



United States
Department of
Agriculture

Forest Service
R10-MB-736d

June 2013



Big Thorne Project Thorne Bay Ranger District, Tongass National Forest

Final Environmental Impact Statement

Volume II



Chapter 4

References and Lists

List of Preparers

This chapter identifies the preparers and major contributors/reviewers for this EIS and summarizes their education and experience levels.

Preparers:

Randy Fairbanks, IDT Leader/Tetra Tech Project Manager

Education: M.S. Forest Science/Biometrics, University of Washington, 1979

B.S. Wildlife Science, University of Washington, 1972

Professional Experience: 38 years (including 22 years working on Forest Service projects)

Cliff Barnhart, Forester/Logging & Transportation Planner

Education: B.S. Forest Engineering, Oregon State University, 1987

Professional Experience: 25 years (including 20 years working on Forest Service projects)

David Cox, Geologist/Hydrologist

Education: B.S. Geology, Western Washington University, 2000

Professional Experience: 11 years (including 4 years with the Forest Service)

John Crookston, Ecologist

Education: M.S. Ecology, San Diego State University, 2007

B.S. Biology, University of California San Diego, 2002

Professional Experience: 9 years

Matt Dadswell, Social Scientist

Education: Ph.D. studies, Geography, University of Washington

M.A. Geography, University of Cincinnati, 1990

B.A. Economics and Geography, Portsmouth Polytechnic, 1988

Professional Experience: 20 years

Robert Evans, Landscape Architect

Education: M.S. Landscape Architecture, Auburn University, 2006

M.S. Regional Planning, Auburn University, 2006

B.S. Environmental Design, Auburn University, 2003

Professional Experience: 6 years

Jennifer Hawkins, Environmental Scientist

Education: B.S. Environmental Science, Marist College, 1994

Professional Experience: 16 years

Dylan Hitner, Forest Engineer, EI, LSI

Education: B.S. Forest Engineering, Oregon State University, 2011

Professional Experience: 2 years

4 References and Lists

Joe Iozzi, Silviculturist

Education: Silviculture Institute, University of Washington, 1985

B.S. Forest Management, Rutgers University, 1977

Professional Experience: 32 years (including 19 years with the Forest Service)

Chris James, Hydrologist

Education: M.S. Forest Hydrology, University of Washington, 2007

Graduate studies in Environmental Management and Engineering, Portland State University

B.A. Environmental Resources (Chemistry minor), Lewis and Clark College, 1999

Professional Experience: 7 years (including 2 years with the Forest Service and BLM)

Johanna Kovarik, Geologist

Education: M.S., Western Kentucky University 2007

B.A., Western Michigan University, 2004

Professional Experience: 7 years with the Forest Service

John Knutzen, Fish Biologist

Education: M.S. Fisheries, University of Washington, 1977

B.A. Biology, Western Washington State College, 1972

Professional Experience: 34 years

Timothy Marshall, Archaeologist

Education: M.A. Archaeology, East Carolina University, 2000

Professional Experience: 11 years (including 4 years with the Forest Service)

Teresa Opolka, Ecologist

Education: B.S. Biology, Seattle University, 1998

Professional Experience: 13 years

MaryJo Watson, GIS Coordinator/Analyst

Education: B.S. Computer Information Systems, Menlo College

Professional Experience: 19 years

Brita Woeck, Wildlife Biologist

Education: M.S. Wildlife Ecology and Management, University of Missouri, 2003

B.S. Wildlife Science, University of Washington, 1999

Professional Experience: 12 years

Major Contributors/Reviewers:

Kent Nicholson, District Ranger

Education: M.A. Business Administration (with honors), University of Alaska, 2007

B.A. Business Administration, University of Alaska, 1996

Forest Experience: 8 years (27 years in timber in Southeast Alaska)

Jason C. Anderson, District Ranger

Education: B.A. Biological Sciences, California State University - Stanislaus, 1997

Forest Service experience: 7 years

James Kelly, Program Planning Specialist, Team Leader

Education: Northern Essex Community College, Southern Oregon University
Forest Service experience: 15 years

Delilah Brigham, Fish Biologist

Education: B.S. Aquatic Resources, Sheldon Jackson College 1996
Forest Service experience: 9 years

Sally Burch, GIS Coordinator

Forest Service experience: 20 years
Other professional experience: 3 years

Marla Dillman, Wildlife Biologist

Education: B.S., Wildlife Ecology, University of Wisconsin-Madison, 1984
Forest Service experience: 25 years

Victoria Houser, Recreation Planner

Education: B.S., St. Lawrence University 2000, Masters State University of New York -
Environmental Science and Forestry 2005
Forest Service experience: 6 years

Richard Jacobson, Civil Engineering Technician

Education: Oregon State University, Forest Engineering Institute 1994
Forest Service experience: 17 years

Kristen Lease, Forester, Ecologist

Education: B.S. Forest Resource Management, University of Minnesota, Twin Cities, 2003
Forest Service experience: 7 years

Frank W. Roberts, Planning Staff

Education: B.S., Forestry, Michigan Technological University, 1976
Forest Service experience: 30 years

Becki Saari, Soils Technician

Education: Completing B.S. in Soil Science and Land Resources with the University of Idaho
Forest Service experience: 6 years

Robert “Mike” Sheets, Certified Silviculturist

Education: Graduate of the Natural Resource Institute 1999-2000, University of West Virginia,
BS in Forest Resource Management 1992, Dabney S. Lancaster College, AS in Forestry 1987
Forest Service experience: 17 years

Julianne Thompson: Forest Hydrologist

Education: B.S. Natural Resources Management, California Polytechnic State University, 1985
Graduate studies in Wildland Hydrology, Colorado State University 1985-1988
Forest Service experience: 20 years

4 References and Lists

Distribution List

A copy of the Big Thorne Project Final EIS or a letter with a link to the online copy was sent to the following parties. These parties either commented on the project, requested a copy of the Final EIS during scoping or at some other time during the NEPA process, or are part of the Tongass National Forest mandatory mailing list (Forest Service Handbook 1909.15, Sections 23.2 and 63.1).

Agencies

Alaska Dept. of Environmental Conservation, Division of Air and Water Quality, Juneau, AK
Alaska Dept. of Fish & Game, Division of Sport Fishing, Ketchikan, AK
Alaska Dept. of Fish & Game, Division of Subsistence, Douglas, AK
Alaska Dept. of Fish & Game, Division of Wildlife Conservation, Douglas, AK
Alaska Dept. of Fish & Game, Division of Wildlife Conservation, Juneau, AK
Alaska Dept. of Fish & Game, Division of Habitat, Craig, AK
Alaska Dept. of Natural Resources, Division of Coastal and Ocean Mgmt, Juneau, AK
Alaska Dept. of Natural Resources, Division of Forestry, Ketchikan, AK
Alaska Dept. of Natural Resources, Office of Project Management and Permitting, Juneau, AK
Alaska Dept. of Transportation, Juneau, AK
Alaska Div. of Governmental Coordination, Juneau, AK
Alaska Land Use Council, Office of the Governor, Juneau, AK
Alaska Office of the Governor, Juneau, AK
Environmental Protection Agency, Alaska Operations Office, Anchorage, AK
Environmental Protection Agency, EIS Filing Section, Washington, DC
Environmental Protection Agency, Region 10, Seattle, WA
Federal Aviation Administration (USDOT), Anchorage, AK
Federal Railroad Administration (USDOT), Washington, DC
FHWA Alaska, Division Administrator, Juneau, AK
Interstate Commerce Commission, Washington, DC
National Marine Fisheries Service, Habitat Conservation Div., Juneau, AK
National Marine Fisheries Service, Protected Resources Mgmt. Div., Juneau, AK
NOAA Office of Policy and Strategic Planning, Washington, DC
National Park Service, Anchorage, AK
Small Business Administration, Seattle, WA
U.S. Army Corps of Engineers, Regulatory Field Office, Juneau, AK
U.S. Army Corps of Engineers, Northwestern Division, Portland, OR
U.S. Army Corps of Engineers, Pacific Ocean Division, Ft. Shafter, HI
U.S. Army Engineer District, Anchorage, AK
U.S. Advisory Council on Historic Preservation, Washington, DC
U.S. Coast Guard, Environmental Impact Branch, Washington, DC
U.S. Coast Guard, Commandant, Dept. of Homeland Security, Washington, DC
U.S. Dept. of Commerce, Policy and Strategic Planning Office, Washington, DC
U.S. Dept. of Energy, Office of NEPA Policy & Compliance, Washington, DC
U.S. Dept. of Housing and Urban Development, Environmental Review Division, Washington, DC
USDA APHIS PPD/EAD, Riverdale, MD

USDA Natural Resources Conservation Service, Craig, AK
 USDA Natural Resources Conservation Service, Juneau, AK
 USDA Natural Resources Conservation Service, Palmer, AK
 USDA Natural Resources Conservation Service, Washington, DC
 USDA Forest Service, Charley Streuli, Petersburg Supervisor's Office, Petersburg, AK
 USDA Forest Service, Cynthia Sever, Petersburg Supervisor's Office, Petersburg, AK
 USDA Forest Service, Director of Forest Management, Regional Office, Juneau, AK
 USDA Forest Service, Beth Pendleton, Regional Forester, Regional Office, Juneau, AK
 USDA Forest Service, Forrest Cole, Ketchikan Supervisor's Office, Ketchikan, AK
 USDA Forest Service, Pat Heuer, Sitka Supervisor's Office, Sitka, AK
 USDA Forest Service, Rachelle Huddleston-Lorton, Thorne Bay Ranger District, Thorne Bay, AK
 USDA Forest Service, Craig Ranger District, Craig, AK
 USDA Forest Service, Thorne Bay Ranger District, Thorne Bay, AK
 USDA Forest Service, Rocky Mountain Research Station, Ogden, UT
 USDA Forest Service, Sue Jennings, Petersburg Supervisor's Office, Petersburg, AK
 USDA Forest Service, Susan Howle, Ketchikan Supervisor's Office, Ketchikan, AK
 USDA Forest Service, Supervisor's Office, Chugach National Forest, Anchorage, AK
 USDA Forest Service, Planning Dept., Ketchikan-Misty Fiords RD, Ketchikan, AK
 USDA Forest Service, Planning Dept., Petersburg Ranger District, Petersburg, AK
 USDA Forest Service, Planning Dept., Wrangell Ranger District, Wrangell, AK
 USDA Forest Service, Director, Ecosystem Management Coordination, Washington, DC
 USDA National Agricultural Library, Beltsville, MD
 USDA Office of Civil Rights, Washington, DC
 USDI Bureau of Land Management, Anchorage, AK
 USDI Fish and Wildlife Service, Juneau, AK
 USDI Office of Environmental Policy & Compliance, Anchorage, AK
 USDI Office of Environmental Policy & Compliance, Washington, DC
 U.S. Dept. of Transportation, Washington, DC
 U.S. Government Printing Office, Federal Depository Library Program, Washington, DC
 U.S. Navy Environmental Protection Division, Washington, DC
 U.S. Navy, Energy and Environmental Readiness Division, Washington DC
 Wild and Scenic Rivers Program, Burbank, WA

Individuals

Adrian Morris, Klawock, AK
 Andrew Dolloff, Blacksburg, VA
 Andrew Weber, Roseburg, OR
 Barbara Huffman, Ketchikan, AK
 Barnett Freedman, Thorne Bay, AK
 Ben Mitchell, Sitka, AK
 Bill & Peggy Byford, Wrangell, AK
 Bill Pfeifer, Ketchikan, AK
 Bob & Mary Lou Smart, Edna Bay, AK
 Bob Armstrong, Ketchikan, AK
 Bob Bramblett, Bozeman, MT
 Brent Cole, Craig, AK
 Brian Castle, Craig, AK
 C.W. Shingleton, Coffman Cove, AK

4 References and Lists

Carleen Gotelli, Ketchikan, AK
Charlanne Heath, Ward Cove, AK
Charley Streuli, Petersburg, AK
Cheryl Fecko, Craig, AK
Chuck Bateman, Coffman Cove, AK
Cindy Barber, Ketchikan, AK
Craig Moore, Ketchikan, AK
David Anniskette, Klawock, AK
Deidra Holum, Ketchikan, AK
Dick Allen, Ketchikan, AK
Dick Artley, Grangeville, ID
Doug Rhodes, Craig, AK
Ed & Marion Glenz, Meyers Chuck, AK
Ed Zastrow, Ketchikan, AK
Edward Mecham, Ketchikan, AK
Edward Coville, Ward Cove, AK
Eric Wyatt, Edna Bay, AK
Erik Johnson, Olympia, WA
Frank & Pat Roppel, Wrangell, AK
Fred Ensign, Craig, AK
Fred Triem, Petersburg, AK
Gary Zumstro, Sequim, WA
Gary, Jean, & Katie Soderberg, Coffman Cove, AK
George Woodbury, Woodbury Enterprise, Wrangell, AK
Gerald Welsh, Whale Pass, AK
Gerald Weston, Ketchikan, AK
Gordon & Marilyn Olsen, Petersburg, AK
Hal Sheppard, Craig, AK
Hans Kohn, Thorne Bay, AK
Harriet Wadley, Craig, AK
Harvey Shelley, Klawock, AK
Ira & Lucille Merrill, Wrangell, AK
J.W. Peterson, Ketchikan, AK
Jack Oien, Ketchikan, AK
Jay Hansen, Craig, AK
Jay Urquhart, Juneau, AK
Jeanette Brucker, Coffman Cove, AK
Jean Public, Flemington, NJ
Jenny Vassess, Ketchikan, AK
Jerry Linden, Two Harbors, MN
Jerry Lutton, Craig, AK
Jerry Stidd, Ketchikan, AK
Jim Colier, Wrangell, AK
Jim Hendricks, Ketchikan, AK
Jim Jakebek, Ketchikan, AK
Jim See, Craig, AK
Jim McFarland, Thorne Bay, AK
Joe Williams II, Ketchikan, AK

John Clifton, Ketchikan, AK
Karen McCullough, Petersburg, AK
Karen Peterson, Thorne Bay, AK
Keith Dahl, Thorne Bay, AK
Kenneth Kiffer, Ketchikan, AK
Kim & Barbara Turley, Auke Bay, AK
Larry & Brenda Trumble, Klawock, AK
Larry & Jeannine Wilkinson, Thorne Bay, AK
Larry Young, Petersburg, AK
Len Brady, Thorne Bay, AK
Lester Douglas, Hydaburg, AK
Lewis Hiatt, Craig, AK
Linda Voorhees, Ketchikan, AK
Linnaea Olsen, Ward Cove, AK
Lynn Chaco, Thorne Bay, AK
Lynn Fischhaber, Craig, AK
Mark Christopherson, Ketchikan, AK
Michael George, Klawock, AK
Michael Kampnich, Craig, AK
Michael McKinley, Ketchikan, AK
Michelle Page, Coffman Cove, AK
Mike Douville, Craig, AK
Mike McKimens, Craig, AK
Mr. & Mrs. Clarence Smith, Ward Cove, AK
Neil Gilbertson, Ketchikan, AK
Pat Tolson, Hydaburg, AK
Patricia Muzzana, Anchorage, AK
Patrick Gardner, Craig, AK
Paul Brown, Sekiu, WA
Paul Friesema, Evanston, IL
Pete & Wanda Rice, Craig, AK
Pete Isom, Thorne Bay, AK
Randall Jahnke, Ward Cove, AK
Randy Fairbanks, Kirkland, WA
Richard Myren, Juneau, AK
Richard Rathbone, Wrangell, AK
Richard Reeves, Springfield, OR
Roger Amundson, Ward Cove, AK
Ron Williams, Sr., Klawock, AK
Roy & Carole Hines, Ward Cove, AK
Roy Clark, Craig, AK
Russ Bartels, Edna Bay, AK
Sam Rabung, Neets Bay, AK
Shannon Hofstedt, Ward Cove, AK
Stephen Boehlert, Ketchikan, AK
Steve Lewis, Tuttlek, AK
Steve Warren, Edna Bay, AK
Susan Domenowske, Ketchikan, AK

4 References and Lists

Terry Schmitt, Ward Cove, AK
Tim Miles, Juneau, AK
Tina Brown, Juneau, AK
Victoria Merritt, Craig, AK
Wally Kennedy, Craig, AK
Walt Begalka, Ketchikan, AK
Wesley Etherington, Coffman Cove, AK
William Cheney, Kake, AK
William Hollywood, IV, Ketchikan, AK
William Hendricks, Ketchikan, AK
William Joseph, Sr., Klawock, AK
William Pierce, Coffman Cove, AK
William Singer, Jr., Ward Cove, AK
William Messmer, Wrangell, AK

Libraries

Colorado State University Library, Fort Collins, CO
Craig Public Library, Craig, AK
Douglas Public Library, Juneau, AK
Elfin Cove Public Library, Elfin Cove, AK
Haines Public Library, Haines, AK
Hollis Public Library, Hollis, AK
Hyder Public Library, Hyder, AK
Kake Community Library, Kake, AK
Kasaan Community Library, Kasaan, AK
Ketchikan Public Library, Ketchikan, AK
Kettleson Memorial Library, Sitka, AK
Mendenhall Valley Public Library, Juneau, AK
Pelican Public Library, Pelican, AK
Petersburg Public Library, Petersburg, AK
Skagway Public Library, Skagway, AK
Tenakee Springs Public Library, Tenakee Springs, AK
Thorne Bay Community Library, Thorne Bay, AK
University of Minnesota Forestry Library, St. Paul, MN
USDA National Agricultural Library, Beltsville, MD
Wrangell Public Library, Wrangell, AK

Organizations and Businesses

3-D Logging, Thorne Bay, AK
Adam Baskett's Equipment Repair, Thorne Bay, AK
Adventure Alaska Southeast, Thorne Bay, AK
Alaska Cooperative Extension, Anchorage, AK
Alaska Fibre, Petersburg, AK
Alaska Forest Association, Ketchikan, AK
Alaska Forest Products, Naukati, AK
Alaska Pacific Powder Company, Ketchikan, AK

Alaska Rainforest Campaign, Sitka, AK
Basic Transportation Company, Ketchikan, AK
Big "R" Manufacturing, Greeley, CO
Blue Lagoon Oyster Farm, Coffman Cove, AK
Boardwalk Wilderness Lodge, Thorne Bay, AK
Burgess Logging Inc., Leavenworth, AK
CARE, Ketchikan, AK
Carson Helicopters, Grants Pass, OR
Cascadia Wildlands Project, Cordova, AK
Cedar Bite Trading Post, Edna Bay, AK
Chilkoot Lumber Company, Haines, AK
Columbia Helicopters, Inc., Portland, OR
Construction Machinery, Inc., Ward Cove, AK
CSL Farm and Services, Edna Bay, AK
Custom Cuts, Ketchikan, AK
D & L Woodworks, Hoonah, AK
Doig Enterprises, Shelton, WA
Durette Construction Inc., Ward Cove, AK
Earthjustice, Juneau, AK
Eagle Wood Products, Craig, AK
Edna Bay Fish and Game Advisory Committee, Edna Bay, AK
Erickson Air-Crane LLC, Central Point, OR
Evergreen Helicopters, Anchorage, AK
Greenpeace, Sitka, AK
H & L Salvage, Thorne Bay, AK
Hedges B & B, Coffman Cove, AK
High Drive Drilling & Blasting, Ketchikan, AK
J & J Forest Products, Humptulips, WA
Juneau Empire, Juneau, AK
Ketchikan Chamber of Commerce, Ketchikan, AK
Ketchikan Cutting Company, Ketchikan, AK
Ketchikan Daily News, Ketchikan, AK
Ketchikan Visitors Bureau, Ketchikan, AK
KFSK News, Petersburg, AK
Last Chance Enterprises, Thorne Bay, AK
Log Cabin Resort & RV, Klawock, AK
Mariner, Inc., Ketchikan, AK
Murwood, Craig, AK
NBA, Sitka Branch, Sitka, AK
Naukati Bay, Inc., Craig, AK
Naukati Adventures, Naukati, AK
Natural Resource Defense Council, Olympia, WA
Natural Resource Defense Council, Washington, DC
Naukati West Homeowners Association, Naukati, AK
Northern Star Cedar, Craig, AK
Northland Services, Inc., Thorne Bay, AK
Papac Alaska Logging, Inc., Craig, AK
Petro Alaska Inc., Thorne Bay, AK

4 References and Lists

Phoenix Logging, Klawock, AK
Portac Inc., Beaver, WA
Porter Lumber, Thorne Bay, AK
Prince of Wales Chamber of Commerce, Klawock, AK
Prince of Wales Conservation League, Craig, AK
Prince of Wales Loggers League, Craig, AK
Reid Brothers Logging & Construction, Petersburg, AK
Reinhart Employee Affairs & Public Relations, Ketchikan, AK
Resource Development Council of Alaska, Anchorage, AK
Samson Tug & Barge, Sitka, AK
Schmolck Mechanical Contractors, Ketchikan, AK
Seaford Construction, Thorne Bay, AK
Skyline Logging, Craig, AK
Society of American Foresters, Ketchikan, AK
Southeast Alaska Resources, Ketchikan, AK
Southeast Alaska Timber, Ketchikan, AK
Southeast Exposure, Ketchikan, AK
Southeast Stevadoring Corp., Ketchikan, AK
Sierra Club, Juneau Group, Juneau, AK
Sitka Conservation Society, Sitka, AK
Southeast Alaska Conservation Council, Juneau, AK
Southeast Conference, Juneau, AK
St. Nick Forest Products, Craig, AK
Sumner Strait Advisory Committee, Point Baker, AK
Tetra Tech EC, Bothell, WA
The Mill, Inc., Petersburg, AK
The Wilderness Society, Anchorage, AK
Thorne Bay Wood Products, Thorne Bay, AK
Thuja Plicata Lumber, Thorne Bay, AK
Timber Data Company, Eugene, OR
Timbersource.com, Winchester, KY
Tolko Industries Ltd., Quesnel, BC, Canada
Tongass Cave Project
Tongass Conservation Society, Ketchikan, AK
TRUCO, Naukati, AK
Viking Lumber, Craig, AK
Welser Sawmill, Thorne Bay, AK
Western Gold Cedar Products, Thorne Bay, AK
Whitestone Logging, Inc., Hoonah, AK
Wood Cuts, Thorne Bay, AK
W.R. Jones & Son Lumber Company, Craig, AK
W.R. Tongsgard Logging & Lumber, Juneau, AK
Wrangell Resource Council, Wrangell, AK
Ziegler, Cloudy, King & Petersen Attorneys at Law, Ketchikan, AK

Public Officials, Tribal Organizations, and Cities

Albert Kookesh, Alaska State Representative, Juneau, AK
Cape Fox Corporation, Ketchikan, AK

Chilkat Indian Village, Haines, AK
Chilkoot Indian Association, Haines, AK
City of Coffman Cove, Coffman Cove, AK
City of Craig, Craig, AK
City of Hydaburg, Hydaburg, AK
City of Kasaan, Kasaan, AK
City of Ketchikan, Ketchikan, AK
City of Klawock, Klawock, AK
City of Sitka, Sitka, AK
City of Thorne Bay, Mayor, Thorne Bay, AK
Community of Edna Bay, Edna Bay, AK
Community of Naukati West, Ketchikan, AK
Community of Whale Pass, Ketchikan, AK
Craig Community Association, Craig, AK
Don Young, Congressman, U.S. House of Representatives, Juneau, AK
Haida Corporation, Hydaburg, AK
Hoonah Indian Association, Hoonah, AK
Hydaburg Cooperative Association, Hydaburg, AK
Kake Tribal Corporation, Kake, AK
Kavilco Inc., Ketchikan, AK
Kavilco Inc., Seattle, WA
Ketchikan Indian Corporation, Ketchikan, AK
Klawock Cooperative Association, Klawock, AK
Klawock Heenya Corporation, Klawock, AK
Klawock Tribal Government, Klawock, AK
Kootznoowoo Inc., Juneau, AK
Lisa Murkowski, Senator, U.S. Senate, Ketchikan, AK
Mark Begich, Senator, U.S. Senate, Anchorage, AK
Metlakatla Indian Community, Metlakatla, AK
Organized Village of Kake, Kake, AK
Organized Village of Kasaan, Ketchikan, AK
Organized Village of Saxman, Ketchikan, AK
Petersburg Indian Association, Petersburg, AK
Point Baker Community Council, Point Baker, AK
Port Protection Community Association, Port Protection, AK
Sealaska Corporation, Juneau, AK
Shaan-Seet, Inc., Craig, AK
Sitka Tribe of Alaska, Sitka, AK
Tlingit and Haida Central Council, Juneau, AK
Wrangell Cooperative Association, Wrangell, AK
Yak-Tat-Kwann, Inc., Yakutat, AK
Yakutat Tlingit Tribe, Yakutat, AK

4 References and Lists

Glossary

Abiotic: Non-living. Climate is an abiotic component of ecosystems.

