University of Alaska Fairbanks

2011 Annual Unit Plan

A. General Information

A1. Unit Name:

School of Natural Resources and Agricultural Sciences and Agricultural and Forestry Experiment Station

A2. Unit Mission Statement:

The mission of the School of Natural Resources and Agricultural Sciences and the Agricultural and Forestry Experiment Station is to generate and disseminate knowledge through research and scholarly pursuits pursuant to a life-long learning experience for students that will sustain the long-term management of natural, renewable resources as we discover, describe, and interpret the physical, biological, and spatial characteristics, the cultures, the economies, and the policies of our circumpolar world and that of our neighboring Pacific Rim nations.

A3. Core Services:

The School of Natural Resources and Agricultural Sciences (SNRAS) and the Agricultural and Forestry Experiment Station (AFES) are administered by a Dean and Director and have a statewide responsibility. The AFES is one of seven institutes at the University of Alaska Fairbanks (UAF). The AFES and the UAF Cooperative Extension Service (CES) are the core of the land-grant institution of the University of Alaska, UAF. AFES as one of a national network of 107 agricultural experiment stations housed on land-grant university campuses, has a national responsibility as well. Research and outreach are a part of the Experiment Station that includes two experiment farms: the Fairbanks Experiment Farm on the UAF campus and the Matanuska Experiment Farm in Palmer, research sites in Delta and Nome, and the Bonanza Creek Experimental Forest that is jointly managed with the U.S. Forest Service. The Palmer Research and Extension Center (PREC) is a part of SNRAS/AFES and houses administrative offices and faculty, staff, and laboratory and classroom facilities. The School delivers baccalaureate degrees in Natural Resources Management (NRM) and Geography and advanced degree programs (http://www.uaf.edu/snras/students/grad_degree.html), including the M.S. in Natural Resources Management, the Professional Masters in Natural Resources Management and Geography, the Peace Corps Masters International option in both masters degrees (http://web.me.com/sktodd/UAF_MIP_NRM/Intro.html), and the Ph.D. in Resource Management and Sustainability (http://www.uaf.edu/catalog/catalog_09-10/programs/nat_res_sustain_grad.html) that is jointly administered with the School of Management. The NRM High Latitude Agriculture option is offered at the PREC as are MBA and pre-MBA courses offered through the School of Management.

The School and the AFES combine the economic, social, biological, physical and geospatial aspects of natural resources management to address issues and provide sustainable solutions to resource management concerns in the circumpolar international community and our neighboring nations in the Pacific Rim, our neighboring states in the United States, and the state of Alaska. Our Strategic Plan 2004 (http://www.uaf.edu/ces/about/compactplan/Strategic-Plan-2004-Summary.pdf) identifies five emphasis areas: geographic information, high-latitude agriculture, high-latitude soils, natural resource use and allocation, and management of ecosystems. SNRAS-AFES Strategic Plan 2010-2015 is in draft form emphasizing our four focus areas of food security, climate change, community and economic development that includes workforce development, and biomass energy that encompasses production of fuels and fuel generation. The energy generation component ties to the Strategic Plan of CES. New and revised academic programs prepare students for a technology based resource management workforce that will be a part of the workforce of the 21st century. The four focus areas are integrated with the USDA Science Roadmap for Agriculture's seven steps (http://www.csrees.usda.gov/business/reporting/stakeholder/pdfs/ roadmap.pdf*)* and new directions for the USDA National Institute for Food and Agriculture (NIFA) (http://www.uaf.edu/files/snras/Science%20roadmap%20for%20agriculture.pdf) mirror the changing role of the United States in the world's agricultural and resource-based economy. These national directives are also the backbone of the federally mandated Plan of Work (POW) for 2011-2015 (http://www.uaf.edu/files/snras/POW%202010%20-%20Abrev.pdf) prepared cooperatively by the AFES and CES. The POW reflects a paradigm-shifting change in the definition

of the word ‘agriculture’ to include multiple resources, communities, the environment, and people. Thus SNRAS/AFES and CES embrace research, education and outreach addressing healthy people (food and agricultural security, nutrition), a healthy environment (energy, climate change, renewable resources, soil, water), and a healthy economy (sustainable growth, technology transfer, new products, new knowledge) that all embody new directions in preparation of the 21st century workforce. Further information can be found at: http://www.uaf.edu/snras/annual-reporting-document/

B. Progress Report

B1. Major Accomplishments

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- Teaching, research and public service:
  - Top Three:
    - First calf in the world born in the Reindeer Research Program by a female reindeer inseminated using frozen sperm
    - UA Board of Regents approves UAS geography degree programs under the UA Geography Program (UAGP)
    - Peony research leads to Alaska Peony Growers Association first entry into national and international markets in the 2010 season
  - Other:
    - Reindeer shown as livestock for the first time in the United States at the Tanana Valley State Fair
    - SNRAS hosts the Arctic Marine Shipping Institute for Applied Circumpolar Policy bring together the 8 arctic nations for this purpose for the first time in over 100 years

- Faculty, student and staff awards, competencies, regional/national/international recognition:
  - Top Three:
    - Kristen Woodard, SNRAS undergraduate student in NRM, is awarded the Brina Kessel Medal for Excellence in Science
    - Chanda Meek, SNRAS doctoral graduate, earns the first Ph.D. in Resource Management and Sustainability
    - David D’Amore, doctoral student in the SNRAS Ph.D. in Resource Management and Sustainability named the National Field Soil Scientist of the Year by the U.S. Forest Service
  - Other:
    - Leonard J.H. Grothe Resource Award (a post-humus award) presented by the UAF Alumni Association to the family of Roland Snodgrass, the ‘father of Alaska agriculture’ whose father Milton came to Alaska in 1907 to help establish the Alaska Agricultural Experiment Station
    - Jeff Werner, horticulture research professional, receives the 2009 Agriculture Appreciation Award from the Alaska Farm Bureau
    - Andy Soria, assistant professor of wood chemistry, appointed to the National Academy of Sciences Board on Energy and Environmental Systems

B2. End Results and Strategies

End Result:	Strategies to Achieve End Result:	Target(s):	Measure(s):	Status:	Budget Impact
1. Closer alliance with CES	▪ Meet periodically to plan research and outreach activities	▪ Increase integrated activities by 5%*	▪ Integrated activities report increases to reach a goal of 25%	▪ Average participation in integrated activities for last five years has been 15%	▪ Meeting and exceeding integrated activity participation will solidify formula funding ▪ ncreased grant funding opportunities
	▪ Prepare the joint Plan of Work (POW) and annual report	▪ Completion of joint POW for 2011-2015 and annual report to POW 2009	▪ Positive review of POW and POW annual report	▪ Positive review of current POW and annual report	▪ Successful completion necessary for continuation of formula funding for Hatch and Smith-Lever
2.. Revitalize enrollment management	▪ Increase number of programs in partnership with UA's rural campuses	▪ Increase number of transfer students into NRM and geography programs	• Total enrollment • Total SCH • NRM and GEOG majors	• Partnership programs: Horticulture with Bristol Bay Campus	▪ Increase in tuition recovery
	▪ Engage in articulation with colleges outside Alaska	▪ Increase total enrollment to meet and exceed 5% increase shown as FY09 target	• Total enrollment • Total SCH • NRM and GEOG majors	• Enrollment management director working with student services	▪ Increase in tuition recovery

	• Cross-list courses across UA campuses	• Increase SCH to move toward 3,500 level attained in FY04	• Total SCH	• Palmer based faculty has joint appointment with UAA in environmental engineering graduate program .	• Increase in tuition recovery
	• Initiate delivery of web based courses	• Initiate one new web course per year	• Total SCH	• NRM 101 delivered by web starting in summer of 2010 and fall 2010	• Increase in tuition recovery
	• Recruit teachers in K-12 for courses emphasizing teacher training	• Continue offering current courses	• Number of students enrolled	• Agriculture in the Classroom offered in Fairbanks and PREC, GLOBE offered in Fairbanks.	• Increase in tuition recovery
	• Offer NRM and Geography courses in high schools	• Continue to offer at least one course per year	• Total SCH • NRM & GEOG first time freshmen	• GEOG 101 offered at Effie Cochran in Fairbanks	• Increase in tuition recovery
	• Offer summer or mid-mester session courses	• Offer at least one summer or mid-mester session course every year	• Total SCH	• NRM 101 and GEOG 306 offered in summer session, NRM 101 cancelled due to low enrollment	• Increase in tuition recovery

	• Continue philanthropic efforts to fund graduate and undergraduate students	• Increase amounts in current student scholarships funds • New scholarship funds	• Increase in amounts in current student scholarship funds • Number of new scholarships funded	• Persons involved in annual giving is up • Continuing to work with donor on graduate fellowship in agriculture • New donor for Reindeer Research Program	• Increasef in funding available for undergraduates and graduates
3. Complete Strategic Plan 2010-2015	• SNRAS/AFES editor and dean/director complete draft based on faculty committee input • Plan ready for outside review	• Increased visibility and realigned efforts to meet state and national needs in line with the UAF Strategic Plan, the USDA Science Roadmap for Agriculture, and new directions of USDA/NIFA and POW	• Formation of Board of Advocates for SNRAS/AFES • Increased development funds for SNRAS/AFES	• Editor and dean/director have compiled faculty input into draft	• Development funding • Increased state and federal funding through direct appropriations and competitive grants
4. Increase grant proposal submission and success	• Encourage the team approach to seeking out opportunities and pursuing grants. • Provide faculty the opportunity to improve grant writing skills	• Submit two proposals from SNRAS and AFES that are built with multi-disciplinary and multi-state/national teams • One faculty attends grant writing workshop	• Proposals submitted: Childhood Obesity and Food Security • Faculty submits one proposal as a result of attending the workshop	• Childhood obesity completed and in review, Food security denied • Proposal to WSARE submitted	• Increased ICR and research expenditures • Increased ICR and research expenditures

*Integrated activities are a required reporting category for accountability of use of Hatch and Smith-Lever formula funds with a requirement of participation of each state and territory of 25% of total Hatch and Smith-Lever expenditures based on FTEs and operating costs. Integrated activities are those that have a research and outreach component and preferably involve faculty and staff from AESs and CESs. Integrated activities are generally performed in the Knowledge Areas (KAs) specified in the Plan of Work (POW) that are keyed to strategic plans for AESs and CESs and their host universities. The KAs for UAF's AFES and CES are: agriculture and horticulture; sustainable individuals, families, and communities; management of ecosystems; natural resource and community development; and youth development.

B3. Analysis of Performance Metrics and Supporting Data

We report SNRAS and AFES as one unit. Because AFES is one of the seven institutes at UAF, we report on the metrics required of research institutes as well as student metrics required of units presenting academic degree programs. The financial metrics include both SNRAS and AFES. SNRAS also participates in research and outreach programs that are not directly funded through AFES. The student metrics are only for SNRAS.

