Response to Program Review Standards
Natural Resource Conservation & Management Program
Department of Geosciences and Natural Resources
College of Arts and Sciences
Western Carolina University
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Institution Setting of University, Department, and Program: *Western Carolina University (WCU) enrolls about 9000 students, is a Regional Comprehensive University, and a member of the University of North Carolina System. The Natural Resource Conservation & Management Program is one of 3 programs contained in the Department of Geosciences and Natural Resources, which is housed within the College of Arts and Sciences. The other 2 programs include Geology (offering a BS degree, and supported by 9 faculty) and Geography (offering only a minor and supported by 1 faculty).*

In the fall of 2007our program name was changed from ***Natural Resources Management*** *to* ***Natural Resources Conservation and Management****. Because many of the documents and data used in this report refer to the old program name, we will not try to correct these inconsistencies, but instead will use both program names interchangeably throughout this report.*

Standard 1. The purpose of the program reflects and supports the mission and strategic vision of Western Carolina University and the mission of its College

The Natural Resource Conservation and Management (NRCM) program offers a BS degree with concentrations in Forest Resources, Landscape Analysis, and Soil and Water Conservation. We also offer an 18 credit minor in NRCM. The primary goal of the NRCM program is to provide students with an interdisciplinary education focused on the conservation and sustainable use of natural resources. Our curriculum includes traditional classroom and laboratory instruction, seminars, team projects, and experiential learning opportunities designed to train students in the equipment and technical skills they will need to function in their chosen discipline. We believe in challenging our students to hone their skills in critical thinking, oral and written communication, and interacting with diverse individuals. In short, our goal is to help students become effective natural resource managers, and also to become productive members of society.

One of the greatest attributes of our program, and one that makes it most unique is our location. Located in the heart of the Southern Blue Ridge Mountains, this area is home to the most biologically diverse, temperate ecoregion in the US and has the greatest concentration of national forest and national park lands east of the Mississippi. This region also faces some compelling natural resource conservation and management challenges due to record levels of residential development, air and water pollution, introduction of invasive and exotic species, and issues associated with global climate change. Clearly, western North Carolina provides invaluable opportunities for students and faculty to teach and learn about natural resource management while applying this knowledge to the development of strategies to meet those challenges.

As a regional, comprehensive university, WCU strives to educate its students, but also has a clear mandate to serve the region (Appendix 1.1 and 1.2). This mandate is implemented through programs that support experiential student learning, which were formalized in the university's "Quality Enhancement Program**",** and the adoptions of the Boyer scholarship model in evaluation of faculty for promotion and tenure (Appendix 1.3). WCU values scholarship of application in addition to the more commonly

recognized areas of discovery and integration. The NRCM program is fully aligned with the university's missions of regional service and engaged student learning (Appendix 1.4). For example, faculty have a solid record of working with local governments, landowners, and other community members to assist them with resource management issues. In many cases these collaborations have allowed the NRCM program to develop formal internships where our students get paid to work on these "real world" issues.

Overall, the NRCM program is strong, though we do recognize a few weaknesses. These include (1) low (recently declining) enrollments, (2) ineffective course and program assessment instruments, and (3) a lack of resources to achieve some of our teaching goals. Perhaps our greatest challenges are related to our relatively low enrollment. WCU is a focused growth institution in North Carolina; therefore, enrollment in the NRCM program needs to grow to help satisfy this mission. Our current enrollment is only about 50% of what it was at our peak about 10 years ago – despite the fact that WCU enrollments have increased significantly during the same period.

We are working to identify, and overcome the root causes of our reduced enrollments. One possible factor is the trend in declining enrollments that appears common for natural resources programs throughout the country. Another problem might be the lack of identity for the NRCM program – both inside and outside the university. Other degree programs at WCU have developed applied environmental aspects of study within their disciplines and in some cases these departments have hired faculty and developed courses that at least in part, overlap what we do. In 2004 the university created a BS degree in Environmental Science that is also an interdisciplinary, environmental program. With a greater number of "environmental" options available, it has become more difficult for students to identify the most appropriate program to major in. We believe there is a need to better coordinate how overlapping programs develop their curricula, and how those programs are marketed to prospective students. Another potential problem is a lack of recognition for both our program and university by some potential employers. Our program is not formally recognized by federal or state accrediting agencies (such as the Society of American Foresters or the State Board of Registration for Foresters). In some cases there are formal barriers that preclude our graduates from competing for certain jobs or job classifications. In addition to hurting us in terms of recruiting, it also places our graduates at a disadvantage as they begin their careers. Finally, we need to consider our overall student recruitment strategy.