Access: The opportunities to approach, enter, and make use of public lands.

Access management: Acquiring rights and developing and maintaining facilities needed by people to get to and move through public lands (physical attributes).

Active channel: As defined for purposes of the riparian standards and guidelines includes stream channels, secondary channels, and braided channels. For the Alluvial Fan Process Group, it also includes gravel outwash lobes.

Adfluvial fish: Species of populations of fish that do not go to sea, but live in lakes and enter streams to spawn.

Affected environment: The natural environment that exists at the present time in an area being analyzed.

Age class: A distinct aggregation of trees originating from a single natural even or regeneration activity, or a grouping of trees, e.g., 10-year age class, as used in inventory or management.

Alaska Heritage Resource Survey (AHRs): The official list of cultural resources in the State of Alaska, maintained by the Office of History and Archaeology, Alaska Division of Parks and Outdoor Recreation.

Alaska National Interest Lands Conservation Act (ANILCA): Passed by Congress in ecosystem 1980, this legislation designated 14 National Forest wilderness areas in Southeast Alaska. The Alaska National Interest Lands Conservation Act of December 2, 1980. Public Law 96-487, 96th Congress, 94 Stat. 2371-2551. Section 810 requires evaluations of subsistence impacts before changing the use of these lands.

Alaska Native Claims Settlement Act (ANCSA): Public Law 92-203, 92nd Congress, 85 Stat. 2371-2551. Approved December 18, 1971, ANCSA provides for the settlement of certain land claims of Alaska natives and for other purposes.

All-terrain vehicle (ATV): A gasoline powered, off-road vehicle used for accessing rote areas for recreational and work related activities: note all terrain vehicles generally have high clearance, high traction, high maneuverability and low speed. See Off-road vehicle

Allowable sale quantity (ASQ): The amount of timber that may be sold within a certain time period from an area of suitable land. The suitability of the land and the time period are specified in the Forest Plan.

Alluvial fan: A cone-shaped deposit of organic and mineral material made by a stream where it runs out onto a level plain or meets a slower stream.

Alluvium: Recent soil deposits resulting from modern rivers, including the sediment laid down in river beds, flood plains, lakes and at the foot of mountain slopes and estuaries.

Alpine: Parts of mountains above tree growth.

Amphipods: Any member of the invertebrate order Amphipoda (class Crustacea) inhabiting all parts of the sea, lakes, rivers, sand beaches, caves, and moist (warm) habitats on many tropical islands.

Anadromous fish: Fish which mature and spend much of their adult life in the ocean, returning to inland waters to spawn. Salmon and steelhead are examples of anadromous species of fish.

Anadromous Fisheries Habitat Assessment: An assessment conducted in 1994 within the Tongass National Forest (published in 1995) to study the effectiveness of current procedures for protecting anadromous fish habitat and to determine the need for any additional protection.

Aphid: A small (1 to 6 mm or 0.04 to 0.24 inches), soft-bodied, often pear-shaped insect of the family *Aphididae* (*Homoptera*) that sucks sap from leaves, stems or roots: note aphids excrete the processed sap as honeydew.

Aquatic ecosystem: A stream, channel, lake or estuary bed, the water itself, and the biotic communities that occur therein.

Aquatic Habitat Management Unit class: See stream classes

Aquifer: A saturated, permeable geologic unit of sediment or rock that can transmit significant quantities of water under ordinary hydraulic gradients.

Aspect: The direction a slope faces. A hillside facing east has an eastern aspect.

ASQ: See allowable sale quantity.

Average-snow deer habitat: POG forest below 1,500 feet. POG is defined as all seven-size classifications including SD-4H, SD-4N, SD-4S, SD-5H, SD-5N, SD-5S, and SD-67 in the SDM GIS data. It is considered in reference to deer winter habitat. Also called average-snow deer winter range.

Background: The distant part of a landscape. The seen or viewed area located from 3 or 5 miles to infinity from the viewer (see also “Foreground” and “Middleground”).

Bankfull width: The width of the wetted channel when the water surface is at the same elevation as the active floodplain.

Basal area: The area of the cross section of a tree trunk near its base, usually 4 1/2 feet above the ground. Basal area is a way to measure how much of a site is occupied by trees. The term basal area is often used to describe the collective basal area of trees per acre.

Beach fringe: The area inland from salt water shorelines that is typically forested.

Bedload: Sand, silt, and gravel, or soil and rock debris rolled along the bottom of a stream by the moving water.

Benthic: Pertaining to the sea bottom or to organisms that live on the sea bottom.

Best management practice (BMP): Land management methods, measures or practices selected by an agency to meet its non-point source control needs. BMPs include, but are not limited to structural and non-structural controls and operation and maintenance procedures. BMPs can be applied before, during and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters. BMPs are selected on the basis of site-specific conditions that reflect natural background conditions and political, social, economic, and technical feasibility. BMPs are found in Forest Service Handbook (FSH) 2509.

4

References and Lists

Biogeographic provinces: Twenty-one ecological subdivisions of Southeast Alaska that are identified by generally distinct ecological, physiogeographic, and biogeographic features. Plant and animal species composition, climate, and geology within each province are generally more similar within than among adjacent provinces. Historical events (such as glaciers and uplifting) are important to the nature of the province and to the barriers that distinguish each province.

Biological assessment: A biological analysis conducted for major Federal construction projects requiring an environmental impact statement, in accordance with legal requirements under Section 7 of the Endangered Species Act (16 U.S.C. 1536). The purpose of the assessment and resulting document is to determine whether the proposed action is likely to affect a species that has been listed or proposed as an endangered or threatened species.

Biological diversity: The number and abundance of species found within a common environment. This includes the variety of genes, species, ecosystems, and the ecological processes that connect everything in a common environment.

Biological evaluation: A documented USDA Forest Service review of programs and activities that contains sufficient detail to determine how an action or proposed action may affect any species that has been listed or proposed as threatened, endangered, or sensitive.

Biomass: The total weight of all living organisms in a biological community.

Biotic: Living. Green plants and soil microorganisms are biotic components of ecosystems.

Blowdown: See Windthrow.

Board foot: A measurement term for lumber or timber. It is the amount of wood contained in an unfinished board 1 inch thick, 12 inches long, and 12 inches wide.

Braided streams or channels: A stream flowing in several dividing and reuniting channels resembling the strands of a braid, the cause of division being the obstruction by sediment deposited by the stream. FP 7-5

Browse: Twigs, leaves, and young shoots of trees and shrubs that animals eat. Browse is often used to refer to the shrubs eaten by big game, such as elk and deer.

Buffer: A vegetative strip or management zone of varying size, shape, and character maintained along a stream, lake, road, recreation site, or different vegetative zone to mitigate the impacts of action as on adjacent lands.

Cable logging: Logging that involves the transport of logs from stump to collection points by means of suspended steel cables.

Canopy: The part of any stand of trees represented by the tree crowns. It usually refers to the uppermost layer of foliage, but it can be used to describe lower layers in a multi-storied forest.

Capability: The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity.

Carrying capacity: The estimated maximum number of animals that can be sustained over the long-term in an area.

Cavity: A hole in a tree often used by wildlife species, usually birds, for nesting, roosting, and reproduction.

CFR: Code of Federal Regulations

Channel: A natural waterway of perceptible extent that periodically or continuously contains moving water. It has a definite bed and banks which serve to confine the water.

Channel type: A means of distinguishing parts of a stream system into segments that have fairly consistent physical and biological characteristics. For descriptions, see “Channel Type Field Guide,” Forest Service publication R10-MB-6.

Clearcut: Harvesting method in which essentially all trees are cleared in one cut. It prepares the area for a new, even-aged stand. The area harvested may be a patch, stand, or strip large enough to be mapped or recorded as a separate age class in planning.

Climax: The culminating stage in plant succession for a given site. Climax vegetation is stable, self-maintaining, and self-reproducing.

Coarse Canopy Old-growth Forest: Old-growth forest that has lower crown density (number of trees) and non-uniform crown sizes and heights including large crowns and many canopy gaps.

Code of Federal Regulations (CFR): A codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

Commercial forest: Forest land tentatively suitable for the production of continuous crops of timber and that has not been withdrawn.

Composition: What an ecosystem is composed of. Composition could include water, minerals, trees, snags, wildlife, soil, microorganisms, and plant species,

Conifer: A tree that produces cones, such as a pine, spruce, or fir tree.

Connectivity (of habitats): A measure of the extent that forest areas between or outside reserves provide habitat for breeding, feeding, dispersal, and movement.

Corridor: Elements of the landscape that connect similar areas. Streamside vegetation may create a corridor of willows and hardwoods between meadows where wildlife feed.

Cover: Any feature that conceals wildlife or fish. Cover may be dead or live vegetation, boulders, or undercut stream banks. Animals use cover to escape from predators, rest, or feed.

Critical habitat: Specific areas designated as critical by the Secretary of Interior or Commerce for the survival and recovery of species listed as threatened or endangered pursuant to the Endangered Species Act.

Crown (of a tree): The tree canopy; the upper part of a tree or woody plant that carries the main branch system and foliage.

Cumulative effects: Effects on the environment that result from separate, individual actions that, collectively, becomes significant over time.

Decommissioning: To remove those elements of a road or buildings that reroute hillslope drainage and present slope stability hazards. For NFS roads, decommissioning removes the road from the long-term forest road transportation system. Otherwise, decommissioning is the same for all roads. Action on the ground for decommissioning ranges from blocking the entrance and

4 References and Lists

removing drainage structures to obliterating the road, returning the natural contours, and replanting vegetation. The end result is the stabilization and restoration of unneeded roads to a more natural state (36 CFR 212.1). See also Road Decommissioning.

DBH: See diameter at breast height.

Deep-snow winter range: HPOG is forested habitat below 800 feet on south- and west-facing aspects (HPOG is equivalent to SD-5S, SD-5N and SD-67), and is considered in reference to deer and marten winter habitat.

Deer winter range (Habitat): An area, usually at lower elevation, used by big game during the winter months; usually smaller and better-defined than summer ranges.

Developed recreation: That type of recreation that occurs where modifications (improvements) enhance recreation opportunities and accommodate intensive recreation activities in a defined area.

Development LUDs: Land use designations that permit commercial timber harvest (Timber Production, Modified Landscape, and Scenic Viewshed) and convert some of the old-growth forest to early-to-mid-successional, regulated forests.

Diameter at breast height (DBH): The diameter of the stem of a tree measured at breast height 4.5 feet from the ground. Note: on sloping ground the measure is taken from the uphill side.

Direct employment: The jobs that are immediately associated with a given activity.

Dispersed recreation: That type of recreation use that requires few, if any, improvements and may occur over a wide area. This type of recreation involves activities related to roads, trails and undeveloped waterways and beaches. The activities do not necessarily take place on or adjacent to a road, trail, or waterway, only in conjunction with it. Activities are often dayuse oriented and include hunting, fishing, boating, off-road vehicle use, hiking and among others.

Distance zones: Areas of landscapes denoted by specified distances from the observer (foreground, middleground or background). Used as a frame of reference in which to discuss landscape characteristics of Management activities.

Disturbance: A force that results in changes in the structure and composition through natural events such as wind, fire, flood, avalanche, or mortality caused by insect or disease outbreaks or by human caused events (e.g., timber harvest)

Draft Environmental Impact Statement (DEIS): The version of the statement of environmental effects required for major Federal actions under Section 102 of the National Environmental Policy Act (NEPA) and released to the public and other agencies for review and comment.

Early forest succession: The biotic (or life) community that develops immediately following the removal or destruction of vegetation in an area. For instance, grasses may be the first plants to grow in an area that was burned.

Ecological subsections: Eighty-five terrestrial ecosystems mapped and described for Southeast Alaska and adjoining areas of Canada (Nowacki et al. 2001). These mid-sized terrestrial ecosystems body similar ecological characteristics including landforms, streams, vegetation,

soils, and wetlands. They provide a practical basis for ecosystem management, planning, and research.

Ecology: The interrelationships of living things to one another and the environment, or the study of these interrelationships.

Edge: The more or less well defined boundary between two or more elements of the environment, e.g., a field adjacent to a woodland or the boundary of different silvicultural treatments.

Effects: Effects, impacts, and consequences as used in this Environmental Impact Statement are synonymous. Effects may be ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historical, cultural, economic, or social, and may be direct, indirect, or cumulative.

Direct effects: Results of an action occurring when and where the action takes place.

Indirect effects: Results of an action occurring at a location other than where the action takes place and/or later in time, but in the reasonably foreseeable future.

Cumulative effects: Results of collective past, present and reasonably foreseeable future actions.

Element (of ecosystems): An identifiable component, process, or condition of an ecosystem.

Endangered species: Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified and defined in accordance with the 1973 Endangered Species Act and published in the Federal Register.

Endemic: Restricted to a particular locality. For example, a particular species or subspecies may occur on only one or a very few islands.

Environmental analysis: An analysis of alternative actions and their predictable short and long-term environmental effects, incorporating the physical, biological, economic, social and environmental design arts and their interactions.

Environmental Impact Statement (EIS): A document prepared by a federal agency in which anticipated environmental effects of a planned course of action or development are evaluated. A federal statute (Section 102 of the National Environmental Policy Act of 1969) requires that such statements be prepared. It is prepared first in draft or review form, and then in a final form. An impact statement includes the following parts: (1) the environmental impact of the proposed action, (2) any adverse impacts which cannot be avoided by the action, (3) the alternative courses of actions, (4) the relationships between local short-term productivity, and (5) a description of the irreversible and irretrievable commitment of resources which would occur if the action were accomplished

Erosion: The wearing away of the land surface by running water, wind, ice, gravity or other geological activities.

Escape cover: Vegetation of sufficient size and density to hide an animal, or an area used by animals to escape predators.

Estuary: An ecological system at the mouth of a stream where fresh water and salt water mix, and where salt marshes and intertidal mudflats are present. The landward extent of an estuary is

4 References and Lists

the limit of salt-intolerant vegetation, and the seaward extent is a stream's delta at mean low water.

Even-aged Management: The application of a combination of actions that result in the creation of stands in which trees of essentially the same age grow together. The difference in age between trees in forming the main canopy level of a stand usually does not exceed 20 percent of that age of the stand at harvest rotation age. Clearcut, shelter wood, or seed tree cutting methods produce even-aged stands.

Executive Order: An order or regulation issued by the President or some administrative authority under his or her direction.

Existing Scenic Integrity (ESI): Describes the visual appearance of the landscape at the time the project area scenery assessment is conducted. ESI is measured by the following condition types, as described in the Forest Plan:

Type I: Landscapes where only ecological change has occurred, except for trails needed for access. Landscapes appear to be untouched by human activities.

Type II: Landscapes where change is not noticed by the average forest visitor unless pointed out. These landscapes have been altered but changes are not perceptible.

Type III: Landscapes where changes are noticeable by the average forest visitor, but they do not attract attention. Changes appear to be minor disturbances.

Type IV: Landscapes where changes are easily noticed by the average forest visitor and may attract attention. Changes appear as disturbances but resemble natural patterns in the landscape.

Type V: Landscapes where changes are very noticeable and would be obvious to the average forest visitor. Changes tend to stand out, dominating the view of the landscape, but are shaped to resemble natural patterns.

Type VI: Landscapes where changes are in glaring contrast to the landscape's natural appearance. Changes appear as dramatic, large scale disturbances that strongly affect the average forest visitor.

Felling: The cutting down of trees.

Final Environmental Impact Statement (FEIS): The final version of the statement of environmental effects required for major federal actions under Section 102 of the National Environmental Policy Act. It is a revision of the Draft Environmental Impact Statement (DEIS) to include public and agency responses to the draft. The decision maker chooses which alternative to select from the FEIS, and subsequently issues a Record of Decision (ROD).

Fiscal year (FY): October 1 through September 30. The Fiscal Year is referred to by the calendar year which begins on January 1. For example, October 1, 1996, through September 30, 1997 is referred to as Fiscal Year 1997.

Fisheries habitat: Streams, lakes, and reservoirs that support fish, or have the potential to support fish.

Fish passage barrier: A point in a stream which presents a barrier to some life stage of a fish species, also called "red pipes" in some Agency documents; e.g. barriers may be the lip of a

culvert placed too high for juvenile fish, or a series of natural falls that do not allow any fish passage.

Floodplain: That portion of a river valley, adjacent to the river channel, which is covered with water when the river overflows its banks at flood stages in response to a 100 year storm event.

Fluvial: Of, or pertaining to streams and rivers.

Forage: All browse and non-woody plants that are eaten by wildlife and livestock.

Forb: A grouping/category of herbaceous plants which are not included in the grass, shrub or tree groupings/categories; generally smaller flowering plants.

Foreground: A term used in visual management to describe the stand of trees immediately adjacent to a scenic area, recreation facility or forest highway. The area is located less than 1/4 mile from the viewer. (See Background and Middleground.)

Forest health: An expression of the relationship among biotic and abiotic influences on the forest (i.e., insects, diseases, atmospheric deposition, silvicultural treatments, harvesting objectives for a given forest unit now or in the future and sustain long-term site productivity.

Forest Road or Trail: A road or trail wholly or partly within or adjacent to and serving the National Forest System that the Forest Service determines is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources. (36 CFR 212.1)

Forested land: Land at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest use.

Forest Plan: Source of management direction for an individual Forest specifying activity and output levels for a period of 10-15 years. Management direction in the Plan is based on the issues identified at the time of the Plan's development.

Forest Road or Trail: A road or trail wholly or partly within or adjacent to and serving the National Forest System that the Forest Service determines is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources (36 CFR 212.1).

Forest Supervisor: The official responsible for administering National Forest lands on an administrative unit, usually one or more National Forests. The Forest Supervisor reports to the Regional Forester.

Forest Transportation Atlas: A display of the System of roads, trails, and airfields of an administrative unit.

Forest Transportation Facility: A forest road or trail or an airfield that is displayed in a forest transportation atlas, including bridges, culverts, parking lots, marine access facilities, safety devices, and other improvements appurtenant to the forest transportation system (36 CFR 212.1).

Forest Transportation System: The system of National Forest System roads, National Forest System trails, and airfields on National Forest System lands (36 CFR 212.1).

Forest-wide Standards and Guidelines (S&Gs): A set of rules and guidance that directs management activities and establishes the environmental quality, natural renewable and

4 References and Lists

depletable resource requirements, conservation potential, and mitigation measures that apply to several land use designations.

Fragmentation: An element of biological diversity that describes the natural condition of habitats in terms of the size of discrete habitat blocks or patches, their distribution, the extent to which they are interconnected, and the effects of Management on these natural conditions. Also the process of reducing the size and connectivity of stands within a forest.

FSH: Forest Service Handbook

FSM: Forest Service Manual

Fuels: Plants and woody vegetation, both living and dead, that is capable of burning.

Fuelwood: Wood cut into short lengths for burning.

Function: All the processes within an ecosystem through which the elements interact, such as succession, the food chain, fire, weather, and the hydrologic cycle.

Game species: Any species of wildlife or fish that is harvested according to prescribed limits and seasons.

Geographic Information System (GIS): Information processing technology to input, store, manipulate, analyze, and display spatial and attribute data to support the decision making process. It is a system of computer maps with corresponding site-specific information that can be electronically combined to provide reports and maps

Geomorphology: The study of the forms of the land surface and the processes producing these surfaces. Also the study of the underlying rocks or parent materials and the landforms present that were formed in geological time.

Ground water: Water within the earth that supplies wells and springs. Specifically, water in the zone of saturation where openings in soils and rocks are filled; the upper surface level forms the water table.

Guideline: A preferred or advisable course of action or level of attainment designed to promote achievement of goals and objectives.

Habitat: The sum total of environmental conditions of a specific place occupied by wildlife or plant species or a population of each species.

Habitat capability: The estimated maximum number of fish or wildlife that can be supported by the amount and distribution of suitable habitat in an area.

Habitat diversity: The number of different types of wildlife habitat within a given area.

Habitat Suitability Index (HSI): A measure of the capability of the habitat to support deer, based on a variety of environmental factors, for example, slope, elevation, aspect, and forest type.

Habitat type: A way to classify land area. A habitat type can support certain climax vegetation, both tree and undergrowth species. Habitat typing can indicate the biological potential of a site.

Historic properties: The physical remains of districts, sites, structures, buildings, networks, events, or objects used by humans in the past. They may be historic, prehistoric, architectural, or archival in nature. Heritage properties are non-renewable aspects of our national heritage.

Hydric soil: A soil that is wet long enough to periodically produce anaerobic conditions, thereby influencing the growth of plants.

Hydrologic cycle: The complete cycle, through which water passes, commencing as atmospheric water vapor, passing into liquid and solid form as precipitation, thence along or into the ground surface, and finally again returning to the form of atmospheric water vapor, by means of evaporation and transpiration. Also called Water Cycle.

Hydrologic recovery: A return to natural conditions of water collection, storage, and discharge.

Hydrology: The science dealing with the study of water on the land, in the soil and underlying rocks, and in the atmosphere.

Individual tree selection: See regeneration method.

Interception: The process where precipitation is caught and held by foliage and lost by evaporation before it reaches the ground.

Interdisciplinary Team (IDT): A group of individuals with different training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately solve the problem. Through interaction, participants bring different points of view and a broader range of expertise to bear on the problem

Intermediate cut: The removal of trees from a stand sometime between the beginning or formation of the stand and the regeneration cut. Types of intermediate cuts include thinning, release, and improvement cuttings.

Intermittent stream: A stream that flows only at certain times of the year when it receives water from streams or from some surface source, such as melting snow.

