CHUGACH NATIONAL FOREST

Forest Plan Monitoring Report
Fiscal Year 2014

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

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Cover photo: Sitka black-tailed deer tracks in the mud on Green Island Research Natural Area (photo from the RNA establishment record).

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 2014, information was successfully collected to evaluate 15 of the 26 monitoring questions.

This report summarizes the monitoring activities conducted in FY 2014 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 FY2014 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.

Terri Marceron
Forest Supervisor

12/18/2015
Date

INTRODUCTION

This is the annual monitoring and evaluation report for fiscal year 2014 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 2002 Forest Plan have been substantially revised through a series of Forest Plan amendments. As of 2014, 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. For five questions the planned sampling schedule did not include 2014. Monitoring for two questions was unnecessary because no activities occurred that would trigger monitoring and for one question no data was available.

In 2014 project reports related to two monitoring questions were not completed, even though the necessary field data were collected. As a result, project summaries in terms of findings are unavailable for these two questions.

Monitoring results are summarized and evaluated only for items monitored in FY14 and include (1) recommendations for remedial action, and (2) actions taken in FY14 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 2014.

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?	Collected
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

Category	Monitoring Question	Data Status
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
	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?	No, Not Scheduled
	Q14 - What are the population trends for mountain goat and the relationship to habitat change?	Collected
	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?	No, Not Scheduled
Forest Products	Q17 - Are forestlands restocked?	No, Not needed
	Q18 - Have conditions changed that would affect the suitability of timber production lands?	No, Not needed
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

Category	Monitoring Question	Data Status
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, No Project Summary Available
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, No Project Summary Available
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?

Status: Monitored in FY 2014

Evaluation: 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). Two projects were examined on the Seward Ranger District:

- Devils Club Mining Plan of Operations EA, and
- Moose Nugget Mining Plan of Operations EA

Both projects were implemented consistent with Forest Plan Direction.

The completed form for the data collected for this monitoring can be found at the Chugach National Forest Supervisors Office in Anchorage, AK.

Findings: Monitoring shows that the two projects reviewed on the Seward Ranger District are being implemented consistently with NEPA decision documents.

The threshold to trigger a management review has not been surpassed (3 or more projects not fully implementing the relevant forest plan direction in a rolling 5-year period).

Recommendations for remedial action: None

Actions taken in FY14 to respond to previous recommendations: None

Integrated Effectiveness/Validation Monitoring

Q2 - Are management activities achieving their intended outcomes?

Status: Monitored in FY 2014

Evaluation: This protocol evaluates if management activities achieved their intended outcomes. This protocol was coordinated with other monitoring protocols and specialists.

This protocol evaluated the same two projects that were evaluated for monitoring question #1—Forest Plan Compliance:

- Devils Club Mining Plan of Operations EA, and
- Moose Nugget Mining Plan of Operations EA

The completed form for the data collected for this monitoring can be found at the Chugach National Forest Supervisors Office in Anchorage, AK.

Finding: Monitoring shows that the two intended outcomes for the two projects were fully achieved. The other intended outcome was partially achieved. According to the pilot protocol, if two or more projects only partially achieve intended outcomes over a three-year period, a forest leadership team management review should occur. In the past three years, two intended outcomes were partially achieved (one in 2012 and one in 2013), while all other were fully achieved. According to the pilot protocol, a management review is thus triggered. Since both projects that did not fully meet intended outcomes were from previous years and have already been addressed, a management review is not recommended.

Recommendations for remedial action: None

Actions taken in FY14 to respond to previous recommendations: Two partially achieved outcomes from 2012 and 2013 have already been addressed.

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: Monitored in FY 2014

Evaluation: 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. A complete set of FIA re-measurements became available in 2014 and will be used for the 2015 report.

Findings: None. Forest vegetation change across the Chugach will be summarized in FY2015 using the FIA re-measurement data.

