Drum Beats: Place Appropriate Careers and Higher Education Preparation for Alaska Native Students

An Evaluation of Round 5 of the Higher Education Project
Sponsored by the U. S. Department of Agriculture at the
University of Alaska Fairbanks

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Drum Beats: Place Appropriate Careers and Higher Education Preparation for Alaska Native Students funds a consortium of five rural, Alaska Native-serving extended campuses of the College of Rural and Community Development (CRCD) and the Cooperative Extension Service of the University of Alaska Fairbanks. The project grew out of a prior USDA grant that supported regional assessments and mini-grants to secondary schools. Round 5 of the project has two parts: Part A, funded from September 1, 2005 through August 31, 2007 and Part B, funded from September 1, 2006 through August 31, 2008.

The following *DrumBeats* goals have been geared to help Alaska Natives earn degrees in the USDA disciplines of plant sciences, animal sciences, veterinary medicine and environmental sciences:

Goal 1: To promote rural Alaskan community and K-12 student interest in the food and agricultural sciences through outreach and education.

Goal 2: To create a career pathway into the food and agricultural sciences for Alaska Natives through the development of four new post-secondary certificates and a new Associate of Science Degree.

Goal 3: To Increase the number of Alaska Natives enrolled in courses leading to a Certificate or Degree in the food and agricultural sciences.

Goal 4: Through scholarships, provide access to education for rural Alaskans in the USDA disciplines.

Part A was directed primarily at the first two goals: raising community interest and developing the certificates and degrees. Part B focused mainly on the third and fourth goals: admitting students into and supporting them through the certificate programs.

An interim evaluation covering only Part A was completed in August 2007. This final evaluation will look at activities, accomplishments and lessons learned over the entire Round 5 funding period. A logic model showing inputs, activities and outputs for the round is attached as Appendix A. The completed model provides a summary of the project. This narrative report briefly highlights some of the most significant outcomes

and contains recommendations for future activities. Information for the logic model and this narrative was obtained from participation in Consortium meetings and planning sessions and from data supplied by participating campuses. Each goal is discussed separately.

Goal 1: *To promote rural Alaskan community and K-12 student interest in the food and agricultural sciences through outreach and education.*

Over the past three years, the Consortium campuses have conducted a variety of awareness activities aimed at increasing local resident interest, knowledge and skills.

For example, the Northwest Campus has cosponsored the Reindeer Herders Association meetings—which include scientists and local headers—to provide an annual forum for on going discussions, disseminating current research findings, and planning new research in reindeer herd and high latitude range management. Northwest Campus also delivered a special topics course in meat cutting for three regional villages in February 2007. Kuskokwim Campus developed a field guide for identifying local flora for use by the community as well as students. Bristol Bay Campus (BBC) has trained local tribal village EPA environmental coordinators and 30 tribal members for a Water Quality Monitoring Program.

BBC conducted two regional environmental conferences to promote environmental literacy and in April 2008 hosted the Western Alaska Interdisciplinary Science Conference. The latter, which was partially supported by USDA funds, involved 183 participants from academic, governmental, tribal and natural resource agencies in Alaska as well as Washington, Montana and Texas. The attendees included 30 "walk ins" from the local community.

Rural interest and knowledge has been tapped through the use of local advisory councils to develop certificate/degree programs in science areas that had been determined by community needs assessments to be of high priority. In addition, several research projects and events in the targeted sciences have brought together scientific experts with local residents to focus on areas of interest and concern.

Face-to-face information dissemination has been augmented by print and Web-based materials. However, the effectiveness of these more mass media communications has been of some concern in the past. Consortium members felt that print and electronic materials lacked a recognizable identity—a brand—needed to market the certificates and degrees, particularly outside of the recruitment area of each campus.

As a response, in early Spring 2008 the Consortium developed a more aggressive outreach and marketing campaign that is being implemented for the current (2008/09) academic year. A consistent logo has been developed that will be used on all materials. New posters and fliers have been created and are currently being printed and distributed to each of the villages that the campuses serve. Program ads will appear in all regional newspapers in late August and early September. The Web site is also being updated.

