

Outside Review of the Undergraduate Major in Biological Aspects of Conservation

Committee members: Jean Bahr (Chair, Geology & Geophysics), Donna Fernandez (Botany), James Kitchell (Zoology/Center for Limnology), Steve Ventura (Soil Science & Nelson Institute)

Submitted 5/23/2007

Executive Summary

Review Methodology

The committee met initially with Associate Dean Herb Wang to discuss its charge and held subsequent meetings with 1) ICBE director Tom Sharkey and the ICBE Staff Mary Smith and Sarah Kuba, 2) incoming program chair Don Waller, and 3) outgoing program chair Stanley Dodson. We reviewed the program self study (Appendix A) and other materials provided by the ICBE staff (included in Appendices B and C). In addition, we developed a questionnaire for students and this was distributed to current majors via a web interface. Results of that survey are included in this report as Appendix D. The committee met several times following our interviews with faculty and staff to discuss the program and develop our conclusions. An outline of the report was created based on the questions that were posed in the charge. Each committee member took primary responsibility for writing several sections and Bahr merged these into an edited draft. The draft was then provided to Tom Sharkey of ICBE and to incoming BAC program chair Don Waller for comment. Minor modifications were made to the report in response to their comments.

Background

The self study report (Appendix A) documents the genesis, goals and growth of the BAC major. It emerged several decades ago as a practical way for undergraduates to develop a curriculum tailored to their personal interests and professional goals when those differed from the requirements of a traditional departmental major. Over the years, the BAC major expanded and developed in parallel to campus-wide additions of programs emphasizing elements of conservation biology and environmental studies. Such flexibility has been effective in the past and serves as a strong predictor of success in the future. Although we cannot foresee that future, it is clear that rising societal concerns about sustainable development and global change will invite the educational merits of a curriculum based on flexibility and an inter-disciplinary approach.

The breadth afforded to a BAC major ranges from basic biology and ecology to conservation policy. In our view, this major appeals to students who are mature, independent and capable of assembling an undergraduate curriculum that takes maximum advantage of both strong background, diversity, and relevant specialization, as well as the breadth available through an L&S major. Faculty have effectively responded to the

reality that students may not declare a major until they have sampled a diversity of alternatives in their first semesters on campus and/or as a result of transferring from other campuses. While we did hear the canard that BAC offers an easy path to a science-related major, this does not seem to be a primary motivation of students responding to surveys.

Some of the core courses offered to BAC majors are offered at the 300 level which allows the student to build a firm foundation as they move into the combination of courses that constitute a BAC major. Two examples of courses taken by large numbers of BAC majors are Extinction of Species (WI Ecol/Zoo/Env. Studies 360) and Limnology-Conservation of Aquatic Resources (Zoology/IES 315/316). Both of these are available at the sophomore/junior level and their enrollments approach 200 students each year. They form a cornerstone for many BAC majors. This is quite unlike equivalents at other campuses where such courses would be considered as advanced offerings for traditional departmental majors, have limiting prerequisites and, therefore, register very modest enrollment. Prerequisites for some 400 and 500 level courses are also less restrictive on this campus, thereby encouraging the diversity of backgrounds represented by BAC majors.

We emphasize that a hallmark of the program is the dedication of faculty participation in both curricular components and advising. This is an inter-departmental program whose participating faculty volunteer their time and effort in support of a curriculum that represents the best of a large and diverse university. The rewards to individual faculty members are less tangible than those derived from strictly intra-departmental efforts and accomplishments.

Conclusions

The BAC degree program provides unusual breadth and flexibility for students within the College of Letters and Sciences who want to pursue studies in the biological sciences. While enrollments have declined somewhat from a peak in mid- to late-90s, prior to the establishment of the Biology major, it has continued to attract healthy enrollments from a group of independent and motivated students with a range of interests. Graduates of the program pursue a range of career paths, from graduate and professional schools to field based conservation and environmental education.

