National Park Service
Fire Ecology Annual Report
Alaska Region
Calendar Year 2012

A. Summary

Overview

The NPS Alaska Region fire ecology program provides science-based information to guide Alaska NPS fire and land management planning, decisions and practices in order to maintain and understand fire-adapted ecosystems in Alaska. The scope of the fire ecology program includes 16 national park units in Alaska; however the majority of the work has occurred in the following park units: Bering Land Bridge (BELA), Denali (DENA), Gates of the Arctic (GAAR), Noatak (NOAT), Yukon-Charley Rivers (YUCH), and Wrangell-St. Elias (WRST).

The major focus areas for 2012 were to complete monitoring reports for two thinning projects and fire management plans. During the field season, the fire ecology program re-measured monitoring plots in mechanical fuels treatment areas, led an interagency effort to collect seasonal fuel moisture samples, and conducted fire behavior analyses for several wildfires.

Photo 1: Measuring tree diameters at the McCarthy University Subdivision hazard fuels plots in Wrangell-St. Elias NPPr. 2012 NPS photo

The purpose of the Alaska NPS Fire Ecology program is to provide science based information to guide Alaska NPS fire and land management planning, decisions and practices in order to maintain and understand fire adapted ecosystems. The primary focus areas of the program are to:

- Participate in *planning* activities for the Fire Management and Park Land Management Programs and develop strategies to accommodate fire management issues as a result of climate change
- Provide effective evaluation of Alaska NPS fire management program activities and fire on the landscape through *monitoring*
- Coordinate *research* and facilitate the use of scientific data, modeling and technology to enhance the fire management program
- Provide fire ecology *information and outreach* to fire managers, other park staff, and the public
- *Collaborate* with other NPS programs, interagency partners, and other entities.

2012 Fire Season

The 2012 fire season in Alaska was fairly slow in the Interior of Alaska, with more activity in the north-west parts of the state. Above normal precipitation in June and frequent light rain in July within the Interior kept most fires fairly small, however lightning busts combined with low precipitation resulted in numerous fire starts in northwestern Alaska in both early June and early July (AICC 2012, http://fire.ak.blm.gov/content/aicc/stats/firestats.pdf). Unusual late fall/early winter fires occurred in the Delta, Tok, Mat-Su and Dillingham areas as a result of high winds and/or low snow cover, with fires occurring all the way into December. A total of 418 fires were reported which burned 286,888 acres statewide for Alaska in 2012. This was the second lowest acreage burned in the last 10 years for Alaska and well below the 50 year average of about 1 million acres.

Photo 2. Tundra fires in Noatak National Preserve. Uvgoon Creek #1 Fire (foreground) and Kungiakrok Fire (background) on July 7, 2012. (Photo: BLM Alaska Fire Service, Galena Zone).

Although the statewide area burned was low, 27% of the area burned in Alaska was on National Park lands in 2012. A total of 26 wildfires burned 80,627acres within and adjacent to six Alaska park units (Table 1). For the third year in a row, Noatak NPr in western Alaska had the most fire activity of the parks in Alaska (Photo 2).

Prescribed fire pile burns were conducted in Denali, Lake Clark, Wrangell-St. Elias and Yukon-Charley Rivers.

Table 1. Wildfires and prescribed fires in Alaska park units from 2012

Park Unit	Number of Wildfires	Wildfire Acres Burned*	Number of Prescribed Fire Units	Acres of Prescribed Fires
Denali National Park & Preserve	2	289	4	3.56
Gates of the Arctic National Park & Preserve	4	4,499		
Kobuk Valley National Park	5	6,462		
Noatak National Preserve	8	59,655		
Wrangell-St. Elias National Park & Preserve	2	22	5	33
Yukon-Charley Rivers National Preserve	5	9,698	1	1
Lake Clark National Park & Preserve	0	0	4	2.97

* Includes total acres of all fires that were within or partially in the administrative boundaries of the park unit.

B. Monitoring & Inventory

During 2012 the NPS Alaska Fire Ecology program monitored hazard fuel reduction plots in Wrangell-St. Elias NPPr (WRST) and Bering Land Bridge (BELA). Brief descriptions of the monitoring projects from Wrangell-St. Elias are provided below. The Bering Land Bridge project will be presented in 2013, once data is entered and analyses can be completed. Table 2 provides a list of the number of plots measured in 2012 and the total number of fire/fuels monitoring plots for parks since 2002.

