris, G. Brown, W.J. McLaughlin.

Ecosystems

1998. The human ecosystem part I: The human ecosystem as an organizing concept in ecosystem management. *Society and Natural Resources* 10:347-367. G.E. Machlis, J.E. Force, W.R. Burch, Jr.

1998. The human ecosystem part II: Social indicators in ecosystem management. *Society and Natural Resources* 10:369-382. J.E. Force, G.E. Machlis.

1998. Land use history at multiple scales: Implications for conservation planning. *Landscape and Urban Planning* 55:1-15. A.E. Black, E. Strand, R.G. Wright, J.M. Scott, P. Morgan, C. Watson.

Land use history of the Palouse bioregion: Pre-European to present. <http://www.nbs.gov/luhna/palouse/fnluhna.html>. A.E. Black, E. Strand, C. Watson, R.G. Wright, J.M. Scott, P. Morgan.

1998. Tanoak sprout development after cutting and burning in a shade environment. *Western Journal of Applied Forestry* 12(1):21-26. W. Wilkinson, P. McDonald, P. Morgan.

RELATED THESES AND DISSERTATIONS

James R. Mackey. Analysis of Planted Western Redcedar. *Thesis major professor: D.L. Adams*

ONGOING RESEARCH

Fall planting schedules for conifers in northern Idaho. D.L. Adams

Western redcedar microsites. D.L. Adams

Bear damage in thinned lodgepole-larch stands. D.L. Adams

Investigations of the Grand Fir Mosaic ecosystem. D.L. Adams

Social indicators for monitoring ecosystem management. J.E. Force

Landscape planning and ecosystem sustainability. P. Morgan

Characterizing landscapes with spatial pattern indices: sampling and ecological interpretation. P. Morgan

Ecology and management of Douglas-fir forests. P. Morgan

Ecology and management of ponderosa pine forests. P. Morgan

Development and management of the cedar/hemlock ecosystem. P. Morgan

Natural and human causes of landscape change in the last 50 years in the Interior Columbia River Basin. P. Morgan

Remote sensing and GIS applications to ecosystem management. L.F. Neuenschwander

Small scale equipment for intensive forest management. H.L. Osborne

Vegetation management for ponderosa pine on Conservation Resource Program lands. H.L. Osborne

Development and demonstration of adaptive, ecosystem, and landscape-based forest management. K.J. Stoszek

Dynamics of forest ecosystems under stress. K.J. Stoszek

Response of ponderosa pine stands to simulated even-aged and selection silviculture. K.J. Stoszek

Silvicultural guidelines for blister rust infected white pine stands. K.J. Stoszek

Evaluation selection silviculture in selectively logged ponderosa pine stands of eastern Washington. K.J. Stoszek

6 Risk rating stand/site attributes to insect "outbreaks" (shoot borer, defoliators, bark beetle). K.J. Stoszek

CONTINUING EDUCATION

Continuing Education in Ecosystem Management (CEEM) Modules 1-3--Moscow



ENVIRONMENTAL EDUCATION

SCIENTISTS

James R. Fazio

Specialties: Resource communication, environmental interpretation, conservation history, urban and community forestry, continuing education

Sam H. Ham

Specialties: Environmental education and interpretation, natural resource communication and tourism, reserve management in developing Latin American countries

Ronald L. Mahoney

Specialties: Forestry, natural resources education and communication



RELATED PUBLICATIONS

1997. Toward a theory of commitment to environmental education teaching. *Journal of Environmental Education* 28(2):25-32. D. Shuman, S.H. Ham.

1997. Environmental education as strategic communication--A paradigm for the 21st century. *Trends* 34(4):4-6,47. S.H. Ham.

1998. Una nueva perspectiva para clasificar barreras para la incorporacion de la dimension ambiental en la educacion superior en Costa Rica. Pages 42-52 in: *Experiencias para la Incorporacion de la Dimension Ambiental en la Quehacer Universitario*, E. Arnaez, S. Rojas, eds. San Jose, Costa Rica: Consejo Nacional de Rectores, Oficina de Planificacion de la Educacion Superior. C. Charpentier, S.H. Ham.

1998. *Observational Study Tour for Nicaraguan Interpretive Specialists. Final Report for Academy for Educational Development*, Washington, D.C. S.H. Ham, M. Whiteman.

1998. *Volcan Masaya National Park Visitor Profile, Nicaragua*. Final Report for Academy for Educational Development, Washington, D.C. S.H. Ham, R. Whipple.

ONGOING RESEARCH

Analysis of Visitor Reactions to the Pilot Recreation Fee Program at Mount St. Helens National Volcanic Monument. S.H. Ham

Observational Study Tour for Nicaraguan Interpretive Specialists. S.H. Ham

Development of Interpretive Panels for the Idaho Forest Products Commission. S.H. Ham

Development of a "Decision Making Model for Selecting Culturally and Ecologically Significant Wildlife Indicators." S.H. Ham

Program evaluation of the EM*Power Environmental Education Program. N.Sanyal

CONTINUING EDUCATION

Heartland Peaks Workshop, Environmental Education for Everyone--McCall

EXPERT SYSTEMS & QUANTITATIVE METHODS

SCIENTISTS

Ronald Robberecht
Specialties: Range ecology, autecology, ecophysiology, computerized teaching

Andrew Robinson
Specialties: Mensuration, forest growth and yield

Molly W. Stock
Specialties: Artificial intelligence and expert systems applications in natural resource management, multi-media training and advisory systems

RELATED PUBLICATIONS

1998. Decision support systems for forest management. *New Zealand Journal of Forest Science* 26:145-157. M.W. Stock, M.W., H.M. Rauscher.

1998. The fire monitoring navigator: A decision support system for monitoring the effects of prescribed fire. In: *Proceedings, GIS '97*, Vancouver, B.C. M.W. Stock, W. Leenhouts, M. Miller, F. Boden.

1998. Decision support software for natural resource management: What do its users think? In: *Proceedings, GIS '97*, Vancouver, B.C. A.K. Gardner, M.W. Stock, J.R. Wright.

AI Applications. Volumes 5-12 (1981-1997). M.W. Stock, (ed.).

RELATED THESES AND DISSERTATIONS

Fengbin Jin. Simulation of Timber Harvesting Systems Using Siman/Cinema.

ONGOING RESEARCH

Development of taper equations for intermountain west conifer species. C.R. Hatch

Development of models focused at understanding perennial and annual crop dynamics in a farming systems context. C.R. Hatch

Development of multimedia modules for instruction and electronic books for computer-aided education. R. Robberecht (On internet: www.uidaho.edu/ecophysiology)

Goal-oriented management and planning for forest nurseries: Interactive computer applications for effective use of forest resources. R. Robberecht, M. Stock, D. Wenny

Computer software for nursery management. D.L. Wenny, M.W. Stock

Expert



Systems

EXTENSION & SERVICE

SCIENTISTS

James R. Fazio

Specialties: Resource communication, environmental interpretation, conservation history, urban and community forestry, continuing education

Gary E. Machlis

Specialties: Survey development, public opinion measurement, natural resource sociology, human ecology

Ronald L. Mahoney

Specialties: Forestry, natural resources education and communication

Kenneth D. Sanders

Specialties: Range extension, range livestock nutrition, grazing systems

RELATED PUBLICATIONS

1998. *Arbor Day Newsletter* (Nos. 1-4). The National Arbor Day Foundation, Lincoln, Nebraska. J.R. Fazio, ed.

1998. *Library of Trees Newsletter*. (Nos. 1-6). The National Arbor Day Foundation, Lincoln, Nebraska. J.R. Fazio, ed.

1999. *Tree City USA Bulletin*, rev. (Vols. 1-35). The National Arbor Day Foundation, Lincoln, Nebraska. J.R. Fazio, ed.

1999. *Tree City USA Annual Report 1999*. The National Arbor Day Foundation, Lincoln, Nebraska. J.R. Fazio, ed.

1998. *Extension Agent Attitudes and Beliefs About Red Wolf Recovery in North Carolina*. Report for U.S. Fish and Wildlife Service, North Carolina State Office. J. Sweet, N. Sanyal.

Extension & Service

ONGOING RESEARCH

Transfer of scientific management principles to forest landowners. C.R. Hatch

Reforestation of marginal farmlands. R.L. Mahoney

Field trials of exotic and native hardwoods. R.L. Mahoney

CONTINUING EDUCATION

Special Forest Products in the Inland Northwest --Priest Lake, Orofino

Natural Resource Conservation: We Grow Full Circle--McCall, Moscow, Sandpoint

Backyard Forests--Coeur d'Alene, Moscow

Landscaping for Fire Prevention--St. Maries

FIRE

SCIENTISTS

Stephen C. Bunting

Specialties: Range ecology and management, fire ecology

Penny Morgan

Specialties: Fire ecology and management, landscape ecology, ecological modeling, forest health

Leon F. Neuenschwander

Specialties: Fire ecology and management, forest health and fire

RELATED PUBLICATIONS

1997. Effect of fire on woody species in central semi-arid Argentina. *J. Arid Environments* 35:87-94. R.M. Boo, D.V. Palaez, S.C. Bunting, O.R. Elia, M.D. Mayor.

1996. The use and role of fire in protected areas. In: R.G. Wright, ed. *National Parks and Protected Areas. Their Role in Environmental Protection*. Blackwell Press, Cambridge, MA. Pp 277-301. S.C. Bunting.

1996. Prescribed fire [Chapter 18]. In: P.R. Krausman, ed. *Rangeland Wildlife Society for Range Management*, Denver, CO. Pp. 295-319. R. Riggs, S.C. Bunting, S. Daniels.

1996. Estimating the risk of escape of prescribed fires: An expert system approach. *AI Applications* 10(2):63-73. M.W. Stock, J. Williams, D.A. Cleaves.

1998. The fire monitoring navigator: A decision support system for monitoring the effects of prescribed fire. In: *Proceedings, GIS '97*, Vancouver, B.C. M.W. Stock, W. Leenhouts, M. Miller, F. Boden.

1998. *Evaluating the Effectiveness of the National Wildfire Coordinating Group--Fire Prevention, Education, and Communications Team*. Report for Idaho State Bureau of

Land Management Office, Boise. N. Sanyal.