Graduation surveys conducted by the program in December 2005 and Spring 2006, as well as the survey of current majors conducted as part of this review, indicate a high level of student satisfaction with the major. They find the courses interesting and well taught, appreciate the flexibility of elective options, and the opportunities for field courses.

The advising process, facilitated by ICBE staff, functions well with the advising load spread among the faculty volunteers. However, some students may not seek advising until nearly the end of their participation in the program and some would benefit from increased guidance regarding preparation for graduate study and information about research opportunities. The number of actively participating faculty is a concern; recruitment of new members is needed to maintain the vitality of the program and respond to diverse student interests and needs.

A major challenge facing the program is maintaining critical core courses when the staffing of these depends on other departments. Other curricular challenges include assuring that students have adequate training in statistics and the need for frequent updating of the list of available electives. Significant challenges are created by the fact that resources provided to the program are very limited. This severely constrains the ability of the program to develop courses or seminars specific to the major and may also negatively impact recruitment of future program chairs and volunteer advisors. A final challenge is building a sense of community among a group of students who take very few courses in common, and none that are specifically oriented to the major.

The challenges related to curriculum and to community could be addressed by the addition of one or more courses that are specifically tailored to the conservation interests of majors. A seminar and/or capstone course specific to the BAC major would provide students with a better understanding of conservation science and opportunities for graduate study and careers. Teaching release or other resources will be required to sustain this important effort.

Review

Program mission, goals, and assessment

Mission

According to the description provided on the web at <http://www.biology.wisc.edu/academic%5Fprograms/BAC/> and in handouts to prospective students, the Biological Aspects of Conservation (BAC) major is “designed to provide students broad training in biological and related disciplines most relevant to conservation. The program emphasizes basic knowledge of natural history, whole organism biology, ecological interactions, and conservation biology.” This statement is quite similar to the mission statement in the October 2006 Self Study, which specifies that the training is relevant to “conservation biology *and policy*” in the first sentence and which begins the second sentence with “This *science-based* program” (italics added for emphasis).

How is the BAC degree program meeting that mission?

The breadth of the curriculum and the wide range of elective choices that allow students to tailor the major to their particular interests are hallmarks of the BAC degree. The major requires 50 course credits, of which approximately half are in core required areas of Introductory Biology, Chemistry, Physical Environment, and Ecology and Evolution and the remainder come from longer elective lists in Species and Field Biology and “Other Electives” (which includes conservation related courses in the social sciences). The numbers of majors have dropped somewhat since a peak in the mid-90s when the field of conservation biology experienced substantial popularity. Nevertheless, the BAC major continues to attract a healthy number of majors, with fall enrollments holding fairly steady since 2000 at around 100 (see Figure 1 below from Academic Planning and Analysis, Office of the Provost).

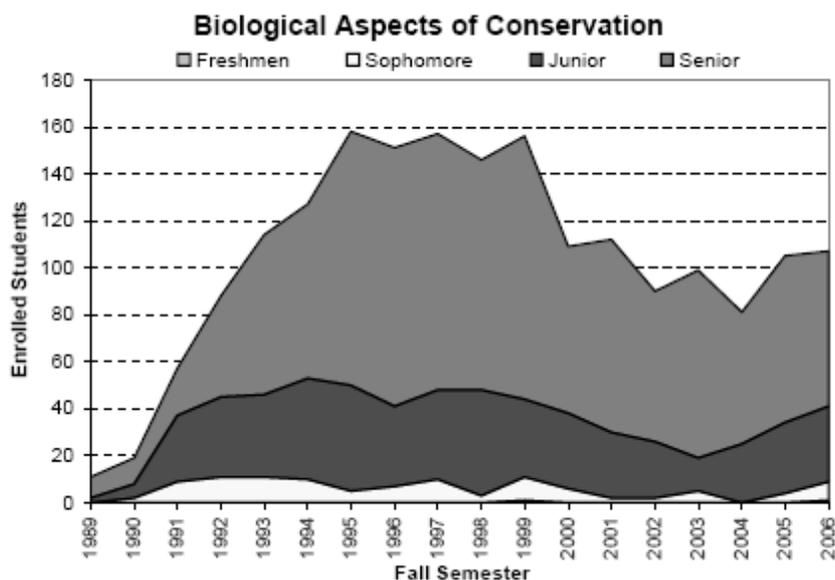


Figure 1. Number of enrolled UW-Madison Undergraduates in Fall Semesters, stacked area chart.