Inventoried Roadless Area (IRA): An undeveloped area typically exceeding 5,000 acres that meets the minimum criteria for Wilderness consideration under the Wilderness Act and that was inventoried during the Forest Service's Roadless Area Review and Evaluation (RARE II) process, subsequent assessments, or forest planning.

Irretrievable commitment: Applies to losses of production or use of renewable natural resources for a period of time. For example, timber production from an area is irretrievably lost during the time an area is allocated to a no-harvest prescription. If the allocation is changed to allow timber harvest, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

Irreversible commitments: Decisions causing changes which cannot be reversed. For example, if a roadless area is allocated to allow timber harvest and timber is actually harvested, that area generally cannot, at a later date, be allocated to Wilderness. Once harvested, the ability of that area to meet Wilderness criteria has been irreversibly lost. Often applies to nonrenewable resources such as minerals and cultural resources.

Issue: A point, matter, or section of public discussion or interest to be addressed or decided.

Karst: A type of topography that develops in areas underlain by soluble rocks, primarily limestone. Dissolution of the subsurface strata results in areas of well-developed surface drainage that are sinkholes, collapsed channels, or caves.

4 References and Lists

Land and Resource Management Plan: Also called the Forest Plan or just the Plan, this document guides the Management of a particular National Forest and establishes management standards and guidelines for all lands of that National Forest.

Land Use Designation (LUD): A defined area of land specific to which management direction is applied.

Landing: A cleared area to which logs or trees are transported for loading onto trucks for transport to a mill or log transfer facility. Barges are sometimes used for landings in Southeast Alaska.

Landscape: A large land area composed of interacting ecosystems that are repeated due to factors such as geology, soils, climate, and human impacts. Landscapes are often used for coarse grain analysis.

Large woody debris (LWD): Any large piece of relatively stable woody material having a diameter of at least 4 inches and a length greater than 3 feet that intrudes into the stream channel.

Litter (forest litter): The freshly fallen or only slightly decomposed plant material on the forest floor. This layer includes foliage, bark fragments, twigs, flowers, and fruit.

Log transfer facility (LTF): Formerly referred to as terminal transfer facilities, log transfer facilities include the site and structures used for moving logs and timber products from land-based transportation forms to water-based transportation forms (or vice versa).

Logging systems: The equipment configuration employed for yarding logs; that is, moving the logs from the stump to the “landing,” the point on a road at which they are loaded on trucks for transportation from the unit. Logging systems fall into the following main categories, in order of increasing cost:

Shovel logging: These mobile machines that travel throughout the unit to skid or swing logs to the landing. Common in Southeast Alaska is shovel logging, in which a log loader or “shovel” moves logs from the stump to the landing by repeatedly swinging the logs closer to the landing.

Cable systems: These consist of a stationary “yarder” at the landing; that is, a set of winches powering wire rope cables that travel through the top of an integrally mounted steel tower. The cables move logs to the landing, lifting the partly or completely clear of the ground through the lift provided by the tower. Because the equipment is stationary at the landing, and does not travel on the unit, site impacts are limited to soil and stream disturbance caused by dragging the logs.

Helicopter yarding: This consists of a helicopter lifting the logs via an attached choker (cable) from the felling point to a landing or to a barge. Ground disturbance is minimized as logs are fully suspended. The helicopter yarding method is generally used where it is uneconomical to construct roads or it is infeasible for other conventional harvest systems to meet the harvest prescription objectives.

MBF: Thousand board feet (see board feet)

Management action: Any activity undertaken as part of the administration of the National Forest.

Management direction: A statement of multiple-use and other goals and objectives, the associated land use prescriptions, and standards and guidelines for attaining the desired condition of the Forest Plan.

Management indicator species (MIS): Plant or animal species, communities, or special habitats selected for emphasis in planning, and which are monitored during forest plan implementation to assess the effects of management activities on their populations and the populations of other species with similar habitat needs which they may represent.

Marine Access Facility (MAF): An area used by humans to transfer items from land to saltwater or vice versa, that contains a structure such as a mooring buoy, dock, LTF, boat ramp, or a combination of these.

Mass movement or mass wasting: The down-slope movement of large masses of earth material by the force of gravity. Also called a landslide.

Mass movement index (MMI): Rating used to group soil map units that have similar properties with respect to the stability of natural slopes.

Matrix: The least fragmented, most continuous pattern element of a landscape; the vegetation type that is most continuous over a landscape.

Mature timber: Trees that have attained full development, especially height, and are in full seed production.

Memorandum of Understanding (MOU): An agreement between the Forest Service and others agencies resulting from consultation between agencies that states specific measures the agencies will follow to accomplish a large or complex project. A memorandum of understanding is not a fund obligating document.

Microclimate: The climate of a small site. It may differ from the climate at large of the area due to aspect, tree cover (or the absence of tree cover), or exposure to winds.

Middleground: The visible terrain beyond the foreground where individual trees are still visible but do not stand out distinctly from the landscape; area located from 1/4 mile to 3-5 miles from the viewer. (See “Foreground” and “Background.”)

Mineral soil: Soil that consists mainly of inorganic material, such as weathered rock, rather than organic matter.

Mitigation: Actions taken to avoid, minimize, or rectify the impact of land management activities.

Model: An idealized representation of reality developed to describe, analyze, or understand it; a mathematical representation of the relationships under study (e.g., FORPLAN, wildlife habitat capability models).

Monitoring and evaluation: The periodic evaluation of forest management activities to determine how well objectives were met and how management practices should be adjusted. See “adaptive management.”

Mortality: Trees dying from natural causes, usually by size class in relation to sequential inventories or subsequent to incidents such as storms or insect and disease epidemics. The term mortality can also refer to the rate of death of a species in a given population or community.

4

References and Lists

Mosaic: Areas with a variety of plant communities over a landscape, such as areas with trees and areas without trees occurring over a landscape.

Motor Vehicle Use Map: A map that reflects designated roads, trails, and areas on an administrative unit or a Ranger District of the National Forest System.

Multiple-use management: The management of all the various renewable surface resources of National Forest lands for a variety of purposes such as recreation, range, timber, wildlife and fish habitat, and watershed.

Muskeg: Muskeg is a wetland type (also called “peatland”) in Southeast Alaska that has developed over thousands of years in depressions, or flat areas on gentle to steep slopes. These bogs have poorly drained; acidic, organic soils materials that support vegetation that can be either sphagnum moss or herbaceous plants. These vegetation types may have a lesser abundance of shrubs and stunted trees.

National Environmental Policy Act (NEPA): Congress passed NEPA in 1969 to encourage productive and enjoyable harmony between people and their environment. One of the major tenets of NEPA is its emphasis on public disclosure of possible environmental effects of any major action on public lands. Section 102 of NEPA requires a statement of possible environmental effects to be released to the public and other agencies for review and comment.

National Forest Management Act (NFMA): A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act requiring the preparation of Forest Plans.

National Forest System Road: A forest road other than a road which has been authorized by a legally documented right-of-way held by a State, county, or other local public road authority.

National Forest System Trail: A forest trail other than a trail that has been authorized by a legally documented right-of-way held by a state, county or other local public road authority.

National Register of Historic Places: A register of cultural resources of national, state, or local significance, maintained by the Department of the Interior.

National Wild and Scenic River System: Rivers with outstanding scenic, recreational, geological, fish and wildlife, historic, cultural, or other similar values, designated by Congress under the Wild and Scenic Rivers Act for preservation of their free-flowing condition. May be classified and administered under one or more of the following categories: Wild, Scenic, and Recreational.

Natural resource: A feature of the natural environment that is of value in serving human needs.

Net sawlog volume: Trees suitable in size and quality for producing logs that can be processed into lumber. In Southeast Alaska, depending on the market, the volume may be processed as pulp or lumber.

No action alternative: The most likely condition expected to exist in the future if current proposed action or alternatives were not selected for the Logjam Timber sale.

Non-game: Wildlife species that are not hunted for sport, or subsistence.

Notice of Intent (NOI): A notice in the federal register of intent to prepare an environmental impact statement on a proposed action.

Off-highway vehicle: Any vehicle which is restricted by law from operating on public roads for general motor vehicle traffic; includes: motorbikes, mini-bikes, trail bikes, snowmobiles, dune buggies, all-terrain vehicles, and four-wheel drive, high clearance vehicles (FSM 2355.01).

Old growth: Old forests often containing several canopy layers, variety in tree sizes and species, decadent old trees, and standing and dead woody material.

Old-growth reserve (OGR): A contiguous unit of old-growth habitat to be managed to maintain the integrity of the old growth forest ecosystem.

Open road density: The length of forest development roads open for public access and use per unit area of land; usually expressed as miles of open road per square mile of land.

Organic soil: Soils that contain a high percentage (greater than 15 percent) of organic matter throughout the soil depth.

Overstory: The upper canopy layer; the plants below comprise the understory.

Parent material: The unconsolidated, and more or less chemically weathered, mineral or organic matter from which soils develop.

Partial cut: Any cutting in which only part of the stand is harvested. This may include thinning, selection, shelterwood, or an overstory removal.

Partial retention: A visual quality objective which, in general, means man's activities may be evident but must rain subordinate to the characteristic landscape.

Patch: An area of homogeneous vegetation, in structure and composition.

Personal use: The use of a forest product, such as firewood, for home use and not for commercial use.

Planning area: The area of National Forest System controlled by a decision document.

Plant communities: An assemblage of plants that, in general, occur together on similar site conditions.

Population viability: Probability that a population will persist for a specified period of time across its range. In reference to the Alaska Coastal Management Program, consistent with enforceable policies of approved management programs unless compliance is prohibited based upon the requirements of existing law applicable to the Federal agency's operations.

Precommercial thinning: Removing some of the trees from a stand that is too small to be sold for lumber or house logs, so the remaining trees will grow faster.

Predator: An animal that lives by preying on other animals. Predators are at or near the tops of food chains.

Prescribed fire: Fire set intentionally in wildland fuels under prescribed conditions and circumstances. Prescribed fire can rejuvenate forage for livestock and wildlife or prepare sites for natural regeneration of trees.

Prescription: A planned series of treatments designed to change current stand structure to one that meets management goals taking in consideration ecological, economic and societal constraints.

4 References and Lists

Process group: A combination of similar stream channel types based on major differences in landform, gradient, and channel shapes.

Productive: The ability of an area to provide goods and services and to sustain ecological values.

Productive old growth (POG): Old-growth stands capable of producing 20 cubic feet per acre per year with 8,000 or more board feet per acre.

Public participation: Meetings, conferences, seminars, workshops, tours, written comments, responses to survey questionnaires, and similar activities designed and held to obtain comments from the public about Forest Service planning.

Public land: Land for which title and control rests with a government: Federal, state, regional, county, or municipal.

Qualitative: Relating to or involving comparisons based on individual qualities.

Ranger district: The administrative sub-unit of a National Forest that is supervised by a District Ranger who reports directly to the Forest Supervisor.

Raptor: A bird of prey, such as an eagle or hawk.

RARE II: Roadless Area Review and Evaluation. The national inventory of roadless and undeveloped areas, within the National Forests and Grasslands.

Recharge: The addition of water to ground water by natural or artificial processes.

Record of Decision (ROD): A public document separate from but associated with and environmental impact statement that identifies all alternatives, provides the agency's final decision, the rationale behind the decision, and the agency's commitments to monitoring and mitigating.

Recreation Opportunity Spectrum (ROS): A system for planning and managing recreation resources that categorizes recreation opportunities into seven classes; each class is defined in terms of the degree to which it satisfies certain recreation experience needs based on the extent to which the natural environment has been modified, the type of facilities provided, the degree of outdoor skills needed to enjoy the area and the relative density of recreation use.

The seven classes are:

Primitive: An unmodified environment generally greater than 5,000 acres in size and located generally at least 3 miles from all roads and other motorized travel routes. A very low interaction between users (generally less than 3 group encounters per day) results in a very high probability of experiencing solitude, freedom, closeness to nature, tranquility, self-reliance, challenge, and risk. Evidence of other users is low. Restrictions and controls are not evident after entering the land unit. Motorized use is rare.

Semi-Primitive Non-motorized: A natural or natural-appearing environment generally greater than 2,500 acres in size and generally located at least 1/2 mile (greater or less depending on terrain and vegetation, but no less than 1/4 mile) but not further than 3 miles from all roads and other motorized travel routes. Concentration of users is low (generally less than 10 group encounters per day), but there is often evidence of other users. There is a high probability of

experiencing solitude, freedom, closeness of nature, tranquility, self reliance, challenge, and risk. There is a minimum of subtle on-site controls. No roads are present in the area.

Semi-Primitive Motorized: A natural or natural-appearing environment generally greater than 2,500 acres in size and generally located within 1/2 mile of primitive roads and other motorized travel routes used by motor vehicles; but not closer than 1/2 mile (greater or less depending on terrain and vegetation, but no less than 1/4 mile) from better-than primitive roads and other motored travel routes. Concentration of users is low (generally less than 10 group encounters per day), but here is often evidence of other users. There is a moderate probability of experiencing solitude, closeness to nature, and tranquility along with a high degree of self-reliance, challenge, and risk in using motorized equipment. Local roads may be present, or along saltwater shorelines there may be extensive boat traffic.

Roaded Natural: Resource modification and utilization are evident, in a predominantly naturally-appearing environment generally occurring within 1/2 mile (greater or less depending on terrain and vegetation, but no less than 1/4 mile) from better-than-primitive roads and other motorized travel routes. Interactions between users may be moderate to high (generally less than 20 group encounters per day), with evidence of other users prevalent. There is an opportunity to affiliate with other users in developed sites but with some chance for privacy. Self-reliance on outdoor skills is only of moderate importance with little opportunity for challenge and risk. Motorized use is allowed.

Roaded Modified: Vegetative and landform alterations typically dominate the landscape. There is little onsite control of users except for gated roads. There is moderate evidence of other users on roads (generally less than 20 group encounters per day), and little evidence of others or interactions at campsites. There is opportunity to get away from others but with easy access. Some self-reliance is required in building campsites and use of motorized equipment. A feeling of independence and freedom exists with little challenge and risk. Recreation users will likely encounter timber management activities.

Rural: The natural environment is substantially modified by land use activities. Opportunity to observe and affiliate with other users is important as is convenience of facilities. There is little opportunity for challenge and risk and self-reliance on outdoor skills is of little importance. Recreation facilities designed for group use are compatible. Users may have more than 20 group encounters per day.

Urban: Urbanized environment with dominant structures, traffic lights and paved streets. This class may have natural appearing backdrop. Recreation places maybe city parks and large resorts. Opportunity to observe and affiliate with other users is very important as is convenience of facilities and recreation opportunities. Interaction between large numbers of users is high. Outdoor skills, risk, and challenge are unimportant except for competitive sports. Intensive on-site controls are numerous.

Recreation places: Identified geographical areas having one or more physical characteristics that are particularly attractive to people in recreation activities. They may be beaches, streamside areas, roadside areas, trail corridors, hunting areas, or the immediate area surrounding a lake, cabin site, or campground.

Recreation site: A specific site and/or facility occurring within a Recreation Place. Examples of recreation sites include: recreation cabins, trailheads, picnic areas, and wildlife viewing blinds.

4 References and Lists

Red pipes: Passage barriers to various life stages of fish, generally culverts placed improperly.

Reforestation: The reestablishment of forest cover either naturally or artificially (by direct seeding or planting).

Regeneration: The renewal of a tree crop by either natural or artificial means. The term is also used to refer to the young crop itself.

Regional Forester: The official of the USDA Forest Service responsible for administering an entire region of the Forest Service.

Reserve trees: Live or dead trees that are retained for various resource objectives such as wildlife, structural diversity, etc.

Resident fish: Fish that are not migratory and complete their life cycles in fresh water.

Responsible official: The Forest Service employee who has been delegated authority to make a specific decision.

Restoration (of ecosystems): Actions taken to modify an ecosystem to achieve a desired, healthy, and functioning condition.

Retention: The amount of commercial forest land removed from the timber base to protect other resources.

Riparian area: The area including a stream channel, lake or estuary bed, the water itself, and the plants that grow in the water and on the land next to the water.

Riparian Management area (RMA): Land areas delineated in the Forest Plan to provide for the Management of riparian resources. Specific standards and guidelines, by stream process group, are associated with riparian management areas. Riparian Management areas may be modified by watershed analysis

Road: A motor vehicle route over 50 inches wide, unless identified and managed as a trail (36 CFR 212.1).

Road decommissioning: Activities that result in the stabilization and restoration of unneeded roads to a more natural state. The term generally refers to temporary roads constructed for timber harvests that have had stream courses restored, culverts removed, waterbars added where needed, and cut and fill slopes revegetated (36 CFR 212.5).

Road construction or reconstruction: Supervising, inspecting, actual building, and incurrence of all costs incidental to the construction or reconstruction of a road.

Road density: The number of road miles per square mile of land area (miles per square mile)

Roadless area: An area of undeveloped public land where there are no improved roads maintained for travel by means of motorized vehicles intended for highway use.

Road maintenance: The ongoing upkeep of a road, necessary to retain or restore the road to the approved road management objective (FSM 7712.3).

Road maintenance level: The level of service maintained for a specific road, consistent with road management objectives and maintenance criteria (FSH 7709.58, section 12.3)

Maintenance Level 1: Assigned to intermittent service roads during the time they are closed to vehicle traffic. The closure period is one year or longer. Basic custodial maintenance is performed.

Maintenance Level 2: Assigned to roads open for use by high clearance vehicles.

Maintenance Level 3: Assigned to roads maintained for passenger car use but not for comfort and convenience.

Maintenance Level 4: Assigned to roads that provide moderate comfort and convenience at moderate speeds. Maintenance Level 5 – Assigned to roads that provide a high degree of comfort and convenience. Normally roads are double-laned and paved or aggregate surfaced with dust abatement.

Road management objective (RMO): Defines the intended purpose of an individual road based on management area direction and access management directives. Road management objectives contain design criteria, operation criteria and maintenance criteria.

Road storage: Storage is a term used only for NFS roads. The physical on-the-ground changes are similar to a decommissioned road; however, roads in storage are considered part of the long-term forest road transportation system and may be opened to vehicular traffic in the future. The process/action of storage involves closing a road to vehicle traffic and placing it in a condition that requires minimum maintenance to protect the environment and preserve the facility for future use. Drainage structures in live drains are completely removed to restore natural patterns. Ditch relief culverts may be left in place and supplemented with deep water bars in order to minimize the cost of reusing the road in the future.

ROD: See record of decision

ROS: See recreation opportunity spectrum.

Rotation: The number of years required to establish and grow timber crops to a specified condition of maturity.

Sawtimber (sawlog): Trees that are 9 inches in diameter at breast height or larger that can be made into lumber.

Scale: In ecosystem management, it refers to the degree of resolution at which ecosystems are observed and measured.

Scoping: The ongoing process to determine public opinion, the agency receives comments and suggestions, and determine issues during the environmental analysis process. It may involve public meetings, telephone conversations, or letters.

Sedge: A family of plants with solid stems found in marshy areas.

Seen landscape: Those areas visible from the most frequently used travel ways (boat route, recreation road, or trail), or use area (recreation cabin or anchorage).

Sensitive species: Plant or animal species which are susceptible to habitat changes or impacts from activities. The official designation is made by the USDA Forest Service at the Regional level and is not part of the designation of Threatened or Endangered Species made by the US Fish and Wildlife Service.

4 References and Lists

Seral: The stage of succession of a plant or animal community that is transitional. If left alone, the seral stage will give way to another plant or animal community that represents a further stage of succession.

Shell midden: A term referring to shell and bone that have been discarded after harvest and processing for subsistence use.

Silviculture: The art and science of controlling the establishment, growth, composition, health, and quality of forests to meet the diverse needs and values of landowners and society on a sustainable basis.

Silvicultural system: A planned series of treatments whereby forests are tended, harvested, and replaced resulting in a forest of distinctive form. Systems are classified according to the method of carrying out the process.

Size class: One of the three intervals of tree stem diameters used to classify timber in the Forest Plan data base. The size classes are: Seedling/Sapling (less than 5 inches in diameter); Pole Timber (5 to 9 inches in diameter); Sawtimber (greater than 9 inches in diameter)

Slash: The residue left on the ground after timber cutting or left after a storm, fire, or other event. Slash includes unused logs, uprooted stumps, branches, bark, etc.

Snag: A standing dead tree. Snags are important as habitat for a variety of wildlife species and their prey.

Soil compaction: The reduction of soil volume. For instance, the weight of heavy equipment on soils can compact the soil and thereby change it in some ways, such as in its ability to absorb water.

Soil productivity: The capability of a soil, in its normal environment, to produce a specific plant or sequence of plants under a specific sequence of management.

Sortyard: A location used to sort grades, types, and size of logs.

Special use permit: A permit issued to an individual or group by the USDA Forest Service for use of National Forest System land for a special purpose. Examples might be a Boy Scout Jamboree or a mountain bike race.

Stand: A group of trees that occupies a specific area and is similar in species, age, and condition.

Standards and guidelines: Standard: A course of action or level of attainment required by the forest plan to promote achievement of goals and objectives.

State Historic Preservation Office (SHPO): The official appointed or designated pursuant to Section 101(b)(1) of the National Historic Preservation Act of 1966, as amended, to administer the State Historic Preservation Program.

Stream classes: A means to categorize stream channels based on their fish production values. There are four stream classes on the Tongass National Forest. They are:

Class I: Streams and lakes with anadromous or adfluvial fish habitat; or high-quality resident fish waters listed in Appendix 68.1, Region 10 Aquatic Habitat Management Handbook (FSH 2609.24), June 1986; or habitat above fish migration barriers known to be reasonable enhancement opportunities for anadromous fish.

Class II: Streams and lakes with resident fish populations and generally steep (6-15 percent) gradient (can also include streams from 0-5 percent gradient) where no anadromous fish occur, and otherwise not meeting Class I criteria. These populations have limited fisheries values and generally occur upstream of migration barriers or have other habitat features that preclude anadromous fish use.

Class III: Perennial and intermittent streams with no fish populations but which have sufficient flow or transport sufficient sediment and debris to have an immediate influence on downstream water quality or fish habitat capability. These streams generally have bank-full widths greater than 5 feet and are highly incised into the surrounding hill slope.

Class IV: Intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capabilities to have an immediate influence on downstream water quality or fish habitat capability. These streams generally are shallowly incised into the surrounding hill slope.

Non-streams: Rills and other watercourses, generally intermittent and less than 1 foot in bankfull width, little or no incision into the surrounding hill slope, and with little or no evidence of scour.

Stumpage: The value of the timber as it stands uncut in terms of an amount per unit area; synonym stumpage value.

Subsistence: Section 803 of the Alaska National Interest Lands Conservation Act defines subsistence use as “the customary and traditional uses by rural Alaska residents of wild renewable resources for direct, personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade.”

Subspecies: An aggregate of similar populations of a species generally inhabiting a geographic subdivision of the range of the species and differing taxonomically (e.g. different size or color) from other populations of the species.

Succession: The natural replacement, in time, of one plant community with another. Conditions of the prior plant community (or successional stage) create conditions that are favorable for the establishment of the next stage.

Successional stage: A stage of development of a plant community as it moves from bare ground to climax. The grass-forb stage of succession precedes the woody shrub stage.