RELATED THESES AND DISSERTATIONS

Calvin Farris. Monitoring Subalpine Forest Succession Following a Large Wildfire in Central Idaho. *Thesis major professor: L.F. Neuenschwander*

Karen Feary. The Wildland/Urban Intermix: A Case Study Using GIS and Farsite. *Thesis major professor: L.F. Neuenschwander*

Norberto F. Rodriguez. Risk Mortality from Wildfire in Ponderosa Pine (*Pinus ponderosa*) Plantations in the Andean Region of Patagonia, Argentina. *Thesis major professor: P. Morgan*

Susan A. Stewart. Quantifying Changes in Stand Structure, Species Composition, and Potential Fire Behavior in *Abies grandis* Forests: Fire Exclusion and Changing Risk on the Wenatchee National Forest, Washington. *Thesis major professor: P. Morgan*

ONGOING RESEARCH

The impacts of fire suppression on ecosystem dynamics and processes on dry and subalpine forests in central Idaho. D.L. Adams, P. Kolb

Influence of Douglas-fir encroachment on fire behavior and species composition in west central Montana. S.C. Bunting, J.C. Mosley

Prescribed fire and mechanical thinning of Douglas-fir to enhance bitterbrush. S.C. Bunting

Fire - BGC: A mechanistic ecological process model for simulating fire and succession on coniferous forest landscapes of the northern Rocky Mountains. P. Morgan

Evaluating past and future role of fire in maintaining whitebark pine cone production within a small roadless area. P. Morgan

Fire, insects and disease: disturbance and landscape dynamics in subalpine forest of the Entiat Watershed, WA. P. Morgan

Mapping past and potential fire regimes in Rocky Mountain wilderness landscapes. P.Morgan

Modeling historical fire regimes in the Swan Valley, northwestern Montana, USA. P. Morgan

Classification and mapping of historical and current fire regimes in the Interior Columbia River Basin, USA. P. Morgan

Wildlife habitat under alternative timber harvest and fire management regimes in ponderosa pine -Douglas-fir forests. P. Morgan

Climate-fire-ecosystem linkages on decadal to centennial time scales in the northern Rocky Mountains and their sensitivity to environmental change. P. Morgan

Fire effects and processes in forest ecosystems. L.F. Neuenschwander

Landscape prescribed fire and fire effects. L.F. Neuenschwander

Restoration of fire-dependent ecosystems. L. F. Neuenschwander

The National Joint Fire Sciences Plan Conference and Workshop. L.F. Neuenschwander

CONTINUING EDUCATION

Landscaping for Fire Prevention--Moscow, Lewiston, Bonners Ferry, Coeur d'Alene, Orofino

Burning Issues: Fire Ecology--McCall

Fire



FISH HEALTH & MANAGEMENT

SCIENTISTS

David H. Bennett

Specialties: Fisheries ecology, management, and population dynamics; farm ponds; Payette and Pend Orielle Lakes, Lower Snake River Reservoirs

Theodore C. Bjornn

Specialties: Salmonid stream ecology, salmon and steelhead migrations, wild trout management

Ernest L. Brannon

Specialties: Sockeye and Kokanee salmon, salmonid aquaculture, Columbia River sturgeon, Redfish Lake, salmon orientation and migration, fish behavior and life histories

Kenneth Cain

Specialties: Aquaculture, fish diseases, fish nutrition, immunology

James L. Congleton

Specialties: Immunology and disease resistance in fish, stress physiology, comparative physiology of wild and hatchery salmonids

Larisa A. Ford

Specialties: Aquatic animal health, bacteriology, immunology, aquaculture, Atlantic salmon

George W. LaBar

Specialties: Fisheries management and ecology, predator/prey interactions, bioenergetics modeling

Christine M. Moffitt

Specialties: Biology, health, and management of anadromous fish, aquaculture chemicals, host-parasite interactions

Dennis L. Scarnecchia

Specialties: Salmon and trout research, population dynamics, community ecology in large rivers

RELATED PUBLICATIONS

1997. Patterns of fish abundance associated with a dredge disposal island: Implications for fish habitat enhancement in a large reservoir. *N. Amer. J. of Fish. Management* 17:378-386. D.H. Bennett.

1997. Capturing and tagging wild age-0 and age-1 paddlefish in a Great Plains reservoir. *N. Amer.*

J. of Fish. Management 17:800-802. D.L. Scarnecchia, F. Ryckman, J. Lee.

1997. Implementation and evaluation of a catch and release fishery for paddlefish. *N. Amer. J. of Fish. Management* 17:795-799. D.L. Scarnecchia, P. Stewart.

1998. *Migration of Adult Chinook Salmon and Steelhead Past Dams and Through Reservoirs in the Lower Snake River and Into Tributaries*, Final Report (Parts I, III, IV, V, and VII). Idaho Cooperative Fish and Wildlife Research Unit, University of Idaho for U.S. Army Corps of Engineers, Walla Walla District, Walla Walla, WA and Bonneville Power Administration, Portland, OR. T.C. Bjornn, K.R. Tolotti, P.J. Keniry, R.R. Ringe, C.A. Peery.

1998. *Evaluating of Adult Chinook and Sockeye Salmon Passage at Priest Rapids and Wanapum Dams -1997*. Idaho Cooperative Fish and Wildlife Research Unit, University of Idaho for Public Utility District of Grant County, Ephrata, WA. Technical Report 98-5. T.C. Bjornn, C.A. Peery, K.R. Tolotti.

1998. *Deposition of Fine Sediments in Substrates and Their Effects on Survival of Trout Embryos*. Idaho Cooperative Fish and Wildlife Research Unit for U.S. Forest Service, Boise. Technical Report 98-1. T. C. Bjornn, C.A. Peery, L.M. Garmann.

1998. Changes in solar input, water temperature, periphyton accumulation, and allochthonous input and storage after canopy removal along two small streams in southeast Alaska. *Transactions of the American Fisheries Society* 127:859-875. T.C. Bjornn, N.J. Hetrick, M.A. Brusven, R.M. Keith, W.R. Meehan.

1998. Effects of canopy removal on invertebrates and diet of juvenile coho salmon in a small stream in southeast Alaska. *Transactions of the American Fisheries Society* 127:876-888 T.C. Bjornn, N.J. Hetrick, M.A. Brusven, R.M. Keith, W.R. Meehan.

Salmon

1998. Response of juvenile salmonids to riparian and instream cover modifications in small streams flowing through second-growth forests of southeast Alaska. *Transactions of the American Fisheries Society* 127: 889-907. T.C. Bjornn, R.M. Keith, W.R. Meehan, N.J. Hetrick, M.A. Brusven.

1997. Bacterial activity of macrophages of juvenile chinook salmon against *Aeromonas salmonicida* following exposure heat killed *Renibacterium salmoninarum* or the soluble proteins produced by *R. salmoninarum*. *Journal of*



Aquatic Animal Health 9:180-189. J.L. Congleton, D. Seigel.

1998. Pathogens and diseases of fish in aquatic ecosystems: Implications in fisheries management. *Journal of Aquatic Animal Health* 10:95-100. C.M. Moffitt, et al.

1998. Field trials of investigational new animal drugs. *Veterinary and Human Toxicology* 40 (Supplement 2):48-52. C.M. Moffitt.

1998. Drugs in Aquaculture: Current Status - Future Goals (7th NRSP-7/FDA Workshop - Panel Discussion). *Veterinary and Human Toxicology* 40 (Supplement 2):55-64. C.M. Moffitt.

1997. The need for standards of professional conduct. *Fisheries* 22:18. C.M. Moffitt.

RELATED THESES AND DISSERTATIONS

Steve Anglea. Abundance, Food Habits and Salmonid Fish Consumption of Smallmouth Bass and Distribution of Crayfish in Lower Granite Reservoir, Idaho-Washington. *Thesis major professor: D.H. Bennett*

James Dunnigan. The Spatial Distribution of Cutthroat Trout in the Coeur D'Alene River System, Idaho. *Thesis major professor: D.H. Bennett*

Craig Eaton. Evaluation of Substrate Quality for Incubation of Fall Chinook Salmon Embryos in the Snake River. *Thesis major professor: D.H. Bennett*

Robert Spangler. Distribution, Abundance, and Microhabitat Use of Juvenile Bull Trout and Cutthroat Trout in Two Small Tributaries of the South Fork Clearwater River, Idaho. *Thesis major professor: D.L. Scarnecchia*

ONGOING RESEARCH

Projected effects of drawdown on resident fishes and shallow water habitat in John Day Reservoir. D.H. Bennett

North Fork Coeur d'Alene cutthroat trout/habitat relationships. D.H. Bennett, A. Abbott, K. Lohman

Resident fish salmonid smolt interactions in the Snake River. D.H. Bennett

Effects of substrate composition on salmonid spawning success. D.H. Bennett

Predation impacts by resident fishes on salmonid smolts. D.H. Bennett

Wild trout ecology and management. T.C. Bjornn

Supplementation of wild salmon and steelhead. T.C. Bjornn

Habitat features that affect carrying capacity. T.C. Bjornn

Evaluation of adult salmon, steelhead, and lamprey migrations past dams and through reservoirs. T.C. Bjornn

Evaluation of the procedures for collection, transportation, and downstream passage of outmigrating salmonids. J.L. Congleton

Evaluation of the effects of multiple dam passage on physiological condition of migrating juvenile salmon. J.L. Congleton

Infectious Hemapoietic Necrosis Virus control in commercially raised salmonid fishes. J.L. Congleton

Effects of stress, tissue injury, and infection on components of natural disease resistance. J.L. Congleton

Stress response of chinook salmon smolts collected and transported from Snake River dams. J.L. Congleton

Reduce delay of fish in areas of accelerating flows. J.L. Congleton

Effects of higher winter lake levels on bioenergetics of Lake Pend Oreille and on warm water fishes in the Pend Oreille River. C.M. Falter

Pathogenesis and epidemiology of bacterial cold water disease of salmonids. L.A. Ford

Effect of immunostimulants on the non-specific immune responses of fish. L.A. Ford

Non-lethal detection methods for bacterial fish pathogens. L.A. Ford

Effects of chronic, sublethal fungal infections on the immune functions of salmonids and the predisposition of fish infected with fungal agents to other pathogens. L.A. Ford

Fish Diseases

Bioenergetic Models of Lake Champlain Predators. G.W. LaBar

Assessment of Rainbow smelt as Forage in Lake Champlain, Vermont. G.W. LaBar

Bull trout life history. G.W. LaBar

Effects of physiography and disturbance regimes on patterns of distribution and abundance of bull trout and westslope cutthroat trout. K. Lohman, P.E. Green, P.Morgan

Lower Snake River juvenile salmon migration feasibility study. C.C. Harris, W.J. McLaughlin

Disease interactions between wild and culture fish. C.M. Moffitt

Use of Erythromycin to control bacterial kidney disease in adult and juvenile chinook salmon. C.M. Moffitt

Behavioral and physiological components of smoltification in chinook salmon and steelhead trout. C.M. Moffitt

