May 16, 2006

TO:        Dr. John Borrelli, Dean
           Graduate School

FROM:  Don Ethridge

SUBJECT:  Review and Assessment of the RWFM Graduate Program

Please find attached the Review Committee's Report. The report consists of an Executive Report summarizing the consensus of evaluations and ratings on the items identified by the Graduate School and a list of recommendations for the department and the administration. This summary was drafted by me and reviewed and approved by the committee members. Appended to the summary are the other individual committee members’ reports that were provided.

Having been involved in several reviews of graduate programs since Texas Tech initiated them, I would offer the opinion that having external reviewers is a most productive addendum to the process. The external reviewers bring the discipline/field knowledge and more objective perspective than can be obtained in-house. However, relegation of the process, particularly the details of logistics, should not be to the internal committee members. This workload, which is a staff function and requires much time, should be carried by your office.

cc:       Ms. Marlene Kenady
           Dr. Clifford Fedler
           Dr. Robert Baker
           Dr. Daniel Edge
           Dr. Ernest Fish
           Dr. Charles Hawkins
           Dr. William Krueger
           Dr. Alon Kvashny
Graduate Program Review for the
Department of Range, Wildlife and Fisheries Management
Texas Tech University

Review Committee:
Dr. Robert Baker, Horn Professor, Dept. of Biology, Texas Tech Univ.
Dr. W. Daniel Edge, Head, Dept. of Fisheries and Wildlife, Oregon State Univ.
Dr. Don Ethridge (Chair), Professor, Dept. of Agricultural & Applied Economics, Texas Tech Univ.
Dr. Charles Hawkins, Professor, Dept. of Aquatic, Watershed, & Earth resources, and Director, Western Center for Biological Monitoring & Assessment of Freshwater Ecosystems, Utah State Univ.
Dr. William C. Krueger, Professor & Head, Dept. of Rangeland Ecology & Management, Oregon State Univ.
Dr. Alon Kvashny, Professor and Chair, Dept. of Landscape Architecture, Texas Tech Univ.

Executive Report

The following is a consensus of findings and recommendations of the Review Committee. Individual assessment reports are appended. The six items specified for assessment in the Graduate School Guidelines are assessed individually, followed by a list of recommendations.

Evaluations:

1. Overall quality and direction of the program. There are really three programs (Range, Wildlife, and Fisheries) with M.S. and Ph.D. programs for each. The Range and Wildlife programs are generally assessed as Good to Excellent with a critical mass of mature and established faculty doing highly respected education and research. The Fisheries program is relatively weaker (Satisfactory), primarily because there are too few (2) faculty covering graduate teaching, undergraduate teaching, and research. Even with supporting coursework from other faculty/areas, the program demands are too great.

2. Quality of faculty in relationship to students. Overall, Good to Excellent. Many faculty are widely known and respected and faculty overall are very productive and have heavy workloads. They provide high quality mentoring and instruction to students. Admissions policies/procedures and program reputation help to attract quality students. The Range faculty in particular will have several retirements in the near-term, presenting some transition issues.
3. Policies and practices in support of students. Overall, Good to Excellent. Support and direction of students is very good once students are admitted, although the requirement of research project/support limits program size. The graduate Student Handbook is very clear and thorough. The ratio of female to male faculty is low.

4. Curriculum offerings and program options. While the quantity of course offerings is adequate, the proportion of piggyback courses is high and likely limits the quality of educational experience; there is general recognition that the rigor of those courses is limited. There are more graduate-only courses in Range and the fewest in Fisheries; there is a strong consensus that graduate-only courses are stronger. Overall assessment is Good to Excellent for Range, Good for Wildlife, and Poor for Fisheries.

5. Adequacy of staff support, physical facilities, library resources, equipment, research facilities, and program budget. Staff support, equipment, and budget are Good to Excellent. Library support is adequate, but reduction in journals is a threat. Space is adequate but in need of upgrading. Overall assessment is Good.

