

UW 2-13 Review Committee Report Template

Committee: <i>Life Science Reorganization</i>	Restructuring UW for the Future Recommended Action: <i>Reorganization</i>
Committee Members: <i>Brent Ewers (Botany)</i> <i>David Fay (Molecular Biology)</i> <i>Jeff Hamerlinck (External - WyGISC)</i> <i>Mark Lyford (Science Initiative)</i> <i>Amy Navratil (Zoology & Physiology)</i> <i>Urszula Norton (Plant Sciences)</i> <i>Jim Pru (Animal Science)</i> <i>Kerry Sondgeroth (Veterinary Science)</i> <i>Linda van Diepen (Ecosystem Science & Mgmt)</i> <i>John Koprowski, Chair (Haub School of ENR)</i>	Submitted to Provost Carman on: <i>1 October 2021</i>
<p>Charge: <i>“The committee will assume an advisory role in reviewing the UW Restructuring Plan, preparing a report on the proposed relocation of the Departments of Botany and Zoology/Physiology and the Life Sciences program from the College of Arts & Sciences to the College of Agriculture and Natural Resources (proposed new name: College of Agriculture and Life Sciences), including recommendations for the reorganization of the college to include multiple (~3) departments.”</i></p>	
<p align="center">Executive Summary (Limit to 250 words)</p>	
<p><i>The newly formed College of Agriculture & Life Sciences (CALs) is to join five departments from the College of Agriculture and Natural Resources (CANR): Animal Science, Ecosystem Science & Management, Molecular Biology, Plant Sciences, and Veterinary Science; and two departments from the College of Arts and Sciences (CAS): Botany and Zoology/Physiology, as well as the LIFE Program. The committee valued the diversity and unique cultures of the departments affected by this transition. After a series of committee meetings, public listening sessions and departmental deliberations, the committee proposes to establish three interdisciplinary schools that converge around agriculture/food/humans (unit 1); ecology/evolution/natural resources (unit 2) and biomedical sciences (unit 3). A newly appointed director in charge of RTP, undergraduate curriculum development, DEI initiatives and other high-level functions previously managed at the departmental level, will lead each unit. Existing departments will become “programs” within each school. Programs will retain stewardship of their own undergraduate and graduate degrees/minors/certificates. Cooperative Extension will be unaffected by this transition and will remain in CALs. Potential synergies between Cooperative Extension with outreach programs brought to CALs by departments from CAS and often funded by NSF or federal and state partnerships can create opportunities for collaborative research, teaching and service to the state. The LIFE program will also transition and be administered by CALs. Teaching in LIFE will be open to any CALs faculty. Faculty slated to move to the Center for Integrated Biological Research in the Science Initiative Building will be integrated in the CALs and management of shared resources will simplify.</i></p>	

Benefits (Limit to 1 page)

The reorganization of the life sciences into a new College of Agriculture & Life Sciences (CALs) has the potential to create synergies among already productive units with the proper levels of support and efforts to retain key aspects of unit cultures that have led to such productivity. Integrating Cooperative Extension into the reorganized life sciences has the potential to add value to the life science units moving from the College of Arts and Sciences (CAS) and their own outreach efforts can enhance extension from the College of Agriculture and Natural Resources (CANR). Opportunity to share an embedded pre-award support person in the centralized offices of the College/Schools would likely pay dividends and facilitate collaborations on large grants. We anticipate that staffing efficiencies will be minimal as most if not all administrative and student services staff would likely be moved to centralized School or College offices and laboratory management staff will remain with current research units; the same level of services will be necessary after the reorganization.

A School of Agriculture, Food and Human Systems (unit 1) would build upon a long tradition of service to the state's production agriculture and human services by retaining core functions to include cooperative extension and agricultural experiment station facilities. Such a constellation of programs would also facilitate additional collaboration to pursue emerging challenges in animal and plant sciences, food production, and assist in the future transformation of our agricultural economy. The newly organized school would also expose our undergraduate and graduate students in agriculture to a greater diversity of agricultural systems and likely expand their opportunities for hands-on, experiential learning in the rapidly modernizing fields of agriculture. Novel partnerships with industry and expanded funding through the USDA, NIH and NSF are likely outcomes.