Table 2. Fire Effects Plot Workload (2012) and Total Monitoring Plots Installed 2002-2012

Park	Monitoring Unit	Type of Plot (FMH, photo point, other)	Pre-burn/TX 2012	Immed. Post 2012	Post (1-20 yrs) 2012	Annual Total	Total Plots
Wrangell-St. Elias	Carl Cr RX	AKR Carl Cr Plots					**29**
	Chakina Fire 2009	CBI & Cover					**56**
	Chakina Fire 2009	AKR Fire & Fuels Plots					**9**
	Susan Smith – Hazard Fuels Plots (HZF)	AKR SS Hazard Fuels Plots					**13**
	Headquarters – HZF	AKR Hazard Fuels Plots			5	**5**	**19**
	Fire Effects – Paired Plots	AKR Paired Plots					**2**
	McCarthy University Subdivision - HZF	AKR Hazard Fuels Plots			26	**26**	**27**
Yukon-Charley Rivers	2004 Woodchopper Fire	AKR Fire & Fuels Plots					**7**
	1999 Witch Fire	Fire effects - other					**15**
	2004 Fire – Paired Plots	AKR Paired Plots					**5**
Denali	Headquarters – HZF	AKR Hazard Fuels Plots					**27**
	VDM HighpowerReburns	AKR Fire & Fuels Plots					**10**
	Landcover-CBI	AKR Fire & Fuels Plots					**55**
Noatak	2010 Fires	CBI & Cover					**34**
	2004 Uvgoon Fire	AKR Fire & Fuels Plots					**6**
	1977 Fires Racine Plots	Racine Plots					**8**
Bering Land Bridge	1977 Fire Racine Plots	Racine Plots					**8**
	Fairhaven Ditch Cabins- HZF		4	4		**4**	**4**
Total			4	4	31	**35**	**333**

Wrangell-St. Elias Mechanical Thinning

When fire management implements a thinning project to reduce the wildfire risk to structures, the fire ecology program often conducts a corresponding monitoring project to ensure that management objectives are met. In 2012 the fire ecology program completed 1 year post treatment monitoring for two hazard fuels reduction projects in Wrangell-St. Elias National Park and Preserve.

WRST Headquarters: In 2009 fire management staff developed a Hazard Fuels Management Plan near WRST Headquarters and Seasonal Housing areas. The main goal of the mechanical thinning project was

to provide defensible space and minimize hazard tree risk near WRST headquarters and visitor center areas. A fuel break of a 100' buffer around headquarters and visitor center area was intended to reduce the number of spruce trees and increase the ladder fuel height to minimize the likelihood of a crown fire. The thinning treatment will be completed in several phases. The goals for the first phase were:

1) 3 to 5 foot crown spacing in spruce (681-1210 spruce/acre)
2) Maintain a mixed age stand
3) All sizes of healthy deciduous trees remain
4) Average height to ladder fuels will be approximately 4 feet

The purpose of this study was to document the pre- and post-treatment condition of the vegetation and fuels scheduled to have mechanical fuels thinning in the WRST Headquarters Area. Nineteen monitoring plots were established in 2009, prior to implementation of the fuels treatments in 2010 and 2011. Thirteen treatment plots and six control plots were established. Most plots were re-measured in 2011; the remaining plots that were thinned in 2011 were re-measured in 2012. Plots will be revisited again 5-yrs post treatment in 2015.

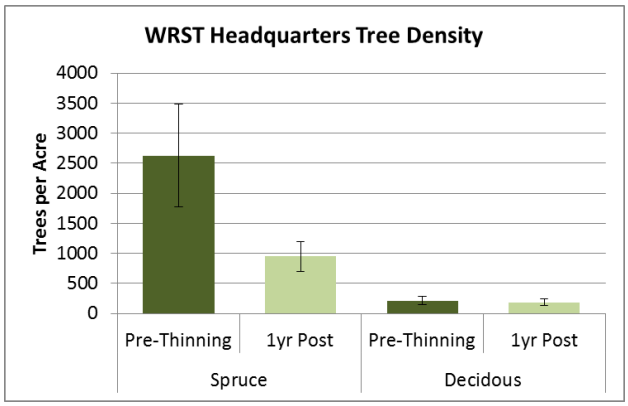

Figure 1. Average density of spruce and deciduous trees pre and post thinning at the Wrangell-St. Elias Headquarters mechanical fuels project.