STUDENT CREDIT HOURS GENERATED

	Performance Metrics and Supporting Data	*Historical Performance*					*FY11 Target*		*FY12 Target*
	Reporting Period: FY08 (July 1, 2007 to June 30, 2008)	FY06	FY07	FY08	FY09	FY10	Current	New	
1	Student Credit Hours Generated (ex. 500-level)	3,382	3,038	3,050	3153	3,243	3,300		3,350
	a. Lower Division SCH	882	743	712	797	767		800	850
	b. Upper Division SCH	1,441	1,354	1,199	1400	1,427		1,500	1,600
	c. Graduate Division SCH	383	434	536	578	623		650	675
	d. Center for Distance Education SCH	676	507	603	378	426		500	550

Data Review

Enrollment in our graduate programs is increasing and is expected to continue to increase because of our new professional Masters in Natural Resources Management and Geography, the Peace Corps program in conjunction with our M.S. in Natural Resources Management, and the Ph.D. in Resources Management and Sustainability that is in cooperation with the School of Management. This is reflected in SCH in graduate courses and upper division undergraduate courses. For undergraduates, comprehensive and very personal advising has been implemented as part of the Strategic Enrollment Plan with the goal of enhancing undergraduate retention. As described in the FY10 AUP, the Natural Resources option in the NRM degree has been revised and modernized significantly and is under faculty review in the school.

Strategies

There have been major accomplishments over the last year and other changes are underway that will affect SCH production:

- The resources option in the NRM degree has been modified and is being finalized for submission and approval – increase undergraduate SCH
- The professional Masters in Natural Resources Management and Geography and the Peace Corps option in the M.S. in NRM – increase graduate SCH
- A Ph.D. in Resources Management and Sustainability in cooperation with the School of Management has been very popular with students nationally and internationally – increase graduate SCH
- The environmental studies degree in geography is going through a review and may have modifications finalized this year – increase in undergraduate SCH
- The NRM 101 course has been taken fully on line. Discussions are ongoing to make AK Geography also purely web based asynchronous – increase in undergraduate and graduate SCH
- Strategic Plan 2010-2015 (draft) with focus areas in energy, climate change, food an agricultural security, and community and economic development including workforce development through SNRAS degree programs and partnerships in certificate programs – increase in overall interest in SNRAS courses
- Implementation of our Enrollment Management Plan in which the SNRAS is teaching in the Effie Kokrine Early College program and plans to expand this approach in the Matanuska – Susitna area
- The High Latitude Agriculture option in the NRM B.S. degree offered through the PREC will offer an environmental studies specialty area – increasing undergraduate SCH in the Matanuska-Susitna area

In Enrollment Management we are:

- Telephoning new applicants asking how we can help with admissions and enrollment
- Writing letters to all students in introductory courses asking if they would consider natural resources management or geography as a major or minor
- Tracking all graduate student applicants, admits, and enrollees by telephone to offer help
- Receiving data runs in fall prior to registration and calling all students who have not enrolled to offer help
- Assigning undergraduate students to advisors as they enroll

Resources and Reallocation

Internal reallocation was made to support the position of Director of Enrollment Management. In addition, the public information officer in the SNRAS/AFES Publications Office now has part of her workload allocated to work with the Director of Enrollment Management to produce student and promotional materials.

GRANT FUNDED RESEARCH EXPENDITURES
INDIRECT COST RECOVERY
NON-GENERAL FUND REVENUE
RATIO OF NGF REVENUE TO GF REVENUE
FILLED TA & RA POSITIONS

	Performance Metrics and Supporting Data Reporting Period: FY08 (July 1, 2007 to June 30, 2008)	*Historical Performance*					*FY11 Target*		*FY12 Target*
		FY06	FY07	FY08	FY09	FY10	Current	New	
9	Grant-Funded Research Expenditures	6,284	6,194	5,349	5,794	6,155	5,800	6,000	6,500
	Indirect Cost Recovery	342	292	264	246	421	290	350	425
	Non-General Fund Revenue	6,287	6,281	5,479	5,802	5,910	6,000		6,200
	Ratio of NGF revenue to GF Revenue	1.8	1.6	1.4	1.5	1.5	1.6		1.7
	Filled TA & RA positions (Fall-to-Fall)	14	14	15	9	16	15		16

Data Review

GRANT FUNDED RESEARCH EXPENDITURES

Our grant funded expenditures have continued to increase from FY07 and we exceeded our FY10 target. We have been increasing the number and amount of proposal submissions for competitive grants for several years. No earmarks were provided in FY07 and there might have been a drop in research expenditures. However, no drop in expenditures occurred in FY08 increasingly expenditures are to competitive grants. We saw a slight increase in grant-funded expenditures in FY09 and anticipate these increases to continue.

ICR, NGF REVENUE, RATIO OF NGF REVENUE TO GF REVENUE

The ICR, NGF and thus the ratio NGF/GF for SNRAS/AFES are low when compared to other institutes on the UAF campus. AFES is an Agricultural Experiment Station, one of the national networks of experiment stations that serve the states and territories in which they reside. *AFES research is nationally mandated. None of the other institutes at UAF have this nationally*

*directed mission; they are not required to follow the national strategic plan of the A*P*L*U, the Association of Public and Land grant Universities (formerly NASULGC), the 'Science Roadmap for Agriculture' nor are they required to follow a joint Plan of Work that must be tied to CES in knowledge areas and thus must follow a mandate to include outreach and extension activities.* As a member of the national network of experiment stations, AFES serves its state, the state of Alaska, as the research core of the land-grant mission of UAF. Its research is applied and related to the use of the state's natural resources to support and enhance the quality of life of individuals and families and economic development of the state. The Milken Institute (http://milkeninstitute.org) tracks effectiveness of states in the use and development of their natural resources for the betterment of their state and ranks Alaska among the last if not last among all states and territories in all categories. The Development Report Card for the States (http://www.cfed.org) provides information on research and transfer of that research to application. While Alaska ranks very high as a recipient of federal research funding, it is ranked 50th among the states in transfer of the results of that research. The use and development of natural resources in Alaska for economic development and quality of life is primitive at best and can be likened to that found in third-world countries where resources are extracted and exported with little or no processing. Thus, applied research addressing use and development of natural resources in Alaska, by necessity not desire, resembles that conducted in the 1950s or earlier in the 49 states, and currently in developing countries. Climate change research is one notable exception. Agriculture, forestry, and energy are not exceptions.

Funding agencies that provide ICR with no restrictions or caps are generally not interested in funding 1950s style applied research – research we must do to bring the state into the 21st century in its philosophical and investment culture in dealing with natural resource development and research. Our talented and energetic faculty are devoted to our mission. When they can move into the cutting edge research that is attractive to funding agencies they do so, as evidenced by the NGF revenue we do bring into UAF, and include outreach and technology/knowledge transfer in their grant proposals. When that is not possible, faculty rely on USDA funding sources which have ICR caps and restrictions. Changes have been made in USDA changing the name and philosophy of the former CSREES, now the National Institute for Food and Health (NIFA) that includes a new funding agency, the Agriculture and Food Research Initiative (AFRI) replacing the former National Research Initiative (NRI). The AFRI was created out of Farm Bill legislation to bring a new look at how research enters the application stream through development, application, and outreach. It does provide the opportunity for ICR with a cap of 22%. There will be new opportunities for SNRAS/AFES faculty as well as faculty within CES for submission of competitive proposals. Additionally, new USDA partnerships with DOE and DOT, and new foci on food and agriculture in NSF and NIH will benefit AFES and our aggressive and talented faculty.

Strategies

The integral tie of the budget for SNRAS/AFES and its strategic plan will be a guide to broadening our mission-oriented research. The four new focal points in energy, climate change, food and agricultural security and community and economic development including workforce development along with our new graduate degrees and involvement of our undergraduates in research will be a focal point as we strive to improve our ICR, NGF revenue acquisition and thus our ratio of NGF revenue to GF revenue. Our SNRAS/AFES Grants Coordinator has streamlined her process for working with faculty to prepare their grant proposals and she is actively soliciting applications from faculty to the new programs in NIFA/AFRI by connecting them with the appropriate program leaders in USDA. She also works directly with the agencies who are soliciting grant applications to assure that our faculty meet the guidelines in format and in proposal subject content. This more aggressive and positive attitude is appreciated by the faculty and grant proposal submission has substantially increased.

There have been cuts in personnel expenditures and operating expenditures in SNRAS and AFES to work towards reducing our budget shortfall. Faculty contracts have been reduced from 9+3 months to 9+1 month and technicians that are funded by our Hatch and McIntire-Stennis formula funds now receive 11-month term contracts. Faculty have realized that the school and station could not sustain their privileged 9+3 contracts for at least two years as our business office and I have continued to provide them with updated budget reports. This anticipation of a reduction has led some faculty to be more active in the competitive grants arena. The budget cuts will allow us to reshape the school and station to more closely reflect our strategic plan and reward the programs that are most productive as they emphasize the four focus areas. Thus, the changes to the budget and opportunities for reallocation of funds, are indeed a strategy that should increase our research expenditures and ICR.

Resources and Reallocation

We have provided information to our faculty and staff concerning the redirection of our efforts to obtain funding for research given the federal funding scenario and emphasized that funding they seek must be consistent with our Strategic Plan 2010-2015 (draft) and our joint CES/AFES POW. The faculty and staff have responded positively. The changes to our budget in FY 10, as we respond to a $990K budget shortfall, and positive reallocations we will be making should strengthen the school and station's position to respond to national directives and once again become a leader at UAF and in Alaska as we continue to bring our research through outreach and education to Alaskans and Alaska's communities.

HIGH DEMAND JOBS

	Performance Metrics and Supporting Data	*Historical Performance*					*FY11 Target*		*FY12 Target*
	Reporting Period: FY08 (July 1, 2007 to June 30, 2008)	FY06	FY07	FY08	FY09	FY10	Current	New	
3	High Demand Job Academic Awards	28	21	17	18		12	15	20
	a. High Demand Job Majors	132	110	115	116		115	118	122
	Total Degrees Awarded	33	33	20	25		21	24	28
	a. Baccalaureates Awarded	25	27	13	19		16	16	20
	b. Masters Awarded	8	4	6	6		3	5	7
	c. Doctorates Awarded	0	2	1	0		2	2	4

Data Review

Graduation numbers are anticipated to stay flat or slightly decline in the next two years based on the lower enrollments seen in FY07 and FY08. An analysis of time to undergraduate degree completion in SNRAS indicates the majority of our majors complete their degrees in 4-5 years, with slightly more completing in 5 years. High graduation rates in 2006 and 2007 coupled with lower enrollments and length of degree completion most likely contributed to lower graduation rates in undergraduate students. Our recruitment and retention program also lacked vigor and student interaction in 2006 and 2007. At the graduate level, the major influencing variable is time to degree completion. As addressed in the 2010 AUP, only 23% of our masters students finish in three years or less. We have worked in the past year to ensure both undergraduate and graduate students have a close relationship with an advisor and that graduate students meet necessary deadlines as they move toward graduation – we believe that is a key element to student retention and success.

Strategies

PAIR includes the NRM B.S. degree and M.S. degree and the geography B.S. (GEES) in high demand jobs. The professional masters and the Ph.D. as well as the four new geography baccalaureate degrees also produce graduates for high demand jobs. Therefore our targets for FY 10 reflect these graduates and majors. We will petition the University of Alaska to include these degrees in high demand job data.