6. Activities as they relate to the department/college strategic plan. Overall, Good to Excellent. Goals are general enough to allow flexibility; the plan for achieving goals is not clear.

Recommendations:

1. Evaluate the department’s piggyback course offerings to determine if (a) more graduate-only courses can be offered and (b) more stimulating experiences for graduate students can be developed in those courses where piggybacking is necessary.

2. Evaluate the Fisheries program considering the niche the department can fill and whether both undergraduate and graduate programs are effective/needed. Irrespective of that determination, more Fisheries faculty are needed if any of these programs are to be maintained.

3. Reconsider/revisit, albeit cautiously, the policy that all graduate students admitted must have a sponsored project.

4. Examine attitudes regarding admissions and hiring, especially with respect to women faculty and graduate students. While there is no direct evidence of bias in the process, the ratios of admissions/applications raise the issue.

5. If the constant-dollar value of state research (operating) funds continues to decline, the department should evaluate alternative operating/allocation models. If programs will need to be supported primarily from external grants and
contracts, teaching loads will need to reflect additional time required to compete for extramural funding.

6. The rangeland currently reserved for agricultural research and teaching, both to preserve long-term study and provide options for future research. In the University land use plan, protecting uses of the rangeland should be included.
Range, Wildlife and Fisheries  
Texas Tech University  
Graduate Program Review  

11 April 2006 DRAFT

Program Overview and Vision

The Range, Wildlife and Fisheries Department (RWFD) mission is to provide the highest standards of excellence in learning, research and engagement on all aspects for natural resource management and environmental sciences. The unit is well organized for meeting this mission. Faculty include expertise in vegetation ecology and management, fire ecology, and most major subdisciplines in wildlife and fisheries. The program is particularly strong in habitat ecology and management, and population dynamics. The Texas Cooperative Fish and Wildlife Research Unit represents an important collaborative research and graduate training agreement among the TTU, USGS and Texas Department of Wildlife and Parks. Other collaborative relationships across campus add strength in areas not represented on the faculty. The Department has a planning process that provides for curriculum review and revision and identifies strategic opportunities for future program direction. The unit’s vision is consistent with its mission, and the number of graduate students currently enrolled represent the size of program targeted in the strategic plan.

Grade Assessment: Good to Excellent

Faculty Productivity

The RWFD faculty members have a good to excellent record of productivity. Many faculty members have an excellent record of scholarly achievement, publishing several articles per year in top tier international journals. Other faculty members are less productive but most still maintain a good record of scholarship. The unit has a good record of grants and contracts; several faculty members maintain large research programs with several graduate students each. Most grants and contracts, as is common with similar programs across the country, are applied research projects with state or federal natural resources agencies; nationally competitive awards such as NSF, USDA NRI or EPA STAR grants are uncommon. Average graduate student load is about 2-3 students per faculty member. Teaching load is 3 to 4 courses per year, which is consistent with similar programs across the country. Several faculty members have received national awards from professional societies, elevating the national standing of the program. Several faculty members have also received teaching awards from the college, university and professional societies. Level of service is appropriate for teaching-research
appointments. Several faculty members have held elected office in professional societies
or served on the editorial boards for professional journals.

Grade Assessment: Good to Excellent

Quality and Quantity of Graduate Students and Graduates

The RWFD attracts high quality graduate students that are successful. Student profiles of
incoming students are typical of programs across the country where students are selected
based on academic excellence and skills that match research project needs. Verbal GRE
scores of recent applicants are perhaps a little low. The department, like most across the
country where admission into the program is dependent on project funding, discourages
applications from potential students until they receive encouragement from a faculty
member willing to support them. Thus, the program acceptance rate is relatively high.
Undoubtedly, a large number of inquiries do not result in an application to the program.
The gender and racial composition of the graduate students is predominately Caucasian
males. However, international students provide substantially more racial and ethnic
diversity in the program. The program has an excellent record of job placement at both
the M.S. and Ph.D. levels. Most students publish one or more journal articles from their
theses or dissertations and give one or more professional presentations at state, regional
or national meetings. The department has a good program for training teaching assistants
and provides excellent teaching experience for PhDs. Support for most graduate students
appears to be adequate although stipend levels are lower than many similar programs
across the country. The program is currently near or at capacity, which is dependent on
the number of funded projects. Increasing the number of graduate students will require
additional faculty or providing incentives to faculty to increase the number of grants and
contracts.

