

Research

Goal: Continue to seek out and promote research opportunities that are consistent with identified information needs.

Objective: Cooperate with Pacific Northwest Forest Experiment Station (PNW) in pursuing the high priority information needs identified in Appendix B of the Forest Plan through the intra-agency agreement entitled "Joint Studies for Improved Future Tongass National Forest Planning" and other means, such as recommendations from the Forest Leadership Team.

Background: Appendix B of the Forest Plan identifies priority research important for further Forest Plan amendment or revision, and lists additional data and information needs that will help to implement the Forest Plan. While not essential to the completion of the Forest Plan, results of the priority research items will substantially strengthen the scientific information base needed to support alternative development. An important element of the priority research items and additional information needs is an "adaptive management" feedback loop to evaluate current plan direction, design monitoring programs to measure effects, and adjust future management activities to better address economic, social, and environmental concerns on the Tongass.

Research Question: Have identified high-priority information needs been fulfilled?

Monitoring Results

As mentioned in the 2004 Monitoring Report, most of the high priority information needs listed in Appendix B of the 1997 Forest Plan have been met or are well on the way of being met. The 2003 and 2004 Monitoring Reports listed the research publications that came from studies related to the ten priority needs listed in Appendix B of the 1997 Tongass National Forest and Resource Management Plan. The Tongass Leadership Team, in cooperation with the Pacific Northwest Forest Experiment Station (PNW), developed additional research needs on October 10, 2002. Refer to the 2003 Tongass Monitoring Report for a complete list of these new research needs.

The research results developed from these needs will contribute to substantially strengthening the scientific information base needed to support alternative plan development. The research will contribute to the adaptive management feedback loop for the Forest. This feedback will contribute information to evaluate the current plan direction, design monitoring programs, and adjust future management to better address economic, social and environmental concerns.

The following is some of the recent work and publications from these additional needs in various disciplines for the Tongass:

A. Geology

In 1997, James F. Baichtal gave a presentation at the National Cave Management Symposium describing the karst resource on the Tongass National Forest and the methods the Forest was using to protect the resource.

Papers

1. *Application of a karst management strategy: two case studies from the Tongass National Forest, Southeastern Alaska, the challenges of implementation.* 1997 National Cave Management Proceedings.
2. Hendrickson, Melissa. 2006. *The influence of organic acids on limestone dissolution: Tongass National Forest, Alaska.* A master's thesis. Western Kentucky University. Directed by James Baichtal and others.

B. Forestry

The Heceta Island commercial thinning study has been dropped for now. There is a demonstration forest being set up at Winter Harbor on Prince of Wales Island. This demonstration Forest will exhibit various thinning regimes. Another project is the Tongass-Wide Young-Growth Study or TWYGS. This project is designed to test whether silviculture treatments, applied at various stages of stand development, are effective in improving understory plant diversity and abundance, deer forage, and wood quality. A secondary objective is to assess the accumulation and subsequent decay of slash created by thinning and pruning treatments. So far four experiments have been implemented at a total cost of approximately \$3 million. Examinations of the experimental units will be conducted on five – year intervals following treatment, beginning in 2007.

Publications

1. Hanley, Thomas A.; Deal, Robert L.; Orlikowska, Ewa H. 2006. *Relations between red alder composition and understory vegetation in young mixed forests of southeast Alaska.* Canadian Journal of Forest Reserves, Vol. 36: 738-748.
2. Van Hees, Willem W.S.; Mead, Bert R. 2005. *Extensive, strategic assessment of southeast Alaska's vegetative resources.* Landscape and Urban Planning. 72: 25-48.
3. Caouette, John P.; DeGayner, Eugene J. 2005. *Predictive mapping for tree sizes and densities in southeast Alaska.* Landscape and Urban Planning. 72: 49-63.

C. Economic

Publications

1. Brackley, Allen M.; Parrent, Daniel J.; Rojas, Thomas D. 2006. *Estimating sawmill processing capacity for Tongass timber: 2003 and 2004 update* Res. Note. PNW-RN-553. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 18 p.
2. Brackley, Allen M.; Rojas, Thomas D.; Haynes, Richard W. 2006. *Timber products output and timber harvests in Alaska: projections for 2005-25.* Gen. Tech. Rep. PNW-GTR-677. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 33 p.
3. Crone, Lisa K. 2005. *Southeast Alaska economics: a resource-abundant region competing in a global marketplace.* Landscape and Urban Planning 72. 215-233.

