CHUGACH NATIONAL FOREST

Forest Plan Monitoring Report
Fiscal Year 2013

Brown Bear on Russian River

United States Department of Agriculture
Forest Service
Alaska Region
Chugach National Forest

R10-MB-825
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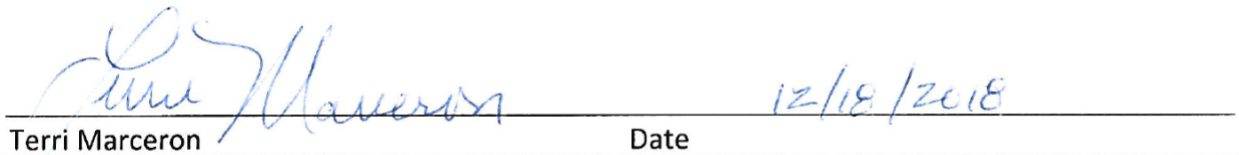
EXECUTIVE SUMMARY

The 2002 Chugach Forest Plan, as amended, established 26 monitoring questions to evaluate the Forest Plan's effectiveness. Sampling protocols have been finalized for 23 of these questions. In fiscal year 2013, information was successfully collected to evaluate 16 of the 26 monitoring questions.

This report summarizes the monitoring activities conducted in FY 2013 and provides results of monitoring efforts. It provides recommendations for remedial action if monitoring identified concerns related to progress toward achieving goals, objectives and desired conditions described in the Forest Plan.

I have reviewed the FY2013 Forest Plan Monitoring and Evaluation Report for the Chugach National Forest and am making the results available to the public. I find that our monitoring and this report meet the intent of the Forest's Monitoring Plan. No need to amend the Forest Plan was identified as a result of this monitoring.



12/18/2018

Terri Marceron — Date

Forest Supervisor

INTRODUCTION

This is the annual monitoring and evaluation report for fiscal year 2013 for the Chugach National Forest Revised Land and Resource Management Plan (Forest Plan)(USDA Forest Service 2002). The Forest Plan provides guidance for all resource management activities on the Chugach National Forest (CNF). It does this in part by establishing Forest-wide goals, objectives, and management direction. The monitoring and evaluation process is used to ensure that Forest Plan direction is being implemented, is effective, and is not causing effects that were not predicted in the Forest Plan's Final Environmental Impact Statement (FEIS). The evaluation process is also used to assess progress in achieving desired conditions, goals, and objectives expressed in the Forest Plan, and to verify that assumptions made in the Forest Plan and FEIS are valid.

The overall strategy for this monitoring and evaluation program is described in Chapter 5 of the Forest Plan. The strategy includes a series of monitoring questions and indicators by which Forest Plan effectiveness and implementation progress can be measured. Detailed protocol for collecting and analyzing information needed to address each question has been developed separately and is described in the Chugach Monitoring Guide (USDA Forest Service 2011). The development and revision of these sampling and analysis protocols occurs independently from the Forest Planning process.

The monitoring questions as described in the Forest Plan have been substantially revised through a series of Forest Plan amendments. As of 2012, there are 26 monitoring questions that form the basis of the monitoring evaluation and are addressed in this annual report (Table 1). For three of these questions the indicators and associated sampling and analysis protocols have not yet been developed and approved. Therefore, information for these questions was not collected in 2013. For five questions the planned sampling schedule did not include 2013. Monitoring for one question was unnecessary because no activities occurred that would trigger monitoring and for one question no data was available. As a result, the new information presented in this annual report is limited to 16 of the 26 monitoring questions.

Monitoring results are summarized and evaluated only for items monitored in FY13 and include (1) recommendations for remedial action, and (2) actions taken in FY13 to respond to previous recommendations. The monitoring strategy specifically calls for these items to be included in the annual reports.

All Forest Plan monitoring questions, including items for which no monitoring occurred, are summarized in Table 1.

Details related to each monitoring question follow the summary provided in Table 1. The presentation of these details is structured such that questions related to similar resource issues or monitoring purpose are grouped together under the same heading.

This detailed information was extracted from individual project reports that were prepared for each of the monitoring questions. These project reports were prepared by those Chugach Forest specialists responsible for collecting and analyzing the relevant monitoring data.

Table 1. Summary of 26 Forest Plan monitoring questions with an indication data collection status for each of these questions in 2013.

Category	Monitoring Question	Data Status
Plan Compliance	Q1 - Are projects being implemented consistent with the Forest Plan direction?	Collected
Plan Effectiveness	Q2 - Are management activities achieving their intended outcomes?	Collected
	Q3 - To what extent is ecosystem composition and structure changing and has forest management influenced those changes? How do these changes compare to the expected range?	No, Data not Available
Air Resources	Q4 - Are Forest management actions contributing to changes in air quality on the Forest?	No, Not Scheduled
Soil Resources	Q5 -What is the effect of summer OHV use on soils and/or vegetation where OHV use is allowed? Are management practices (standards, guidelines, BMPs, mitigation measures) effective in maintaining soil quality and in meeting the severity limits for selected soil properties	No, Need Protocol
Water Resources	Q6 - Are best management practices (including wetland management) effective in meeting water quality standards?	Collected
Aquatic and Riparian Habitat	Q7 - Are riparian and aquatic habitat protection measures included in project planning and are Revised Forest Plan standards and guidelines being met during project implementation?	No, Need Protocol
Sensitive and Exotic Plants	Q8 - What is the abundance and distribution of sensitive plants in areas affected by management activities?	Collected
	Q9 - What is the distribution and abundance of exotic plants, particularly in areas affected by management activities?	Collected
Management Indicator Species	Q10 - Has the Revised Forest Plan direction prevented adverse interactions between bears and humans?	Collected
	Q11 - What are the population trends for brown bear and the relationship to habitat?	No, Need Protocol

