

## **2010 University of Alaska Combined Research and Extension Plan of Work**

### **INTRODUCTION**

The University of Alaska Fairbanks' School of Natural Resources and Agricultural Sciences (SNRAS), Agricultural and Forestry Experiment Station (AFES), and Cooperative Extension Service (CES) are dedicated to providing research, education and outreach relevant to the sustainable development and use of Alaska's natural resources; developing new economic opportunities; and improving the quality of life in Alaska and the circumpolar north. The SNRAS, AFES, and CES carry out the land-grant mission for the University of Alaska Fairbanks.

The land-grant system is a partnership between the federal government and the states through matching funds to universities that agree to maintain programs of research, instruction, and public service in planned programs of agriculture, natural resources, and sustaining individuals, families and communities with activities relevant to that state, the nation, and the world. A special characteristic of land-grant programs is their commitment to develop and apply knowledge important in the real world for the successful long-term management of natural resources to meet both human needs and values.

The School and Experiment Station (SNRAS/AFES) operate major facilities in Fairbanks and Palmer, research sites at Delta Junction, Nome, and Bonanza Creek and manage research projects located throughout Alaska. SNRAS/AFES is organized into four departments: Forest Sciences, Geography, High Latitude Agriculture, and Resources Management.

CES is housed in the Office of the Provost at the Fairbanks campus and operates programs in Agriculture/Horticulture, Natural Resources and Community Development, Home/Health/Family Development, and Positive Youth Development/4-H in eight districts around the state.

AFES and CES are funded by federal capacity funds. All units receive state matching funds, as well as other state appropriations, state and federal grant funds, and private funding. SNRAS/AFES is estimating professional SYs on total capacity funds received that includes Hatch, Hatch Multistate and McIntire-Stennis funding sources. CES estimates FTE's on Smith-Lever 3, B and C funding. Although linkage between the units is not administratively mandated at the University of Alaska Fairbanks, they are linked by federal legislation, joint funding, and this joint Plan of Work.

Alaska is recognized for its immense size and sparse population and its cultural, geographic and environmental diversity. Alaska represents a major region of renewable and non-renewable natural resources in the United States. Its 365 million acres include the nation's largest oil reserves and coal deposits. The state also contains an array of mineral deposits including gold, zinc, boron, and molybdenum. Alaska has a diverse geography that offers soils for production of food and fiber as well as a multitude of recreational and tourism activities. Waters surrounding Alaska's shoreline and riparian habitats contain large stocks of salmon, cod, pollock, halibut and shellfish that support thriving commercial, sport and subsistence fisheries. Alaska's natural resources have historically been the foundation of the state's economy. Thus, the use and management of these resources is a predominant force in the planning and delivery of any teaching, research, extension, and outreach programs. The finite nature of the state's non-renewable resources and local and national controversies surrounding resource extraction and related environmental concerns affect the activities of SNRAS/AFES and CES. The University of Alaska Fairbanks in general and SNRAS/AFES and CES in particular, must meet the challenges to fulfill ever increasing demands for research,

education and outreach relevant to sustainable management of the development and use of Alaska's resources.

Alaska faces many choices and challenges in the use and development of its resources. In the last three decades of the 20th century, Alaska's economy became dependent upon revenues related to petroleum development. To diversify its economy, the state must begin looking toward non-petroleum natural resources for economic opportunities that are cost-effective, sustainable, and beneficial to Alaska. Facing these challenges and taking advantage of opportunities to properly manage resources for the long term requires the application of special in-depth knowledge. The programs of SNRAS/AFES and CES give Alaska's resource owners and users essential components of this knowledge. CES plays a vital role in linking the knowledge generated by SNRAS/AFES, the University of Alaska Fairbanks, the University of Alaska and other information sources to meet the needs and interests of Alaskans while providing citizens a way to influence future research and education priorities. CES will be a critical partner for the university as a whole in providing a two-way linkage between researchers and producers to deliver the latest research findings and educational and outreach opportunities.

Alaska imports a high percentage of foods and other agricultural products consumed in the state. Growers in the agricultural sector produce products primarily for in-state consumption including fresh market potatoes and vegetables; forages, grains, and manufactured livestock feeds; controlled environment products including bedding plants, florals, landscape ornamentals, short season vegetables and a variety of "niche market" crops. Livestock enterprises include dairy, beef, swine, reindeer, and alternative game animals such as muskoxen, elk, and bison. Producers will require increasing information specific to northern latitudes as consumer demand increases due to changing preference and a growing population. Furthermore, as transport cost increase and Alaska population grows, more food will need to be produced locally.