A School of Ecology, Evolution and Natural Resources (unit 2) would bring together existing strengths in the fundamental sciences of ecology and evolution with more applied approaches to resource management and conservation. The combination of fundamental research that addresses future problems with applied research through application of existing tools to solve today's wicked problems should increase the scholarship of both research approaches and lead to more external funds from NSF and USDA as well as scholarship that benefits the state and region through workforce and economic development. Undergraduate and graduate curricula will provide our students with access to concepts, tools and problem-solving approaches directly from fundamental and applied research using active learning approaches that will be enhanced by new facilities in the Science Initiative Building.

A School of Biomedical Sciences (unit 3) would integrate strengths from the CANR in molecular biology and veterinary sciences and from the CAS in physiology and neuroscience (from Zoology and Physiology) into a single like-minded school with diverse approaches to biomedical challenges and the application of cutting-edge technologies to advance our understanding of human/animal health and disease. We anticipate this new interdisciplinary unit to continue to expand successes in federal funding especially from the NIH. Undergraduate and graduate curricula will be enriched through expanded expertise and increased diversity of model systems to be explored at the nexus of biology and health.

Organizational Restructure (Limit to 3 pages plus org chart)

Process: *The reorganization committee consisted of 10 formal appointments representing each of the 7 departments, the Science Initiative, an external member and the chair. We conducted listening sessions with the Deans of CANR and CAS, Staff Senate representative, stakeholders, student leadership, and all 7 departments (faculty/staff/department heads). Stakeholder and general feedback and suggestions submitted through the UW 2-13 site by Academic Affairs were shared with our group. Each individual departmental representative worked with their programs prior to strategic listening sessions on a series of questions asked of each unit and shared iterations of our developing thoughts. A synopsis of each department's thoughts is found as an appendix to this report.*

Names of College/Schools: *Names have important meaning in academia. Names convey with precision the disciplinary expertise at the university and capture the imagination of students that will join our community. Names attract the support of donors and highlight our service to the State for our stakeholders. While we attempted to obtain consensus on the names of our units, it became clear that more voices were necessary to represent the diversity and nuance of the life sciences. We provide tentative names and have focused our efforts on thematic unit structure. We recommend that the Dean address naming through an inclusive approach early in the implementation phase. Connecting with the UW Foundation could explore donor-named opportunities with appropriate financial support.*

Reorganization Structure: *Our charge was to reorganize 7 departments (Animal Science, Botany, Ecosystem Science & Management, Molecular Biology, Plant Sciences, Veterinary Sciences, Zoology & Physiology) into 3 units. We recommend that the reorganization result in 3 larger Schools within the new College, each coordinated around contemporary units of similar thought and function, and composed of programs that retain some autonomy (Figure 1). In some cases academic programs are similar to existing departments, and in other cases new programs that consist of a subset of faculty from multiple units. Academic programs within Schools would be the home of undergraduate and graduate degree programs (to include majors, minors, and certificates), oversee curricula, and coordinate graduate admissions and graduate teaching assistantships. To this end we map each degree to a single program in the new organization to ensure curricular continuity, minimize challenges for students and shepherd each through reorganization and implementation (Table 1).*

We suggest that the 3 interdisciplinary Schools represent 3 larger themes with names to be determined following consultation with the new college faculty, staff, stakeholders and students. One School would focus on production agriculture and people (to include faculty from the current departments of Animal Science, Plant Sciences, perhaps some agriculture-minded Ecosystem Science & Management, and potentially Agriculture Economics & FCS faculty: tentative name – School of Agriculture, Food, and Human Systems). A second School would focus on biomedical sciences (to include faculty from the current departments of Molecular Biology, Veterinary Sciences, and Physiology and Neuroscience from Zoology & Physiology: tentative name – Biomedical Sciences). A third School would emphasize

strengths in ecology, evolution, and natural resource conservation and management (to include faculty from Botany, at least a portion of Ecosystem Science & Management, and a subset of Zoology & Physiology: tentative name – School of Ecology, Evolution and Natural Resources). The committee notes that this School has struggled the most with a name and reflects faculty concern that fundamental science may be diluted in perception and reality with the reorganization. Final faculty membership in these Schools would be determined in the implementation phase and we recommend the opportunity for faculty, perhaps even from other colleges, to self-identify to what new school they might move to, especially for current departments that will be divided between Schools. We also encourage developing a process for joint appointments between Schools in order to promote interdisciplinarity, maintain current ties and facilitate greater collaboration within the new College.

