



USDA FOREST SERVICE

TONGASS NATIONAL FOREST

2010 Annual Monitoring & Evaluation

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INSIDE THIS REPORT

PHYSICAL AND BIOLOGICAL	2-9
HUMAN USES AND LAND	10-15
ECONOMIC AND SOCIAL	15-16
AMERICAN RECOVERY AND REINVESTMENT ACT	16

MONITORING OVERVIEW

The Tongass National Forest (Tongass) web site contains the 2010 Tongass National Forest Monitoring and Evaluation Report. An annual written summary of forest-wide monitoring programs is specified in Chapter 6 of the 1997 Tongass Land Management Plan (TLMP). This report summarizes specific monitoring that was completed during fiscal year 2010 (FY2010).

The monitoring report can be found on the Tongass web site under Projects and Plans. A full reference report for each [question](#) is available by hyperlink.

Some of the monitoring protocols changed in 2008 with the issuance of the Record of Decision for the Tongass Land and Resource Management Plan (Forest Plan) Amendment. This plan amendment was completed in January 2008. Monitoring questions were changed to help the

Forest better define and focus monitoring work.

Monitoring efforts are currently underway for most of the questions in this report. In some cases, monitoring protocols are still being developed. A comprehensive description of results for

each question will follow the fifth year of monitoring in 2013.

If you have questions or comments about this report, please contact Carol Seitz-Warmuth at the Ketchikan Forest Supervisor's Office, 907-228-6341.



SPECIAL POINTS OF INTEREST:

- **Snowpack in Southeast Alaska. Pg 2**
- **Tale of Two Cedars. Pg 3**
- **Chief's 10-year Wilderness Stewardship Challenge (WSC). Pg 13**

MONITORING AND EVALUATION PROGRAM

Monitoring and evaluation is a quality control process for implementation of the Tongass Forest Plan. It provides the public, the Forest Service, and other concerned resource agencies with information on the progress and results of plan implementation. As such, monitoring and evaluation comprise an essential feedback mechanism within an adaptive management framework to keep the Forest Plan dynamic and responsive to changing conditions. The evaluation process also provides feedback that can

trigger corrective action, adjustment of plans and budgets, or both, to facilitate feasible and meaningful action on the ground.

The Forest Supervisor is responsible for coordinating the preparation of the annual monitoring and evaluation report. This report summarizes the monitoring activities conducted during the year and the results obtained. It addresses and evaluates each of the questions listed in the monitoring plan at the reporting period identified. Generally, the annual re-

port focuses on the information gathered during the year and identification of issues requiring immediate attention, while a more comprehensive evaluation process takes place every fifth year. The evaluation includes recommendations for remedial action, if necessary, to make management activities and their effects consistent with the Forest Plan. Specific recommendations for corrective action depend on the risk to the resource and type of disparity discovered.

PHYSICAL AND BIOLOGICAL ENVIRONMENT

1. AIR QUALITY

Is air quality being maintained?

In 2010, the protocols to answer the Forest Plan Air question were developed and finalized. Juneau remains a maintenance area for particulate matter less than or equal to 10 micrometers (PM₁₀). Juneau is just within the limit for PM_{2.5} if proposed higher standards are adopted by the EPA in 2011. No lichen biomonitoring plots were established in 2010. Data were received in FY2010 for lichen tissue

analysis from the University of Minnesota for the 2008 and 2009 field season.

Eight of the 17 plots or collection areas with lichen tissue collected in 2008 and 2009 are above Tongass thresholds for nitrogen (N) and sulfur (S). Sitka plots near the vacant pulp mill remain above threshold for certain contaminants, including heavy metals. Suspected sources of elevated N and S on the Tongass National Forest include marine vessels in wilderness and the White

Pass train at the Laughton Glacier recreation area. Mercury is a growing concern in Alaska. Lichen data containing mercury (Hg) concentrations was provided to Alaska Department of Environmental Conservation by request.

[Reference report](#)



Air quality monitoring locations



2. CLIMATE CHANGE

What are the long-term changes to the permanent snowpack and how does it affect the physical and biological environment?

Permanent snowpack in the form of glaciers and permanent snowfields provides a long-term indicator of trends in climate change. Effects of snowpack loss include altered stream flow and shifting habitat characteristics for fish. Efforts to quantify changes to permanent and seasonal snowpack are conducted in cooperation with the Natural Resource Conservation Service (NRCS)

and the US Geological Survey (USGS). Additional geospatial information is currently being gathered by various agencies and universities. Tongass National Forest staff largely utilize climate and physical data from external sources for climate change-related analyses.

Forest staff continue to define the scale of monitoring necessary to answer this question.

Current monitoring includes:

- Seasonal snowpack collec-

tion at 7 Snow Course sites.

- Automated collection of snowpack data at 3 Snotel sites
- Stream flow data collection Tongass-wide by USGS

[Reference report](#)



The Eaglecrest snow survey site has been measured since 1977.

For more information on all snow survey sites in Southeast Alaska, visit:

www.ak.nrcs.usda.gov/Snow/southeast.html

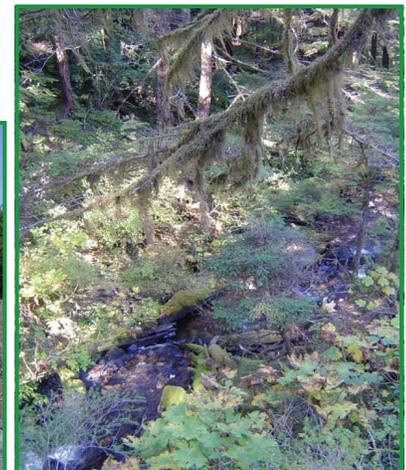
3. BIODIVERSITY

Are harvested forest lands restocked within 5 years after harvest?

The 2008 Forest Plan requires that all harvested stands be restocked within 5 years of timber harvest. Typically, natural regeneration occurs on more than 95% of harvested stands. If natural restocking does not occur, artificial regeneration is required. All stands

harvested in 2005, including 527 acres in Yakutat in 2004, were certified as restocked in FY2010 or an earlier fiscal year.

[Reference report](#)



4. BIODIVERSITY

Following young-growth treatments, is the change in understory vegetation providing improved habitat for key old-growth associated species?

An estimated 198,740 acres of young-growth have been thinned since FY1964. Approximately 16,104 of these acres were thinned for wildlife or riparian habitat restoration. In FY2010, approximately 372 acres of young-growth were thinned specifically to improve wildlife habitat and an estimated 55 acres were thinned for riparian habitat restoration.

TWYGS: Tongass-wide Young-Growth Studies

TWYGS experiments 2, 3, and 4 were measured 5 years after treatment in 2007, 2008, and 2010 respectively. Forest Sciences Lab has completed analysis of understory data. Plant species biomass, percent cover and overstory canopy cover were analyzed in the Forage Resource Evaluation System for Habitat for Deer (FRESH-Deer) to determine the deer habitat capability of each treatment based on food availability and its nutritional quality, season, reproductive

status, and snow depth.

Small Mammal Response to Young-Growth Treatments

Field work on this cooperative project with the University of Wyoming started summer, 2010. Live-trap sampling grids were established in TWYGS treatment and control (unthinned young-growth) stands, unlogged old-growth stands, and in clear-cuts. Baited live-traps were used to target small mammals and ermine. Baited hair snares were used to “capture” marten.