Results from the monitoring reveal that the prescribed 3-5 ft crown spacing in spruce was met (3-5 ft crown spacing which would result in approximately 681-1210 trees/acre). The spruce tree density was reduced from an average of 2626 (80% CI 1467-3785) spruce trees/acre prior to thinning to 949 (80% CI 611-1287) spruce trees/acre after thinning (Figure 1). Healthy deciduous trees were retained on site (Figure 1). The average height to ladder fuels was significantly increased to 3.2 ft, just under the 4 ft limbing height prescription. Prior to treatment the average dead ladder fuel height was less than 1 inch (1.54 cm) above the ground. Management objective results are presented in Table 3.

WRST McCarthy University Subdivision: This project is located in the wildland urban interface near McCarthy, a small town perched on the edge of expansive parklands. The primary purpose of this fuels reduction project was to create a buffer zone, or fire break, between NPS land and private property in the University Subdivision area. Pre-treatment monitoring data was conducted early in the summer of 2011, the hazard fuels reduction treatment was implemented in late summer. Post-treatment monitoring occurred in 2012. Twenty-seven plots were installed to evaluate the success of the hazard fuels treatment in meeting prescription objectives.

The specific fuels reduction project objectives were as follows:

1) *6' Bole spacing between needleleaf trees*- needleleaf trees will be mechanically thinned; needleleaf tree bole spacing will be 6 feet between tree boles.
2) *Needleleaf tree limbing to ≥ 5 feet*- needleleaf trees will be mechanically limbed; live and dead ladder fuels lower than 5 feet up the tree bole from the ground surface will removed.
3) *Large woody debris removed*- 100hr and 1000hr fuels will be removed by hand; 80% of 100hr and 1000hr fuels will be removed.
4) *Tall shrub density reduction*- dead and decadent shrubs will be mechanically thinned; 80% of shrubs greater than 50% dead will be removed.
5) *Deciduous trees retained*- live deciduous trees will not be removed.

Photo 3a: Densely forested monitoring plot in the McCarthy University Subdivision fuels site in Wrangell-St. Elias prior to thinning, 2011 NPS Photo.

Photo 3b: The same plot one year after the fuels thinning treatment, 2012 NPS photo.

Based on the 2012 monitoring plots, the prescribed thinning of trees to 6 ft bole spacing was met, but also exceeded the prescription. Six foot bole spacing would result in approximately 1210 trees/acre. The post-treatment plots had an average of 542 (80% CI 421 - 663) spruce trees/acre, reduced from the initial pre-treatment density of 1097 (80% CI 892-1302) spruce trees/acre (Figure2). Fire behavior modeling will be completed for the project in 2013 to determine how the thinning may have reduced crown fire potential.

The average height to ladder fuels was increased to 2.6 ft, which did not meet the 5 ft limbing height prescription. Prior to treatment the average dead ladder fuel height was less than 1 inch (1.5 cm) above the ground. Although most trees measured were limbed to the target objective of 5 ft, several trees had dead branches left at the base of the tree (note the tree on the right in Photo 3b), which resulted in a lower average ladder fuel height. The fire management program intends to re-visit the site and complete the limbing.

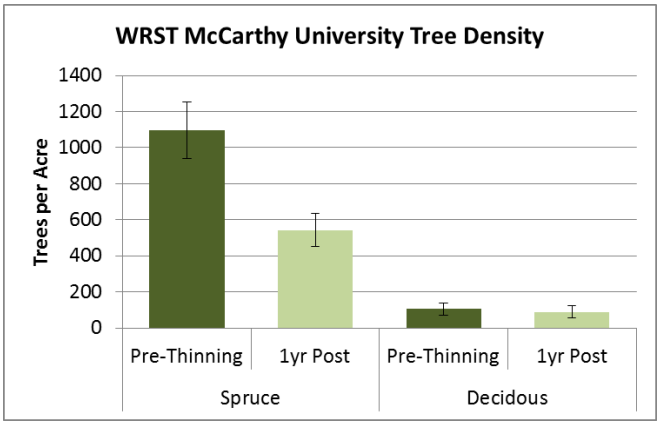

Figure 2. Average density of spruce and deciduous trees pre and post thinning at the Wrangell-St. Elias McCarthy University Subdivision mechanical fuels project.