Program assessment is another area where we feel we could improve, particularly in this era of increased accountability. This includes the assessment of (1) learning outcomes for specific courses, (2) overall program goals, and (3) alumni success in the workplace and in society. We feel that we are doing a good job in all of these areas, and since we have experienced faculty who work with a lot of natural resource management entities, this conclusion is not without merit. However, we have little hard data to support this assumption.

Finally, there is the issue of resources. Clearly we have the physical resources to complete our mission (particularly in light of the significant increases in space and facilities that will be available upon the completion of the building renovation in January 2008). In addition, our operating budget seems adequate to cover most of the day-to-day expenses required to run our program. However, we often have difficulty securing funds to fully cover other recurring costs, such as, one-time purchases needed to keep our equipment state-of-the-art for teaching and related activities, vans and personnel to regularly get our students into the field (a hallmark of our program), and faculty travel to professional meetings and conferences. In recent years our faculty have overcome some of these by raising funds externally, though we would like the University to contribute more significantly to those components that are directly a part of its teaching mission.

Standard 2. The program engages in ongoing, systematic planning that is reflective of the University's strategic priorities.

University guidelines provide for a periodic revision of the program's strategic vision. The last program revision took place in 2003/2004 (Appendix 2.1). The planning process included a semester long study of external and internal factors that would have an influence on the strategic plan. External factors considered included an examination of national trends in enrollment, job markets, WCU's location, and the degree to which state and federal agencies recognize our curriculum, and hence our graduates. Internal factors examined were enrollment trends, personnel, lack of a graduate program, constraints and opportunities imposed by other degree programs, facilities and equipment, and financial resources that have an impact on the NRCM program.

The 2003/2004 strategic planning process resulted in identification of the following goals to be achieved or at least acted upon within five years (Appendix 2.2). It should be noted that in 2003, our faculty consisted of only 3, full-time members with little overlap in disciplinary expertise. In many cases the strategic goals reflected the strengths and interests of individuals – 1 of whom is no longer at WCU. The goals are shown below (in italics) and actions taken and completed are discussed following each item.

Develop and Submit Curriculum Revisions for New and Revised Concentrations. Our reasons for pursuing this goal were to (1) better align our curriculum with emerging skills and job opportunities in natural resources fields related to geospatially related technologies, (2) provide our students with course work required to qualify them as Soil Conservationists with the federal government, and (3) make our curriculum more flexible so that it would be easier for students to complete. We also wanted to attract more students from other disciplines into our classes.

We developed a new concentration in Landscape Analysis designed provide our students with more experience in GIS, remote sensing, and related technologies. This required developing several additional courses in advanced GIS and remote sensing. We also modified the requirements for all of our concentrations to include a block of required courses, plus a group of several courses from which students needed to choose 2 or 3. We modified our Water Resources concentration and renamed it Soil and Water Conservation, and we developed 2 new courses in soil science. We also developed an NRCM minor that we hoped would attract students from other disciplines. The curriculum requirements for our major and minor are presented in Appendices 2.3 and 2.4, respectively.

Increase the Number of Majors. We desired to increase our number of majors in order to support the University's mission of enrollment growth. However, we also felt it was important to grow our program for other reasons. We believe it requires a relatively large number of students to support a broadly interdisciplinary program such as ours. We offer a wide range of upper level courses across our major, and it takes a lot of majors to successfully populate those courses. This was never an issue during our peak enrollments of the mid 1990's; however, as our number of majors has dropped we have had trouble filling some of our upper division classes. This requires us to cancel classes, which has the compounding effect of making it difficult for students to graduate in a timely manner. One result of our lower enrollments has been the necessity to reduce the frequency of course offerings for many upper level courses from once a year to once every 2 years. As a result, students who need those classes must take them whenever they are offered, which limits our ability to require prerequisites – ultimately limiting our ability to offer more advanced topics in some classes. For these and other reasons, we believe our program requires a minimum number of students in order to maintain a viable curriculum, and we may be at the low end of that threshold.