These new informational materials are directed at the general public as well as specific audiences such as students, parents and K-12 educators.

Evaluation findings: The conferences and specialized training activities conducted by the project have increased awareness of and interest in the USDA sciences in rural Alaska, as evidenced by community participation in such events. The more targeted marketing and recruitment effort that is underway should add to this interest by reaching a wider audience.

Goal 2: *To create a career pathway into the food and agricultural sciences for Alaska Natives through the development of four new post-secondary certificates and a new Associate of Science Degree.*

The development of these new certificates and degrees has consumed most of the energy and resources of this project. The original four certificates—veterinary science, environmental science, high latitude range management and ethnobotany—grew out of earlier USDA-funded community interest and needs surveys. A fifth certificate in horticulture was added to the project in Round 5B.

To date, the veterinary science and the high latitude range management certificates and the associate of science degree have been developed and approved by the University of Alaska Board of Regents. Two other certificates—environmental science and ethnobotany—are expected to complete the academic review process this school year. The horticulture certificate has been referred to a system-wide committee and is being developed (using other fiscal resources) for adoption by the entire UA system.

There are various reasons why the original goal with respect to the certificates has not been met. These reasons have been covered in detail in the August 2007 interim evaluation. To summarize, difficulties in securing faculty, the complexity of the review process, lack of rural experience on curriculum committees and UAF main campus faculty concerns over the capacity of the extended campuses all contributed to the delay. As of Spring, 2008, faculty in all of the specialty areas are now on board and each certificate area has an active, engaged advisory council, so that work on the two remaining certificates is moving forward.

Courses have been developed in each of the areas, including horticulture. In all, 35 new courses have been added to campus offerings in the following areas. The horticulture courses are listed currently as special topics (SCIA 193) as they have not yet been assigned a unique course number.

HLRM F120—History of Domesticated Alaskan Ungulates (1 credit)
HLRM F130—Research Field Logistics (2 credits)
HLRM F140—High Latitude Range Management (2 credits)
HLRM F150—Alaskan Ungulate Husbandry (2 credits)
HLRM F160—Meat Production (2 credits)
HLRM F170—Health Issues in Domestic Herds (2 credits)
HLRM F201—Field Techniques for Range Management (2 credits)
HLRM F205—Research Methods in Range Management (2 credits)

VTS F101—Introduction to Veterinary Science (2 credits)
VTS F110—Veterinary Medical Terminology (3 credits)
VTS F130—Animal Anatomy and Physiology for Veterinary Sciences (4 credits)
VTS F140—Basic Animal Husbandry for Veterinary Sciences (3 credits)
VTS F150—Basic Animal Nutrition and Feeding for Veterinary Sciences (3 credits)
VTS F160—Animal Diseases for Veterinary Sciences (3 credits)
VTS F199—Veterinary Science Practicum I (2 credits)
VTS F210 – Pharmacology for Veterinary Technicians (2 credits)
VTS F220 – Principles of Imaging for Veterinary Technicians (2 credits)
VTS F230/240 – Practical Veterinary Nursing (3 credits each)
VTS F260 – Advanced Animal Diseases (3 credits)
VTS F270 – Managing a Small Business/Veterinary Clinic (3 credits)

ENVS 101 - Introduction to Environmental Science (3 credits)
ENVS 110 - Introduction to Water Quality I: Measurement/Calibration (1 credit)
ENVS 130: Introduction to the National Environmental Protection Act (1 credit)
ENVS 160 - Environmental Science Practicum (1 to 3 credits)
ENVS 201 - Applied Environmental Science Techniques (2 credits)
ENVS 205 - Report Writing in Environmental Science (2 credits)

EBOT 100 – Introduction to Ethnobotany (3 credits)
EBOT 200 – Seminar in Ethnobotany (1 credit)
EBOT 201 – Ethical Wildcrafting (I credit)
EBOT 220 – Research Methods (2 credits)
EBOT 230 – Ethnobotanical Chemistry (3 credits)

SCIA 193 – Vegetable Gardening (1 credit)
SCIA 193 – Gardens of Rural Alaska (1 credit)
SCIA 193 – Indoor Plant Care (1 credit)

As can be seen, all of the courses at the certificate (100) level have been developed in the four original certificate areas and most of these have been delivered at least once (see the next section for a listing of courses offered and enrollments). The 200-level courses lay the groundwork for students to complete the associate of science degree in one of the four specialized areas.