The project area was in an old fire area, likely from 1915, and as the trees have overtopped the willow in the area, these willows have died back (note the dead willow in Photo 3a). Resulting in lots of dead and broken willow stems prior to the treatment. The dead and decadent tall shrubs were reduced by 87%, which met the target objective of 80% reduction. There was an average of 739 stems/acre (80% CI 603-876) of tall dead or decadent shrubs prior to the treatment; these were reduced to 71 stems/acre (80% CI 36-107) after the treatment.

Management objective results are presented in Table 3.

Table 3. Management Objectives and Monitoring Results

All results shown are 80% confidence intervals of the mean. Fuel reduction objectives/results are mean percent reduction from pre-treatment to immediate post-treatment. An underlined number of plots indicate that the minimum sample size has been attained for that variable.

Monitoring Unit	Management Objective	Monitoring Results (80% Confidence Interval)	Objective Achieved?	Year Last Analysis Completed & Years included in analysis
WRST Headquarters Hazard Fuels	Reduce spruce tree density to **3 to 5 foot crown** spacing in spruce (681-1210 spruce/acre) (+/- 80% confidence interval).	**Spruce Tree Density** *Pre-treatment (n=13 plots):* 2626 (1467-3785) trees/acre *Post-treatment (n=13 plots):* 949 (611-1287) trees/acre	**YES**	2012 (2009-2012)
	Limb spruce to 4 ft (122 cm)	**Dead Ladder Fuel height** *Pre-treatment (n=41 trees):* 1.54 cm (0.4 - 2.6 cm) *Post-treatment (n=42 trees):* 98.86 cm (87.1 – 110.6 cm)	NO, average was 3.2 ft	2012 (2009-2012
WRST McCarthy University Subdivision Hazard Fuels	Reduce spruce tree density to **6 foot bole** spacing in spruce (1210 spruce/acre) (+/- 80% confidence interval). *6 foot crown spacing = 538 spruce/acre*	**Spruce Tree Density** *Pre-treatment (n=27 plots):* 1097 (892-1302) trees/acre *Post-treatment (n=26 plots):* 542 (421-663) trees/acre	NO, overthinned for bole spacing, but meets crown spacing	2012 (2011-2012)
	Limb spruce to 5 ft (152 cm)	**Dead Ladder Fuel height** *Pre-treatment (n=181 trees):* 1.48 cm (0.98 – 2.0 cm) *Post-treatment (n=158 trees):* 78.18 cm (70.8 – 85.6 cm)	NO, average was 2.6 ft	2012 (2011-2012)
	80% of tall shrubs greater than 50% dead will be removed	**Dead/Decadent Shrub Density** *Pre-treatment (n=27 plots):* 739(603-876) stems/acre *Post-treatment (n=26 plots):* 71 (36-107) stems/acre Percent removed: 87.7%	**YES**	2012 (2011-2012)

Table 4. Monitoring - 2012

Park	% 2012 Data Entered	% 2012 Data Quality Checked	# Prescribed Fires Monitored	# Non-fire Fuels Treatments Monitored	# Wildfires Monitored	# BAER Treatments Monitored
WrangellSt-Elias	100%	90%	0	2	0	0
Bering Land Bridge*	0%	0%	0	1	0	0

*****Due to staff changes, Bering Land Bridge data entry was put on hold until the new fire ecologist assistant was hired.

C. Research & Technology

The AKR fire ecology program coordinates ***research*** and facilitates the use of scientific data, modeling and technology to address the needs of the fire management program. This year no new fire research projects were funded within the parks, although a few research proposals were submitted (see Table 5). Below are descriptions of research and technology projects worked on in 2012.