Reference report



Commercial thinning of young-growth on Kosciusko Island

5. BIODIVERSITY

Are young-growth treatments improving other key habitat components for old-growth associated species?

Efforts are underway to assess the effectiveness of young-growth treatments of the Tongass.

Researchers from the University of Wyoming, in cooperation with the Forest Service, will be leading an effort to evaluate small mammal responses to thinning in conjunc-

tion with the Tongass-Wide Young-Growth Studies (TWYGS). Study objectives include assessing which TWYGS treatments and responsive variables and other habitat variables not measured in TWYGS are most effective in enhancing the abundance of small mammals. Data will be used to develop a predictive model of small mammal responses to thinning and to evaluate the response of ermine and marten.

Staff plan to develop a process to summarize and monitor completed young-growth treatments to assess if they are meeting wildlife objectives and improving key habitat components for old-growth associated species.

There is not enough information available, at this time, to assess how young-growth treatments are affecting other key habitat components.

Reference report

DIG DEEPER

Forage Resource Evaluation System for Habitat for Deer (FRESH-DEER) evaluates habitat quality for Sitka black-tailed deer based on the quality of available food.

<http://cervid.uaa.alaska.edu/deer/Home.aspx>

Proceedings: A Tale of Two Cedars: International Symposium on Western Redcedar and Yellow-Cedar

http://www.fs.fed.us/pnw/pubs/pnw_gtr828.pdf

6. INSECTS AND DISEASE

Are destructive insects and disease organisms increasing to potentially damaging levels following management activities?

The Forest Service’s State and Private Forestry, Forest Health Group, conducts annual aerial detection surveys over Southeast Alaska. The location of insect and disease activity is mapped and entered in a geographic information system (GIS) database. In addition to the aerial survey work, on-the-ground site visits and observations are also conducted. Forest

Inventory Plots are used to develop information on extent and impact of diseases such as dwarf mistletoe. Ground observations and inventory plots are used because some agents cannot be detected from the air or by remote sensing. In general, current management reduces the incidence and severity of insect and disease occurrence by removing infected trees through timber harvest.

The most important diseases and natural declines on the Tongass National Forest are wood decay of live trees, hem-

lock dwarf mistletoe, and yellow-cedar decline. Heart and butt rot fungi cause substantial decay in late seral spruce-hemlock forests.

Currently, there are no serious insect threats to old-growth stands. No serious insect or disease organisms in young-growth stands were detected through monitoring efforts. Dwarf mistletoe is present in some stands following partial harvests, but at disease levels less than occurred before harvest.

Reference report



Heart rot and bole breakage

7. INVASIVE SPECIES

What are the status and trends of areas infested by aquatic and terrestrial invasive species relative to the desired condition?

The Forest Service works with other agencies such as the Alaska Department of Fish and Game (ADF&G), to monitor aquatic invasive species, ADF&G is responsible for inventory and monitoring of Atlantic salmon.

A total of 15,517 acres were surveyed for invasive plants in project areas during FY2010. Over 127 surveys were con-

ducted on the Forest, and 22 projects had surveys conducted for planning purposes. A total of 16 invasive plant risk assessments were completed. Monitoring results suggest that invasive species are abundant along existing road systems and have the potential to spread into non-roaded areas. Invasive plants continue to be found in areas of high disturbance where human access is frequent, as well as estuaries, shorelines, and riparian areas.

An invasive plant monitoring protocol was developed to measure the spread of invasive

species and determine the effectiveness of prevention measures for meeting the desired condition. Equipment and vehicle washing to prevent the spread of invasive plants occurred on the Harris River and Snipe Creek Restoration Projects during FY2010.

[Reference report](#)



Orange hawkweed spreading throughout a dry karst overflow channel on Kosciusko Island

8. INVASIVE SPECIES

How effective were our management activities, including those done through partnerships, in preventing or controlling targeted invasive species?

Several prevention measures were identified in project plan invasive species risk assessments, including requiring vehicle washing in timber sale areas that are located in remote areas across the Forest, use of non-invasive seed mixture for revegetating disturbed areas, allowing shrubs to grow along the road corridor to inhibit growth of invasive plant spe-

cies, avoiding the use of rock material from quarries infested with invasive plants, and providing invasive plant education to outfitter-guides and the general public.

The Forest implemented its vehicle washing action plan, which was incorporated into one project plan in FY2010. A total of 222.5 acres of invasive plant treatments were completed in FY2010. Of those treatments, 218.8 acres were treated manually (hand pull or cover with black plastic) and 3.7 acres were treated using herbicides. Partnerships were

initiated with the communities of Prince of Wales Island for a formal cooperative weed management area. The Petersburg Ranger District partnered with the Alaska Department of Natural Resources to pull spotted knapweed in Kake. Spotted knapweed is one of the state's priority species for control. Consistent efforts to control invasive species are required, as is continuation of monitoring efforts.

[Reference report](#)



Hand pulling of ox-eye daisy in Windham Bay in the Chuck River Wilderness Area

9. BIODIVERSITY ECOSYSTEM

Is the old-growth habitat protected under the Forest Plan being maintained to support viable and well distributed populations of old-growth associated species and subspecies?

The maintenance of old-growth habitat and assessment of its support to viable and well-distributed populations of old-growth associated species and subspecies is determined

by assessing changes in the total acres of productive old-growth (POG) forest in the system of large, medium, and small habitat reserves (including old-growth habitat and other non-development land use designations (LUDs)). Productive old-growth (POG) is used to assess changes in biodiversity and forest condition because it is the cornerstone component of temperate rainforest ecosystems.

No changes were made to the spatial distribution, size, and composition of old-growth or other non-development LUDs in FY2010.

[Reference report](#)



10. BIODIVERSITY ECOSYSTEM

Are the effects of biodiversity shown through the cumulative change in old-growth by biogeographic province consistent with the estimates of the Forest Plan (change could include effects of timber harvest, land exchanges or conveyance, windthrow, insect and disease, climatic change, etc)?

There have been no substantial changes to Productive Old-growth (POG) habitat in the last year as a result of land exchanges or conveyance, windthrow, insect and disease, climate or other changes.

There is currently no formal method to track changes to POG forest as a result of windthrow. However, insect and disease monitoring tracks some windthrow events and this can be used as an indicator to trigger a more refined assessment of specific areas.

A total of 1,075 acres of timber were harvested from four different biogeographic provinces in FY2010. The Forest Plan assessed the effects of the maximum level of harvest to biodiversity. The annual allowable sale quantity (ASQ), which is the maximum amount

of timber that can be sold in the first decade following the Forest Plan decision, is 267 million board feet (MMBF). The 2008 Forest Plan states that there is no expectation that timber will be harvested at a continuous rate of 267 MMBF over the next planning cycle of 15 years.



[Reference report](#)

11. BIODIVERSITY ECOSYSTEM

Is old-growth structure retained in the matrix adequate and is it representative of old-growth types across VCUs and across the Forest?

An integrated old-growth conservation strategy was developed to protect and maintain old-growth habitat. This strategy was reviewed, revised and incorporated into the 2008 Forest Plan.

There were no changes in

LUDs in FY2010. The 1,075 acres of timber harvest completed in 2010 implemented Forest Plan Standards and Guidelines that protect old-growth habitat within the matrix. Therefore there were no changes to the minimum acres of POG habitat in the matrix.

The Forest Plan standards and guidelines protect 19 percent of the existing POG habitat in the matrix. Between the re-

serve system and the standards and guidelines that apply to the development LUDs, the Forest Plan protects 91 percent of the POG habitat on the Tongass.