Grade Assessment: Good to Excellent

Curriculum and Programs of Study

The curriculum and program of study is comparable to similar programs around the
country. The diverse nature of fish, wildlife and [range?] disciplines typically precludes
a standard series of courses at the graduate level. Programs of study are determined by
the students' graduate committee and provide the knowledge and skills necessary to have
a successful research project. Probably the most common course work across all degrees
is statistics because of the quantitative nature of the disciplines. Course offerings and
frequency are adequate for meeting program needs. Like many programs around the
country that teach substantial numbers of undergraduates, the program's graduate course
offerings are largely dependent on split-level (piggy-back) courses. A common complaint
among graduate students was the quality of these split-level courses. Students reported
higher satisfaction for such courses that had graduate only discussion sessions.

Grade Assessment: Good to Excellent
Facilities and Resources

Facilities are typically good and similar to other programs around the country. All graduate students currently have good office space. However, once the old Animal Science Building is demolished, office space for graduate students will be substantially constrained. Laboratory space is adequate, but as is typical in many places around the country, labs appear to have been designed without input from people who were to use them. Modern research equipment is either owned by the department or is readily accessible across campus through collaborative relationships with faculty in other departments. The department has a large inventory of field vehicles and qualified support staff to repair or fabricate field equipment. Department has adequate computer facilities, mostly provide by grants and contracts. Information technology needs are currently being met by a student employee. The department maintains a larger support staff than many programs around the country.

Grade Assessment: Good to Excellent

Recommendations

1. Grow graduate student program by expanding the research enterprise.
   a. Consider strategic investments in post-doctoral researchers who could assist research teams in submitting additional proposals and mentor graduate students.
   b. Provide incentives from special line item, research incentives awards, HEAF funds, and Graduate Tuition Rebate to encourage faculty to develop additional proposals.
   c. Transfer some of the teaching load among tenured faculty with strong research programs to faculty members who have demonstrated excellence and interest in teaching over research.
   d. Hire additional faculty.
   e. Support national effort to increase funding of the national Cooperative Fish and Wildlife Research Unit program via dialog with state congressional delegation. Increased national funding would allow current vacancy in coop unit to be refilled.

2. Enhance diversity among faculty and students.
   a. Actively recruit female and non-white graduate students.
   b. Actively seek to fill faculty appointments with women and minorities to serve as mentors to a more diverse graduate student pool.
   c. Actively groom undergraduates of color for graduate work.

3. Increase rigor of split-level courses.
   a. Seek ways to make courses more compelling learning experiences for graduate students by increasing opportunities for dialog or other means of enhancing critical thinking. Additional assignments or questions on exams are not challenging or interesting to graduate students.
Graduate Program Review
Department of Range, Wildlife, and Fisheries Management
Texas Tech University

Assessment by:
Charles P. Hawkins (Utah State University)

Note: This assessment is specifically directed to the Fisheries program within the department, although I make several comments regarding the overall programs within the department.

1. Overall quality and direction of the fisheries program.
   Grade: Satisfactory
   Comments: Compared to the graduate wildlife and range programs, the graduate fisheries program within the department is relatively weak and faces significant challenges if it is to remain a viable program. When fully staffed, the number of faculty that contribute to the program is minimal at best: 2 departmental faculty and 2 USGS Cooperative Unit faculty. The current configuration of 1 departmental faculty member and 1 Cooperative Unit faculty member is not sufficient to support a sound graduate program, especially when one of those faculty must teach a large number of undergraduate courses and the other can only teach one graduate course. More specific comments regarding the direction of the fisheries program are included in item 4 below.