Evaluation findings: Although the construction and approval of the new certificates has taken much longer than anticipated, the project has made progress toward this goal, particularly in the development of new coursework in the USDA sciences. These courses and the new degrees that have been approved or are in the process of approval expand the educational and career opportunities of rural students significantly. The new faculty hired under the grant provide a depth of teaching and research expertise in the sciences that can bring CRCD to a new level of academic rigor and excellence in this area. Through the program approval and review process, CRCD science faculty are forging closer collaborations among themselves and with their Fairbanks campus peers that should facilitate the approval of new science-based CRCD programs in the future.

***Goal 3**: To Increase the number of Alaska Natives enrolled in courses leading to a Certificate or Degree in the food and agricultural sciences.*

As mentioned earlier, Goal 3 was originally intended to be a main focus for Part 5B funding (September 2006 – August 2008.) Success in meeting this goal has been mixed, primarily because of the difficulties encountered in getting the certificates developed and approved. Students could be admitted to the veterinary science and HLRM certificates only after BOR approval in Fall 2007. Student cannot yet be admitted to the environmental science or ethnobotany certificates, which may not be approved until Fall 2009.

However, as discussed above, courses have been developed and offered, many to very impressive enrollments as the following table exhibits:

Certificate Area	Campus	Title	Enrollment
Vet Science	Interior Aleutians	Intro to Vet Science	72
	(includes Chukchi)	Animal A and P	36
		Basic Nutrition	23
		Math for Vet Science	23
		Medical Term. for Vet Science	9
		Animal Husbandry	13
HLRM	Northwest	High Latitude Range Management	11
		Ungulate Husbandry	16
		Research Field Logistics	6
		Health Issues in Domestic Herds	5
Environmental Science	Bristol Bay	Introduction to Environmental Science	19
		Renewable Resource Management	2
		Exploring Alternative Energy	31
		Intro to the National EPA	33
		Intro to GIS	19
		Practical GIS in Alaska	11
		Water Quality	27
		Presentation Skills for Interdisciplinary Science	12
		Ecology and Natural History of Salmon	8
		Internship in Environmental Science	10
Ethnobotany	Kuskokwim	Special Topics	5
		Seminar in Ethnobotany	19
		Ethnobotany Camp	7
Horticulture	Bristol Bay	Gardens of Rural Alaska	8
		Vegetable Gardening	26
		Indoor Plant Care	11
Science Camps 06/07	Kuskokwim	Math 107	6
		Anthropology 100	11
		CIOS 275	11
		Biology 104	11
		Total (duplicated)	501

The above figures indicate a high interest in the subject matter of the new and proposed certificates. The challenge facing the campuses is to translate this interest into formal admittance to a program.

As of August 2008, 29 students have been admitted into the approved certificates: 18 in veterinary science (13 from Interior Aleutians and 5 from Chukchi) and 11 in HLRM. The objectives for Round 5B called for 12 students enrolled in vet science and 10 in HLRM, so these objectives have been exceeded.

The objectives also called for 12 students each to be admitted into the environmental science and ethnobotany certificates. Because these certificates have not yet been approved, students cannot be admitted; however, they can take courses as "non-degree seeking students (NODS)". Seven students at Bristol Bay have taken courses that will apply to the environmental science certificate for at least two academic years; 12 students began coursework in the 2007/08 academic year. According to campus sources, all of these students are expected to apply for admittance once the environmental science certificate is approved. The seven students attending the summer ethnobotany camp are also candidates for program admittance when that certificate becomes active.