Suitable forest land: Forest land for which technology is available that will ensure timber production without irreversible resource damage to soils, productivity, or watershed conditions, and for which there is reasonable assurance that such lands can be adequately restocked, and for which there is management direction that indicated that timber production is an appropriate use of that area.

Surface resources: Renewable resources that are on the surface of the earth, such as timber and forage, in contrast to ground water and minerals which are located beneath the surface.

Sustainable: The yield of a natural resource that can be produced continually at a given intensity of management is said to be sustainable.

4

References and Lists

Sustained yield: The amount of renewable resources that can be produced continuously at a given intensity of management.

Temporary road or trail: A road or trail necessary for emergency operations or authorized by contract, permit, lease, or other written authorization that is not included in a forest transportation atlas (36 CFR 212.1)

Terrestrial ecosystems: Plant communities that are not dependent on a perpetual source of water to grow.

Thinning: The practice of removing some of the trees in a stand, in a manner that the remaining trees will grow faster. The remaining trees grow faster because of reduced competition for nutrients, water, and sunlight. Thinning may also be done to change the characteristics of a stand for wildlife or other purposes. Thinning may be done at two different stages:

Precommercial thinning – Removing trees that are too small to make a merchantable product to improve tree spacing and promote more rapid growth.

Commercial thinning – Removing trees that have reached sufficient size to be manufactured into a product to improve tree spacing and promote more rapid growth.

Threatened species: A listed plant or animal species likely to become an endangered species within the foreseeable future, throughout all or a significant portion of its range. Threatened species are identified and defined in accordance with the 1973 Endangered Species Act and published in the Federal Register.

Threshold: The point or level of activity beyond which an undesirable set of responses begins to take place within a given resource system.

Timber classification: Forested land is classified under each of the land management alternatives according to how it relates to the management of the timber resource. The following are definitions of timber classifications used for this purpose.

Nonforest: Land that has never supported forests and land formerly forested where use for timber production is precluded by development or other uses.

Forest: Land at least 10 percent stocked (based on crown cover) by forest trees of any size, or formerly having had such tree cover and not currently developed for nonforest use.

Suitable: Land to be managed for timber production on a regulated basis.

Unsuitable: Forest land withdrawn from timber utilization by statute or administrative regulation (for example, wilderness), or identified as inappropriate for timber production in the Forest planning process.

Thermoregulation: Ability of an organism to keep its body temperature within certain boundaries, even when the surrounding temperature is very different.

Timber stand improvement (TSI): All non-commercial intermediate cuttings and other treatments to improve composition, condition, and volume growth of a timber stand.

Tongass Timber Reform Act (TTRA): This Act (1990) requires annual appropriations for timber management on the Tongass National Forest, with a provision providing for the multiple use and sustained yield of all renewable resources.

Tractor logging: A logging method that uses tractors to carry or drag logs from the stump to a collection point.

Trail: A route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail.

Turbidity: An expression of the optical property that causes light to be scattered and absorbed rather than transmitted in straight lines through a water sample; turbidity in water is caused by the presence of suspended matter such as clay, silt, finely divided organic and inorganic matter, plankton, and other microscopic organisms.

Two-aged management: A regeneration method in which a portion of the trees in a harvest unit are cut in one entry, and the rest are left as residual trees, either singly or in patches resulting in the creation of two separate age classes within the stand. The residual trees remain unharvested to provide structural diversity or other attributes to the developing new stand.

Unauthorized road or trail: A road or trail that is not a forest road or trail; or a temporary road or trail; and is not included in a forest transportation atlas.

Understory: The trees and woody shrubs growing beneath the overstory in a stand of trees.

Unsuitable lands: Forest land that is not managed for timber production. Reasons may be matters of policy, ecology, technology, silviculture, or economics

Utility volume: Logs that do not meet minimum requirements for sawtimber but are suitable for the production of usable chips.

Value comparison unit (VCU): First developed for the 1979 Tongass Land Management Plan as distinct geographic areas that generally encompass a drainage basin containing one or more large stream systems. Boundaries usually follow easily recognizable watershed divides. There are 926 units established to provide a common set of areas for which resource inventories could be conducted and resource value interpretations made.

Variety class: A way to classify landscapes according to their visual features. This system is based on the premise that landscapes with the greatest variety or diversity have the greatest potential for scenic value.

Vegetation management: Activities designed primarily to promote the health of forest vegetation for multiple-use purposes.

Viable population: The numbers of individuals of a species sufficient to ensure the long-term existence of the species in natural, self-sustaining populations that are adequately distributed throughout their range.

Viewshed: An expansive landscape or panoramic vista seen from a road, marine waterway, or specific viewpoint.

Visual Absorption Capacity (VAC): The capability of the landscape to visually absorb management activities. Landscapes are rated with high, moderate or low abilities to absorb management activities. These ratings reflect the degree of landscape variety in an area, viewing distance and topographic characteristics. As an example, steep, evenly sloped landscapes viewed in the foreground to middle ground are typically given a low VAC rating.

4 References and Lists

Visual resource: A part of the landscape important for its scenic quality. It may include a composite of terrain, geologic features, or vegetation.

Volume strata: Divisions of old-growth timber volume derived from the interpreted timber type data layer (TIMTYP) and the common land unit data layer (CLU). Three volume strata (low, medium, and high) are recognized in the Forest Plan.

Water table: The upper surface of ground water or that level below which the soil is saturated with water.

Water yield: The runoff from a watershed, including groundwater outflow.

Watershed: The entire region drained by a waterway, or into a lake or reservoir. More specifically, a watershed is an area of land above a given point on a stream that contributes water to the stream flow at that point.

Wetlands: Those areas that are inundated or saturated by surface water or groundwater with a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions.

Wild and Scenic River: Rivers or sections of rivers designated by congressional actions under the 1968 Wild and Scenic Rivers Act. Wild and scenic rivers may be classified and administered under one or more of the following categories:

Wild river areas: Rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic river areas: Rivers or sections of rivers that are free of impoundments, with watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational river areas: Rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Wilderness: Areas designated by congressional action under the 1964 Wilderness Act or subsequent Acts. Wilderness is defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation. Wilderness areas are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature, with the imprint of human activity substantially unnoticeable; have outstanding opportunities for solitude or for a primitive and confined type of recreation; include at least 5,000 acres or are of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; and may contain features of scientific, educational, scenic, or historic value as well as ecologic and geologic interest. On the Tongass National Forest, Wilderness has been designated by ANILCA and TTRA.

Wildlife Analysis Area (WAA): A division of land used by the Alaska Department of Fish and Game for wildlife analysis.

Windfirm: Trees not likely to be blown over by the wind. These are usually trees that have been exposed to the wind throughout their life and have developed a strong root system or trees that are protected from the wind by terrain features or other trees.

References and Lists **4**

Windthrow: The act of trees being uprooted by the wind. In Southeast Alaska, Sitka spruce and hemlock trees are shallow rooted and susceptible to windthrow. There are generally three types of windthrow

Endemic, where individual trees are blown over;

Catastrophic, where a major windstorm can destroy hundreds of acres; and

Management related, where the clearing of trees in an area make the adjacent standing trees vulnerable to windthrow.

Winter Range: An area, usually at lower elevation, used by big game during the winter months; usually smaller and better defined than summer ranges.

Yarding: Moving cut trees from where they fell to a centralized place (landing) for hauling away from the stand.

Young growth: Forest growth that has regenerated naturally or has been planted after some drastic interference (for example, clearcut harvest, serious fire, or insect attack) with the previous forest growth.

4 References and Lists

References

- Abrahamson, M. 2012. Prince of Wales Area Redefines its Economy After the Timber Decline. In: Alaska Economic Trends. August. Volume 32(8). Available online at: <http://www.labor.state.ak.us/trends/>
- Ackerman, R.E., K.C. Reid, and J.D. Gallison. 1987a. Archaeology of Thorne Bay: A Survey of 22 Timber Harvest Units on Prince of Wales Island, Southeastern Alaska. Center for Northwest Anthropology Project Report No. 6, Washington State University, Pullman.
- Ackerman, R.E., K.C. Reid, J.D. Gallison, and E.R. Chesmore, Jr. 1987b. Archaeology of Coffman: A Survey of 15 Timber Harvest Units on Prince of Wales Island, Southeastern Alaska. Center for Northwest Anthropology Project Report No. 5, Washington State University, Pullman.
- Alaback, P.B. 1982. Dynamics of understory biomass in Sitka spruce-western hemlock forest of southeast Alaska. *Ecology* 63:1932–1948.
- Alaska Commercial Fisheries Entry Commission. 2011. Permit Holder and Crew Member Counts by Census Area & City of Residence. Available online at: <http://www.cfec.state.ak.us/cpbycen/2010/Mnu.htm>
- ADCCED (Alaska Department of Commerce, Community & Economic Development). 2011. Community Profiles Online. Available online at: http://www.commerce.state.ak.us/dca/commdb/CF_COMDB.htm
- ADCCED. 2012. Southeast Alaska Timber Industry Businesses Database. Email communication between C. Pinkel, Development Specialist II and M. Dadswell, Tetra Tech. February 22.
- ADEC (Alaska Department of Environmental Conservation). 2010. Alaska's Impaired Waters. Alaska Department of Environmental Conservation Division of Water. Retrieved on November 18, 2011 from: <http://dec.alaska.gov/water/wqsar/Docs/2010impairedwaters.pdf>
- ADEC. 2011a. Water Quality Standards, amended as of May 26, 2011. 18 AAC 70. 59 pages. Retrieved on January 31, 2011 from: http://www.dec.state.ak.us/water/wqsar/wqs/pdfs/18_AAC_70_as_Amended_Through_May_26_2011.pdf
- ADEC. 2011b. Division of Spill Prevention and Response Contaminated Sites Program. Accessed at: <http://www.dec.state.ak.us/spar/csp/bfprojects.htm>
- ADEC. 2011c. Division of Spill Prevention and Response Contaminated Sites Program. Salt Chuck Mine, Mill Area. Accessed at: <http://www.dec.alaska.gov/spar/csp/sites/salt-chuck.htm>

- ADEC. 2011d. Alaska Department of Environmental Conservation Contaminated Sites Database. Cleanup Chronology Report for USFS Thorne Bay Landfill. Accessed at: http://146.63.9.103/Applications/SPAR/CCReports/Site_Report.aspx?Hazard_ID=3141
- ADF&G (Alaska Department of Fish and Game). 1994. Subsistence Resource Use Patterns in Southeast Alaska: Summaries of 30 Communities.
- ADF&G. 1999. Goshawk ecology and habitat relationships on the Tongass National Forest. Appendix 1 Summary of activity at documented goshawk nest areas, Southeast Alaska, 1985-1998. Federal Aid in Wildlife Restoration 1998 Field Season Progress Report 1 January 1998 – 31 December 1998, Study SE-4-2. Prepared by ADF&G Division of Wildlife Conservation, Douglas and Ketchikan. Prepared for the U.S. Forest Service and U.S. Fish and Wildlife Service.
- ADF&G. 2006. Alaska Wildlife Harvest summary 2004-2005. Division of Wildlife Conservation, Juneau, Alaska.
- ADF&G. 2007. Sitka black-tailed deer harvest report, Southeast Alaska, 2007. Alaska Department of Fish and Game, Divisions of Wildlife Conservation.
- ADF&G. 2011. Unit 2 black bear management report. Pages 67-95 In P. Harper (ed.), Black bear management report of survey and inventory activities 1 June 2007-30 June 2010. Prepared by S. Bethune. Alaska Department of Fish and Game Project 17.0. Juneau, AK.
- ADNR (Alaska Department of Natural Resources). 2011. Division of Forestry Coastal Region Southern Southeast Area. Five-Year Schedule of Timber Sales. Calendar Years 2011 through 2015.
- Alaska DOL (Department of Labor). 2009. Table 4.3 Alaska Places 2000-2009. Available online at: <http://labor.alaska.gov/research/pop/popest.htm>
- Alaska DOL. 2010. Components of Population Change for Alaska Regions, Boroughs and Census Areas, 2000-2009. Available online at: <http://labor.alaska.gov/research/pop/popest.htm>
- Alaska DOL. 2011. Industry Employment Estimates 2010. Southeast. Available online at: <http://labor.alaska.gov/research/ces/ces.htm>
- Alaska DOL. 2012a. Population of Alaska by Economic Region, Borough and Census Area, 2010-2012. Available online at: <http://laborstats.alaska.gov/pop/popest.htm>
- Alaska DOL. 2012b. Preliminary Annual Employment and Earnings – 2011. Data Revised: 6/6/2012. Available online at: <http://labor.alaska.gov/research/qcew/qcew.htm>
- Alaska DOL. 2013a. Southeast Economic Region Monthly Employment Statistics. Available online at: <http://live.laborstats.alaska.gov/ces>
- Alaska DOL. 2013b. Not Seasonally Adjusted Monthly and Annual Unemployment Rates for the U.S., Alaska and Boroughs and Census Areas, 1994-2013. Available online at: <http://live.laborstats.alaska.gov/labforce/index.cfm>
- Alexander, S.J. 2012. Employment Coefficients and Indirect Effects, for NEPA planning: 2012 update memo. Regional Economist, USFS Alaska Region. August 9.

4 References and Lists

- Alexander, S. J., E.B. Henderson, and R. Coleman. 2010. Economic Analysis of Southeast Alaska: Envisioning a Sustainable Economy with Thriving Communities. Forest Service, Alaska Region Publication R10-MB-725, Juneau, AK, 93 p.
- Alexander, S., and D.J. Parrent. 2012. Estimating Sawmill Processing Capacity for Tongass Timber: 2009 and 2010 Update. USDA Forest Service. Pacific Northwest Research Station, Research Note PNW-RN-568. July. Available online at: www.fs.fed.us/pnw/pubs/pnw_rn568.pdf
- Aley, T., C. Aley, W. Elliot, and P. Huntoon. 1993. Karst and cave resource significance assessment, Ketchikan Area, Tongass National Forest, Alaska, Final Report, prepared for the Ketchikan Area of the Tongass National Forest. 76 pp. + appendix.
- AMEC (AMEC Geomatrix, Inc.). 2008. Data report for the FS 3030 Road Site. Prince of Wales Island, Alaska. Project number: 14481. November 2008. Retrieved on March 24, 2009 from <http://home.gci.net/~fsrd3030/>
- AMEC. 2010. 2010 Long-Term Monitoring Report FS 3030 Road Site Prince of Wales Island, Alaska. Project number 0144810010.00100. November 2010. Seattle, WA.
- AMEC. 2011. 2011 Long-Term Monitoring Report FS 3030 Road Site Prince of Wales Island, Alaska. Project number 0144810020. November 2011. Seattle, WA.
- AMEC. 2012. 2012 Long-Term Monitoring Report FS 3030 Road Site Prince of Wales Island, Alaska. Project number 0144810020. November 2012. Seattle, WA.
- Andrén, H. 1994. Effects of habitat fragmentation on birds and mammals in landscapes with different proportions of suitable habitat: a review. *Oikos* 71: 355–366.
- Andruskiw, M., J.M. Fryxell, I.D. Thompson, and J.A. Baker. 2008. Habitat-mediated variation in predation risk in the American marten. *Ecology* 89:2273-2280.
- As, S. 1999. Invasion of matrix species in small habitat patches. *Conservation Ecology* [online] 3(1): 1. Available online at: <http://www.consecol.org/vol3/iss1/art1/>
- Baichtal, J.F. 1997. Application of a Karst Management Strategy: Two Cases Studies from the Tongass National Forest, Southeastern Alaska; The Challenges of Implementation. In: Proceedings of the 1997 Karst and Cave Management Symposium 13th National Cave Management Symposium Bellingham, Washington and Chilliwack and Vancouver Island, BC, Canada, October 7-10, 1997, Bellingham, Washington. R.R. Stitt (ed.), pp. 4-11.
- Baichtal, James. 2011. Email communications concerning acid rock drainage in the Big Thorne project area.
- Baichtal, J. 2012. Winter weather cycles in southeast Alaska and the implications to Sitka blacktail deer numbers. USDA Forest Service, PowerPoint presentation.
- Baichtal, J.F., and D.N. Swanston. 1996. Karst Landscapes and Associated Resources: A Resource Assessment. General Technical Report, PNW-GTR-383. Portland, Oregon: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 13 p.
- Banner, A., P. LePage, J. Moran and A. de Groot (editors). 2005. The HyP3 Project: pattern, process, and productivity in hypermaritime forests of coastal British Columbia – a synthesis of 7-year results. B.C. Min. For., Res. Br., Victoria, B.C. Spec. Rep. 10.

References and Lists 4

- Barnhart, R.A. 1988. Species profiles: Life histories and environmental requirements of coastal fishes and invertebrates (Pacific Southwest) – Pacific herring. U. S. Fish and Wildlife Service. Biological Report 82(11.79). U. S. Army Corps of Engineers, TR EL-82-4.
- Barnhart, C., and D. Hitner. 2013a. Timber Economics Resource Report, Big Thorne Project. Tetra Tech EC, Inc. (Stuntzner Engineering & Forestry). Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Barnhart, C., and D. Hitner. 2013b. Transportation Resource Report, Big Thorne Project. Tetra Tech EC, Inc. (Stuntzner Engineering & Forestry). Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Barnhart, C., D. Hitner, and J. Iozzi. 2013. Timber and Silviculture Resource Report, Big Thorne Project. Tetra Tech EC, Inc. (Stuntzner Engineering & Forestry). Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Barrett, T.M. [n.d.]. Storage and Flux of Carbon in Live Tree, Snags, and Logs in the Chugach and Tongass National Forests. Manuscript in review. On file with: T. Barrett, Pacific Northwest Research Station, 1133 N. Western Ave., Wenatchee, WA 98801.
- B.C. Ministry of Forests. 1996a. Clarifying Habitat Use. Coastal Black-tailed Deer Study No. 2 of 5. Victoria, B.C., Canada.
- B.C. Ministry of Forests. 1996b. How black-tailed deer react to logging in their winter habitat. Coastal Black-tailed Deer Study No. 3 of 5. Victoria, B.C., Canada.
- B.C. Ministry of Forests. 1996c. Habitat and Predator Concerns. Coastal Black-tailed Deer Study No. 4 of 5. Victoria, B.C., Canada.
- B.C. Ministry of Forests. 1998. Habitat assessment and planning. Coastal Black-tailed Deer Study No. 5 of 5. Victoria, B.C., Canada.
- Beard, J. M. 2011. North Thorne Project Area Watershed Restoration Plan. USDA Forest Service Tongass National Forest. Thorne Bay Ranger District. August 2011.
- Beaudry, P.G. and R.M. Sagar. 1995. The Water Balance of a Coastal Cedar Hemlock Ecosystem. Presented at a joint meeting of the Canadian Society for Hydrological Sciences and the Canadian Water Resources Association: Mountain Hydrology, Peaks and Valleys in research and applications May 17-19, 1995.
- Beck Group. 2008. Transitioning from Old Growth to Young Growth: Prince of Wales Island, Southeast Alaska. A presentation to: The Tongass Futures Roundtable. Southeast Alaska Wood Energy Workshop. October 29.
- Ben-David, M., R.T. Bowyer and J.B. Faro. 1996. Niche Separation by Mink and River Otters: Coexistence in a Marine Environment. *Oikos* 75(1):41-48.
- Ben-David, M., R.W. Flynn, and D. M. Schell. 1997. Annual and seasonal changes in diets of martens: evidence from stable isotope analysis. *Oecologia* 111:280-291.
- Bethune, S. 2009. Unit 2 wolf management report. Pages 31–40 in P. Harper (ed.), Wolf management report of survey and inventory activities 1 July 2005–30 June 2008. Alaska Department of Fish and Game, Juneau, AK.

4 References and Lists

- Bethune, S. (ADF&G). 2011. Personal communication regarding pre-commercial thinning in the project area.
- Bethune, S. (ADF&G). 2013. Personal communication with M. Dillman regarding GMU 2 wolf harvest. Via email 5/7/13.
- Bidlack, A.L., and J.A. Cook. 2001. Reduced genetic variation in insular northern flying squirrels (*Glaucomys sabrinus*) along the North Pacific Coast. *Animal Conservation* 4:283–290.
- Bidlack, A.L., and J.A. Cook. 2002. A nuclear perspective on endemism in northern flying squirrels (*Glaucomys sabrinus*) of the Alexander Archipelago, Alaska. *Conservation Genetics* 3:247–259.
- Bissonette, J., D. Harrison, C. Hargis, and T. Chapin. 1997. The influence of spatial scale and scale-sensitive properties on habitat selection by American marten. In: J. Bissonette (ed.), *Wildlife and Landscape Ecology*. Springer-Verlag, New York.
- Bishop, D.M., and M. Stevens. 1964. Landslides on Logged Areas in Southeast Alaska. U.S. Forest Service Research Paper. NOR-1. Northern Forest Experiment Station. Juneau, AK. 1964.
- Bloxton, T. 2002. Prey abundance, space use, demography, and foraging habitat of northern goshawks in western Washington. Master's Thesis, University of Washington, Seattle, WA
- BLM (USDI Bureau of Land Management). 1998. Riparian Management. A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas. Technical Reference 1737-15.
- Boag, D.A., and M.A. Schroeder. 1992. Spruce Grouse. In: A. Poole, P. Stettenheim, and F. Gill (eds.), *The Birds of North America*. Philadelphia: The Academy of Natural Sciences. Washington, DC. The American Ornithologists' Union.
- Boland, J.L., J.P. Hayes, W.P. Smith, and M.M. Huso. 2009. Selection of day-roosts by Keen's myotis (*Myotis keenii*) at multiple spatial scales. *Journal of Mammalogy* 90:222–234.
- Bormann, B.T., H. Spaltenstein, M. McClellan, F. Ugolini, K. Cromack Jr., and S. Nay. 1995. Rapid Soil Development After Windthrow Disturbance in Pristine Forests. *Journal of Ecology* 83(5):756.
- Bosakowski, T., B. McCullough, F.J. Lapsansky, and M.E. Vaughn. 1999. Northern goshawks nesting on a private industrial forest in western Washington. *Journal of Raptor Research* 33:240–244.
- Bosch, M. 2004. BA and BE effects, and determinations of effects, for TEPS species. USDA Forest Service. Region 10. 2 pp.
- Bosch, J.M., and J.D. Hewlett. 1982. A review of catchment experiments to determine the effect of vegetation changes on water yield and evapotranspiration. *Journal of Hydrology* 55: 323.