As described in the student enrollment section, our major initiatives and focus for growth include:

- Setting students up with advisors early on and ensuring that relationship is meaningful and helpful
- Using the Cappex program to identify new potential students
- Maturation of the Geography program
- A professional Masters in Natural Resources Management and Geography
- A Ph.D. in Resources Management and Sustainability in cooperation with the School of Management
- Revamping of the environmental studies degree in geography and significantly modifying the Resources Management option in the NRM B.S. degree
- The High Latitude Agriculture option in the NRM B.S. degree offered through the PREC will offer an environmental studies specialty area

Resources and Reallocation

Internal reallocation was made to support the position of Director of Enrollment Management. In addition, the public information officer in the SNRAS/AFES Publications Office now has part of her workload allocated to work with the Director of Enrollment Management to produce student and promotional materials.

TOTAL ENROLLMENT

	Performance Metrics and Supporting Data	*Historical Performance*					*FY11 Target*		*FY12 Target*
	Reporting Period: FY08 (July 1, 2007 to June 30, 2008)	FY06	FY07	FY08	FY09	FY10	Current	New	
	Total Enrollment	160	146	151	163	183	190		200
4	Undergraduate Student Retention (1st time Freshmen)	71%	100%	0%	83%	67%	80%		80%
5	a. Undergraduate Enrollment	125	104	106	114	121	125		130
6	UA Scholar Enrollment	11	8	6	13	14	14		15
7	b. Graduate Enrollment	35	42	45	49	62	65		70
	1). Masters Enrollment	26	31	34	37	45	45		47
	2). Doctoral Enrollment	9	11	11	12	17	20		23

Data Review

SNRAS undergraduate majors are increasingly modestly (6%). Graduate student numbers are growing (26%) at a more rapid rate presumably due to new program offerings, recruitment and retention efforts and enhanced student advising and placement strategies. We anticipate increases in undergraduate and graduate programs as a result of new options in the geography B.S. degree and masters and doctoral degree programs as well as the development of a revamped baccalaureate degree in environmental studies and revisions to the Resources Management option in the NRM B.S. degree. Students who declare majors in NRM and geography are career oriented. We suspect that the perception that entry positions in these two fields are low compared to engineering and even certificate and two year degree programs in the trades and crafts is influencing student decisions on choice of major. This is changing in federal and state agencies and more jobs are becoming available in private industries that are responding to concerns about the environment and climate change, where NRM and geography majors excel. Additionally, we are intensifying our training of geography students in GIS and spatial technologies providing them with the tools needed to enter the job market at a higher rate of pay and are offering these same opportunities to students who enroll in the NRM B.S. option in High Latitude Agriculture at the PREC.

Strategies

We completed several of our goals critical to increasing enrollments and are seeing initial results of those efforts. Other changes are underway. Our major initiatives and focus for growth include:

- Setting students up with advisors early on and ensuring that relationship is meaningful and helpful
- Using the Cappex program to identify new potential students
- Maturation of the Geography program
- A professional Masters in Natural Resources Management and Geography
- A Ph.D. in Resources Management and Sustainability in cooperation with the School of Management
- Revamping of the environmental studies degree in geography and significantly modifying the Resources Management option in the NRM B.S. degree.

Students respond to a friendly and helpful environment. Our faculty members have an open door policy for the most part and our Director of Enrollment Management provides a very interactive entry point for new students and continuing assistance to current undergraduate and graduate students. We are letting students outside SNRAS and in the K-12 levels know about us.

Resources and Reallocation

Internal reallocation was made to support the position of Director of Enrollment Management. In addition, the public information officer in the SNRAS/AFES Publications Office now has part of her workload allocated to work with the Director of Enrollment Management to produce student and promotional materials

UNDERGRADUATE STUDENT RETENTION
UNIT ENROLLMENT MANAGEMENT PLAN
STUDENT LEARNING OUTCOMES ASSESSMENT

	Performance Metrics and Supporting Data	*Historical Performance*					*FY11 Target*		*FY12 Target*
	Reporting Period: FY08 (July 1, 2007 to June 30, 2008)	FY06	FY07	FY08	FY09	FY10	Current	New	
8	Unit Enrollment Management Plan	n/a	n/a	n/a	Yes	Yes	yes		yes
9	Student Learning Outcomes Assessment	50%	50%	unavil	100%	100%	100%		100%

Data Review

UNDERGRADUATE STUDENT RETENTION

SNRAS has applied degrees which often are not the first major students think of upon graduation from high school. Many students transfer into SNRAS programs as they desire to learn more holistic ideas, be able to apply their knowledge and hope to make some difference in the world through action. We are working with area high schools to create awareness of these majors for students.

UNIT ENROLLMENT MANAGEMENT PLAN

Our Enrollment Management Plan can be found at http://www.uaf.edu/snras/annual-reporting-document/

STUDENT LEARNING OUTCOMES ASSESSMENT

Outcomes Assessment for NRM is complete and on file with the Provost's office. Outcomes Assessment for geography is being implemented in FY 10. Outcomes Assessment Plans and actions for SNRAS can be found at http://www.uaf.edu/snras/annual-reporting-document/

Strategies

UNDERGRADUATE STUDENT RETENTION

Dean exit interviews and student comments indicate open-door advising, and contacts with our Enrollment Management Director keep students in SNRAS. We promote internships for summer employment with credit given the following fall; provide job information and personal contacts through our Director of Enrollment Management, and keep an up-to-date bulletin board for job announcements. We have begun using Banner student lists to track first-time-freshmen and transfer students. In addition we are:

- Telephoning new applicants asking how we can help with admissions and enrollment
- Writing letters to all students in introductory courses asking if they would consider natural resources management or geography as a major or minor
- Calling all returning students who have not enrolled to offer help
- Assigning undergraduate students to advisors as they enroll

UNIT ENROLLMENT MANAGEMENT PLAN

We are constantly updating our Enrollment Management Plan to include retention efforts in advising and K-12 outreach. It is in the workload plan for our Director of Enrollment Management and will include all of the elements delineated in this metrics section of the AUP.

STUDENT LEARNING OUTCOMES ASSESSMENT

We are responding to informal geography input and dean exit interviews by developing a baccalaureate in environmental studies and modifying the NRM B.S. option in resources management as a part of our Strategic Plan 2009.

Resources and Reallocation

UNIT ENROLLMENT MANAGEMENT PLAN

No resources were specifically allocated or reallocated. Tasks were taken on by the Director of Enrollment Management to enhance advising and develop outreach to K-12. In addition, letters and phone calls are being made to ensure high percentages of admissions to enrollment. We are responding to requests in the Palmer and Matanuska-Susitna school districts to provide opportunities for students at UAF through the PREC in a program that includes courses in environmental studies. We are doing so by providing this track in our High Latitude Agriculture option in the NRM B.S. degree offered at the PREC.

STUDENT LEARNING OUTCOMES ASSESSMENT

A part of the results of our outcomes assessment efforts was the development of three new options in the geography B.S. degree program. This required hiring two additional adjuncts to support specialty courses that were added to the degree. Additionally, the Director of Enrollment Management took on the responsibility for one of the upper-division core courses in geography. .

ADDITIONAL METRICS: Number of joint partnerships

Partner(s):	Project:	Funding Source (if applicable)	Project duration:
Cooperative Extension Service	Land grant mission of UAF and UA	USDA, state of Alaska, competitive grants	Continuing
USDA Agricultural Research Service	Integrated Pest Management Arctic and Subarctic Plant Curation	USDA/ARS	Continuing
USDA Forest Service	Ecology of the Boreal Forest	USDA Forest Service	Continuing
UAS, USFS,Pacific Northwest Research Station and the National Forest System Alaska Region, U.S. Fish and Wildlife Service Alaska Region, And the City and Borough of Juneau	Alaska Coastal Rainforest Center	State of Alaska	Continuing
Cooperative Ecosystems Study Unit Pacific Land Grant Alliance	Ecosystems Management Natural resources research, education, and outreach in the American Pacific	NPS, BLM,NRCS,US F&W, ARS Agricultural Development in the American Pacific (ADAP)	Continuing Continuing

Cold Climate Housing Research Center	Energy efficiency and architectural design in subarctic climates	USDA, State of Alaska, BP, private foundations	Continuing
Kawarek Reindeer Herders Association	Reindeer management, nutrition, and meat quality	USDA, BIA, NSF, NRCS	Continuing
UAF Northwest Campus	Joint educational programs	USDA, NSF, BIA, NRCS	Continuing
UAF Bristol Bay Campus	Joint educational programs	USDA, NSF	Continuing
UAA Matanuska Community College	Joint educational programs	USDA, Forest Service	Continuing
Ilisagvik College	1994 Land Grant College	USDA	Continuing
Chena Hot Springs Resort	Alternative energy and year-round crop production in controlled environments	USDA, DOE,UAF/SNRAS/AFES	Continuing
Pikes Waterfront Lodge	Horticulture research and demonstration	USDA, State of Alaska	Continuing
Alaska Blue	Blueberry cultivation	None	Continuing
Alaska Peony Growers Association	Peony production and marketing	USDA	Continuing
Alaska Community Agriculture Association	Alaska agriculture	None	New
National Geographic	Geography Alliance – K-12 Outreach	National Geographic	Continuing
AT&T	IT outreach to K-12	AT&T, foundations	Continuing
GoogleEarth	Landscape analysis applications in K-12	GoogleEarth	Continuing

B4. Publications in refereed journals/periodicals

Information included as an attachment.

B5. Occurrences of applied research benefiting Alaska

School, College or Institute	Project Title	Project Status (complete, active, awarded, proposed)	Description of contribution to the state of Alaska	Collaborative w/ AK Native or rural groups and/or traditional knowledge
	ENERGY - BIOMASS			
SNRAS/AFES	Renewable hydrocarbon production from Alaska biomass	Active	Solid woody biomass is transformed into several hundred hydrocarbon fractions that can be fractioned further and produce similar value-added product lines; plastics, resins, solvents, fuels.	NO
SNRAS/AFES	Bio-oil Production and Upgrading from standing dead trees in interior Alaska	Active	Produce and compare bio-oil from Alaska woody biomass that has no market value or that is underutilized and could be used as feedstock for energy and product application.	NO
SNRAS/AFES	Chemical characterization of Alaska trees	Active	Provide fundamental compositional data of the lignocellulosic biomass in the state by conducting chemical characterization of the available biomass.	NO
SNRAS/AFES	Moisture content determination of fire-killed trees in interior Alaska	Completed	Provide information on quality of chemical and physical properties of standing fire-killed deadwood from the fires of 2000 and 2006 in interior Alaska.	NO
SNRAS/AFES	Pyrolysis of Alaska biomass	Active	Production of bio-oil as a stable liquid substrate to hold the chemicals produced by the heating of wood in the absence of oxygen (pyrolysis).	NO
SNRAS/AFES	Gasification of Alaska biomass	Completed	Investigate the yield and composition of Alaska woody biomass under supercritical fluid liquefaction for production of biofuels and chemical feedstocks.	NO
SNRAS/AFES	Gasification of Salmon	Active	Investigate salmon waste streams for the production and characterization of energy specific uses.	NO
SNRAS/AFES	Bio-energy crops for Alaska	Active	Screen various shrubs/trees, perennial grasses, and perennial forbs as potential bio-energy crops in Alaska.	NO
SNRAS/AFES/ CES	Establishment and evaluation of native willows, alder, and cottonwoods for biomass production	Active	Determine the feasibility of growing endemic Alaska woody species as sustainable agricultural crops for bioenergy and bioproduct applications.	NO

