UPIII for Department of Botany

Section I. Mission and Aspirations

Vision Statement-Department of Botany

The Department of Botany has a long and successful history of promoting plant biology. Plants are central to understanding nature at many different spatial and temporal scales. All organisms, including humans, are dependent on plants for survival. A comprehensive understanding of plant biology is crucial to the future of human societies in Wyoming and beyond. The Department of Botany has and will continue to promote vigorous and modern plant biology by engaging in forward-looking teaching and research. The Department's strength is in the whole organism and higher levels of organization in plant biology. The Department's approach is heavily grounded in, but not limited to, basic and applied research in plant biology. The Department's interests also include the interfaces of plants with other forms of life and their environment, supplying scientific expertise and education in a variety of interdisciplinary fields for the institution as a whole. These interests are realized through promotion the Rocky Mountain and W. G. Solheim Mycological Herbaria and core facilities for stable isotopes (SIF), nucleic acids (NAEF), macromolecules (MCEF) and geospatial science (WyGISC), and spearheading initiatives in computational biology and ecological modeling. Prominent in the Department's vision is the recognition that interdisciplinary research is an important key to answering longstanding and compelling questions in many areas of plant biology. The Department's numerous links to areas of distinction such as the Program in Ecology, NCAR-UW partnership, the Haub School and Ruckelshaus Institute, the Berry Center, and SER have been and will continue to be important in facilitating our pursuit of our vision.

Vision Statement-Biology Degree Program

The joint administration of the Biology Degree Program is a highly successful synergy between the Departments of Botany and Zoology and Physiology which the Botany faculty strongly supports. Botany will provide leadership in making this a nationally known program by continued improvement in the content and pedagogical delivery of the Biology Degree Program and refinement of the concentrations supporting the degree.

Action Item	Time Accomplished	Notes
1. Enhance UW's national reputation from organismal to	Entire Planning Period	Outstanding hires
ecosystem scales		
2. Launch Program in Ecology	Summer 2005	Ongoing support, see BOT-6
3. Contribute to MCLS	Summer 2006	Ongoing support, see BOT-6
4. Work toward Science Teaching Laboratory	Ongoing	Ongoing support, see BOT-9
5. Contribute to Biology	LIFE Program in 2007	Ongoing support, see BOT-6
6. Advance Yellowstone-Teton Initiative	Dr. Dan Tinker hired Fall 2006	Requires UW administration initiative

Section II: Previous Planning Accomplishments

7. Launch NAEF	Summer 2006	Ongoing support, see BOT-5
8. Develop ESS	Summer 2006	Ongoing support, see BOT-6
9. Space needs for Herbaria	Berry Center overcrowded	New BOT-10

Section III: Relevant Institutional Issues

Botany has made great strides in increasing UW's reputation at the national level in the Life Sciences through its direct support of the PiE, ENR/SENR, MCLS, and LIFE. In addition, we have made outstanding hires at the organismal to ecosystem level to support our action items in the last planning cycle. Both of these endeavors along with new action items **BOT-3,5,6** directly contribute to Motif 1: Building Depth versus adding breadth and Motif 2: Reinforcing and refining a reas of distinction--Critical areas of science and technology, environment and natural resources and life sciences. In support of our assessment goals and in conjunction with the LIFE Program, the Biology Degree Program, the School/University Partnership, and the Math/Science Teaching Center, will continue to be heavily involved in articulating with grade-, middle- and high-schools and Community Colleges across the State. Numerous Botany faculty have actively participated in helping to revamp the Wyoming State Science Standards, address the Hathaway Success Curriculum, the Student Transitions and Success Team and the annual Biology articulation with the Community Colleges to ensure that students in the STEM disciplines are successful at making the transition from high school or a non-traditional lifestyle, to a university social and learning environment. Botany faculty have been core members in articulating content and pedagogy within the LIFE Program. These activities and action items BOT-1,2,4,6 contribute to Motif 3: Promoting access to higher education--delivery and student success. A number of Botany faculty members and graduate students participate annually in the Women in Science Conference that is designed to allow young women in grades 7 through 12 to learn first-hand about careers in the STEM disciplines from accomplished professional women **Motif 3: Promoting access to higher education--inclusiveness.** Our work to enhance computational science and laboratory training through current facilities while planning for future ones (**BOT-3,4,5,7,8,9,10**) and fostering collaboration with NCAR scientists directly contributes to Motif 4: Fostering Excellence--critical areas of science and technology, ENR, Life sciences, graduate education, building excellence in human capital, professions critical to the region's future. These activities by our department represented by action items **BOT-1,4,6** directly contribute to **Motif 5: Cultiva ting leadership--professions** critical to the region, education, energy, cultivating leaders.

Sections IV: Action Items and V: Implementation

<u>BOT-1</u> Continued modernization of the Botany undergraduate and graduate curricula The Department of Botany has embarked on the most extensive rennovation of our curriculum in the last 30-years. These improvements will include continued work to increase instructional excellence budgets, exploration of increased utilization of field opportunities in the Rocky Mountain region and continued work on P-16 education innovations.

<u>BOT-2</u> Incorporate assessment into modernized undergraduate and graduate curricula The department will select appropriate assessment tools and implement these for our undergraduate minor, major, MS, and Ph.D. degrees throughout this planning period.

<u>BOT-3</u> Participate and provide leadership in development of relevant UW interdisciplinary research initiatives

- A. Conservation Biology and Berry Center
- B. Roy J. Shlemon Center for Quaternary Studies
- C. School of Energy Resources
- **D. NCAR-UW** partnership
- E. Ruckelhaus Institute

<u>BOT-4</u> Work to ac quire more Graduate Student Assistantships More GAs will allow us to be more effective at recruiting high quality graduate students, further strengthen our graduate programs, and enhance the undergraduate student experience by allowing us to expand undergraduate research and mentoring opportunities.

BOT-5 Work with the UW research community to support the University Core Facilities including Rocky Mountain and W. G. Solheim Herbaria, SIF, NAEF, Microscopy, WyGISC and MCEF The health of these core facilities is directly related to the overall health of Life Sciences as an area of distinction at UW.

<u>BOT-6</u> The Department of Botany endorses continued development and strengthening of the interdisciplinary graduate programs (PiE, MCLS, ICS, ENR) and interdisciplinary undergraduate programs (LIFE, ESS, ICS, ENR) These programs need stable, enhanced resource support, including staff, support budgets, and graduate assistantships to maintain their momentum, and provide for adequate programatic assessment and retention of students (ICS, Interdisciplinary Computational Science).

<u>BOT-7</u> Continue to develop the computational research community at UW and provide leadership in the creation of a Research Computing Initiative (RCI) This will include computer infrastructure and technical staff with academic and IT oversight.

BOT-8 Work to improve the Plant Biology Research Infrastructure Modern greenhouses, growth chambers and horticultural staff are required for competitive research in plant biology. The department will work with the research office and the Department of Plant Sciences to develop a comprehensive plan for plant growth facilities. In the short-term this will include addressing staffing needs. In the longer term, we will contribute to a plan for a modern and sufficiently spacious growing facility to support cutting-edge research in plant biology.

<u>BOT-9</u> Become directly involved in Phase-I planning for the Science Lab Teaching Facility Timing of implementation will depend on UW administration.

BOT-10 Explore ways to alleviate Department of Botany Space Congestions The department will evaluate its current space allocation in the Aven Nelson building to make sure these are utilized with maximum efficiency. For the long-term, we will engage in conversations with the Department of Zoology & Physiology, UW Administration, and Facilities Planning to develop a master plan for construction of a new Life Sciences Building.