Category	Monitoring Question	Data Status
	Q12 - What are the population trends for dusky Canada geese and the relationship to habitat?	Collected
	Q13 - What are the population trends for moose and the relationship to habitat?	Collected
	Q14 - What are the population trends for mountain goat and the relationship to habitat change?	No, Not Scheduled
	Q15 - What are the population trends for black oystercatchers and the relationship to habitat?	Collected
Species of Special Interest	Q16 - Is Forest management maintaining favorable conditions for sustaining Kenai wolverines?	Collected
Forest Products	Q17 - Are forestlands restocked?	Not applicable
	Q18 - Have conditions changed that would affect the suitability of timber production lands?	No, Not scheduled
Heritage Resources	Q19 - Are National Register eligible heritage resources being adequately maintained and protected?	Collected
Recreation	Q20 - Is the revised Forest Plan direction for motorized and non-motorized access working?	No, Not Scheduled
	Q21 - What are the trends in the use of developed recreational facilities and how does it compare to capacity?	No, Not Scheduled
	Q22 - What are the trends in commercial recreation services on the Forest and how does it compare to capacity?	Collected
Scenic Quality	Q23 - Are areas of the Forest being managed in accordance with the Scenery Integrity Objectives (SIO) in Forest-wide Standards and Guidelines?	Collected
Fire and Fuels	Q24 - What is the pattern of abundance of different fuel types on the Kenai Peninsula?	Collected
Wilderness	Q25 - Is the wilderness character of the Wilderness Study Area (WSA) and areas recommended for Wilderness being maintained?	Collected
Research Natural Areas	Q26 - Are proposed and established Research Natural Areas being maintained in a state unmodified by human activity?	Collected

MONITORING RESULTS

Compliance with Forest Plan

Q1 - Are projects being implemented consistent with the Forest Plan direction?

Category: Compliance with Forest Plan

Status: Monitored in FY 2013

Findings: This protocol evaluates whether projects were implemented consistent with Forest Plan Direction and NEPA decision documents. This protocol was coordinated with other monitoring protocols (intended outcomes, water quality, sensitive plants, invasive plants, and scenery integrity objectives). Three projects were examined on the Cordova Ranger District:

- Alaganik Boat Launch
- Juania Creek Watershed Restoration
- Moose Winter Range Habitat Enhancement

Two addition projects were selected for evaluation but were not visited. Specifically, the "Environmental Restoration of the Former Katalla Station" site was not ready for review since the restoration work had not yet been completed and the "Flag Point Emergency Rock Source" site was not visited since it was not being used.

Evaluation: All three projects reviewed are being implemented consistent with Forest Plan direction and NEPA decision documents.

Recommendations for remedial action: None

Actions taken in FY13 to respond to previous recommendations: In response to FY2012 monitoring, the forest botanist planted native sedges along sections of overwidened new trail associated with the Whistle Stop ROD in order to minimize trail width and reduce the likelihood of establishment of non-native plants.

Integrated Effectiveness/Validation Monitoring

Q2 - Are management activities achieving their intended outcomes?

Status: Monitored in FY 2013

Findings: This protocol evaluates if management activities achieved their intended outcomes. This protocol was coordinated with other specialists to also address monitoring protocols for water quality, sensitive plants, invasive plants, and scenery integrity objectives. Three projects were examined on the Cordova Ranger District:

- Alaganik Boat Launch,
- Juania Creek Watershed Restoration, and
- Moose Winter Range Habitat Enhancement

Two addition projects were selected for evaluation but were not visited. The first of these was the Katalla Station site. The issue here was that it was not possible to evaluate the planned restoration work, because this work had not been completed. The second unevaluated project was at the Flag Point Emergency Rock Source site. In this case, there was no activity taking place and therefore nothing to actually monitor.

Evaluation: Two of the three projects reviewed are achieving their intended outcomes. The intent of stimulating browse production for deer in the Juania Creek Watershed Restoration project has not yet been successful.

Recommendations for remedial action: None

Actions taken in FY13 to respond to previous recommendations: See Question 1.

Q3 - To what extent is ecosystem composition and structure changing and has forest management influenced these changes? How do these changes compare to the expected range?

Status: Not monitored in FY 2013

Findings: This monitoring summarizes trends in ecosystem composition and structural attributes across the Forest to identify if and where there are changes of sufficient magnitude to be of concern to management. Three datasets are used in the analyses including: 1) Forest Inventory and Analysis (FIA) data collected by the Pacific Northwest Research Station (PNW) of the Forest Service, 2) Moderate Resolution Imaging Spectroradiometer (MODIS) satellite imagery, and 3) LANDFIRE data. Under the protocol, reports with interpretations are generated every five years (beginning in 2012) with FIA data collected and summarized annually. In FY 2013, the plan was to summarize and interpret forest vegetation change using FIA data across the Chugach. However, a complete set of FIA re-measurements was not available.

Evaluation: None because the necessary FIA data was not available.

Air Resources

Q4 - Are Forest management actions contributing to changes in air quality on the Forest?

Status: Not scheduled for monitoring in FY 2013

Findings: None

Soil Resources

Q5 - What is the effect of summer OHV use on soils and/or vegetation where OHV use is allowed? Are management practices (standards, guidelines, BMPs, mitigation measures) effective in maintaining soil quality and in meeting the severity limits for selected soil properties?