If all of these students do continue, there would be a total of 55 rural residents—most of whom are Alaskan Native—pursuing at least a certificate in one of the USDA science areas. This would exceed the 46 students anticipated in the Round 5B grant application. Several of the students already admitted to the vet science and HLRM certificates have indicated that they intend to continue on to the associate of science degree. Given the relatively small overall number of degree-seeking students at the CRCD campuses, these are quite impressive numbers.

However, admittance to a program is just the first step. Students can face considerable obstacles in persisting in their program and successfully completing their degree objectives. Therefore, it is important to look at how the admitted (or committed) students are faring. This is somewhat difficult because a good student data base has not yet been established that can track students not only in the specialized certificate coursework but also in the other general education courses required for certificate/degree completion. This information is beginning to be collected for the vet science and HLRM programs and it is hoped that as the other certificates come online, similar information will be collected centrally.

The following student success and persistence information has been collected from available sources. Success rate indicates the number of admitted students passing all of the specialized or other courses taken.

:	Vet Science	HLRM	Env. Science	Ethnobotany
Admitted students	18	11	NA	NA
Active (spring 08)	12	8	19	7
3 or more specialized courses	10	4	7	NA
Success rate (specialized courses)	83%	100%	NA	81%
# of students:	Vet Science	HLRM	Env. Science	Ethnobotany
Developmental math/Eng	6	1	3	NA
Math requirement	5	2		
Communications Requirement	5			
Other GER requirement	6	1	5	
Success rate (all courses)	75%	83%	NA	NA

As can be seen from the admittedly limited data available, students in the two active certificate programs are making progress not only in the specialized coursework required for the certificate but also for the general math and communications requirements attached to all BOR-approved certificates. Data indicate that two vet science students and one HLRM student are very close to completing the certificate, having already fulfilled the general education requirements (GERs).

Success rates for students in specialized courses are quite high, which is very encouraging particularly given the scientific content of most of the certificate-specific courses. Success rates for all courses—including the required math, communications and other general education courses—are somewhat lower. This bears out the evaluator's experience with other CRCD certificate and associate degree programs; i.e., that students perform better in courses with content that interests them or that applies directly to their academic goals. However, data from the USDA students as well as other CRCD programs also suggest that some students come with academic gaps and need to take developmental math and English courses before they can tackle the required 100-level coursework.

Round 5B objectives for each campus spoke to strengthening student math and science skills prior to admittance to the certificate program. To this end, summer academic camps were conducted by Kuskokwim in 2006 and 2007 with partial support from USDA to provided 39 college-bound high school students with intensive instruction in mathematics and science. The Summer 08 camp was cancelled at the last minute because of permitting problems. Some of the students who completed these camps will likely seek admittance to the ethnobotany certificate program once it is approved. If so, their progress should be charted to see if these intensive experiences do enhance success in math and science coursework.

Students admitted to the HLRM program prepared Lifetime Learning Plans (LLP) that included testing to determine their developmental and preparatory academic needs.

Evaluation findings: The student support objectives of Goal 3 appear to have been met during the funding period, particularly for vet science and HLRM. Although the other two certificates have not yet been approved, students are enrolling in courses and stating their intention to complete the course of study. Most current students are focusing on the specialized courses; however, some are beginning to complete the GERs required for the certificate. Students are being somewhat less successful in these general courses and some must take developmental courses prior to attempting the GERs. As mentioned above, the participation numbers in both the courses and in the certificates that have been approved are quite high relative to the student pool at any one campus. It is highly likely that local demand is being met at present and that future program growth—or even maintenance—will require recruitment across the CRCD region.

***Goal 4**: Through scholarships, provide access to education for rural Alaskans in the USDA disciplines.*

Drumbeats Round 5B was slated to provide financial assistance to 40 students—ten in each of the certificate programs. To date, 12 students in the vet science program and 11 in the HLRM program have received financial assistance. Seven students at the ethnobotany summer camp have received funding and Bristol Bay has identified 19 students who are receiving substantial, multi-year support, giving a total of 49 students who are either admitted to or intending to seek admittance to a certificate program. Kuskokwim also supported 18 additional students in an ethnobotany seminar and Bristol Bay funded another five students in the environmental science introductory course.

