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
111	Conservation and Efficient Use of Water	10%		0%	
112	Watershed Protection and Management	15%		0%	
122	Management and Control of Forest and Range Fires	10%		0%	
123	Management and Sustainability of Forest Resources	10%		20%	
131	Alternative Uses of Land	10%		0%	
134	Outdoor Recreation	5%		20%	
404	Instrumentation and Control Systems	5%		0%	
605	Natural Resource and Environmental Economics	15%		15%	
608	Community Resource Planning and Development	15%		15%	
610	Domestic Policy Analysis	5%		20%	
805	Community Institutions, Health, and Social Services	0%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	0.0	1.9	0.0
Actual Paid Professional	3.0	0.0	3.6	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**
179614	0	139542	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
124388	0	251826	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
801495	0	614271	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research products provided science-based information in resource planning, economic and environmental impact of natural resource use, market and nonmarket value of resources, and conflict resolution in rural communities and villages along with basic information in climate change issues and forest sciences for use by planners, economists and policy makers. Measurable outcomes included peer-reviewed publications, lay publications, rural community business/development plans and citizen participation. Extension activities involve partners from other UAF units as well as AFES to assure that information provided to stakeholders relevant to their needs. These activities provided integrated and/or multistate projects concerning natural resources stewardship within the University of Alaska Fairbanks and with other land-grant institutions.

CES programs addressed the needs of those Alaskans most directly impacted by specific natural resource matters and maintained partnerships with government agencies concerning stakeholder needs. It provided community and economic development, particularly in rural Alaska, environmental education to teachers and youth and information on harvesting firewood and responsible wood burning for home heating. It also provided training on GPS and GIS software for land use planning and water quality information for homeowners. It assisted the UAF School of Natural Resources and Agricultural Sciences and other units of the University of Alaska in recruiting and graduating young Alaskans with endorsements, certificates and degrees with careers in managing, using and protecting natural resources.

Product development activities include:

- Developing nontimber forest products with business entrepreneurs.
- Investigating the fuel potential of Alaska's forests.
- Investigating recreation opportunities and impacts in Alaska's forest ecosystems.
- Curriculum development for Resource Conservation

2. Brief description of the target audience

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

state agencies.

3. How was eXtension used?

One agent helped develop content for the Drinking Water and Human Health Community of Practice. Another agent answered eXtension Ask an Expert wood energy questions. Two agents regularly use eXtension's search engine. Another agent is developing content for the Climate, Forests and Woodlands Community of Practice.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	4138	14060	1139	740

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

Patent Applications Submitted

Year:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	1	11	12

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
2013	46

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
2013	43

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
2013	6

Output #4

Output Measure

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

Year	Actual
2013	3

Output #5

Output Measure

- Output 5. Develop regional economic models for Alaska resource management scenarios. Output will be models, presentations and publications.

Year	Actual
2013	1

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
2013	13

Output #7

Output Measure

- Output 7. Provide analysis of natural resource and environmental laws. Output measure will be presentations, workshops and publications.

Year	Actual
2013	1

Output #8

Output Measure

- Output 8: Develop scenario models for predicting future needs.
  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.
2	Outcome 2: Increase the number of integrated and multistate research-extension activities.
3	Outcome 3: Increase the recruitment and retention of youth appreciating and considering natural resource management careers.
4	Outcome 4. Increase public involvement in natural resource and community development issues. Outcome measure will be the increase in number of communities.
5	Outcome 5: Increase community development and economic diversification through tourism. Outcome measure will be number of tourism opportunities and communities impacted.
6	Outcome 6: Increase environmental collaborations between K-12 teachers, students and university educators through outreach. Outcome measure is the number of students or educators who increased their knowledge through outreach.
7	Outcome 7: Increase familiarity with GIS software to provide learning opportunities for youth. Outcome measure is number of individuals who learned how to conduct virtual field trips with GIS software.
8	Outcome 8: Partnerships with stakeholder groups, government agencies, and other institutions enhance the land grant mission.
9	Outcome 9. Increase public awareness in natural resource and community development issues. Outcome measure will be publications and presentations.

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.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	7

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Of the 375 million acres of land in Alaska, 218 million are federally managed. Outdoor recreation is a major component of life in Alaska. One of our most important partners is the Bureau of Land Management (BLM) and one focus of this partnership has been to collect information to assist in the implementation of Benefit-Based Management (BBM). BBM is the recreation planning framework used as a matter of national policy to gather data for different field offices prior to development of Resource Management Plans (RMP) were are being updated from earlier ANILCA plans.

What has been done
Seven studies in six different areas were conducted over a winter and a summer in interior Alaska. Surveys were designed for each study area and delivered to users while on-site and through the mail. Follow-up surveys were utilized where appropriate and focus groups were also conducted. These qualitative methods collected valuable information with regard to the experiences and benefits local residents felt were important.