Factors affecting the epidemiology of Whirling Disease. C.M. Moffitt

Distribution of pathogens in natural populations of salmonids. C.M. Moffitt

Paddlefish stock assessment in the Yellowstone River and Missouri River. D.L. Scarnecchia

Missouri River benthic fish ecology. D.L. Scarnecchia

Effects of contaminants on Kootenai River white sturgeon. D.L. Scarnecchia

Determination of the effects of contaminants on white sturgeon reproduction in the Kootenai River. D.L. Scarnecchia

Study of paddlefish in the Yellowstone River. D.L. Scarnecchia

Monitoring populations of steelhead and salmon in Running Creek, Idaho. T. Wright, M. Hornocker

CONTINUING EDUCATION

Fish and Wildlife Ecology Workshop - WILD I --McCall

Project WILD II Workshop--McCall

Fish and Wildlife Population Analysis--Boise

Aquaculture

Collection and analysis of data on population and habitat use of the benthic fishes along the Missouri River. D.L. Scarnecchia

Study of Columbia River bull trout in the South Fork Salmon River. J. M. Scott, D.L. Scarnecchia

Conservation of diversity in cutthroat trout systems. J.M. Scott

FOREST GENETICS & NURSERY RESEARCH

SCIENTISTS

Steven J. Brunsfeld

Specialties: Ecology, genetics, synecology, dendrology

Lauren Fins

Specialties: Forest genetics, tree improvement, urban forestry, population biology

John D. Marshall

Specialties: Tree physiology, ecology, forest ecosystem processes

David L. Wenny

Specialties: Forest nursery technology and production, forest regeneration, nursery techniques, biotechnology, silviculture

RELATED PUBLICATIONS

1997. Propagating woody riparian plants in nurseries. Pages 71-76 in: Landis, T.D., and Thompson, J.R. (tech.

coords.) *National Proceedings, Forest and Conservation Nursery Associations*. Portland, Oregon: USDA Forest Service, Pacific Northwest Research Station, General Technical Report PNW-419. R.K. Dumroese, K.M. Hutton, D.L. Wenny.

1997. Fertilizer regimes for container-grown conifers of the Intermountain West. Pages 17-26 in: Haase, D.L. and Rose, R. (coords. & eds.) *Symposium Proceedings, Forest Seedling Nutrition From the Nursery to the Field*. Corvallis, Oregon: Oregon State University Nursery Technology Cooperative. R.K. Dumroese, D.L. Wenny.

1997. *A Guide to Seedling Selection. The Research Nursery Catalog and Order Form*. University of Idaho, Idaho Forest, Wildlife and Range Experiment Station Miscellaneous Publication No. 18. R.K. Dumroese, D.L. Wenny.

1998. *Germination-Enhancing Techniques for Pinus monticola Seeds*. Final research report to the USDA Forest Service, Intermountain Research Station, Moscow, Idaho. R.K. Dumroese, D.L. Wenny.

1998. Micropropagation of antelope bitterbrush [*Purshia tridentata* (Pursh) DC.] *HortScience* 32(2):312-314. J.L. Edson, D.L. Wenny, A.D. Leege-Brusven.

Nursery Research



1996. Mass propagation of Rocky Mountain juniper from stem cuttings. *Tree Planters' Notes* 47(3):94-99. J.L. Edson, D.L. Wenny, R.K. Dumroese, A.D. Leege-Brusven.

1996. Minimizing growth regulators in micropropagating an endangered plant, *Hackelia venusta* (Boraginaceae), for reintroduction. *In Vitro Cellular & Developmental Biology-Plant*. 32:267-271. J.L. Edson, A.D. Leege-Brusven, R.L. Everett, D.L. Wenny.

1997-98. *Inland Empire Tree Improvement Cooperative Newsletter*. College of Forestry, Wildlife and Range Sciences, Moscow, Idaho. L. Fins, (ed.).

Annual Progress Reports of the Inland Empire Tree Improvement Cooperative. College of Forestry, Wildlife and Range Sciences, Moscow, Idaho. L. Fins, (ed.).

1997-98. Pathogenicity of *Fusarium proliferatum* in container-grown Douglas-fir seedlings. Pages 26-33 in: James, R.L. (ed.) *Proceedings of the Third Meeting of IUFRO Working Party S7.03-04, Diseases & Insects in Forest Nurseries*. USDA Forest Service, Forest Health Protection, Northern Region Report 97-4. R.L. James, R.K. Dumroese, D.L. Wenny.

1996. *Western Larch Seed -- Contaminating Fungi and Treatments to Reduce Infection and Improve Germination*. USDA Forest Service, Forest Health Protection, Northern Region Report 96-7. R.L. James, R.K. Dumroese, D.L. Wenny.

1997. *Forest Nursery Research Update Number 11*. Moscow, ID: University of Idaho Forest, Wildlife and Range Experiment Station. D.L. Wenny, (ed.).

RELATED THESES AND DISSERTATIONS

R. Kasten Dumroese. (1996). Germination-Enhancing Techniques for *Pinus monticola* Seeds. *Doctoral major professor: D.L. Wenny*



ONGOING RESEARCH

Ecological genetics of clearwater ecosystem endemics and coastal disjuncts. S.J. Brunsfeld

Genetic races of ponderosa pine. S.J. Brunsfeld

Molecular genetics and ecology of bitterbrush. S.J. Brunsfeld

Freezing tolerance, cold acclimation, and photosynthetic capacity of coniferous seedlings and bunchgrasses. R. Robberecht, J.D. Marshall

Genetics

Selection of giant sequoia genotypes for ornamental planting in the Inland Northwest. L. Fins

Efficiency of early selection of Douglas-fir for improved growth rates. L. Fins

Genetic differences in wood specific gravity among

ponderosa pine families. L. Fins

Genetic differences in phenolics and sugars in Douglas-fir root bark. L. Fins

Plagiotropism in rooted cuttings of western larch. L. Fins

History of forest genetics and tree improvement in California. L. Fins

Morphological differences in needle surface structure among white pine genotypes. L. Fins

Long-term field resistance of white pine to blister rust in the Inland Empire. L. Fins

Gas exchange and carbon budgets of xylem-tapping mistletoes and their hosts. J.D. Marshall

Uptake and metabolism of dry deposited nitric acid vapor on tree seedlings. J.D. Marshall

Water-use efficiency differences among provenances of western conifers. J.D. Marshall

Differences in water sources among tree species in northern Idaho. J.D. Marshall

Scaling of root respiration estimates to partition root respiration from soil respiration. J.D. Marshall

Comparison of leaf-area estimation techniques. J.D. Marshall

Effect of enhanced UV-B radiation on carbon dynamics in selected trees species. R. Robberecht, J.H. Bassman, G.E. Edwards

Tree Diseases

Seedling growth and physiological cycles. D.L. Wenny

Culture of container-grown conifer and hardwood seedlings. D.L. Wenny

Seedling root morphology and chemical pruning. D.L. Wenny

Integrated pest management for greenhouses. D.L. Wenny

Plantation performance and microsite selection. D.L. Wenny

An evaluation of saw dust-amended peat moss for growing ponderosa pine seedlings in containers. R.K. Dumroese



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CONTINUING EDUCATION

The Domesticated Forest, Inland Empire Tree Improvement Cooperative Annual Meeting and Workshop--Coeur d'Alene

Pruning for White Pine Blister Rust --Priest Lake



Forest Regeneration



FOREST HEALTH & NUTRITION

16

SCIENTISTS

David L. Adams

Specialties: Silviculture, forest health, forest regeneration, agroforestry

Steven Cook

Specialties: Forest entomology

Katie Kavanaugh

Specialties: Silviculture

James A. Moore

Specialties: Forest growth and yield modeling, mineral nutrition of forest trees, quantitative silviculture

George Newcombe

Specialties: Forest pathology

Karl Stoszek

Specialties: silviculture, forest protection and health

RELATED PUBLICATIONS

1996. University of Idaho Experimental Forest. *In Experimental Forests, Ranges, and Watersheds in the Northern Rocky Mountains: A Compendium of Outdoor Laboratories in Utah, Idaho, and Montana*. U.S.D.A. For. Serv., INT-GTR-334. H.L. Osborne, R. Appelgren.

1997-98. *Intermountain Forest Tree Nutrition Cooperative, Annual Report*. J.A. Moore (ed.). College of Forestry, Wildlife and Range Sciences, University of Idaho.

1997. *Using a modified stepwise regression to build an individual-tree diameter model for quantifying within-*

stand response to nitrogen fertilization for Douglas-fir. Report for the Inland Empire Tree Nutrition Cooperative, 16pp. G. Shen, C.R. Hatch, J.A. Moore.

1999. Response of advance lodgepole pine regeneration to overstory removal in eastern Idaho. *Forest Ecology and Management* 120:235-244. T.E. Lewis Murphy, D.L. Adams, D.E. Ferguson.

RELATED THESES AND DISSERTATIONS

Roberto A. Avila. Methodology and Design of a Decision Support System to Predict Tree Growth Response from Forest Fertilization. *Doctoral major professor: J.A. Moore*

Albert J. Helgenberg. Effects of Simulated Animal Damage on the Growth and Form of Western White Pine, Ponderosa Pine, and Douglas-fir Seedlings. *Thesis major professor: D.L. Adams*

Terry Shaw. Foliar Nutrient, Root Chemistry, Growth and Carbon Allocation Patterns of Douglas-fir Seedlings Grown Under Different Nitrogen and Potassium Treatments. *Thesis major professor: J.A. Moore*

Jonathan Smith. Insects and Disease Problems in Intermountain West Whitebark Pines with Emphasis on White Pine Blister Rust Disease. *Thesis major professor: A.D. Partridge*

ONGOING RESEARCH

Release of Douglas-fir from overstory competition. D.L. Adams

Western redcedar regeneration. D.L. Adams

Soils of the Grand Fir Mosaic. D.L. Adams

Release of lodgepole pine from overstory competition. D.L. Adams



Effects of simulated animal damage on growth and form of western redcedar, ponderosa pine, and Douglas-fir. D.L. Adams

Analysis of planted western redcedar. D.L. Adams

Carbon to organic matter ratios for soils in Rocky Mountain coniferous forests. D.L. Adams, T. Jain, R. Graham

Genetic variation in nutrient content among Douglas-fir families. L. Fins

Modeling tree and stand response to forest fertilization. C.R. Hatch

Relationship of animal use to tree establishment, survival, and growth in plantation settings. J.L. Kingery

Forest succession and animal use. J.L. Kingery

Use of carbon isotopes in tree rings to detect physiological responses to increasing CO₂. J.D. Marshall

Growth response of forests to intermediate silvicultural treatments. J.A. Moore

Mineral nutrition of forest trees in the Intermountain Northwest. J.A. Moore

Testing and development of Douglas-fir site index and height growth models. J.A. Moore