Air Resources

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

Status: Not scheduled for monitoring in FY 2014

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 2014; 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 2014

Evaluation: The forest plan standards and guidelines for soils (USDA Forest Service, Chugach National Forest 2002) require the implementation of best management practices (BMPs) specified in the Soil and Water Conservation Handbook (USDA Forest Service, Alaska Region 2006). BMPs are recognized as the primary control mechanisms for nonpoint source pollution on National Forest System lands. 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. Annual BMP monitoring is required both nationally and by the Forest. The Chugach National Forest Monitoring Guide (USDA Forest Service, Chugach National Forest, 2011) includes annual monitoring of BMPs (Monitoring Question #6- *Are Best Management Practices (including wetland management) effective in meeting water quality standards?*). BMP monitoring is to be conducted in conjunction with

monitoring Question #1 (*Are projects being implemented consistent with Forest Plan Direction?*).

The monitoring protocol in the Forest Monitoring Guide was developed between 2007 and 2011 as a pilot protocol to use prior to release of the National Forest Service BMP Handbook and Monitoring Technical Guide. BMP monitoring was conducted prior to 1998. In 2011 BMP monitoring piloted the new Forest monitoring protocol. No monitoring was conducted in 2012 due to a lack of staffing. 2013 was the first year of piloting the new National protocols released in the National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1: National Core BMP Technical Guide (USDA Forest Service, 2012). However, the Forest had not yet adopted the National protocol methods for project population pool development. It was not until 2014 that the Forest monitoring projects for Water Quality BMPs were chosen using the National protocol methods for population pool and development rather than the Forest protocol.

A detailed description of the new National protocol/methodology for site selection is provided on the WFW (Watershed, Fish, Wildlife, Air & Rare Plants) National Best Management Program website:
http://fsweb.wo.fs.fed.us/wfw/watershed/national_bmps/index.html#recreationmgmt

The basis for BMP monitoring comes from a review of all applicable planning documents and field visits by an interdisciplinary team following project implementation.
Previous Forest BMP evaluations utilized the following Forest monitoring protocol:

> *"Qualitative ratings are used to characterize the extent to which BMPs have been applied at each management activity site. For each site, implementation of each applicable BMP is qualitatively rated on a scale of 0 to 4, and applicable project phases are noted. The implementation ratings for all applicable BMPs are averaged for each site. Full implementation is defined as an average BMP implementation score of 3.5 or higher" (USDA Forest Service, Chugach National Forest, 2011).*

As noted earlier, the first full year implementing the new National BMP Monitoring protocol was 2014. This report will follow the implementation and effectiveness ratings in accordance with the National protocol. BMP Implementation monitoring answers the question: "Did we do what we said we would do?"

Implementation monitoring assesses plan effectiveness by evaluating project prescriptions in planning documents and the translation of these prescriptions in to action documents, such as contracts and permits. In addition, operational execution of the project planning is considered. The 2014 National Implementation Rating categories are provided in **Table 2.**

BMP Effectiveness monitoring answers the question: "Did what we do work?" This protocol evaluates BMP application during chemical use near waterbodies related to effectiveness of control of chemicals and fuels. The National Effectiveness Rating Categories for 2014 for each activity are listed in **Table 3.** The Implementation Rating and Effectiveness Rating are combined into an Overall Rating for the National BMP evaluation (**Table 4**).

Table 2: National Protocol BMP ratings definitions for the 2014 BMP implementation monitoring.

Implementation Rating	Interpretation
Fully Implemented (4)	Prescriptions are identified in project planning documents. All prescriptions are translated into action documents. All specified prescriptions are implemented fully. All necessary corrective actions identified during the project are implemented fully.
Mostly Implemented (3)	Prescriptions are identified in project planning documents. Some prescriptions are translated into action documents. All specified prescriptions are implemented fully. All or Some necessary corrective actions identified during the project are implemented fully.
Marginally Implemented (2)	Prescriptions are identified in project planning documents. All or Some prescriptions are translated into action documents. Some specified prescriptions are implemented fully. All or Some necessary corrective actions identified during the project are implemented fully.
Not Implemented (1)	Prescriptions are identified in project planning documents. No prescriptions are translated into action documents, or No specified prescriptions are implemented fully, or No necessary corrective actions identified during the project are implemented.
No BMPs (0)	Site-specific BMP prescriptions were not developed or identified during project planning.