SNRAS/AFES	Agronomy, economy and fuel quality of Polish canola grown in Alaska	Proposed	Determine if Polish canola seed can be used for biodiesel fuel and as a rotational crop.	NO
	BIOPRODUCTS			
SNRAS/AFES	Forest Products Project (Wood Utilization Research - WUR)	Active	Addresses forest products research in Alaska including non-timber products and education and extension associated with new product development and production processes.	AK Native & rural
SNRAS/AFES	Phytochemicals from the Northern Forest	Active	Determine potential (type, quality, and quantity) of chemicals contained in northern forest species for uses from health care to biofuels.	NO
SNRAS/AFES	Japanese glulam beams	Active	Examine the glulam beam market and explore the potential for Alaska forest products.	AK Native & rural
	CLIMATE CHANGE			
SNRAS/AFES	Social vulnerability and equity in the context of climate change	Active	Synthesize knowledge about the effects of climate change on indigenous people and resource-based communities in the United States and Canada.	AK Native & rural
SNRAS/AFES	Lake level changes at Harding Lake	Active	Reconstruct the historic lake levels and lake level changes at Harding Lake and provide a model that will assist in developing operational rules for a control structure on the divergent stream.	NO
SNRAS/AFES	Communicating climate change to the public and policy makers	Active	Integrate, synthesize, and formulate complete and accurate information useful to the public and policy makers.	NO
SNRAS/AFES	Alaska climate change	Active	Influence of weather, especially weather extremes and climate change, on agriculture and forestry in the far north.	NO
SNRAS	Changing Climate and habitats on DOI Lands in Alaska	Active	Predict generalized changes in land cover associated with wildlife habitats over time on DOI lands in Alaska.	AK Native & rural
SNRAS	Projected Vegetation and Fire Regime Response to Future Climate Change in Eastern Interior Alaska	Proposed	Develop a fine scale grid model for monthly mean temperature and precipitation for every year out to 2009 for Interior to produce simulations of vegetation and fire regime response scenarios for future climate change.	NO
SNRAS/AFES	Impacts of drought on soil respiration	Active	Examines the impact of summer drought on the release of carbon through soil respiration in interior Alaska.	NO
	Synthesizing Global change impacts in Alaska	Proposed	Identify communities at risk to specific hazards associated with global climate change.	NO

	CLIMATE CHANGE - ECOSYSTEMS			
SNRAS/AFES	Feasibility study for development of a storm water utility in the city of Fairbanks	Active	Determine if the City of Fairbanks would save money on legally-mandated storm water management services by creating a storm water utility .	NO
SNRAS/AFES	Revegetation of a gravel-extraction operation	Active	Address lack of information and help land managers develop effective revegetation strategies and cost-effective methods to monitor the progress of remediation effects on gravel extraction operations	NO
SNRAS/AFES	Remote sensing techniques for the study of white sweet clover on the Matanuska River flood plain	Active	Map, over time, infestations of white sweet clover (*Melilotus alba* Desr.) on the Matanuska River floodplain using near-earth remote sensing to detect changes in the population dynamics between sweet clover and native vegetation	AK Native & rural
SNRAS/AFES	Wetland protection and hydric soils monitoring in volcanic ash-derived soils in Alaska	Active	Investigate hydric soil and related non-hydric soil properties and processes in tephra-derived soils in Alaska for large disturbed areas	
SNRAS/AFES	Carbon flux and transformation across the arctic coast of Alaska	Active	Ecologists, soil scientists and geocryologists collaborate on the relationship between permafrost and coastal erosion.	AK Native & rural
SNRAS/AFES	Soils associated with pattern ground in arctic Alaska and Canada	Active	Results from the soil morphological study and chemical analysis suggest that cryoturbation mainly due to frost heave plays a controlling role in carbon sequestration in arctic tundra soils.	NO
SNRAS/AFES	Invasive Weed Research	Active	Alaska's ecosystems are relatively intact thus research focuses on strategies to prevent the introduction of invasive species, more cost effective than research concerning control.	AK Native & rural
SNRAS/AFES	Restoration of Sedges	Active	Identify major factors affecting sedge seed germination for revegetation on Alaska's North Slope	NO
SNRAS	Calibrate ALFRESCO- USFW	Awarded	Provides critical information for the assessment of the impact of future climate scenarios on the Kanuti National Wildlife Refuge.	AK Native & rural
SNRAS	Yukon Climate Project	Awarded	A collaboration between SNAP/UAF and the Northern Climate Exchange (NCE) to create data, maps, and written information relating to climate change projections in the Yukon, Canada.	NO
SNRAS	SNAP Climate Model	Awarded	Develop down-scaled climate projections of future (present-2099) temperature and precipitation patterns for Alaska and quantify sources and magnitudes of uncertainties associated with these projections for USGS.	NO

SNRAS	Integrated Ecosystem Model for Alaska	Awarded	Develop a conceptual modeling framework for integrating important components of vegetation succession, disturbance regimes, hydrology and permafrost dynamics for the Fish and Wildlife Service.	NO
SNRAS	Modeling Winter Caribou Habitat	Awarded	Develop downscaled climate scenarios within the winter ranges of arctic caribou herds (Western Arctic, Teshekpuk, Central Arctic, Porcupine) to evaluate the potential effects of climate change for USGS.	AK Native & rural
SNRAS	Predicting Future Potential Biomes for Alaska	Awarded	Identify areas within Alaska that are least likely to change, and those most likely to change over the next 100 years based on the down-scaled climate models for Alaska for AK Fish and Wildlife.	NO
SNRAS	Biomes for Alaska	Proposed	Develop biome shift predictive models to understand how climate change will affect our ability to sustain biodiversity and traditional subsistence into the future for the NPS.	AK Native & rural
SNRAS	Climate Change Scenario Planning for Alaska Region National Park System Units	Proposed	Help Alaska NPS managers, cooperating personnel, and key stakeholders develop plausible climate change scenarios for all NPS areas in Alaska.	NO
SNRAS	North Slope Climate Change Analysis	Proposed	Provide climate change projections to be used in the National Petroleum Reserve-Alaska (NPR-A) in collaboration with BLM.	NO
SNRAS	Satellite-based measurements and visualization of thermal trends at volcanoes	Proposed	Collate and analyze thermal data for volcanoes across the North Pacific to assist with prediction.	NO
SNRAS/AFES	Measuring changes in lake surface area in Kobuk Valley National Park	Awarded	Acquire and analyze remotely sensed imagery to assess changes in shallow lakes surface area in the ARCN, focusing on the Kobuk Valley National Park.	NO
SNRAS/AFES	Current and projected carbon footprint at the Yukon and Tanana Flats training areas Ft. Wainwright, Alaska	Proposed	Develop the fundamental and applied science to project impacts of ecosystem management on current carbon stocks and potential future carbon dynamics within the context of a warming climate on two extensive training areas in interior Alaska.	NO
SNRAS	Collaborative Research: Scaffolding Undergraduate Geoscience Inquiry Using New Loggable Google Earth Explorations	Awarded	Develop virtual globe-based educational modules will be developed to provide virtual field trips for undergraduate geosciences education using Google Earth.	NO
SNRAS/AFES	Collaborative Research: Fate and transport of soil organic carbon	Proposed	Enhance participation of students and collaboration between scientists from different institutions, and promote communication with the wider public in disseminating current scientific knowledge.	NO
SNRAS/AFES	Researcher in Residence	Awarded	Increase the opportunities for researchers to conduct work in Denali National Park	

			and increase the opportunities for visitors to learn about current science in Denali.	NO
	CLIMATE CHANGE - FORESTRY			
SNRAS/AFES	Growth reactions of Lutz spruce saplings to fireweed removal and the presence of fertilizer	Active	Determine if fireweed removal and the presence of fertilizer enhances Lutz spruce saplings' growth.	NO
SNRAS/AFES	Black spruce growth and fire history	Active	This tree ring study was designed to see if a series of years in the 1800s were also major fire years in interior Alaska.	NO
SNRAS/AFES	Monitoring forest development and health	Active	Document patterns and events in forest development, forest change, and forest health providing on-ground documentation to quantify changes .	NO
SNRAS/AFES	Synthesis of Alaska forest health trends, events, and patterns	Active	Compile and compare forest health data from two sources: the Alaska Aerial Detection Forest Health Survey (ADFHS) and LTER data to see if trends are present and consistent between the two sources	NO
SNRAS/AFES	Photo monitoring forest development and health	Active	Repeat photography to document patterns and events in forest development, forest change, and forest health.	NO
SNRAS/AFES	Spruce budworm is now at outbreak levels in Alaska because of climate warming	Active	Examine why the spruce budworm has appeared at outbreak levels in interior Alaska irregularly since the late 1980s.	NO
SNRAS/AFES	Climate sensitivity of the growth of Kuskokwim River and Yukon River white spruce	Active	Determine recent growth history and growth potential of the riparian forest that is the source of driftwood on these river systems.	NO
SNRAS/AFES	Alaska Birch and Black Spruce Tree Growth and Climate	Active	Develop long-term, ground-based data to help answer the question of climate sensitivity of the boreal forest in taking up and storing carbon dioxide.	NO
SNRAS/AFES	Effects of diversity of tree species and size on forest basal area growth, recruitment, and mortality	Active	Determine the relationship, or lack thereof, between growth and diversity of tree species and size in conifer stands of western North America.	NO
SNRAS/AFES	Levels-of-Growing-Stock (LOGS) studies	Active	Determine the effect of distance between planted seedlings or pre-commercial thinning on crop tree growth.	NO
SNRAS/AFES	Black spruce forest soils in boreal regions of Alaska	Active	Provide a soils information baseline for modeling climate change, boreal forest management, and future soil inventory.	NO
SNRAS	Development of a computer model for management of fuels, human-fire interactions, and wildland fires in the boreal forest of Alaska	Active	Provide mapped depictions of changes in wildland fuels, fire risk, and vegetation under multiple future scenarios of fire management, climate change, and human development.	NO

SNRAS	An integrated approach to understanding the role of climate-vegetation-fire interactions in boreal forests responses to climate change	Active	Improve understanding of boreal forest-tundra dynamics in Alaska to understand the processes and mechanisms controlling circumarctic ecosystem responses to climate change by linking paleo-data and modern ecological modeling.	NO
SNRAS	Quantifying the Impacts of Climatically Driven Changes in the Alaskan Fire Regime	Active	Concerns about wildland fuel levels and a growing wildland-urban interface push wildland fire risk mitigation strategies to the forefront of fire management activities making this data gap the most important fire science research need and priority.	NO
SNRAS	Timing of Warm Season Precipitation: Key Mediator Between Climate Change and	Active	Influence of seasonal shifts in the timing and magnitude of warm-season precipitation on vegetation distribution, tree growth, and fire regime in the Alaska boreal forest.	NO
SNRAS	Impacts of Climate Change on the boreal-forest fire regimes of Alaska: Lessons from the past and prospects for the future	Active	Confront the current poor understanding of fire responses to climatic change in Alaska by integrating paleorecords and computer modeling.	NO
SNRAS	Post-fire studies supporting computer-assisted management of fire and fuels during a regime of changing climate in the Alaska boreal forest	Active	Develop the computer model Boreal ALFRESCO that simulates the responses of boreal forest vegetation on real landscapes to changes in fire management, ignition frequency, and climate.	NO
SNRAS/AFES	Carbon cycle science in the Alaska coastal temperate rainforest	Active	The Tongass National Forest contains 8% of total US forest carbon storage thus information gathered will be applied to regional and national carbon sequestration goals.	NO
SNRAS/AFES	Soil Carbon Balance and Nitrogen Dynamics Following Disturbance by Wildfire and Logging in Interior Alaskan Forests	Active	Quantify and compare impacts of wildfire and logging disturbance on soil carbon balance and nitrogen availability and clarify the mechanisms underlying observed responses of soil respiration and N mineralization to wildfire and logging.	NO
SNRAS/AFES	Comparison of two vegetation indices in interior Alaska	Active	Soil moisture from melting snow is a major moisture supply for tree growth. Global information system data is being used to compare tree growth from upland sites with floodplain sites.	NO
SNRAS/AFES	Natural Regeneration of White Spruce at Reserve West	Active	A long-term monitoring project that measures survival and height growth of seedlings and saplings in an area burned in the 1983 Rosie Creek Fire.	NO
SNRAS/AFES	Log decomposition in interior Alaska	Active	Document the decomposition dynamics of logs within interior Alaska which represent a significant carbon and organic matter input into the forest floor.	NO

