

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Natural Resources and Community Development

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	5%		0%	
111	Conservation and Efficient Use of Water	10%		0%	
112	Watershed Protection and Management	20%		0%	
123	Management and Sustainability of Forest Resources	15%		0%	
134	Outdoor Recreation	15%		100%	
135	Aquatic and Terrestrial Wildlife	10%		0%	
136	Conservation of Biological Diversity	10%		0%	
206	Basic Plant Biology	10%		0%	
605	Natural Resource and Environmental Economics	5%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2018	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	3.0	0.0
Actual Paid	0.4	0.0	2.4	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
64376	0	65393	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
52986	0	164558	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
355657	0	20223	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Researchers provided science-based information in resource planning, economic and environmental impact of natural resource use involving market and nonmarket value of resources, and strategies for addressing issues in urban and rural communities. Measurable outcomes were peer-reviewed publications, educational opportunities and citizen participation.

Partnerships were developed and maintained that addressed emerging natural resource issues. Multi-institution and interdisciplinary collaboration continued in research, education and outreach. Integrated and multistate projects concerning natural resources stewardship provided collaboration and engagement with other land-grant institutions, extension and federal partners. Activities also involved partners from other UAF units to assure engagement that continued to make the information provided to stakeholders relevant to their needs, especially Alaskans most directly impacted by natural resource matters.

Activities included reviews of contemporary research relevant to the program; lay publications that provided unbiased, scientific information about natural resource issues; website development for natural resources issues; Extension workshops, demonstrations and basic skill trainings; public meetings and discussions; and 4-H and FFA projects that can help prepare youth for work in natural resource-related fields.

2. Brief description of the target audience

This program focused on industry professionals, entrepreneurs, communities, families, cooperatives and businesses, and both nonprofit and for-profit development corporations. Efforts were made to address problems of the traditionally underserved rural populations within the limit of resources available. Stakeholders were those directly impacted by contemporary natural resource issues related to forest and land resources, mining resources, water resources, young adults wanting entry-level skills needed for employment in natural resource-related businesses, agencies or organizations, persons in natural resource-related occupations who wish to increase their skills and/or knowledge levels, and federal and state agencies.

3. How was eXtension used?

Use of eXtension resources in FY18 has been valuable to outreach in Alaska. Several employees maintained memberships in natural resources and community development-related Communities of Practice (CoPs). The urban extension director was a member of the Tourism and eXtension and Creating Healthy Communities CoPs. An agent was a member of the Climate, Forests and Woodlands CoP. Agents answered four natural resource-related questions through the Ask an Expert interface.

V(E). Planned Program (Outputs)

1. Standard output measures

2018	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1904	15675	565	825

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2018

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2018	Extension	Research	Total
Actual	0	8	8

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Output 1: Active partnerships with other land grant institutions, government agencies, stakeholder groups and organizations.

Year	Actual
2018	55

Output #2

Output Measure

- Output 2: Develop and deliver public issues education workshops and classes for stakeholders on locally relevant natural resources and related issues.

Year	Actual
2018	36

Output #3

Output Measure

- Output 3: Develop and maintain a web-based platform for discourse and information sharing on relevant areas of interest in natural resource issues that connect people to information.

Year	Actual
2018	5

Output #4

Output Measure

- Output 4: Conduct needs assessments of natural resource management stakeholders.

Year	Actual
2018	6

Output #5

Output Measure

- Output 5. Develop regional economic models for Alaska resource management scenarios. Output will be models, presentations and publications.
Not reporting on this Output for this Annual Report

Output #6

Output Measure

- Output 6. Develop and implement public involvement in natural resource issues. Output measure will be public input sessions and publications.

Year	Actual
2018	2

Output #7

Output Measure

- Output 7. Provide analysis of natural resource and environmental laws. Output measure will be presentations, workshops and publications.
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Outcome 1: Increase and maintain partnerships with stakeholder groups, government agencies and other institutions that will enhance the land-grant mission. Measure will be number of partnerships.
2	Outcome 2: Increase and maintain the number of integrated and multistate research-Extension activities. Measure will be number of activities.
3	Outcome 3: Increase the recruitment and retention of youth and college-age students appreciating and considering natural resource management careers. Measure will be number of graduate and undergraduate students enrolled and number of youth participating in natural resource management activities.
4	Outcome 4. Increase public involvement in natural resource and community development issues. Outcome measure will be the number of participants.
5	Outcome Measure #5: Demonstrate effective collaboration between research and Extension to resolve issues.