Monitoring protocols are under development to ensure that old-growth structure is maintained Forest-wide.

[Reference report](#)

The Tongass Forest Plan Adjustment web site has information on current and previous Tongass planning efforts.

<http://tongass-fpadjust.net/>

12. BIODIVERSITY ECOSYSTEM

What are the cumulative effects of changes to habitats that sustain rare plants?

Several botanical surveys were conducted on the Tongass in FY2010. On northern Prince of Wales Island and nearby islands, surveyors found new locations for 20 rare species. Three populations of sensitive species were found in the South Prince of Wales Wilderness. No sensitive plants were found during survey focused on Tanis Mesa in the Yakutat Forelands, an area thought to be a glacial refugium. A base-

line aquatic plant survey was conducted on the Sitka Ranger District. Approximately 20 vascular aquatic plants were documented. A total of 36 botanical surveys were conducted in support of project planning. Sensitive plants were found in eight of the surveys, and rare plants were located in ten surveys.

A species distribution model for the orchid *Platanthera orbiculata* was completed in FY2010 and draft habitat models were developed for four additional species. The models

are intended to increase efficiency of rare plant surveys by identifying likely habitat and completing focused surveys. An accuracy assessment for the *Platanthera orbiculata* model, determined that the model was moderately successful in predicting species presence (between 80 and 84 percent). Overall, information for rare plants is lacking and long-term studies of rare and sensitive plant populations are necessary across the Tongass.

[Reference report](#)



Lesser roundleaved orchid (*Platanthera orbiculata*)

13. STREAMS-FISH HABITAT

Are the trends in abundance of the fish management indicator species (Dolly Varden char, cutthroat trout, coho salmon, and pink salmon) related to changes in habitat associated with forest management, climate change or other factors?

The Forest Plan identified Dolly Varden char, cutthroat trout, coho salmon and pink salmon as Management Indicator Species (MIS). In FY2010, the fisheries program emphasis was placed on:

- initiating statistical analyses of existing resident fish (Dolly Varden char and cutthroat trout),
- coho salmon population data and corresponding stream

habitat datasets, and

- analyzing alternate monitoring strategies for these species that would provide effective feedback about current Forest management.

An interagency fish task group convened in January 2010 to assess the original fish MIS monitoring study plans and data collected to date and to determine whether/how project objectives can be achieved regarding the current forest management situation.

The ADF&G estimated the 2010 commercial coho salmon harvest at 1.82 million fish. No consistent trend is evident over the previous fifteen years.

According to ADF&G data,

the 2010 estimated SE Alaska pink salmon harvest of 24.2 million fish is 60% of the recent 10-year average of 40.0 million (2000-2009), but 27% above the pre-season ADF&G harvest forecast of 19.0 million fish. The 2010 harvest was expected to be smaller than the recent average in part because the parent-year escapement was the smallest since 1990 and escapements were poor within the Northern Southeast Inside Sub-region. Overall, no consistent trends are apparent in fourteen years of harvest data.

[Reference report](#)



Cutthroat trout sampling



Juvenile coho salmon sampling

14. STREAMS-FISH HABITAT

Is the natural range and frequency of aquatic habitat conditions maintained?

In answering this monitoring question, it is assumed that streams in unmanaged watersheds best typify the “natural” aquatic habitat conditions that the Forest Plan directs staff to maintain. Over 300 stream reaches in Southeast Alaska have been measured by fisheries staff. Statistical analysis of data from 279 of these stream

reaches has revealed three parameters that show consistent difference between managed and unmanaged watersheds. These parameters are channel width/depth ratio, key wood, and pool frequency; the differences appear strongest in two Process Groups: floodplain (FP) and moderate gradient mixed control (MM).

When combined with other information (e.g., watershed geology, riparian harvest, land-

slides, etc.) in a watershed-specific context, these metrics provide a diagnostic tool to assess aquatic habitat condition and help identify restoration objectives. Several recent Tongass Watershed Restoration Plans (WRPs) provide examples of the use of these metrics.

In FY2010, seven additional wide floodplains (WFPs) were measured.

[Reference report](#)



Stream monitoring

15. STREAMS-FISH HABITAT

Is riparian vegetation maintained or restored to a condition that supports key riparian functions?

Windthrow is a natural and important disturbance of Southeast Alaska. It recycles forest stands, and maintains and renews the forest ecosystem. Timber harvest has the potential to exacerbate the rate of windthrow in adjacent forest stands. Monitoring the occurrence and characteristics of windthrow in riparian areas

adjacent to harvest units and comparing that to windthrow found in control riparian areas will assess whether stream buffers are retained in a condition found within the natural range of variability.

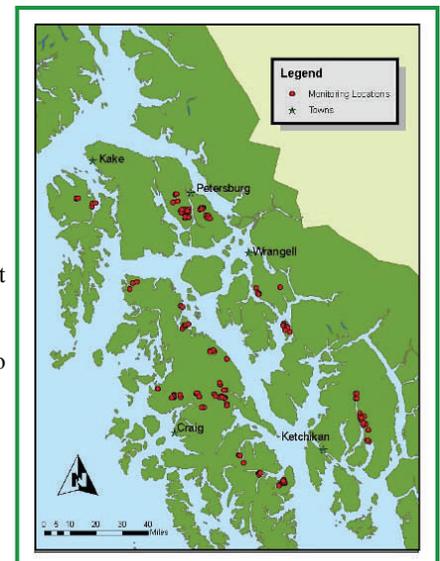
FY2010 was the eleventh consecutive year that windthrow in stream buffers associated with Stream Class I, II and III streams was monitored in this ongoing project. The number of trees felled due to windthrow is documented and measured

using low-altitude digital aerial photographs.

Monitoring results have shown that post harvest windthrow is present to some degree in 48% of buffers adjacent to harvest units. Due to localized weather patterns, south and west aspects appear to be most susceptible to windthrow.

[Reference report](#)

Windthrow monitoring locations



16. WILDLIFE TERRESTRIAL HABITAT

Are population and habitat trends for Management Indicator Species (MIS) consistent with expectations? Are these trends due to changes in habitat conditions or other factors? If they are tied to habitat conditions, is there a direct relationship with forest management, climate change or other factors?

Terrestrial MIS include red squirrel, black bear, brown bear, marten, river otter, Sitka black-tailed deer, mountain goat, gray wolf, Vancouver Canada goose, bald eagle, red-breasted sapsucker, hairy woodpecker, and brown creeper.

Numerous wildlife inventory and monitoring projects were underway in FY2010:

- Alaska Landbird Monitoring Survey (ALMS)
- Breeding Bird Surveys (BBS)
- Christmas Bird Count (CBC)
- Wolf Mortality Risk Assessment
- Wolf Population Estimates
- Northern SE Mainland Coast Brown Bear Study
- Brown Bear Mainland Project
- Deer Abundance on Prince of Wales (POW) Island
- Deer Fawn Survivorship
- Deer FRESH Model
- Marten Status on Admiralty

Island

- Mountain Goat Population Monitoring and Survey Technique Development
- Small Mammal Response to Young-growth Thinning
- Small Mammal Investigations of Southeast Landscapes Including Endemic Species (ISLES) Project
- ISLES Medium and Large Mammal Salvage– Marten and Black Bear

Many of these projects are being completed in partnership with universities, the ADF&G, and other federal agencies.