Development of models to predict site quality based on soil and site factors. J.A. Moore

Development of taper and volume equations for second-growth managed stands of Douglas-fir. J.A. Moore

Testing and development of forest growth and yield simulators in the Intermountain Northwest. J.A. Moore

Intermountain Forest Tree Nutrition Cooperative studies. J.A. Moore

Effects of physiography and disturbance regimes on patterns of distribution and abundance of bull trout and westslope cutthroat trout. P. Morgan

Modeling vegetation succession and disturbance in the forests, woodlands and grasslands of the Interior Columbia River Basin. P. Morgan

Changing structure of dry grand-fir forests in central Washington. P. Morgan

Regeneration and development of western white pine. P. Morgan

Autecology of overstory and understory plants. L.F. Neuenschwander

Regeneration of forest and range important species. L.F. Neuenschwander

Tree and shrub survival in semi-arid cropland areas of the Intermountain West. H.L. Osborne

Mechanisms of competition between bunchgrasses and tree seedlings during forest regeneration. R. Robbrecht

CONTINUING EDUCATION

Forest Management Shortcourse--Orofino, Priest River, St. Maries, Bonners Ferry, and Newport, WA

Forest Fertility Field Day--Bonners Ferry

Forest Insects and Disease Field Day--Sandpoint

Spring Mushrooms--Clark Fork

North Idaho Flora with Emphasis on Ethnobotany--Clark Fork

Wild Medicinal Plants--Clark Fork



Forest Health

GIS & MAPPING

SCIENTISTS

Paul Gessler

Specialties: Remote sensing, GIS mapping of natural resources

J. Michael Scott

Specialties: GAP Analysis, conservation ecology, reserve design, endangered species, condors/Hawaiian birds

Joseph J. Ulliman

Specialties: Aerial photographic interpretation, mapping and remote sensing

Ecosystem modeling on the Sedgwick Natural Reserve.
P. Gessler

Effect of topography on soil carbon dynamics.
P. Gessler

Incorporation of digital terrain analysis methods for quantitative soil-landscape modeling. P. Gessler

Earth Science Application Center. P. Gessler

A GIS lab and analysis service. D. Mattson

Curlew Valley habitat mapping. K.P. Reese

Large area mapping of biodiversity. J.M. Scott

RELATED PUBLICATIONS

18

1996. *Puget Sound Biodiversity: An Interactive Atlas of Extended Gap Analysis* (CD ROM). University of Idaho, Cooperative Park Studies Unit. G.E. Machlis, J.E. McKendry, S.Engle.

1997. Gap Analysis for biodiversity survey and maintenance II. Pages 321-340 in: M. L. Reaka-Kudla, D. E. Wilson, and E. O. Wilson (eds.), *Biodiversity: Getting the Job Done*. National Academy Press, Washington D.C. J.M. Scott, B. Csuti.

1998. Using GIS to prioritize land conservation actions: Integrating sectors of habitat diversity, land ownership, and development risk. *Natural Areas Journal* 18:38-44. R.G. Wright, P. Tanimoto.

RELATED THESES AND DISSERTATIONS

Kobe Harkins. Design, Assessment, and Implementation of Landscape GIS Data Bases: A Case Study of Heyburn State Park. *Thesis major professor: L.F. Neuenschwander*

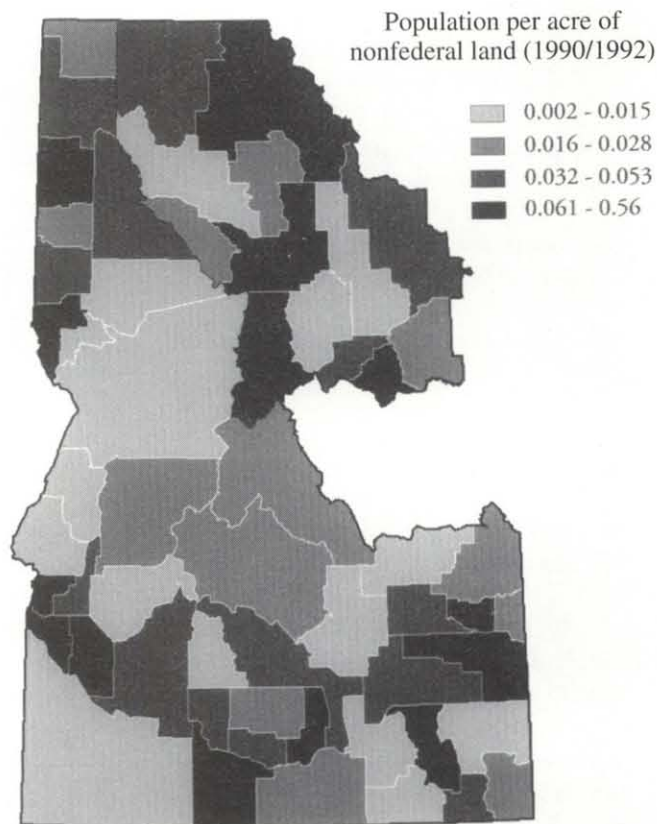
Christa Stumpf. (1996). Geographic Information Systems: A Tool for Use in Public Involvement. *Thesis major professor: J.E. Force*

ONGOING RESEARCH

Mapping of black locust agroforestry systems in the Palouse prairie areas with GIS. J.H. Ehrenreich, T. Arisawa

Topographic and biogeochemical evolution of volcanic islands. P. Gessler

Population of Nonfederal Land



From: *An Atlas of Social Indicators for the Upper Columbia River Basin*, by Gary Machlis, Jo Ellen Force, and Jean E. McKendry. 1995. Interior Columbia Basin Ecosystem Management Project. College of Forestry, wildlife, and Range Sciences, University of Idaho.

INTERNATIONAL RESOURCE MANAGEMENT

SCIENTISTS

John H. Ehrenreich

Specialties: International forest and range management, agroforestry, range ecology

Jo Ellen Force

Specialties: land use planning and policy, social forestry, community stability, society and natural resources

Land Policy

Sam H. Ham

Specialties: Environmental education and interpretation, natural resource communication and tourism, reserve management in developing Latin American countries

Charles R. Hatch

Specialties: Forest mensuration and statistics, international forestry

RELATED THESES AND DISSERTATIONS

Ishfaq Ahmed. Implications of Soil Fertility, Land and Tree Tenure Systems for Agroforestry Planning and Practices in Azad Kashmir. *Doctoral major professor: J.H. Ehrenreich*

Zie Sanogo. Effects of Management on Forest Natural Regeneration in Mali. *Thesis major professor: D.L. Adams*

Adnan Zahoor. Effect of Trees in Ameliorating Air Temperature in Urban Settings of Pakistan. *Doctoral major professor: J.H. Ehrenreich*

RELATED PUBLICATIONS

1998. *Forestry Research Institute Reviews of the Forest Research Institute, Himalayan Forest Research Institute, Institute of Forest Genetics and Tree Breeding, and Tropical Forest Research Institute*. Report for Indian Council of Forestry Research and Education, Winrock International and The World Bank. 168pp. C.R. Hatch, C.W. McKetta, R. Robberecht, A.A. Moslemi, *et al.*

1997. *Forestry Research Institute Reviews of the Arid Forest Research Institute, Institute of Wood Science and Technology, Institute of Forest Productivity, and Institute of Rain and Moist Deciduous Forest Research*. Report for Indian Council of Forestry Research and Education,

Winrock International and The World Bank. 122pp. C.R. Hatch, C.W. McKetta, J.D. Marshall, *et al.*

ONGOING RESEARCH

A growth and yield model for uneven-age forests in Morocco. D.L. Adams

A silvopastoral system for the Ecuadorian highlands. D.L. Adams

Black locust-legume-grass interactions on rehabilitation of rangelands in Kashmir. J.H. Ehrenreich, I. Ahmed

Analyzing black locust and poplar agroforestry systems in northern India. J.H. Ehrenreich

Analyzing black locust, poplar and alder agroforestry systems in northern Iran. J.H. Ehrenreich, S. Yassemi

Development of GIS systems for livestock and wildlife management in Balouchistan. J.H. Ehrenreich, M. Kaleemulah

Effect of agroforestry systems in the hill areas of the Philippines. J.H. Ehrenreich, B. Advincula

Effect of silvopastoral and agroforestry systems in arid tropics of Cameroon, Africa. J.H. Ehrenreich, S. Olson

Use of non-timber forest products in Mali. J.E. Force

Women's participation in community forestry in Nepal. J.E. Force

Reducing tree mortality due to wildfires burning in pine plantations in Andean-Patagonian forests. P. Morgan

Fire behavior, fire-induced injury, and prescribed fire in maritime pine plantations in Portugal. P. Morgan

Assessing the causes and effects of deforestation in Panama. K.J. Stoszek

An Inter-American strategy for public participation. W.J. McLaughlin

Agro-forestry



POLICY ANALYSIS

SCIENTISTS

Jo Ellen Force

Specialties: Land use planning and policy, social forestry, community stability, society and natural resources

Charles C. Harris

Specialties: Resource recreation and amenity values, market analysis, tourism impacts

Gary E. Machlis

Specialties: Survey development, public opinion measurement, natural resource sociology, human ecology

William J. McLaughlin

Specialties: Regional planning including natural resources, nature conservation, tourism, economic development, group facilitation for decision-making and conflict resolution

Jay O'Laughlin

Specialties: Natural resource economics and policy analysis

RELATED PUBLICATIONS

Professional forestry and the land ethic revisited. *Journal of Forestry* 96(1):4-12. G. Brown, C.C. Harris.

1998. How resilient are rural communities in the Interior Columbia Basin Ecosystem? *Journal of Forestry* 96(2):11-15. C.C. Harris, G. Brown, W.J. McLaughlin.

1997. The need for standards of professional conduct. *Fisheries* 22:18. C.M. Moffitt.

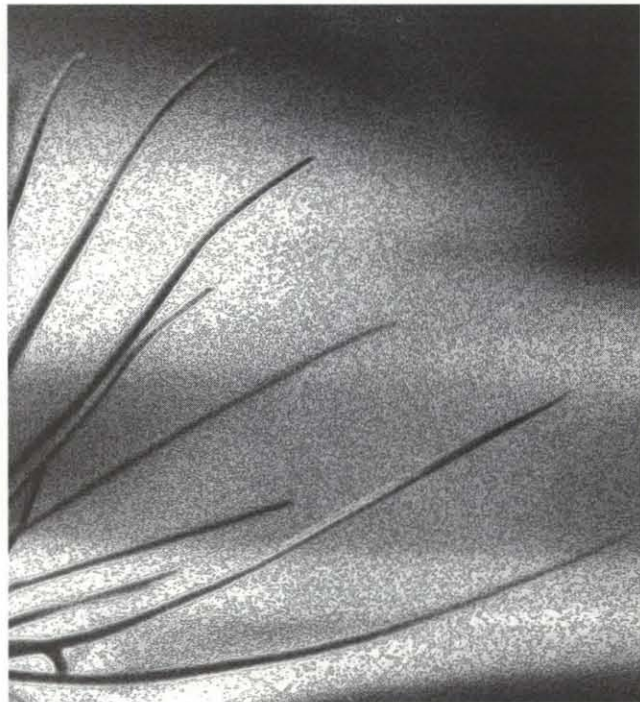
1998. Alternative dispute resolution in U.S. federal agencies: Employee knowledge and attitudes. *Society and Natural Resources*. J.R. Schumaker, J. O'Laughlin, J.C. Freemuth.