- Bowyer, R.T., G.M. Blundell, M. Ben-David, S.C. Jewett, T.A. Dean, and L.K. Duffy. 2003. Effects of the Exxon Valdez oil spill on river otters: injury and recovery of a sentinel species. *Wildlife Monographs* No. 153:1–53.
- Boyce, D.A. Jr.; R.T. Reynolds, and R.T. Graham. 2006. Goshawk status and management: What do we know, what have we done, where are we going. In: Michael Morrison (ed.), *The northern goshawk: a technical assessment of its status, ecology and management*. Cooper Ornithological Society: 312–325.
- BPIF (Boreal Partners in Flight Working Group). 1999. Landbird Conservation Plan for Alaska Biogeographic Regions, Version 1.0. Unpublished report, U.S. Fish and Wildlife Service, Anchorage, AK. 45 pp.
- BPIF. 2011. Priority Landbird Species.
- Brackley, A.M., and R.W. Haynes. 2008. Timber Products Output and Timber Harvest in Alaska: An Addendum. Research Note PNW-RN-559. Pacific Northwest Research Station. 41p.
- Brackley, A.M., T.D. Rojas, and R.W. Haynes. 2006. Timber Products Output and Timber Harvest in Alaska: Projections for 2005-25. General Technical Report PNW-GTR-677. Pacific Northwest Research Station. 33p.
- Brainerd, S.M., H. Andren, E.E. Bangs, E.H. Bradley, J.A. Fontaine, W. Hall, Y. Iliopoulos, M.D. Jiminez, E.A. Jozwiak, O. Liberg, C.M. Mack, T.J. Meier, C.C. Miemeyer, H.C. Pedersen, H. Sand, R.N. Schultz, D.W. Smith, P. Wabakken, and A.P. Wydeven. 2008. The effects of breeder loss on wolves. *Journal of Wildlife Management* 72:89–98.
- Brinkman, T.J. 2009. Resilience of a deer hunting system in southeast Alaska: integrating social, ecological, and genetic dimensions. Dissertation. University of Alaska Fairbanks, Fairbanks, AK.
- Brinkman, T.J., T. Chapin, G. Kofinas, and D.K. Person. 2009. Linking hunter knowledge with forest change to understand changing deer harvest opportunities in intensively logged landscapes. *Ecology and Society* 14:1
- Brinkman, T.J., D.K. Person, F.S. Chapin, W. Smith, and K. Hundertmark. 2011. Estimating abundance of Sitka black-tailed deer using DNA from fecal pellets. *Journal of Wildlife Management* 75:232–242.
- Bryant, M.D., J. Caouette, and B. Wright. 2004. Evaluating stream habitat survey data and statistical power using an example from Southeast Alaska. *North American Journal of Fisheries Management* 24:1353–1362.
- Bryant, M.D., D.N. Swanston; R.C. Wissmar, and B.E. Wright. 1998. Coho Salmon Populations in the Karst Landscape of Northern Prince of Wales Island, Southeast Alaska. *Transactions of the American Fisheries Society* 127:425-433.
- Burger, A.E, 2002. Conservation assessment of Marbled Murrelets in British Columbia: a review of the biology, populations, habitat associations, and conservation. Technical Report Series No. 387. Canadian Wildlife Service, Pacific and Yukon Region, British Columbia.

4 References and Lists

- Burkey, T.V. 1995. Extinction rates in archipelagoes: implications for populations in fragmented habitats. *Conservation Biology* 9:527–541.
- Buskirk, S.W., and R.A. Powell. 1994. Habitat ecology of fishers and American martens. Pages 283–296 in S.W. Buskirk, A.S. Harestad M.G. Raphael, and R.A. Powell (eds.). *Martens, sables, and fishers: Biology and conservation*. Cornell University Press, Ithaca, NY.
- Buskirk, S.W., and W.J. Zielinski. 1997. American marten (*Martes americana*) ecology and conservation. Pages 17-22 in J.E. Harris, and C.V. Ogan, (eds.), *Mesocarnivores of northern California: biology, management, and survey techniques, workshop manual*. August 12-15, 1997, Humboldt State University, Arcata, CA. The Wildlife Society, California North Coast Chapter, Arcata, CA.
- Calder, J. 2006. Largest islands of the United States. Online (www.worldsandlandinfo.com); Available online at <http://www.worldislandinfo.com/USLARGESTV1.html>
- Caouette, J.P., and E.J. DeGayner. 2005. Predictive mapping for tree sizes and densities in southeast Alaska. *Landscape and Urban Planning* 72: 49–63.
- Carey, A.B. 2000. Ecology of northern flying squirrels: implications for ecosystem management in the Pacific Northwest, USA. Pages 45–66 in R.L. Goldingay and J.S. Scheibe (eds.). *Biology of Gliding Mammals*. Filander Verlag, Forth, Germany.
- Carey, A.B. 2003. Biocomplexity and Restoration of Biodiversity in Temperate Coniferous Forest: Inducing Spatial Heterogeneity with Variable-density Thinning. *Forestry* 76(2).
- Carls, M.G., P.M. Harris, S.W. Johnson, M.R. Lindeberg, A.D. Neff and R. Waples. 2008. Status Review of Lynn Canal Herring (*Clupea pallasii*). National Marine Fisheries Service, Juneau, AK. 154 p.
- Carls, R., S. Johnson, R.Thomas, and S. Rice. 1997. Health and reproductive implications of exposure of Pacific herring (*Clupea pallasii*) adult and eggs to weathered crude oil and reproductive conditions of herring stocks in Prince Williams stock of Prince Williams Sound six years after the Exxon Valdez oil spill restoration project. Exxon Valdez Oil Spill Restoration Project Final Report. NOAA NMFS Auke Bay Laboratory, Juneau, Alaska.
- Carls, M.G., S.D. Rice and J.E. Hose. 1999. Sensitivity of fish embryos to weathered crude oil: Part I. Low-level exposure during incubation causes malformations, genetic damage, and mortality in Pacific Herring (*Clupea pallasii*). *Environmental Toxicology and Chemistry* 18:481-493.
- Carlson, R.J. 2005. North Thorne Timber Harvest Project- R2003100554016 (archaeological survey). USDA Forest Service, Craig Ranger District, Tongass National Forest.
- Case, B., USDA Forest Service. 2011. Personal communication with B. Case, Young Growth Coordinator-Silviculture. October.
- Cederholm, C.J., L.M. Reid, and E.O. Salo. 1980. Cumulative Effects of Logging Road Sediment on Salmonid Populations in the Clearwater River, Jefferson County, Washington. Presented to the conference Salmon-Spawning Gravel: A Renewable Resource in the

References and Lists **4**

- Pacific Northwest? Seattle, Washington, October 6-7, 1980. Contribution No. 543, College of Fisheries, University of Washington, Seattle, Washington.
- Center for Biological Diversity and Greenpeace. 2011. Petition to list the Alexander Archipelago Wolf (*Canis lupus ligoni*) as threatened or endangered under the United States Endangered Species Act. Submitted to the U.S. Fish and Wildlife Service August 10, 2011.
- Cervený, L.K. 2005. Tourism and Its Effects on Southeast Alaska Communities and Resources: Case Studies From Haines, Craig, and Hoonah, Alaska. USDA Forest Service, Pacific Northwest Research Station, Research Paper PNW-RP-566. July. Available online at: www.fs.fed.us/pnw/publications/pnw_rp566/pnw_rp566a.pdf
- CEQ (Council on Environmental Quality). 1997. Environmental Justice Guidance under the National Environmental Policy Act. Executive Office of the President. Washington, D.C. December 10. Available online at: <http://www.epa.gov/compliance/resources/policies/ej/index.html>
- CFCI (Coast Forest Conservation Initiative). 2012. Maintaining the integrity of northern goshawk nesting and post-fledging areas in the ecosystem based management plan area of coastal British Columbia: guidance for professionals. CFCI Northern Goshawk Conservation Initiative, British Columbia, Canada.
- Chalfoun, A.D., F.R. Thompson, and M.J. Ratnaswamy. 2002. Nest Predators And Fragmentation: A Review And Meta-Analysis. *Conservation Biology* 16:306–318.
- Chamberlin, T.W., R.D. Harr, and F.H. Everest. 1991. Timber harvesting, silviculture and watershed processes. *American Fisheries Society (Special Publications)* 19:181–206.
- Correll, D. 2001. Vegetated Stream Riparian Zones: Their Effects On Stream Nutrients, Sediments, and Toxic Substances. Crystal River, Florida,
- Chapin F.S., III, O.E. Sala, I.C. Burke, J.P. Grime, D.U. Hooper, W.K. Lauenroth, A. Lombard, H.A. Mooney, A.R. Mosier, S. Naeem, S.W. Pacala, J. Roy, W.L. Steffen, and D. Tilman. 1998. Ecosystem consequences of changing biodiversity. *BioScience* 48:45–52.
- Chen, J., Franklin, J., and Spies, T. 1993. Contrasting microclimates among clearcut, edge, and interior of Old-Growth Douglas-fir forest. *Agricultural and Forest Meteorology* 63(1): 219–237.
- Chen, J., J. Franklin, and T. Spies. 1995. Growing-season microclimate gradients from clearcut edges into old-growth Douglas-fir forests. *Ecological Applications* 5(1):74–86.
- Colway, C., and D.E. Stevenson. 2007. Confirmed Records of Two Green Sturgeon from the Bering Sea and Gulf of Alaska. *Northwestern Naturalist* 88:188–192.
- Concannon, J.A. 1995. Characterizing structure, microclimate and decomposition of peatland, beachfront, and newly-logged forest edges in southeastern Alaska. Ph.D dissertation, University of Washington, Seattle, WA.
- Cook, J.A., A.L. Bidlack, C.J. Conroy, J.R. Demboski, M.A. Fleming, A.M. Runck, K.D. Stone, and S.O. MacDonald. 2001. A phylogeographic perspective on endemism in the Alexander Archipelago of southeast Alaska. *Biological Conservation* 97:215–227.

4 References and Lists

- Cook, J.A., N.G. Dawson, and S.O. MacDonald. 2006. Conservation of highly fragmented systems: the north temperate Alexander Archipelago. *Biological Conservation* 133:1–15.
- Cooke (Cooke Scientific Services, Inc.). 2005. Pacific Northwest Forested Wetland Literature Survey Synthesis Paper. April. 95 pp.
- Cotter, P. 2007. Northern goshawk (*Accipiter gentiles*). In: J.W. Schoen and E. Dovichin (eds.). *The Coastal Forests and Mountains Ecoregion of Southeastern Alaska and the Tongass National Forest: A Conservation Assessment and Resources Synthesis*. Audubon and Nature Conservancy, Special Publication.
- Cox, D., T. Opolka, and J. Hawkins. 2013. Soil and Wetland Resource Report, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Croke, J., S. Mockler, P. Fogarty, and I. Takken. 2005. Sediment concentration changes in runoff pathways from a forest road network and the resultant spatial pattern of catchment connectivity. *Geomorphology* 68: 257-268.
- Crookston, J. 2013. Climate Change Analysis and Resource Report, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Dadswell, M. 2013a. Recreation Resource Report, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Dadswell, M. 2013b. Inventoried Roadless Areas and Wilderness Resource Report, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Dadswell, M. 2013c. Lands and Wild and Scenic Rivers Resource Report, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Dadswell, M. 2013d. Socioeconomics Resource Report, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- D'Aleo, J., and D.J. Easterbrook. 2011. Relationship of multidecadal global temperatures to multidecadal oceanic oscillations. Pages 161-184 in D.J. Easterbrook, (ed.), *Evidence-Based Climate Science*, Elsevier Inc.
- Darimont, C.T., and T.E. Reimchen. 2002. Intra-hair stable isotope analysis implies seasonal shift to salmon in gray wolf diet. *Canadian Journal of Zoology* 80:1638–1632.
- Davis, H., A.N. Hamilton, A.S. Harestad, and R.D. Weir. 2012. Longevity and reuse of black bear dens in managed forests of coastal British Columbia. *The Journal of Wildlife Management* 76: 523–527.
- Dawson, N.G., S.O. MacDonald, and J.A. Cook. 2007. Endemic mammals of the Alexander Archipelago. Chapter 6.7, Pages 1–11 in J. Schoen and E. Dovichin (eds). *The Coastal Forests and Mountains Ecoregion of Southeastern Alaska and the Tongass National Forest: A Conservation Assessment And Resource Synthesis*. Audubon and Nature Conservancy, Special Publication.
- Day, R.H., K.J. Kuletz, and D.A. Nigro. 1999. Kittlitz's murrelet (*Brachyramphus brevirostris*). *The Birds of North America Online* (A. Poole, ed.). Cornell Lab of

- Ornithology, Ithaca, NY. Available online at:
<http://www.bna.birds.cornell.edu/bna/species/435>. (Accessed October 2011)
- Deal, R.L., and J.C. Tappeiner. 2002. The effects of partial cutting on stand structure and growth in western hemlock-Sitka spruce stands in Southeast Alaska. *Forest Ecology and Management* 159:173–186.
- DeGange, A.R. 1996. Extinction Rates in Archipelagos: Implications for Populations in Fragmented Habitats. *Conservation Biology* 9:527–541.
- Deitrich, P.J., and B. Woodbridge. 1994. Territory fidelity, mate fidelity, and movements of color-marked northern goshawks (*Accipiter gentilis*) in the southern Cascades of California. Pages 130-132 in Block, W.M., M. L. Morrison, and H. Hildegard Reisner, eds. The northern goshawk: ecology and management. Studies in Avian Biology No. 16. The Cooper Ornithological Society.
- Dellasala, D.A., J.C. Hagar, K.A. Engel, W.C. McComb, R.L. Fairbanks, and E.G. Campbell. 1996. Effects of silvicultural modifications of temperate rainforest on breeding and wintering bird communities, Prince of Wales Island, Southeast Alaska. *The Condor* 98:706–721.
- Demboski, J.R., B.K. Jacobsen, and J.A. Cook. 1998. Implications of cytochrome b sequence variation for biogeography and conservation of the northern flying squirrel (*Glaucomys sabrinus*) of the Alexander Archipelago, Alaska. *Canadian Journal of Zoology* 76:1771–1776.
- DeMeo, T.E., and D. Loggy. 1989. Identification, Classification, and Delineation of Wetlands Using Soils and Vegetation Data. Ketchikan Area, Tongass National Forest. Final Report for Tongass Land Management Plan. January 1989.
- D'eon, R.G., S.M. Glenn, I. Parfitt, and M. Fortin. 2002. Landscape connectivity as a function of scale and organism agility in a real forested landscape. *Conservation Ecology* 6:10. Available online at: <http://www.consecol.org/vol6/iss2/art10>
- Dickerman, R.W., and J. Gustafson. 1996. The Prince of Wales spruce grouse: a new subspecies from southeastern Alaska. *Western Birds* 27:41–47.
- Dietrich, P.J., and B. Woodbridge. 1994. Territory fidelity, mate fidelity, and movements of color-marked northern goshawks (*Accipiter gentilis*) in the southern Cascades of California. Pages 130-132 in Block, W.M., M.L. Morrison, and H. Hildegard Reisner, eds. The northern goshawk: ecology and management. Studies in Avian Biology No. 16. The Cooper Ornithological Society.
- Dillaha, T.A., and S.P. Inamdar. 1997. Buffer Zones as Sediment Traps or Sources. In: Buffer Zones: Their Processes and Potential in Water Protection. In N.E Haycock, T.P. Burt, K.W.T. Goulding and G. Pinay (eds.). 1997. Quest Environmental. Pg. 41. Available online at: [www.kingarthurscamlan.org/biosw/docs/BufferZones\(locked\).pdf](http://www.kingarthurscamlan.org/biosw/docs/BufferZones(locked).pdf)
- Dillman, M. 2009. Biological Assessment/Biological Evaluation for the Logjam Project. USDA Forest Service, Thorne Bay Ranger District, Tongass National Forest, Thorne Bay, AK.

4 References and Lists

- Dillman, K. 2010. Conservation Assessment for *Lobaria amplissima*. Tongass National Forest, March 2010.
- Doyle, F.I. 2005. Breeding success of the goshawk (*A.g. laingi*) on Haida Gwaii/Queen Charlotte Islands: is the population continuing to decline? Wildlife Dynamics Consulting.
- Doyle, F.I., and J.N.M. Smith. 1994. Population responses of northern goshawks to the 10-year cycle in numbers of snowshoe hares. *Studies in Avian Biology* 16:122–129.
- Dugan, D., G. Fay, H. Griego, and S. Colt. 2009. Nature-Based Tourism in Southeast Alaska. ISER Working Paper 2009.1. March. Institute of Social and Economic Research, University of Alaska Anchorage. Available online at: www.iser.uaa.alaska.edu
- Euskirchen, E.S., Q. Li. and K.A. Harper. 2006. The influence of edges on plant communities: research frontiers for forested landscapes. Pages 71–88 in J. Chen, S. Saunders, K. Broskofske, and T.R. Crow (eds.), *Ecology of Hierarchical Landscapes: From Theory to Application*, Nova Science Publishers, Hauppauge, NY.
- EPA (U.S. Environmental Protection Agency). 1998. Final Guidance for Incorporating Environmental Justice Concerns in EPA’s NEPA Compliance Analyses. April. Available online at: <http://www.epa.gov/compliance/resources/policies/ej/index.html>
- EPA. 2011. Environmental Protection Agency. Wetland Types. Available on-line at: <http://water.epa.gov/type/wetlands/bog.cfm>
- Evans, R. 2013. Scenery Resource Report, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Fahrig, L. 1997. Relative effects of habitat loss and fragmentation on population extinction. *Journal of Wildlife Management* 61:603–610.
- Fahrig, L. 1999. Forest loss and fragmentation: which has the greater effect on persistence of forest-dwelling animals? Pages 87–95 in J.A. Rochelle, L.A. Lehmann, and J. Wisniewski (eds), *Forest Fragmentation: Wildlife and Management Implications*, Brill, NY.
- Fahrig, L. 2003. Effects of habitat fragmentation on biodiversity. *Annual Review of Ecology, Evolution, and Systematics* 34:487–515.
- Farmer, C.J., and M.D. Kirchoff. 2007. Ecological classification of deer habitat in the Tongass National Forest, Alaska. *Northwestern Naturalist* 88:73–84.
- Farmer, C.J., D.K. Person, and R.T. Bowyer. 2006. Risk factors and mortality of black-tailed deer in a managed forest landscape. *Journal of Wildlife Management* 70:1403–1415.
- Federal Register. 2008. Endangered and Threatened Wildlife: Notice of 90-day Finding on a Petition to List the Three Ice Seal Species as Threatened or Endangered Species. Vol. 73, No. 172. 3 pp.
- Fifield, T.E., and J. Raymond-Yakoubian. 2008. Logjam Timber Sale Project-R2008100554056 (archaeological survey). USDA Forest Service, Craig Ranger District, Tongass National Forest.
- Fifield, T.E., and A.D. Laybolt. 2004. Cobble Timber Project Area (archaeological survey). USDA Forest Service, Craig Ranger District, Tongass National Forest.

- Finn, S.P., J.M. Marzluff, and D.E. Varland. 2002. Effects of landscape and local habitat attributes on Northern Goshawk site occupancy in western Washington. *Forest Science* 48:427–436.
- Flaherty, E.A., M. Ben-David, and W.P. Smith. 2010. Diet and food availability implications for foraging and dispersal of Prince of Wales northern flying squirrels across managed landscapes. *Journal of Mammalogy* 91:79–91.
- Flather, C.H., M. Bevers, and J. Hof. 2002. Prescribing habitat layouts: analysis of optimal placement for landscape planning. Pages 428-453 in K.J. Gutzwiller (ed.), *Applying landscape ecology in biological conservation*. New York: Springer-Verlag.
- Flaherty, E.A., W.P. Smith, S. Pyare, and M. Ben-David. 2008. Experimental trials of the northern flying squirrel (*Glaucomys sabrinus*) traversing managed rainforest landscapes: perceptual range and fine-scale movements. *Canadian Journal of Zoology* 86:1050–1058.
- Flanders, L.A., J. Sherburne, T. Paul, M. Kirchhoff, S. Elliot, K. Brownlee, B. Schroeder, and M. Turek. 1998. Tongass Fish and Wildlife Resource Assessment. Alaska Department of Fish and Game. Technical Bulletin No. 98-4.
- Flatten, C., K. Titus, and R. Lowell. 2001. Northern goshawk monitoring, population ecology and diet on the Tongass National Forest 1 April 1999-30 September 2001. Alaska Department of Fish and Game, Division of Wildlife Conservation. Final Research Performance Report. Federal Aid Grant SE-4, studies 2 to 6. Juneau, AK. 32pp.
- Fleming, M.A., and J.A. Cook. 2002. Phylogeography of endemic ermine (*Mustela erminea*) in southeast Alaska. *Molecular Ecology* 11:795–807.
- Flynn, R. 1991. Ecology of martens in southeast Alaska. Aid in Wildlife Restoration, Progress Report. Grant W-23-4. Study 7.16. 33 pp.
- Flynn, R., and T.V. Schumacher. 1997. Ecology of martens in southeast Alaska. Alaska Department of Fish and Game. Federal Aid in Wildlife Restoration Progress Report. Grant W-24-5, Study 7.16. Juneau, AK.
- Flynn, R.W., and T. Schumacher. 2001. Ecology of martens in southeast Alaska, 1 July 2000–30 June 2001. Alaska Department of Fish and Game. Federal aid in wildlife restoration final research performance report, grants W-23-4 to W-27-4. Study 7.16. Juneau, AK.
- Flynn, R., T.V. Schumacher, and M. Ben-David. 2004. Abundance, prey availability, and diets of American martens: implications for the design of old-growth reserves in Southeast Alaska. Alaska Department of Fish and Game, Wildlife Research Final Report.
- Flynn, R., S.B. Lewis, L.R. Beier, and G.W. Pendleton. 2007. Brown bear use of riparian and beach zones of northeast Chichagof Island: implications for streamside management in coastal Alaska. Alaska Department of Fish and Game, Wildlife Research Final Report.
- Fox, T. 2008. Winter ecology of Vancouver Canada geese in southeast Alaska. Thesis, University of Idaho, Moscow, USA.
- Franklin, J.F., D.R. Berg, D.A. Thornburgh, and J.C. Tappeiner. 1997. Alternative silvicultural approaches to timber harvesting: variable retention harvest systems. Pages 111–140 in

4 References and Lists

- K.A. Kohm and J.F. Franklin (eds). Creating a Forestry for the 21st Century. Island Press, Washington, D.C.
- Fraser, J.D., L.D. Frenzel, and J.E. Mathisen. 1985. The impact of human activities on breeding bald eagles in north-central Minnesota. *Journal of Wildlife Management* 49:585–592.
- Fryxell, J. 2009. Luck Lake Stream Resotration Opportunities, Stream Survey Report; Compiled by Jenny Fryxell, TEAMS Enterprise Unit for the Craig Ranger District, Tongass National Forest.
- Fryxell, J. 2010. Luck Lake Area, Eagle Watershed Restoration Plan. TEAMS Enterprise Unit. Craig Ranger District, Tongass National Forest. December 17, 2010.
- Fuller, T.K., L.D. Mech, and J.F. Cochrane. 2003. Wolf population dynamics. Pages 161–191 in L.D. Mech and L. Boitani (eds.), *Wolves: Behavior, Ecology, and Conservation*. University of Chicago Press, Chicago, IL.
- Furniss, M.J., T.D. Roelofs, and C.S. Yee. 1991. Road construction and maintenance. In: *Influences Of Forest and Rangeland Management On Salmonid Fishes and Their Habitats*. American Fisheries Society (Special Publication). 297-323.
- Gilbertsen, N. and D. Robinson. 2001. Prince of Wales Island. Alaska Economic Trends. November.
- Glaser, P.H. 1999. The Impact of Forestry Roads on Peatlands Within the Tongass National Forest, Southeast Alaska. Unpublished white paper.
- Goldstein, M.I., D. Martin, and M.C. Stensvold. 2009. 2009 Forest Service Alaska Region sensitive species list: Assessment and Proposed Revisions to the 2002 list. USDA Forest Service, Alaska Region.
- Grant, G.E., S.L. Lewis, F.J. Swanson, J.H. Cissel, and J.J. McDonnell. 2008. Effect of forest practices on peak flows and consequent channel response: a state-of-science report for western Oregon and Washington. General Technical Report. PNW-GTR-760. Portland, Oregon: USDA Forest Service, Pacific Northwest Research Station. 76p.
- Greiser, T.W. 1994. Cultural Resources Specialist Report: Control Lake Environmental Impact Statement, Prince of Wales Island, Alaska. Prepared by Historical Research Associates Inc., for Ebasco Environmental, under contract to the Tongass National Forest. Contract # 53-0109-3-00369.
- Gomi, T., R.D. Moore, and A.S. Dhakal. 2006. Headwater stream temperature response to clear-cut harvesting with different riparian treatments, coastal British Columbia, Canada, *Water Resources Research* 42, W08437, doi:10.1029/2005WR004162.
- Gomi T, R.D. Moore, and M. Hassan. 2005. Suspended sediment dynamics in small forest streams of the Pacific Northwest. *Journal of the American Water Resources Association* 41(4):877–898.
- Gomi, T., R.C. Sidle, R.D. Woodsmith, and M.D. Bryant. 2001. The characteristics of woody debris and sediment distribution in headwater streams, southeast, Alaska. *Canadian Journal of Forest Research* 31: 1386–1399.

