

**University of New Mexico
Department of Biology
Academic Program Review**

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Report of the External Review Team

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Executive Summary

Assessment of Program:

The overall quality of the UNM Biology Department is very good, although somewhat uneven from a sub-disciplinary perspective. The department has a strong reputation for its program in Ecology, Evolution, Organismal, and Behavioral Biology (EEOB), but other areas (e.g., Integrative Biology, Cellular and Molecular Biology) have not yet reached this same level or are just emerging as foci of potential excellence (e.g., CETI). Although the EEOB group is smaller than those at some larger research universities (with dedicated EEOB departments), it compares very favorably, and in our judgment is nationally competitive based on well-recognized senior faculty members, strength in publications and grant support, and research resources such as the Museum of Southwestern Biology and the Sevilleta Long Term Ecological Research (LTER) site.

The department offers a wide array of courses for undergraduates, and the program currently includes 1300 biology majors. A recent increase in course registration speaks well of the department and the health of the discipline, but constitutes an instructional burden that has surpassed resources and strains infrastructure. Graduate level courses are more diverse in some sub-disciplines, with more faculty in some areas (EEOB) than others (CMB, Integrative Biology), but this is to be expected in light of existing faculty expertise. Graduate students commented favorably on the free and open nature of communication across sub-disciplines and on the accessibility and helpfulness of the faculty. The department has sought funds for increasing the diversity of its student body, and their exceptional success in obtaining funding for both undergraduate and graduate programs speaks to their commitment and is a notable aspect of this unit.

Our conclusion is that the UNM Biology Department has a dynamic, interactive, and creative faculty and student population, with a strong commitment to excellence in education and research. Research by departmental faculty, postdoctoral fellows and graduate students addresses fundamental issues across a broad spectrum of disciplines, ranging from basic ecology, environmental quality and conservation biology to biomedical science and tropical medicine. The Department has done exceedingly well with static investment and unstable administrative leadership in the past decade or more since its last external review, attesting to the strength and vision of its faculty. The Department's short and long term goals are appropriate and reasonable, deserving of immediate attention and increased investment by the UNM administration.

Recommendations:

The department is at a critical juncture in its development. Increases in the numbers of majors and in enrollment in service courses have fueled curricular needs which, along with a lack of critical mass, necessitate hiring more faculty in Cellular and Molecular Biology (CMB). At the same time, impending retirements of senior distinguished faculty in EEOB threaten loss of the department's national prominence in its major area of excellence. Ideally, growth needs to be strategic and forward-thinking (i.e., hiring *ahead* of imminent retirements), and vision-driven rather than opportunistic (i.e., hiring should not be related *only* to retirements). Continued faculty growth is critical for several reasons: a) sustained prominence of currently outstanding programs (e.g. EEOB), b) achievement of critical mass in CMB, and c) integration of the different sub-disciplines within the department to achieve overall excellence.

Modest new growth, by 3 or 4 new tenure-track FTEs and one-to-one replacement of retiring faculty in the short-term, is advisable for the reasons stated above. Possible "cluster hires" at the senior/associate level (rising stars) are key to sustaining prominence and building on strength in EEOB, and rapidly infusing new energy and attracting graduate students to CMB. Such cluster hires should be strategic, focused on key disciplinary areas (e.g., behavior) that can be approached at multiple levels of biological organization (e.g., ecological/evolutionary, integrative, and cellular/molecular). One such hire, if strategically defined and possibly linked to a retirement replacement, could serve the additional need for a Faculty Director of the Sevilleta Field Station.

Growth in undergraduate demand for the department's courses, both for majors and non-majors, needs to be addressed. While some grant-supported programs support additional staff for enhancing the diversity, success and retention of students, the high numbers of majors creates student advising needs that exceed resources of existing staff. We recommend that (i) additional funding be directed to staffing the need for student advising, and (ii) the creation of a peer-advising program involving students. Additional staffing in the area of IT support is also advisable for enhancement of student advising, graduate student recruitment and faculty research support.