The number of graduates per year since 2000 has fluctuated somewhat around an average of 66 based on data available from the registrar's office at

http://registrar.wisc.edu/students/acadrecords/enrollment_reports/enrolldegreetabs.php

The relatively steep decline in majors between 1999 and 2000 coincided with the initial steep rise in enrollments in the new L&S Biology major. This suggests that some students who were attracted to BAC because it offered more breadth than Botany or Zoology are now finding their niche in the Biology major. However, the fact that BAC enrollments have now stabilized indicates that there is a group of students for whom the BAC program is still a better match to their interests than other existing majors in the biological sciences.

Where does the BAC degree program excel?

The BAC degree program provides unusual breadth and flexibility for students who want to pursue studies in the biological sciences within the College of Letters and Sciences. It has continued to attract a group of independent and motivated students with a range of interests. Many of the students are pursuing double majors. While most of these are double majors with other biological sciences such as Biology, Botany, and Zoology, there are also double majors with Geography, Art, Theater and Drama, Economics, French and International Studies. The career aspirations of current majors include ecological restoration and conservation, as might be expected given the subject matter of the major, but also extend to environmental law, science writing, and environmental education.

Student responses to the questionnaire prepared for this program review indicate that the ability to choose from a wide range of courses and the combination of biology and conservation policy are major factors in the choice of BAC as a major. Respondents also commented on the opportunities for working in the field and the ecological focus. Majors are involved in a variety of research experiences and internships, through courses such as Zoology 677 (Internship in Ecology) and Zoology 699 (Directed Study). This year, three BAC majors were awarded Hildale scholarships for student/faculty research and a fourth received a Holstrom scholarship for research with an environmental focus.

Faculty members who choose to join the program are dedicated to the mission of BAC and volunteer their time as advisors because they value interactions with the students it attracts. Their volunteer work is facilitated by excellent staff support in ICBE.

What challenges face the BAC degree program?

A number of challenges are discussed in more detail in later sections of this report, but will be outlined here. Perhaps the most immediate challenge is maintaining critical core courses when the staffing of these depends on individual departments. Other curricular challenges include assuring that students have adequate training in statistics and the need for frequent updating of the list of available electives. Responses to the questionnaire distributed to current majors indicate that the need for some improved communication about course availability, research opportunities, internships and career opportunities.

Faculty advisors and/or the ICBE program staff serve as the primary sources for such information. Continued support to website development offers some potential benefits in this area of concern.

As noted below, we offer high praise for the current level of effort and guidance provided by both faculty and staff. Significant challenges are created by the fact that resources provided to the program are very limited. This severely constrains the ability of the program to develop courses or seminars specific to the major and may also negatively impact recruitment of future program chairs and volunteer advisors. A final challenge is building a sense of community among a group of students who take very few courses in common, and none that are specifically oriented to the major.

Program Administration

Internal management

Excellent administrative support is provided by the ICBE staff. They maintain and update web site information for majors and prospective majors, assign new majors to an advisor, work with DARS staff when the curriculum is updated, and help train new faculty advisors in using DARS reports. ICBE staff also provide *ad hoc* advising by phone, email and walk-in. It appears that for some students this may be the primary contact for advising, since faculty advisor sign-off is not required for class registration.

It appears that the advising process is functioning well and the ICBE staff have managed to spread the advising load among the faculty volunteers. However, survey responses and anecdotal reports from ICBE staff indicate that some students may not seek advising until nearly the end of their participation in the program.