RELATED THESES AND DISSERTATIONS

Jean Ann Haley. (1996). The Seventh American Forest Congress and Planet Karma: An Exploration of Forestry Conflict Management Paradigms. *Thesis major professor: J.E. Force*

Maylee Han. (1996). A Dynamic Simulation Model of the Salmon River Corridor. *Thesis major professor: J.E. Force*

Kathy Randall. The Role of Communication in the Adoption of Wetland Policy and Programs. *Thesis major professor: J.D. Hunt*



Christa Stumpf. (1996). Geographic Information Systems: A Tool for Use in Public Involvement. *Thesis major professor: J.E. Force*

ONGOING RESEARCH

Public participation in forest planning activities - empirical studies looking at who participates, why, and how; gender studies. J.E. Force

Community social change in resource-dependent communities. J.E. Force

Community Stability

Assessment of rural communities in the Inland Northwest for agency and community planning processes. C.C. Harris

Organizational change in the USDA Forest Service. C.C. Harris

Social characteristics and conditions of small rural communities in the Pacific Northwest. C.C. Harris

Organizational change and its impact on resource management policy analysis and decision-making. C.C. Harris

Community stability and timber-dependent communities in the Pacific Northwest. G.E. Machlis

Federal policy effects on resource communities.
C.W. McKetta

An Inter-American strategy for public participation. W.J.
McLaughlin

Idaho water quality policy. J. O'Laughlin

Riparian area management policy. J. O'Laughlin

Endangered Species Act implementation in Idaho.
J. O'Laughlin

Federal land management policies in Idaho. J. O'Laughlin

State land management policies in Idaho. J. O'Laughlin

Forest resource management policies. J. O'Laughlin

Natural resource economic development policies.
J. O'Laughlin

Alternative Dispute Resolution (ADR) in natural re-
sources. J. O'Laughlin

Science and natural resources policy analysis.
J. O'Laughlin

Southern Idaho community forums. J. O'Laughlin

PRIVATE FORESTRY

SCIENTISTS

James R. Fazio
Specialties: Resource communication, environmental
interpretation, conservation history, urban and community
forestry, continuing education

Ronald L. Mahoney
Specialties: Forestry, natural resources education &
communication

Harold L. Osborne
Specialties: Silviculture, harvesting, forest regeneration

RELATED THESES AND DISSERTATIONS

Chad T. Sanders. Artificial Establishment of Trees and
Shrubs on Palouse Agricultural Lands of Southeastern
Washington. *Thesis major professor: D.L. Wenny*

ONGOING RESEARCH

Survey of nonindustrial private forest land owners.
J.E. Force

The Idaho Department of Lands and University of Idaho
Community Forestry Newsletter. J.R. Fazio

Hardwood inventory and economic development. R.L.
Mahoney

CONTINUING EDUCATION

Backyard Forests --Sandpoint

Non-Industrial Private Forest Conference --Moscow

Private Forest Landowners Workshop --Moscow

Southern Idaho Non-Industrial Private Forest Workshop
--McCall

Thinning and Pruning Field Day--St. Maries

Logging Safety for Landowners--Coeur d'Alene

Non-Industrial Private Forestland Workshop--Post Falls

Scaling and Marketing Private Timber--Sandpoint

Forest Management Short Course---Bonners Ferry, Coeur
d'Alene, Sandpoint

Hybrid Poplar Field Day--Sandpoint and Usk, WA

Idaho/Washington Non-Industrial Private Forestlands
(NIPF) Field Day--Chewela, WA

Idaho Forest Owners Association Board Meeting--Coeur
d'Alene

Managing Birch in Inland Northwest Forests--Bonners
Ferry

Private Forestry



RANGELANDS & RANGE HEALTH

SCIENTISTS

Stephen C. Bunting

Specialties: Range ecology and management, fire ecology

Kendall L. Johnson

Specialties: Shrubland ecology and management, range extension

James L. Kingery

Specialties: Rangeland rehabilitation, forest grazing policy and management

Karen L. Launchbaugh

Specialties: Range animal nutrition and behavior, grazing management

Ronald Robberecht

Specialties: Range ecology, autecology, ecophysiology, computerized teaching

Kenneth D. Sanders

Specialties: Range extension, range livestock nutrition, grazing systems

1997. *Designing BMPs (Best Management Practices) for Riparian Grazing: Analysis of Scientific Literature*. Idaho Forest, Wildlife and Range Policy Analysis Group Report No.15. J.C. Mosley, A.Griffis, P.S. Cook, J.O'Laughlin.

1997. Effects of breed and dietary experience on juniper consumption by angora and Spanish goats. (1996). *J. Range Manage.* 50:600-606. R.K. Pritz, K.L. Launchbaugh, C.A. Taylor.

1999. *Grazing Behavior of Livestock and Wildlife, Pacific Northwest Range Short Course* (and proceedings), Idaho Forest, Wildlife and Range Experiment Station Bulletin 70, University of Idaho, Moscow. K.L. Launchbaugh, J.C. Mosley, K.D. Sanders, eds.

1998. Improving the efficacy of goating for biological juniper management. In: *1997 Juniper Symposium*. Texas Agr. Exp. Station. Tech Rep. 97-1. C.A. Taylor, K.L. Launchbaugh, E.Huston, E. Straka.

1997. Seedling Dynamics of *Testuca* in Patagonia: Competition, Microsites, and Grazing. *J. of Range Mgt.* 50:73-79. R. Robberecht, G.E. DeFusse, M.B. Bertiller.

ONGOING RESEARCH

Prescribed fire and mechanical thinning of Douglas-fir to enhance bitterbrush. S.C. Bunting

Use of prescribed fire in *Pinus pinaster* forests of Portugal. S.C. Bunting, P. Morgan, F.M.C. Rego

Fire ecology of caldenal vegetation of central Argentina. S.C. Bunting, R.M. Boo

Heat flow into soils during simulated fire and postfire response of *Agropyron spicatum*, S.C. Bunting

Black locust-legume-grass soil interactions on rehabilitation of depleted Palouse prairie farming areas. J.H. Ehrenreich, B. Mahler, I. Ahmed

Effect of black locust-legume agroforestry systems in the Palouse Prairie areas on wildlife populations. J.H. Ehrenreich, J. Peek, S. Olsen

Grazing effects on reclaimed mine lands in southeastern Idaho. J. Kingery, S.C. Bunting

Using sheep to manage noxious plants in Idaho. K.L. Launchbaugh, H. Blackburn

Nutrient dilution: A potential grazing resistance mechanism in grasses. K.L. Launchbaugh

Vegetation and UVB radiation. R. Robberecht

Reseeding arid rangelands. K.D. Sanders

RELATED PUBLICATIONS

1998. Do different breeds of livestock have different dietary preferences? *Women in Nat. Res.* 18:22-24. K.L. Launchbaugh, C.A. Taylor, S.D. Hohensee.

1998. Juniper as forage: An unlikely candidate? In: *1997 Juniper Symposium*. Texas Agr. Exp. Station. Tech Rep. 97-1. K.L. Launchbaugh, C.A. Taylor, E. Straka, R.K. Pritz.

1996. Biochemical aspects of grazing behavior. In: Hodgson, J. and A.W. Illius (eds.) *The Ecology and Management of Grazing Systems*. CAB International, Wallingford, U.K. K.L. Launchbaugh, C.A. Taylor, E. Straka, R.K. Pritz.

Rangeland Ecology

Short duration grazing system on crested wheatgrass.
K.D. Sanders

Control of broom-snakeweed on rangelands. K.D. Sanders

Evaluation of salt-desert shrub communities through time.
L.A. Sharp, K.D. Sanders

Evaluation of afforestation and reforestation attempts of
savannas. K.J. Stoszek

CONTINUING EDUCATION

Grazing Land Riparian Issues--Boise

Grazing Behavior of Livestock and Wildlife (MNR
colloquium), 28th Annual Pacific Northwest Range
Management Symposium--Moscow

Restoration Ecology--Boise



RECREATION & TOURISM

SCIENTISTS

James R. Fazio
Specialties: Resource communication, environmental
interpretation, conservation history, urban

Charles C. Harris
Specialties: Resource recreation and amenity values,
market analysis, tourism impacts

Steve Hollenhorst
Specialties: Environmental policy, wilderness and pro-
tected area management, land trusts and conservation
easements

John D. Hunt
Specialties: Tourism planning, development, marketing,
and management

Edwin E. Krumpel
Specialties: Wilderness and dispersed recreation manage-
ment, recreation and tourism behavior and the decision
process, interpretation and communication, group facilita-
tion for decision-making

William J. McLaughlin
Specialties: Regional planning including natural resources,
nature conservation, tourism, economic development,
group facilitation for decision-making and conflict
resolution

Nick Sanyal
Specialties: Recreation planning, recreation behavior,
survey research & methodologies

Recreation

RELATED PUBLICATIONS

1997. *Sense of Place on the Clearwater National Forest*.
USDA Forest Service, Clearwater National Forest,
Orofino, ID. Idaho Forestry, Wildlife and Range Experi-
ment Station, University of Idaho. D. Smaldone, C.C.
Harris.

1997. *Auger Falls Valuation Project: Progress Report and
Focus Group Results*. Office of the Idaho Attorney
General, Boise, ID. Idaho Forest, Wildlife and Range
Experiment Station, University of Idaho. C.C. Harris.



Tourism

1997. *People make change work in the rural communities of the Columbia River Basin. A Primer on the Rural Town: Designing for Growth and Sustainability.* College of Art and Architecture, University of Idaho. C.C. Harris. (W. McClure, ed.).

1997. The SOS -- A spirituality opportunity spectrum: Theory, applications and implications. Pages 87-97 in: H.K. Cordell (ed.), *Integrating Social Sciences and Ecosystem Management: A National Challenge.* Southern Research Station, Asheville, NC. L. Crystal, C.C. Harris.