### **MISSION STATEMENTS**

The mission of SNRAS/AFES is to "generate and provide knowledge and train students for successful long-term management of natural renewable resources in Alaska and the circumpolar world, and to discover, describe, explain, and interpret the spatial characteristics of the northern regions of the earth." The School and Experiment Station are committed to assisting and training natural resource managers who make and implement decisions to develop, sustain, or protect natural systems to meet human needs and values.

The mission of CES is "to interpret and extend relevant research-based knowledge in an understandable and usable form; to encourage the application of this knowledge to solve the problems and meet the challenges that face the people of Alaska; and to bring the concerns of the community back to the university." CES is committed to promoting the sustainability and economic security of individuals, families and communities by providing practical, non-formal education services that promote the wise use of natural resources, respect for cultural and ethnic diversity, and being responsive to emerging stakeholder needs and interests.

### **LINKAGES**

There are strong linkages between CES and SNRAS/AFES to support agriculture, horticulture, forestry, and rural and economic development. The units work cooperatively as well as separately with other units within UAF, the University of Alaska state-wide system, federal and state agencies, non-governmental organizations, private industry; and through multi-state collaborations with other land-grant universities. They collectively and individually generate and disseminate knowledge to stakeholders who include higher education students,

individuals, businesses, industry, government, non-governmental organizations and communities throughout Alaska and the circumpolar north and the nation. CES brings the university to Alaskans and community concerns back to the university.

### **MERIT REVIEW PROCESS**

The SNRAS/AFES uses an established scientific peer review process to review and evaluate narratives that are required to report activities related to the POW. CES uses the merit review process and will use a general review process for this joint POW.

### **EVALUATION OF MULTISTATE AND JOINT ACTIVITIES**

When state and national research priorities match the SNRAS/AFES programmatic focus and capabilities, our research programs direct their attention to these topics and seek support or partnerships. Outreach and extension programming carried out by CES are conducted in response to identified stakeholder needs and interests.

### **STAKEHOLDER INPUT**

CES jointly sponsors many agricultural and horticultural conferences and outreach activities with SNRAS/AFES where the units share mechanisms to gather formal and informal stakeholder input. CES also relies on advisory groups as an important stakeholder needs assessment process. CES has a Statewide Advisory Council and faculty in districts across the state that use local advisory committees to provide them with community input related to local program stakeholder needs and interests. The SNRAS/AFES Board Of Advisors meets with the Dean, Director, Department Chairs, and selected faculty and students to assist in establishing priorities and developing program direction in consultation with appropriate constituencies.

### **STRATEGIC PLANNING PROCESS**

Planned programs define in more specific and concrete terms the different aspects of our mission to allow the concentration of resources (money and people) that will promote high-quality work. Planned programs will be used to provide guidance for faculty and administrators to direct new and current programs and find or retain faculty expertise. The identification of planned programs also represents a decision about topics that will not be emphasized. This POW provides assumptions that justify the adoption of each planned program and provides knowledge areas, specific long and short term goals, and measurements to access success in meeting these goals.

Planned programs include Agriculture and Horticulture, Natural Resources and Community Development, Sustainable Individuals, Families, and Communities, Youth Development, and Management of Ecosystems. The Plan reflects ideas and advice given by AFES and CES client user groups, students, the Board of Advisors/State Advisory Council, panels of expert advisors representing clientele, state and national peers and cooperators, and UAF administration. The partnership with CES will strengthen the outreach component of AFES to meet the many needs for knowledge about Alaska and circumpolar resources and geography, both as opportunities for expansion present themselves.

The Agriculture and Horticulture program contains the integrated pest management activities which were separated out in the 2008 POW High Latitude Agriculture and relevant components of High Latitude Soils. CES is taking the lead in crafting Alaska's response to invasive weeds, noxious plants and pest management before they become the problems they are in the 48 contiguous states of the United States. This planned program seeks closer ties between extension programming with research, education and outreach activities in the High Latitude Agriculture Department in SNRAS/AFES. Sustainable Individuals, Families, and

Communities contains research and outreach elements that compliment research projects in SNRAS/AFES, where collaboration will assist in food product development and economic impact analysis. A multi-disciplinary approach will highlight Alaska local-grown, high quality food products. Youth Development is changing with the complexion of the state in terms of participation and interests. Focus group sessions for the Natural Resources and Community Development program area resulted in a community-driven problem-solving design based on themes. We are also merging this planned program with the AFES Natural Resource Use and Allocation program to create synergy between faculty and activities. Community development is a critical need for rural Alaska and is dependent upon the development of natural resources abundant in rural areas. Management of Ecosystems is inclusive of the former Geographic Information Systems and High Latitude Soils activity that is not included in Agriculture and Horticulture, and supports agency clientele and others studying climate change.