Status: Not monitored in FY 2013; sampling protocol have not yet been developed

Findings: None

Water Resources

Q6 - Are Best Management Practices (including wetland management) effective in meeting water quality standards?

Status: Monitored in 2013

Findings: Best Management Practices (BMPs) are recognized as the primary control mechanisms for non-point sources of pollution on National Forest System lands. Application of BMPs on all ground-disturbing projects on the Forest is designed to protect water and soil resources. Monitoring of BMP implementation and effectiveness is intended to call attention to areas in which management activities are not following BMPs and/or are contributing to non-point sources of pollution that may lead to State water quality standards not being met.

Best Management Practice (BMP) implementation monitoring was for water quality was conducted for three projects in FY 2013. The first of these was for the Alaganik Boat Launch. In this evaluation, the project area was visited only a few months following construction. The former boat ramp has been removed, the streambanks recontoured and some vegetation reestablished. Local soil and vegetation was saved and utilized from the new construction. This method has proven effective; however, additional revegetation is necessary to adequately rehabilitate and cover the site. Erosion by user trails down to the slough was noted near the former boat ramp. It is recommended that a single access trail

be created to the slough to protect banks and riparian vegetation. Minor rilling and erosion was also noted just upstream of the boat ramp.

The average BMP rating at this site was 3.5 (a rating of 3.5 or higher equates to full implementation). The primary issues of concern included: 1) an emergency hooligan rescue when the dewatering curtain was installed improperly (tides were not taken into account); 2) additional revegetation needs; 3) the need to create a designated trail to the river to prevent multiple user created trails, erosion and bank trampling; and 4) the lack of educational signs.

The second site evaluated was the Juania Creek Watershed Restoration project. In this project, an area of Sitka spruce-western hemlock (*Picea sitchensis- Tsuga heterophylla*) forest was clear cut in 1959 leaving no stream buffer along anadromous Juania Creek. Currently, most of the cut forest is in the stem exclusion stage with a dense canopy of trees, minimal light penetration to the ground, and low cover of vascular plants in the undergrowth. In 2010 about 20 30-foot diameter openings were created in the canopy in an attempt to increase light penetration to the ground and stimulate shrub growth for deer. Additionally some trees were felled into Juania Creek with an objective of creating fish habitat structure.

The intended restoration project included the installation of five instream large wood structures in Juania Creek. In addition, thinning of riparian vegetation by field crews was planned along a 75 foot wide, ½ mile long section of the creek. However, during the post-project inspection it was found that stream flows had either moved or completely washed out all instream structures with the exception of ones than spanned the entire creek or had been wedged between rocks or other trees holding them onto the bank. Additionally, it did not appear that the riparian thinning was completed with the exception of the trees felled into the creek to create the fish habitat structures.

The average BMP rating at this site was 3.5 (a rating of 3.5 or higher equates to full implementation). The primary issues of concern included: 1) lack of design and implementation of large wood structure construction to hold in place during high flow events; 2) full implementation of the riparian thinning along Juania Creek; and 3) the inadequate size of the wildlife gap vegetation treatments.

The third monitoring effort was for the Moose Winter Range Habitat Enhancement project. The project area monitored was located on low lying level topography surrounded by wetlands. The hydro-ax treatments occurred when the ground was frozen so there was minimal disturbance to the ground. No tracks, rilling, erosion or bank disturbance was observed.

The average BMP rating at this site was 3.6 (a rating of 3.5 or higher equates to full implementation). The primary issue of concern was providing a 100 foot no cut buffer for

all fish steams and ponds in the NEPA document in accordance with Forest Plan standards and guidelines.

Evaluation: The three projects reviewed on the Cordova Ranger District are being implemented consistent with Best Management Practices. In addition, no indications of increased turbidity or water temperature as a result of implementation of any of the projects sampled were noted.

Recommendations for remedial action: None

Actions taken in FY13 to respond to previous recommendations: None

Aquatic Habitat

Q7 - Are riparian and aquatic habitat protection measures included in project planning and are Forest Plan standards and guidelines being met during project implementation?

Status: Not monitored in FY 2013; sampling protocol has not yet been developed

Findings: None

Sensitive and Exotic Plant Species

Q8 - What is the abundance and distribution of sensitive plants in areas affected by management activities?

Status: Monitored in FY 2013

Findings: This monitoring evaluates the likelihood that Forest management activities are contributing to a downward trend in sensitive plant populations. Both effectiveness and implementation monitoring components are included. The effectiveness monitoring is to determine whether sensitive plant population abundance or distribution is changing in areas where management activities are occurring. The implementation monitoring is to determine the extent to which mitigation measures from biological evaluations (BEs) and other botanical input are carried into NEPA documents, incorporated into decisions and permits, and finally implemented. Under the protocol, reporting occurs every five years (beginning in 2012), data entry to NRIS TESP occurs annually, and once there are at least five populations available for sampling, annual effectiveness monitoring occurs.

Under Forest Plan Consistency Monitoring, the Alaganik Boat Launch, Juania Creek Watershed Restoration, and Moose Winter Range Habitat Enhancement projects were evaluated on the Cordova Ranger District in 2013. No sensitive plant occurrences have

been found in the three project areas and it is concluded that project activities have not adversely affected sensitive plant species.

Evaluation: Currently, there are fewer than five known instances of overlap of sensitive plant populations and areas of active management. Once there are at least five populations available for sampling, annual effectiveness monitoring will occur. No sensitive plant occurrences have been found in the three project areas reviewed on the Cordova Ranger District.

Recommendations for remedial action: None

Actions taken in FY13 to respond to previous recommendations: None

Q9 - What is the distribution and abundance of exotic plants, particularly in areas affected by management activities?