During our visit, three emerging problems came to our attention, which we believe deserve an immediate response from the administration. 1) An ongoing search in CMB should be encouraged to proceed with an offer to the second candidate if the first offer is turned down. 2) Over the past decade, internal UNM support for Biology and its programs (non-salary I & G funds) has been declining, owing to static budgets, shortfalls and additional "taxes" levied across the university. As a consequence, the department has had to rely to an ever-increasing degree upon indirect cost returns from grants (F & A distribution). This committee is concerned by recent actions to freeze and/or divert accrued F & A funds from the department back to the central administration, as cutting off these funds in the short term would have dire long term consequences. 3) Faculty efforts to win grant support funding are not facilitated by existing policies in the Office of Sponsored Project Services. Access to support for grant submission should be streamlined, and lead times for obtaining OSPS approval prior to submission deadlines need to be meaningfully reduced. Additional recommendations for addressing current issues and goals for future development may be found throughout this document.

Introduction

The Review Team [Dr. Christopher Bayne, Oregon State University, Dr. Candace Galen, University of Missouri, Dr. George Uetz, University of Cincinnati, and Dr. Patricia Crown, University of New Mexico, Anthropology] visited the UNM Biology Department and several UNM Administrative Offices on April 8-10, 2008. We thank staff, students and faculty members of the Department, and representatives of the UNM Administration who gave of their time to make our 2 ½ days on campus an informative and productive visit. We offer the following assessment and advice for consideration by departmental and administrative stakeholders, who aim to build on the educational and scholarly achievements of the Biology Department including those of the Museum of Southwestern Biology.

I. Overall quality of the unit.

Contemporary biology is an extraordinarily diverse discipline, encompassing the living world from the sub-cellular to global scales. The overall quality of the UNM Biology Department is very good, but somewhat uneven from a sub-disciplinary perspective. The Center for Measuring University Performance 2007 report [<http://mup.asu.edu/research.html>] ranks UNM (entire institution) at the threshold of the top 100 (tied for 105) among the top 200 U.S. research universities rated overall. UNM compares more favorably with its peer public institutions: it ranks 44th nationally among the 200 top state-supported research universities rated. While the 2008 National Research Council discipline-based rankings are not yet available, such a detailed analysis by disciplines would likely reveal a higher ranking for UNM Biology among Ecology, Evolution and Behavior departments. How well this position is maintained, and/or how high the UNM Biology Department will rise in the future clearly depends on an infusion of new resources from the administration. The Department has done exceedingly well with static investment and unstable administrative leadership in the past decade or more since its last external review, attesting to the strength of its faculty and its vision in building a world renowned program in Ecology, Evolution, Organismal and Behavioral biology (EEOB). Bringing other aspects of the Biology program, particularly in Cellular and Molecular Biology (CMB), to this same high level will require substantial investment from the UNM administration. While no modern biology program can effectively fulfill its mission without some balance in its representation of its sub-disciplines, the successful recruitment of new faculty in CMB now entails high start-up costs in comparison to those needed for organismal biologists.

II. The unit's contribution and mission as related to the strategic directions of UNM.

To address this issue, we used President Schmidly's "***Strategic Framework for 2008 and Beyond***".

- Strength through Diversity.

The Biology Department has sought and received funds for increasing the diversity of its student body. Their exceptional success in obtaining funding for support of programs at both the undergraduate and graduate levels speaks to their commitment to diversity and is a notable aspect of this unit. They have secured major federal grants from NIH (IMSD, MARC) and NSF (URM, REU-sites, SEEDS and GK-12

Programs) to increase the numbers of competitive under-represented minority students in biology. The Biology Department has a higher than average percentage of minority undergraduate students in their BA program. At the graduate level, the department has graduated ten minority Ph.D.'s in the past three years, an impressive record, especially in light of the negligible support forthcoming from the Graduate School to support minority recruitment. However, minority representation is especially low among faculty (~10% and well below percentages in New Mexico at large) a deficit that is likely to have substantial negative impact on retention of minority undergraduates and attraction of top minority graduate students. **Future hires should encourage more diversity among faculty and should aggressively pursue special opportunities to bring in outstanding minority candidates whenever possible, with strong backing from the College of Arts and Sciences and the UNM administration.**

- Student Success through Collaboration.

The Biology Faculty does an exceptional job in working collaboratively with undergraduate and graduate students to provide research experiences. Undergraduates participate in research by volunteering in labs, engaging in work-study positions, taking advantage of regular student employment positions and independent study opportunities, and of opportunities within the Biology Honors program. **The Department should make every effort to track the number of students engaging in research.** As elaborated above, the department has external funding for several undergraduate research and training programs and efforts to garner these funds have been well supported by the UNM Office of Research.