1999. *An Assessment of Small Rural Communities in the Interior and Upper Columbia River Basins.* General Technical Report. USDA Forest Service, Pacific Northwest Experiment Station, Portland, OR. C.C. Harris, D. Becker.

The Idaho Tourism and Recreation Chronicle. Vol. 2. University of Idaho Resource Recreation and Tourism Department with Idaho Department of Commerce, Division of Tourism Development. J.D. Hunt, et al (eds.).

A Social Science Plan for the Harpers Ferry Center. University of Idaho, Cooperative Park Studies Unit. G.E. Machlis, L.H. Silverman, E.R. Barrie, C.A. Schulte, P.E. Smith

1998. *Analysis of Ecotourism Policies in the Americas.* Vols. 2-3. Organization of American States, Washington, D.C. S. Edwards, W.J. McLaughlin, S.H. Ham.

1997. *Review and Evaluation of the University Studies Abroad Consortium (USAC) Program at the National University of Costa Rica (UNA).* 17pp. W.J. McLaughlin.

1998. Wearing two hats while developing a comprehensive strategic planning process for recreation and tourism - The University of Idaho Experience. In: *Conference Reports - TTRA--Europe.* Lillehammer, Norway. T. Flognfeldt (ed.). N. Sanyal, W.J. McLaughlin.

1998. Differentiating motivations of guided versus unguided fly fishermen in the upper Missouri River

Drainage of southwestern Montana. *Human dimensions of Wildlife* 3(1):34-46. M. Wright, N. Sanyal.

RELATED THESES AND DISSERTATIONS

Rocklyn Culp. Adolescent Girls and Outdoor Recreation: A Case Study Examining Barriers and Effective Programming. *Thesis major professor: N. Sanyal*

Michael Wright. Differentiating Motivations of Guided Versus Unguided Fly Fishermen in the Upper Missouri River Drainage of Southwestern Montana. *Thesis major professor: N. Sanyal*

ONGOING RESEARCH

Marketing analysis of visitors to Masaya Volcano National Park. S.H. Ham

Resource-based tourism patterns and tourism development planning. C.C. Harris

Integration of psychology and economics in valuation of public amenity resources. C.C. Harris

A Latin American tourism information system. W.J. McLaughlin

Natural Historic Oregon Trail Interpretation Center. W.J. McLaughlin

Describing the community: Continued studies of the Priest Lake ecosystem. N. Sanyal

CONTINUING EDUCATION

Resource Recreation and Tourism Field Day--Idaho, Wyoming, Montana

Writing the Whitewater--McCall

TIMBER & LOGGING

SCIENTISTS

Richard L. Folk

Specialties: Wood energy, silviculture/wood quality, utilization of wood processing wastes

Thomas M. Gorman

Specialties: Wood construction and design, physical properties of wood, secondary wood products manufacturing, moisture problems in wood frame houses

Leonard R. Johnson

Specialties: Timber harvesting methods, wood energy, recovery and processing of forest residues

Harry W. Lee

Specialties: Harvesting systems, road design, site productivity, soil-water relationships

Steven R. Shook

Specialties: Forest products marketing, new product development, business management

Francis G. Wagner

Specialties: Lumber and wood products manufacturing, operations research techniques

RELATED PUBLICATIONS

1997. *Idaho's 1996 Timber Harvest*. Contribution No. 838, Idaho Forest, Wildlife and Range Experiment Station, University of Idaho. J. O'Laughlin, T.M. Gorman.

1997. *Small Scale Forestry Equipment for Intensive Management of Inland Northwest Forests*, Final Report (1996), Sabbatical Leave July 1-December 31, 1995. H.L. Osborne.

1997. *Directory of Idaho Wood Products Manufacturers*, Miscellaneous Publication 19 (Revised). Idaho Forest, Wildlife and Range Experiment Station, University of Idaho. F.G. Wagner, T.M. Gorman, D.P. Wichman.



1999. *Idaho's Wood Products Industry: Current Conditions and Forecast*, Station Bulletin 69. Idaho Forest Wildlife and Range Experiment Station, 3 pp. F.G. Wagner, C.E. Keegan, F. G. Wagner, K. Blatner, S. Shook.

1998. Forecasting adoption and substitution of successive generations of structural wood panel products in the United States. *Forest Science* 45(2):232-248. S. Shook.

1999. Softwood lumber substitution in the U.S. residential construction industry. *Forest Products Journal*. S. Shook, I.L. Eastin, D.D. Simon .

1997. Potential for small-diameter sawtimber utilization by the current sawmill industry in western North America. *Forest Products Journal* 48(9):30-34.

1998. *Adoption, Diffusion, and Substitution of Structural Wood Panels*. Center for International Trade in Forest Products (CINTRAFOR) Working Paper 65, Seattle, Washington: CINTRAFOR. 32 p. S.R. Shook, W.R. Turner, I.L. Eastin.

1998. *Marketing Strategy Effects on Contractor Perceptions of Residential Siding Materials*. Center for International Trade in Forest Products (CINTRAFOR) Working Paper 64, Seattle, Washington: CINTRAFOR. 70 pp. S.R. Shook, I.L. Eastin.

1999. Forecasting adoption and substitution of structural panel products in North America. In: *Proceedings of the 32nd International Particleboard/Composite Materials Symposium*, Pullman, Washington: Washington State University, 29-42. S. R. Shook, W.R. Turner, I.L. Eastin.



Timber &
Logging



An empirical exploration of the role of marketing in forestry education. *The Forestry Chronicle* 78(6):685-692. S.R. Shook, D.A.Paun.

RELATED THESES AND DISSERTATIONS

David Michael Roche. Effects of Ground-Based Harvesting and Site Preparation on the Height Growth of Douglas fir: A second look. *Doctoral major professor: H. W. Lee*

ONGOING RESEARCH

Measurement of dry kiln emissions. R.L. Folk

Wood pellet technology. R.L. Folk

Stress-wave analysis of standing trees to improve recovery of high-stiffness wood for engineered wood products. T.M. Gorman, F. G. Wagner

Affordable housing. T.M. Gorman

Value-added wood products manufacturing. T. M. Gorman, F.G. Wagner

Timber harvesting impacts on soil and water. H.W. Lee

Annual forest engineering conference for the Inland Empire. H.W. Lee

Inorganic bonded wood and fiber composites. A.A. Moslemi

Computer detection of flaws in scanned logs. F.G. Wagner

Veneer technologies. F.G. Wagner, R.L. Folk

CONTINUING EDUCATION

Inland Empire Forest Engineering Conference--Moscow

Logger Education to Advance Professionalism (LEAP) -- Moscow, Sandpoint, St. Maries

Wood Products Academy Level 1--Moscow

Wood: A Remarkable Fiber--Coeur d'Alene, McCall, Moscow

Small Scale Logging Technology--Orofino, Sandpoint

Scaling and Marketing Private Timber--Sandpoint

16th Annual Inland Empire Dry Kiln Workshop--Moscow

Mobile Sawmill Workshop--Moscow

WATER QUALITY, WETLANDS

SCIENTISTS

George H. Belt
Specialties: Watershed management and forest hydrology, agroforestry

C. Michael Falter
Specialties: Urban run-off and aquatic pollution, water quality, ecology and management of streams, lakes, and reservoirs

Kirk Lohman
Specialties: Stream ecology, water quality, amphibians and reptiles

RELATED PUBLICATIONS

Relationships between particle movement and channel morphology in some north Idaho streams. *Water Resources Bulletin* (1996). J.E. Hallisey, G.H. Belt.

Designing BMPs (Best Management Practices) For Riparian Grazing: Analysis of Scientific Literature. Idaho Forest, Wildlife and Range Policy Analysis Group Paper. University of Idaho. J.C. Mosley, A. Griffis, P.S. Cook.

Can Aquatic Vegetation Be an Indicator of the Effectiveness of Nutrient Management Practices Along the Middle Snake River? Idaho Forest, Wildlife and Range Policy Analysis Group Paper. University of Idaho. C.M. Falter, J. O'Laughlin.

Wetlands



RELATED THESES AND DISSERTATIONS

Steve Chipps. *Mysis relicta* in Lake Pend Oreille: Seasonal Energy Requirements and Implications for Mysid-Cladoceran Interactions. *Major professor: D.H. Bennett*

ONGOING RESEARCH

Riparian buffer strip design. G.H. Belt

Development of simulation models for cumulative watershed effects. G.H. Belt

Benthic macroinvertebrate communities in Snake River. D.H. Bennett

Influences of hatchery effluent on water quality. E.L. Brannon

Algae toxicity in Black Lake, Idaho. C.M. Falter

Nutrient loading and limnology of Twin Lakes, Idaho. C.M. Falter



Aquatic macrophyte and nutrient ecology of the mid-Snake River, Idaho. C.M. Falter

Idaho lake classification. C.M. Falter

Aquatic ecology of the Spokane River, Idaho. C.M. Falter

Effects of higher winter lake levels on bioenergetics of Lake Pend Oreille and on warm water fishes in the Pend Oreille River. C.M. Falter

Pend Oreille Lake aquatic macrophyte community and its response to higher water levels. C.M. Falter

Near-shore productivity of Pend Oreille Lake, Idaho. C.M. Falter

Effects of nutrient enrichment on algal growth and water quality in Ozark streams. K. Lohman

Effects of nutrient enrichment on primary and secondary production in the Clark Fork River. K. Lohman

Distribution of tailed frogs in relation to environmental conditions in headwater streams. K. Lohman

Nutrient modeling and eutrophication of the Salaca River, Latvia. K. Lohman

Distribution and abundance of stream amphibians in relation to timber harvest in northern Idaho. K. Lohman

Use of riparian habitats by amphibians and reptiles along the Lower Snake River. K. Lohman, S.L. Small

Influence of riparian herbage on water quality of range-land streams. J.C. Mosley, C.M. Falter, J.W. Walker, D.E. Lucas, T.A. Lance

CONTINUING EDUCATION

Ancient Rock Formations & the History of Glaciation--Clark Fork

Ancient Lake Missoula Floods--Clark Fork

WILDERNESS & PARKS

SCIENTISTS

John C. Hendee
Specialties: Use of wilderness for personal growth, therapy, and leadership development; natural resource policy; public involvement and conflict resolution

Steve Hollenhorst
Specialties: Environmental policy, wilderness and protected area management, land trusts and conservation easements

Edwin E. Krumpe
Specialties: Wilderness and dispersed recreation management, recreation and tourism behavior and the decision process, interpretation and communication, group facilitation for decision-making

Gary E. Machlis
Specialties: Survey development, public opinion measurement, natural resource sociology, human ecology

R. Gerald Wright, Jr.
Specialties: Wildlife management in national parks and wilderness, natural resource data management and GIS

RELATED PUBLICATIONS

1996. The sustainability of U.S. wilderness—Ecologically, socially, and politically. *International Journal of Wilderness* 2(3):3. J.C. Hendee.