Table 3: National Protocol BMP ratings definitions for the 2014 BMP effectiveness monitoring.

Effectiveness Rating	Interpretation
Effective (4)	No pollutants reached in the water and there is no potential threat evident --and-- No adverse effects to waterbody from the project or activity (e.g. physical disturbance)

Mostly Effective (3)	Minor amounts of pollutants reached the waterbody or there is a potential threat evident --and/or-- Waterbody received minor adverse effects from the project or activity --and— Impacts to water quality are temporary, lasting less than one year
Marginally Effective (2)	Minor amounts of pollutants reached the waterbody or there is a --and/or-- Waterbody received minor adverse effects from the project or activity --and-- Impacts to water quality are prolonged, lasting more than one year Major amounts of pollutants reached the waterbody or there is a potential threat evident --and/or-- Waterbody received major adverse effects from the project or activity --and-- Impacts to water quality are temporary, lasting less than one year
Not Effective (1)	Major amounts of pollutants reached the waterbody or are very close to entering the waterbody --or-- Waterbody received major adverse effects from the project or activity --and-- Impacts to water quality are prolonged, lasting more than one year

Table 4: Combined implementation and effectiveness ratings for the National Composite BMP evaluation.

Combined Scoring		**Implementation Rating (IR)**				
		Fully Implemented	**Mostly Implemented**	**Marginally Implemented**	**Not Implemented**	**No BMPs**
Effectiveness Rating (ER)	**Effective**	*Excellent*	*Excellent*	*Good*	*Good*	*No Plan*
	Mostly Effective	*Good*	*Good*	*Fair*	*Fair*	*No Plan*
	Marginally Effective	*Fair*	*Fair*	*Poor*	*Poor*	*No Plan*
	Not Effective	*Poor*	*Poor*	*Poor*	*Poor*	*No Plan*

The following five projects were chosen for Forest Plan BMP Monitoring in 2014:

- Ibeck Creek Fish Habitat Protection and All-Terrain Vehicle Re-route (Rec C- Completed construction or re-routing of motorized trails)
- Trail River Road (Road C– Road and operation maintenance)
- Winter Mining Operations (Min A – Exploration and/or production of locatable and salable minerals)
- Kenai Peninsula Invasive Plant Treatment Program (Chem A- Chemical use near water bodies)
- Chugach Electric Cooper Lake – Stetson Creek Diversion Dam (WatUses D- Active Construction of Diversions and Conveyances)

These five sites are scattered across the Forest and encompass a variety of typical ground-disturbing activities (**Figure 1**).