- Gucinski, H., M.J. Furniss, R.R. Ziemer, and M.H. Brookes. 2001. Forest roads: a synthesis of scientific information. General Technical Report. PNW-GTR-509. Portland, OR, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 103p.
- Hagar, J.C., W.C. McComb, and W.H. Emmingham. 1996. Bird communities in commercially thinned and unthinned Douglas-fir stands of western Oregon. *Wildlife Society Bulletin* 24: 353–366.
- Hanley, T.A. 2005. Potential management of young-growth stands for understory vegetation and wildlife habitat in southeastern Alaska. *Landscape and Urban Planning* 72:95–112.
- Hanley, T.A., C.T. Robbins, and D.E. Spalinger. 1989. Forest habitats and the nutritional ecology of Sitka black-tailed deer: a research synthesis with implications for forest management. USDA Forest Service Pacific Northwest Research Station, Portland, OR. General Technical Report PNW-230.
- Hanley, T.A., and C.L. Rose. 1987. Influence of overstory on snow depth and density in hemlock-spruce stands: implications for management of deer habitat in southeastern Alaska. Res. Note PNW-RN-459. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station.
- Hargis C.D., J.A. Bissonette, and D.L. Turner. 1999. The influence of forest fragmentation and landscape pattern on American martens. *Journal of Applied Ecology* 36:157–172.
- Harper, K.A., S.E. MacDonald, P.J. Burton, J. Chen, K.D. Brosofske, S.C. Saunders, E.S. Euskirchen, D. Roberts, M.S. Jaiteh, and P. Esseen. 2005. Edge influence on forest structure and composition in fragmented landscapes. *Conservation Biology* 19:768–782.
- Harmon, M., W. Ferrell, and J. Franklin. 1990. Effects on Carbon Storage of Old-Growth Forests to Young Forests. *Science*. Vol. 247.
- Harr, R.D. 1986. Effects of clearcutting on rain-on-snow runoff in Western Oregon: a new look at old studies. *Water Resources Research* 22(7):1095–1100.
- Harris, A.S. 1989. Wind in the forests of southeast Alaska and guides for reducing damage. USDA Forest Service, Pacific Northwest Research Station General Technical Report PNW-GTR-244.
- Haufler, J.B. 2006. Review of Conservation Science Produced Since 1997 and Its Relationship to the Tongass National Forest Land and Resource Management Plan. Final Draft. Prepared for Tongass National Forest. Ecosystem Management Research Institute (EMRI). August 2006.
- Heithecker, Troy, and Charles Halpeern. 2007. Edge-related gradients in microclimates in forest aggregates following structural retention harvests in western Washington. *Forest and Ecology Management* 248 (2007):163–173.
- Hejl, S.J., K.R. Newlon, M.E. McFadzen, J.S. Young, and C.K. Ghalambor. 2002. Brown creeper (*Certhia americana*). *The Birds of North America*. Number 669.
- Hennon, P.E., D.V. d'Amore, D.T. Wittwer, and J.P. Caouette. 2007. Yellow-cedar decline: conserving a climate-sensitive tree species as Alaska warms. Proceeding of the 2007 National Silviculture Workshop, Gen. Tech. Report PNW-GTR-733.

4 References and Lists

- Hennon, P.E., D.V. d'Amore, P.G. Schaberg, D.T. Wittwer, and C.S. Shanley. 2012. Shifting climate, altered niche, and a dynamic conservation strategy for yellow-cedar in the North Pacific Coastal Rainforest. *Bioscience* 62(2):147-158.
- Hetrick N.J., M.A. Brusven, W.R. Meehan, and T.C. Bjornn. 1998. Changes in solar input, water temperature, periphyton accumulation, and allochthonous input and storage after canopy removal along two small salmon streams in southeast Alaska. *Transactions of the American Fisheries Society* 127: 859-875.
- Hicks, B.J., et al. 1991. Long-term Changes in Streamflow Following Logging in Western Oregon and Associated Fisheries Implication. *Water Resources Bulletin* 27(2): 217–226.
- Holloway, G.L., and W.P. Smith. 2011. A meta-analysis of forest age and structure effects on northern flying squirrel densities. *The Journal of Wildlife Management* 75: 668–674.
- Hoover, J.P., M.C. Brittingham, and L.J. Goodrich. 1995. Effects of forest patch size on nesting success of wood thrush. *Auk* 112:146-155.
- Hubbart, J.A., T.E. Link, J.A. Gravelle, and W.J. Elliot. 2007. Timber harvest impacts on water yield in the continental/maritime hydroclimatic region of the United States. *Forest Science* 53(2): 169–180.
- Hudson, R. 2001. Roberts Creek Study Forest: preliminary effects of partial harvesting on peak streamflow in two S6 Creeks. Forest Research Extension Note EN-007, Hydrology, March 2001. Vancouver Forest Region, Nanaimo, BC, Canada.
- Huff, D.D., S.T. Lindley, B.K. Wells, and F.Chai. 2012. Green Sturgeon distribution in the Pacific Ocean Estimated from Modeled Oceanographic Features and Migration Behavior. *PLOS ONE* Vol. 7, Issue 9: 1–12 (e45852).
- Hupp, J.W., J.I. Hodges, Jr., B.P. Conant, B.W. Meixell, and D.J. Groves. 2010. Winter distribution, movements, and annual survival of radiomarked Vancouver Canada geese in southeast Alaska. *Journal of Wildlife Management* 74:274–284.
- IOC (Intergovernmental Oceanographic Commission). 2007. Ocean Carbon Sequestration: A Watching Brief of the Intergovernmental Oceanographic Commission of UNESCO and the Scientific Committee of Ocean Research. Version 2. January 2007.
- ISLES. 2009 ISLES program website http://www.msb.unm.edu/mammals/ISLES_website_final_20091028/isles_home.html. Accessed October 2011.
- Iverson, C. 1997. Summary of the 1997 Alexander Archipelago wolf risk assessment panel. Memo to Tongass Land Management Plan (TLMP) planning file. USDA Forest Service, Tongass National Forest. May 7, 1997.
- Iverson, G.C., G.D. Hayward, K. Titus, E. DeGayner, R.E. Lowell, D.C. Crocker-Bedford, P.F. Schempf, and J. Lindell. 1996. Conservation assessment for the Northern Goshawk in southeast Alaska. USDA Forest Service Publication PNW-GTR-387
- Jacobson, Rich (Transportation Planner, Tongass National Forest). 2011a. Personal telephone communication with Rich Reeves.
- Jacobson, Rich. 2011b. Personal communication concerning road storage bid prices. Prince of Wales Transportation Planner.

- James, C. 2013. Watershed resource report, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Johnson, A.C., and R.T. Edwards. 2002. Physical and chemical processes in headwater channels with red alder. In: A.C. Johnson, R.W. Haynes, and R.A. Monserud, eds. *Congruent Management of Multiple Resources: Proceedings From The Wood Compatibility Initiative Workshop*. Gen. Tech. Rep. PNW-563. Portland, OR. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 101-108.
- Johnson, C.A., J.M. Fryxell, I.D. Thompson, and J.A. Baker. 2009. Mortality risk increases with natal dispersal distance in American martens. *Proceedings of the Royal Society B: Biological Sciences*.
- Jones, J.A. 2000. Hydrologic processes and peak discharge response to forest removal, regrowth, and roads in 10 small experimental basins, western Cascades, Oregon. *Water Resources Research* 36 (9): 2621-2642.
- Jones, J.A., and G.E. Grant. 1996. Peak Flow Responses to Clear-cutting and Roads in Small and Large Basins, Western Cascades, Oregon. *Water Resources Research* 32(4):959-974.
- Julin, K.R. 1997. Assessments of wildlife viability, old-growth timber volume estimates, forested wetlands, and slope stability. General Technical Report PNW-GTR-392. U.S. Department of Agriculture, Pacific Northwest Research Station, Portland, OR.
- Julin, K.R., and D. D'Amore. 2003. Tree growth on forested wetlands of southeastern Alaska following clearcutting. *Western Journal of Applied Forestry* 18 (1):30-34.
- Kahklen and Hartsog. 1999. Results of Road Erosion Studies on the Tongass National Forest. USDA Forest Service, Juneau Forestry Sciences Lab. 47 pp.
- Kahklen, K., and J. Moll. 1999. Measuring the Effects of Roads on Goundwater: Five case studies. USDA FS Tech. and Devel. Program. 9977 1801-SDTDC. January 1999.
- Karwan, D.L., J.A. Gravelle, and J.A. Hubbart. 2007. Effects of Timber Harvest on Suspended Sediment Loads in Mica Creek, Idaho. In: Special Issue on Headwater Forest Streams. *Forest Science* 53(2): 181-188.
- Keane, J.J., M.L. Morrison, and D.M. Fry. 2006. Prey and weather factors associated with temporal variation in Northern Goshawk reproduction in the Sierra Nevada California. *Stud. Avian Biol.* 31:85-99. Pages 85-99 In M.L. Morison, ed. *The northern goshawk: a technical assessment of its status, ecology, and management*.
- Keppeler, E.T., J. Lewis, and T.E. Lisle. 2003. Effects of forest management on streamflow, sediment yield, and erosion, Caspar Creek Experimental Watersheds. In: K.G. Renard, S.A. McElroy, W.J. Gburek, H. Canfield, and R.L. Scott (eds.), *First Interagency Conference on Research in the Watersheds, 2003 October 27-30*. Agricultural Research Service, U.S. Department of Agriculture; 77-82.
- Kimbell, A. 2009. Climate Change Considerations in Project Level NEPA Analysis. Forest Service Chief's letter to the Forest Service National Leadership Team.
- Kirchhoff, M.D., and T.A. Hanley. 1992. A quick-cruise method for assessing deer winter range in southeast Alaska. U.S. Forest Service, Habitat Hotline 92-1.

4 References and Lists

- Kissling, M.L. 2003. Effects of forested buffer width on breeding bird communities in coastal forests of southeast Alaska with a comparison of avian sampling techniques. Thesis, University of Idaho, Moscow.
- Kissling, M.L., and E.O. Garton. 2008. Forested buffer strips and breeding bird communities in southeast Alaska. *Journal of Wildlife Management* 72:674–681.
- Kline, J.D. 2006. Defining an Economics Research Program to Describe and Evaluate Ecosystem Services. USDA Forest Service, Pacific Northwest Research Station General Technical Report PNW-GTR-700. December.
- Knutzen, J. 2013. Fisheries Resource Report, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Kohira, M. 1995. Diets and summer habitat use by wolves on Prince of Wales Island, southeast Alaska. Master's thesis. University of Alaska Fairbanks, AK. As cited in Schoen, J. and D. Person. 2007. Alexander Archipelago wolf (*Canis lupus ligoni*), Chapter 6.4 in J. Schoen and E. Dovichin, eds., A Conservation Assessment and Resource Synthesis for The Coastal Forests and Mountains Ecoregion in the Tongass National Forest and Southeast Alaska. Audubon Alaska and The Nature Conservancy, March 2007.
- Kovarik, J. 2013. Karst Resource Report, Big Thorne Project. Thorne Bay Ranger District, Tongass National Forest.
- Kreutzweiser, D.P., and S.S. Capell. 2001. Fine sediment deposition in streams after selective forest harvesting without riparian buffers. *Canadian Journal of Forest Research* 31(1): 2134-2142.
- Kuletz, K.J., D.K. Marks, N.L. Naslund, N.J. Goodson, and M. Cody. 1995. Inland habitat suitability for the marbled murrelet in southcentral Alaska. Pages 141-150 in C.J. Ralph, G.L. Hunt, Jr., M.G. Raphael, and J.F. Piatt (eds), *Ecology and Conservation of the Marbled Murrelet*, General Technical Report PSW-GTR-152. Pacific Southwest Research Station, Forest Service, U.S. Dept. of Agriculture, Albany, CA.
- Landwehr, D.J. 1994. Inventory and Analysis of Landslides Caused by the October 25, 26, 1993 Storm Event on the Thorne Bay Ranger District. Ketchikan Area Watershed Group. Unpublished monitoring report.
- Landwehr, D. 1998. The Effectiveness of Standards and Guidelines in Preventing Additional Mass Movement. Ketchikan Area Watershed Group. An 89-94 KPC FEIS Monitoring Report. February 1998.
- Landwehr, D. 2011a. Implementation and Effectiveness Monitoring of Wetland Best Management Practices on the Tongass National Forest. Draft October 2011.
- Landwehr, D. 2011b. Personal communication. Email from D. Landwehr at USFS to M.J. Watson at Tetra Tech on October 13, 2011 documenting Tongass National Forest estimation of landslide initiation analysis and estimation of naturally occurring disturbances.
- Landwehr, D.J., and G. Nowacki. 1999. Statistical Review of Soil Disturbance Transect Data Collected on the Ketchikan Area, Tongass National Forest. Unpublished Monitoring Report. February.

- Larsen, D.N. 1984. Feeding Habits of River Otters in Coastal Southeastern Alaska. *Journal of Wildlife Management* 48:1446–1452.
- Laurent, T.H. 1974. The forest ecosystem of southeast Alaska: 6. Forest diseases.. Gen. Tech. Rep. PNW-GTR-023. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 36 p.
- Lewis, S.B. 2001. Breeding season diet of northern goshawks in southeast Alaska with a comparison of techniques used to examine raptor diet. Master's Thesis, Boise State University, Boise, ID.
- Lewis, S.B., K. Titus, and M.R. Fuller. 2006. Northern goshawk diet during the nesting season in southeast Alaska. *Journal of Wildlife Management* 70:1151–1160.
- Li, Q., J. Chen, B. Song, J.J. LaCroix, M.K. Bresee, and J.A. Radmacher. 2007. Areas influenced by multiple edges and their implications in fragmented landscapes. *Forest Ecology and Management* 242:99–107.
- Lindley, S.T., M.L. Moser, D.L. Erickson, M. Belchik, D.W. Welch, E.L. Rechisky, J.T. Kelly, J. Heublein, and A.P. Klimley. 2008. Marine Migration of North American Green Sturgeon. *Transactions of the American Fisheries Society* 137:182–194.
- Logan, B., USDA Forest Service. 2012. Personal communication regarding deer and wolves.
- Lowell, E.C., D.P. Dykstra, and R.A. Monserud. 2012. Evaluating Effects of Thinning on Wood Quality in Southeast Alaska. *Western Journal of Applied Forestry* 27(2):72–83.
- Luce, C.H., and B. Wemple. 2001. Introduction to the Special Issue on Hydrologic and Geomorphic Effects of Forest Roads. *Earth Surface Processes and Landforms* 26(2): 111-113.
- Maas, K.M., J.C. Still, and P.E. Bittenbender. 1992. Mineral investigations in the Ketchikan Mining District, Alaska, 1991: Prince of Wales Island and vicinity. OFR 81-92. Juneau, AK: US.
- MacDonald, S., and J. Cook. 1999. The mammal fauna of Southeast Alaska. University of Alaska Museum, Fairbanks, Alaska.
- MacDonald, S., and J. Cook. 2007. Mammals and amphibians of southeast Alaska. Special Publication Number 8. The Museum of Southwestern Biology, University of New Mexico, Albuquerque, NM.
- Malt, J., and D. Lank. 2007. Temporal dynamics of edge effects on nest predation risk for the marbled murrelet. *Biological Conservation* 140:160–173.
- Manuwal, D.A., and N.J. Manuwal. 2002. Effects of habitat fragmentation on birds in the coastal coniferous forests of the Pacific Northwest. *Studies in Avian Biology* 25:103–112.
- Marshall, T. 2013. Heritage Resource Report, Big Thorne Project. Thorne Bay Ranger District, Tongass National Forest.
- Maser, C., and Z. Maser. 1988. Interactions among squirrels, mycorrhizal fungi, and coniferous forests in Oregon. *Great Basin Naturalist* 48:358–369.

4 References and Lists

- Maser, C., and J. Sedell. 1994. *From the Forest to the Sea; the Ecology of Wood in Streams, Rivers, Estuaries, and Oceans*. St Lucie Press.
- Matlack, G.R. 1994. Vegetation dynamics of the forest edge- trends in space and successional time. *Journal of Ecology* 82:113–123.
- May, C.L., and R.E. Gresswell. 2003. Large wood recruitment and redistribution in headwater streams in the southern Oregon Coast Range, U.S.A. *Canadian Journal of Forest Research* 33(8):1352–1362.
- McClaren, E. 2003. Northern goshawk (*Accipiter gentilis laingi*) population inventory summary for Vancouver Island, British Columbia (1994-2002). Ministry of Environment, Lands and Parks, Nanaimo, B.C. as cited in USFWS (2007b).
- McClaren, E. 2004. “Queen Charlotte” goshawk. In Accounts and measures for managing Identified Wildlife - Accounts V. 2004. BC Ministry of Water, Land and Air Protection.
- McClellan, M.H. 2007. Unpublished data on file at the Juneau Forest Science Laboratory from the Alternatives to Clearcutting study provided by Pat Heuer on March 3, 2008.
- McCoy, K. 2010. Sitka black-tailed deer pellet-group surveys in Southeast Alaska 2010 Report. Alaska Department of Fish and Game, Division of Wildlife Conservation. Juneau, Alaska.
- McDowell Group. 2005. Juneau Cruise Visitor Profile 2005. Alaska Travelers Survey. Prepared for the City and Borough of Juneau. Available online at: <http://www.traveljuneau.com/downloads/ATSJuneauCruiseFinal.pdf>
- McDowell Group. 2007. Alaska Visitors Statistics Program. Alaska Visitor Volume and Profile. Summer 2006. April.
- McDowell Group. 2010. Economic Impact of Alaska’s Visitor Industry. Prepared for the State of Alaska, Department of Commerce, Community, & Economic Development. March.
- McDowell Group. 2013. Economic Impact of Alaska’s Visitor Industry 2011-2012. Prepared for the State of Alaska, Department of Commerce, Community, & Economic Development, Division of Economic Development. February.
- McGee, Katherine. 2000. Effects of Forest Roads on Subsurface and Subsurface Flow in Southeast Alaska. Thesis submitted to Oregon University.
- McNay, R.S. 1995. The Ecology of Movements Made by Columbian Black-Tailed Deer. Dissertation. University of British Columbia, Vancouver, B.C.
- McNay, R.S., and J.M. Voller. 1995. Mortality causes and survival estimates for adult female Columbian black-tailed deer. *Journal of Wildlife Management* 50: 138-146.
- McNeil, W.J. and D.C. Himsworth (eds.). 1980. Salmonid ecosystems of the North Pacific. Oregon State University Press, Corvallis, Oregon.
- Mercer, E. 2010. Population Projections, 2010 to 2034. Alaska by Age, Sex, and Race. Alaska Economic Trends. December. Pages 4–11.
- Millennium Ecosystem Assessment. 2005. Ecosystems and human wellbeing: synthesis. Washington, DC: Island Press. 137 p.

- Misund, O.A., J.T. Ovredal, and M.T. Hafsteinsson. 1996. Reactions of herring schools to the sound field of a survey vessel. *Aquatic Living Resources* 9: 5–11.
- Montgomery, D. R. 1994. Road surface drainage, channel initiation, and slope instability. *Water Resources Research* 30(6):1925–1932.
- Moore, R., and S.M. Wondzell. 2005. Physical hydrology and the effects of forest harvesting in the Pacific Northwest: A review. *Journal of the American Water Resources Association* 41(4):763–784.
- Moselle, K. 2011. Personal communication with K. Moselle (ADF&G) regarding wolves and black bears.
- Murcia, C. 1995. Edge effects in fragmented forests: implications for conservation. *Trends in Ecology and Evolution* 10:58–62.
- Neal, E.G., M. Walter, and C. Coffeen. 2002. Linking the Pacific decadal oscillation to seasonal stream discharge patterns in Southeast Alaska. *Journal of Hydrology* 263:188–197.
- Nelson, A. 2010. Survival of Prince of Wales spruce grouse in southeast Alaska. Master's thesis, University of Alaska, Fairbanks. As cited in U.S. Fish and Wildlife Service. 2010. Prince of Wales spruce grouse species assessment and listing priority assignment form.
- Nelson, C., and C. Halpern. 1995. Short-term effects of timber harvest and forest edges on ground-layer mosses and liverworts. *Canadian Journal of Botany* 83:610–620. Available online at: <http://canjbot.nrc.ca>
- Nilson, C.H., C.N. Long, and W.C. Zipperer. 1995. Effects of wildland development on forest bird communities. *Landscape and Urban Planning* 32:81–92.
- NOAA Fisheries (National Oceanic and Atmospheric Administration Fisheries Service). 2012. Pacific Herring (*Clupea pallasii*). Office of Protected Resources. <http://www.nmfs.noaa.gov/pr/species/fish/pacificherring.htm> (Accessed August 17, 2012).
- Nowacki, G., M. Shephard, P. Krosse, W. Pawuk, G. Fisher, J. Baichtal, D. Brew, E. Kissinger, and T. Brock. 2001. Ecological subsections of Southeast Alaska and neighboring areas of Canada. USDA Forest Service, Alaska Region, Technical Publication R10-TP-75.
- Oliver, C.D., and B.C. Larson. 1996. Forest Stand Dynamics, Updated Edition. John Wiley & Sons, Inc., New York. 519 pp.
- Opolka, T. 2013a. Biological Evaluation for Plants, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Opolka, T. 2013b. Botany Resource Report, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Opolka, T. 2013c. Invasive Plant Risk Assessment, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Opolka, T. 2013d. Invasive Species Resource Report, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Orsi, J.A., and H.W. Jaenicke. 1996. Marine distribution and origin of prerecruit Chinook salmon *Oncorhynchus tshawytscha*, in Southeastern Alaska. *Fisheries Bulletin* 94:48–497.