The program chair is largely responsible for recruiting faculty to serve as advisors and for reviewing course offerings and proposing curriculum changes to the faculty committee at an annual meeting. Neither function has been pursued with any rigor in recent years.

Assessment of Student Satisfaction

Graduation surveys conducted by the program in December 2005 and Spring 2006, as well as the survey of current majors conducted as part of this review, indicate a high level of student satisfaction with the major. The graduation surveys conducted by the program specifically asked students to rate their overall level of satisfaction with the major. Of the 26 respondents, 21 rated their satisfaction as “high” or “very high”. The remaining 5 rated it as “moderate” and none rated it “low” or “very low”.

In the recent survey of majors, a large number of respondents indicated that they found their BAC courses to be interesting and well taught. They also indicated that most courses were challenging, with the biology sequence of Botany/Zoology 151-152 mentioned by many respondents. In response to the question about whether a more focused core of required courses would be desirable, almost all the students indicated that

they highly valued the flexibility available in the current curriculum because it allowed each to design an individual path through the major.

In terms of preparation for their next career step, 15 of the recent graduates felt the major left them “well” or “very well” prepared, while 9 felt “moderately” prepared and 2 felt the major left them “poorly” or “very poorly” prepared. Approximately 25% of the recent graduates had been accepted to graduate or professional schools and another 25% were planning to attend graduate or professional school in the future after working for a year or more. Recent graduates who were not continuing directly to graduate school were successful in finding a variety of positions, including some internships, that involve field based biological and ecological research. Of the current students who responded to our recent survey, over 2/3 indicated that they are considering attending graduate school.

One recent graduate commented on the fact that the minimum requirements for the major do not necessarily match prerequisites for admission to graduate programs. The BAC “brochure”, available as a pdf file on the web does recommend a specific sequence of courses in the biological sciences as well as chemistry, physics, calculus and statistics for those contemplating graduate work. While this information is also provided through the FAQ section of the web site, it might be more visible to students if it were added to the web pages that list major requirements.

Budget and resource management

The program has very little budget or other resources to manage directly. This constraint, along with the lack of departmental affiliation where teaching assignments are made, hinders the ability of the program to consider a course or courses specifically devoted to BAC. As noted in our discussion of curriculum, a seminar and/or capstone course would be very useful both in providing students with course content specific to their conservation interests and as a means to enhance a sense of community among majors.

Relationship with ICBE and L&S Administration

For many previous years, those chairing the BAC major received 1.0 months of summer salary. That was recently reduced to 0.5 months. The current chair, Stanley Dodson, resigned in response. Apparently, that policy decision was made in order to match the compensation provided to the chairs of Molecular Biology and Biology. This reduction in compensation and its associated incentive may become a problem. Fortunately for the program, Don Waller has agreed to assume the position. ICBE provides excellent administrative support, which was one of the main challenges for the program previously. ICBE does not become involved in programmatic and curricular decisions, which are exclusively in the hands of the chair and faculty advisors. The relationship with L&S Administration is now much more indirect. The BAC chair is invited to attend meetings of L&S chairs and program chairs but has rarely done so in the past few years.

Relationships with cooperating departments and connections to other schools or colleges

The BAC program relies on a variety of departments, both in L&S and in CALS, for course offerings and for volunteer faculty advisors. The faculty are under pressure for

advising and service in their home departments and/or in the Biology major as well and may feel that they have little time to devote to BAC-only activities. This means that some advisors severely limit the number of advisees that they will accept, and the remaining advisors may become over-taxed. For long-term viability, contributions to BAC need to be recognized, encouraged and rewarded on par with all other service by home departments. It is not clear whether this is the case and it is almost certain that the faculty will be faced with competing needs at the departmental level. Some type of annual communication to department chairs and deans, acknowledging the value of the faculty member's service to the BAC program would be a useful means to make this part of their efforts more visible.