As we have alluded to above, enrollment has only become a problem for us in the past 5 to 7 years. Prior to that time we did not see a need to actively recruit students into our program. We cannot pin-point why our enrollments have declined, which has made it difficult to reverse the trend. Enrollment was an underlying theme during our 2003 strategic planning process, and in a large sense all of the strategic goals identified were in some way tied to increasing enrollments. However, we also began looking for ways to more formally recruit students into our major. These include (1) presenting NRCM career opportunities in our liberal studies course (NRM-140) (2) developing new posters and pamphlets that advertise our major, (3) revising the NRCM web site, and (4) summarizing job placement information for NRCM. We are also in the process of more actively reaching out to transfer students from community colleges. We had a formal transfer agreement in place with the Natural Resources Program at Haywood Community College (located in the adjacent county), however due to curricular changes at both institutions, that agreement is no longer valid. We are also developing "2+2" agreements that will allow

students who complete an AAS degree at any community college in North Carolina to potentially graduate with a BS in NRCM with an additional 2 years of study (Appendix 2.5).

Increase the Number of faculty. During the strategic planning process our program contained only 3, full-time faculty members. We felt this was not a sufficient number to teach the diversity of subjects required for our program, or to adequately perform the business of our program.

We were able to acquire the remote sensing position that was previously housed in the Geography Program when the person who held that position retired. This fit well with our new concentration in Landscape analysis, and we were able to hire an individual with a solid background in remote sensing, as well as, other skills that benefit our program. The remote sensing position formerly in the Geography program was moved to NRCM and the faculty member hired has traditional remote sensing skills as well as experience in Synthetic Aperture Radar.

Creation of a GIScience Center. The goal of a developing a GIScience center was related to the desires of a faculty member who had the goal of training and certifying students in the use of specific GIS and GPS hardware and software. This need was not fully shared by other members of the program, and that faculty member has since left WCU. The GIScience center goal has been abandoned.

Develop an MS Degree. Our faculty believed that our program would be strengthened if we could recruit and work with graduate students. Our goal was to develop a graduate program with other programs on campus (most notably Geology). While there is still interest in this goal, there has been relatively little progress to date.

Maintain and enhance linkages with regional entities. One of the strengths of our location is the ability of our faculty and students to engage with local resource managers. These associations clearly benefit our faculty and our students, as well as, providing valuable service to the region. We are continually trying to enhance them.

The NRCM program has current linkages with local and regional state and federal agencies including the NC State Forest Service, US Forest Service, USFS Coweeta Hydrologic Research Laboratory, Haywood Community College, US National Park Service, US Natural Resources Conservation Service, US Soil Conservation District offices, and local and regional planning offices. We also have developed new linkages with the North Carolina Center for Geographic Information and Analysis (NCCGIA), NC Wildlife Resources Commission, the Cherokee Preservation Foundation, Balsam Mountain Preserve, the City of Waynesville, and the City of Sylva.

In addition to the strategic planning process required by the University, the NRCM faculty work to achieve program goals through ongoing assessment and discussion at regularly scheduled program meetings. Program meetings are held bi-weekly throughout the academic year. Progress is reviewed and modifications in program directions are reached through consensus of the NRCM faculty and are consistent with strategic directions of the College of Arts and Sciences and the University. Procedures for implementing changes are part of regular faculty discussions, and individuals are encouraged to incorporate modifications into their own activities.

An overarching goal during program planning is to increase opportunities for students to have experiences in the application of natural resources management in situations directly related to disciplinary concentrations. These applications also provide faculty with scholarship and service opportunities and the ability to train students in real world management settings. Curricular planning outcomes encourage instruction in the concepts and applications of disciplinary skills through field and lab exercises and projects. Assigned reading in current literature exposes students to contemporary disciplinary directions, and develops critical thinking skills. Promotion of the student club is included in program planning discussions. Recent activities have included outside speakers employed in natural resources management and service projects that allow students to apply their knowledge and skills such as trail construction and maintenance.

Standard 3. The program provides and evaluates a high quality curriculum that emphasizes student learning as its primary purpose.

The courses we offer are primarily intended for students majoring (or minoring) in NRCM. The primary exception is NRM-140 Natural Resource Conservation and Management, which is a Liberal Studies science course not required by our majors. The courses offered by NRCM faculty are listed in Appendix 3.1. These include several courses Geography classes that we teach, and which are required in our curriculum. Recent course syllabi are presented in Supplemental Materials I located after the Appendices.