2. Quality of faculty.
   Grade: Good
   The two fisheries faculty currently active in the department appear to provide high quality instruction and mentoring to graduate students as evidenced by the quality of student theses and dissertations and student comments. Although general mentoring of students appeared to be excellent, the department is woefully short in the number of female faculty. Texas Tech appears to suffer to some extent from the same problems other somewhat isolated and culturally homogeneous universities face in attracting female faculty. A strong commitment by the department and university will be needed to improve gender and overall diversity balance within the department.

3. Policies and practices in support of students.
   Grade: Good
   Policies and practices in support of students appears to be somewhat mixed. Once students are admitted, support seems to be excellent. For example, the departmental graduate student handbook provides clear guidance to graduate students regarding expectations and policies. This handbook is one of the best I have seen. Students appear to have few complaints regarding what they must
do to complete their degrees. However, the department needs to determine if admission practices are biased in any way, while it also addresses diversity issues in future faculty hires. Data in the departmental self-study appear to show that the ratio of female to male admissions (about 0.5) is substantially smaller than the ratio of female to male applicants (about 0.7). The department should seek ways to improve both the number of female inquiries and applications as well as the number admitted.

4. Curriculum offerings and program offerings.
Grade: Poor
A major challenge to the overall graduate program is the diversity and quality of courses available to students. This challenge is especially acute for those in the fisheries program because of the lack of faculty. Relatively few courses are offered strictly for graduate students, and graduate students often take piggy-back courses that enroll both undergraduate and graduate students. In general, the appropriateness of these piggy-back courses for graduate students is questionable. Although graduate students are expected to either assume additional work or perform at a higher level, it is doubtful that students get much from these courses. It is difficult to see how two departmental faculty can support both an undergraduate and graduate program in fisheries. The teaching load necessary for two faculty members to support both undergraduate and graduate programs simply excludes the possibility of teaching faculty developing strong research programs, something that is critical to development and maintenance of a viable graduate program. This load can be only slightly relaxed if the Cooperative Fisheries and Wildlife Unit were fully staffed with two fisheries scientists (1 graduate course each).

Some graduate courses offered by the department are appropriate for all graduate students in the department, hence some of the burden in supporting a graduate fisheries program is assumed by wildlife and range faculty. Also, some relevant course work in support of graduate education is available outside of the department. Given that graduate education in natural resources is often more appropriately approached via a ‘lateral’ model that develops integration of skills rather than by the ‘vertical’ model typical of more specialized disciplines (e.g., chemistry, engineering), there is clearly the potential to support a fisheries or more general aquatic program at Texas Tech. However, given the small number of fisheries/aquatic faculty within the department, it is unclear what the nature of the departmental program in “fisheries” should be. To a large extent, the nature of the fisheries program will vary a lot depending on the expertise of the specific faculty the department hires. Given the constraints on the number of aquatic/fisheries faculty that the department can likely support, the department should carefully consider what niche it can best fill given the aquatic resource issues that are most significant to western Texas and surrounding areas. While considering these issues, the
department should also consider whether it can adequately support both a traditional undergraduate fisheries option as well as a graduate program that offers both Masters and PhD degrees in Fisheries. In trying to support both undergraduate and graduate programs with the resources currently available, the department appears support neither program very well.

5. The adequacy of staff, facilities, library, equipment, and budget support.
   Grade: Good
   In general, staff, equipment, and budget support for the fisheries program (other than the need for additional faculty above that already in place or committed) appears to be good to excellent. Facilities and library support appears to be satisfactory, but are by no means state-of-the-science. For the programs in the department to grow and keep pace with rapidly changing challenges in natural resources management, the university will need to set a moderate term goal of significantly upgrading physical facilities. Like many universities, library support in terms of the breadth of scientific journals available to faculty and graduate students is slipping. Given that current journal availability is fair at best, the university needs to explore ways to prevent additional slippage in journal holdings, perhaps by partnering more effectively with other Texas universities to acquire electronic journal subscriptions.