SNRAS/AFES	Long-term Forest Ecosystem Monitoring and GIS Modeling of Taiga Forest Dynamics	Active	Develop a computer model on the functional aspects of forest ecosystem dynamics at a broad landscape scale in interior Alaska.	NO
SNRAS/AFES	Influence of precipitation timing on tree growth in upland and floodplain forest ecosystems in interior Alaska	Active	Determine the influence of summer rainfall on the growth of trees in both upland and floodplain locations in interior Alaska.	NO
SNRAS/AFES	Relationship of tree growth to environmental and soil fertility factors for thirty-five years in interior Alaska	Active	Fertilization and thinning studies in birch, aspen, and white spruce forest types representing young, middle, and old age classes indicates changes in annual and seasonal precipitation dynamics will have a substantial impact on tree growth and forest ecosystem dynamics.	NO
SNRAS/AFES	Determining and Evaluating Variables Contributing to the Spread of Fire in Alaska	Proposed	Provide a proof of concept that fire spread and fire risk can be evaluated for Alaska.	NO
SNRAS	Climate-driven effects of future fire regimes and shrubland/forest expansion in Alaska	Awarded	Develop a variant of the ALFRESCO landscape dynamics model to assess shrubland expansion associated with predicted climate warming based on downscaled scenarios for USGS.	NO
SNRAS/AFES	Wildland Fire Science Delivery and Outreach in Alaska	Awarded	Provide a formalized consortium to the fire research and management community in Alaska needs a formalized consortium to coordinate current science delivery efforts and provide fire science information to fire managers.	AK Native & rural
SNRAS	Capacity Building in Climate Change Information and Application for the Arctic and the Tongass National Forest	Completed	Synthesize and analyze existing outputs from climate models in Alaska, to make this information relevant to Wilburforce grantees, and to continue to cultivate relationships between University scientists, Wilburforce grantees, and state and federal resource management agencies.	NO
SNRAS/AFES	Renovation of the Climate Tree-Ring Laboratory	Proposed	Provide a Climate and Tree-Ring Lab (CTRL) upgraded for state of the art equipment in tree ring studies.	NO
SNRAS/AFES	Temperature driven ecological thresholds in forest ecosystems on Alaska military bases	Proposed	Determine climate sensitivity of tree growth and forest health for the major tree species and forest site types of three Alaska military bases	NO
SNRAS/AFES	2010 Yukon River Basin studies	Awarded	Develop a comprehensive tree ring data base for the Yukon River Basin area and plan for tree ring isotope measurements.	NO
SNRAS/AFES	Research Service Contract with Afognak Native Corporation	Awarded	Design a forest inventory system for Afognak Native Corporation, with hands-on instructions to assist establishing permanent sample plots for forest inventory,	AK Native & rural

			develop models of forest dynamics, and provide forest management guidelines.	
	Managing Hazardous Fuels for Energy in Interior Alaska	Proposed	Utilize the woody biomass removed from designated fuelbreaks to substitute fossil fuels in two local public schools and other facilities and ensure the sustainability of benefits to local communities.	AK Native & rural
	FOOD AND AGRICULTURAL SECURITY			
SNRAS/AFES	Spatially modeling the distribution of beef cattle and reindeer on ranges at high latitudes in Alaska	Completed	A better understanding of animal interactions with their environment will allow producers to optimize feed rations and minimize adverse impacts to the landscape	AK Native & rural
SNRAS/AFES	An evaluation of the effectiveness of cattle distribution practices in grazed watersheds	Completed	Understand and predict animal movement and landscape use for a variety of ecosystems throughout the western United State including Alaska and assess impacts before the actual introduction of livestock into new landscapes.	AK rural
	Production of Livestock on Small Acreages in Alaska: Defining the Alaskan Animal Unit and Effective Distribution of Grazing Activities	Proposed	Address ecological production of livestock on small acreages in Alaska.	AK rural
SNRAS	Natural Resource Research	Active	Address the genetics of alternative livestock (elk, reindeer) and application of the Endangered Species Act	AK Native & rural
SNRAS	Endangered Species Act science and management	Completed	Assess science used in policy formation and implementation of the Endangered Species Act (ESA) to allow policymakers and managers to better understand the science being used in ESA issues.	AK Native & rural
SNRAS	Cattle genetics (Chirikof Island, University of Alaska herd, private Alaska cattle)	Completed	Chirikof Island cattle may represent a valuable genetic resource, either because of unique ancestry or selection pressures and data may affect management decisions regarding use of the cattle on the island as a livestock resource.	AK rural
SNRAS/AFES	Estimating lichen biomass, current population, and recommended stocking density of reindeer (*Rangifer t. tarandus*) on St. George Island, Alaska	Completed	Stakeholders on St. George Island want to know current reindeer population numbers, lichen biomass available for grazing, and a recommendation on reindeer stocking density to ensure sustainable use of range resources.	AK Native Traditional knowledge
SNRAS/AFES	Radio telemetry and range management	Active	The Reindeer Research Program and NRCS developed a satellite telemetry and mapping system to assist producers in protecting areas from the negative effects of prolonged grazing and to monitor compliance to the grazing exclusion program.	AK Native Traditional knowledge
SNRAS/AFES	On-line Reindeer Herd Record Keeping System	Active	Herders can query and browse herd and individual animal records year round via the internet.	AK Native Traditional knowledge

SNRAS/AFES	Similarities and differences in composition and selected sensory attributes of reindeer, caribou, and beef	Active	Determine composition and sensory properties of Alaska reindeer meat and compares these to caribou and beef.	AK Native & rural
SNRAS/AFES	A GIS habitat suitability model	Active	Reindeer herders on the Seward Peninsula use HSM to locate the most suitable reindeer calving areas within their range increasing herd productivity that could lead to increased economic income for Seward Peninsula reindeer herders.	AK Native Traditional knowledge
SNRAS/AFES	Locally produced feed ingredients for use in captive reindeer diets	Completed	Evaluating locally grown components of reindeer diets providea insight into reindeer nutrition and determine what diets will produce the greatest performance at the lowest cost for Alaska producers.	AK Native Traditional knowledge
SNRAS/AFES	Supplemental feeding of reindeer in enclosures on the Seward Peninsula, Alaska	Active	Free-ranging reindeer were moved into an enclosure and fed a supplemental ration to promote human-animal bonding, to avoid predators, and to improve the diet when forage on the range was absent or of poor quality.	AK Native & rural Traditional knowledge
SNRAS/AFES	A mobile slaughter unit as a meat science laboratory to support High Latitude Range Management curriculum	Active	A mobile slaughter unit (MSU) was designed and built for use as a meat science laboratory to support the teaching of meat production courses in the High Latitude Range Management certificate program.	AK Native & rural
SNRAS/AFES	Intake, rate of gain, and milk composition of reindeer calves on two different pasture grasses	Active	Feeding options for reindeer producers in Alaska reveal use of pastures in farmed reindeer operations reduce operating costs by decreasing consumption of milled rations and increase weight gain in reproductive females and calves.	AK Native & rural
SNRAS/AFES	Fish bonemeal as a dietary supplement to increase weight gain and antler growth in reindeer	Completed	Determine palatability of a fish bonemeal-supplemented diet and effects on reindeer weight gain and antler growth.	AK Native & rural
SNRAS/AFES	Variability of gestation length in reindeer	Active	Understanding the relationship between breeding date and gestation length will allow herders and reindeer farmers to better predict the time of calving and will allow greater vigilance at calving time and improve calf survivability.	AK Native & rural Traditional knowledge
SNRAS/AFES	Reindeer Health Tools and Education to Enhance Production	Proposed	Develop a tool to be used by clinicians and producers to help detect and control disease in commercial reindeer operations in Alaska and the western US.	AK Native & rural
SNRAS/AFES	Identifying Strategies to Develop Sustainable Livestock Production in Alaska	Proposed	Using a conference as the venue, scientists, educators, and extension professionals will explore constraints and opportunities for developing a sustainable red meat industry in Alaska.	AK Native & rural

SNRAS/AFES	Preliminary investigation into reindeer infertility	Completed	Examination of poor reproductive histories in six reindeer cows where previous reproductive failure was demonstrated.	AK Native & rural
SNRAS/AFES	Commercial Reindeer Meat Production in Alaska	Proposed	Evaluate the effect of diet, processing, freezing and storage time on characteristics of reindeer meat reaching commercial markets.	AK Native & rural
SNRAS/AFES	Assessment of genetic markers in reindeer: Association of DNA polymorphisms with milk yield, milk composition, and calf growth rate	Completed	Analysis of genetic variation and performance traits of reindeer will benefit current reindeer herding practices on the Seward Peninsula and along the Alaska road system.	AK Native & rural Traditional knowledge
SNRAS/AFES	Prediction of susceptibility of muskoxen to transmissible spongiform encephalopathy based on genetic similarity to caprine TSE	Active	Genetic similarity of muskoxen to goat, for genes associated with prion disease (TSE) susceptibility, indicate that muskoxen may have a relatively high degree of susceptibility to TSE..	NO
SNRAS/AFES	Reproductive Performance in Domestic Ruminants	Active	Examine the effects of extreme temperature and extreme changes in day length on a seasonal basis on high latitude domestic ruminants.	AK Native & rural
SNRAS	Arctic Plant Germplasm Introduction and Research Project (APGIR)	Active	A cooperative effort by public (state and federal) and private organizations to preserve the genetic diversity of plants: this is the first systematic effort by a U.S. agency to preserve high-latitude and high-altitude plant germplasm.	NO
SNRAS/AFES	The effect of forage variety on haylage quality and quantity in Alaska	Completed	Examine techniques for production of good quality haylage, high moisture hay, in Alaska and develops remote sensing techniques for estimation of biomass production.	AK Native & rural
SNRAS/AFES	Characterizing active soil organic matter pools contributing to soil nitrogen availability in bromegrass grass fields	Active	Evaluate potential soil nitrogen mineralization capacity in interior Alaska soils so that fertilizer management regimes for reindeer hay production can be developed.	NO
SNRAS/AFES	Bromegrass hay management	Active	Evaluate potential soil nitrogen mineralization capacity in interior Alaska soils so that fertilizer management regimes for reindeer hay production can be developed to help to improve nutrient management in Alaska's arable land.	AK Native & rural
SNRAS/AFES	Use of Geosynthetic-Reinforced Sod to Protect Cuts in Ice Rich Permafrost	Proposed	An environmentally friendly, sustainable and low cost method to apply fully developed sod to protect the cut slopes of ice-rich soils to slow down the thawing process, prevent soil erosion and stabilize the slope.	NO
SNRAS/AFES	Integrated pest management (IPM) for Alaska agriculture	Active	Current research focuses on grasshoppers, which regularly infest small-grain crops and during sporadic outbreaks cause considerable damage; more robust models of grasshopper development can be used to predict outbreaks directly	NO