NRCM is a broad discipline that can encompass many fields. We have chosen to focus our curriculum on the conservation and management of renewable natural resources that are common to temperate, forested ecosystems. These resources are reflected in our 3 concentrations – Forest Resources, Landscape Analysis, and Soil and Water Conservation. While we offer 3 distinct concentrations that students must choose between, we do see a lot of overlap between them, and our goal is to graduate students with a solid background in the conservation and management of natural resources regardless of their concentration. Our curriculum contains a common core that all majors must complete, and this core is supplemented by additional classes for each concentration (Appendix 2.3).

NRCM requires courses from several other programs, most notably, Biology, Chemistry, Mathematics, Geosciences and Economics. The cumulative NRCM curriculum is designed to provide students with the necessary conceptual basis, field skills and integration abilities to deal with complex interdisciplinary problems. Pre-requisite and lower level NRCM courses (Dendrology, Environmental Geography, Methods in NRM, etc.) provide the background and foundations for more advanced courses. Upper level NRCM courses require students to use an inter-disciplinary approach in understanding and solving management problems. The NRCM curriculum requires students to develop their writing skills through technical reports and research papers. Critical thinking skills are developed through reading and discussion of disciplinary literature, collection and analysis of field data, and written and oral presentation of assigned projects. Students develop group management skills through projects that use teams to collect, interpret and present information. The Integrated Resources Management capstone course uses teams to produce a resource management plan and draft Environmental Impact Statement on an assigned problem.

The Forest Resources and the Soil and Water Conservation concentrations have been designed to allow students to meet minimum US Civil Service requirements for the GS-460 Professional Forester series and the GS-457 Soil Conservation series, respectively. Course content is specified by these requirements and completion allows graduates to be hired by the Federal Government into these positions. The Landscape Analysis concentration is designed to provide students with requisite skills in GIS, remote sensing, and land use decision-making that are used in private and governmental resource management positions.

To promote logical progression through the NRCM degree program, and to assist in advising, four year course plans (i.e., 8 semester sequences) have been developed for each of the three concentrations (Appendix 3.3). These plans help ensure students have taken appropriate prerequisite courses so they will have the requisite background for success in the upper division courses. These course plans also help ensure a student will meet the university's liberal studies requirements. A challenge in using these plans is that course sequencing can be disrupted by changes in pre- or co-requisite courses scheduled by other departments. Although we have not formally tracked the number of semesters actually taken for our majors to graduate, the course plans illustrate it can be done in eight semesters if a person declares NRCM as major in their freshman year. Persons who declare the major after their freshman year may need additional semesters to complete the degree requirements. Transfer students from Haywood Community College with an AAS degree usually require five semesters at WCU to complete the NRCM degree program.

NRCM faculty believe that a robust assessment of learning outcomes would be an invaluable tool for evaluating course content. We do have a process in place (Appendix 3.4), though we feel it is only

marginally effective due to (1) the metrics are of minimal value in assessing specific learning outcomes, and (2) some of the required data, such as alumni surveys, are not consistently collected or summarized.

Our primary assessment metric is to calculate students' GPA's in selected upper level courses in their concentration and in the capstone course for the major (NRM 440: Integrated Resources Management). Recent assessment reports can be found in Appendices 3.5, 3.6, and 3.7. Upon examination of these documents it is difficult to link the recommended changes directly to the assessment metrics. Most changes are made following discussions between faculty and students regarding what things seem to be working and what aren't. An example of this is a problem we have noted regarding our students' inabilities to write good lab reports, and which we attempted to address by developing a single, uniform lab report format for all NRCM classes. This is a problem that was often raised during faculty meetings, but was not something we could directly assess from our current instrument.

NRCM faculty have been exploring alternative procedures for determining how we can more effectively assess whether our students have achieved NRCM program learning goals. In this process, we are attempting to define overall program learning goals, and at the same time, identify specific learning outcomes for each course (see examples in Appendix 3.8). Ultimately we hope to integrate the learning outcomes for each course with the rest of the curriculum (pre-requisite, co-requisite, concentration or core requirement), and to develop a matrix identifying individual learning outcomes, the courses where those outcomes will be gained, and the mechanisms by which those outcomes will be assessed.