Schools with paid administration (Director) would work to administer RTP processes with representation from each of their programs. Eventually undergraduate degree programs might be handled by schools, which could facilitate new degrees created by the synergies in the new interdisciplinary schools. State-funded graduate teaching assistants would need to be carefully allocated because departments have dramatically different approaches to their allocation. During implementation and adjustment of by-laws for schools, we suggest TT and NTT faculty be grandfathered into their previous process. Undergraduate degree programs would be stewarded by current academic programs until School or College structure permits a centralized approach in order to safeguard student experiences during the transition.

The LIFE Program: *The mission of LIFE is to serve UW by offering courses that are the foundation for a wide range of degree programs that impact 2,000 students from >90 majors each year. As the largest interdisciplinary educational effort at UW, LIFE is already aligned with UW's mission to provide efficient and broadly beneficial educational opportunities. Thus, preservation of this impactful program of foundational courses should be a high priority. Central in that effort should be ensuring that the Life Sciences Program has sufficient instructional capacity to provide the foundational LIFE curriculum.*

Arrangements can be advantageous in that units can use instructional contributions in the LIFE Program to motivate faculty hiring opportunities. Conversely, arrangements can be disadvantageous in that they are not enforceable and can be changed without consultation with LIFE Program leadership. If LIFE is to have sustainable success in meeting their educational mission, the program must receive support from UW leadership to develop and implement solutions to these challenges. The Life Sciences Program Director works with leaders across campus to implement ways to improve instructional stability and address challenges to the quality of instruction in the Program (e.g., partial appointments to ensure sufficient capacity to fulfill the LIFE instructional mission). This reorganization effort must protect LIFE and has the potential to integrate more life science units through formal agreements primarily under a single Dean. We recommend that the LIFE program be administered at the College level to obtain broad participation across the new College that can leverage human and financial resources.

Administrative Structure & Staffing: *College administrative structure would not need to change immediately with most administrative and staff roles remaining similar albeit with some change in duties due to loss and gain of academic departments. Some functions would become more centralized to include business office, administrative support and student services; however, such details can be completed in implementation. Migration of student services and administrative support from CAS to the new College would need coordination with loss of such support that might occur with units leaving CANR. We are unable to assess these needs given the current undetermined status of other moves to and from CANR.*

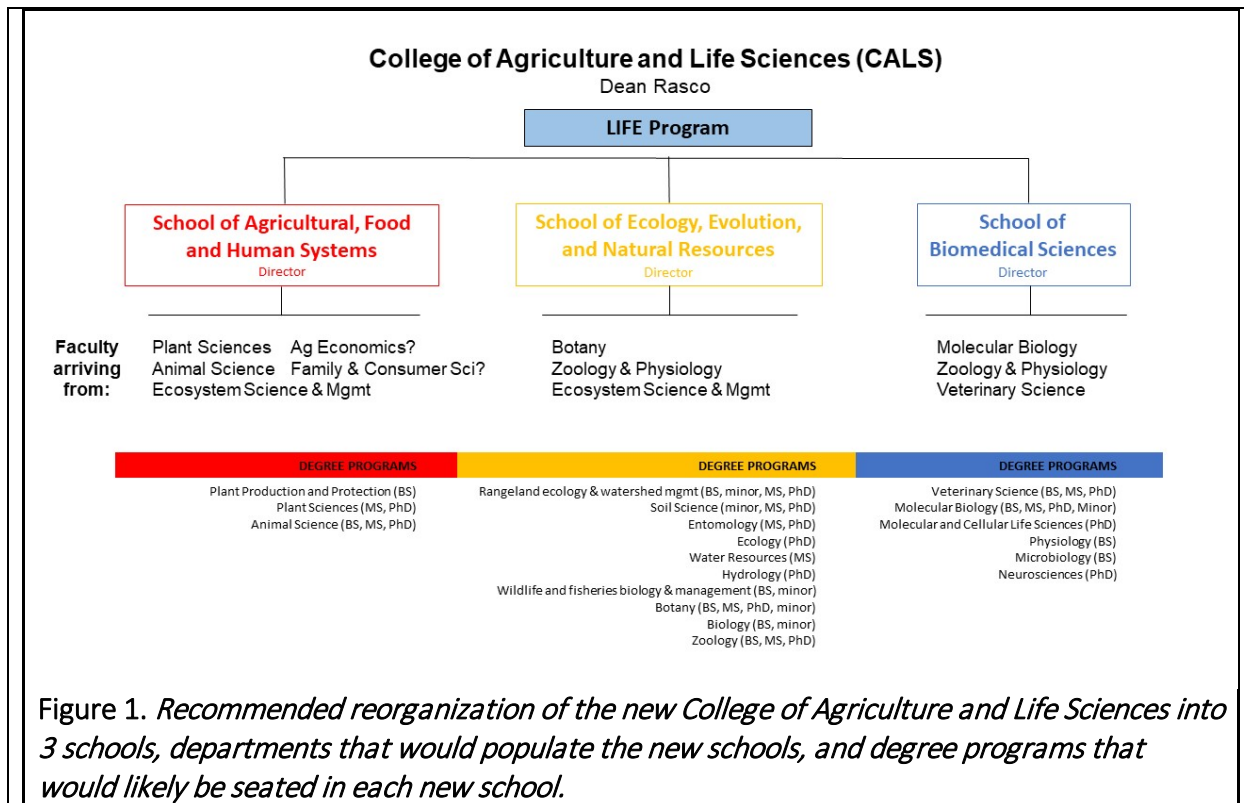
Key Service & Research Units: *The Wyoming Agricultural Experiment Station (WAES) supports fundamental and applied research on agriculture and natural resources for the Wyoming community at local, regional, national and global scales. WAES vision is to lead the UW's relevant research that stimulates profitability and diversification of the agricultural economy and the betterment of the environment, ecosystems and society. Four research and extension (R&E) centers are found in the state: Laramie R&E, Powell R&E, Sustainable Agriculture R&E (Lingle) and Sheridan R&E. Each center offers unique opportunities for research and extension (<https://www.uwyo.edu/uwexpstn/>). WAES would remain intact and continue to be administered by a director and center directors, and function across the 3 schools in CALS, while also providing potential linkages between the units.*