			relevant to grasshopper population management in other areas.	
SNRAS/AFES	Land use changes and soil properties	Active	Land use alters soil properties and Conservation Reserve Program land still has significantly higher mineralizable nitrogen and carbon, an indication of higher reserved soil fertility as compared to forest soill.	AK rural
SNRAS/AFES	Tillage studies and phosphorus	Active	Provide information on soil phosphorus distribution status after long time P application under different tillage conditions.	AK rural
SNRAS/AFES	Long-term tillage study	Completed	Determine the effects of various long-term tillage and crop residue management practices on grain yield and various soil properties in a subarctic environment.	AK rural
SNRAS/AFES	Selection, variety testing, and evaluation of cultural practices for alternative agronomic crops for Alaska	Active	Provide a yearly update of information on new and better adapted agronomic crop varieties (small grains and oilseeds) and their response to dryland farming conditions and harvest methods and provide a database for local producers to determine the economic viability for those crops.	AK rural
SNRAS/AFES	Canola Quality	Completed	Determine appropriate varieties for interior Alaska and investigate best management practices for crop production.	AK rural
SNRAS/AFES	Barley yield response to fishmeal application in two interior Alaska soils	Active	Determine barley biomass yield response to type and rate of fish byproduct application in two interior Alaska soils.	AK rural
SNRAS/AFES	Peonies as field-grown cut flowers—market research and analysis	Active	Information on potential markets for Alaska-grown fresh cut peonies, methods of post harvest handling of cut stems and national trends in peony cut flower sales will be used.	AK rural
SNRAS/AFES	Peonies as field-grown cut flowers	Completed	Learn management strategies for field grown fresh cut peonies to support the peony cut flower industry in Alaska.	AK rural
SNRAS/AFES	Horticultural Plant Production in Alaska	Active	Provide information on landscape plant hardiness, wildflower seeds, and commercial lingonberry production to satisfy consumer and commercial demand.	AK rural
SNRAS/AFES	Alaska's First Horticultural Export Crop: Challenges in Production, Processing, Distribution and Marketing of Field-grown Cut Peonies	Awarded	Support for a workshop and planning session on specialty cut flower production and marketing using the peony as a model.	AK rural
SNRAS/AFES	Propagation of northern bog blueberry	Active	Develop protocols for seed and cutting propagation of bog blueberry, Vaccinium uliginosum, for field production and wild stand management.	AK rural
SNRAS/AFES	Direct seeding and transplanting snap beans	Active	Transplanted seedlings were compared to direct seeded snap beans. since	AK rural

			germination of direct seeded snap beans is sometimes limited or sporadic due to cold soil conditions.	
SNRAS/AFES	Short days before transplanting sunflowers	Active	Six sunflower selections in the ProCut series along with Sunbright and Sunbright Supreme were evaluated for flowering under field and high tunnel conditions.	AK rural
SNRAS/AFES	Evaluation of southcentral Alaska manufactured topsoils	Active	Characterize manufactured topsoils so buyers can make informed decisions about fertilizing it.	AK Native & rural
SNRAS/AFES	Innovative Use of Natural and Supplemental Light for High Latitude Crop Production	Completed	Opportunities for year-round controlled environment production of perishable high quality produce and ornamentals will be greatly increased if recommendations for optimal amount, daily duration and quality of light are known and utilized.	AK Native & rural
SNRAS/AFES	Strawberries using specialty high tunnel covering materials	Active	Economical, seasonal temporary greenhouses can easily be adapted and used to extend the local production of high-quality fresh strawberries.	AK Native & rural
SNRAS/AFES	Controlled environment covering materials for high tunnels in interior Alaska	Active	High tunnels are used for season extension, higher yields, improved quality, and more consistent and predictably timed harvests with combinations of high tunnels with different cover.	AK Native & rural
SNRAS/AFES	Using high tunnels to extend the southcentral Alaska growing season	Active	High tunnels are effective in extending growing season for crops and this technology may assist remote communities to become more food secure during the Alaska summer and fall.	AK rural
SNRAS/AFES	Alaska uncertified seed potato virus project	Active	Improve the understanding of disease etiologies and disease vectors in uncertified potato growers' fields/gardens.	AK Native & rural
SNRAS/AFES	Novelty Potatoes	Active	Identify existing varieties, and evaluate new genetic materials for public market and/or specialty restaurant sales.	AK Native & rural
SNRAS/AFES/CES	Management Practices for Turfgrass	Active	Extensive damage to golf course greens over most winters results in damages in the six-figure range statewide most years thus results are being used by golf course managers in south-central Alaska.	NO
SNRAS/AFES	Fall Fertilization Effects with Southcentral Alaska Turf	Awarded	Identify key effects of fall fertilization to understand more of this management strategy and if it can benefit Alaskan turf managers.	NO
SNRAS/AFES	Educating Alaska agricultural professionals on sustainable, high-latitude horticultural production techniques	Proposed	Collect Agricultural Production Best Management Practices in one location for dissemination to Alaskan professionals and growers.	AK Native & rural

SNRAS/AFES	Evaluation of a cold adapted mycoparasite, Trichoderma atroviride, on controlling snow mold disease of winter cereals in Interior Alaska	Proposed	Evaluate the efficacy of Trichoderma atroviride in controlling snow mold of winter cereals in Alaska.	AK rural
SNRAS/AFES	Field inspection and laboratory anaylsis: China-Taiwan Potato Export	Proposed	Support development of Alaska lab tested disease free seed potatoes for export.	AK rural
SNRAS/AFES	Testing Potato Seed Lots for Viruses and Phytoplasma	Awarded	The purpose of this project is to test seed potatoes for Alaska's 2009 potato crops in preparation for the 2010 growing season.	NO
SNRAS/AFES	Building Alaska Garden Soils from the Ground Up	Awarded	Get Alaskans growing food in raised beds and to motivate and educate local producers by teaching them how to build garden soils from locally available materials.	AK Native & rural
SNRAS/AFES	Selecting Adequate Willows, Alder, and Poplar Species for Surface Mining Site Reclamation and Erosion Control	Proposed	Long-term research plots will be established in the newly mined site in Usibelli to determine the suitability of willow, alder and poplar species for newly mined site in Usibelli.	NO
	COMMUNITY DEVELOPMENT			
SNRAS/AFES	Regional Economic Data	Active	Improve regional economic models by collecting primary data and revising published data for Alaska fishing communities for use in requisite regional economic analyses.	AK Native & rural
SNRAS/AFES	Sustainable Alaska dogfish fishery	Active	Develop strategic fishery management plans necessary for implementing a sustainable commercial spiny dogfish fishery in Alaska.	AK Native & rural
SNRAS/AFES	Impact Analysis for Alaska Natural Resources	Completed	Regional economic models are developed of the reindeer and groundfish industries to aid community and resource managers in decision making.	AK Native & rural
SNRAS	Alaska Residents Statistics Program	Active	Recreational use of public lands is monitored for use by public land managers, and by public agencies to plan support infrastructure to avoid negative environmental effects and maintain the quality of the user experience.	NO
SNRAS	Recreation experience studies	Active	Study of recreation experiences along the Dalton and Denali highways and the Fortymile country, White Mountain Recreation area, Squirrel River and Kamchatka.	NO

SNRAS	Can Kenai River Chinook Salmon survive watershed land use changes? Historical land use effects on salmon in Alaska's Kenai River Watershed	Active	Ascertain whether there is a link between land development and salmon productivity in the Kenai River Watershed (KRW)	AK Native & rural
SNRAS/AFES	When laws affecting the environment conflict: focus on pubic lands	Active	Identify situations in which laws or policies with conflicting purposes or methodologies are in place, analyze that legal conflict to understand how it manifested and what its practical consequences are, and recommend changes.	NO
SNRAS	Sharing Networks to Assess the Vulnerabilities of Local Communities to Oil and Gas Development Impacts in Arctic Alaska	Active	Assess the vulnerabilities of two North Slope Alaska coastal communities and one interior rural Alaskan community for effects of oil and gas development to inform agencies and participating communities of the resilience of social systems.	AK Native Traditional knowledge
SNRAS	Assess the Vulnerabilities of Local Communities to Oil and Gas Development Impacts in Arctic Alaska (SNAP)	Completed	Develop scenarios based on the most current information available for Alaska managers and policy makers who need timely access to research that shows how current changes may shape future conditions.	NO
SNRAS/AFES	Innovative Methods of Involving the Public in Environmental Decisions	Completed	Increase the level of awareness of new public involvement techniques and their advantages and disadvantages in environmental decision-making in Alaska.	NO
SNRAS/AFES	Fairbanks North Star Borough: status and trends in quality of life and landscape	Active	Reduce the environmental, social and fiscal effects of poor development practices	NO
	Development of UAF IPM Plan	Active	Develop a collaborative management plan for controlling invasive plants on the UAF campus.	NO
SNRAS	Perceptual geography of Alaska	Active	Explores how popular perceptions of Alaska affect national opinions on Alaska political and environmental issues.	NO
SNRAS/AFES	UAF-Matanuska Experiment Farm Sports Field Complex and Research Facility	Awarded	Build a research soccer field at the Matanuska Experiment Farm, develop baseline data to provide standards for care and management of Alaska sports fields to improved field playability with fewer injuries to players, less field damage, and lower cost and labor needs.	AK rural
	WORKFORCE FOR THE 21ST CENTURY			
SNRAS/AFES	High-latitude range management certificate program	Active	Deliver continuing education to rural Alaska that is relevant to the needs of local employers and land managers and is compatible with the experience and lifestyle of the local people.	AK Native & rural Traditional knowledge
SNRAS/AFES	Meat science workshop in Nome, Alaska	Active	Provide the public with the proper methods to harvest, process, and cook particular species and cuts of meat that improve the likelihood of safe production and consumption of wholesome and high quality meat products.	AK Native & rural Traditional knowledge