Several of the campuses planned to use Round 5 funding for student internships and exchanges. Bristol Bay supported 12 students in summer internships with environmental and natural resource agencies in the region. Kuskokwim Campus sponsored a student exchange with Windward Community College in Hawaii. A Bethel student spent a semester at Windward last spring and a Hawaiian student is currently at the Bethel campus.

Evaluation Findings: Student financial support objectives have been met in three of the four areas: vet science, HLRM and environmental science. Ethnobotany met its student exchange objective.

Summary and Recommendations

The available information indicates that *Drumbeats* Round 5, after getting off to a somewhat rocky start in the first year of funding, has accomplished most of its objectives and has made good progress in meeting its goals. Two new certificates and one new degree have been added to the CRCD catalog of offerings and two more are in the final approval process. Thirty-five new specialized courses have been developed and many have been offered, attracting strong student enrollments. Five new members have joined

the ranks of science faculty, greatly enhancing the ability of extended campuses to provide coursework and to engage students in locally-relevant research. Workshops, conferences, specialized training sessions and advisory councils have piqued considerable interest among rural residents in the USDA sciences.

Students are receiving support in all four of the target program areas. The majority of students admitted to the two approved certificates are making satisfactory academic progress, particularly in the specialized coursework. Three of the admitted students appear to be close to completing the certificates this academic year. Some of these students have attempted the GERs that are attached to the certificate. In most cases, they have had to take developmental coursework before they can successfully complete the 100-level courses. This can delay completion of the certificate, sometimes by a semester or more.

Students interested in environmental science have had the opportunity to complete some of the coursework that will be required for the certificate and many have indicated that they will seek admittance to the program once it is approved. Ehtnobotany has just begun to offer coursework; however, the seven participants in the ethnobotany summer camp are good candidates for admittance into the certificate once it is approved.

There are some lessons to be learned from the experience over the past three years. First, it takes considerable time—probably at least two academic years—to bring a certificate/ degree on line, particularly in an area that stretches the capacity of the extended campuses. Part of the difficulty is in securing specialized faculty; part is in convincing Fairbanks campus peers that rigorous scientific coursework can be delivered at remote sites or through distance.

Second, although it appears from the course enrollment figures that there is considerable interest in the subject matter of the new certificates, it takes time and effort to convert this general interest into a commitment to pursue the certificate to completion. A targeted marketing and recruitment campaign—such as the one currently underway—is necessary for informing potential students across the CRCD region of career opportunities in the USDA sciences and of the availability of the new certificate/degree programs. In the future, it is highly likely that each campus will need to recruit outside its normal area to get enough students to continue the programs developed in Round 5.

Third, many students will need assistance in obtaining or refreshing the academic skills needed to successfully complete not only the specialized coursework but also the general education courses that are part of the certificate and associate degree.

These findings lead to the following recommendations.

Recommendation 1 : Rely on the experience gained from the two initial certificate approval processes to complete the review process for the two remaining certificates. Tapping internal CRCD and broader UAF faculty peer experience and support can speed up the process and build cooperative relationships that will enhance program delivery.

Recommendation 2: Continue to market the new certificates/degrees across the CRCD region. Explore ways to simplify cross-campus enrollment and student support.

Recommendation 3: Develop a standard student tracking system that can provide information on student persistence from semester to semester, student progress in both specialized courses and GERs and student success. Where needed, consider providing intensive developmental coursework to speed up student completion of the certificates.

The evaluator wishes to thank all who have contributed information and data for this report and the campus faculty and support personnel who have helped to implement the *Drumbeats* project.