[Reference report](#)



Fishing bears leave tracks

17. WILDLIFE TERRESTRIAL HABITAT

Is current management providing for sufficient habitat of federally listed threatened or endangered species and Alaska region sensitive species?

Though there are no federally listed threatened or endangered species on the Tongass, the sensitive species list for the Forest Service Alaska Region includes the Kittlitz’s murrelet (*Brachyramphus brevirostris*), Queen Charlotte goshawk (*Accipiter gentilis laingi*),

Aleutian tern (*Sterna aleutica*), black oystercatcher (*Haematopus bachmani*) and dusky Canada goose (*Branta canadensis occidentalis*).

Active research and management projects in FY2010 included Aleutian Tern Surveys and rerouting of OHV access on the Yakutat Forelands.

Two goshawk nests were found over the period of FY2009-2010 as part of the goshawk nest surveys con-

ducted for timber harvest proposal development and National Environmental Policy Act (NEPA) planning.

In 2010, researchers released the results of a black oystercatcher study which evaluated seasonal movements, winter range use, and migratory connectivity of the black oystercatcher. See link below:

[Reference report](#)

[Oystercatcher Results, 2010](#)



An Aleutian tern fitted with a unique identification band

18. WILDLIFE TERRESTRIAL HABITAT

What is the geographic distribution and habitat relationships of mammalian endemic species on the Tongass?

(Endemic species are native and confined to a certain region; having comparatively restricted distribution.)

Specialists will update the geographic distribution and habitat relationship of mammalian endemic species on the Tongass as new information is received. Ongoing research will help to assess the distribu-

tion and habitat relationship of endemic mammal species.

- The Museum of Southwestern Biology, University of New Mexico and Tongass specialists are collaborating on research and management efforts aimed at monitoring the status of small endemic mammals on the Tongass.
- The University of Wyoming began a multi-year study in FY2010 to identify the understory vegetation most impor-

tant to small mammal diversity and abundance, including endemic species, in young-growth forests on Prince of Wales Island. The study established live-trap sampling grids in TWYGS treatment and control (un-thinned young-growth) stands, unlogged old-growth stands, and in clearcuts. Baited live-traps were used to target small mammals and ermine.



19. SOIL AND WATER

Are the soil conservation practices implemented and effective in meeting Alaska Regional and Soil Quality Standards and maintaining soil productivity?

The central concept behind Soil Quality Standards is that they represent soil conditions that are detrimental to long-term soil productivity. Soil scientists are trying to define the conditions that exist when long-term soil productivity is being affected.

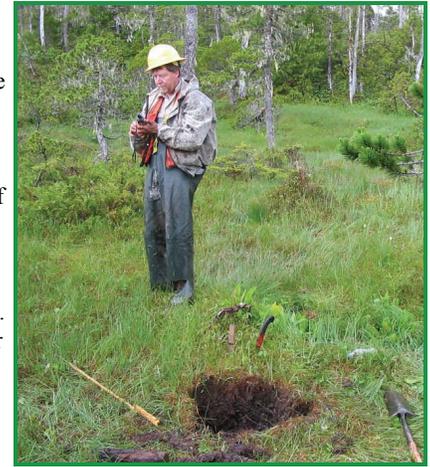
In FY2010, soil scientists collected data in seven 50 year-

old young-growth stands and adjacent old-growth stands. Three of these stands were harvested using tractors and four of the stands were harvested using cable systems. The stand selection focused on lower productivity soils, but 50 years ago timber harvest targeted highly productive soils or existing blowdown patches. The purpose of this monitoring is to determine what size and intensity of soil disturbances caused by yarding affects long-term site productivity.

At some sites evidence of severe disturbance was found,

and tree growth was obviously affected. Preliminary results indicate that in cable logged stands of this age group soil conditions that detrimentally affect tree growth occupy about 2% of the stand. In the three tractor logged stands, detrimental soil conditions occupy about 7% of the stand. Monitoring of soils in older young-growth stands will continue for another year. A summary report is planned following 2011 data collection.

[Reference report](#)



Soil scientists dig holes to determine soil profile

20. SOIL AND WATER

Are the soil and water conservation practices as described through the Best Management Practices and site specific prescriptions implemented and effective in minimizing soil erosion and maintaining the State Water Quality Standards?

According to the BMP Implementation Monitoring Program, practices applied on the ground, through contract specifications, met the overall objectives of reducing risks to aquatic resources associated with declining road maintenance budgets. Most BMPs were fully implemented. The timber units harvested showed full BMP implementation with protection measures implemented to protect water resources. The roads review showed mixed results on roads closed, stored, as well as those newly constructed. On the majority of roads, water crossing features were implemented; however, there were some implementation concerns relative to diversion potential associated with raveling road

fill. Action plans are being developed to address the excavation of fill and maintain crossings.

Pilot forms were used to collect BMP monitoring data. Only IDT monitoring on a 10-15% sample was conducted through the Forest program. Verification of stream classification was conducted during the review of units and roads. This review showed that stream classifications made during layout are generally consistent with the Forest Plan Standards and Guidelines; however, some inconsistencies were noted and corrected during the roads review.

Watershed Monitoring

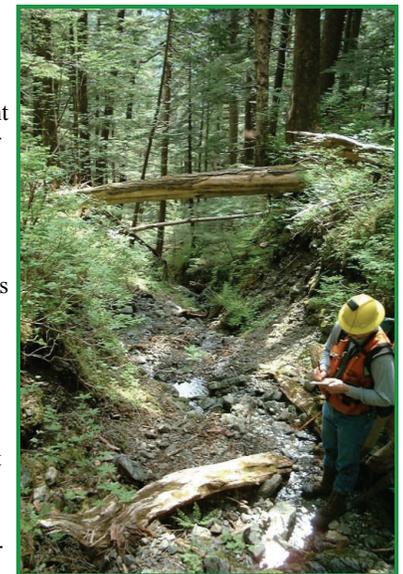
Three case study watersheds were instrumented for Forest Plan monitoring on Prince of Wales from 2004-2008. Chanterelle Creek serves as a long term reference with no roads or timber harvest. Scary Creek is a cumulative effects treatment with past and ongoing timber harvest and roads. Up-

per East Fork Shaheen Creek reflects pre- and post-treatment conditions as roads and timber harvest progress according to the Forest Plan. Instruments were decommissioned in fall 2008. Analysis of the case study watershed data illustrates the variability present in unmanaged watersheds and underscores the limitations of using temperature and turbidity as water quality indicators of management effects even at the headwater basin scale. Episodic storm events likely mask turbidity signals attributable to road erosion and other small scale management disturbances. Similarly watershed attributes including elevation, aspect, relief, and vegetation cover type appear to control maximum stream temperature regimes in these headwater basins.

[Reference Report](#)

[BMP Report Appendix B](#)

[Hoonah Trip Report](#)
[Petersburg Trip Report](#)
[Thorne Bay Trip Report](#)
[Wrangell Trip Report](#)



Above: Scientist taking notes and
Below: Harvest unit



21. SOIL AND WATER

What is the ecological condition and trend of watersheds in terms of key characteristics (such as soil productivity, water quality and quantity, invasive species, etc.) of watershed health identified in the desired condition (aquatic ecosystem potential) of the plan area? How effective are management actions in improving watershed health (maintaining or moving watersheds toward Condition Class I)?