Outcome #1

1. Outcome Measures

Outcome 1: Increase and maintain partnerships with stakeholder groups, government agencies and other institutions that will enhance the land-grant mission. Measure will be number of partnerships.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	55

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Of the 375 million acres of land in Alaska, 44 million are Native lands, about 100 million acres are state lands and 218 million are federally managed. AFES provides research that meets the needs of the private, state and federal stakeholders and with Extension assures that stakeholders are engaged with UAF in the application of research. Extension promotes economic development and meets other community and rural needs. Partnerships are critical to ensuring this happens. There is a mutual benefit when partners assist SNRE with research and outreach efforts.

What has been done

Key partnerships included the Alaska Energy Authority, the U.S. Forest Service, Alaska Department of Fish and Game and the National Park Service. The Division of Forestry supports CES forest stewardship outreach and coordination of Project Learning Tree program. Partners included conservation groups, cities and boroughs, tribal organizations and other stakeholders. Faculty worked with local organizations like the Sitka Conservation Society, Eagle River Nature Center and Fairbanks Climate Action Coalition as well as national organizations like NOAA, BLM and Bureau of Indian Affairs.

Results

A new website, Spruce Beetle in Alaska's Forests, was launched in 2018. This website is maintained by cooperation among the UAF Cooperative Extension Service, USDA Forest Service, and the Alaska Division of Forestry. An agent led a successful multi-year effort with community and international partners to highlight the achievements of Jujiro Wada, also known as the Samurai Musher. Through film and print promotion, the historical figure has become a tourism selling point. In FY18, updates were given to groups like the Iditarod Historic Trail Alliance. The Fairbanks Experiment Farm contains the longest continuously running weather observation station in Alaska. Recording weather since 1911, the station was one of four long-term observing

stations in the U.S. honored by the World Meteorological Organization. Partners have noted the value of the long-term data for understanding environmental change.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
134	Outdoor Recreation

Outcome #2

1. Outcome Measures

Outcome 2: Increase and maintain the number of integrated and multistate research-Extension activities. Measure will be number of activities.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The need for economic diversification in times of state budget constraints has renewed interest in Alaska's nonpetroleum resources, including fish, fiber and timber. At the state level, the administration has indicated support for natural resource management that exemplifies the core values of stewardship, transparency, integrity and science-based decision making. The combined efforts of research and outreach personnel can help Alaska overcome challenges to effective natural resource management.

What has been done

Research efforts included W3004, Marketing, Trade and Management of Aquaculture and Fishery Resources; and NE1962, Outdoor Recreation, Parks and Other Green Environments: Understanding Human and Community Benefits and Mechanisms. The researcher who chaired the NE1962 project also collaborated with Colorado, Montana and New Mexico on the pilot creation of a national center for recreation research that has been endorsed by the Bureau of Land Management (BLM) and co-authored several project reports for the BLM Las Cruces and

Missoula field offices.

Results

Extension personnel worked with a researcher on creating and maintaining a website for the BLM project efforts. There was joint coordination of the field trip and guest lectures for NRM 290: Resource Management Issues at High Latitudes. Researchers assisted with Project Learning Tree and the Alaska Master Naturalist series. Researchers from Texas and Wyoming worked with the soils researcher and the Natural Resources Conservation Service to conduct the Alaska Soils Geography Field trip that included a visit to the Matanuska Experiment Farm.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
134	Outdoor Recreation

Outcome #3

1. Outcome Measures

Outcome 3: Increase the recruitment and retention of youth and college-age students appreciating and considering natural resource management careers. Measure will be number of graduate and undergraduate students enrolled and number of youth participating in natural resource management activities.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	1042

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Alaska is a great natural classroom that attracts students who love the outdoors. To reverse the effects of climate change, it is essential to educate youth to care for the environment. We must communicate the need for sustainable management. Alaska's educators need support in engaging youth in natural resource management activities that inspire good stewardship and

career paths that will build state capacity to manage natural resources well.