The Wyoming Cooperative Fish and Wildlife Research Unit (Coop) is a collaboration between the state of Wyoming, UW, and the Federal government (USGS). The Coop Unit is currently housed in the Department of Zoology and Physiology (ZP) and conducts ecological research that is essential to understanding, managing, and conserving fish and wildlife populations within the state and beyond. As ZP transitions from CAS, the Coop unit will stay intact and function within the School of Ecology, Evolution, and Natural Resources in CALS.

The Wyoming State Veterinary Laboratory (WSVL) provides animal disease diagnostic services to food animal producers, companion animal owners, and wildlife agencies within the state, region, and nation. WSVL receives >20,000 cases/yr, and is key in diagnosing disease relevant to animal and human health, including zoonotic diseases such as rabies and plague. Eleven of the veterinary science departmental faculty have significant (50%) diagnostic appointments within the WSVL. Due to the intricate relationship between WSVL and Veterinary Science, WSVL will be included within the School of Biomedical Sciences.

Natural science collections are crucial university facilities that support research, teaching and service. These include the Vertebrate Museum in Zoology and Physiology, Rocky Mountain Herbarium and Wilhem G. Solhiem Mycological Herbarium in Botany, and the insect Musuem in ESM. The administrative and budget support must be maintained in the reorganization.

No negative consequences on the Science Initiative, building support facilities or programs that serve STEM should occur as the SI is administered by ORED. One advantage will be simplified management of research faculty in the SI's Center for Integrated Biological Research (CIBR) as the majority will exist in the new college.



Efficiencies (Limit to 1 page)

No units are scheduled to be discontinued in the Life Sciences reorganization effort under regulation 2-13 process. As a result, Departments have been levied a 3% budget reduction from their base state block grant annual allocation. While challenging, we view this reduction to minimize or completely negate loss of staff or faculty positions. A few areas of efficiencies could potentially result but to achieve will need to be purposeful and may require initial investment of dollars and faculty/staff/administrative time:

Budget management and pre-award sponsored research support: While positions might not be reduced, a more centralized co-located work environment would make an embedded pre-award support position from ORED a strategic use of central administrative resources for a research rich unit like CALS.

Advising: Different models are used between the Colleges (CANR and CAS) and even departments within the Colleges. This reorganization in combination with current campus-wide discussions about a centralized first-year advising hub could provide opportunities for increased efficiencies as well as serve to provide enhanced awareness of life science degree options, minors, certificates, and career options.