Results
Overall the surveys had high response rates. The Eastern Interior Field Office has become a showcase within the BLM for applications of benefit-based management model. The RMP process has begun for the Central Yukon Field Office, and data has been gathered to inform that RMP. The BLM has also begun the RMP process for the Bering Sea Western Interior area. The land grant mission was served when a research workshop led to collaboration that provided federal agencies with data needed to design management plans that best serve the public.

4. Associated Knowledge Areas

KA Code	Knowledge Area

134 Outdoor Recreation

Outcome #2

1. Outcome Measures

Outcome 2: Increase the number of integrated and multistate research-extension activities.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	16

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The geographic isolation of Alaska and travel expense present challenges to multistate collaboration. At the same time, many issues, particularly natural resources, energy and climate change, have implications that extend well beyond our borders. Tapping into other states' experiences and research strengthen our ability to assist Alaskans. Integrated activities provide the best possible information for stakeholders in the unique environment of our state.

What has been done
Research and Extension continued to provide knowledge for both urban and rural communities to diversify their economies and improve quality of life through collaboration with stakeholders in communities, industry, and state and federal agencies. CES/AFES agent has worked to extend Alaska's forestry markets and provide wood energy and forest education outreach. As an outgrowth of the national ANREP conference in Alaska and a further workshop on climate change and forests, the agent is a member of the ANREP initiative on climate science. CES water quality coordinator chaired national Drinking Water and Human Health eXtension Community of Practice and participated in regional water quality group. CES worked with Missouri Extension and Michigan State on a web module on using cooperatives to promote heritage tourism with a geotourism emphasis.

Results
Multistate research projects included NE1962 and WERA 1020. Integrated activity included WDC28. Nontimber forest outreach included a birch-tapping workshop, harvesting and weaving birch bark and youth outreach. Water quality coordination work with Western states resulted in outreach publications on nitrate, radon and arsenic in drinking water that contain important public

health information about contamination and treatment. The tourism web module is used by communities as part of a community development toolkit.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land
134	Outdoor Recreation
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development

Outcome #3

1. Outcome Measures

Outcome 3: Increase the recruitment and retention of youth appreciating and considering natural resource management careers.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

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

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Outcome 5: Increase community development and economic diversification through tourism. Outcome measure will be number of tourism opportunities and communities impacted.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	16

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Alaska's diverse communities, urban and rural, are seeking ways to broaden their economic base. The natural beauty of Alaska, its diverse cultural groups and rich history contribute to the future growth of Alaska's visitor industry. Tourism can have significant impacts on community life and culture, particularly in small communities.

What has been done
Extension worked to promote tourism in rural Alaska. Staff coordinated a Prince of Wales Island visitor summit in September 2013 that involved the local chamber of commerce, individuals in the tourism industry and others considering businesses. Presentations covered web marketing, coop marketing and geotourism. Geotourism is tourism that is beneficial to the community and concerns the environment, culture, asthetics and heritage of the locale. An agent also became trained in the state's cultural and customer service tourism training program and began offering the workshops aimed at rural Alaska.

Results
AlaskaHost training that incorporated geotourism concepts were delivered live or by videoconference to 75 people in six communities. This increased cultural sensitivity and customer service skills among individuals who work in or with rural Alaska. Six individuals also were trained to present the workshops, which will extend the reach of the program. As a result of the geotourism presentation and a visit by the keynote speaker, a working group of 25 aimed at promoting geotourism has met and formed a charter. The organization work was coordinated by CES. Since much of the tourism in Alaska is organized by large established companies, smaller, independent operators and/or community leaders now have a geotourism network to promote tourism on the local level that is beneficial to the community.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #6

1. Outcome Measures

Outcome 6: Increase environmental collaborations between K-12 teachers, students and university educators through outreach. Outcome measure is the number of students or educators who increased their knowledge through outreach.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	40

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In a natural resource-rich state it is important to familiarize students and educators about environmental issues.

What has been done
Project Learning Tree is an environmental education program designed for teachers and other educators working with youth from preschool through grade 12. Thirty-one teachers and student teachers and nine participants in an outdoor education college class were reached by CES Project Learning Tree presentations. The six-hour presentation includes forest and wildlife knowledge, games and resources for educators. A longer, 15-hour training was aimed at K-12 teachers in Palmer.

Results
Through hands-on activities, the program trained educators to show students to how to think about complex environmental issues. Evaluations of one class indicate that agency resource staff and teachers plan to use the curriculum with more than 500 students in the coming year

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 #7

1. Outcome Measures

Outcome 7: Increase familiarity with GIS software to provide learning opportunities for youth. Outcome measure is number of individuals who learned how to conduct virtual field trips with GIS software.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	40

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
GIS is an important job skill in many disciplines, including natural resource management and geography based careers. Learning how to use GIS software allows youth to examine maps spatially while offering customized learning.