1999. Wilderness vigilance more important than ever. *International Journal of Wilderness* 3(2):3. J.C. Hendee.

1997. Testing Wilderness Discovery: A Wilderness Experience Program for Youth-at-Risk in the Federal Job Corps. Tech. Rpt. 24, Idaho Forest, Wildlife and Range Experiment Station, Moscow. K.C. Russell, J.C. Hendee.

1998. The use of wilderness to address personal issues of urban residents: Evidence from a Wilderness Vision Quest Program 1988-1996. In: *Abstracts, International Symposium on Human Dimensions of Natural Resource Management in the Americas*. Belize City. Colorado State University College of Natural Resources. M. Riley, J.C. Hendee.

1997. 1998. *International Journal of Wilderness*. Vol. 3 (1-6). Vol. 4 (1-6). J.C. Hendee, ed.

1998. Social and Economic Benefits of a Wilderness Experience Program for Youth at Risk in federal Job Corps. *Journal of Experiential Education* (June). K. Russell, J.C. Hendee, S.C. Cooke.

1999. Agency Policies and Wilderness Managers' Attitudes toward Wilderness Experience Programs. *Journal of Forestry*. D. Gager, J.C. Hendee, M. Kinziger, E.E. Krumpe.

1998. The wilderness experience program industry in the United States: Characteristics and dynamics. *Journal of Experiential Education* (June). G. Friese, J.C. Hendee, M. Kinziger.

Usable knowledge for national park and protected area management: A social science perspective. Pages 161-173 in: J.G. Nelson and R. Serafin (eds.), *National Parks and Protected Areas*. NATO ASI Series, Vol. G 40. Berlin: Springer-Verlag. G.E. Machlis, M. Soukup.

Wilderness

1998. *Serving the Visitor 1997: A Report on Customers of the National Park Service*. University of Idaho, Cooperative Park Studies Unit. G.E. Machlis, C. Wall, M. Littlejohn.

Looking to the Future of Virgin Islands National Park. University of Idaho, Cooperative Park Studies Unit. G.E. Machlis, J.T. Pittman, J.E. McKendry.

1998. Social science to improve employee safety. *Natural Resources Year in Review 1997*. National Park Service, U.S. Department of the Interior, Lakewood, Colorado. G.E. Machlis.

1998. A review of the relationships between visitors and ungulates in national parks. *Wildlife Society Bulletin* 26:471-76. R.G. Wright.

1998. What managers are saying--and doing--about wilderness experience programs. *Journal of Forestry* 96(8):33-36. D. Gager, J.C. Hendee, M. Kinziger, E.E. Krumpe.

RELATED THESES AND DISSERTATIONS

Heidi (Schantz) Hankley. Comparing Forage Selection and Evaluating Trampling Impacts of Horses and Llamas in Wilderness and Backcountry Meadows. *Thesis major professor: E.E. Krumpe*

Susanne Moore. Wilderness Heritage Photography: A Business Plan. *Thesis major professor: E.E. Krumpe*

Darren Yocum. Roadless Remnants of the Clearwater National Forest: A Photographic Essay. *Thesis major professor: J.R. Fazio*

ONGOING RESEARCH

The effects of new student orientation with a wilderness experience on academic adjustment and progress. J.C. Hendee, P. Farmer

Primal Hypothesis: Relationships between naturalness, solitude, and human benefits from wilderness experience. J.C. Hendee, D. White, E.E. Krumpe

Organization of the wilderness experience program industry and response by wilderness managers. J.C. Hendee, G. Friese, D. Gager

Functions of wilderness experience in wilderness therapy intervention for adolescents. J.C. Hendee, K. Russell

Desirable adjustments in wilderness and environmental education to meet the needs of multicultural participants. J.C. Hendee, T. Welton



Long term effects of participating in a modern wilderness vision quest. J.C. Hendee, M. Riley

Visitor studies in more than 100 U.S. national parks and five international parks. G.E. Machlis

Landscape assessment of the decline of whitebark pine (*Pinus albicaulis*) in the Bob Marshall Wilderness complex, Montana, USA. P. Morgan

Parks

Development of population models and tests of population control techniques on ungulates in national parks. R.G. Wright

Development of computerized natural resource data management systems for national parks. R.G. Wright

Analysis of historic vegetational change at Craters of the Moon. R.G. Wright

Use of geographic information systems to determine resource management strategies and siting of national parks and protected areas. R.G. Wright

Behavior and influence of visitor activities on wildlife in national parks. R.G. Wright

CONTINUING EDUCATION

Wilderness Field Ecology--Taylor Ranch Wilderness Field Station

Wilderness Fire Ecology and Management--Taylor Ranch Wilderness Field Station

Experiencing Wilderness Resources--Taylor Ranch Wilderness Field Station

Winter Field Ecology--Teton Science School, Kelly, WY



WILDLIFE AND GAME

SCIENTISTS

Brian Dennis
Specialties: Statistical ecology, biometrics (biological statistics), mathematical modeling

E.O. Garton
Specialties: Population statistics, wildlife census methods

Maurice G. Hornocker
Specialties: Population ecology, predator-prey interaction

Dennis L. Murray
Specialties: Predator-prey interactions, big game ecology

James M. Peek
Specialties: Big game habitat, ecology, and management

Howard Quigley
Specialties: Field studies of North American big cat populations (jaguar, cougar), leopards, brown and black bears, mountain sheep, Siberian tiger (Russia), and giant panda (China); radio-telemetry; endangered species

Wildlife

John T. Ratti
Specialties: Avian ecology (birds), waterfowl ecology and management, upland bird ecology, wetland ecology, habitat analysis

Kerry P. Reese
Specialties: Ecology & management of waterfowl and game birds (grouse, hawks, pheasant, quail, songbirds, turkey, etc..) forest birds

J. Michael Scott
Specialties: GAP Analysis, conservation ecology, reserve design, endangered species, condors/Hawaiian birds

Lisette Waites
Specialties: Wildlife conservation, biology and genetics, molecular ecology, evolutionary biology

R. Gerald Wright, Jr.
Specialties: Wildlife management in national parks and wilderness, natural resource data management and GIS

RELATED PUBLICATIONS

1997. Interactive effects of sublethal parasitism and nutritional status on snowshoe hare vulnerability to predation. *Journal of Animal Ecology* 66:250-269. D.L. Murray, J.R. Cary, L.B. Keith.

Defining landscapes suitable for restoration of grizzly bears *Ursus arctos*. *Idaho. Biol. Cons.* 87, pp. 231-248. T. Merrill, D.J. Mattson, R.G. Wright, H. Quigley.

1998. Townsend's Warbler. *The Birds of North America*, No. 333, pp. 1-19. A.L. Wright, G.D. Hayward, S.M. Matsuoka, P.H. Hayward.

Spacing and Ecology of North American Badgers (*Taxidea Taxus*) in a prairie-dog (*Cynomys Leucurus*) Complex. *J. Mammal.* 78(1):171-179. J.M. Goodrich, S.W. Buskirk.

1997. Status of Tundra Swans and Trumpeter Swans in Mexico. *Wilson Bull.*, 109(4), pp. 693-701. C.D. Roderick, D.S. Benning.



Ocellated Turkey. *Natl. Wild Turkey Fed. Wildl. Bull. No. 6*, Edgefield, SC. 8 pp. C.I. Taylor, H.B. Quigley, M.J. Gonzalez.

1998. All About Moose: Review of Ecology and Mgt. of the N. American Moose. *Bioscience* 48: 847-848. D.L. Murray.

1999. Perceived predation risk as a function of predator dietary cues in terrestrial salamanders.

Anim. Behav. 57:33-39. D.L. Murray, C.L. Jenkins.

1997. Can sublethal parasitism destabilize predator-prey population dynamics? A model of snowshoe hares, predators and parasites. *Journal of Animal Ecology* 66:265-278. D.L. Murray, A.R. Ives.

1998. Biological and logistical explanations of variation in wolf population density. *Animal Conserv.* 1:153-157. T.K. Fuller, D.L. Murray.

1998. Do parasitism and nutritional status interact to affect production in snowshoe hares? *Ecology* 79:1193-1208. D.L. Murray, L.B. Keith, J.R. Cary.

1998. Functional responses of coyotes and lynx to the snowshoe hare cycle. *Ecology* 79:1209-1222. M. O'Donoghue, S. Boutin, C.J. Krebs, G. Zutel, D.L. Murray, E.J. Hofer.

1997. Behavioural responses of coyotes and lynx to the snowshoe hare cycle. *Oikos* 82:169-183. M. O'Donoghue, S. Boutin, C.J. Krebs, D.L. Murray, E.J. Hofer.

1998. Landscape changes within historical distribution of Columbian sharp-tailed grouse in eastern Washington: Is there hope? *Northwest Science* 72:34-41. K.P. Reese.

1998. Sharp-tailed grouse. *Birds of North America*, No. 354. K.P. Reese.

1997. Effects of prescribed fire on movements of female sage grouse from breeding ranges. *Wilson Bulletin* 109:82-91. K.P. Reese.

1997. Translocation of sage grouse in North America. *Wildlife Biology* 3:235-241. K.P. Reese.

1998. A comparison of mitochondrial DNA and microsatellite DNA variability in brown bear populations from Alaska, Canada, and the lower 48 states. In: *Proceedings of the 10th International Conference on Bear Research and Management*. L. Waites, D. Paetkau, C. Strobeck, R. Ward.

Non-invasive genetic tracking of the endangered Pyrenean brown bear population. *Molecular Ecology* 6:869-876. L. Waites, P. Taberlet, J. Camarra, S. Griffin, E. Hanotte, C. ubois-Paganon, T. Burke, J. Bouvet.

1998. Using GIS to prioritize land conservation actions: Integrating sectors of habitat diversity, land ownership, and development risk. *Natural Areas Journal* 18:38-44. R.G. Wright, P. Tanimoto.