   Grade: Satisfactory
   The department identified several issues that must be addressed by the department over the moderate term. They include recruiting and retaining high-quality faculty and high-quality graduate students, increasing enrollment, enhancing research capacity, and adding physical and financial resources. It is especially important that the department substantially improve the diversity of its faculty, especially in terms of gender. The department clearly recognizes the need to address these issues, but it was not clear how these issues were prioritized and over what time period progress would be possible given the financial constraints faced by the department, college, and university. The department is certainly moving in the right direction by increasing its level of endowed funds.

End of comments - CPH.
Range, Wildlife and Fisheries Department  
Texas Tech University  
Graduate Program Review  
April 25, 2006  
William C. Krueger  
Department of Rangeland Ecology and Management  
Oregon State University

Overall quality and direction of the program

I will focus my comments on the Range aspects of the Graduate Program Review as much as possible, recognizing the faculty of the Department is very well integrated and it is difficult to clearly delimit programs independently. The Range faculty and their programs have been highly respected in the discipline for over the last 30 years. Many of the current leaders of the profession earned a graduate degree at Texas Tech.; the current faculty is upholding the tradition with distinction. Each of the Range faculty (I count 6 regular faculty and 2 adjunct, based on what range faculty do in other range departments, though that may be somewhat arbitrary) is involved in teaching and research as well as public service in a productive way. They have found a balance between undergraduate and graduate teaching that is effective. The undergraduate program is accredited by the Society for Range Management and is well respected across the United States and Mexico. The Range graduate program is enhanced by a dedication of the faculty to teach strong graduate courses. My sorting indicates 6 non-piggy back graduate courses taught in range, 2 in wildlife and 2 in fisheries and 5 that could fit any of the disciplines.

Grade assessment (Range): The overall program is excellent

Assessment of the quality of the faculty

The Rangeland Ecology and Management faculty are mostly senior professors. They are well known and highly respected in the profession. Their research is often the first work on the various topics and their ideas are studied in other regions of the country to adapt them to local ecosystems. Their students reflect the excellent education they receive at Texas Tech and the undergraduates are usually among the top performers at annual meetings of the Society for Range Management. The Tech graduate students present their research regularly at the SRM meetings and they likewise reflect the excellent education they have received. The Range faculty has mostly been at Texas Tech for a long time and there will be significant turnover over the next few years. Dr. Sosebee has already retired and is half time for two more years. He has carried a major teaching and research load for the last 30+ years. His replacement will no doubt need to develop a program rapidly to fill the gap created by his retirement. If there is sufficient funding it would be beneficial to the College to work towards hiring a replacement Assistant Professor that could overlap one semester with Dr. Sosebee. If this is to be done the search would need to commence during Fall of 2006 to have the replacement on campus by Fall of 2007, Dr. Sosebee’s last semester. Similar considerations would be beneficial as the retirement cascade develops. The current faculty has developed their programs over a long time
period and can teach more courses and conduct more research than younger faculty because of their experience. If a goal is to maintain the same level of teaching and scholarly research currently produced by the range faculty it will probably be necessary to add an additional faculty member as the 4 older faculty are replaced over the next few years.

My impression is the teaching load of the Range faculty tends to be higher than for their counterparts in other universities. Typically range teaching/research professors teach two semester or three quarter courses each year. This excludes seminars and other courses that do not require significant lecture preparation. I think the Tech Range faculty tends to teach 3-4 semester based courses each year. Their research productivity is excellent under the relatively high teaching loads. This is assisted in part because of the excellent support provided by the line item funding that provides assurance of GRA funding and some level of operational funds. This funding is used and leveraged well to keep productivity high while limited time is spent in preparing proposals for competitive funding agencies like NSF. It looks like the deflation of the line item funds and its distribution generally across the Department faculty will require more competitive funding to maintain the scholarship within the Range faculty. This will require more time in grant writing and probably some different areas of focus. If this is necessary it will add to the workload of the faculty to maintain their current level of productivity. I suggest that this be a major focus of planning if it seems to be correct.