What has been done

4-H offered natural resource-related activities including 20 environmental stewardship projects and 92 outdoor education projects. Junior Master Naturalist programming garnered 823 projects. Workshops and presentations on natural resources issues were attended by 219 youth. Among the 182 students enrolled in NRM classes for fall semester 2018, faculty also supported several undergraduate and graduate research projects that can lead to long-lasting engagement in natural resource work.

Results

Researchers kept students engaged in natural resources activities through events like the Forest Fest, where former students volunteered to help faculty and staff put on logging events. For the third year, the School of Natural Resources and Extension hosted a 10-day Alaska Natural Resources Sustainability Field Seminar with two professors and six students visiting from Hokkaido University. Former NRM students apply their knowledge gained to real world problems. One former student works at Disney World and uses GIS to study traffic patterns. Another is mapping routes for mountain bikers. Others work for natural resource agencies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
134	Outdoor Recreation

Outcome #4

1. Outcome Measures

Outcome 4. Increase public involvement in natural resource and community development issues. Outcome measure will be the number of participants.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2018	171

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Alaska's rich natural resources require ongoing management. Public understanding and support is key to progress on implementing best practices. Research and outreach personnel must communicate the need to manage sustainably. Alaska's educators, in particular, need support in engaging youth in natural resource management activities that inspire good stewardship and career paths that will build state capacity to manage natural resources.

What has been done

The Alaska Master Naturalist certification program had 49 participants take part in a series about mushroom ecology. 4-H Junior Master Naturalist programming brought in 37 youth and 25 adults during spring break, with participants from Anchorage, Chugiak, Eagle River and Wasilla. A Facebook page was maintained that currently has 466 followers. Master Naturalist volunteers teach a wide variety of natural resource and ecology classes that include instruction on environmental education pedagogy and interpretation techniques. A researcher continued to involve the public in birch sap collection.

Results

Participants who completed the entire 45 class hours of the master naturalist course also planned a final teaching project and pledged 40 volunteer hours, which ensured engagement with the community building local conservation literacy and capacity from Willow to Seward. Two certified master naturalists have become 4-H Leaders to support year-round programming. Many 4-H Clubs offer Jr. Naturalist programs for youth ages 5-18, including new groups formed by homeschool parents. Eight participants certified by the program now have jobs as naturalists, working at science centers, botanical gardens, and parks. Community involvement in collecting birch sap continued with 47 households and 13 classrooms contributing to a tapping cooperative. Three households installed tubing installations for tapping a total of 103 trees.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
134	Outdoor Recreation

Outcome #5

1. Outcome Measures

Outcome Measure #5: Demonstrate effective collaboration between research and Extension to resolve issues.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Alaska continues to be severely impacted by the falling price of crude oil. The state provides a significant portion of the university's funds, and the university has experienced several consecutive years of reductions. About 40 percent of SNRE funding comes from the state. Between 2014 and 2018, the university system's state appropriation dropped from \$378 million to \$317 million. In FY18, key natural resource personnel departed including an economist working with the tourism industry, a research professor of resource management, and a program assistant that assisted with recreation surveys. The merger between AFES and CES have helped maintain research and service, but both units have heavy workloads as we try to keep our productivity high in challenging times.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Seventeen participants in a Project Learning Tree (PLT) training rated the workshop highly, with comments such as "Just wonderful!" Attendees were teachers planning to adopt the forestry and ecosystem information into their classroom curricula. On a scale where 1 is disagree and 5 is agree, the average respondent highly agreed (4.43) that the guides provided met the academic standards important to the teachers, that the facilitator provided adequate time for them to plan how to integrate the project materials into their curriculum (4.29). The teachers felt prepared to use PLT activities with their students (4.36) and planned to do so within the next three months (4.07).

A survey of youth at local fairs asked about interest in learning more about forests, and what previous experience they may have with forestry education. Of the 22 respondents, 17 agreed they were interested in learning more about forests, with four unsure. Two had never had instruction about forests before, and of the 20 who had, only 14 had learned about forests in school, with the rest receiving information from books, websites, parents and other sources like camps. Comments included wanting to learn about spruce trees, animals and a request to come to a local school to "teach us about forests."

Key Items of Evaluation

Youth in natural resource activities increased their knowledge of natural resources and earth sciences. Youth members of the public who had not yet received natural resource information in school expressed an interest in learning more about Alaska's forests.