We encourage development of a capstone course for BAC students. If possible, inclusion of a field component would be a major contribution to the campus and an appropriate response to our survey results that reflect strong student interest in having more field courses. Arrangements will be necessary so that participating faculty can secure some teaching release in their home departments as they lead in the development of this new course and invest in its conduct. Cross-listing of the course would further strengthen the connections between BAC, cooperating departments and colleges.

The Departments of Wildlife Ecology and Forest Ecology and Management in CALS will be merging in the near future. Only one program advisor currently comes from these two departments, but the faculty expertise and the courses they offer are very compatible with BAC interests. Moreover, BAC was originally conceived as a cross-college degree and ICBE has strengthened instructional connections between L&S and CALS. This may be an opportune time to create a connection to the new department as they resolve mission and activities.

Challenges

Curriculum

The ICBE staff compiled a summary of courses that were taken by students graduating in the academic years 2003-04, 2004-05, and 2005-06. This is included as Appendix B. The results of this summary reveal some interesting patterns of course selection. While the curriculum offers a range of choices both in core required sequences and electives, some courses are taken by a large portion of the majors. The following is a brief discussion of these course choices by BAC majors.

For the Introductory Biology core requirement, enrollments are roughly evenly split between the "recommended" Botany/Zoology 151-152 sequence and the combination of General Botany (Botany 130) and Animal Biology (Zoology 101/102), with a slightly larger percentage opting for the latter combination. Very few recent graduates were enrolled in Biocore. The Physical Environment core requirement is distributed among a fairly large number of courses, with the most popular being one of the 100 level offerings in Geology (particularly Environmental Geology 106 and General Geology 100) and the two Geography courses approved for this requirement (Global Physical Environments

120 and Physical Systems of the Environment 127). Students are required to take at least two courses from those approved for the Ecology and Evolution core requirement. Extinction of Species (WI Ecol/Zoo/Env. Studies 360) and General Ecology (Botany/Forest/Zoo 460) stand out as the clear preferences to fulfill this core requirement.

Within the Species and Field Biology electives, the most popular courses appear to be Limnology (Zoo 315-316), Principles of Wildlife Ecology (WI Eco 318), Animal Behavior – The Primates (Psych 450), Ornithology (Zoo 520) and Ecology of Fishes (Zoo 510). Among the Other Electives, Environmental Conservation (Geog. 339) was taken by approximately 2/3 of the graduates in the last three years and about half of the graduates took either Intro - Statistical Methods (Stat 301) or Intro to Applied Statistics for the Biosciences (Stat 371).

As stated above, Extinction of Species (WI Ecol/Zoo/Env. Studies 360) is among the courses frequently included in the BAC major. The committee is concerned about its future. Originally staffed by Stan Temple (Wildlife) and Tim Moermond (Zoology) the course enjoyed substantial popularity, high regard in evaluations by students and grew to large enrollment. Both of the founding faculty have since retired, leadership moved to temporary Lecturer positions and reviews of a recent offering were mixed. It appears that the course will now be led by Lisa Naughton (Geography and IES). We view this course as a very important component of the BAC major and encourage full support for its development and maintenance.

Student surveys support our view that an introductory course in statistics would be an important component of the BAC major. We strongly encourage the BAC faculty to consider the merits of including that as a requirement of the degree program.

Budget constraints and guidance taken from the ratio of student credit hours/faculty FTE have dissuaded the maintenance of field and laboratory courses in many departments. Upper level courses in herpetology, mammalogy, field zoology, hydrobiology and invertebrate zoology are no longer offered, and the field capstone course Botany/Zoology 639-640 that has been popular among BAC students in the past has not been offered in several years. New field courses are rarely offered, limited enrollments constrain access to existing courses and several of those currently operating have senior faculty in the lead who may retire in the foreseeable future. This raises our concern about the retirement and replacement process. BAC majors offer high praise for the existing field courses and call for a greater diversity of offerings in this category. We strongly encourage the college to recognize that field course experiences are viewed by both BAC and departmental majors as very important to their education.