- Vital Academic Climate.

The Biology Department has a dynamic, interactive, and creative faculty and student population. The graduate students in particular commented on the free and open nature of communication across sub-disciplines within the Department and on the ease of obtaining help from any faculty member or student. Recent building expansions have been planned to facilitate interactions that optimize the academic climate. New developments that enhance the academic climate within the Department of Biology include efforts of Research Faculty and Teaching Faculty to develop a defined reward system for accomplishments and provide a clear road map for advancement, paralleling those of the tenure track system. These efforts should be encouraged and facilitated by departmental and university administrators. **One weakness in the Biology Department that is an impediment to the provision of a Vital Academic Climate is the lack of a first rate departmental Web Site.** Web resources can enhance the academic climate by expediting the sharing of knowledge, skills and resources among labs, offices and programs, and the dissemination of news on departmental and individual accolades and opportunities. **Additional staffing in the area of IT support, for student advising, graduate student recruitment and faculty research support is recommended.** These functions enhance access, performance, collaboration and pride.

- Excellence through Relevance.

The undergraduate program currently includes 1300 biology majors. It is, if anything, too successful at attracting students. However, the actual numbers of students

graduating with BA or BS degrees in biology each year hover around 200, indicating that many students either drop out or choose another major prior to graduation. Unfortunately, there are no data available for tracking career choices or post-graduate training for graduating students. The graduate program is nationally recognized in behavior, evolution and ecology, but has not achieved such recognition in cellular and molecular biology. These areas of biology will remain relevant throughout the 21st century and beyond. The number of applications to the graduate program has been falling in recent years, but this may be a national trend. Stronger interdisciplinary ties to health science programs across campus (i.e. in the Medical School) could promote graduate recruitment in biomedical sub-disciplines, enhancing the Department's relevance to health care and the quality of life for citizens of New Mexico. For example, an active group in the Department of Biology works on evolutionary genomics of Hantavirus and would benefit from such linkages.

- Research for a Better World.

Research by UNM Departmental faculty, postdoctoral fellows and graduate students addresses fundamental issues across a broad spectrum of disciplines, ranging from basic ecology, environmental quality and conservation biology to biomedical science and tropical medicine. Given the strength of this biology department in Ecology and Evolution, it is important to note that 'ecosystem services', a major thrust of contemporary research in EEOB, connect directly to human health and wellness. Relevant scholarly work within the department includes research on the determinants of structure in the southwestern landscape, efforts to document the biodiversity of the region and to better understand how tropical parasitic diseases are transmitted to humans. Major contributions to these efforts are made by faculty with appointments in Biology and the Museum of Southwestern Biology. The Sevilleta Long Term Ecological Research (LTER) site and the new Sustainability focus are crucial to these efforts. Additionally, research by faculty in the department's Center for Evolutionary and Theoretical Immunology (CETI) is closely tied to biomedical issues of global significance. **Campus leadership to nurture these interdisciplinary programs and help build linkages to other strong units with complementary strengths (e.g., Anthropology, Medical School, Bio-engineering, and Pharmacy) could facilitate synergistic growth.**

- International Engagement.

Departmental faculty, postdoctoral fellows and graduate students are engaged in international efforts to solve fundamental issues in conservation biology and tropical parasitology. These run the gamut from bacteria in Antarctica to infectious diseases in Australia's platypus, human blood flukes in East Africa, and to indigenous plants of southern Africa. **The University Administration could build on these endeavors by strengthening departmental resources that foster international collaboration.** In this regard, the Sevilleta LTER and the Museum of Southwestern Biology are notable. Both units offer obvious platforms for comparative studies at international scales and for bridging to long-term studies of similar ecological communities in other regions of our planet. **University administrators could build on these assets by providing seed money for international conferences on desert systems hosted by Sevilleta or the Museum and, in the case of Sevilleta, by endowing a senior faculty position that would attract a scientist with an active international research program to serve as director. Continuing**

endorsement of the department's Center for Evolutionary and Theoretical Immunology will also be consistent with these goals.

III. Impact and visibility of instructional programs.

The Biology Department offers a wide array of courses for undergraduates, and these are given ample visibility both on-line and in the UNM Catalog. Recently revamped introductory courses (Bi 201 and 202) attract growing numbers of students, from which one can infer that 'visibility' is more than adequate.