Status: Monitored in FY 2013

Findings: This monitoring documents the contribution of human-caused disturbance on the distribution and abundance of non-native (exotic) plants. Work in 2013 included entry of newly collected invasive plant inventory and treatment data into NRIS TESP-Invasive Species/FACTS, project implementation monitoring, and Forest Inventory and Analysis (FIA) data collected by the Pacific Northwest Research Station (PNW) of the Forest Service.

Under Forest Plan Consistency Monitoring, the Alaganik Boat Launch, Juania Creek Watershed Restoration, and Moose Winter Range Habitat Enhancement projects were evaluated on the Cordova Ranger District and a summary of the findings are presented here.

For the Alaganik Boat Launch project site, the area of disturbance associated with boat launch construction was still early in the revegetation process and non-native invasive plants were not observed. Non-native plants are still present elsewhere at the Alaganik Slough rest area. The revegetation work adjacent to the launch used native plant materials as called for under project mitigation.

Juania Creek Watershed Restoration, the second project evaluated, is an area of Sitka spruce-western hemlock (*Picea sitchensis-Tsuga heterophylla*) forest that was clear cut in 1959. Currently, most of the cut forest is in the stem exclusion stage with a dense canopy of trees, minimal light penetration to the ground, and low cover of vascular plants (especially shrubs) in the undergrowth. In 2010 about 20 30-foot diameter openings were created in the canopy in an attempt to increase light penetration and stimulate shrub

growth for deer browse. In addition, some trees were felled into Juania Creek with an objective of creating fish habitat structure.

No non-native plants were observed in the Juania Creek project area during the site visit. The deep shade of stem exclusion stage forest is not favorable to growth of most non-native plant species and since the treatments were all done by hand (with chain saws) the probability of importing non-native plants on equipment was minimized.

The third site evaluated was associated with the Moose Winter Range Habitat Enhancement project. The project area monitored was a hydro-ax treatment site that was performed when the ground was frozen to minimize ground disturbance. This minimal ground disturbance in combination with clean equipment likely contributed to the lack of introduction and establishment of non-native invasive plants. No non-native plants were observed during the site visit.

Perhaps the non-native invasive plant species of greatest concern for potential influx in hydro-ax treatment areas is reed canary grass (*Phalaris arundinacea*). If hydro-ax equipment has been used in areas of reed canary grass occurrence (such as along Eyak Lake) particular care should be taken to ensure such equipment is free of plant parts (especially seeds and root fragments).

Evaluation: The three projects reviewed on the Cordova Ranger District are being implemented consistent with non-native plant standards and guidelines in the Forest Plan and project specific mitigation measures.

Recommendations for remedial action: None

Actions taken in FY13 to respond to previous recommendations: None

Management Indicator Species

Q10 - Has the Revised Forest Plan direction prevented adverse interactions between bears and humans?

Status: Monitored in FY 2013

Findings: This monitoring documents and evaluates trends in adverse human and brown bear (*Ursus arctos*) encounters through review of "defense of life and property" (DLP) permits. The DLP permits issued for brown bears are tracked by the Alaska Department of Fish and Game by general location of the incident. The annual total of DLP permits is the total number of brown bears that were killed as a result of humans defending life or property. The total number of DLP permits issued within a given year is a subset of overall

adverse interactions between brown bears and humans. For 2013, no DLPs were reported on lands managed by the Chugach National Forest.

Evaluation: No DLPs were reported on Chugach NF lands, which meets the monitoring criteria threshold for this protocol of no more than one DLP per year.

Recommendations for remedial action: None

Actions taken in FY13 to respond to previous recommendations: None

Q11 - What are the population trends for brown bear and the relationship to habitat?

Status: Not monitored in FY 2013; sampling protocol have not yet been developed

Findings: None

Q12 - What are the population trends for dusky Canada geese and the relationship to habitat?

Status: Monitored in FY 2013

Findings: This monitoring addresses attainment of the Forest-wide objective to maintain or increase dusky Canada goose (*Branta canadensis occidentalis*) populations. The geese breed primarily on the Copper River Delta (CRD) in southcentral Alaska. Since 1984, artificial nest islands have been installed on the CRD to enhance nest success of dusky Canada geese. Nest success of artificial nest islands has averaged 65 percent, which is nearly double that found on natural sites.

Entering the spring of 2013, 373 artificial nest islands were recorded in the program inventory. Of these, 365 were found to be available for use by dusky Canada geese. Monitoring results were separated into two categories; nest islands installed before 2011 and new nest islands installed in 2011-2012, as vegetation on newly installed islands has not fully developed and use rates may differ. Of the 301 artificial islands installed prior to 2011 (i.e., those islands deemed fully established with vegetation), 295 were available for use in 2013 (98 percent availability). Of all available pre-2011 islands (n=295) 96 were used by dusky Canada geese for nesting, which equates to 33 percent use. Of the 96 nests found, 77 successfully hatched yielding an 80 percent nest success estimate. Approximately 315 goslings hatched from the pre-2011 islands in 2013. Of the 72 islands installed in 2011-2012, 70 were available for use in June of 2013 (97 percent availability). Of all available islands installed between 2011 and 2012 12 were used by dusky Canada goose for nesting (17 percent use). Of the 12 nests found, nine successfully hatched goslings (75 percent success), yielding a total of approximately 36 goslings.

In 1993, a cooperative project with the Alaska Department of Fish and Game (ADF&G) and US Fish and Wildlife Service was initiated to directly estimate the number of nests and eggs of dusky Canada geese, compare ground-based estimates with aerial survey estimates, and describe habitat use by dusky Canada geese on the CRD. Randomly selected ground based plots are searched for dusky Canada goose nests concurrently with aerial surveys every three years.