Two significant milestones

were achieved for this monitoring question in 2010: 1) Completion of a forest canopy throughfall/rainfall interception study and 2) an updated analysis of long term stream flow trends for the Staney Creek watershed. Results from this work provide additional insights into the influence of young-growth forests on basin hydrology and stream flow regimes in coastal watersheds.

The Watershed Restoration Effectiveness Monitoring

working group (WREM), a collaborative partnership between the PNW Research Station and Tongass specialists, has been developing alternative metrics to monitor ecosystem processes and controls that are related to the input of food and energy that serves as the base of the stream trophic structure (relating to nutritive food) and ultimately support the production of salmon and other fish. [Reference report Throughfall Report](#)



Salmon stream

22. WETLANDS

Were the wetland conservation practices implemented and effective to avoid and/or minimize impacts to wetlands to the extent practicable?

The project-level wetland avoidance discussions required by the wetland monitoring protocol were included in the Tonka Timber Sale EIS drafted in FY2010. In addition to site specific wetland avoidance documented on road

cards, this document included a discussion of wetland avoidance at the project scale.

Some roads were constructed through wetlands in FY2010 as part of the Diesel and Scratchings timber sales. Monitoring of wetlands impacts on the Diesel and Blind Slough timber sales occurred through Best Management Practices (BMPs) monitoring

in FY2010 (see BMP Appendix B, question 20 reference). Due to the few miles of road constructed through wetlands in 2010 and recent years in general, there is less impact to wetlands through construction of forest roads.

[Reference report](#)



Road through muskeg

23. KARST AND CAVE ECOSYSTEMS

Are the biological, mineralogical, cultural, paleontological components, and recreational values of the karst and caves maintained?

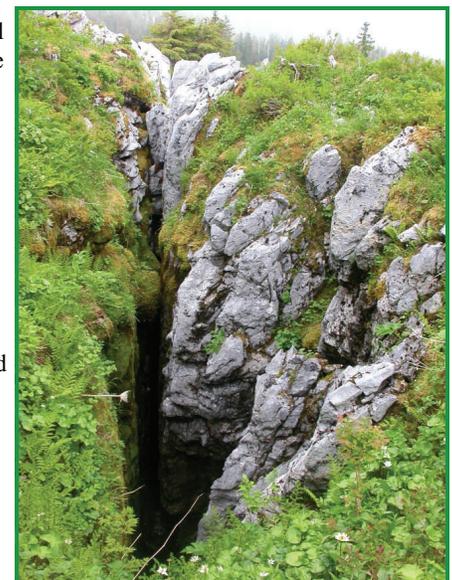
The Karst Resources Standards and Guidelines require that areas of high vulnerability karst within the project area be deleted from land considered for timber harvest. Karst lands included in project areas are typically low or moderately low vulnerability karst. The Karst Resources Standards and Guidelines were fully implemented in completed projects such as Logjam on central Prince of Wales Island, Kuiu Routed on Kuiu Island, the

Iyouktug Timber Sale on Chichagof Island, and the Thayer Creek Hydropower Project for the community of Angoon on Admiralty Island. The Karst Resources Standards and Guidelines are fully implemented in proposed and ongoing projects such as Staney Creek Landscape Assessment., the Wrangell 10-Year Timber Sale and the Big-Thorne Timber Sale, Kosciusko Island Timber Sale, and the Soule River Hydropower Proposal. Karst resource inventory is planned in 2011 for the Staney Creek and Naukati projects. Karst resource input was provided for a number of sales

associated with the Small Sales Program on Thorne Bay and Craig Ranger Districts. Particular emphasis was placed on the inventory and design of the prescriptions and mitigation proposed for commercial thinning.

In FY2010, tracer dye studies and spring monitoring were accomplished on Kosciusko Island to provide background data to assess the effectiveness of particular prescriptions when implemented.

[Reference report](#)



Karst feature

HUMAN USES AND LAND MANAGEMENT

24. TIMBER RESOURCES

Is the timber management program meeting the objectives of achieving economic timber sales and rebuilding the volume under contract and shelf volume components of the sale program?

In FY2010, the Tongass offered 49 MMBF, sold 49 MMBF and sold 0.2 MMBF in 1 no-bid timber sales. The no-bid timber sale was not sold in the initial offering and remained available for an interested purchaser throughout the

remainder of the year.

In FY2010, the purchasers harvested 35.4 MMBF and had an ending inventory of 98.4 MMBF. The average annual harvest for the past 5 years is 37 MMBF so the remaining volume under contract at the end of FY2010 is calculated to be 2.27 years.

Congress mandated that all timber sales offered for sale by the Tongass National Forest, using the Residual Value Ap-

praisal System and with Western Red Cedar appraised for domestic processing be above base rates before they can be offered for sale.

[Reference report](#)



Loading logs on a log truck

25. TIMBER RESOURCES

Are timber harvest activities adhering to applicable timber management standards and guidelines relative to: created openings exceeding the maximum size limit for unit harvest, harvest on slopes greater than 72 percent slope gradient, or within the 1,000 foot beach and estuary buffer?

In FY2010, one unit exceeding 100 acres in size was harvested. Recent timber harvests have trended toward smaller unit sizes and a decreased reliance on the even-aged silvicultural system. The 51 har-

vested units in FY2010 ranged in size from 2 acres to 113 acres with an average size of 23 acres. Of the 991 acres managed via the even-aged system, 23 percent retained a portion of the original stand structure, while the remaining 77 percent received a traditional clearcut.

In FY2010, approximately 36 acres of timber harvest occurred on slopes over 72 percent gradient. The harvest occurred in 6 harvest units analyzed in 2 different environmental impact statements. Timber on about 19 acres of

steep slopes associated with cliffs and steep slopes in four units were harvested on Sumez Island. These areas were analyzed in the Scratchings EIS and harvested followed the mitigation described in the EIS. Timber harvest occurred on about 17 acres of slopes of over 72% gradient in two units from the Logjam EIS. The areas were harvested according to mitigation defined in the Logjam EIS.

No harvest occurred within the 1,000 foot beach or estuary buffers during FY2009.

[Reference report](#)

The conservation strategy as implemented in the 2008 Forest Plan provides a sufficient amount and distribution of habitat to maintain viable populations of old-growth associated species after 100 years of Plan implementation.

26. TIMBER RESOURCES

Is the ASQ land base consistent with resource information and programmed harvest?

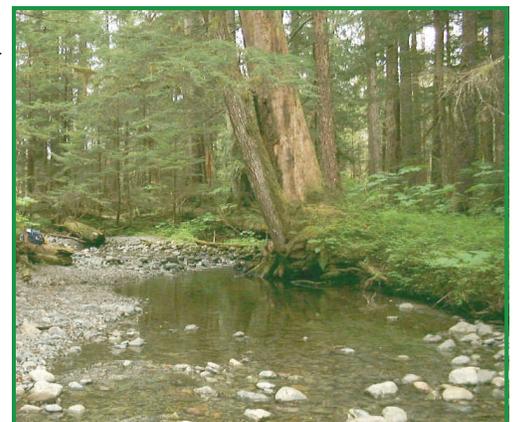
The Forest Plan developed an allowable sale quantity (ASQ) as part of the purpose and need as required by the Forest and Rangeland Resources Planning Act. This question compares the amount of sold and harvested timber to the output of the computer model used to

develop the Forest Plan. The ASQ is an upper ceiling governing the amount of timber that may be sold over a decade.