This Plan of Work will help strengthen the working relationship between SNRAS/AFES and CES. Strong and growing relationships between SNRAS/AFES and CES are essential to the success of both units. We share goals and missions in our commitment to excellence in research, education, extension, and outreach. With finite resources, we will achieve more by working together.

## **PLANNED PROGRAMS**

### Agriculture and Horticulture

Currently, Alaska imports a high percentage (at least 90 %) of foods and other agricultural products consumed in the state. Growers in the agricultural sector produce products primarily for in-state consumption and use including fresh market potatoes and vegetables, forages, grains, and other livestock feeds, greenhouse vegetables, flowers, and ornamentals, and a variety of 'niche market' crops and products. Animal enterprises include dairy, beef, swine, reindeer, and alternative game animals such as muskox, elk, and bison.

As Alaska expands its in-state consumption and export markets, our producers will require increasing access to research derived information specific for our northern latitude environment as well as adoption of knowledge derived from research in other states. Cost of energy and consumption of petroleum products is a growing concern. Energy crops will be important in Alaska as will crop response to climate change and a focus on local food production. Agriculture and horticulture outreach includes the areas of animal agriculture, agro-forestry, home animal production and companion animals. Service in agronomy includes cereal grains, forages, and land management. CES has operated a collaborative, statewide IPM education program since 1981, helping individuals understand invasive pests and control options. Commercial horticulture includes fruit and vegetable production, ornamentals, greenhouse operations, turf management, lawn maintenance and sod production.

Proper knowledge and planning of soil-disturbing activities can prevent major impacts on other resources. AFES operates soil laboratories in Alaska as a major source of information about Alaska soils.

### Sustainable Individuals, Families, and Communities

CES's Sustainable Individuals, Families and Communities Program include food preservation, food safety, food preparation, food product development, Alaska indigenous foods, exercise and fitness, healthy lifestyle choices, nutrition, and diet and nutrition issues. In the area of human development, activities include lifespan development, transitions, grief and loss, and caregiver training. Consumer Resource Management includes areas such as estate planning, budgeting, transitions, financial management, time management, stress reduction. Homes and Energy CES includes indoor air quality, home maintenance and repair, building

science and energy use and conservation. Emergency Preparedness includes areas such as families and communities responding to natural and manmade disasters.

### Management of Ecosystems

Alaskans live in an environment, the circumpolar north that is unlike any other in the United States with unique features such as permafrost, the boreal forest, and continuous summer daylight alternating with sustained winter darkness. Alaska's resources must be properly managed and cared for in order for its people to survive socially and economically, and for the long-term health of its living systems. The soils, forests, tundra, grasslands, and animals of Alaska have long been valued by its people, who have either lived close to these resources for many generations, or who face the need to adapt to a changing environment. Alaska's resources offer many opportunities, but also many natural limitations that must be known and respected if they are to be developed successfully, and in a way that can be sustained over the long term. This planned program will play a pivotal role in teaching and providing information about management of Alaska and northern ecosystems. Management of the boreal and southeast Alaska forests will play an increasing role in fire disturbance and adaptation to climate change. Their understory and tree species will be instrumental in providing market products developed from botanicals. Alaska's forests will have an important role in Alaska's energy future. Geographical Information as a part of ecosystem management assists natural resource managers, and increasingly a broad array of stakeholders, who need to understand the concepts and practice of creating, analyzing, and displaying spatially referenced natural resource and human community data.

### Natural Resource and Community Development

Communities will increasingly depend on Alaska's natural resources for viable economic development. Policy to sustain this growth that mirrors sociological and technological change will be critical. Major Alaska resource development activities are centered in the oil and gas industries. These are located in the urban centers where there is access to multi-modal transportation and advanced communication systems. However, urban communities lack infrastructure to engage in value-added activities that would enhance development of non-petroleum industry. Most rural communities are off the road/rail system and communication is still somewhat limited. Some rural communities lack basic amenities such as adequate sanitation and efficient energy sources that would attract resource developers. Research is needed that will afford both urban and rural communities the opportunity to diversify their economies. Additionally, these efforts should provide underserved populations in rural areas real options for economic development and improved quality of life. Outreach addresses stakeholders' need for unbiased, science-based information about natural resource issues in forestry, mining, water and community development.

### Youth Development

This program promotes positive youth development through education with a focus on leadership skills, using 4-H Mission Mandates: Science, Engineering, and Technology; Healthy Lifestyles; and Citizenship. Clubs, school enrichment programs, after-school activities, and summer camps will achieve youth development goals. The goal of Alaska's 4-H program is to support the maturation of youth from childhood to adulthood. Training throughout the state, using the Essential Elements of Youth Development, will be the foundation of all youth development programming.