Table 5. Research - 2012

Park	Are research needs identified in FMP or Monitoring Plan? (yes or no)	# of Proposals Submitted in 2012	# of Proposals Funded in 2012	# of Research Projects Supported in 2012*	Additional Comments
Noatak National Preserve	yes	0	0	1	NPS FY11 Reserve Fund Research
Wrangell-St. Elias NPPr	yes	1	0	0	FY12 Reserve Fund Research
Denali NPPr	Under revision	2	0	1	PMIS

*****Number of funded research projects, new or ongoing, supported by the fire ecology program including logistical info or support, staffing, etc.

Noatak Burn Severity and Carbon Dating (Reserve Fund Research)

In 2011 the Alaska Region was funded by the NPS Fire Program's Reserve Fund and the Arctic Network I&M program to assess the age of carbon being burned in tundra fires in Noatak National Preserve. Tundra fires, which are common in Noatak, often burn into the organic soil material which can impact vegetation succession and have the potential to release ancient stored carbon. The objectives of this study were to: 1) assess burn severity and how severity affects vegetation composition, and 2) investigate how burn severity and fire return intervals influence the release of carbon from tundra soils. In 2011, thirty-four plots were assessed for burn severity and 1 year post vegetation composition across 5 large fires from the 2010 fire season in the Noatak NPr (Photo 4). Organic soil monoliths were collected at 24 of the plots to determine how burn severity may correspond to the age of organic soils consumed by the fires. During 2012 analysis of the data and presentations of the results were completed. A fire story was submitted about the project, but has not been published yet. A final report is expected in 2013.

Photo 4. NPS Fire staff study the impacts of tundra fires on vegetation and soils in Noatak National Preserve. 2011 NPS Photo.

For the five fires assessed (48,211 acres), the MTBS burn severity maps indicated that 76% of the area was classified as unburned to low severity, 23% was moderate and only 1 % of the area was classified as high severity. Comparing the ground based severity data, the initial assessment remote sensed data had a stronger correlation ($r^2 = 0.86$) than the mixed assessment data of MTBS ($r^2 = 0.70$). The vegetation data showed a rapid recovery of tussock cotton grass sedges (*Eriophoroum vaginatum*) and initial re-sprouting of common ericaceous species one year post fire in the low to moderate severity sites.

Data was collected to assess the age of the carbon that may be burned in tundra fires in Noatak. This study may help to determine whether tundra fires burn old carbon or recent carbon stored in the organic soils of tundra. Initial results show that the summer 2010 burns primarily consumed biomass that was less than 60 years old. This implies that given enough time, the carbon released from the tundra

ecosystems by the fires will mostly recover though vegetation succession. However, the basal ^{14}C ages are consistently older for soil monoliths from high-severity burns or from areas that have burned more than once over the past 60 years. Preliminary data indicate organic soils that are burned severely or multiple times may be as old as 900 years. This project is an example of a co-operative effort between the Alaska Regional Fire Ecology Program and the Arctic Network Inventory and Monitoring Program.

Alaska Live Fuel Moisture Research

A large effort by the interagency fire community to monitor fuel moisture was spear headed by the regional fire ecologists from the National Park Service, Alaska Fire Service (BLM) and US Fish & Wildlife. In the spring, a Fuel Moisture Sampling class was held to train people on sampling foliar (conifer), woody (shrubs), herbaceous, and duff moisture (Photo 5a). Four sites in Alaska, including Denali (Photo 5b), were monitored throughout the season and data for Alaska was entered in the National Fuel Moisture Database for the first time (http://72.32.186.224/nfmd/public/states_map.php?state=AK). This information is used in fire behavior modeling. Prior to this only minimal sampling of live fuel moisture has been done in Alaska. Efforts are planned to continue sampling next year.

Photos 5a and 5b. Fish and Wildlife staff learn about sampling shrub fuel moisture (top photo) and NPS Western Area fire staff sample duff moisture in Denali (bottom photo). 2012 NPS photos.