A seemingly key component of our assessment document is an alumni survey. We feel their opinions concerning their success at findings jobs and the quality of the education they received from our program would be extremely valuable. However, we do not have a process in place for locating and surveying our alumni, and these data are lacking from our assessment reports. For the purposes of this report we attempted to contact all of our alumni who have graduated within the past 5 years. We were able to acquire employment information for 50 of the 60 students who graduated during this period. In many cases we did not reach the students directly, but instead spoke with parents or acquaintances. Thus we could not get information other than raw employment data. The results for those who were contacted are presented in Table 1. Based on these data we can conclude that most of our alumni are successfully finding employment following graduation. In addition a seemingly significant number are being accepted into graduate schools, including Clemson, North Carolina State, Mississippi State, University of Tennessee, Colorado State, Oregon State , University of Minnesota, and the University of Wyoming. While anecdotal evidence from students and employers indicates that our students have been well prepared for entry level positions, we cannot quantify this. Faculty are considering creating an advisory board (made up of NRCM alumni and potential employers) to help evaluate how well our students are prepared for the work force.

Table 1. Results of alumni employment survey for 50 of the 60 NRM students who graduated between May 2003 and August 2007.		
	Number	**Percent**
Enrolled in graduate school	5	10
Employed in field (including those who may have completed graduate school)	44	88
Not employed in the field	6	12

Standard 4: The program has sufficient faculty resources to meet its mission and goals.

The NRCM program has four full-time faculty and one faculty with a split appointment who has a 25% appointment in the program. All 5 faculty positions are tenure track; and 3 faculty are tenured, associate professors, and 2 are untenured, assistant professors. All faculty have a PhD in natural resources or related field, and between them possess expertise in a broad spectrum of NRCM disciplines (Appendix 4.1). On some occasions we have employed part time faculty to teach up to 1 course per semester. Faculty carry a typical teaching load of 9 credit or 12 contact hours per semester with the possibility of release time granted most commonly for administrative or scholarly pursuits. Faculty teaching loads are presented in Appendix 4.2 and the schedule of recent course offerings are presented in Appendix 4.3. In addition to their formal education, faculty have work experience in natural resource conservation and management fields including, forestry, soil and water conservation, planning and administration, landscape analysis, and wildlife management (CV's for all tenure-track faculty can be found in Supplemental Materials II located after the appendices at the end of this document).

The 4, full-time NRCM faculty advise all of our majors, with each faculty member advising a similar number of students. Recently hired faculty start with only a few student advisees their first year, and work up to a full advising load over a 2 or 3 year period. We currently have no ethnic diversity within our faculty, though our faculty is made up of 3 males and 2 females. Our senior faculty member is retiring at the end of this calendar year, and we are currently searching to fill that position (Appendix 4.5). As new or replacement positions are filled every effort is made to consider gender equity and ethnic diversity.

Faculty are reviewed annually and to be considered for reappointment, promotion and/or tenure they must show productivity teaching, scholarly activity, and service as per our current Tenure, Promotion, and Reappointment document (Appendix 4.6). A critical assessment criteria is the ability of faculty to provide students the opportunity to acquire hands-on experience in research and applied resource management. We also believe a faculty member must be current in her/his field. As part of their professional growth and development, NRCM faculty have research programs that include local- to international-level projects. Since 2002, NRCM faculty have secured more than $700,000 in external funding to support their scholarly activities (Appendix 4.7). Undergraduate NRCM students regularly

participate in these projects and where possible, engage in research and present results at local, regional, and national conferences (Appendix 4.8).

NRCM faculty engage in a variety of professional service activities including assisting in the development and implementation of management projects for state, federal, and private agencies volunteering with agencies such as the NC Wildlife Resources Commission, and assisting private landowners in the management of their natural resources. These regional service activities provide numerous opportunities for students to participate in enrichment activities outside of the classroom. These are highlighted by the Western Carolina Forest Sustainability Initiative (WCFSI) and the Conservation Internship program. WCFSI began in 2001 and provides sustainable forest management services for family and municipal landowners in the region on a contract basis. We currently are involved with landowners whose holdings exceed 20,000 acres. NRCM forestry interns are employed year round to work on these properties, and play a key role in designing, implementing, and monitoring forest management treatments. The Conservation Internship program provides paid internships for students to participate in short-term (days to weeks) conservation projects in the region. These internships are supported by grants, contracts, and from the NRM Development Fund. A summary of recent NRCM student participation in program-sponsored internships and engagement opportunities is presented in Appendix 4.9.