RELATED THESES AND DISSERTATIONS

Anthony Dean Apa. Habitat Use and Movements of Sympatric Sage and Columbian Sharp-tailed Grouse in Southeastern Idaho. *Doctoral major professor: K.P. Reese*

Mike Elmer. Cougar Food Habit Dynamics in the San Andres Mountains, New Mexico. *Thesis major professor: E.D. Ables*

Scott Gardner. Movements, Survival, Productivity, and Test of a Habitat Suitability Index Model for Reintroduced Columbian Sharp-Tailed Grouse. *Thesis major professor: K.P. Reese*

Jeffrey Marco. Factors Affecting Great Blue Heron Reproduction in South Central Washington. *Thesis major professor: E.O. Garton*

Kerry Murphy. Ecology of the Cougar (*Puma concolor*) in Northern Yellowstone Ecosystem: Interactions with Prey, Bears, and Humans. *Major professors: M. Hornocker and H. Quigley*

Scott Sell. Mule Deer Habitat Use on the Boise National Forest. *Thesis major professor: J.M. Peek*

ONGOING RESEARCH

Status of Chamberlain and Thunder Mountain wolf packs. J. Akenson, H. Akenson

Nonlinear dynamics in population ecology. B. Dennis

- Density dependence, carrying capacity, and statistical equilibrium. B. Dennis
- Modeling insect phenology stochastic population. B. Dennis
- Bird predation on forest insect pests. E.O. Garton
- Home range estimation. E.O. Garton
- Avian relations with dying and dead trees at Blacks Mountain Experimental Forest, California. E.O. Garton
- Estimating the density, percent cover, and length of downed logs on a landscape for wildlife management. E.O. Garton
- Impacts of a reintroduced wolf population on Yellowstone elk and deer populations. E.O. Garton
- Monitoring methods for woodpeckers and neotropical migrant birds. E.O. Garton
- Population ecology of trumpeter swans and whooping cranes. E.O. Garton
- Aerial census methods for elk, mule deer, bighorn sheep and moose populations. E.O. Garton
- Status and habitat requirements of Boreal Owls. E.O. Garton
- Ecology of the mountain lion in a New Mexico desert environment. M.G. Hornocker, K. Logan, L. Sweanor
- Cougars of the San Andres Mountains, New Mexico. K. Logan, L. Sweanor, T. Ruth, M.G. Hornocker
- Evaluating cougar translocation in new Mexico. M.G. Hornocker, T. Ruth, K. Logan, L. Sweanor
- Cougar food habit dynamics in the San Andres Mountains, New Mexico. H. Quigley, M. Elmer
- Ecology of the mountain lion in Yellowstone National Park, Montana. M.G. Hornocker, H. Quigley, K. Murphy
- Interactions between mountain lions and wolves in the North Fork of the Flathead River, Montana. M.G. Hornocker, H. Quigley, T. Ruth
- Ecology of black bears in New Mexico. M.G. Hornocker, H. Quigley, C. Costello, J. Cashman, D. Jones, L. Temple
- Bear education and refuse disposal program, New Mexico. M.G. Hornocker, H. Quigley, C. Costello
- Black bear habitat utilization in western Maryland. H. Quigley, D. Dateo, T. Webster
- Study of migratory waterfowl in Idaho. R. Drewien
- Effects of spotted knapweed on a wilderness game range. Idaho. M.G. Hornocker, T. Wright
- The Siberian Tiger Project, Russia. M.G. Hornocker, H. Quigley, D. Miquelle, K. Quigley, J. Goodrich, L. Kerley, B. Schleyer, E. Smirnov, I. Nikalaev, D. Pikunov, V. Udin
- Ecology and conservation of the Amur leopard, Russia. M.G. Hornocker, H. Quigley, D. Miquelle, J. Augustine, V. Korkishko, A. Ziev, U. Shibnev
- Ecology of sympatric brown bears (*Ursus arctos*) and Himalayan black bears (*Ursus thibetanus*) in the Sikhotealin Biosphere Reserve, Russia. M.G. Hornocker, H. Quigley, D. Miquelle, J. Goodrich, L. Kerley, B. Schleyer, E. Smirnov
- Community conservation planning in the Russian Far East. M.G. Hornocker, H. Quigley, D. Miquelle
- Predation-sensitive foraging in voles. D.L. Murray
- Impact of snow on coyote behavioral ecology and energy budgets. D.L. Murray
- Parasitism and nutrition in a declining moose population. D.L. Murray
- Elk nutrition and reproduction assessment via physiological indices. D.L. Murray
- Assessment of the ecological value of Snake River islands on Deer Flat National Wildlife Refuge to neotropical migrant birds. J.T. Ratti
- Analysis of selenium and cadmium levels in the eggs of selected avian species. J.T. Ratti
- Pheasant response to intensive environmental enhancement. K.P. Reese
- Spring movements and nesting ecology of Sage Grouse pre- and post-prescribed burn. K.P. Reese
- Movements, habitat use, and population characteristics of Mountain Quail. K.P. Reese
- Ecology of Merriam's Wild Turkey in central Idaho. K.P. Reese
- Reproduction ecology of Chukar. K.P. Reese
- Ecology of Sympatric Sage and Sharp-tailed Grouse. K.P. Reese
- Idaho Pheasant research and ecology. K.P. Reese
- Distribution abundance and limiting factors of Hawaiian birds. J.M. Scott

Analysis of black bear reproductive histories in Idaho. D. Murray

Winter wolf predation. D.L. Murray

Canada lynx predator-prey relationships. D.L. Murray

Wolf ecology and predator-prey relationships on the Copper River Delta. J.M. Peek

Evaluation of Jarbridge elk habitat. J.M. Peek

Study of elk population dynamics on the INEEL and depredation on adjacent agricultural lands. J.M. Peek

Study of Brownlee mule deer ecology. J.M. Peek

Analysis of mule deer fawn mortality. J.M. Scott

Predicting wildlife species distribution issues of scale and accuracy. J.M. Scott

Estimating bird abundance. J.M. Scott

Bird inventories at Nez Perce National Historical Park. R.G. Wright

Influence of landscape change on amphibian distribution in the Palouse bioregion. R.G. Wright

Population dynamics and nutritional carrying capacity of axis deer on Kalaupapa National Historic Park, Hawaii. R.G. Wright

The tropical vertebrate populations project, Guatemala. H. Quigley, M.J. Gonzales, H. Garcia

CONTINUING EDUCATION

Wilderness Wildlife: Birds and Mammals--Taylor Ranch Wilderness Field Station

Fish and Wildlife Population Analysis--Boise

Advanced Population Biology--Boise

Project WILD I--McCall

Advanced Project WILD II--McCall

Grizzly Bears--Clark Fork

Wild Cats of Idaho: Cougar, Lynx, Bobcat--Clark Fork

Koani, The Ambassador Wolf--Clark Fork

Bats: Habitat, Habits, and Identity--Clark Fork

WOOD WASTES

SCIENTISTS

Alton G. Campbell

Specialties: Pulp and paper science, waste treatment and resource recovery

Richard L. Folk

Specialties: Wood energy, silviculture/wood quality, utilization of wood processing wastes

A.A. Moslemi

Specialties: Wood composites, inorganic bonded wood composites, wood technology

RELATED PUBLICATIONS

1997. Wood ash as an amendment in municipal sludge and yard waste composting processes. *Compost Science and Utilization* 5(1):62-73. A.G. Campbell, R.L. Folk, R.R. Tripepi.

1997. Inorganic-bonded wood and fiber composite materials (conference). Volume V. *Forest Products Journal*. Madison, WI. A.A. Moslemi.

CONTINUING EDUCATION

Sixth International Inorganic Bonded Wood and Fiber Composite Materials Conference--Coeur d'Alene

Utilizing Waste



Who Supported Us in 1997-1999?

Agency for International Development
Agriculture Research Service
Alaska Fish and Game Department
American-Scandinavian Foundation
Bennett Lumber Company
Blue Mountain Elk Cooperative
Boise Cascade Corporation
Boise National Forest
Bonneville Power Administration
Curt and Adele Berklund
Champion Timberlands
Clearwater National Forest
Clearwater-Potlatch Timber Protective Association, Inc.
Clearwater Resource Conservation and Development Council
Colorado State University
Colville Confederated Tribes
Consortium for International Development
Cooperative State Research Service
DeVlieg Family Endowment
Energy/Development International
Environmental Protection Agency
Environmental Science and Research Foundation
Evergreen Forest Products
Flathead National Forest
Ford Foundation
Foundation for North American Wild Sheep
Fremont Forest
Glacier National Park
Government of Honduras
Roger and Billie Guernsey
Hoff Companies
Idaho Department of Commerce
Idaho Department of Fish and Game
Idaho Department of Health and Welfare
Idaho Department of Lands
Idaho Department of Parks and Recreation
Idaho Forest Industries
Idaho National Engineering Laboratory
Idaho Nuclear Energy Commission
Idaho Power Company
Idaho Research Foundation, Inc.
Idaho Travel Council
Idaho Water Resources Board
Idaho Water Resources Research Institute
Inland Empire Paper Company
Inland Empire Tree Improvement Cooperative
Inland Northwest Growth and Yield Cooperative
Intermountain Forest Industries Association
Jefferson National Expansion Historical Assoc., Inc.
Konkolville Lumber
Latah County
Martin Marietta
Monsanto
Montana Fish and Wildlife
Montana State University
National Aeronautics and Space Administration
National Council of the Paper Industry
National Fish and Wildlife Foundation
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
National Rifle Association of America

National Science Foundation
National Wildlife Federation
North Atlantic Treaty Organization
North Dakota Fish and Game
North Idaho Forestry Association
Northwest Area Foundation
Oregon Department of Fish and Wildlife
Oregon Hunters Association
Oregon State University
Pacific Northwest Power Company
Pack River Lumber Company
Payette National Forest
Pheasants Forever
Potlatch Corporation
PUD #1, Pend Oreille County
QB Corporation
Riley Creek Lumber
Rocky Mountain Elk Foundation
Shearer Lumber
Simpson Timber Company
South Idaho Forestry Association
Stillinger Trust
TJ International
U.S. Army Corps of Engineers
USDA Cooperative Research
USDA Extension Service
USDA Forest Service, Intermountain Forest and Range Experiment Station
USDA Forest Service, Northeastern Forest Experiment Station
USDA Forest Service, Pacific Northwest Forest and Range Experiment Station
USDA Office of International Cooperation and Development
U.S. Department of Commerce
U.S. Department of Energy
U.S. Department of Navy/Naval Undersea Center
U.S. Office of Naval Research
USDI Bureau of Indian Affairs
USDI Bureau of Land Management
USDI Bureau of Reclamation
USDI Fish and Wildlife Service
USDI National Biological Survey
USDI National Park Service
University of Alaska
University of Arizona
University of Idaho Experimental Forest
University of Idaho Forest Research Nursery
University of Maine
University of Minnesota
University of Montana
University of Washington
Washington State Department of Natural Resources
Washington State University
Washington Water Power Company
Western Forestry and Conservation Association
West One
Weyerhaeuser Company
WILD Foundation
The Wilderness Society
Wildlife Management Institute
The Wildlife Society
Winema Forest



University of Idaho

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