4 References and Lists

- Parrent, D.J. 2012. Tongass Sawmill Capacity and Production Report for CY 2011. Final Report. October 16. State & Private Forestry, USDA Forest Service, Alaska Region.
- Patric, J.H. 1966. Rainfall Interception by Mature Coniferous Forests of Southeast Alaska. J. of Soil and Water Conservation. November-December Issue, 1966.
- Paustian, S.J. 1987. Monitoring nonpoint source discharge of sediment from timber harvesting activities in two Southeast Alaska watersheds. In: Water Quality in the Great Land, Alaska's Challenge: Proceedings of the Alaska Chapter of the American Water Resources Association. Water Research Center-Institute of Northern Engineering, University of Alaska, Fairbanks, Report IWR-109.
- Paustian, S.J. (ed). 1992. A Channel Type User's Guide for the Tongass National Forest, Southeast Alaska. USDA Forest Service, Alaska Region. R10-TP-26, 179 pages. Note: the relevant information is also summarized in Appendix D of the Forest Plan (USDA Forest Service 2008b).
- Paustian, S.J., and D. Kelliher. 2010. A Channel Type Users Guide, by Paustian et al. revised October 2010. Technical Paper 26, U.S. Department of Agriculture, Forest Service, Alaska Region, Juneau, AK. <http://dSPACE.nitle.org/bitstream/handle/10090/20008/Channel-Type-User-Guide-Revision.pdf?sequence=16>
- Payer, D.C. 1999. Influences of timber harvesting and trapping on habitat selection and demographic characteristics of marten. Dissertation. University of Maine, Orono.
- Peacock, E., M.M. Peacock, and K. Titus. 2007. Black bears in southeast Alaska: the fate of two ancient lineages in the face of contemporary movement. *Journal of Zoology* 271:445–454.
- Person, D. 2001. Alexander Archipelago wolves: ecology and population viability in a disturbed, insula landscape. Doctoral dissertation, University of Alaska Fairbanks, AK.
- Person, D. 2010. Estimating wolf populations in southeast Alaska using noninvasive DNA sampling. Federal aid annual progress report, State wildlife grant number W-33-8. Alaska Department of Fish and Game, Division of Wildlife Conservation, Juneau, AK
- Person, D.K., and B.D. Logan. 2012. A spatial analysis of wolf harvest and harvest risk on Prince of Wales and associated islands, southeast Alaska. Final Wildlife Research Report, ADF&G/DWC/WRR-2011-1. Alaska Department of Fish and Game, Division of Wildlife Conservation, Juneau, AK.
- Person, D.K., and A.L. Russell. 2008. Correlates of mortality in an exploited wolf population. *Journal of Wildlife Management* 72:1540–1549.
- Person, D.K., and A.L. Russell. 2009. Reproduction and den site selection by wolves in a disturbed landscape. *Northwest Science* 83:211–224.
- Person, D.K., M. Kirchhoff, V. Van Ballenberghe, G.C. Iverson, and E. Grossman. 1996. The Alexander Archipelago wolf: a conservation assessment. General Technical Report PNW-GTR-384. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR.

- Peterson, K. 2012. Prince of Wales Timber Operators. Email communication between K. Petersen and M. Dadswell, Tetra Tech. February 3.
- Piatt, J.F., K.J. Kuletz, A.E. Burger, S.A. Hatch, V.L. Friesen, T.P. Birt, M.L. Arimitsu, G.S. Drew, A.M.A. Harding, and K.S. Bixler. 2006. Status review of the Marbled Murrelet (*Brachyramphus marmoratus*) in Alaska and British Columbia. U.S. Geological Survey Open-File Report 2006-1387. 258 pp.
- Piatt, J.F., K.J. Kuletz, A.E. Burger, S.A. Hatch, V.L. Friesen, T.P. Birt, M.L. Arimitsu, G.S. Drew, A.M.A. Harding, and K.S. Bixler. 2007. Status Review of the marbled murrelet (*Brachyramphus marmoratus*) in Alaska and British Columbia. U.S. Geological Survey Open-File Report 2006-1387.
- Platts, W.S. 1991. Livestock grazing. In: W.R. Meehan (ed.), Influences of forest and rangeland management on salmonid fishes and their habitats. American Fisheries Society. Special Publication 19:389–423
- Poiani, K.A., B.D. Richter, M.G. Anderson, and H.E. Richter. 2000. Biodiversity Conservation at Multiple Scales: Functional Sites, Landscapes, and Networks. *Bioscience* 50:133–146.
- Porter, B. 2008. Black bear management report of survey-inventory activities 1 July 2004–30 June 2007. P. Harper, editor. Alaska Department of Fish and Game, Juneau, AK.
- Porter, B. (ADF&G). 2012. Personal communication regarding recent wolf harvest in GMU 2.
- Prichett, M. 2006. Historic spawn herring database. Alaska Department of Fish and Game, Juneau, AK.
- Prussian, A. 2008. Sal Creek Watershed Restoration-Results and Monitoring. USDA Thorne Bay Ranger District, Tongass National Forest.
- Prussian, K. 2010. Throughfall monitoring – Prince of Wales Island, Alaska. Tongass National Forest. Unpublished Paper. Accessed at: http://www.fs.fed.us/r10/tongass/projects/tlmp/2010_monitoring_report/1021PrussianThroughfall.pdf
- Prussian, A., and B. Bair. 2006. Cobble Area Aquatic Watershed Restoration Prioritization and Rehabilitation Plan. USDA, Thorne Bay Ranger District, Tongass National Forest, April.
- Pyare, S., and W.P. Smith. 2005. Functional Connectivity of Tongass Old-Growth Reserves: An Assessment Based on Flying-Squirrel Movement Capability. Progress Report for Tongass monitoring grants, April 30.
- Pyare, S., W.P. Smith, and C.S. Shanley. 2010. Den use and selection by northern flying squirrels in fragmented landscapes. *Journal of Mammalogy* 91:886–896.
- Rabe, D. 2009. Population status of Prince of Wales spruce grouse in Southeast Alaska. Final performance report. Alaska Department of Fish and Game, Juneau. September. 8 pp.
- Ralph, C.J., and S.L. Miller. 1995. Offshore population estimates of Marbled Murrelets in California. pp. 353-360 in Ecology and Conservation of the Marbled Murrelet. Gen. Tech. Rep. PSW-GTR-152. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture.

4 References and Lists

- Raphael, M.G., K.V. Rosenberg, and B.G. Marcot. 1988. Large-scale changes in bird populations of Douglas-fir forests, northwestern California. *Bird Conservation* 3:63–83.
- Rashin, E.B., C.J. Clishe, A.T. Loch, and J.M. Bell. 2006. Effectiveness of Timber Harvest Practices for Controlling Sediment Related Water Quality Impacts. *Journal of the American Water Resources Association* 42(5):1307–1327.
- Reid, L.M., and T. Dunne. 1984. Sediment Production from Forest Road Surfaces. *Water Resources Research* 20(11): 1753–1761.
- Reid, W.V., and K.R. Miller. 1989. Keeping Options Alive: The Scientific Basis for Conserving Biodiversity. World Resources Institute, Washington, D.C.
- Reid, D.G., L. Waterhouse, P.E.F. Buck, A.E. Derocher, R. Bettner, and C.D. French. 2000. Inventory of the Queen Charlotte Islands ermine. In: L.M. Darling (ed), Proceedings of a conference on the biology and management of species and habitats at risk, Kamloops, B.C., 15–19 February 1999. Volume 1. B.C. Ministry of Environment, Lands and Parks, Victoria, B.C. and University College of the Cariboo, Kamloops, B.C. 490 pp.
- Reynolds, R.T., R.T. Graham, M.H. Reiser, R.L. Bassett, P.L. Kennedy, D.A. Boyce, Jr., G. Goodwind, R. Smith, and E.L. Fisher. 1992. Management recommendations for the northern goshawk in the southwestern United States. USDA Forest Service, Fort Collins, CO. Gen. Tech. Rep. RM-217.
- Reynolds, R.T., J.D. Wiens, and S.R. Salafsky. 2006. A review and evaluation of factors limiting northern goshawk populations. *Studies in Avian Biology* 31
- Ralph, C.J., and S.L. Miller. 1995. Offshore population estimates of Marbled Murrelets in California. pp. 353-360 in Ecology and Conservation of the Marbled Murrelet. Gen. Tech. Rep. PSW-GTR-152. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture.
- Robinson, S.K. 1992. Population dynamics of breeding Neotropical migrants in a fragmented Illinois landscape. Pages 408-418 in J.M. Hagan and D.W. Johnson, editors, Ecology and Conservation of Neotropical Migrant Landbirds. Smithsonian Institution Press, Washington D.C.
- Robinson, S.K., F.R. Thompson III, T.M. Donovan, D.R. Whitehead, and J. Faaborg. 1995. Regional forest fragmentation and the nesting success of migratory birds. *Science* 267:1987–1990.
- Russell, A.L. 1999. Habitat relationships of spruce grouse in southeast Alaska. Thesis. Texas Tech University, Dallas, TX.
- Saari, B. 2009. Logjam EIS Soil and Wetland Resources Report. USDA Forest Service, Thorne Bay Ranger District – Tongass National Forest. May.
- Saari, B. 2011. Phone call from B. Saari at USDA Forest Service to M.J. Watson at Tetra Tech on October 18, 2011 identifying Tongass National Forest methods for estimating natural disturbance.
- Salafsky, S.R., R.T. Reynolds, and B.R. Noon. 2005. Patterns of temporal variation in goshawk reproduction and prey resources. *Journal of Raptor Research* 39: 237-246.

- Salafsky, S.R., R.T. Reynolds, B.R. Noon, and J.A. Wiens. 2007. Reproductive responses of northern goshawks to variable prey populations. *Journal of Wildlife Management* 71: 2274–2283.
- Sauer, J.R., J.E. Hines, and J. Fallon. 2005. The North American Breeding Bird Survey, results and analysis 1966-2005. Version 6.2 2006. USGS Patuxent Wildlife Research Center, Laurel MD. Available online at: <http://www.mbr-pwrc.usgs.gov/bbs>
- Scheibe, J.S., W.P. Smith, J. Bassham, and D. Magness. 2006. Locomotor performance and cost of transport in the northern flying squirrel, *Glaucomys sabrinus*. *Acta Theriologica* 51:169–178.
- Scherer, R., and R.G. Pike. 2003. Management Activities on Streamflow in the Okanagan Basin: Outcomes of Literature Review and a Workshop. Forest Research and Extension Partnership.
- Schoen, J.W., and M.D. Kirchhoff. 1990. Seasonal habitat use by Sitka black-tailed deer on Admiralty Island. *Journal of Wildlife Management* 54:371–378.
- Schoen, J.W., M.D. Kirchhoff, and O.C. Wallmo. 1984. Sitka black-tailed deer/old-growth relationships in southeast Alaska: implications for management. Pages 315–319 in W.R. Meacham, T.R. Merrell, and T.A. Hanley (eds). Proceedings of the symposium on fish and wildlife relationships in old growth forests. American Institute of Fisheries Research Biologists, Juneau, AK.
- Schrader, B., and P. Hennon. 2005. Assessment of Invasive Species in Alaska and its National Forests. August 30, 2005.
- Sheets, Robert. 2012. Personal communications concerning young-growth thinning and the Big Thorne projects, 2009-2012.
- Shepherd, P., and H. Melchior. 2008. Marten. Wildlife Notebook Series, Alaska Department of Fish and Game.
- Smith, N, R. Deal, J. Kline, D. Blahna, T. Patterson, T.A. Spies, and K. Bennett. 2011. Ecosystem Services as a Framework for Forest Stewardship: Deschutes National Forest Overview. Pacific Northwest Research Station, General Technical Report PNW-GTR-852. August.
- Smith, W.P. 2005. Evolutionary diversity and ecology of endemic small mammals of southeastern Alaska with implications for land management planning. *Landscape and Urban Planning* 72:135–155.
- Smith, W.P., and D.K. Person. 2007. Estimated persistence of northern flying squirrel populations in temperate rain forest fragments of Southeast Alaska. *Biological Conservation* 137:626–636.
- Smith, W.P., S. Gende, and J.V. Nichols. 2004. Ecological correlates of flying squirrel microhabitat use and density in temperate rainforests of southeastern Alaska. *Journal of Mammalogy* 85:540–551.
- Smith, W.P., D.K. Person, and S. Pyare. 2011. Source-sinks, metapopulations, and forest reserves: conserving northern flying squirrels in the temperate rainforests of southeast

4 References and Lists

- Alaska. Pages 399–422 in J. Liu, V. Hull, A.T. Morzillo, and J.A. Wiens (eds). Sources, sinks, and sustainability. Cambridge University Press, Cambridge, U.K.
- Soule, M.E. 1983. What do we really know about extinction? As cited in N.G. Dawson, S.O. MacDonald, and J.A. Cook. 2007. Endemic mammals of the Alexander Archipelago. Chapter 6.7, Pages 1–11 in J. Schoen and E. Dovichin (eds), *The Coastal Forests and Mountains Ecoregion of Southeastern Alaska and the Tongass National Forest: a conservation assessment and resource synthesis*. Audubon and Nature Conservancy, Special Publication.
- Soule M.E., and M.A. Sanjayan. 1998. Conservation targets: Do they help? *Science* 279:2060–2061.
- Sperry, D.M. 2006. Avian nest survival in post-logging coastal buffer strips on Prince of Wales Island, Alaska. Thesis. Humboldt State University, Arcata, CA.
- Spies, T.A. 2004. Ecological concepts and diversity of old-growth forests. *Journal of Forestry* April/May:14–20.
- Stangl, J.T. 2009. Tongass National Forest project level goshawk inventory protocol. USDA Forest Service, Sitka, AK. 9 pp.
- Stathers, R.J., T.P. Rollerson, and S.J. Mitchell. 1994. Windthrow Handbook for British Columbia Forests. Ministry of Forests Research Program Working Paper 9401.
- Stenhouse, I., and S. Senner. 2005. Alaska WatchList—2005. Audubon Alaska. Anchorage, Alaska.
- Stephens, F.R., C.R. Gass, and R.F. Billings. 1968. Soils and site index in Southeast Alaska. Report Number two of the Soil-Site index Administrative Study. USDA Forest Service, Alaska Region.
- Stone, K.D., and J.A. Cook. 2000. Phylogeography of black bears (*Ursus americanus*) of the Pacific Northwest. *Canadian Journal of Zoology* 78:1218–1223.
- Sturtevant, B.R., J.A. Bissonette, and J.N. Long. 1996. Temporal and spatial dynamics of boreal forest structure in western Newfoundland: silvicultural implications for marten habitat management. *Forest Ecology and Management* 87:13–25.
- Suring, L.H., D.C. Crocker-Bedford, R.W. Flynn, C.S. Hale, G.C. Iverson, M.D. Kirchoff, T.E. Schenck, L.C. Shea, and K. Titus. 1993. A Proposed Strategy for Maintaining Well-distributed Viable Populations of Wildlife Associated with Old-growth Forests in Southeast Alaska. U.S. Department of Agriculture, Forest Service, Alaska Region; report of the interagency committee, Tongass Land Management Planning Team.
- Swanson, F.J., L. Benda, S. Duncan, G. Grant, W. Megahann, L. Reid, and F.R. Zeimer. 1987. Mass failures and other processes of sediment production in the Pacific Northwest landscapes. Pages 9–38 in Salo, E.O., and T.W. Cundy (eds.), *Proceedings, Streamside Management: Forestry – Fishery Interactions*. University of Washington, Seattle, WA.
- Swanston, D. 1969. Mass wasting in Coastal Alaska. USDA Forest Service, Pacific Northwest Forest and Range Experiment Stations, USDA Institute of Northern Forestry, Juneau, Alaska. Research Paper PNW-83.

- Swanston, D.N. 1974. The Forest Ecosystem of Southeast Alaska, 5. Soil Mass Movement, Pacific Northwest Forest and Range Experiment Station, U.S.D.A. Portland, OR. pp 2-4.
- Swanston, D. 2006. Assessment of landslide risk to the urban corridor along Mitkof Highway from planned logging of Mental Health Trust Lands. Unpubl. 19 pp.
- Swanston, D., and D. Marion. 1991. Landslide Response to Timber Harvest in Southeast Alaska. USDA Forest Service Pacific Northwest Research Station, Juneau, Alaska and USDA Forest Service Southern Forest Experiment Station, Oxford, Mississippi.
- Swanston, D.N., and W.J. Walkotten. 1969. The Effectiveness of Rooting as a Factor of Shear Strength in the Karta Soil. FS-PNW-1604:26.
- Szepanski, M.M., M. Ben-David, and V. Van Ballenberghe. 1999. Assessment of anadromous salmon resources in the diet of the Alexander Archipelago wolf using stable isotope analysis. *Oecologia* 120:327-335.
- Taylor, P.D., L. Fahrig, K. Henein, and G. Merriam. 1993. Connectivity is a Vital Element of Landscape Structure. *Oikos* 68:571-573.
- Tetra Tech and Stuntzner Engineering and Forestry. 2011a. Ratz Harbor Treatment Options Report – Prince of Wales Island Young Growth Thinning Feasibility Study & Proposed Action Development. Prepared for Tongass National Forest, USDA Forest Service.
- Tetra Tech and Stuntzner Engineering and Forestry. 2011b. Thorne Bay Northwest Treatment Options Report – Prince of Wales Island Young Growth Thinning Feasibility Study & Proposed Action Development. Prepared for Tongass National Forest, USDA Forest Service.
- Thompson, J. 2002. Turbidity Monitoring During Instream Disturbance Associated with Drainage Structure Installation – Summary Results 1999-2001.
- Thompson, J. 2013. Personal communication (email) regarding Big Thorne Road Maintenance – May 5, 2013.
- Thompson, I.D., and A.S. Harestad. 1994. Effects of logging on American martens with models for habitat management. Pages 355-367 in S.W. Buskirk, A.S. Harestad, M.G. Raphael, and R.A. Powell (eds.). *Martens, sables, and fishers: biology and conservation*. Cornell University Press, Ithaca, NY. 484 pp.
- Thompson, J., and D. Brigham. 2012. Correspondence with Chris James (hydrologist) and John Knutzen (fisheries biologist) concerning Watershed Resource Report.
- Thompson, J., and E. Tucker. 2007. Effectiveness of Best Management Practices for Water Quality, Forest Plan Monitoring – Aquatic Synthesis, Tongass National Forest, Progress Report – July 2007. Unpublished report available in Logjam planning file.
- Thurber, J.M., R.O. Peterson, T.D. Drummer, and S.A. Thomasma. 1994. Gray wolf response to refuge boundaries and roads in Alaska. *Wildlife Society Bulletin* 22:61-68.
- Titus, K., S. Lewis, W. Smith, R. Fairbanks, R. Lowell, M. Goldstein, G. Pendleton, G. Fisher, and M. Cady. 2006. Northern goshawks on the Tongass National Forest-summary of study findings related to forest management. Presentation at the Conservation Strategy Review: An Assessment of New Information since 1997. Available online at:

4

References and Lists

<http://tongass-constratreview.net/Documents/Present7-Goshawk-LocalNewInfo.pdf>
(Accessed October 2011).

- Tonina, D., C. H. Luce, B. Rieman, J.M. Buffington, P. Goodwin, S.R. Clayton, S.M. Ali, J.J. Barry, and C. Berenbrock. 2008. Hydrological response to timber harvest in northern Idaho: Implications for channel scour and persistence of salmonids. *Hydrological Processes* 22:3223–3235.
- Trudel, M., J. Fisher, J.A. Orsi, J.F.T. Morris, M.E. Thiess, R.M. Sweeting, S. Hinton, E.A. Fergusson, and D.W. Welsh. 2009. Distribution and migration of juvenile Chinook salmon derived from coded wire tag recoveries along the continental shelf of Western North America. *Transaction of the American Fisheries Society* 138: 1391–1391.
- Tucker, E., and J. Thompson. 2010. Effectiveness of Best Management Practices for Water Quality, Forest Plan Monitoring –Tongass National Forest. July 2010. Available on Forest Service FTP site:
ftp://ftp2.fs.fed.us/incoming/chugtong_r10/watershed/SWCA/TongassBMPEffectiveness/TuckerThompson2010.pdf
- Tucker, S., M. Trudel, D.W. Welch, J.R. Candy, J.F.T. Morris, M.E. Thiess, C. Wallace, and T.D. Beacham. 2011. Life history and seasonal stock-specific ocean migration of juvenile Chinook salmon. *Transaction of the American Fisheries Society* 140: 1101–1191.
- Turcotte, F., R. Courtois, R. Couture, and J. Ferron. 2000. Impact a court terme de l'exploitation forestier sur le tetras du Canada (*Falcapennis canadensis*). *Canadian Journal of Forest Research* 30: 202–210. As cited in Williamson, S.J., D. Keppie, R. Davison, D. Bureau, S. Carriere, D. Rabe, and M. Schroeder. 2008. Spruce grouse conservation plan. Association of Fish and Wildlife Agencies. Washington, D.C. 73 pp.
- U.S. Census Bureau. 2000. P8. Hispanic or Latino by Race. Summary File 1 (SF 1) 100-Percent Data. Available online at: www.census.gov.
- U.S. Census Bureau. 2011a. State & County QuickFacts. Available online at: <http://quickfacts.census.gov/qfd/index.html>
- U.S. Census Bureau. 2011b. QT-PL - Race, Hispanic or Latino, Age, and Housing Occupancy: 2010. Available online at: www.census.gov
- U.S. Census Bureau. 2012. Table 1: 2011 Poverty and Median Income Estimates – Counties. Small Area Estimates Branch. December. Available online at: <http://www.census.gov/did/www/saipe/>
- USDA Forest Service. 1982. ROS Users Guide. U.S. Government Printing Office. Available online at: http://www.fs.fed.us/cdt/carrying_capacity/rosguide_1982.pdf
- USDA Forest Service. 1993. Decision Notice and Finding of No Significant Impact for Issuing Special Use Permits for Big-Game Guide and Outfitter Services. Ketchikan Area, Tongass National Forest.
- USDA Forest Service. 1995. Landscape Aesthetics – A Handbook for Scenery Management. USDA Agriculture Handbook Number 701.