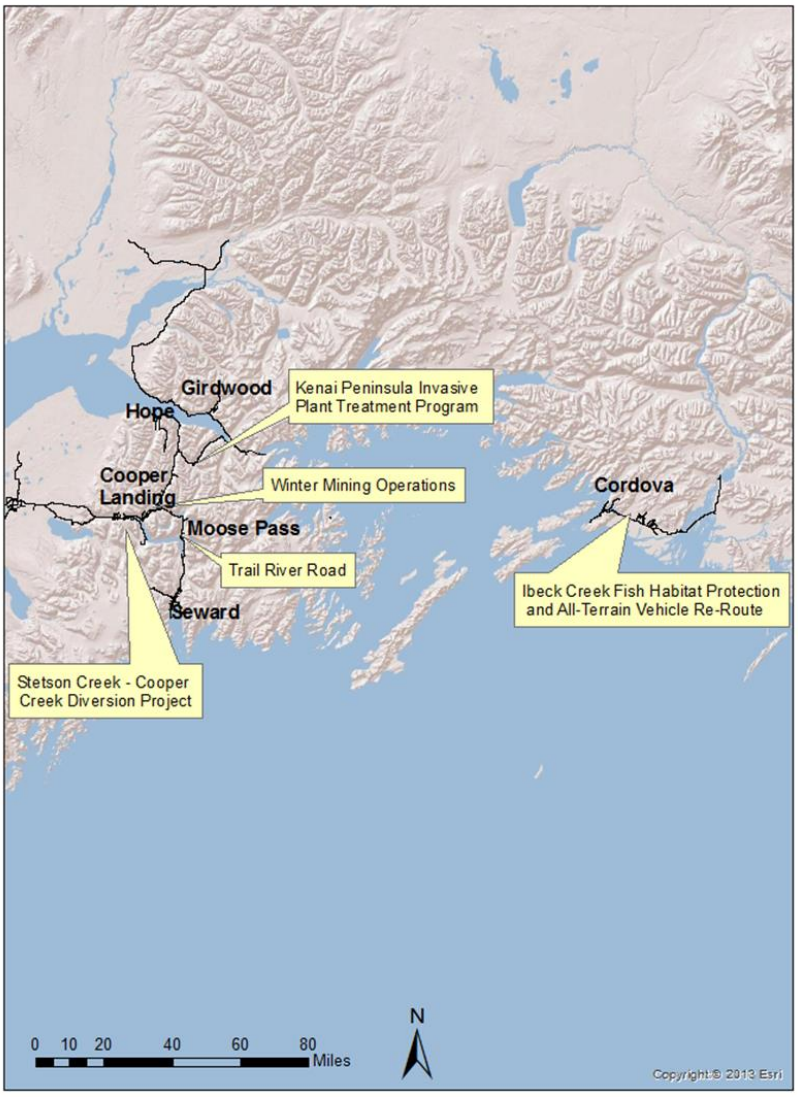

Figure 1: Locations of the Chugach National Forest BMP projects monitored in 2014.

Findings: Overall, most of the projects on the Forest rated out as *Fully* and *Mostly for* the *Implementation* rating. It is unclear as to why the score for the 'Chem' criterion rated out as *marginal* when entered into the national BMP database. It seemed that most provisions were included within the EA and project record and that the implementation included execution of all of those provisions (i.e. timing of application relative to weather and other factors). This discrepancy may illustrate some of the kinks that still need to be worked out in the ratings of the National Database.

The *Marginal* rating for the WatUses criterion was reasonable as there were few to no provisions in any of the planning documents that addressed this element. In addition, the implementation of the projects employed few erosion control measures. The Cooper Lake – Stetson Creek Diversion Dam project was the one NEPA project that was not completed by the Forest Service. It is recommended that future planning projects, not completed by the Forest Service, receive more scrutiny to ensure they are meeting NEPA requirements, Forest Plan Standards and Guidelines and include Best Management Stipulations for the protection of soil and water quality.

All of the projects monitored for BMP *Effectiveness* received *Effective* and *Mostly Effective* ratings. The one exception to this was the Cooper Lake – Stetson Creek Diversion Dam project that received a *Not Effective* rating.

The Overall composite scores, this includes both the *implementation* and *effectiveness* monitoring, were all *Excellent* and *Good* with the exception of Cooper Lake – Stetson Creek Diversion Dam project earning a *Poor* rating. The results of this monitoring seem to show a discrepancy of between the *implementation* and *effectiveness* of projects completed by the Forest and those completed by outside contractors. It will be important for the Forest to monitor and see if this is just an anomaly or if this is a trend.

Recommendations for remedial action: None

Actions taken in FY14 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 2014; sampling protocol have 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 2014

Evaluation: 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.

Findings: 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.

Recommendations for remedial action: None

Actions taken in FY14 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 2014

Evaluation: This monitoring documents the contribution of human-caused disturbance on the distribution and abundance of non-native (exotic) plants. It presents information on the distribution of invasive plants collected during the 2014 field season. Methodology for these surveys is consistent with the CNF forest plan monitoring protocol.

Findings: In 2014 the invasive monitoring task included the 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.

Recommendations for remedial action: None

Actions taken in FY14 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 2014

Evaluation: 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 (ADF&G) 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 2014, no DLPs were reported on lands managed by the Chugach National Forest.

Findings: There were no DLPs recorded by ADF&G on Chugach National Forest lands in FY 2014.