The annual ASQ outlined by the Forest Plan is 267 million board feet (MMBF). During FY2010, 49 MMBF were sold on the Tongass National Forest. The average volume sold between FY2001 and FY2010 was 44.2 MMBF, or 16% of

the ASQ. Given the recent drop in timber sale volume, there is little concern of exceeding in ASQ in the near future.

[Reference report](#)



Salmon stream

27. TIMBER RESOURCES

Is the timber demand being met within limits of the adaptive management strategy and Tongass Timber Reform Act (TTRA)?

The annual demand calculation is an analysis of the timber industry in Southeast Alaska. The variables for this analysis include installed mill capacity, projected harvest level, and timber volume under contract. The adaptive management strategy is implemented in three phases. Phase 1 restricts the timber program to a portion of the suitable land base

that excludes moderate and high value roadless areas. Should the level of harvest reach 100 MMBF for two consecutive fiscal years, the Tongass National Forest can then plan for timber projects in the Phase 2 portion of the approved suitable land base. Should the harvest reach 150 MMBF for two consecutive fiscal years, the Tongass could then plan for timber projects in Phase 3 areas, which includes the entire suitable land base. The demand calculation is based upon an estimate of

timber harvest, not on actual timber harvest. Actual timber harvest is recorded and reported in the Timber Sale Accounting System.

In FY2010, the Annual Demand Calculation ranged from a low of 133 MMBF to a high of 276 MMBF. In FY2010 the Tongass offered 49 MMBF, sold 49 MMBF and had 0.2 MMBF in no-bid timber sales. Timber harvest for FY2010 was 35.4 MMBF.

[Reference report](#)



28. TIMBER RESOURCES

Has a Timber Sale Adaptive Management Strategy threshold been reached, so that it is appropriate to move to the next phase?

The initial threshold outlined by the Timber Sale Adaptive Strategy is 100 million board feet (MMBF) harvest per year for two consecutive years. The volume harvested in FY2010 was 35.4 MMBF. The harvest volume last exceeded 100

MMBF in FY2000. Due to a variety of factors, it is unlikely that harvest will approach or exceed 100 MMBF on the Tongass National Forest in the near future.

[Reference report](#)



29. TIMBER MANAGEMENT

Are the non-interchangeable components (NICs) of the allowable sale quantity consistent with actual harvest?

The ASQ consists of two separate non-interchangeable components (NIC), also referred to as economic components. The purpose of partitioning the ASQ into two separate components is to maintain the economic sustainability of the timber resource by preventing over-harvest of the most economic timber stands. The partitioning of the ASQ also serves to identify that portion of the timber supply that is at lower risk of attainment be-

cause of marginal economic conditions.

NIC I. Normal Operability: This is volume scheduled from suitable lands using existing logging systems. Most of these lands are expected to be economic under projected market conditions. On average, sales from these lands have the highest probability of offering a reasonable opportunity for a purchaser to gain a profit from their investment and labor. This is the best operable ground. Normal operability includes those systems most frequently used on the Tongass. These systems include

tractor, shovel, standard cable, and some short distance helicopter.

NIC II. Difficult and Isolated Operability: This is volume scheduled from suitable lands that are available for harvest using logging systems not in common use in Southeast Alaska. Most of these lands are presently considered economically and technologically marginal.

In FY2010, all timber harvest occurred in NIC I areas.

[Reference report](#)



NIC I—Normal operability examples



30. TIMBER MANAGEMENT

Is the proportional mix of volume in NIC I and NIC II as estimated in the Forest Plan accurate?

Under the 2008 Forest Plan Amendment, the ASQ is divided into NIC I and NIC II. The proportional mix in the Forest Plan is set at approximately 89 percent NIC I (238 MMBF) and 11 percent NIC II (29 MMBF) harvested annually.

NIC components are estimates designed to prevent the disproportionate harvest of the most

economical portions of the Forest over the long term. Limits on each component are binding on a decadal basis. The components are non-interchangeable because a lower sale level in one component may not be compensated by higher sale levels in the other. The NIC I component includes land that can be harvested using “normal operability” logging systems such as shovel and short span cable. The NIC II component includes difficult and isolated operable timber stands requiring

special logging equipment requirements due to yarding distances or topography.

Since implementation of the 2008 Forest Plan, actual harvest was 95% and 93% NIC I and 5% and 7% NIC II in FY2008 and FY2009 respectively. In FY2010, all harvest occurred in NIC I areas. Unless the annual offer volume approaches the NIC I allowable volume of 238 MMBF, NIC II over-harvest is not likely to occur.

Reference report



Equipment in harvest unit

31. TRANSPORTATION SYSTEM

Are the standards and guidelines used for forest development roads and log transfer facilities effective in limiting the environmental effects to anticipated levels?

Fish Passage at Road Crossings: As part of a multi-year project, 51 culverts in FY2010 were monitored to assess their ability to provide fish passage. These culverts were installed, reinstalled or retrofitted in fish streams during approximately the last decade. In FY2009, 23 similar culverts were monitored. The 74 monitored cul-

verts constitute approximately 31% of the culverts recently installed, reinstalled or retrofitted on the Tongass.

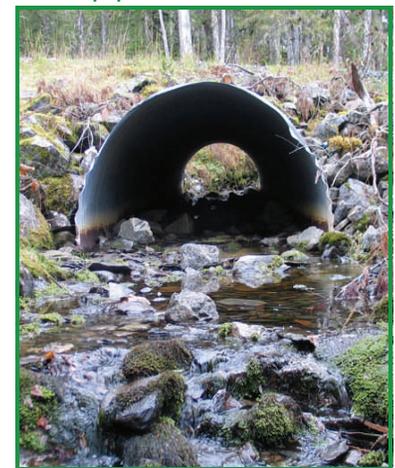
Ninety-five percent of the culverts monitored met acceptable fish passage criteria. They were determined to be consistent with State of Alaska juvenile fish passage standards and are assumed to provide unimpeded juvenile and adult fish passage.

Log Transfer Facilities: In FY2010, all active log transfer facilities (LTFs) were operated

in accordance with their permits. In instances where fuel/hydraulic fluid spills occurred, responses were handled as specified in the Spill Prevention Control and Counter Measure Plan (SPCC) anticipated in the contractor’s operating plans. The guideline for locating LTFs along straits and channels has proven to be effective in reducing underwater bark accumulations.

Reference report

Log transfer facility



Open-bottom arch culvert

32. TRANSPORTATION SYSTEM

Are the roads and trails maintained in accordance with management objectives?

Road systems are evaluated to determine where significant motor vehicle traffic exists on roads that have recently been closed. At least 10% of roads that have been closed during the previous one to three years are randomly selected for monitoring.

During FY2010, Zarembo Island was chosen to evaluate whether roads and trails are

being maintained in accordance with management objectives. Open, closed, and decommissioned roads were evaluated during a fall 2010 site visit to Zarembo Island. Closed or decommissioned roads that were evaluated had closure work performed between 2005 and 2008. The roads and trails were evaluated in the fall, just after peak use associated with hunting season, when unauthorized use is thought to be the most evident.

The two roads monitored,

which represented 18% of the closed roads on Zarembo Island, were found to be in adequate condition with little evidence of unauthorized use.

Installation of waterbars and the removal of bridges and culverts appeared to largely be preventing motorized use of the monitored roads. Reference report

Stream after culvert removal and decommissioning



33. MINING AND MINERALS EXPLORATION

Are Federal regulations (36 CFR 228) to ensure surface resource protection implemented and is the administration of this regulation through the Forest Plan effective in limiting soil and water resource impacts?