Seven dusky Canada goose nests were found during the nest search effort in 2013. Even though it is the lowest number of nests on record (1998-2013) the effort put into nest searching was the same as in previous years. Nesting chronology was delayed in 2013 due to a late spring break-up. Deep snow and layers of ice reduced habitat that would otherwise be available to dusky Canada geese for nesting. Of the nests found in 2013, four were found on natural islands, two were found on inter-levee basins and one was found on a shoreline. Sweet gale, grass, and moss were the predominant vegetation types at all nest locations. Average shrub height was 60 cm and average shrub cover was approximately 36 percent. Of the seven nests monitored, six were in shrub (i.e. 41-70 percent shrub cover) communities and one was in both a Grass-Forb and Spruce-Hemlock community. Low and sparse strata each contained three nests, while the medium stratum contained one nest.

Evaluation: Nest island monitoring shows that the use and nest success of artificial nest islands by dusky Canada geese meets management objectives. The low number of nests found during the nest searching effort was likely due to the late spring break-up. Peak nest initiation occurred approximately two weeks later than previous years.

Recommendations for remedial action: None

Actions taken in FY13 to respond to previous recommendations: None

Q13 - What are the population trends for moose and the relationship to habitat?

Status: Monitored in FY 2013

Findings: This monitoring uses survey data collected by ADF&G in game management units (GMU) 6, 7, and 14C to track population trends of moose (*Alces alces*) on the Forest. Survey data compiled and evaluated in FY 2013 includes available data from 2002 through 2011. The limited data suggests slightly declining population trends of moose in GMU 7 and 14C and stable populations in GMU 6. Declines in survey numbers and information regarding hunter success and effort have caused ADF&G to recently lower population estimates and adjust hunts in GMU 7.

Evaluation: The sample size is small and data variability is large but none of the GMU's appears to be experiencing a moose population decline exceeding the 35 percent threshold established by the protocol for triggering consultation with ADF&G.

Recommendations for remedial action: None

Actions taken in FY13 to respond to previous recommendations: None

Q14 - What are the population trends for mountain goat and the relationship to habitat change?

Status: Not scheduled for monitoring in FY 2013.

Findings: This monitoring focusses on assessing the trends in mountain goat abundance using tracking survey data collected by ADF&G and the USFS Subsistence program in GMUs on the Chugach National Forest. The Chugach NF contains GMUs 6, 7, and 14C. ADF&G reports are summarized every other year. The next monitoring report is scheduled for FY14.

Q15 - What are the population trends for black oystercatchers and the relationship to habitat change?

Status: Monitored in FY 2013

Findings: The Forest Plan calls for monitoring population trends, habitat relationships, and habitat change for black oystercatchers (*Haematopus bachmani*) in Prince William Sound. Approximately 800-1200 individuals inhabit the shoreline and rocky islets of the Sound. The Forest has been monitoring black oystercatcher nest locations since 1999. These data have been used to analyze interactions between oystercatchers and human use and have been integrated into a sensitive species analysis for Prince William Sound.

In early June 2013, areas surveyed in Prince William Sound included Harriman Fiord, the Dutch Group, Montague Island, Blackstone Bay, Ingot Island, and Port Etches. A total of twenty six active oystercatcher nesting territories were identified during the survey and an additional eleven sites were identified with non-breeding oystercatchers. The greatest densities of active oystercatcher territories were located in the Dutch Group (6) and Montague Island (6). Data from the 2013 survey have been entered into the Forest's black oystercatcher database. Future analysis will compare populations and human use effects across Prince William Sound.

Evaluation: As this is only the second year of field sampling under this protocol, analysis for trends in black oystercatcher populations is not yet possible. Trend analysis is planned after five years of monitoring under this protocol.

Recommendations for remedial action: None

Actions taken in FY13 to respond to previous recommendations: None

Species of Special Interest

Q16 - Is Forest management maintaining favorable conditions for sustaining Kenai wolverines?

Status: Monitored in FY 2013

Findings: The goals of this monitoring are to estimate wolverine (*Gulo gulo*) abundance and trend in the upper Turnagain Arm/Kenai Mountains area (TAKM) and to compare abundance within and outside areas used for helicopter skiing. In this protocol, ADF&G conducts flights across grids in the TAKM. The protocol requires snow conditions conducive to being able to see and decipher wolverine tracks and the ability to follow those tracks back to their origin.

On 27 March 2013 wolverine surveys occurred across 1,939 km² (61 percent) of the TAKM. Weather conditions were unfavorable for surveying more of the overall area in 2013. Seven groups of wolverine tracks were located and tracked in the March 2013 surveys. The seven track groups represented eight wolverines because one of the track groups contained two wolverines. For the 1,939 km² surveyed, the estimated population size was 9.7 wolverines at a calculated density of 5.0 wolverines/1,000 km2. In comparison with a density estimate of 4.7 wolverines/1,000 km² for helicopter skiing areas surveyed in March 2009 (Golden 2010), the March 2013 density estimate of 5.0 wolverines/1,000 km² was only slightly higher.

Evaluation: None

Recommendations for remedial action: None

Actions taken in FY13 to respond to previous recommendations: None

Forest Products

Q17 - Are forestlands restocked?