Recommendations for remedial action: None

Actions taken in FY14 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 2014; sampling protocol have not yet been developed

Evaluation: None

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

Status: Monitored in FY 2014

Evaluation: Since 1984, artificial nest islands have been installed on the Copper River Delta (CRD), Alaska to enhance nest success of dusky Canada geese (*Branta canadensis occidentalis*). The average nest success of artificial islands installed on the CRD is approximately 62% (1984-2014), which is nearly double that found on natural sites.

In the past, newly installed (i.e. in program 0-2 years) and established (i.e. in program longer than 3 years) artificial nest islands were separately analyzed, due to the potential differences in vegetation growth and use by dusky Canada geese. Vegetation on newly installed artificial nest islands requires time to fully establish and grow, making the artificial

nest island more desirable to nesting geese. However, in 2013 it was determined that most of the criteria (e.g. nest success, goslings hatched per nest, required maintenance) between newly installed and established artificial nest islands were similar. For the purposes of this report, and simplicity of data analysis and future reporting, all artificial nest islands have been combined (i.e. newly installed and established).

Findings: A total of 374 artificial nest islands were monitored in June 2014. Of the 374 artificial nest islands monitored, 369 were found to be available (99%) for use by dusky Canada geese.

In 2014, artificial nest islands were used for both nesting (34%) and roosting (36%), by dusky Canada geese. A total of 124 dusky Canada goose nests were found on artificial nest islands. Of the 124 nests, 108 were successful (apparent nest success = 88%). Average clutch size was 4.6 (min =1, max =8) and yielded approximately 475 goslings.

A total of 174 (47%) artificial nest islands required maintenance (e.g. landscaping, anchoring, or both) in 2014. In addition, 12 new artificial nest islands were installed in 2014, bringing the total number of artificial nest islands in the program to 386.

Recommendations for remedial action: None

Actions taken in FY14 to respond to previous recommendations: None

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

Status: Not scheduled for monitoring in FY 2014

Evaluation: None

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

Status: Report generated in FY 2014

Evaluation: This monitoring question is addressed by reviewing the results of minimum count mountain goat surveys conducted by ADF&G, as a means of inferring population trends. Aerial surveys are conducted using fixed-wing aircraft, identifying the minimum number of goats observed with each established mountain goat count unit. By design, each count unit within a GMU should be surveyed once every three years. However, due to logistical and financial limitations, count units not always surveyed on a consistent 3-year

schedule. Survey data compiled in this report includes counts from surveys conducted by ADF&G between 1996 and 2013.