A wide range of mineral resources and deposit types occur within the boundaries of the Tongass National Forest. Examples of some include, but are not limited to, gold, silver, molybdenum, and uranium, as well as nationally designated

“strategic” and “critical” minerals such as lead, zinc, copper, tungsten, and platinum group metals.

Tongass-wide, two large locatable mine plans were administered and several dozen exploration drilling programs and mineral material operations have been processed on the Tongass National Forest for FY2010. In addition, 10 abandoned mine closures were completed. FY2010 inspections of mineral sites indicate

that the effects of mining activities on surface resources are consistent with Forest Plan expectations. The necessity of the operator to obtain approval for their Plan of Operations provides the Forest Service the opportunity and authority to control the effects of the development on Forest resources.

[Reference report](#)



Abandoned mine closure with expansion foam

34. SUBSISTENCE MANAGEMENT

Are the effects of management activities on subsistence users in rural Southeast Alaska communities consistent with those estimated in the Forest Plan?

Subsistence Fisheries Monitoring

Ten fisheries assessment projects were conducted in Southeast Alaska in FY2010. Nine of these projects were directed at assessment of sockeye

salmon harvests and escape-ments and for stocks that sustain subsistence fisheries. A monitoring project was also directed at understanding the distribution of eulachon on the Yakutat Forelands.

This strategy is consistent with issues and information needs for the Southeast Region as identified and prioritized by the Southeast Alaska Subsistence Regional Advisory

Council and further prioritized through a strategic planning process from the Office of Subsistence Management.

Subsistence Wildlife Monitoring

Due to budget constraints, no subsistence wildlife monitoring was completed in FY2010.

[Reference report](#)

In 2010, the Tongass reported thirteen of nineteen wilderness areas as managed to a minimum stewardship level. The Forest Service is committed to full attainment of Wilderness Stewardship Challenge (WSC) goals by 2014.

More Information on the Chief's 10-Year Wilderness Stewardship Challenge can be found at:

http://fsweb.wo.fs.fed.us/rhwr/wilderness/10ywsc/index_10ywsc.html

35. WILDERNESS

Is the wilderness character being maintained?

The Chief of the Forest Service has endorsed a national effort, the 10-Year Wilderness Stewardship Challenge (WSC), to have all wilderness areas managed to a minimum stewardship level by 2014, the 50th anniversary of the Wilderness Act. National direction has provided ten elements that provide focus to this goal. The Tongass has worked collectively to address these elements in a consistent fashion so that it can show incremental improvement and demonstrate that it will be sustainable. In FY2010, the Tongass reported

an additional wilderness area being managed to a minimum stewardship level from the previous year bringing the total to thirteen areas.

Notable Progress on WSC Elements for FY2010 includes:

- Element 2, Invasive Plants-Kuiu West Area score increased from 3 to 10 due to monitoring, evaluation, and adjustment of treatments with an emphasis on identification and pulling weeds on all districts.
- Element 3, Air Quality-Russell-Fiords now has two surveys complete.

•Element 5, Solitude- South Etolin Wilderness score increased to 10 after completion of a Plan for Solitude Monitoring in May, 2010.

Element 9, Information Needs Assessments- Significant progress was made with the completion of Information Needs Assessments (INA) for Coronation Island, Karta River, South Prince of Wales, Warren Island, and Misty Fiords Wilderness areas.

A Forest-wide monitoring protocol to assess trends in the qualities of wilderness character is currently under development on the Tongass.

[Reference report](#)



Top: Wilderness monitoring
Bottom: Crosscut sawing



36. HERITAGE RESOURCES

Are (1) project clearance/inventory, (2) project implementation, (3) mitigation, and (4) enhancement completed in accordance with the requirements and regulations for heritage resources?

Heritage specialists evaluated 95 projects in FY2010 for their potential to affect heritage resources eligible to the National Register of Historic Places. It was determined that none of these projects would have an effect on sites eligible to or listed in the National Register.

Notable Projects in 2010:

Irish Creek

A Forest Service team investigated a previously known Kupreanof Island site to test an ancient shoreline probability model. Two 50 cm x 50 cm test units were excavated and recovered artifacts indicating an ancient microblade tool tradition, a manufacturing convention that has been associated with early Holocene tool technologies. Radiocarbon analysis of charcoal recovered yielded four dates, all around

9000 years old, resulting in one of the oldest recorded sites in southeast Alaska.

Akwe River Stewardship Project

For the fourth time over the past 12 years, Forest staff from the Yakutat Ranger District monitored archeological sites in cooperation with Yakutat's Coho Clan. This project has strengthened the relationship between the Forest, Tribe and residents of the community.

[Reference report](#)



Measuring petroglyphs

37. RECREATION

Are areas of the Forest being managed in accordance with the prescribed Recreation Opportunity Spectrum (ROS) class in Forest-wide Standards and Guidelines? Is the ROS classification consistent with public demand?

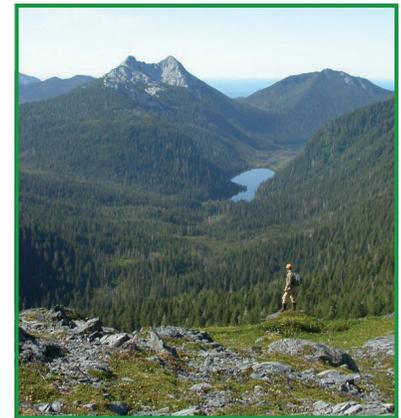
Misty Fiords National Monument Wilderness (MFNMW): Monitoring data collected in 2010, including social encounter monitoring, indicates that Misty Fiords Wilderness is mostly being managed in accordance with the prescribed

ROS classes. There were a few exceptions. For example, at several lakes social encounters exceeded the standards set for the prescribed ROS class. This is primarily a result of the large number of floatplane landing tours authorized under special use permits from the Forest Service. ROS classifications may not be consistent with public demand for these services. A change in the ROS classification, however, may result in additional difficulty maintaining wilderness charac-

ter in the core area of MFNMW.

Non-wilderness areas monitored this season were being managed in accordance with their prescribed ROS class. Although a few major impacts were found, most areas were free of substantial visitor impacts. Social encounters were found to be well below the limits set by the established ROS class.

[Reference report](#)



Misty Fiords National Monument Wilderness



38. WILD AND SCENIC RIVERS

Are Wild, Scenic, and Recreational River Standards effective in maintaining or enhancing the free flowing conditions and outstandingly remarkable values at the classification level for which the river was found suitable for designation as part of the National Wild and Scenic River System?

Ketchikan-Misty Fiords Ranger District

Of the six candidate river systems on KMRD, four were visited by field crews this season. These rivers include Wol-

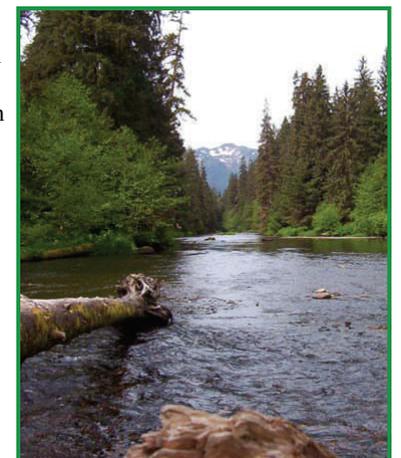
verine Creek, Naha River, Fish Creek and Orchard River. Assessment of the river's free flowing conditions was not the primary purpose of any of the field trips, but some general observations were made. The invasive reed canary grass (*Phalaris arundinacea*) was noted along the lower section of the Naha River Trail and in the Naha River Estuary in Roosevelt Lagoon. It is suspected that this invasive plant spread from private land near the mouth of the river.