My view is that the range faculty is among the best in the country. No doubt replacement of the faculty, as they retire, with young, well trained faculty will maintain the reputation of excellence in Rangeland Ecology and Management and Texas Tech. While the numbers of faculty in Rangeland Ecology and Management are lower than many of the Land Grant universities, the responsibilities at Tech do not include the extension or broader research responsibilities at the Land Grants. In terms of teaching the numbers of faculty are consistent with their peer institutions.

Interactions of the faculty across disciplines appear to be very good. The unit operates as a single unit. Leadership of Dr. Fish is generally appreciated and the general attitude of the faculty is that everyone is treated fairly by the Department administration. The promotion and tenure process at the University and in the Department seems to be effective in helping less productive faculty move to other positions that are more suited to their abilities. Diversity within the faculty is good compared to peer institutions.

Grade assessment: Range faculty is excellent.

The existence of policies and practices in support of students

The faculty in the Department has prepared a graduate student handbook that is comprehensive and covers all the normal informational needs of graduate students. The interpersonal relationships of graduate students with their major professors seem to be strong. Students are effectively evaluated and seem to be on track to graduate in appropriate time scales. The lengths of individual graduate student’s degree programs are
similar to those at other Rangeland Ecology and Management departments across the country.

There was discussion about the pros and cons of accepting graduate students without providing support, especially assistantships. The student body is limited by the funding available for student salary and research expenses. Accepting unfunded students will require a major change in the approach to graduate education. Unless there is a desire to implement a large number of non-thesis degrees a change in this policy could become a problem. If a field or lab based thesis is required unfunded students arrive and very soon see the need to be funded and put added stress on their professors to help them find funding so they can finish in a timely way. The faculty needs to carefully consider the issue and determine how they want to conduct their graduate programs.

Grade assessment: Excellent

**Curriculum offerings and program options**

The Rangeland Ecology and Management curriculum at the graduate level is strong with 6 stand alone technical graduate courses supplemented with 5 general departmental graduate courses as well as several piggy back courses in the discipline and related disciplines. Within most natural resources graduate degree programs there is a strong dependence on good supporting coursework in disciplines like statistics, soils, botany, etc. For the most part this seems to be adequately handled at Texas Tech. I think Botany course work in agrostology and plant anatomy would be beneficial for the range discipline. I wonder as biology disciplines focus more and more on the biochemical levels if the traditional, fundamental biology courses will be retained in biology curricula. If not this will provide a challenge to natural resources disciplines that need this foundational coursework for their students.

When we met with the graduate students there was concern expressed over the piggy back courses. The students felt they were not sufficiently rigorous. The students we met were principally wildlife so I don’t know if this is a concern for the range students. Generally, graduate students do not like piggy back courses at any institution. However, they are common since most graduate students require more background information than they bring to their degrees. When students have a BS degree in the discipline they take few piggy back courses but most graduate students do not have degrees in the discipline chosen for graduate study. This is a quandary for the faculty and it sets the students up for some level of dissatisfaction. Nevertheless, the piggy back courses are needed and the challenge to the faculty is to discover teaching methods that engage the graduate students effectively. Perhaps the extra requirement for the graduate student could be reading of the foundational theoretical literature that underpins the management information taught in the undergraduate portion of the course. This coupled with a session for discussion of the literature could be a substitute for the required papers, etc. and may make the students appreciate both the content of the course and the excitement of the theory for the graduate student. Could joint courses with areas like biology, soils, ecology replace some of the piggy back courses? We did talk to one student that indicated in general all courses were
all less rigorous than would be expected at a university. While this was only one brave student, it might be useful for each faculty member to assess if they are helping their students reach their potential in individual courses.