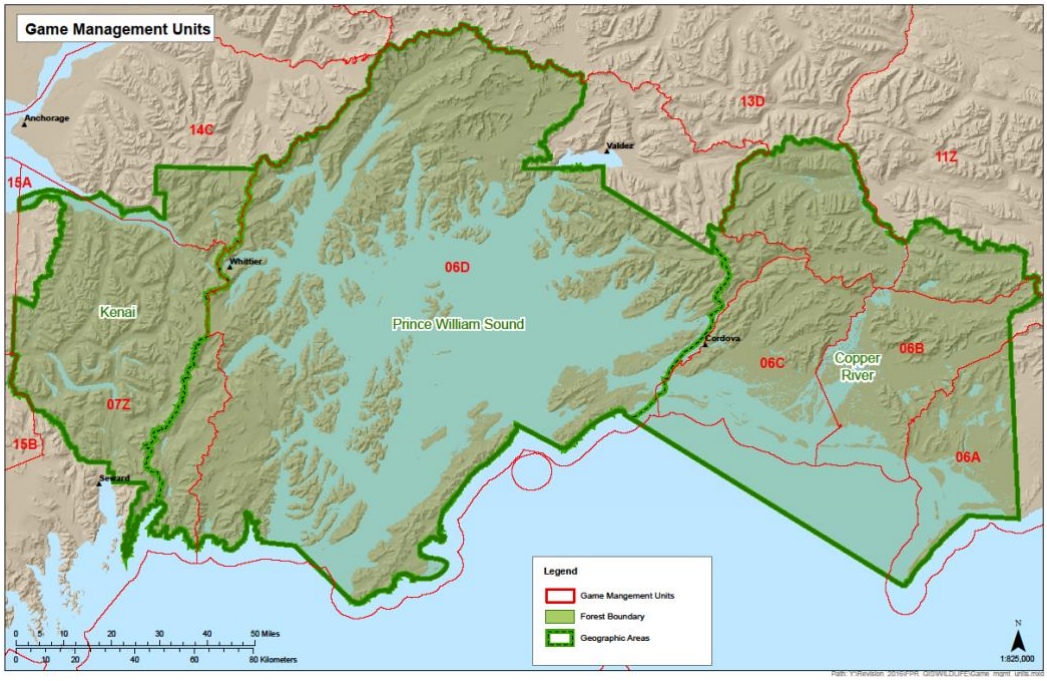

Figure 2. Map of CNF with overlay of State of Alaska game management unit boundaries.

The CNF administers lands located within parts of GMUs 6, 7 and 14C.

GMU 6: Mountain goats are endemic to the mainland in GMU 6 and to Bainbridge, Culross, and Knight Islands. During much of the twentieth century mountain goat populations declined due to hunting pressure, reaching a low of 3,000 in 1994 and finally beginning to rebound in 1999 with an estimated 4,000 goats. Over the last decade the population is thought to have ranged between 3,500 and 4,000 animals.

GMU 7: Mountain goats are endemic to the mainland in Unit 7, which includes portions of the Kenai Peninsula. Mountain goats are most abundant in the coastal mountains and least abundant in the interior portions of the Kenai Mountains where they coexist with Dall sheep. The overall population decrease beginning in the early 1990s through 2006 was estimated somewhere between 30 and 50 percent. Managers closed hunts or substantially reduced harvest numbers in areas 331-333, 335-338, 343, 353, 355 and 356, and since 2006 the overall population has been steadily increasing, although certain areas appear to have stabilized a much lower numbers and goat numbers continue to decline in certain areas.

GMU 14C: Mountain goats are endemic to the mainland in Unit 14C. Unit 14C contains CNF and Chugach State Park lands. On the Chugach National Forest Unit 14C includes Glacier, Placer and Twenty Mile hunt units.

Findings: Mountain goat populations within those portions of GMU 14C located within the CNF appear to be increasing, while the populations within the Forest in GMU 6 and GMU 7 appear to be declining, with a number of units declining at a rate of more than 35% per decade. These population estimates are based on a very limited dataset with variable periods between minimum count surveys, and in some cases incomplete surveys. Optimum survey frequency is to revisit each count unit every three years, but due to a variety of logistical and financial limitations, few units are visited this often. Due to limitations of the data, these trends should be evaluated with caution. This limited analysis suggest that the threshold requiring consultation with ADF&G has been surpassed on numerous count units within both GMU 6 and GMU 7.

GMU 6: Currently there are 15 goat count areas in GMU 6. Although guidance suggests all units are to be surveyed on a 2-3 year rotation, within GMU 6 minimum count surveys have been conducted only sporadically over the last decade, and the actual time between surveys averages 10 years. During the most recent reporting period 2009-2013, surveys were conducted on 8 of the 15 count areas (including partial counts), but surveys were only conducted in 2010 and 2013. Only one unit (RG 231) was surveyed twice during this period. This very limited dataset and the variable period length since prior surveys of individual units complicates any trend analysis targeted at the last 10 years. Simple comparisons by count unit between current minimum count numbers and the most recent prior count results show inconsistent results. Units RG206, RG248 and RG252 showed very high counts, while units RG230, RG242 and RG231 appeared stable, and RG232 and RG266 were lower than expected. Comparing the estimated total population of between 2,500 and 3,500 individuals, as reported by ADF&G in their 2014 report, with an estimated population of 4,000 individuals reported in 2012 shows an apparent decline for GMU 6.