Fire Research Committees

The regional fire ecologist continued work with the Fire Research, Development and Application committee of Alaska Wildland Fire Coordinating Group. With the help of the Alaska Fire Science Consortium, the Fire Research committee has a new web page that provides an easy link to the top Fire Science Research Needs for agencies and organizations in Alaska (http://www.frames.gov/afsc/frdac). The regional fire ecologist was also asked to participate as a committee member on the Fire Modeling and Analysis Committee. Both committees work closely with the Alaska Fire Science Consortium (AFSC) and both fire ecologists participated in AFSC board meetings throughout the year and presented at the 2012 Annual Workshop (http://www.frames.gov/ 2012-fall-workshop/).

D. Communicating Results

Communicating results of projects or research is an important aspect the fire ecology program in order to provide ***information and outreach*** to fire managers, park staff, and the public. Several presentations and annual reports were completed 2012. In addition the use of social media was increased to highlight field projects and information about the fire program. Table 6 provides a list of monitoring reports and presentations completed by park. See Appendix A for a list of all reports and presentations prepared in 2012.

Presentations

Nine presentations were prepared and presented this year by the regional fire ecologist, ranging from Fuel Moisture Training to Climate Change and Fire in Denali. Presentations were made to Alaska Region Fire Staff and Inventory & Monitoring Networks. The Fire Ecology program gave presentations for spring training for the Denali interpretive staff and bus drivers in 2012. Later in the summer, the regional fire ecologist was asked to present on "Wildfires in the Copper River Basin and Wrangell-St. Elias" for students at the Wrangell Mountains Center and McCarthy residents. In October presentations were made at the Interagency Fall Fire Review and the 4th Annual Alaska Fire Science Consortium Workshop.

Finally, results from the Noatak carbon dating project were presented at the Fire Ecology and Management Congress in December.

Reports & Publications
Reports completed and submitted this year include the year end annual report for the Arctic Network and two project final reports. Final reports on the Denali Hazard Fuels thinning project and Wrangell's Susan Smith Hazard Fuels projects are under review. Two Fire Stories were written this year:

In a Time of Change: The Art of Fire Exhibit http://www.nps.gov/fire/wildland-fire/connect/fire-stories/2012-parks/alaska-region.cfm

Exploring Fuels Treatment and Wildfire Impacts in Alaska http://www.nps.gov/fire/wildland-fire/connect/fire-stories/2011-parks/wrangell-saint-elias-national-park.cfm

Table 6. Communicating Results - 2012

Park	# of Project Monitoring Reports completed in 2012	# of Annual meeting(s) with Park staff	# of Formal presentations of results
Wrangell-St Elias	1 draft	1	1
Yukon-Charley Rivers	0	1	0
Denali	1draft	1	2
Noatak	0	1	1

E. Planning and Compliance

The fire ecology program participates in *planning* activities for the Fire Management and Park Land Management Programs. Over the past year the fire ecologists have reviewed and prepared sections of Fire Management Plans, written Fire Monitoring Plans, reviewed Environmental Assessments, and participated in Climate Change Scenario Planning for the region. Planning achievements in 2012 include drafts of the Gates of the Arctic Fire Monitoring Plan and Fire Management Plans and final of the Katmai Fire Monitoring Plan.

The Alaska Region fire ecology program has developed two monitoring methods that can be utilized to address a variety of objectives and vegetation types. The program worked to update the two protocols this year and developed a template for short project based monitoring plans that will tier to one of the two protocols. All field projects require compliance prior to implementation.

Climate change has become an area of increased focus for the NPS; as a result the regional fire ecologist has participated in two Climate Change Scenario Planning workshops within the region.

Table 7. Planning - 2012

Park	Does Park have written DFCs? (yes or no)	Date Park-level Monitoring Plan completed (or revised)	Total # of Project- or Community-level Monitoring Plans (not just 2012)	Assisted with how many BAER plans in 2011?
Gates of the Arctic	No	2012 draft	1	0
Katmai	No	2012	0	0

F. Fire ecology accomplishments and areas of focus

Fire Ecology Staffing 2012

The Alaska NPS Fire Ecology Program does not have a designated fire effects monitoring crew. Therefore, fire ecology monitoring fieldwork is largely accomplished by NPS Fire/Fuels seasonal technicians and permanent staff, under the guidance of the Regional Fire Ecologist and Assistant Regional Fire Ecologist. This is readily accomplished since the NPS Alaska Western Area (AWAFM) and Eastern Area Fire Management (EAFM) programs select multi-disciplinary technicians and allocate an appropriate amount of their time to fire ecology projects. In general this sharing of resources has worked well.