Status: Not applicable in FY 2013

Findings: The purpose of this monitoring is to determine whether or not the forest lands have been adequately restocked within five years after timber harvest. Currently the Forest does not have any outstanding acres where timber was harvested that have not been certified as being adequately restocked. Since the reforestation needs associated with timber harvest on the Forest were zeroed out at the end of FY2006, no more reports are necessary with regard to this question. In addition, under the Forest Plan of 2002, no areas of the forest are designated for timber production so there are no restocking needs at this time. The "restocking" protocol is a placeholder should the Forest embark in activities that require restocking certification, but this is not anticipated.

Evaluation: None

Q18 - Have conditions changed that would affect the suitability of timber production lands?

Status: Not needed in FY 2013

Findings: This monitoring documented if lands identified as unsuitable for timber production have become suitable as required in the National Forest Management Act (NFMA). The initial evaluation of changes in timber suitability was completed last year (DeVelice 2012) and additional work was not needed in FY 2013.

Evaluation: None

Heritage Resources

Q19 - Are National Register eligible heritage resources being adequately maintained and protected?

Status: Monitored in FY 2013

Findings: The objective is to monitor the effectiveness of the Forest Plan in reaching the goal of protecting heritage resources. There are four measurements of interest: 1) the status of each undertaking, 2) the number of management plans completed, 3) the number of National Register of Historic Places evaluations/nominations, and 4) if collaborative inventory and monitoring programs have been established. The information gathered regarding these measurements of interest are shown below.

FY 2013 monitoring was conducted by thorough analysis of data from the national INFRA database, the Schedule of Proposed Actions (SOPA), consultation and agreements documentation, and through verification with the Seward District Archaeologist and the Prince William Sound Zone Archaeologist. Note that the terms "heritage resources" and "cultural resources" are synonymous and used interchangeably within this report.

For each of the four measurement elements the results for FY 2013 are described here.

1) Was the NHPA Section 106 process completed on each undertaking during FY 2013?
Yes. According to the FY13 SOPA there were five projects completed in FY 2013, and INFRA records indicate 48 projects evaluated under Section 106 in FY 2013. All five projects listed on the SOPA were evaluated in accordance with the Section 106 process. The additional reviews were from a mix of projects that were either initiated in earlier year SOPAs or from Heritage Program actions that were not reviewed under NEPA.

2) Have any Cultural Resource Management Plans been developed within the current five-year period?
No. Zero CRMPs have been developed since 2009 (the beginning of the current five-year period).

3) Have any National Register of Historic Places evaluations/nominations been completed in FY 2013?
Yes. Five heritage resources, SEW-1498, SEW-1499, SEW-0971, SEW-0999, and SEW-1514 were evaluated in FY13 and all five were determined to be ineligible for inclusion in the National Register of Historic Places.

4) Has a collaborative inventory and monitoring program been established?
Yes. A collaborative inventory and monitoring program with tribes/universities has been initiated on the Forest, currently consisting of two weeks inventory and monitoring by the Kenaitze Indian Tribe in connection with Susten Archaeology Camp.

Evaluation: The Forest is successfully carrying out its Section 106 responsibilities in compliance with the Alaska Region's Programmatic Agreement. However, no cultural resource management plans have been developed.

Recommendations for remedial action: Begin working on a cultural resource management plan in FY 2015.

Actions taken in FY13 to respond to previous recommendations: In 2012, one of the recommendations was to establish a collaborative monitoring program for specific cultural resources on the Forest. In FY13, such a program was initiated by the Forest.

Recreation Opportunities, Tourism, Access, and Facilities

Q20 - Is the Revised Forest Plan direction for motorized and non-motorized access working?

Status: Not monitored in 2013; next monitoring scheduled for 2016.

Findings: None

Q21 - What is the use of developed recreational facilities and how does it compare to capacity?

Status: Not scheduled for monitoring in FY 2013

Findings: None

Q22 - What are the trends in commercial recreation services on the Forest and how does it compare to capacity?

Status: Monitored in FY 2013

Findings: The objectives of this monitoring are to determine the number of people using commercial services to recreate on the Chugach National Forest and to determine whether that use exceeds the capacity set in the Forest Plan. In addition, general trends in the public use of commercial services to recreate on the Forest are sought.

The theoretical carrying capacities for commercial recreation established in the monitoring protocol for the each geographic area of the Forest are as follows:

- Forestwide – 252,600 client days
- Kenai Peninsula – 94,300 client days
- Prince William Sound – 92,400 client days
- Copper River Delta – 65,900 client days

Over the 2011 to 2013 period, actual client days are well below the above listed capacities; the total number of actual client days is less than seven percent of the Forestwide capacity. The highest amount of use, and the most number of activities, is on the Kenai Peninsula, which is the most easily accessible geographic area, is closest to Alaska's main population center, and is also where nearly all out-of-state visitors arrive either by cruise ship or plane. Despite all of these factors, actual client days still average less than 12 percent of the theoretical capacity. Prince William Sound averages around 4.8 percent of capacity and the Copper River Delta less than one percent. Commercial use generally reflects the amount of

non-guided use as well, with the most use and development found along the roads and trails on the Kenai Peninsula.

Three activities emerge as the most popular guided activities on the Forest according to this monitoring: rafting on the Kenai Peninsula, camping in Prince William Sound, and hiking on the Kenai Peninsula and, to a lesser degree, in Prince William Sound. These three activities constitute over 75 percent of all guided use reported over the 2011 to 2013 period.

With only three years of monitoring, there is insufficient data to determine trends in commercial recreation. The ranking of activities by number of actual client days was generally consistent over the three years, as was the amount of use by geographic area. One exception is that actual client days in the Copper River Delta were much higher in 2012 than either 2011 or 2013.