GMU 7: Currently there are 16 goat count units in GMU 7 that are located within CNF lands. Optimally, each area is surveyed at least once every 3 years (Herreman 2014), but actual surveys have been much more sporadic in most units. The limited dataset and the variable period length between minimum count surveys complicates simple comparisons. Looking at apparent shifts in trend lines (calculated using simple regression lines based on survey dates it appears that over the last decade the overall population within these units appears to have declined at approximately 25%, with the rate of decline falling slightly since 2006. Four units (331, 333, 341 and 344) have shown substantial increases while seven of these units (332, 334, 336, 339, 343, 346 and 352) continue to decline at rates of more than 35% over a 10 year period. Looking at just the data from surveys conducted between 2006 and 2013, the rate of decline on six of the seven units appears to have increased.

GMU 14C: Due to infrequent surveys, poor survey conditions and incomplete surveys over the past decade, it is difficult to ascertain any population trends for goats in Unit 14C. Using the data in **Error! Reference source not found.** a simple logarithmic regression suggests that the goat population is increasing. Most of the goats counted were counted incidental to sheep surveys in the past 10 years. Anecdotal evidence suggests that goats in Unit 14C may be expanding their range throughout the Chugach State Park (Coltrane 2010).

Recommendations for remedial action: None

Actions taken in FY14 to respond to previous recommendations: None

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

Status: Monitored in FY 2014

Evaluation: Black oystercatchers are listed as a "species of high concern" in the U.S. National Shorebird Conservation Plan, a Focal Species for the U.S. Fish & Wildlife Service (USFWS), a Chugach National Forest Management Indicator Species (MIS), and a US Forest Service Alaska Region Sensitive Species. The Chugach Forest Plan (2002) advises monitoring population trends, habitat relationships, and habitat change for nesting black oystercatchers in PWS. The Chugach National Forest has been monitoring black oystercatcher nest locations in PWS since 1999.

By monitoring black oystercatcher populations, we can better assess the effects of human activities on shoreline ecosystems, and we can locate areas that may be sensitive to disturbance. Previous data collected in PWS has been used to analyze interactions between black oystercatchers and human activity. Future analysis will continue to compare populations and human activity effects.

The sampling design was developed in an attempt to retain the historically important survey regions of Harriman Fjord, Green Island, Montague Island, and the Dutch group, while incorporating shoreline segments from the entire PWS. In order to minimize travel time and expense to visit other sampled shorelines we took a regional approach to sampling, and developed a split-panel rotating design to provide a balance between estimation of trend and estimation of yearly status. A split-panel rotating design also has the advantage of allowing more shorelines to be visited during the life of the monitoring program, which provides more opportunity to detect changes in the spatial distribution of nesting black oystercatchers in PWS.

Findings: A total of 41 potential regions were systematically sampled from all Chugach National Forest shoreline in PWS. Additionally, 5 regions from historically high nesting

density areas were added to the sample including: Harriman Fjord, Green Island, the west side of Montague Island, and the Dutch Group. Transect center points were selected randomly from this set of regions. The resulting transects are 20 km in length.

In early June 2014, a total of 8 transects were surveyed in Prince William Sound including: College Fjord, Green Island, Eleanor Island, Port Gravina, Knight Island, Rocky Point, Simpson Bay, and Unakwik Inlet.

A total of 12 active black oystercatcher nesting territories were identified during the 2014 survey and an additional four sites were identified with non-breeding black oystercatchers. The greatest densities of active black oystercatcher territories were located in College Fjord (5) and Green Island (5). In addition, 29 eggs, 3 chicks, and 34 adult black oystercatchers (breeding and nonbreeding) were observed during the 2014 survey. Data from the 2014 survey will be entered into the Chugach National Forest black oystercatcher GIS database.

As this is only the third 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 FY14 to respond to previous recommendations: None

Species of Special Interest

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

Status: Not scheduled for monitoring in FY 2014

Evaluation: The goals of this monitoring are to estimate wolverine (*Gulo gulo*) abundance and trend in the upper Turnagain Arm/Kenai Mountains area and to compare abundance within and outside areas used for helicopter skiing. Monitoring for this species was not undertaken in 2014, because this year was not scheduled for gathering information.

Forest Products

Q17 - Are forestlands restocked?

Status: Not applicable in FY 2014

Findings: 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.

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

Status: Not needed in FY 2014

Evaluation: The initial evaluation of changes in timber suitability was completed in 2012 (DeVelice 2012) and additional work was not needed in FY 2014.