In addition to profession development, NRCM faculty pursue pedagogical opportunities. For example, NRCM faculty work to enhance their classroom teaching through formal training within their areas of specialization, participation in professional education conferences, and participation in on-campus workshops made available by the WCU Coulter Faculty Center. These workshops include syllabus planning, integration of classroom technologies, testing and assessment in the classroom.

Informal sharing of ideas and activities found to be effective is a regular occurrence among program and departmental faculty. This informal sharing is fostered by the common focus on conservation and management within the program, and faculty work closely on numerous projects and with students from all concentrations. For example, faculty frequently collaborate on student classroom, laboratory, and Biology Master of Science thesis projects. Faculty also collaborate on outside research and service such as conducting forest management and wildlife habitat assessments for Waynesville's municipal watershed, forest inventory and wildlife research at the Balsam Mountain Preserve, and Nature Conservancy trail maintenance. The environment within the program is not competitive but cooperative and supportive, and lends itself well to meeting program goals and providing a positive environment for student learning and faculty productivity.

Part of the cooperative nature of the program is reflected in each faculty member's contribution to the delivery of the curriculum whereby faculty teach courses at a variety of levels including liberal studies

courses (NRM 140), lower level (100- or 200-level), and advanced courses within their specialization (300- or 400-level).

Standard 5. The program attracts, retains, and graduates high quality students

Recent demographic data from the University's Office of Planning and Assessment are presented in Appendix 5.1. The number of NRCM majors has risen slightly compared to the average for the last seven years. As of the Fall 2007 semester, there are 56 majors compared to an average of 53 majors per year for the last seven years. At its peak in the mid 1990's, the NRM program had more than 100 majors. The number of male NRCM majors has consistently outnumbered the females. Currently, only 21% of the majors are female and this is the highest proportion of females in the last seven years (the average from 2001-2007 is 16% female). This is in contrast to the overall WCU student body where 54% are female.

Non-white students are not well represented at WCU where between 1994-1998, the average percentage of non-white students was 4.7% Black, 1.6% American Indian, 0.8% Asian and 0.7% Hispanic. The percentage of non-white students in the NRCM program varied from 2% to 7% between 2001 and 2006, with the majority of ethnic students being American Indian.

Between the years 2001-2006, SAT scores for NRCM majors ranged from 890 to 1082, with an average of 1013. In past two years of record (2005 and 2006), the average SAT of NRCM majors was 1052 with a range from 1040 to 1075. In 2006, 46% of WCU freshman had lower SAT scores than NRCM majors, and 25% of WCU freshman had higher scores. During the same time frame (2001-2006), high school GPAs of entering NRCM majors ranged from 2.45 to 3.89 with the majority in the 3.0 range. In the overall student body at WCU, 62% of entering freshman have higher average high school GPAs than NRCM freshman.

Currently, most NRCM majors choose the Forest Resource concentration (about 60% of those who have graduated in the past 5 years) followed by Soil and Water Conservation concentration (about 30% of those who have graduated within the past 5 years). About 10% of current NRCM students have declared the newly formed Landscape Analysis as their concentration. Because we have modified our concentrations in recent years, it is possible that these trends many change in the future.

NRCM faculty actively participate in student recruiting activities designed by the Office of Admissions. We also participate in on-campus open houses where the program can be presented one-on-one with interested students. We have developed a series of handouts to distribute at open houses, and to mail to students who express an interest in our program (Appendix 5.2). We have put considerable thought into updating our web page to make it more effective as a recruitment tool, though we have only been marginally effective in actually implementing these changes. (Our current web page can be accessed at http://www.wcu.edu/as/GeosciencesNRM/NRM/index.html).

Student-advisor ratios are low which allows faculty to take an active interest in their advisees' academic progress. In addition, advising is one of our best retention tools because it allows us to monitor student progress toward their degree. The number of graduates per year varies but usually ranges between 10-20 students graduating (Appendix 5.1). WCU has had a long-standing problem with student retention. Data from 1982 to 1997 show that 67% of WCU students remain after their freshman year, 53% after their sophomore year, 52% after their junior year and 25% after their senior year. These types of data are not available for the NRCM program

Our students have a solid record of presenting their work at professional conferences. Some of the projects that students worked on this past year include mapping existing and potential river cane habitat for the Eastern Band of Cherokee; evaluating the effects of prescribed burning, herbicide application and shelterwood harvests on oak regeneration on the Cold Mountain Game Lands; tracking and modeling timber rattle snake habitat in the Balsam Mountain Preserve; and, measuring stream temperature and water quality at the Whitmire Farm. Students attended and presented this work at national forestry and geography conferences (e.g., Society of American Foresters, American Association of Geographers).