2012 brought about some changes to the Alaska Region fire ecology program. The assistant regional ecologist moved on to another job in May. With the assistance of a detailer from the BLM Alaska Fire Service and help from the regional fire ecologist for US Fish and Wildlife Service, field projects were able to be implemented and most of the 2012 data was entered into FFI. A new assistant regional fire ecologist was hired and will start in January of 2013.

Regional Fire Ecologists Accomplishment/Focus Areas

The Alaska regional fire ecologist facilitates planning, monitoring, research and outreach for the *region* and *park* programs. This position is responsible for monitoring plans, protocol development, compliance, administration, field instruction, field work, data analysis, and reporting on projects for the parks and region. Fire Ecologist Accomplishments/Focus Areas in Table 8 provides a summary of the Alaska Regional Fire Ecologist focus areas and accomplishments for the calendar year of 2012.

Table 8. Fire Ecologist 2012 Accomplishments/Focus Areas (Barnes)

Category	Percent Time	Accomplishments and/or areas of activities
Planning	20%	• GAAR and KATM Fire Monitoring Plan and Fire Management Plans • Compliance for field work • I&M Network Fire Monitoring Protocols • Climate change planning • CESU Agreements
Presentations/ Reports	20%	• Project final reports for Denali Hazard Fuels and WRST Susan Smith Hazard Fuels • 9 Presentations: NPS, Public, Interagency Meetings & Professional Symposiums • Annual reports for Fire Ecology program and I&M network
NPS Meetings/ task groups	10%	• AKRO Regional and Park Fire Meetings • Climate change scenario planning workshop • FESC conference calls • I&M Technical Committee meetings
Interagency work	8%	• AWFCG Fire Research, Development & Application Committee • AWFCG Fire Modeling and Application Committee • Alaska Fire Science Consortium (Board member) • Alaska Interagency Fall Fire Review • Interagency fuel moisture training class • Instructor: RX-510
Wildfire assignments	1%	• DMOB Alaska Type 1 Team

Category	Percent Time	Accomplishments and/or areas of activities
Prescribed fire projects	0.5%	• WRST McCarthy Subdivision Hazard Fuels burn piles (WUI)
Non-fire fuels projects	0.5%	• BELA Fairhaven Cabin hazard fuels reduction
Research	4%	• NPS Reserve Fund Research Request • Proposals for PMIS (Fire Regime DENA) • Analysis – Noatak Carbon Dating of tundra fires - NPS Fuels Research • Fuel moisture sampling
Data collection	7%	• WRST McCarthy Subdivision Hazard Fuels Plots (WUI) • WRST Headquarters Hazard Fuels plots (WUI) • BELA Fairhaven Cabin Hazard Fuels plots • Fuel moisture sampling
Data entry	3%	• Data entry supervision and database assistants • QC of data
Data analysis	8%	• WRST Headquarters & McCarthy Hazard Fuels plots • NOAT CBI plots • Fire behavior analyses Denali Headquarters Hazard Fuels plots
Supervision/Admin	15%	• Supervision/Hiring STF GS-9 Fire Ecologist • Paperwork and administrative (time, travel, email) • Budget • CESU Agreement
Training	1%	• Shotgun, M-3, and other required training • Fire modeling workshop • WFDSS Fire Behavior (OJT)
Travel out-of-park for plot or project work	1%	All field work requires a travel authorization, multi-day trips away from duty station.
Miscellaneous	1%	Acting Regional FMO for 2 weeks

Fire effects crew accomplishments and areas of focus

Although the Alaska region does not have a designated fire effects crew, Table 9 includes the percent of time and accomplishments of the combined staff of the assistant fire ecologist, area program forestry technicians and BLM detailer for 2012. The number of pay periods for fire ecology work for all staff (except regional ecologist) was 13 pay periods.