What has been done
Working with the University of Minnesota's Children, Youth and Families Education and Research (CYFERnet) program and the Environmental Systems Research Institute in 2012, an agent carried GPS beacons while climbing Aconcagua in Argentina, the highest mountain in the Western Hemisphere. Nine hundred and seventy-one 4-H'ers followed along using new online GIS websites with high-resolution photography. Individuals saw in real time the same terrain as a person on the ground. Participants had to create a GIS-enabled website to build maps.

Results
Youth who participated learned how to use online GIS and about potential career opportunities. The program was also featured at the International GIS Education Conference in FY12 and at the National 4-H Conference in FY13. Forty participants in the 4-H conference learned how to develop projects using GIS online for these virtual field trips. Agent has been contacted by several clubs that have used the information to create online GIS sites and print maps for competitions involving 4-H GIS programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
404	Instrumentation and Control Systems
608	Community Resource Planning and Development
805	Community Institutions, Health, and Social Services

Outcome #8

1. Outcome Measures

Outcome 8: Partnerships with stakeholder groups, government agencies, and other institutions enhance the land grant mission.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	49

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
AFES provides research that meets the needs of the private, state and federal stakeholders and with CES assures that stakeholders are engaged with UAF in the application of that research. CES promotes economic development and meets other community and rural needs. Partnerships are critical to assuring this happens. Our partners work with us, often assisting in the research and outreach efforts.

What has been done
Important CES partnerships included the Alaska Energy Authority, the U.S. Forest Service, Alaska Division of Forestry and the UA Center for Economic Development. CES organized the 2012 Alaska Wood Energy Conference for the energy authority and coordinates its Wood Energy Development Task Group. The Division of Forestry supports CES forest stewardship and outreach and coordination of Project Learning Tree.

Results
The wood energy task group explores opportunities to increase the utilization of wood for energy. The wood energy conference brought multiple agencies, individuals and organizations together to consider community use of wood biomass. The conference helped communities consider whether biomass is feasible, explored technologies and showcased community experience with biomass. CES work with the Division of Forestry and the Cold Climate Housing Research center helped extend knowledge about wood heat, firewood and woodstove safety, which is important because of high energy costs in rural and urban Alaska.

4. Associated Knowledge Areas

KA Code	Knowledge Area

123	Management and Sustainability of Forest Resources
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development

Outcome #9

1. Outcome Measures

Outcome 9. Increase public awareness in natural resource and community development issues. Outcome measure will be publications and presentations.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Conflicts between the public, state and federal land managers are not unusual in Alaska. However, climate change is occurring more rapidly than previously expected which compounds natural resource issues.

What has been done
Analysis of regulatory frameworks has revealed that some laws and policies work at cross purposes and demand contrary action making consistent management difficult.

Results
The analyses and conclusions drawn from this research help address inconsistencies and improve dialogue to resolve natural resource management conflicts. The resulting manuscript was published in The George Wright Forum which is devoted to interdisciplinary inquiry about parks, protected areas, and cultural sites. They seek to publish critical thinking on all aspects of research, resource management, administration, and education as they relate to cultural and natural protected areas.

4. Associated Knowledge Areas

KA Code	Knowledge Area
610	Domestic Policy Analysis

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

External factors affecting Alaska natural resources include extreme weather events such as abnormal warm winter temperatures, which cause rain and ice storms in the subarctic winter. These high temperatures result in unfrozen seas in Western Alaska, which buffet the coast causing massive coastal erosion, hurricane force wind storms that blow down acres of forest trees, and drought, which has reduced tree growth and made the forests susceptible to insect predation and forest fire. Although Alaska is an oil-producing state, the petroleum refining facilities are limited. Most petroleum used in Alaska comes from West Coast refineries, which significantly increases gasoline, diesel and heating fuel costs in rural Alaska communities. Likewise, much of the state's vast natural gas deposits are located far from population centers and pipelines. Meanwhile state government wrestles with a burgeoning budget and the drop in oil production. Long distances between rural communities, that are not on a road system and accessible only by plane or boat, affect development and our ability to offer programs. Health and education of rural residents is slowly improving but is not on par with rural towns in the rest of the country.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

An internal survey queried Extension faculty and staff who gave presentations at the Alaska Forum on the Environment, which is the largest outreach event in Alaska specifically targeted to environmental resource issues. Extension has a large presence at this event every year. The idea was to get a sense of whether the effort involved in this five-day event was worth it. Of nine respondents, 57 percent said participation was "valuable" or "critical." Several respondents included suggestions on improving Extension's participation. Based on that feedback, CES decided to continue its presence in 2014.

Evaluations of one Project Learning Tree class indicate that agency resource staff and teachers plan to use the curriculum with more than 500 students in the coming year. Survey evaluations are part of the research design for the outdoor recreation studies.

Key Items of Evaluation

Outdoor recreation research is based on the development and application of surveys which are helping in the design of better management plans. The land grant mission was served when a research workshop led to collaboration that provided federal agencies with data needed to design management plans that best serve the public.