Graduate level courses are more diverse in those sub-disciplines (i.e. EEOB) with highest faculty representation. Since graduate students consider communications with faculty to be excellent, it is reasonable to infer that, as graduate programs are tailored for individual students, relevant courses are effectively brought to their attention.

The Department began (Spring 2007) an effort to collect data on course impacts (and more) from students, using UNM's "Opinio" system. If extended to additional courses, this promises to be an excellent tool for future planning, such as modifying course syllabi and other components of the curriculum. Reflecting a need we discuss elsewhere, 45% of Bio 201 students responding to the 2007 survey indicated that they had not yet seen an academic (Biology) advisor; this is unfortunate, but – given the present level of staffing - predictable.

IV. Profile and distinction of faculty and students.

The tenure-track faculty members of the UNM Biology department represent three basic areas (sub-disciplines) of Biology, although with varying degrees of academic breadth, depth and overall strength.

a. Ecology, Evolution, Organismal, and Behavioral Biology. Although this group is smaller than those at some larger research universities (such as those with dedicated EEOB departments), the UNM group compares very favorably, and, in our judgment, is nationally competitive (likely within the top 25% of peer EEOB groups). This is based on several strengths:

i: Well-recognized senior faculty members, with 3 eminent scholars (one member of the National Academy of Science - Brown).

ii: Overall faculty strength in publications and grant support.

iii: Vital resources for research: specifically the Museum of Southwestern Biology and the Sevilleta Long Term Ecological Research (LTER) site.

iv: Success in graduate recruitment: nearly 80% of the departmental graduate students are in this area.

v: The department has made several outstanding new hires in this area, and attracts a large group of new talent in post-docs and research faculty.

b. Integrative Biology, Comparative Immunology and Parasitology. A second area of strength is found in the Center for Evolutionary and Theoretical Immunology (CETI).

Through this program, the department has been able to recruit outstanding faculty nationally and internationally. Because of its broad and interdisciplinary nature, this group also serves as a natural bridge to other programs including Medicine, Mathematics, and Computational Biology.

c. **Cellular and Molecular Biology.** This focus area, an important part of contemporary Biology departments, lacks critical mass. This is evidenced by a smaller complement of faculty and low graduate enrollment. Several individuals in this area maintain highly visible and productive research programs that are well funded. Bringing this area up to the level of peer institutions will take a significant infusion of resources for recruitment of new faculty, including funds to equip new labs to enable competitive research. While such a recruitment program may well be a challenge for UNM, a minimum of three new faculty in strategically chosen areas is advisable in order to meet needed curricula and to knit together related, existing strengths.

V. Student Success and Learning Outcomes

It is practically impossible for a group of outside visitors to assess the quality of instruction, other than its scope. All one can do is note the obvious: that the quality of instruction is the direct consequence of the quality of the instructors (generally high) and the quality of the infrastructure (lecture rooms and course supplies, among which qualities vary).

The absence of data on where former students have gone and what they have done after graduating from UNM makes it futile to attempt a meaningful analysis of student success. The Department recognizes this and indicated that it is their intention to try to track student movements in the future. **This responsibility could be assigned to a new FTE staff member associated with IT in the Department.**

The following suggestions are designed to help the faculty facilitate student success.

- Biol 500 (*Graduate Seminar*) should be revamped to include strategies for thriving in graduate school, and should include submission of a research proposal for funding. A higher proportion of the graduate students should have external fellowships and grants; they are capable of this.
- To improve competitiveness in graduate recruitment, the policy of raising pay for Teaching Assistants/Associates at 8% annually needs to be continued over at least 3 years. To avoid creating a group of 2nd class graduate students, the pay rates for Graduate Assistant need to be brought up to those of TAs and RAs, even if this occurs over 2 or 3 years.
- There should be an assessment of the merits and demerits of a technology fee to fund computing infrastructure, hardware (including upgrades), software (including upgrades) and help/support (perhaps this is more appropriate at the college or university level).
- “Research Day” as it is currently run may be a missed opportunity. Other institutions of Higher Education use such a day to advertise the diversity and quality of opportunities for prospective graduate students who are being

recruited. This would require a calendar change, from mid-April to (perhaps) December/January. By making this change, the faculty would demonstrate to administrators the importance of recruitment. Limited additional funds are required for meeting some of the expenses of bringing prospective students to campus for 2 days including the specified Research Day.