The BAC major would be significantly enhanced by the addition of one or more courses that are specifically tailored to the conservation interests of majors. We understand that the program faculty have discussed options ranging from a 1 credit seminar with a number of conservation speakers to a 3 credit capstone course that would involve field trips and interactions with organizations such as the International Crane Foundation,

Audubon Society, and the Prairie Enthusiasts. We strongly encourage the program to pursue development of such courses. These would provide students with a better understanding of conservation science and opportunities for graduate study and careers, and they would also help build a sense of community among the majors. We recognize that development and maintenance of a capstone course involves considerable faculty time. Teaching release or other resources will be required to sustain this important effort.

New L&S degree requirements going into effect this fall will allow student to count for degree credit up to 12 credits in any course(s) offered outside L&S, whether or not those courses have been reviewed by the L&S Curriculum Committee. This may create a possibility to add additional CALS courses to the electives list. The immediate future includes a diversity of prospects for changes in courses available to BAC majors. Among those are revision of the L&S degree requirements, merger of Wildlife Ecology and Forest Ecology, an unknown future of the Nelson Institute curriculum, plus the prospect for development of an Environmental Sciences degree program in CALS. We encourage the BAC faculty to incorporate those considerations in a regular process of reviewing both suggested electives and availability of new courses.

Advising

When the current students were polled, 20% indicated that they had never been to see their BAC academic advisor; 33% had seen their advisor once; and the remainder had seen their advisor either once a year or once a semester. Up to two-thirds of the students in this program are double majors and so it is possible that they are receiving general advising through their other major. In general, the students seemed satisfied with the level of advising they were receiving, but they also expressed reluctance to approach an advisor unless they had specific questions. Many of the students are self-directed: making decisions about courses according to their own interests and relying on a variety of other resources for career planning and learning about research and internship possibilities. The weekly e-mail from the ICBE staff was mentioned as being helpful in this regard. The students expressed some frustration at the fact that it was difficult to know if and when particular classes would be offered. At least a few students expressed interest in receiving a little more guidance regarding preparation for graduate study and information about research opportunities. Possible vehicles might be a more visible list of recommended courses for graduate preparation and a website for posting summaries of research projects recently completed or those open to students interested in independent study.

Advisor-student interactions might be encouraged if advisors took a more pro-active approach to contacting new majors rather than waiting for a student to contact them. This could be facilitated by ICBE staff providing student contact information to the advisor at that same time that the student is given the advisor's contact information.

Recruiting of program faculty

BAC currently has 11 faculty advisors associated with the program. One will be leaving at the end of this semester, two advise only students that are double majoring in their home departments, and several are nearing retirement age. Additional faculty advisors

are needed to maintain the vitality of the program and to provide students with adequate access. A total of 12-15 members, with at least 8-10 active participants, is a reasonable number given current student enrollments.

Because BAC is very flexible and a wide range of courses fit the requirements, the need for advising on coursework appears to be straightforward and not time-consuming, particularly since ICBE staff provide ample general information and are very competent at handling routine advising questions. Increasing faculty participation and advisor access is needed to provide students with campus and professional connections, internship opportunities, career advice, and so forth. Increased faculty participation will increase the odds of a good match between faculty and student interests.

The program chair should actively recruit new participants, particularly young (though post-tenure) faculty. This can be done through personal connections, contacting chairs of appropriate departments, and by noting instructors of courses central to the BAC mission. ICBE staff members have also offered to assist in the recruitment process, as they have frequent contacts with chairs and instructors.

Enhancing a sense of community among students

The review committee discussed several prospects for enhancing a sense of community for BAC majors. This would offer a way to compensate for lack of a departmental identification and increase communication among the majors. Prospects discussed included social events, a common meeting place, and a welcoming reception for newly-declared majors in each year.