Appendix A

Drumbeats: Place Appropriate Careers and High Education for Alaska Native Students Logic Model

Round 5 Final Evaluation

Situation	Inputs	Activities	Outputs	Impacts		
				Knowledge	*Actions*	*Conditions*
Overall, less than half of Alaska Native adults participate in the wage workforce. For those who do, over two-thirds have only part time work. Most of the available jobs are in the service industry, with only a very small percentage (less than 5%) engaged in paid employment in the agriculture, forestry or fisheries industries. Yet, traditional Native cultures are rooted in the use and maintenance of ancestral lands and their plant, animal and mineral resources.	USDA funding Existing STEM faculty at participating campuses Cooperative Extension staff and expertise Developmental and general education faculty and coursework Student support services at the participating campuses Alaska Native students at CRCD campuses Elders and other local Advisory Council members' knowledge and experience	*Goal 1:Promote Interest* Provide materials and training for local residents concerning the agricultural/natural resource sciences Hold conferences that bring together local residents and academic researchers	Meat Cutting course delivered in three villages 30 tribal environ-mental coordinators trained in Water Quality Monitoring Ethnobotany field guide 2 annual Reindeer Herders Association meetings co-sponsored by HLRM 2 regional environmental literacy conferences Western Alaska Interdisciplinary Science Conference sponsored by BB	Rural residents will gain information and skills that can be applied to local situations Rural residents will consider careers in USDA sciences for themselves and/or their children	Residents will use knowledge gained to seek solutions to local problems	Improvement in the general health and stability of rural communities

Jobs exist with local and regional resource management agencies for residents who have academic and traditional scientific knowledge. There are also entrepreneurial opportunities in caring for, harvesting and processing local flora and fauna. The University of Alaska can play a role in Increasing rural residents' awareness of these opportunities and providing training and education that equip rural Alaska Natives to utilize local resources for both their own economic well being and for sustaining and improving the quality of village life .	UA research faculty in selected USDA science fields Information from prior rounds of USDA funding, community surveys, First Alaskans, Alaska Native Policy Institute	*Goal 2: Career Pathways* Establish local advisory councils for each certificate area Develop 5 certificates in place appropriate occupational areas Develop an Associate of Science degree that builds on the certificates Hire specialized faculty required to	Local advisory council input in the development/review of courses and certificate 2 certificates approved by BOR (Vet science and High Latitude Range Management (HLRM) 2 additional certificates undergoing academic review in the current academic year (Environmental Science and Ethnobotany) 1 certificate (Horticulture) under development as a UA system-wide effort Associate of Science degree approved by BOR Five faculty hired • 2 in ethnobotany	Students enrolled in USDA training, certificates and degrees will gain knowledge in science and research skills that can be applied to local situations	Students completing USDA certificates will continue on to complete an associate or higher degree Program completers will seek employment with local agencies and/or develop small businesses based on their skills and knowledge Completers of USDA training, certificate and degree programs will use the knowledge and skills gained to identify local issues and to bring research, science and best practice to bear on solutions to identified problems.	USDA program completers will make a positive contribution to human and animal health, economic viability and self-sufficiency of their rural communities .

		deliver the certificates Develop and pilot test new courses required for the certificates *Goal 3 : Increase AK Native enrollment* Admit 46 students into the approved certificates	• 1 in vet science • 1 in environ-mental science • 1 in HLRM 35 courses developed • 8 in HLRM • 5 in ethnobotany • 13 in vet science • 6 in environ-mental science • 3 in horticulture 18 courses pilot tested and offered at least once • 4 in HLRM • 2 in ethnobotany • 5 in vet science • 4 in environ-mental science • 3 in horticulture 29 students admitted • 18 in vet science • 11 in HLRM (other certificates not yet approved) 501 students (duplicated count) enrolled in USDA-certificate courses over funding period			

		Test and place admitted students in appropriate math, and communication courses required for the certificate Provide intensive instruction in math/science to prepare students for certificate course work *Goal 4: Scholarships* Provide financial support to 40 students admitted into the certificate programs Provide internships/ exchanges for certificate students	16 students completed math/ general science and or communication courses required by the certificate • 3 in HLRM • 5 in environ-mental science • 8 in vet science 39 students participated in summer math/science camps 49 students received financial assistance for certificate courses • 12 in vet science • 11 in HLRM • 19 in environ- • mental science • 7 in ethnobotany 12 environmental science internships 1 student exchange with Windward CC in Hawaii			