- New UNM initiatives at the Rio Rancho campus would seem to present Biology with opportunities to acquire infrastructure that better supports at least their lower division courses. Pro-active engagement in planning for that campus is advisable.

VI. Contributions to other academic units and collaborative initiatives.

A large NIH-supported program based in the Department (The Center for Evolutionary and Theoretical Immunology, ES Loker, PI - <http://biology.unm.edu/CETI/people.htm>) extends its umbrella to include The Los Alamos National Laboratory and the Santa Fe Institute, and includes people in several UNM departments including Statistics and Computer Science.

The Department also serves as home for the Program in Interdisciplinary Biological & Biomedical Science (James Brown, PI - <http://pibbs.unm.edu/>). This is a collaboration among the Departments of Biology, Computer Science, Physics, Math and Statistics, the Los Alamos National Laboratory (LANL), and the Santa Fe Institute (SFI).

UNM is fortunate to have faculty with interests in taking the initiative to seek support of this nature. Such efforts should be encouraged and rewarded.

VII. Community service and experiential learning opportunities.

The Biology Department engages in substantial outreach to the local community through several mechanisms. These include collaboration with the Dine' (Navajo) College and Southwestern Indian Polytechnic Institute to provide research training in Biology for under-represented minorities (NSF-funded URM Program, UNO); unparalleled curatorial expertise in biodiversity and natural history within the state of New Mexico through the Museum of Southwestern Biology; and several K-12 education programs housed at the Sevilleta LTER (e.g., NSF-funded GK-12, a School Yard LTER program); participation in the Ecological Society of America's SEEDS program, and a new, promising program in Urban Sustainability.

The external review committee was very favorably impressed with the caliber of outreach by Biology faculty and graduate students. Our only suggestion would be to advertise these outstanding programs more effectively to state legislators and the public at large.

VIII. Opportunities for Further Development.

The Biology Department has several unique opportunities for enhancing its stature as one of the leading research and education units at UNM and in New Mexico at large.

- First, the university should support strategic hires that take advantage of both current excellence and unique resources. A case in point would be the funding

of an endowed chair in conservation with responsibilities including Directorship of the Sevilleta LTER Station.

- Next, the university should invest resources at the faculty recruitment level that parallel and complement the Department's success in diversity recruitment and training at undergraduate and graduate levels.
- At the level of undergraduate instruction, the Review Committee urges the Biology Department to think creatively about how to best take advantages of new teaching facilities and resources coming on board at the Rio Rancho Campus.
- The Department should build on interdisciplinary partnerships (e.g., CETI, PIBBS) to recruit new faculty in Cell and Molecular Biology thereby bringing the critical mass in that sub-discipline over the sustainability threshold.

IX. Appropriateness of departmental short and long-term goals.

The Department's short and long term goals are appropriate and reasonable.

- To maintain their reputation in ecology and evolutionary biology, and continue to build their reputations in comparative immunology and cell/molecular biology.
- To use their new space to promote new research initiatives and enhance research strengths.
- To ensure continued access to a fair share of overhead funds, a goal we strongly urge the university to meet.
- To attract top graduate students through competitive stipends. [This is a problem throughout the university and must be addressed if this department is to maintain its current prestige and reputation.]
- To continue work on their undergraduate curriculum and involve even more undergraduates in faculty research labs.
- To increase faculty and student diversity.
- To emphasize skills in science as a complement to the content knowledge that has traditionally characterized undergraduate curricula.
- To improve faculty salaries.
- To develop partnerships that improve K-12 education and enhance interactions across campus.
- To acquire more staff to help with the research, teaching, and service missions of the Department, particularly to (i) enhance undergraduate advising and (ii) supply expertise in web page design and management.

- To provide more career development and mentoring for non-faculty staff, research faculty, and graduate students.

These are all important and relevant goals. They represent the strategic goals typical of Biology departments at many universities throughout the country. Below, we discuss concerns and recommendations that pertain to departmental goals.

X. Questions raised in departmental self-study.

As part of our charge in reviewing the self-study from the department, we were asked to consider five questions.