Prince of Wales Zone- Craig

and Thorne Bay Ranger Districts

Field crews visited four of the five candidate river systems in 2010. In the Essowah Lakes and Streams area, the Essowah Lake cabin, outhouse, and woodshed were removed. Kegan Lake and Streams were visited and the Kegan Cove Cabin was replaced. Annual cabin maintenance was performed at Salmon Bay Lake and Sarkar Lakes. A new fish pass was constructed on Hatchery Creek and annual trail maintenance was

performed on the Hatchery Creek Trail. [Reference report](#)



39. SCENERY

Are the adopted scenic integrity objectives established in the Plan met?

Tongass National Forest landscape architects analyzed numerous project sites and scenic viewsheds associated with these project sites in FY2010. Many individual viewshed analyses were completed for monitoring of the scenic resource. A formal scenery resource report was written for some of the projects, while the analyses for other projects is reflected in site planning drawings and decisions made in the design process. In both cases, design and project recommendations are made to be consistent with the scenic integrity objectives in the Forest Plan. Examples of analyses completed during FY2010 include:

Craig Ranger District:

- One Duck Trail reconstruction
- Kegan Cove Cabin reconstruction

Hoonah Ranger District:

- George Island Trail contract preparation and construction
 - Green Top Cabin and Trail restoration and construction
- Juneau Ranger District:**

- Dan Moller Cabin construction
- Trail of Time contract preparation

Ketchikan-Misty Fiords Ranger District:

- Upper Silvis Trail survey and design
- Perseverance Trail survey and design

Petersburg Ranger District:

- Cascade Creek Hydro Study support
- Tonka EIS Roadless & Scenery Reports

Sitka Ranger District:

- Beaver Lake Trail Rehabilitation, contract preparation and construction
- Lake Eva Trail contract preparation and construction
- Lake Eva Cabin survey and design

- Takatz Hydro ID Team support
- Harbor Mountain Trail, Phase III, contract preparation and construction
- Harbor Mountain Road reconstruction design support
- Harbor / Gavan Phase IV design narrative assistance
- White Sulphur Springs survey and design

Thorne Bay Ranger District:

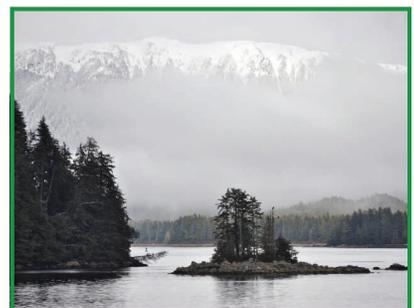
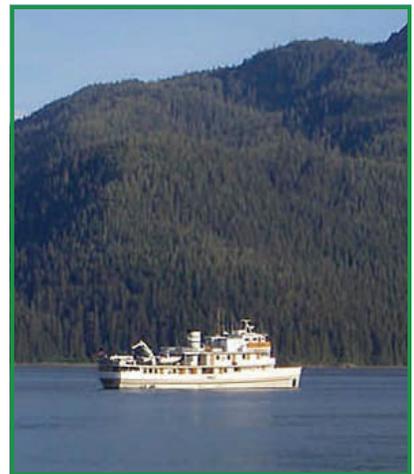
- Dog Salmon Fish Pass concept plan
- Gravelly Creek Trail contract preparation and construction
- Gravelly Creek Picnic Area contract preparation and construction

Wrangell Ranger District:

- Anan Cabin Replacement contract preparation
- Anan Wildlife Viewing Site contract preparation

Yakutat Ranger District:

- Situk River Watchable Wildlife Area contract preparation
- [Reference report](#)



ECONOMIC AND SOCIAL ENVIRONMENT

40. ECONOMICS

Are the effects on employment and income similar to those estimated in the Forest Plan?

Wood Products: The Forest Plan employment and earnings figures include activities associated with private, state, BIA, Forest Service and Native Corporation timber harvesting. The plan assumes that the entire NIC 1 component would be harvested. This has not happened and employment in the woods products sector currently is much lower than predictions in the 2008 Forest Plan.

Recreation and Tourism: Though there was a major economy-related decline in

2010, employment data from the State indicates little decrease during the last five years in sectors that are associated with tourism and recreation activities. In the 2008 Forest Plan, there is little difference in recreation employment between the various forest management alternatives.

Commercial Fishing: The Forest Plan does not estimate employment in salmon harvesting and processing. There is no expectation of significant change to the commercial fishing or fish processing industries over the next decade as a result of Tongass National Forest activities. State employment figures show a fairly

stable workforce in this field in the last six years.

Regional Picture: Overall, employment in the timber sector in SE Alaska is much lower than that predicted in the 2008 Forest Plan. Employment is stable in the recreation/ tourism sector in SE Alaska as determined by the proxy industry – the service and retail sector. The commercial fishing sector of employment is fairly stable in SE Alaska. Mining employment has shown an increase since 2005 in SE Alaska.

[Reference report](#)

<http://www.fs.fed.us/r10/tongass/>

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41. COST AND OUTPUTS

What is the trend in outputs and costs associated with those outputs?

The Tongass Land and Resource Management Plan (Forest Plan) includes monitoring requirements to track costs and outputs associated with the allocation used to accomplish Forest Plan Objectives.

Allocations and expenditures by budget line item (BLI) are provided for FY2010 in the reference report. Costs associated with outputs will be monitored for a 5-year period and then analyzed to identify trends. This information will show the cost of doing business on the Tongass National Forest.

The following table shows the FY2010 allocations and expenditures for the Tongass National Forest: [Reference report](#)

	DESCRIPTION	ALLOCATED	EXPENDED
Subtotal	Appropriated Funds	\$52,034,186	\$51,666,271
Subtotal	American Recovery & Reinvestment Act Funds (FY2009-2010)	\$19,666,698	\$19,669,120
Subtotal	Permanent & Trust Funds	\$ 6,196,913	\$ 5,060,379
TOTAL		\$77,897,797	\$76,395,770

FY2010 Planning, Inventory & Monitoring accomplishments :

PLANNING, INVENTORY, & MONITORING	
Annual Monitoring Requirements Completed	33 reports
Acres of Inventoried Data Collected and Acquired	3,000,090 acres
Land Management Plans (LMP) Underway	0 plans
Land Management Plans (LMP) Assessments Completed	1 plans



American Recovery & Reinvestment Act (ARRA) projects completed in 2010 include*:

- Alaska Public and Administrative Facilities Reconstruction and Maintenance: \$985,000**
- Tongass Road Repair, Closure, and Fish Stream Improvement: \$1,450,000**
- Ocean Boulevard Forest Thinning: \$677,000**
- Tongass- Bridge Repair/Replacement: \$1,100,000**
- South Tongass Bridge and Culvert Replacement: \$1,210,000**
- Tongass Road Reconstruction and Decommissioning: \$3,261,000**
- Salt Chuck Mine Soil & Tailings Clean-up: \$2,800,000**
- Admiralty & Misty Fiords National Monument Trail Improvements: \$1,048,000**
- Petersburg Mountain Trail Group Maintenance: \$1,640,000**
- Alaska Public Visitor Centers Maintenance: \$3,100,000**

* Totals do not match expended due to overhead costs