4. Kelsey, Rick G.; Hennon, Paul E.; Huso, Manuela; Karchesy, Joseph G. 2005. *Changes in heartwood chemistry of dead yellow-cedar trees that remain standing for 80 years or more in southeast Alaska*. Journal of Chemical Ecology, Vol. 31(11): 2653-2670.
5. Nicholls, David L.; Brackley, Allen M.; Rojas, Thomas D. 2006. *Alaska's lumber-drying industry – impacts from a federal grant program*. Gen. Tech. Rep. PNW-GTR-683. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 23 p.
6. Pilz, David; Alexander, Susan J.; Smith, Jerry; Shroeder, Robert; Freed, Jim. 2006. *Non-timber forest product opportunities in Alaska*. Gen. Tech. Rep. PNW-GTR-671. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research station. 79p.
7. Roos, Joseph; Nicholls, David L. 2006. *Domestic market opportunities for Alaska lumber-species preferences by secondary wood products manufacturers in the continental United States*. Res. Note. PNW-RN-550. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research station. 13 p.

D. Social

Publications

1. Boyce, Douglas A. Jr.; Szaro, Robert C. 2005. *An overview of science contributions to the management of the Tongass National Forest, Alaska*. Landscape and Urban Planning. 72: 251-263.
2. Cerveny, Lee K. 2005. *Tourism and its effects on southeast Alaska communities and resources: case studies from Haines, Craig, and Hoonah, Alaska*. Res. Pap. PNW-RP-566. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 58p.
3. Kruger, Linda E. 2005. *Community and landscape change in southeast Alaska*. Landscape and Urban Planning. 72: 235-249.
4. Kruger, Linda E.; Mazza, Rhonda L. 2006. *Alaska communities and forest environments: a problem analysis and research agenda*. Gen. Tech. Rep. PNW-GTR-665. Portland, OR: U. S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 58p.
5. Mazza, Rhonda; Kruger, Linda E., tech. Eds. 2005. *Social conditions and trends in southeast Alaska*. Gen. Tech. Rep. PNW-GTR-653 Portland, OR: U. S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 91 p.

E. Wildlife

See the Forestry section concerning the TWYGS project that benefits wildlife and timber. Also, on April 10 to 14, 2006 the Forest Service held a Conservation Strategy Review in Ketchikan. This was a meeting to determine the status of wildlife research needs determined in the 1997 Forest Plan record of Decision. The results of this workshop are still being processed.

Some of the thoughts heard in this meeting are that the Conservation strategy is still sound. There is a low risk of species viability problems related to Forest Plan implementation. Endemic species continues to be a high priority information need. There is a good opportunity to manage habitats to emphasize production of prey species or other foods. Management of young-growth forests for wildlife habitat is promising, especially for species like black-tailed deer. There is a need to better understand the role and management of the Matrix part of the Strategy, including the role of non-National Forest System lands and the wildlife monitoring program needs to be updated.

Publication

Farmer, Christopher J.; Person, David K.; Bowyer, R. Terry. 2006. *Risk factors and mortality of black-tailed deer in a managed forest landscape*. Journal of Wildlife Management. Article. pp 1403-1415 vol. 70, issue 5.

F. Fisheries

Publication

Thompson, Jonathon 2006. *Does it work? Monitoring the effectiveness of stream management practices in Alaska*. Science Findings 87. Portland, OR: U.S. Department of Agriculture, Forest service, Pacific Northwest Research Station. 5p.

G. Hydrology

The Pacific Northwest Forest Research Station has been doing research on nutrients and carbon in the soils of Southeastern Alaska and their effects on the water in these same areas. Two of the papers that have come from this work have been given at scientific meetings. The first paper by Dave D'Amore, Jerry Pellman, Rick Edwards, Eran Hood, and Bob Lange was presented in the fall of 2004 at the American Geophysical Union meeting. It was titled, *Carbon storage in wetland soils and export to streams in Southeast Alaska*. The second paper was presented in 2006 at the international meeting of the American Society of Agronomy, the Crop Science Society of America, and the Soil Science Society joint meeting. It was titled, *Dissolved organic matter dynamics from pedons¹ to watersheds in the coastal, temperate, rainforest of Southeastern Alaska*. This paper was written by the same people as the first paper minus Bob Lange.

Action Plan

The Tongass National Forest and the PNW will continue the studies related to these additional needs.

¹ The smallest unit or volume of soil that contains all the soil horizons of a particular soil type, usually having a surface area of 10.76 square feet or approximately 1 square meter and extending from the ground surface down to bedrock. (American Heritage Dictionary)