1. The first question we were asked to consider is ***how the department should grow, and whether growth would require division by sub-discipline***. We consider that continued growth is critical for three reasons: a) sustained prominence of currently outstanding programs (e.g. EEOB), b) achievement of critical mass in CMB, and c) integrating the different sub-disciplines within the department thereby achieving overall excellence. Modest growth (by 3 or 4 new tenure-track FTEs, and one-to-one replacement of retiring faculty) in the short-term is advisable for the reasons stated above.

Growth in faculty size need not lead to division into a putative alternate ‘structure’ (i.e., two departments). The present status is preferable (and has been arrived at through years of careful, sustained self-assessment and numerous decisions). Division into separate departments should not be considered until and *only if* a substantive number of individual faculty members demonstrate that their interests cannot be represented adequately within the extant departmental leadership structure (that is itself flexible).

Recommendations – faculty growth. In envisioning the support needed from UNM we see that:

- Possible “cluster hires” at the senior/associate level (rising stars) are key to sustaining prominence and building on strength in EEOB, and rapidly infusing new energy and attracting graduate students to CMB. Such cluster hires could be strategic, in that they could be focused on key disciplinary areas (e.g., behavior) approached at multiple levels of biological organization (e.g., ecological/evolutionary, integrative, and cellular/molecular). One such hire, if strategically defined, could potentially serve the additional need for a Faculty Director of the Sevilleta Field Station.
- Growth should not come at the expense of efforts to retain talented middle-rank and senior faculty. This is likely a university-wide issue. The University is advised by this committee to rapidly implement a plan to alleviate salary compression especially for the most egregious cases at the senior and mid-career levels.

2. How can the department ***ensure maintenance of quality of its programs?*** The department is at a critical juncture in its development. Increases in the numbers of majors and in enrollment in service courses have fueled curricular needs, which along with a lack of critical mass necessitate hiring more faculty in CMB. At the same time, impending retirements of senior distinguished faculty in EEOB threaten loss of the

department's national prominence in this, its major area of excellence. Ideally, growth needs to be strategic and forward-thinking (i.e., hiring *ahead* of imminent retirements) and vision-driven rather than opportunistic (i.e., hiring should not be related *only* to retirements).

Concerns and recommendations – maintenance of program quality. In order to retain the department's reputation for excellence in EEOB, we suggest the following:

- A major concern expressed to us is the impending loss through retirement of several prominent senior faculty in behavioral ecology. One way to address this concern would be to hire in advance of impending retirements, as part of a series of planned "cluster hires". A cluster hire in the behavior area might include: 1) a **senior eminent faculty member in ecology/evolution of behavior**, 2) a **"rising star" in integrative biology of behavior**, e.g., a neuroethologist or behavioral neuroendocrinologist, and 3) a **promising junior faculty member in an emerging area of behavior-related research at the cellular-molecular level**, e.g., behavioral genomics, neurogenomics, neuro-cognitive brain function, etc.. This type of hiring plan would address several pressing issues simultaneously, and facilitate development of synergy and integration among sub-disciplines.
- Competitive set up packages are essential: in 2008, \$500K should be seen as a starting point for competitive set up packages in CMB.
- Growth in EEOB should capitalize on the outstanding LTER which is a unique resource for UNM: for example, an endowed chair that ties the directorship of the Sevilleta Field Station to a new faculty line in Biology.
- Because of lack of IT support, the department's accomplishments and strengths are not well advertised. This is an issue that is in all likelihood reducing graduate application rates and reducing the visibility of the biology program to state shareholders (legislature etc.).

3. Should the department ***continue to add majors, or (alternatively) raise criteria for entry and retention ("success")?***

Recommendations –growth in the numbers of majors. The committee recommends a policy allowing natural growth while retaining existing expectations of Majors. If growth becomes excessive, only then should GPA requirements or other filters be implemented.

- Develop several emphasis areas for UG Majors in Biology, and appropriate advising documents and web pages that facilitate student access to these areas of emphasis in their degree programs.
- Hire at least one other full-time undergraduate advisor for the departmental staff; a single individual cannot provide advising for 1300 undergraduates.
- The University should provide resources to monitor student outcomes; this cannot be done with existing departmental resources.