SNRAS	Wildland Fire Science Delivery and Outreach in Alaska	Awarded	A fire science delivery and outreach consortium will engage scientists at UAF, USGS, Alaska Interagency Coordination Center and fire ecologists from BLM, FWS, NPS and FRAMES.	NO
SNRAS	Monitoring seasons through global learning communities	Completed	Provide K-12 teachers and their students' opportunities to participate in Earth system science research by conducting investigations on their biomes, and use such research and activities to teach and learn about the nature of science, inquiry, and science process skills to integrate use of technology to support classroom learning.	AK Native & rural Traditional knowledge
SNRAS	Global change education using western science and Native observations/knowledge	Active	Provide Alaska K-12 teachers and their students' opportunities to engage in climate change research based on local observations and western science and translate such research into meaningful classroom activities and learning.	AK Native & rural Traditional knowledge
SNRAS	Returning the Elders' Gift: Systemic implementation of an effective culturally-based math curriculum and professional development program	Completed	Math in a Cultural Context (MCC) is shown to improve academic performance in elementary students and increases teacher's pedagogical knowledge.	AK Native & rural Traditional knowledge
SNRAS	GeoPortal Project Support	Completed	Produce a main internet site as a portal to geography resources for K-12 teachers, students and the public.	AK Native & rural Traditional knowledge
SNRAS	AK Geography Alliance Education Network	Active	Joins a network of K-12 educators with higher education faculty from 3 university campuses.	AK Native & rural Traditional knowledge
SNRAS	Global change education using western science and Native observations/knowledge	Active	Provide Alaska K-12 teachers and their students' opportunities to engage in climate change research based on local observations and western science and translate such research into meaningful classroom activities and learning.	AK Native & rural Traditional knowledge
SNRAS	Monitoring seasons through global learning communities	Active	Provide K-12 teachers and their students opportunities to participate in Earth system science research and the fourth International Polar Year (IPY) by conducting investigations on their biomes, and using such research and activities to teach and learn about the nature of science, inquiry, and science process skills, and Earth system science.	AK Native & rural Traditional knowledge
SNRAS	High Latitude Terrestrial Satellite Estimates in K-12 Outreach	Active	Improve math, science and technology in K-12 classrooms by providing an opportunity for scientists and students to collaborate on a research project tracking plant phenological changes as an indicator of global change.	AK Native & rural Traditional knowledge
	Place-based geospatial science learning and		Provide geospatial information technology science and technology education for	AK Native & rural

SNRAS	applications in rural Alaska (MapTeach)	Active	teachers and students in rural Alaska relating modern science and information technology to traditional knowledge.	Traditional knowledge
SNRAS	Students and scientists meet and discuss virtually during year two of the International Polar Year	Completed	Provide students in Alaska and Argentina and other countries opportunities to share changes they observe in their local environment related to climate change, and collaborate with Earth system scientists concerning climate change research.	AK Native & rural Traditional knowledge
SNRAS	Atlas of Alaska	Active	Providing maps of Alaska in book and electronic form	AK Native & rural
SNRAS	Math in a cultural context	Active	Collaboration among educators, Yup'k elders and teachers, matematicians and math educators, and Alaskan school districts to produce culturally relevant materials connecting local knowledge to school knowledge using integrated materials (literacy, geography, science) for effective learning	AK Native & rural Traditional knowledge
SNRAS	Indigenous Ways of Doing, Knowing, and the Underlying Mathematics: Exploratory Workshop	Proposed	Explore connections between Yup'ik and Sami cosmology, epistemology, practice, and underlying mathematics.	AK Native & rural Traditional knowledge
SNRAS	Developing and piloting 6th grade math modules on multiplicative thinking and fractions based on Yup'ik elders' knowledge and reform-oriented math	Proposed	Develop an innovative supplemental math curriculum based on both indigenous knowledge and practices and reform-oriented mathematics.	AK Native & rural Traditional knowledge
SNRAS	Elders' Knowledge Counts: Improving Alaska Native elementary students' math performance	Proposed	A three-year project that systematically seeks to improve the mathematical performance of Alaska Native (AN) students.	AK Native & rural Traditional knowledge
SNRAS	Power of Symmetry and Measuring: Using Yup'ik Elders' Knowledge to Teach Fractions	Awarded	Develop an integrated approach to teaching mathematics—an approach that is holistic and integrates fractions with geometry, measuring, patterns, rational numbers, and operations.	AK Native & rural Traditional knowledge
SNRAS	System Science in the Bering Strait Region	Proposed	An interdisciplinary approach to look at the role of sea ice cover as a climate driver	NO

B6. Comparative scores of students who take professional exams
NOT APPLICABLE

C. End Results and Strategies – FY 2011

C1. End Results Table

A. Educate: Undergraduate and Graduate students
B. Discover: Through Research, Scholarship, and Creative Activity, including an Emphasis on the North and its Peoples
C. Prepare: Alaska's Career, Technical, and Professional Workforce
D. Connect: Alaska Native, Rural, and Urban Communities through Contemporary and Traditional Knowledge
E. Engage: Alaskans via Lifelong Learning, Outreach, and Community and Economic Development

End Result:	Theme	Strategies to Achieve End Result	Target(s):	Measure(s):	Status:	Budget Impact
1. Closer alliance with CES	B,D,E	▪ Meet periodically to plan research and outreach activities ▪ Prepare the joint Plan of Work (POW) and annual report	▪ Increase integrated activities by 5%* ▪ Completion of joint POW for 2011-2016 and annual report to POW 2009	▪ Integrated activities report increases to reach a goal of 25% ▪ Positive review of POW and POW annual report	• Increase integrated activities to 20% ▪ Positive review of 2010-2015 POW and 2008 annual report	▪ Meeting and exceeding integrated activity participation will solidify formula funding ▪ Increased grant funding opportunities ▪ Successful completion necessary for continuation of formula funding for Hatch and Smith-Lever
2.. Revitalize enrollment management	A,C	▪ Increase number of programs in partnership with UA's rural campuses ▪ Engage in articulation with colleges outside Alaska	▪ Increase number of transfer students into NRM and geography programs ▪ Increase total enrollment: HDJ to 122, total undergraduate enrollment to 125	• Total enrollment • Total SCH • NRM and GEOG majors • Total enrollment	• Partnership programs: Horticulture with Bristol Bay Campus, Nome, & Ilisagvik • Articulation with Northern Marianas College in Saipan	▪ Increase in tuition recovery ▪ Increase in tuition recovery

2		• Cross-list courses across UA campuses	• Increase SCH to 3,300	• Total SCH	• One faculty joint appointment with UAA: environmental engineering graduate program	• Increase in tuition recovery • Increase in external state funding for faculty
		• Continue delivery of web based courses	• Initiate one new web course per year	• Total SCH	• NRM 101 delivered by web starting in summer of 2010 and continuing in fall 2010	• Increase in tuition recovery
		• Recruit teachers in K-12 for courses emphasizing teacher training	• Continue offering current courses	• Number of students enrolled	• Agriculture in the Classroom offered in Fairbanks and PREC, GLOBE, and Project One-Tree offered in Fairbanks.	• Increase in tuition recovery
		• Offer NRM and Geography courses in high schools	• Continue to offer at least one course per year	• Total SCH • Number of first-time freshmen enrolled	• GEOG 101 offered at Effie Cochran in Fairbanks • Deliver one high school course in the Palmer area	• Increase in tuition recovery
		• Offer summer session courses	• Offer at least one summer session course every year	• Total SCH	• Offer NRM 101 and GEOG 306	• Increase in tuition recovery
		Increase philanthropic efforts to fund graduate and undergraduate research and education	• Increase amounts of existing scholarships and add new scholarships	• Increase in endowment funds	• Increase effort in annual giving	• Increase in endowed funding

3. Increase grant proposal submission and success	B,D,E With island culture & know-ledge	• Encourage the team approach to seeking out opportunities and pursuing grants. • Provide faculty the opportunity to improve grant writing skills	• Complete Climate Change proposal with Hawaii, Guam, and the Pacific insular islands • One faculty attends grant writing workshop	• Submit Climate Change proposal • Faculty submits one proposal as a result of attending the workshop	• Climate Change team being formulated and initial idea draft begun ▪ Grants coordinator continuing to provide information on grant opportunities	• Increased ICR and research expenditures ▪ Increased ICR and research expenditures
3. Complete Strategic Plan 2010-2015		• Increased visibility and realigned efforts to meet state and national needs in line with the UAF Strategic Plan, the USDA Science Roadmap for Agriculture, and new directions of USDA/NIFA	• Formation of Board of Advocates for SNRAS/AFES • Increased development funds for SNRAS/AFES	• Plan complete	• Editor and dean/director are completing the draft	• Development funding • Increased state and federal funding through direct appropriations and competitive grants

*Integrated activities are a required reporting category for accountability of use of Hatch and Smith-Lever formula funds with a requirement of participation of each state and territory of 25% of total Hatch and Smith-Lever expenditures based on FTEs and operating costs. Integrated activities are those that have a research and outreach component and preferably involve faculty and staff from AESs and CESs. Integrated activities are generally performed in the Knowledge Areas (KAs) specified in the Plan of Work (POW) that are keyed to strategic plans for AESs and CESs and their host universities. The KAs for UAF's AFES and CES are: agriculture and horticulture; sustainable individuals, families, and communities; management of ecosystems; natural resource and community development; and youth development

D. Long Range End Results and Strategies – FY 2012 and Beyond

D1. Long Range End Results Table For each end result, identify the applicable core theme(s) listed below.

A. Educate: Undergraduate and Graduate students
B. Discover: Through Research, Scholarship, and Creative Activity, including an Emphasis on the North and its Peoples
C. Prepare: Alaska's Career, Technical, and Professional Workforce
D. Connect: Alaska Native, Rural, and Urban Communities through Contemporary and Traditional Knowledge
E. Engage: Alaskans via Lifelong Learning, Outreach, and Community and Economic Development

End Result:	Theme	Strategies to Achieve End Result	Target(s):	Measure(s)/Assessment(s):	Budget Impact	Anticipated start date
1. Closer alliance with CES	B, D, E	▪ Prepare and implement the Plans of Work	▪ Completed POWs and reports to POWs	▪ Integrated activities at 25% ▪ Meet output, outcome and impact goals annually	▪ Integrated activities report increases to reach goal of 25% ▪ Positive review of POW and POW annual report	▪ Ongoing

2..Emphasize enrollment management	A, C	▪ Up-to-date enrollment management plan with outcomes assessment	▪ Latest recruiting and retention techniques are included	▪ Increase in SCH ▪ increase in enrollment ▪ increase in degrees awarded and degrees awarded in HDJ at both undergraduate and graduate levels	▪ Tuition recovery increase	▪ Ongoing
		▪ Engage in articulation with colleges outside Alaska	▪ Increase number of transfer students into NRM and geography programs	▪ Increase in SCH in upper division courses ▪ increase in enrollment ▪ increase in degrees awarded and degrees awarded in HDJ	▪ Tuition recovery increase	▪ Ongoing
		▪ Continue to offer teacher training for K-12 teachers	▪ Increased enrollment of first time freshmen	▪ Increase in majors and SCH	▪ Tuition recovery increase	▪ Ongoing
		• Continue delivery of web based courses	▪ Increased exposure of NRM and GEOG programs nationally and internationally	▪ Increase in majors and SCH	▪ Tuition recovery increase	▪ Ongoing
		▪ Increase philanthropic efforts to fund graduate and undergraduate research and education	• Increase amounts of existing scholarships and add new scholarships	▪ Increase in endowment funds	▪ Increase effort in annual giving	▪ 2010

3. Encourage grant proposal submission and success	B, D, E	• Encourage the team approach to seeking out opportunities and pursuing grants. ▪ Provide faculty the opportunity to improve grant writing skills	▪ One multi-disciplinary, multi-state, integrated proposal in the pipeline for submission annually ▪ One faculty attends grant writing workshop	▪ One multi-disciplinary, multi-state, integrated proposal submitted annually ▪ Faculty prepares proposal as a result of attending workshop	▪ Increased research expenditures and ICR ▪ Increased research expenditures and ICR	▪ 2010 ▪ Ongoing
4. Support biomass energy and bioproduct research and outreach program	A, B, C, D	▪ Assure continuation of the biomass energy research and concurrent bioproduct research and development program at the PREC • Develop biomass and environmental energy courses ▪ Continue and expand work in agronomic crops including woody species	▪ Graduate students added to the program ▪ • Increase competitive funding ▪ Graduate students added to the program ▪ Increase competitive funding	▪ 3 -4 continuing graduate students in the program ▪ A continuing pipeline of grants and proposals ▪ Courses become a part of established NRM and GEOG programs and are cross-listed with UAA ▪ 1-2 continuing graduate students in the program ▪ A continuing pipeline of grants and proposals	▪ Increased tuition recovery ▪ Increased research expenditures and ICR ▪ Increased tuition recovery	▪ Begun in 2009 and has been added as a permanent program with a tenure-track faculty as lead ▪ Ongoing – agronomic field work is in its 5th year and woody plant production is long-term