References and Lists **4**

- USDA Forest Service. 1997a. Tongass Land and Resource Management Plan Revision, Final Environmental Impact Statement, Appendix, Volume 2. R10-MB-338f. Juneau, AK: Alaska Region.
- USDA Forest Service. 1997b. Tongass National Forest Land and Resource Management Plan. R10-MB-338dd. Juneau, AK: Alaska Region.
- USDA Forest Service. 2000. Forest Service Roadless Area Conservation, Final EIS. Volume 2. Washington Office, Washington D.C.
- USDA Forest Service. 2001a. Forest Service Handbook, Alaska Region. Aquatic Habitat Management Handbook. FSH 2090.21, effective November 16, 2001. R-10 2090.21-2001-1.
- USDA Forest Service. 2001b. 36 CFR Part 294 Special Areas; Roadless Area Conservation; Final Rule. Washington, DC.
- USDA Forest Service. 2003a. Tongass Land and Resource Management Plan: Final Supplemental Environmental Impact Statement (including Vol. II: Appendix C-Part 1 and Vol. III: Appendix C-Part 2). R10-MB-481a,b,c. USDA Forest Service, Alaska Region, Juneau.
- USDA Forest Service. 2003b. Tongass National Forest – Forest Level Roads Analysis. Tongass National Forest. January 2003
- USDA Forest Service. 2003c. Tongass Land and Resource Management Plan: Final Supplemental EIS Record of Decision. R10-MB-481c. USDA Forest Service, Alaska Region, Juneau.
- USDA Forest Service. 2004a. Cobble Landscape Assessment. Tongass National Forest, R10-MB-515. September 2004.
- USDA Forest Service. 2004b. Tongass National Forest Annual Monitoring and Evaluation Report for Fiscal Year 2004. Retrieved on April 24, 2008 from http://www.fs.fed.us/r10/tongass/projects/tlmp/2004_monitoring_report/index.shtml
- USDA Forest Service. 2005a. Tongass National Forest Annual Monitoring and Evaluation Report for Fiscal Year 2005. Retrieved on April 24, 2008 from http://www.fs.fed.us/r10/tongass/projects/tlmp/2005_monitoring_report/index.shtml
- USDA Forest Service. 2005b. Landscape Character Types of the Tongass National Forest, CD Manual. Prepared by Tetra Tech. Prepared for the Tongass National Forest, Juneau.
- USDA Forest Service. 2005c. Prince of Wales Roads Analysis. Prepared by Thorne Bay Ranger District, Thorne Bay, AK.
- USDA Forest Service. 2006a. Forest Service Handbook, Alaska Region. Region 10 Soil and Water Conservation Handbook. FSH 2509.22, effective July 14, 2006. R-10 2509.22-2006-1. Retrieved on June 3, 2008 from <http://www.fs.fed.us/im/directives/dughtml/fieldfsh2000.html>
- USDA Forest Service. 2006b. Cobble Area Aquatic Watershed Restoration Prioritization and Rehabilitation Plan. Prepared Cooperatively by the Thorne Bay Ranger District, . Tongass National Forest, and TEAMS Planning Enterprise: Aaron Prussian and Brian Bair, Authors.

4 References and Lists

- USDA Forest Service. 2006c. FSM 2500, Region 10 Watershed and Air Management Manual, Supplement number R-10 2500-2006-1.
- USDA Forest Service. 2006d. North Thorne Draft Environmental Impact Statement. Unpublished draft. United States Department of Agriculture. Forest Service. Tongass National Forest. R10-MB-449. August 2006.
- USDA Forest Service. 2007a. FSM 2080 Noxious Weed Management Supplement no. R10-TNF-2000-2007-1.
- USDA Forest Service. 2007b. Forest Health Conditions in Alaska 2006. USDA Forest Service, R10-PR-11.
- USDA Forest Service. 2008a. Tongass National Forest Land and Resource Management Plan, Forest Plan. R10-MB-603b. USDA Forest Service, Alaska Region, Juneau.
- USDA Forest Service. 2008b. Tongass Land and Resource Management Plan, Plan Amendment Record of Decision. R10-MB-603a. USDA Forest Service, Alaska Region, Juneau.
- USDA Forest Service. 2008c. Tongass Land and Resource Management Plan Final Environmental Impact Statement, Plan Amendment. R10-MB-603c. USDA Forest Service, Alaska Region, Juneau.
- USDA Forest Service. 2008d. Forest Health Conditions in Alaska 2007. USDA Forest Service, R10-PR-18.
- USDA Forest Service. 2009a. Access Travel Management Plan Environmental Assessment, Prince of Wales and Surrounding Islands. USDA Forest Service, Craig and Thorne Bay Ranger Districts, Tongass National Forest.
- USDA Forest Service. 2009b. Insects and Diseases of Alaskan Forests. USDA Forest Service, Alaska Region, Technical Publication R10-TP-140.
- USDA Forest Service. 2009c. Tongass National Forest Annual Monitoring and Evaluation Report for Fiscal Year 2009. Soil and Water. Accessed at:
http://www.fs.fed.us/r10/tongass/projects/tlmp/2009_monitoring_report/200920soilwaterbmp.pdf
- USDA Forest Service. 2009d. Forest Service Alaska Region Sensitive Species List, Assessment and Proposed Revisions to the 2002 List. Tongass National Forest, Alaska.
- USDA Forest Service. 2010a. Third Programmatic Agreement Among the USDA Forest Service, Alaska Region; the Advisory Council on Historic Preservation; and the Alaska State Historic Preservation Officer regarding Heritage Resource Management on National Forests in Alaska.
- USDA Forest Service. 2010b. Outfitter-Guide Use Report, Recreation Visitor Capacity Analysis. Craig and Thorne Bay Ranger Districts. December.
- USDA Forest Service. 2011a. Tongass Limited Shipping Policy Issue Paper, April 2011
- USDA Forest Service. 2011b. 2011 Direction for Project-level Deer, Wolf, and Subsistence Analysis. September 2011.

References and Lists **4**

- USDA Forest Service. 2011c. Watershed Classification and Assessment Tracking Tool (WCATT). Database accessed at: <http://apps.fs.usda.gov/WCFmapviewer/>
- USDA Forest Service. 2011d. Watershed Condition Framework: a framework for assessing and tracking changes to watershed condition. FS-977. May 2011. Available at: http://www.fs.fed.us/publications/watershed/Watershed_Condition_Framework.pdf
- USDA Forest Service. 2011e. Tongass National Forest Annual Monitoring and Evaluation Report for Fiscal Year 2010. Soil and Water. Available online at: <http://www.fs.fed.us/r10/tongass/projects/tlmp/monitoring/monitoring.shtml>
- USDA Forest Service. 2011f. Tongass National Forest Annual Monitoring and Evaluation Report for Fiscal Year 2010. Streams – Windthrow. Available online at: <http://www.fs.fed.us/r10/tongass/projects/tlmp/monitoring/monitoring.shtml>
- USDA Forest Service. 2011g. Habitat Suitability Models for Five Sensitive Plant Species on the Tongass National Forest, Southeastern Alaska. March 31, 2011
- USDA Forest Service. 2011h. Recreation Site Use Data. Information provided by Victoria Houser, Recreation Planner, Craig Ranger District, Tongass National Forest.
- USDA Forest Service. 2012a. National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1, National Core BMP Technical Guide. FS-990a.
- USDA Forest Service. 2012b. Timber Supply and Demand: 2011. Alaska National Interest Lands Conservation Act, Section 706(a) Report to Congress; Statistical Appendix. USDA Forest Service, Alaska Region. Draft. November 16.
- USDA Forest Service. 2012c. Prince of Wales Island Current Timber Sale Purchasers. Unpublished data. January.
- USDA Forest Service. 2012d. 2011 Tongass National Forest Monitoring and Evaluation Report. USDA Forest Service, Alaska Region R10-MB-751
- USDA Forest Service. 2012e. Prince of Wales Outfitter and Guide Management Plan Decision Notice. Tongass National Forest, Craig and Thorne Bay Ranger Districts. Craig and Thorne Bay, Alaska R10-MB-743b. August.
- USDA Forest Service. 2013a. U.S. Forest Service, Alaska Region, Remaining Timber Sales Volumes and Values as of February 2013. Available online at: http://www.fs.usda.gov/detail/r10/landmanagement/resourcemanagement/?cid=fsbdev2_038785
- USDA Forest Service. 2013b. Annual Review and Update of R10 Limited Export Policy. Memorandum from Alaska Region, Regional Forester Beth Pendleton to the Forest Supervisor, Tongass National Forest. February 20.
- USDA Forest Service. 2013c. Interagency Old Growth Reserve Review, Big Thorne Project, April 2013.
- USDA Forest Service Unpublished Document. 2001. Standard Lotic PFC Checklist. Unpublished documents. Tongass National Forest, Thorne Bay Ranger District.

4 References and Lists

- USDA Forest Service Unpublished Document. 2002a. WIT Summary for North Thorne River. Unpublished document. Tongass National Forest, Thorne Bay Ranger District.
- USDA Forest Service Unpublished Document. 2002b. Standard Lotic PFC Checklist and Tier II stream Assessments. Unpublished documents. Tongass National Forest, Thorne, Bay Ranger District.
- USDA Forest Service Unpublished Document. 2010a. Standard Lotic PFC Checklist. Unpublished documents. Tongass National Forest, Thorne Bay Ranger District.
- USDA Forest Service Unpublished Document. 2010b. POW Road Repair Datasheet. Unpublished document. Tongass National Forest, Thorne Bay Ranger District.
- USDA Forest Service Unpublished Document. 2011. POW Road Repair Datasheet. Unpublished document. Tongass National Forest, Thorne Bay Ranger District.
- USFWS (U.S. Fish and Wildlife Service). 1999. The spectacled eider. Available online at: <http://alaska.fws.gov/fisheries/endangered/listing.htm>
- USFWS. 2007a. The Steller's eider. Available online at: <http://alaska.fws.gov/fisheries/endangered/listing.htm>
- USFWS. 2007b. Queen Charlotte goshawk status review. U.S. Fish and Wildlife Service, Alaska Region, Juneau Fish and Wildlife Field Office.
- USFWS. 2009. Spotlight species action plan: yellow-billed loon. Fairbanks Fish and Wildlife Field Office, Fairbanks, AK
- USFWS. 2010. Species assessment and listing priority assignment form: *Falci pennis canadensis isleibi* Prince of Wales spruce grouse. U.S. Fish and Wildlife Service, Region 7.
- USFWS. 2011. The short-tailed albatross. Available online at: <http://alaska.fws.gov/fisheries/endangered/listing.htm> (Accessed October 2011).
- USGS (U.S. Geological Survey). 2000. Correspondence to Mr. Steve Paustian by Ed Neal, Hydrologist. July 28, 2000. Available in the Logjam Timber Sale planning record.
- USGS. 2010. Correspondence to Mr. Steve Paustian by Ed Neal, Hydrologist.
- USGS. 2011. U.S. Geological Survey National Water Information Systems online records for Stations 15081497 (Staney Creek). Retrieved on September 23, 2011 from <http://waterdata.usgs.gov/nwis/>
- United Nations Environment Programme. 1991. Fourth Revised Draft Convention on Biological Diversity. United Nations Environment Programme.
- Vabo, R., K. Olsen, and I. Huse. 2002. The effect of vessel avoidance of wintering Norwegian spring spawning herring. *Fisheries Research* 58:59–77.
- Vermillion, R. 2012. Estimating Costs of the Tongass Timber Program. December.
- Vose, J., D. Peterson, and T. Patel-Weynand. 2012. Effects of Climatic Variability and Change on Forest Ecosystems: A Comprehensive Science Synthesis for the U.S. Forest Sector. U.S. Department of Agriculture Technical Report PNW-GTR-870

- Wallmo, O.C., and J.W. Schoen. 1980. Responses of deer to secondary forest succession in southeast Alaska. *Forest Science* 26:448–462.
- Walters, D., and B. Prefontaine. 2005. Stream Temperature Monitoring Report 1997–2002, Prince of Wales Island, Alaska. Unpublished report available in Logjam planning file.
- Warren, J., and R. Kreiger. 2011. Fish Harvesting in Alaska. Alaska Economic Trends. November.
- Weckworth, B.V., N.G. Dawson, S.L. Talbot, M.J. Flamme, and J.A. Cook. 2011. Going coastal: shared evolutionary history between coastal British Columbia and southeast Alaska wolves (*Canis lupus*). *PLOS ONE* 6(5):1–8.
- Weckworth, B.V., S.L. Talbot, and J.A. Cook. 2010. Phylogeography of wolves (*Canis lupus*) in the Pacific Northwest. *Journal of Mammalogy* 91:363–375.
- Weckworth, B.V., S. Talbot, G.K. Sage, D.K. Person, and J. Cook. 2005. A signal for independent coastal and continental histories among North American wolves. *Molecular Ecology* 14:917–931.
- Wemple, B.C., J.A. Jones, and G.E. Grant. 1996. Channel Network Extension by Logging Roads in Two Basins, Western Cascades, Oregon. *Water Resources Bulletin* 32(6):1195–1207. American Water Resources Association.
- WFLHD (Western Federal Lands Highway Division). 2008. Phase I Site Assessment Data Report – FS 3030 Road. Water Quality Assessment. Project number 14481. Federal Highway Administration, Vancouver, Washington. 137 pp.
- White, E.M., and D.J. Stynes. 2010. Characterization of Resident and Non-resident Visitors to Alaska National Forests. USDA Forest Service Pacific Northwest Research Station and Oregon State University.
- White, K.S., G.W. Pendleton, and E. Hood. 2009. Effects of snow on Sitka black-tailed deer browse availability and nutritional carrying capacity in southeastern Alaska. *Journal of Wildlife Management* 73:481–487.
- Widen, P. 1997. How, and why, is the goshawk (*Accipiter gentilis*) affected by modern forest management in Fennoscandia? *Journal of Raptor Research* 31:107–113.
- Wilcove, D.S. 1987. From fragmentation to extinction. *Natural Areas Journal* 7:23–29.
- Wilcove, D.S., C.H. McLellan, and A.P. Dobson. 1986. Habitat fragmentation in the temperate zone. Pages 237–256 in M.E. Soulé (ed). *Conservation biology: the science of scarcity and diversity*. Sinauer Associates, Inc., Sunderland, Massachusetts.
- Wilcox, M. 2013. Personal communication with Julianne Thompson concerning ARD limestone mitigation. April 28, 2013.
- Williamson, S.J., D. Keppie, R. Davison, D. Bureau, S. Carriere, D. Rabe, and M. Schroeder. 2008. Spruce grouse conservation plan. Association of Fish and Wildlife Agencies. Washington, D.C. 73 pp.
- Willson, M.F., and K.C. Halupka. 1995. Anadromous Fish as Keystone Species in Vertebrate Communities. *Conservation Biology* 9(3):489–497.

4 References and Lists

- Wipfli, M.S., and D.P. Gregovich. 2002. Export of invertebrates and detritus from fishless headwater streams in southeastern Alaska: implications for downstream salmonid production. *Freshwater Biology* 47: 957–969.
- Wissmar, R.C., D.N. Swanston, M.D. Bryant, and K. McGee. 1997. Factors Influencing Stream Chemistry in Catchments on Prince of Wales Island, Alaska. *Freshwater Biology* 38: 301–314.
- With, K.A. 1999. Is landscape connectivity necessary and sufficient for wildlife management? Pages 97-115 in J.A. Rochelle, L.A. Lehman, and J. Wisniewski (eds.), *Forest fragmentation: Wildlife and management implications*. Leiden, The Netherlands.
- Woock, B. 2013a. Wildlife and Subsistence Resource Report, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Woock, B. 2013b. Biological Assessment & Biological Evaluation – Wildlife and Fish, Big Thorne Project. Tetra Tech EC, Inc. Prepared for Thorne Bay Ranger District, Tongass National Forest.
- Wood, R.E. 1990. Black bear survey-inventory progress report. Pages 1-6 in S.O. Morgan, ed. Annual report of survey-inventory activities. Part IV. Black bear. Volume XX. Alaska Department of Fish and Game Federal Aid in Wildlife Restoration Progress Report. Project W-23-2, Study 17.0. Juneau, AK.
- Woodsmith, R.D., J.R. Noel, and M.L. Dilger. 2005. An approach to effectiveness monitoring of floodplain channel aquatic habitat: channel condition assessment. *Landscape and Urban Planning* 72: 177–204.
- Yeo, J.J., and J.M. Peek. 1992. Habitat selection by female Sitka black-tailed deer in logged forests of southeastern Alaska. *Journal of Wildlife Management* 56:253–261.

Index

- access, 1-20
- Access Travel Management (ATM) Plan, 1-20, 3-441 to 3-452
- acid rock drainage (ARD), 2-15, 2-16, 3-268, 3-284, 3-302 to 3-311
- air quality, 3-11
- Alaska yellow-cedar, 2-4, 2-19, 2-20, 3-417, 3-418
- alternative development, 2-1, 2-2, 2-5,
- best management practices (BMPs), 2-16, 2-17, 3-269 to 3-210, 3-356 to 3-363
- biodiversity, 3-103 to 3-109, 3-138 to 3-151
- biogeographic province, 3-4
- black bear, 1-13, 3-120, 3-121, 3-200 to 3-206
- cavity-nesting birds, 2-3, 3-121, 3-122, 3-206 to 3-211
- changes between Draft and Final EIS, 2-1 to 2-5
- climate change, 2-4, 3-333, 3-336
- Coffman Cove, 1-2, 1-3, 3-13, 3-439, 3-516 to 3-521
- corridors (animals and plants), 3-151 to 3-165
- Craig, 3-13, 3-14, 3-516 to 3-521
- deer, 1-13, 1-14, 2-3 2-23, 2-24, 3-96, 3-102, 3-110 to 3-118, 3-165 to 3-191
- design criteria, 2-13 to 2-18
- ecosystem services, 3-521 to 3-524
- endemic species, 3-126, 3-127, 3-224 to 3-227
- environmental justice, 3-527, 3-528
- essential fish habitat, 3-352 to 3-355
- fisheries, 2-12, 2-15, 2-16, 3-44, 3-50, 3-87 to 3-89, 3-242, 3-257, 3-258, 3-293, 3-294, 3-337 to 3-355
- forest health and productivity, 3-415 to 3-418, 3-429 to 3-431
- Forest Plan, 1-15 to 1-19, 3-45 to 3-49
- game management unit, 3-2
- goshawk, 1-13, 1-14, 2-3, 2-24, 3-96, 3-132 to 3-135, 3-229 to 3-240
- heritage resources, 3-511 to 3-515
- Hollis, 3-14, 3-516 to 3-521
- incomplete and unavailable information, 3-11
- invasive plants, 2-4, 2-15, 3-2, 3-397 to 3-409
- inventoried roadless areas, 1-12, 1-15, 1-16, 2-5 to 2-12, 3-2, 3-44, 3-107, 3-109, 3-119, 3-120, 3-125, 3-152 to 3-163, 3-196, 3-198, 3-216 to 3-219, 3-493 to 3-507
- irreversible and irretrievable commitments, 3-530
- issues, 1-11 to 1-15
- karst, 3-312 to 3-317
- Kasaan, 3-14, 3-15, 3-516 to 3-521
- Klawock, 3-15, 3-516 to 3-521
- land status, 3-12
- land use designations (LUDs), 1-15 to 1-19, 2-7 to 2-11, 3-44, 3-45, 3-51, 3-52, 3-63 to 3-65, 3-74 to 3-76
- legacy forest structure, 2-7, 2-8, 2-12, 2-13, 2-15, 3-46

4 References and Lists

- logging system, 3-17, 3-22 to 3-27, 3-39 to 3-42, 3-81
- management indicator species (MIS), 3-97, 3-110 to 3-123, 3-165 to 3-213
- marbled murrelet, 3-123, 3-213, 3-214
- marine access facilities (MAF), 2-16, 3-439
- marten, 1-13, 1-14, 2-24, 3-96, 3-118 to 3-120, 3-191 to 3-200
- migratory birds, 3-128, 3-129, 3-227 to 3-229
- mitigation, 2-13 to 2-17
- monitoring, 2-13 to 2-18
- off-highway vehicles (OHVs), 3-441, 3-443, 3-452 to 3-454, 3-459 to 3-473
- Old-growth Reserves, 1-12, 1-13, 2-3, 2-7 to 2-12, 2-19, 3-44 to 3-95
- Naukati Bay, 3-15, 3-16, 3-516 to 3-521
- past harvest, 3-4, 3-5
- patch size and fragmentation, 2-23
- preferred alternative, 2-13
- Prince of Wales flying squirrel, 3-123 to 3-125, 3-215 to 3-221
- Prince of Wales spruce grouse, 3-125, 3-126, 3-221 to 3-224
- productive old growth (POG), 2-23, 3-101, 3-102, 3-410 to 3-423
- project record, 1-22
- proposed action, 1-5, 1-6, 2-6, 2-7
- public involvement, 1-6 to 1-10
- purpose and need, 1-4, 1-5
- reasonably foreseeable projects, 3-5 to 3-11
- recreation, 2-4, 3-51, 3-93 to 3-95, 3-453 to 3-474
- restoration, 3-8, 3-9
- roads, 2-4, 2-7, 2-8, 2-12 to 2-14, 2-16, 2-18, 2-22, 3-29 to 3-31, 3-402, 3-403, 3-406, 3-436 to 3-452, 3-485
- scenery, 2-4, 3-51, 3-92 to 3-93, 3-475 to 3-492
- scenic integrity objectives, 3-478 to 3-489
- scoping, 1-6, 1-7
- sensitive and rare plants, 2-4, 2-15, 3-50, 3-92 to 3-93, 3-371 to 3-396
- short-term uses and long-term productivity, 3-529
- small timber sales, 2-20, 3-32, 3-33
- soils, 2-4, 3-18 to 3-32
- sort yard, 2-16
- stewardship opportunities 1-19, 1-20, 2-2, 3-7 to 3-10
- subsistence, 2-10, 2-23, 2-24, 3-50, 3-51, 3-96 to 3-103, 3-135 to 3-138, 3-240 to 3-256
- subsistence findings, 3-255 to 3-256
- subsistence hearings, 1-10, 1-11
- suitable forest land, 3-81 to 3-87, 3-410 to 3-413
- Thorne Bay, 1-2, 1-3, 3-12, 3-13, 3-439, 3-453 to 3-463, 3-476 to 3-478, 3-516 to 3-521, 3-527
- Threatened, endangered, and sensitive species, 3-129 to 3-132, 3-229 to 3-232, 3-354, 3-355, 3-371
- timber economics, 1-12, 2-3, 2-7, 2-8, 2-20 to 2-22, 3-17 to 3-43, 3-451 to 3-452
- timber harvest, 2-4, 2-7, 2-8, 2-10, 2-12, 2-21, 3-23 to 3-29, 3-333 to 3-336, 3-401, 3-402, 3-418 to 3-435, 3-485
- timber jobs, 2-22, 3-19 to 3-22, 3-35 to 3-43, 3-519 to 3-526
- Timber Sale Program Adaptive Management Strategy, 1-18, 1-19, 3-33
- timber supply, 1-12, 2-3, 2-7 to 2-9, 3-17 to 3-43, 3-81 to 3-87
- unavoidable adverse effects, 3-531

value comparison unit (VCU), 3-1

Vancouver Canada goose, 3-122 to 3-123,
3-211 to 3-213

vegetation, 3-101, 3-102, 3-410 to 3-418

visual priority routes and use areas, 3-475
to 3-478

watersheds, including cumulative effects, 1-
14, 2-4, 2-12, 2-13, 2-16, 2-25, 3-2,
3-257 to 3-311

wetlands, 2-4, 3-356 to 3-370, 3-444, 3-445

wilderness, 2-5, 3-493 to 3-507

wild and scenic rivers, 1-17, 1-18, 2-5, 3-
508 to 3-510

wildlife analysis area, 3-2, 3-3

wildlife habitat, 1-13, 1-14, 2-3, 2-10 to 2-
12, 3-96 to 3-240

windthrow, 2-14, 3-319, 3-320, 3-349, 3-
353, 3-416, 3-417, 3-419 to 3-422, 3-
425, 3-426, 3-432 to 3-435

wolf, 1-14, 3-102, 3-113 to 3-118, 3-176 to
3-191

young growth, 2-21, 3-17, 3-24, 3-410 to 3-
415, 3-424 to 3-426