4. Should the department ***cooperate with other departments wishing to collaborate?***
What criteria should be used?

Recommendations – interdepartmental collaboration. This has to be on a case-by-case basis, guided by collective good judgment. Wherever the benefit to the department and/or individual faculty research exceeds the cost in time and resources, it is worth considering. For example:

- Since critical mass does not yet exist for faculty in CMB and the faculty cannot offer a full spectrum of graduate courses that comprise a credible curriculum, cooperation with the College of Medicine might help. CMB faculty members should assess graduate level offerings and orchestrate these together with courses in other departments to constitute a graduate core for MS and Ph.D. students.
- A less desirable case might involve the Medical School gaining by increasing in numbers of minority students, whose ‘credits’ would then be losses to Biology.

There appears to be some interest among the faculty in potential opportunities to develop cross-disciplinary degree programs at the Master’s level. There is a new trend toward “Professional Science Master’s” (PSM) degrees at the national level [<http://www.sciencemasters.com/>], and UNM is uniquely positioned to offer several.

- The current undergraduate Conservation Biology program could be used as a basis for an expanded Master’s degree. This has much potential to synergize with a newly-developed program in Sustainability (tailored to human occupation of the desert Southwest, and Native American philosophies/values that permitted such). This strategy would build on existing strengths and make the most of unique merits of this location. Opportunities for collaboration with other departments (e.g., Anthropology) are an important “value-added” aspect here.
- New initiatives for a Professional Science Master’s degree program in Museum Sciences (in collaboration with other departments, e.g., Anthropology) should also be considered. As with a possible Conservation Biology Master’s program, an effort should be made to synergize with the existing program in Sustainability (tailored to human occupation of the desert SW).

The responsibilities for these two initiatives would be likely be met largely by faculty within the Museum of Southwestern Biology and the LTER group. This would require adjustment of expectations and workloads, so that there is no conflict with curatorial responsibilities.

5. In the department’s self-study report, ***what has been overlooked?***

We were impressed by the thoroughness of the self-study, and commend the department head Sam Loker, Diane Marshall and others who contributed. In the document, we were surprised by the size of the departmental staff, the number of associated research faculty, and the group of lecturers teaching in the fundamental core and service courses. However, during our meetings with these groups, we learned of

frustrations unique to each of them. Addressing these issues would go far toward improving morale and increasing productivity.

Staff workload and morale – Concerns raised by departmental staff centered on increasing workloads resulting from expectations placed on them subsequent to their appointments. Some of this is due to institution-wide requirements of new software (Banner), some to the ever-expanding requirements for accountability in program management (meeting federal and state mandates), and resentment for what is perceived as reliance on the phrase in letters of appointment: “Other duties as assigned”.

Recommendations - additional staff support

- 1.0 FTE support staff for preparation, equipment maintenance and coordination of 300 and 400-level undergrad courses.
- 1.0 FTE in IT + Web Page creation and curation. This individual will serve the needs of the department and its instructional programs, as well as have a significant allocation of effort in the Museum.

Student advising – Currently, there is a single undergraduate advisor. Even with help from several faculty, a single person is not adequate to advise all undergraduate majors in Biology. While some grant-supported programs support additional staff for enhancing the diversity, success and retention of both undergraduates and graduate students, the high numbers of majors create student advising needs that exceed those that can be met by existing staff.

Recommendations – student advising

- We recommend that (i) additional funding be directed to staffing the need for student advising, and (ii) there should be created a peer-advising program involving students.

Research Faculty and Lecturers – The academic mission and productivity of the tenure-track faculty is strengthened by the presence of talented and productive non-tenure track, associated researchers and educators. Both groups suffer from somewhat undefined status. This situation deserves attention – e.g., needs for space, standardized salary scales, promotion criteria etc. - as the morale, productivity and quality of the work of these two groups would clearly benefit from opportunities for career development.

Recommendations – Staff, Lecturers and Research Faculty. Staff, lecturers and Research Faculty need to be included in the department’s affairs in a meaningful way, since they will play a role in its future development, and that development will impact them.

- Each group should consider electing a spokesperson or representative who would be charged with carrying forward their concerns to the departmental leadership, and communicating departmental information to constituents.