Table 9. Fire Crew and Assistant Fire Ecologist 2012 Accomplishments/Focus Areas

Category	Percent Time	Notes
FMH plots		
WUI plots	60%	Post-treatment monitoring plots at 2 hazard fuels projects in Wrangell-St. Elias and 1 project in Bering Land Bridge
CBI plots		
Other plot work	10%	Live fuel moisture monitoring in Denali and Fairbanks
Wildfire		

Category	Percent Time	Notes
assignments		
Prescribed fire projects	1%	
Non-fire fuels projects		
Travel out-of-park for plot or project work	1%	All field projects requires out-of-office travel
Data entry	20%	Estimated amount of time spent entering data from paper to PC
Data analysis	5%	Assistant fire ecologist, analysis of WRST Susan Smith Hazard Fuels data
Supervision/Admin	3%	Payroll, travel authorization/voucher, etc.
Training		
Miscellaneous		

Appendix A. Reports, publications, and presentations completed in 2012 in conjunction with the Alaska Region Fire Ecology Program.

Barnes, J.L. and J.M. McMillan. 2012 (DRAFT). Denali Headquarters Hazard Fuels Reduction Monitoring: Effectiveness of Fuels Thinning Treatment in reducing Wildfire Risk to NPS Structures. Natural Resource Technical Report NPS/XXXX/NRTR—20XX/XXX. National Park Service, Fairbanks, Alaska. DRAFT

Barnes, J.L. 2012. Alaska fire management & monitoring: Vast Areas, Large Fires and Limited Staff. (Presentation). RX-510, Applied Fire Effects. Tucson, AZ, February 2012.

Barnes, J.L. 2012. Fire Ecology & Fuels Monitoring Program (Presentation). Alaska NPS Fire Seasonal Training. Fairbanks, AK, May 2012.

Barnes, J.L. 2012. Climate change and fire in interior Alaska (Presentation). Denali Interpretation Training. Denali Park, AK, May 2012.

Barnes, J.L. 2012. Fire in Alaska Ecosystems (Presentation). Denali Interpretation Staff and Bus Driver Resources Day. Denali Park, AK, May 2012.

Barnes, J.L. 2012. Wildland fire in the Copper River Basin and Wrangell-St. Elias. (Presentation). Wrangell Mountain Center and Public, McCarthy, AK , July 2012.

Barnes, J.L. 2012. Fire in Alaska Ecosystems. Art of Fire Lecture Series. (Presentation). Fairbanks, AK August 2012. http://www.frames.gov/partner-sites/afsc/projects/art-of-fire/lecture-series/

Barnes, J.L. 2012. Vital sign: Fire Extent, Severity, and Effects. (Presentation). ARCN Technical Committee Meeting. Fairbanks, AK, October 2012.

Barnes, J.L. and Miller, E. 2012. Alaska Fuel Moisture Sampling: What's the Trend? (Presentation). Fire Science Consortium Workshop. Fairbanks, AK, October 2012. (http://www.frames.gov/partner-sites/afsc/events/previous-events/workshops/2012-fall-workshop/video3/)

Barnes, J.L, Barrett, C., Brown, T. and Hu, F.S. 2012. Tundra fires in northwestern Alaska: Impacts of burn severity on vegetation and soil carbon. (Presentation). AFE, Fire Ecology and Management Symposium. Portland, OR. December 2012.

McMillan, J.M., and J.L. Barnes. 2012 (DRAFT). Susan Smith Hazard Fuels Reduction Monitoring Report: Wrangell-St. Elias National Park and Preserve. Natural Resource Report NPS/XXXX/NRR—20XX/XXX. National Park Service, Fort Collins, Colorado. DRAFT

St. Clair, T., Weddle, L. and Barnes, J.L. 2012. Use of Fire Modeling in Tundra: Information, decisions and reality. (Presentation). Alaska Interagency Fall Fire Review, Fairbanks, AK, October 2012.

Fire Ecology Related Fire Stories:

In a Time of Change: The Art of Fire Exhibit http://www.nps.gov/fire/wildland-fire/connect/fire-stories/2012-parks/alaska-region.cfm

Exploring Fuels Treatment and Wildfire Impacts in Alaska http://www.nps.gov/fire/wildland-fire/connect/fire-stories/2011-parks/wrangell-saint-elias-national-park.cfm