Our NRCM internship program has allowed majors to collect field data for NC coastal wetlands; build and install a weather station on campus; work on a land management plan to enhance wildlife; and assist monitoring of amphibian and reptile populations. Students participate in service work through courses and NRCM student club events. For example, students have participated in Earth Day events by teaching 7th and 8th grade students at Cullowhee Valley School about topics such as clean air, clean water and Butterflies. Students in NRM150 (Careers in NRCM) and the NRCM student club also initiated and led the clean-up of a trail on the Blue Ridge Parkway for The Nature Conservancy.

Standard 6: The program has an administrative structure that facilitates achievement of program goals and objectives.

NRCM is part of the Geosciences and Natural Resources Department. To that end, the department has procedures in-place that address issues from curriculum to reappointment, tenure and promotion. Requests for curricular changes, personnel requests for new hires, departmental activities that require input from the entire faculty, and any activities that affect the whole department, are brought to department meetings for full discussion. Department and program subcommittees are set up to address a specific topic and the recommendations of that committee are brought forward for discussion. The purpose of the committees is to get work done and develop policy/guidelines/suggestions for the department to consider. Standing subcommittees in the department include Tenure, Promotion, and Reappointment (TPR), Annual Faculty Evaluation (AFE), Faculty Affairs, and Resources. There are no standing NRCM program committees, but ad-hoc sub-committees are formed as needed. The department

and program also have faculty who are assigned specific duties (i.e. liaison with career services, lab manager, etc.). These assignments are made by the department head with the approval of the faculty.

Because there are 2 degree-granting programs within the GNR department, we have adopted the policy of creating a Program Director for the program not represented by the Department Head. Since the Department Head is currently a geologist, we do have an NRCM Program Director, whose primary duties include coordinating class schedules, facilitating bi-monthly program meetings, coordinating recruiting activities, and serving other administrative functions as required. The Program Director is awarded a ¼ release from teaching per semester. There is no additional support or training for this position.

Each department at WCU has a TPR document (Appendix 4.6) that must follow format guidelines dictated by the University. Untenured, tenure-track faculty are considered for reappointment annually. Once tenured, faculty undergo Post-tenure review once every five years. The TPR committee, composed of tenured GNR faculty, meets with the Department Head (non-voting chair) to discuss the candidate's case and make a recommendation to the Department Head. Both the committee's and Head's recommendations for faculty reappointment are then forwarded to the Dean for a final review. Faculty who submit their credentials for Tenure and/or Promotion have their files reviewed and voted on by department, College and University committees.

All faculty, regardless of appointment, participate in an Annual Faculty Evaluation (AFE) each spring by preparing a file following guidelines set forth in the departmental document: the file is reviewed by the AFE committee and the Department Head. The AFE committee consists of two tenured and one untenured member; the Department Head is not present at their meetings. The AFE committee writes a brief report for each faculty member based on the information contained in the submitted document and student evaluations. The AFE committee reports are then given to the Department Head, who also writes a brief report. Both evaluations are given to the faculty member, who meets with the Department Head to discuss the evaluation. A faculty member may attach a letter to this AFE statement that clarifies or takes umbrage with its contents. Information from this review process plays a key role in the Department Head making salary recommendations for the next year. The Departmental TPR and AFE documents may be revised annually with approval of the Dean and Provost. Some campus-wide changes in documents are mandated by the University—a major revision is currently underway. Department faculty complete an anonymous, written evaluation of the department head on an annual basis and this evaluation is submitted to the Dean of the College of Arts and Sciences.

In addition to faculty involvement in program activities, current students and alumni are informed of program activities and are invited to participate in field and classroom events through email and the NRCM newsletter. Students are also included in the hiring process for new faculty by attending seminars, meeting with prospective faculty etc. Efforts are increasing to inform and involve alumni in

program events, and graduates are frequently invited to speak with classes and to participate in social events.