- A defined career track should be developed, paralleling that for tenure-track faculty: e.g., Teaching Assistant Professors----Teaching Full Professors; Assistant Research Professor ---Full Research Professor with salary increases commensurate with rank.
- Grants awarded to research faculty contribute F & A to the department and the university (up to 36%, according to the self-study). Federal grant agreements *require* that researchers be provided with the same basic support (office space, supplies, telephones, computers, internet, library access, clerical staff, etc.) made available to instructional faculty. UNM should ensure that it lives up to its agreements to provide all research faculty with these basics.
- When the Department of Biology develops a 5 year plan, institutional administrators including relevant VPs and the President should meet jointly with the department for a discussion of the plan with the aim of refining the document and developing means (actions) for the achievement of its goals within reasonable time lines.

XI. Additional Concerns and Further Recommendations.

Just as a demoralized group of faculty, students and staff will be less successful in their endeavors, a hopeful one will be more likely to perform at their highest possible levels. In spite of impressive accomplishments by all member groups in the department, impediments to achieving maximum effectiveness became evident to us as we talked with faculty, students and staff. Below we list such concerns and issues, and describe means to move beyond them.

Specific and urgent recommendations: During our visit, three emerging problems came to our attention, which we believe deserve an immediate response from the administration.

A. An **ongoing search in Cellular and Molecular Biology** has identified two top candidates. At most peer institutions with which the committee is familiar, job offers would be made to both, considering that one candidate is a minority scientist of top caliber. **At the very least, the search committee should be allowed to make an offer to the second candidate if the first offer is turned down.**

B. **Budget considerations and F & A distribution.** It is necessary to acknowledge that operating budgets for departments and programs can not be left unchanged year to year without lowering the quality and/or quantity of offerings/services including education and scholarship. Over the past decade, internal UNM support for Biology and its programs (non-salary I & G funds) has been declining, owing to static budgets, shortfalls and additional “taxes” levied across the university. As a consequence, the department has had to rely to an ever-increasing degree upon indirect cost returns from grants (F & A distribution). This is the major source of support for infrastructure, staff needs, set-up packages and cost sharing in the Biology Department. There is great concern among UNM faculty over the recent re-allocation of these funds at the university level, with the result of a reduction in the share available to the department. **This committee is deeply concerned about recent actions to freeze and/or divert accrued F & A funds from the department back to the central administration, as cutting off these funds in the short term would have dire long term consequences.** Related to this concern, good

financial stewardship should not be 'rewarded' by raiding 'carry-forward' funds within the Museum and elsewhere. **We urge the UNM administration to make every effort to renew its financial support of the department as soon as possible.**

C. Faculty efforts to win grant funds are not facilitated by existing policies in the Office of Sponsored Project Services. Staff within the OSPS may need to be reminded that they work for the faculty, not vice-versa. Access to support for grant submission by UNM PI's should be streamlined. Lead times for obtaining OSPS endorsements prior to submission deadlines need to be minimized. These are small but essential steps that UNM can take immediately to maintain its competitiveness for external funding.

Additional recommendations addressing current issues and goals for future development.

Special mention needs to be made of the **Museum of Southwestern Biology**, which is a unique resource as well as an integral part of the department's programs.

- Through reappointments, and the Promotion & Tenure process, the Museum should demonstrate that curatorial work is valued as a scholarly endeavor. It is noted that Museum faculty spend a considerable amount of time meeting curatorial responsibilities, seemingly without workload credit equivalent to that of teaching.
- To facilitate responsible planning, the department is encouraged to share budget data with the Museum Director early in each fiscal year.

In looking toward the future of the essential partnership between the UNM administration and the Biology department, there are several key components worth considering.

- If, as has been suggested, the President acts to use a performance-based model for budgeting, the mechanism that will be used to fund initiatives for new components needs to be made transparent. The department's 'benchmarks' in grant income and scholarly publication rates should be assessed over a 5-year basis, rather than a year-to-year basis. The administration must also understand that graduate programs and research (the generation of new knowledge) are not always best valued in the context of a "business model" (i.e., as sources of finance), but as the essence of the academic enterprise and the fuel on which strong, high quality academic programs thrive.
- We commend President Schmidly's initiatives to raise the level of donor solicitation, including endowed chairs that reside in successful departments such as Biology. We hope that UNM will invest in new efforts to attract philanthropic donations; work with the Chair and members of the Biology department to define investments (Endowed Chairs, Fellowships, and infrastructure).
- UNM should continue to seek legislative funding for sustained momentum in enhancing and renovating campus facilities and buildings, as a mechanism to facilitate continued growth in research and nurture the excellent programs that are already in place.