Evaluation: Data gathered from 2011 to 2013 does not indicate any need to reduce commercial recreation services on the Chugach National Forest between Memorial Day and Labor Day, and suggests that there is potentially room for businesses to grow within the recreation use capacities established in the Forest Plan. The Forest Plan does not establish capacities for individual activities, but where such limits have been established for certain areas through other analyses, actual use continues to be below capacity levels. It is likely that market demand or other factors generally play a greater role in limiting the amount of commercial recreation than supply provided by the Forest.

Recommendations for remedial action: None

Actions taken in FY13 to respond to previous recommendations: None

Scenic Quality

Q23 - Are areas of the Forest being managed in accordance with the Scenery Integrity Objectives (SIO) in Forest-wide Standards and Guidelines?

Status: Monitored in FY 2013

Findings: The objective of this monitoring is to determine to what extent the applicable Forest Plan direction and mitigation measures for SIO prescribed by NEPA decisions are implemented.

Under Forest Plan Consistency Monitoring, the Alaganik Boat Launch, Juania Creek Watershed Restoration, and Moose Winter Range Habitat Enhancement projects were evaluated on the Cordova Ranger District in 2013. For the Alaganik Boat Launch project the

associated construction is new and as such has altered the landscape. The vegetation within the landscape restoration areas seem to be growing. The scenic quality of this site is temporarily impacted by the recent construction, but as the restoration landscape and volunteer plants fill in the void areas, the visual quality will rapidly regain the scenic quality prior to the improvements.

At the second project site, Juania Creek Watershed Restoration, the primary landscape feature is a clear cut that occurred in 1959 to harvest Sitka spruce (*Picea sitchensis*) and western hemlock (*Tsuga heterophylla*). The new growth is very thick, which does not allow sunlight to penetrate to the forest floor. In 2010 several areas were thinned by making 20-30-foot diameter openings in the canopy. These were cleared to allow light to get to the forest floor, stimulate shrub growth and create a more diverse plant community.

The thinning of the forest by creating holes in the canopy had little effect on the scenic integrity. During our visit, these thinned areas were not distinguishable at a distance or in the mid-range. For the most part, the surrounding trees filled in the holes with new growth. This thinning made no scenic quality impact from a distance. The old growth and new growth forests are vastly different up close. The old growth forest is open with shrubs and sunlight on the forest floor. The new growth forest is dense with tree growth, little if any shrubs and no sunlight can reach the forest floor. Overall, the scenic integrity is not affected.

The third evaluation focused on the Moose Winter Range Habitat Enhancement project, which was an area that was hydro-axed to enhance vegetation and provide forage for moose. The project area was hydro-axed in the winter when the ground was frozen and this resulted minimal disturbance. The hydro-ax area was an irregular shape that blends perfectly with the natural environment. New growth of willow and other native plants are evident. No Scenic impact is evident in this area.

Evaluation: The three projects reviewed on the Cordova Ranger District are being implemented consistent with Scenery Integrity Objectives in the Forest Plan and project specific mitigation measures.

Recommendations for remedial action: None

Actions taken in FY13 to respond to previous recommendations: None

Fire Protection and Fuels Management

Q24 - What is the pattern of abundance of different fuel types on the Kenai Peninsula?

Status: Monitored in FY 2013

Findings: This monitoring includes both effectiveness and implementation components. The effectiveness monitoring interprets whether changes in fire regime condition class (FRCC) and down wood abundance (based on Forest Inventory and Analysis data) on the Kenai Peninsula geographic area are of sufficient magnitude to be a concern to management. The effectiveness monitoring is reported every five years (scheduled for 2017).

The implementation monitoring evaluates if fire protection and fuels management activities are consistent with the goals, objectives, standards and guidelines specified in the Forest Plan. The implementation monitoring occurs annually.

In FY 2013, 138 acres of hazardous fuel reduction via pile burning were accomplished. The Forest Plan specifies that 400 acres of hazardous fuel reduction via burning should be completed annually to reduce fuel buildups. The completed 138 acres is 35 percent of the 400 acre goal. Attaining the 400 acre goal may not be consistently feasible since other priorities in the integrated vegetation management program may dictate what treatments, objectives and projects are funded and may impact the available acres to be burned in a given year.

All other fire and fuels management activities were consistent with the Forest Plan except for the treatment guideline to treat visible debris from activity fuels within one year of vegetation management. Forty percent of total treatments met this guideline. Piled debris requires one or two curing seasons, dependent upon management objectives, site location, species of piled material, and time of year the material was cut. These factors contributed to not meeting this goal.

Evaluation: All fire and fuels management activities were consistent with the Forest Plan except for non-attainment of the prescribed burning target and only partial treatment of visible debris from activity fuels within one year of vegetation management. The above explanations are sufficient and further evaluation is not necessary at this time.

Recommendations for remedial action: Treatment guidelines in the Forest Plan for treating visible debris from activity fuels should be evaluated during Forest Plan Revision to determine if they need to be modified.

Actions taken in FY13 to respond to previous recommendations: None, though the same remedial action was recommended in 2012 but will not take place until the Plan is revised.

Wilderness Study Area

Q25 - Is the wilderness character of the Wilderness Study Area (WSA) and areas recommended for Wilderness being maintained?

Status: Monitored in FY 2013

Findings: This monitoring detects changes and trends in four qualities of wilderness character to determine if the Chugach National Forest is managing the WSA in a way that prevents degradation of wilderness character, in accordance with the Forest Plan's "Wilderness Study Area Management Area" prescription. The WSA monitoring protocol is based on direction intended for monitoring designated wilderness areas because (1) the monitoring question is essentially the same as that used for designated wilderness areas (maintain wilderness character), and 2) Alaska Regional policy directs that the management of the WSA will follow the same direction provided for wildernesses established by ANILCA. The four qualities of wilderness character are taken from Landres et al. (2008): Untrammeled, Natural, Undeveloped, and Solitude or Primitive and Unconfined Recreation.