Standard 7: Program Resources

Budget: The NRCM program shares the department budget with two other programs (Geology and Geography). The funds are apportioned first to meet overall departmental expenses for instructional materials and supplies, for ongoing operational expenses (e.g., phone, postage, etc.), for minor maintenance, for class field trips, and for faculty travel (Appendix 7.1). The remainder of the budget is prorated to each program for miscellaneous purchases and expenses (≈ $2000 annually). In addition, a separate student enrichment fund for all departmental majors was established ($2000 last year, $1700 this year) to support student research-related activities (Student research related activities are also supported by the Honors College, up to $500 per student). The department budget nearly doubled between fiscal years 2003-04 and 2004-05, leveled off, and then declined by 10% this fiscal year. In that time the number of departmental faculty rose from eight to fourteen. The annual Department/Program budget is far too small for more than minor supplies and for maintaining the normal wear and tear on equipment. At present, we can not support class-related travel to the degree we view appropriate for a NRCM program.

Equipment and Facilities. The NRCM program will be moving into a completely renovated Stillwell Building (anticipated move is January 2008) and will have excellent facilities (Appendix 7.2). and equipment (Appendix 7.3). One wing of the building was renovated earlier and about two-thirds of the departmental faculty occupy that space. Once the remainder of faculty move from their temporary quarters to permanent ones the departmental space will nearly double from pre-renovation times. We will have more instructional classroom and laboratory space than ever; there will be six new themed research labs on the 3rd floor in addition to the three labs on the ground floor, and all faculty will be housed together for the first time in many years. The instructional laboratories have adjacent preparation rooms, a new computer, Internet access, and a digital projector. This will complement the classroom space we already use in the completed wing of the building.

Student/course travel. Travel expenses for GNR major and service courses, such as field labs and field trips, come out of the department operating budget. With more faculty and more course sections, the demand for course-related travel has also grown. We believe that one of the major avenues for recruiting majors is our ability to get the students into the field—its not just important to recruitment efforts, it is fundamental to a quality educational experience in most NRCM courses. A further complication of course-related travel is the UNC Policy for vehicle use. For safety reasons, there can not be more than nine persons in a sixteen passenger van. Therefore, a class of 32 students would need four vans plus three

additional drivers to facilitate a trip to the field. Due to budget and safety restrictions, the amount of off campus field trips in our introductory courses has plummeted. Simply, a way must be found to facilitate needed travel.

Instructional technology. The department currently has a 15-seat computer lab primarily dedicated to teaching GIS and Remote Sensing classes, though this lab is regularly used by other classes as well. The renovated building will have tech carts and digital projectors in classrooms and laboratories. The department will receive 24 laptop computers for instructional use and new high-end computers are on order for the Landscape Analysis Lab. This will elevate our instructional technology to an all time high.

All faculty and classroom computers are equipped with Windows-based office software provided by WCU. Rolling faculty computer upgrades are supposed to occur every fourth year, but have been unreliable. The NRCM faculty often use specialized software for synthesis and analysis of field data. Some of this software is purchased as a UNC-wide license such as ArcGIS. Other software is either freeware or purchased by individual faculty with research funds (e.g., differential correction of GPS data), or software purchased for specific courses such as IDRISI for the introduction to remote sensing class (paid for by Summer Ventures), or purchase of real-time weather exercises (Geography funds). Remote sensing data of North Carolina for class and research needs have been purchased by the Hunter Library (Landsat 1995, 200 and 2003), with individual faculty's start-up funds (e.g., Aster data and Alos PalSar Radar data), or through other centers on campus (Radarsat data by IEF).

Faculty travel. Each permanent GNR faculty member is allotted $400 to help to cover travel for professional development through the Department. Additional travel funding may be requested of the Department Head, but given the budget, requests can not usually be supported. Faculty travel is augmented by the WCU Chancellor's travel fund, which will cover up to $1000 of expenses when presenting research at a meeting. In addition, travel funds are available for course improvement through the Instructional Improvement Grant Program run from the Provost's Office.

Library resources. Library resources have been adequate; approximately $17,000 per year is allocated for the combined GNR Department. This figure, however, has remained static for several years while book costs have risen. Fortunately periodical subscriptions do not come from the Departmental allocation. The Hunter Library shares its electronic catalogue with Appalachian State University and the University of North Carolina at Asheville and students and faculty can access resources through interlibrary loans both physically and electronically. There are 17 database options and 5493 non-periodically listings in this shared library resource (Appendix 7.4). Our students and faculty use a wide range of resources based on

application (forestry, water, soil, wildlife, landscapes), technology (GIS, remote sensing), and policy (legislation, regulations).