5. Reindeer Research Program permanently established at appropriate level to support a research program addressing ranged and ranched animals	A,B,C,D,E	• Reindeer/alternative livestock – continue research with herd at Fairbanks Experiment Farm, cooperation with Kawarek Reindeer Herders Association, outreach to producers on the road/rail system	Continue and expand the High Latitude Range Management certificate Program in cooperation with the Northwest Campus ▪ Partner with CTC culinary program ▪ Assure compliance with IACUC ▪ Build an endowment for the Reindeer Research Program ▪ Assure adequate staffing through competitive grants and base funding	▪ Increase in SCH and NRM majors ▪ CTC integrated into meat quality aspect of the program ▪ 2-3 continuing graduate students in the program ▪ A continuing pipeline of grants and proposals ▪ 2 staff positions added ▪ Endowment is in place with a start-up of $25,000 ▪ Compliance with IACUC	▪ Increased tuition recovery ▪ Increased research expenditures and ICR ▪ Increase in base funding	Herd has been in place since 1999 with emphasis on growth of the herd to support a range and pasture management program, herd management, reproductive biology, animal nutrition, and meat quality and marketing begun in 2000

6. Controlled Environment Agriculture Laboratory established as a permanent program in SNRAS and AFES with facilities ranging from ground coverings to hoop houses to greenhouses to totally controlled environments	A,B,C,D,E	• Construction of Phase I of new greenhouse for SNRAS/AFES	▪ Greenhouse funded for Phase I	• Phase I of greenhouse completed	• Cost of Phase I is $5.5M – payback unknown at this time	• Established in 2004 and ongoing
		• Construction of Phase II of new greenhouse for SNRAS/AFES	• Plans for Phase I include foundation and support for Phase II	• Foundation and support for Phase II of greenhouse in place	• An additional $5.0M will be needed to construct Phase II • Increase in ICR	
		• Continue and expand research and outreach to transfer technology of structures to rural and urban Alaska and provide for continuing training of persons and communities that have received funding for and have constructed the facilities	• CEAL is included in Food and Agriculture Security multidisciplinary and multi-state grant proposals • Horticulture curricula and training programs available	• Grant proposals submitted with CEAL as one of the partners • Horticulture programs in place and students enrolled	• Increase in tuition recovery	

6. Food and agricultural security	A,B,C,D,E	• Submit capital project and competitive grants to support expansion of research and education in specifically the controlled environment and alternative livestock sectors • Increase integrated activities with CES • Seek funding for outreach in controlled environment agriculture and alternative livestock • Continue to develop business opportunities for agricultural products • Seek philanthropic opportunities for food and agricultural security	• Partnerships to provide outreach to communities and individuals • Integrated activities increase to achieve 25% target • Peonies, reindeer meat, blueberries successfully transferred to new business opportunities • Increased funding for Reindeer Research Program	• Competitive grant submitted • Increase in integrated activities • Interest in agricultural products continues by new and old businesses • Endowment funds increase	• Increase in ICR • Increase in endowment funds	• Begun in 2010
7. Georgeson Botanical Garden	A,B,C,D,E	• Maintain and expand the Georgeson Botanical Garden • Continue to seek philanthropic support • Continue with active volunteer program	• Completion of ongoing projects and maintenance of at least present staffing levels	• Projects complete • Staffing in place • An active volunteer program with appropriate training in place	• Increase in endowment funding	• Ongoing since 1989 and continuing

8. Develop and communicate our understanding of effects of climate change on forest dynamics	A,B,D	• Continue research within the Long Term Ecological Research (LTER) program • Continue development of National Ecological Observation Network (NEON) research sites • Continue growth of SNAP • Continue long term monitoring of growth of forest ecosystems • Develop cooperative research and education programs in conjunction with the Alaska Coastal Rainforest Center (ACRC) and UAS • Revise and revamp NRM Forest Science option to include a non-accredited track • Offer an expanded curriculum featuring climate change, GIS, ecosystem management at PREC	• Increase number of majors in the NRM Forest Sciences option • Increase the student enrollment at PREC • Publications • Increase research funding • Forest Sciences option offered at UAS	• Undergraduate student enrollment in the NRM B.S. degree Forest Sciences options increases • Graduate student enrollment related to climate change and forest dynamics increases • Courses and curricula in forest sciences offered at UAS	• Increased ICR • Increased tuition recovery	• Ongoing

4. . Implement the Palmer Center for Sustainable Living Vision (PCSL)	A,B,C,D,E	• Remodel historical buildings for use as convention center and historical library and distance delivery facilities • Expand Kerttula Hall • Continue fund-raising efforts • Build research and outreach programs that continue to mirror the changing face of agriculture, forestry, and resource management in southcentral Alaska • Expand the distance delivery and resident course delivery by SNRAS and SNRAS partners	• Growth in student enrollment • Increase community involvement • Increase interaction with K-12 • Increase philanthropic giving • Increase revenue opportunities at the PCSL	• Funding available to remodel and construct necessary facilities • Increased total student enrollment and SCH • Increased tuition • Increased revenue for improvements at the PCSL • Implementation of SNRAS/AFES Strategic Plan 2010-2015	• Increased ICR • Increased tuition • Increased endow-ment funding	• Begun in 2009 and ongoing
5. Solve space issues	A,B,C,D,E	• Propose construction on the Fairbanks Experiment Farm of a building dedicated to natural resources	• Increased classrooms, laboratories, offices, common space	• Funding availability	• Unknown	• 2014 budget

D2. Top three challenges for FY2012

Challenge 1:

Continue to stress the mission of a land-grant institution, particularly the role of agriculture and forestry in energy, community, economic and workforce development and the critical role of the partnership of AFES and CES in the land grant mission within the university system and to the general public.

Challenge 2:

Expand research, education, and outreach programs in the light of flat base funding from state and federal formula fund sources and inadequate and outdated space for classrooms and laboratories, outdated equipment, and a motor pool that has not seen replacement since the late 1980s with the exception of purchases from surplus and rebuilds by our mechanics.

Challenge 3:
Increase enrollment in the undergraduate programs and graduate programs in SNRAS with the launch of Strategic Plan 2010-1015 and a new Enrollment Management Plan, Outcomes Assessment Plan, and the new directions for the Palmer Research and Extension Center as the Palmer Center for Sustainable Living.

D3. Use of unanticipated funds (in order of priority)

1. Hire a half time development officer to work with the UAF development office to increase annual giving and philanthropic investments (estimated $50K)

2. Replace the herder position in the Reindeer Research Program (a part of layoffs within SNRAS and AFES this year) with two student positions, preferably one graduate student and one undergraduate student, and elevate the current general reindeer program position to one in outreach and marketing (estimated cost approximately $80K).

3. Fund the Food Security capital project that has been submitted as a request in the UAF FY12 budget (requested approximately $320K a year for 5 years).

4. Provide state funding to the Georgeson Botanical Garden maintenance position (estimated cost at replacement level approximately $80K).

5. Should the G.O. bond proposed on the November 2010 elections ballot not pass, fund Phase I of the SNRAS/AFES greenhouse.

6. Provide a geography faculty to augment the landscape analysis B.S. option and revamped environmental studies B.S. degree (estimated cost $150K for a 9-month position)

E. Additional Information

E1. Unit Unmet Needs

1. The University of Alaska Geography Program (UAGP) continues to work with:

   - the National Geographic Society Education Foundation in support of K-12 teacher and student programs
   - AT&T Alascom and AT&T Corporate Foundation for the UA GeoPortal and additional programmatic support
   - other potential foundation support such as the Open Society (Soros Foundation), MacArther Foundation (globalization), Pew Charitable Trusts (climate change), the Donor Foundation (Canadian Studies), the American Geographical Society, Holland-America Lines

2. The Georgeson Botanical Garden at the Fairbanks Experiment Farm continues to attract private donors who take the opportunity to memorialize loved ones and family members and support the Garden for special project interests. The Fairbanks Experiment Farm Master Plan was created in 2003 and it will be updated to emphasize opportunities for public involvement in not only the Georgeson Botanical Garden but also the Reindeer Research Program, the Controlled Environment Research Laboratory and the Fairbanks Experiment Farm itself.

3. The Matanuska Experiment Farm offers new opportunities for giving from private donors and foundations in five separate areas of interest:

- The Matanuska Experiment Farm research and outreach program.
- Expansion of Kerttula Hall for faculty, administration, and student facilities
- Renovation of the historical structures for a convention center and historical library and distance delivery center
- Construction of an environmental learning center building and student housing
- Rehabilitation and construction of trails and recreational opportunities in conjunction with research and outreach on sports turf, recreation management and forest sciences

E2. Major Capital Investment Priorities and Space Needs

1. SNRAS/AFES West Ridge Greenhouse

Funding for Phase I of the SNRAS/AFES greenhouse is being addressed. This does not provide the space needed for a greenhouse facility that can serve not only research and education but outreach as well. The design for Phase I will hopefully include provisions for Phase II that could address outreach. This will be at an additional cost of an estimated $5.0M for an additional 5,000 square feet of space.

2. Palmer Research and Extension Center/Palmer Center for Sustainable Living.

The Palmer Center for Sustainable Living master plan calls for renovation of existing structures at the Matanuska Experiment Farm and expansion of Kerttula Hall as a facility that will replace the current office building in downtown Palmer. We estimate the cost of completing the plan is $32M. The Palmer Center for Sustainable Living Vision was presented August 6, 2009. It is now being modified as a strategic plan for the PCSL. We are formulating a development campaign now to address renovation of the colony houses to meet current energy standards as a library, classroom and media center, and a conference and office center.

3. New Building

We occupy the third floor of the O'Neill Building and have a machine shop on the first floor. The building is not adequate for our faculty, is in need of major repairs, and is not considered worth renovating. Renovations in AHRB and backfilling will alleviate some of our needs. Our graduate students are in ATCO units near AHRB, our natural resources education faculty member has an office in the Syun-Ichi Akasofu Research Building, and one of our K-12 outreach programs is in the former Bowers Office Equipment Building on University Avenue. The SNAP program has relocated its headquarters to College Road. We are growing our faculty numbers through research grants and our graduate student programs are also growing. We estimate needs to house all SNRAS/AFES faculty and staff at 70,000 square feet. We are requesting that a new building for SNRAS/AFES be added to the capital budget in 2012. We have not put this request forward in respect to the UAF request for the Life Sciences Building as number one priority. We will be requesting funding for a 40,000 square foot building located on the Fairbanks Experiment Farm as called for in our 2003 Fairbanks Experiment Farm Master Plan. We do not anticipate relinquishing any of our space in AHRB but will vacate the O'Neill Building.