As discussed previously under the section on curriculum, addition of a seminar or capstone course could be very useful for bringing BAC students together. At a minimum we recommend offering a 1-credit special seminar for BAC majors. This would bring them together for presentations and discussion by the many, diverse faculty research interests pertinent to the BAC majors. A single or rotating assignment among faculty would develop/lead the program and members of the BAC advisory committee plus other selected faculty would be scheduled for one or more presentations. Those would include a series of topical research presentations especially tailored to BAC majors, participation in discussion of those, plus a means for encouraging both communication and a sense of collective identity for the BAC faculty and students. L&S departments could make a substantial contribution to the success of BAC by supporting course release time for faculty members willing to lead this course, rather than relying on people willing to teach it as an overload.

Future Opportunities

Could the same resources be used more effectively?

Given the fact that the existing resources are so limited, it is hard to imagine how they might be used more effectively.

Are there changes that should be made to the BAC degree?

We encourage the BAC faculty to consider the merits of requiring a course in statistics as part of the major. Student interests range from focus on biological background to those emphasizing conservation policy. Across that range, a basic background in statistics would enhance the student's logic, perception of quantitative rigor and critical reasoning skills. We also encourage consideration of a 1-credit seminar for majors as discussed in a previous section of this report.

What is the relationship between the BAC major and other programs, existing or proposed, that might be attractive to the same cohort of students?

The BAC program serves a distinctive niche among campus biology and environmental majors. From the biology perspective, it can be thought of as a *liberal studies* version of a biology-related major (e.g., biology, zoology, botany, forestry, wildlife ecology). It offers greater breadth and not as much focus on advanced science and math required within the related majors. This allows students to pursue conservation and policy courses that don't easily fit in other curricula.

Currently, two other programs within L&S have an orientation to the environment: Geography's People-Environment option and the Global Commons/Global Environment option in International Studies. Although some overlap in courses occurs, neither of these programs is oriented around biology. CALS is in the process of developing an environmental sciences major. Like the other biology programs previously described, this will be distinctive from BAC in the depth of required biophysical sciences.

Campus-wide discussions, led by the Nelson Institute, are taking place about more effective coordination of undergraduate majors related to the environment. The current BAC chair has been a participant in these discussions, and the new chair should as well.

BAC depends for its entire curriculum on other departments and programs. Any new hires and new courses developed through these departments that deal with conservation science and policy will certainly benefit the program. But the program is also particularly vulnerable to loss of faculty and courses that are controlled by departments. The aforementioned merger of Forest Ecology and Management and Wildlife Ecology should be tracked closely, both as an opportunity to expand appropriate courses for BAC and to ensure that important courses such as *Extinction of Species* continue to be offered on a regular basis.

Recommendations

The previous discussion contains a number of suggestions to enhance the BAC major. These are reiterated below in three categories: courses and curriculum, program faculty and staff, and community building. Some of these suggestions can be addressed directly by program faculty and staff, but others will require support from the College and other University units.

Courses and Curriculum

- Addition of a requirement for a course in statistics to enhance the student's logic, perception of quantitative rigor and critical reasoning skills.
- Addition of one or more BAC specific courses such as a seminar or capstone, with home department teaching release or other resources provided to the lead faculty member.
- Update the web pages containing lists of major course requirements to highlight a recommended sequence of courses for students planning on attending graduate school.
- Develop a regular process for review and updating lists of elective courses (and their availability), particularly in light of changes in L&S degree requirements, the merger of Wildlife Ecology and Forest Ecology, and potential developments of environmental majors sponsored by CALS and the Nelson Institute.
- Develop strategies to support the continued offering of cornerstone courses such as Extinction of Species.
- Develop strategies to support the continued offering and development of courses that provide field experience.

Program Faculty and Staff

- The program chair, with assistance from ICBE staff, should actively recruit new participants to bring the total number of available advisors to 12-15, with at least 8-10 active participants.
- Explore strategies to make participation in the program more visible and valued in the home departments, such as annual communication to department chairs and deans acknowledging the value of the faculty member's service to the BAC program.
- Explore strategies to encourage advisor-student interactions.

Community Building

- Explore strategies to increase communication among the majors through social and educational events and the BAC seminar or capstone course recommended above.