Grade assessment (range): Excellent

Adequacy of staff support, physical facilities, library resources, equipment, research facilities, and program budget

Staff support, program budget, and research facilities seem to be good or at least adequate. In general the Department support of faculty is better than at most other major universities. Physical facilities are adequate though some maintenance to freshen up the appearances would improve the atmosphere. The old Animal Sciences building is an important space for the graduate students and other Departmental activities. The space configuration separates many of the groups of graduate students from each other. Ideally it would be better if they had more casual contact. The old Animal Science building is slated to be removed in the future and that will create substantial stress on the physical plant of the Department. Planning for this event should remain a high priority in the Department. Eventually it would be good if all of the Department could be in one building. The field facility is excellent in terms of equipment and general utility. The rangeland area is minimal in size but will accommodate small scale range research. It cannot be reduced in size and still accommodate much of the plot type research conducted there. It is too small for most grazing research, except plot scale studies. It will be important to preserve the area for the long term to protect long term experiments that cannot be replaced with a new area since time is a major part of the treatments in many of these kinds of studies. Equipment seems to be adequate though the computer lab we saw was small and will need replacement of computers fairly soon. The Department does seem to be on top of equipment needs and is prepared to do what is necessary to support research across the disciplines. The library is adequate to good, but there is some concern that a significant reduction in journals may be planned. Loss of key research journals could have a strong negative influence on the graduate programs in the Department so this should be monitored.

Grade assessment: Good to excellent

Comparison of the activities as they relate to the Department strategic plan

The Departmental Strategic Plan is comprehensive and provides a good framework for planning over time. It remains general enough to allow flexibility to changing environments and suggests tools for evaluation of success. We did not look at any assessments of change with respect to the strategic plan so I cannot make specific comments about its effectiveness. However, the progress within the Department is in agreement with goals and objectives in the strategic plan.

Grade assessment: really unsure but what evidence I have suggests good to excellent.
General recommendations

1. Recognize that the graduate program is excellent and competitive with peer institutions across the U.S.
2. Begin planning for the coming faculty turnover in the Rangeland Ecology and Management area in the Department. This will be a chance to refocus for future challenges but will also need to maintain the excellent educational programs that are the trademark of Texas Tech.
3. Evaluate the piggy back classes in each discipline and work to maximize their utility in educating the graduate students that depend on them.
4. Consider the potential losses in the line item funding and develop a plan to respond to a different funding model.
5. Work closely with the library if they need to reduce journals to keep the most important journals at hand for the graduate programs.
6. There are several contingencies that could be problematic for the Department (e.g. razing of the old Animal Science building, possible preemption of the rangeland for building or other uses, etc.) and this will require vigilance to adapt or educate others as necessary to minimize the impacts on Departmental programs.
7. Evaluate the benefits and disadvantages of accepting students without funding and determine the path the Department needs to follow.
Notes on the RWFM Graduate Program Review

**Strengths:**

1. Overall good program as evident by the students’ graduating from the program.
2. Students are well trained to do research.
3. Research projects are greatly appreciated by the graduate students.
4. Two-thirds of research projects funding come from outside sources.
5. Good balance of faculty. Mix of age group, i.e. senior faculty, associate faculty, and young faculty allow for stability and continuity.
6. Open door policy of student advisors are appreciated by students.

**Weaknesses:**

1. Few graduate courses that are not "piggy-back" courses.
2. Not enough graduate seminars.
3. Financial support and stipends are too low and students stated that the low stipends are the reasons for turning away prospective Masters students.
4. GRE scores are lower than they were a few years ago.

**General Notes:**

A. Space and proper facilities are still a critical issue for RWFM and need to be addressed by the administration.
B. Greater effort in recruiting female professors should be taken by the department.