Untrammeled Quality - For the most part, vegetation, soil, fire, and wildlife actions are not being undertaken that would affect this quality of wilderness character in the WSA.

Natural Quality - Non-native plant species are estimated to affect a "trace" of WSA lands. However, in 2013 wilderness rangers discovered two new common dandelion (*Taraxacum officinale*) occurrences, both along popular camping beaches in the Harriman Fiord area.

Two nonindigenous animal species that are known within the WSA are Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) and the European black slug (*Arion ater*). It is uncertain whether or not mink (*Neovision vision*) found on Naked Island are native.

At least two dams and two weirs affect streams within the WSA. One dam is at Cannery Creek Hatchery and the other is at a USDA Forest Service fisheries project at Solf Lake. Several Forest Service fish ladders and structures are also in place. The WSA is being managed consistent with direction in ANILCA which provides for aquaculture activities within the WSA. The Cannery Creek Fish Hatchery preceded the designation of the WSA by ANILCA.

The following two measures in the Chugach National Forest Wilderness Character Monitoring Plan cannot presently be answered for the WSA (since and no data sources for the measures exist in or near the WSA):

- Ozone and concentration of sulfur and nitrogen in wet deposition;
- Average sum of anthropogenic fine nitrate and sulfate.

Undeveloped Quality - Human development, including roads, buildings, and installations are present in the WSA (with almost all of these developments along or near the shoreline). ANILCA provides for establishing and maintaining certain types of human development (communication sites and navigation aids, aquaculture improvements, public use cabins, structures necessary for the taking of fish and wildlife, and ANILCA privately owned cabins). While provided for by ANILCA, the hatcheries and the Naked Island communication site do affect the undeveloped nature of the WSA. The best undeveloped qualities of wilderness character exist in areas away from hatcheries, communication sites, and other developments, including the southwest part of the WSA, Kings Bay, Knight Island, College Fiord, Wells Bay, Long Bay, and Columbia Bay.

Many authorized uses are provided for by ANILCA but can affect wilderness qualities. Authorized motorized/mechanized uses are highest near hatcheries and the Naked Island communication site. Uses include bulldozers, cranes and other heavy machinery, trucks, cars, helicopters, snow machines, industrial and portable generators, chainsaws, power brushers, power tools, and other equipment.

Evidence of unauthorized motorized/mechanical uses includes the operation of chainsaws to cut live and dead trees. This activity has occurred at thirty or more popular shoreline camping areas throughout the WSA. While not prohibited by forest order, this activity does negatively affect the undeveloped quality of the WSA. Some landings of flightseeing helicopter tours along WSA beaches in Harriman Fiord and Columbia Bay has also been occurring. If the landings occur below mean high tide, the Forest Service does not have jurisdiction to regulate this use. Additionally, snow machine use in WSA locations accessible from Whittier, Trail Glacier, Spencer Glacier, and the South Fork of the Snow River have been reported as has snow machine use near the hatcheries in Prince William Sound. This use is provided for per ANILCA Section 1110 (a) and R10 Regional policy for wilderness management.

Outstanding Opportunities for Solitude and Primitive Recreation Quality -
Visitor use has a leading effect on this quality of wilderness character. Tracking visitor use trends in the WSA is presently difficult, but improvements are underway. In 2013, Forest Service staff worked to improve potential data sources through partnerships with independent visitors, conservation groups, and special use permit holders, including researchers and outfitter/guides.

Evaluation: The qualities of wilderness character remain high in most areas in the WSA, but structures, installations, motorized uses, and other activities have effects in places.

Recommendations for remedial action: A persistent challenge to WSA wilderness character monitoring is infrequent use of the Minimum Requirement Decision Guide (MRDG) process for developments, installations, and motorized uses. Alaska Region policy (R10 FSM 2322.03) requires MRDGs for activities in the WSA that affect wilderness

character. MRDGs with accurate descriptions of developments and motorized uses are the most efficient tool available for monitoring trends in WSA wilderness character, and should be completed when needed.

Monitoring findings provided evidence that the FS special use permits for developments, installations, and motorized uses within the WSA could in some case be improved to provide better guidance and accuracy on how to ensure the projects do not adversely impact wilderness character. It appears that effective monitoring of wilderness character will include increasing the frequency of site inspections. At present, the impact of such projects cannot be accurately tracked without more site inspections.

Lastly, Chugach National Forest management should continue to work with helicopter flightseeing companies and the State of Alaska to minimize the impacts of landings to wilderness character, particularly in areas where impacts to other visitors or wildlife may be the greatest.

Actions taken in FY13 to respond to previous recommendations: None

Research Natural Areas

Q26 - Are proposed and established Research Natural Areas being maintained in a state unmodified by human activity?

Status: Monitored in FY 2013

Findings: This monitoring documents the ways that each of the Research Natural Areas (RNAs) on the Forest are being managed in a manner consistent with Standards and Guidelines and the RNA Management Area Prescription specified in the Forest Plan. There are two methodologies: 1) database review that occurs annually and 2) visitor effects monitoring that occur once every 5 years (next scheduled for 2017). Reviews of data in corporate databases in 2013 found no cases of non-compliance for any of the five RNAs on the Forest.

Evaluation: Database review found no cases of non-compliance with Forest Plan direction for any of the five RNAs on the Forest.

Recommendations for remedial action: None

Actions taken in FY13 to respond to previous recommendations: None

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