Findings: None

Heritage Resources

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

Status: Monitored in FY 2014

Evaluation: 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.

Findings: FY 2014 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 2014 are described here.

1) Was the NHPA Section 106 process completed on each undertaking during FY2014?
   Yes. According to the FY2014 SOPA there were 68 projects completed in FY2014, and INFRA records indicate 72 projects evaluated under Section 106 in FY2014. All 68 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 2008 (the beginning of the current five-year period). Since no CRMPs have been developed within the current five-year period, management action is triggered.

3) Have any NRHP evaluations/nominations been completed in FY2014?

No. No NRHP evaluations/nominations have been completed in FY14, so management action is triggered.

Findings: Evidence reviewed in this assessment suggests that the forest is successfully carrying out its Section 106 responsibilities in compliance with the Alaska Region's Programmatic Agreement. The monitoring also suggests that the Heritage Program manages project data insufficiently and the forest is not successful in providing stewardship of known significant cultural resources.

Recommendations for remedial action: Management action has been triggered, because no cultural resource management plans have been developed, and no NRHP evaluations were completed in 2014. The recommendation that is intended to resolve the matter and ensure that the forest provides adequate maintenance and protection of significant cultural resources on the forest is to begin working on a cultural resource management plan in fiscal year 2015, and to prepare five NRHP evaluations in fiscal year 2015.

Actions taken in FY14 to respond to previous recommendations: None

Recreation Opportunities, Tourism, Access, and Facilities

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

Status: Not monitored in 2014; 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 2014

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 2014

Evaluation: 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 data were collected from commercial recreation special use permit Final Use Reports provided by the permittees. These are housed at each of the three ranger districts. The special use permit staff entered the data into the forest-wide database used to track guided use. It is assumed that the data received from the permittee is complete and accurate.

Findings: Total reported commercial use of Chugach National Forest for the reporting period from May to September, 2014 was compiled is presented in tabular form showing the breakout for different recreational activities by Ranger District (Table 5). Across all activities, 16,351 commercial-based recreation days were reported for the CNF.

Recommendations for remedial action: None

Actions taken in FY14 to respond to previous recommendations: None

Table 5. Commercial outfitter/guide based recreational user days on the Chugach National Forest for the period May 23, 2015 to September 7, 2015.

ACTIVITY	Copper River Delta	Kenai Peninsula (includes Portage & Girdwood)	Prince William Sound
ATV Rides	0	10	0
Backpacking	0	803	0
Bird Watching	0	65	0
Camping	87	143	3774
Dog Sled Tours	0	1139	0
Fishing	74	1033	29

ACTIVITY	Copper River Delta	Kenai Peninsula (includes Portage & Girdwood)	Prince William Sound
Flightseeing/Glacier Landing	0	44	0
Gold Panning	0	34	0
Hiking	121	1996	1584
Horseback Riding	0	145	0
Hunting	122	5	98
Ice Climbing	0	119	0
Kayak Day Trips	0	99	0
Motorized Boat Tours (jet boat)	0	287	0
Mountain Biking	0	103	0
Mountaineering	0	0	0
Nature Tours	566	102	0
Rafting	0	3,730	0
Packrafting	0	17	0
Photography	0	0	22
TOTAL	970 Service Days	9,874 Service Days	5,507 Service Days

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: Information collected in FY 2014, but no project summary available.

Evaluation: 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.

Findings: None reported

Fire Protection and Fuels Management

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

Status: Monitored in FY 2014

Evaluation: This monitoring includes both effectiveness and implementation components. The effectiveness monitoring interprets whether changes in fire regime condition class 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.

Findings: In FY 2014, 203 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 203 acres is 51 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.

Recommendations for remedial action: None

Actions taken in FY14 to respond to previous recommendations: None

Wilderness Study Area

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

Status: Information collected in FY 2014 but no project summary available.

Evaluation: 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 Plans "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.

Findings: None reported.

Research Natural Areas

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

Status: Monitored in FY 2014

Evaluation: 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).

Findings: 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 FY14 to respond to previous recommendations: None

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