Laboratory and IT equipment maintenance: *Opportunities to share staff for the maintenance of laboratory equipment and technology might create greater efficiencies for management of teaching and research laboratories, decrease downtime and extend equipment life.*

Faculty/Staff committee time: *Opportunity for collaborative shared governance in RTP processes, current departmental committee assignments, faculty and staff senate, etc. could be strategically reduced with thoughtful implementation and cooperation amongst units.*

Curricular efficiencies: *The co-location of the LIFE sciences program with nearly all of the life science units and current teaching faculty should provide opportunity for some curricular efficiencies in the introductory curriculum, opportunities to reduce redundancy of course offerings and create a larger pool of faculty that could share the teaching load of large introductory courses. College leadership will be necessary to coordinate in order to achieve.*

Potential Administrative efficiencies: *The consolidation of 7 life sciences units into 3 larger schools could result in reduction from 7 department heads to 3 School directors. Programs will need leadership to ensure degrees and graduate programs receive stewardship and a Program Chair should be appointed with a compensatory course/research/service release. Consolidation of administrative staff from the 7 units into the larger schools could result into a more efficient division of tasks by assigning a more specific workload to each staff member instead of each office associate administering every aspect of a department or degree program.*

Academic/Discipline Specific Expertise (Limit to 3 pages)

Three-unit models align well with large-scale funding such as USDA (Ag/Food & Human Systems), NSF and USFS (Ecology, Evolution & Natural Resources) and NIH (Biomed Sciences).

The Student Experience

The reorganization could “synergize” recruiting, advising and mentoring efforts and make these efforts well informed. It will ease navigating around programs offered by the college for the purpose of prospective students’ areas of declaring a major. Undergraduate advising, internship programs, career skills events, etc. can be organized at the school level (rather than redundancy among departments).

The LIFE program represents a valuable approach to an interdisciplinary introductory life science core that requires teaching contributions from several departments nearly all of which will be housed in the new CALS. The LIFE program also supports many graduate assistants and a careful consideration of synergies between graduate teaching and research is likely to lead to more scholarship and external funding of the research mission. These approaches align with President Seidel’s Interdisciplinary Pillar and these experiences are viewed as critical to undergraduate and graduate students as described by NSF and the National Academy of Science. Discussions led by the CALS Dean’s Office that result in MOUs and formal commitments to maintain the Life Sciences program, including GA allocation from LIFE and other programs, are important to reorganization.

Agriculture/Food/Human Systems Research and Teaching

The strengths of existing agricultural departments include their staunch commitment to the land grant mission, focus on natural resources and applied/production management systems, community

engagement (i.e., extension), internationally recognized scholarship, and their collaborative spirit. Programs within CANR already have an outstanding record of interdisciplinary interactions within research, teaching and extension. Establishment of CALS will only expand opportunities for interaction in all three areas because units moving into the college have strong, international reputations in research, teaching and service that complement existing CANR units. The joint undergraduate teaching program in Animal & Veterinary Sciences is an effective model of collaborative teaching to be used during the implementation phase of reorganization. Reorganization may open the door for developing new degree and/or certification programs that could be used to increase enrollment, particularly for out-of-state and international students. Further, extension is a common thread currently linking much of CANR, and there will be excellent opportunities for incoming and reorganized units to use UW Extension as a vessel for interactions with their own stakeholders. With the formation of CALS, UW will have unprecedented opportunities to compete at the national level for large institutional grants, and to develop new campus-wide initiatives that target such opportunities. As with existing institutional NIH (COBRE, INBRE) and NSF (EPSCoR) grants, current efforts seek to implement functional genomics and computational biology across broad life science disciplines that link research programs in Animal Science (agriculture), Physiology (biomedical science), Kinesiology (College of Health Sciences) and evolution (Botany and Zoology/Physiology), computational modeling (Botany, Zoology/Physiology, ESM, Molecular Biology), and ecosystem processes (ESM, Botany, Zoology, Plant Sciences). Such efforts will only be strengthened by the reorganization, and this includes the new NIH P20 COBRE grant currently being assembled. Figure 2 serves as a starting point to illustrate areas of interactions between the centralized themes of agriculture, ecology and health. It should become clear following the implementation phase where deficiencies in critical mass exist within each program, and this can be used as a mechanism for strategic decisions to grow research and teaching programs within the School of Agriculture, Food and Human Systems. Several existing CANR departments are well below the critical mass needed to be effective at teaching, research, and extension. Moreover, computational approaches in research will require collaboration and potentially cluster hires with the under-development School of Computing. While new collaborative efforts within CALS can fill some of this void through efficiencies, it is expected that growth in the form of strategic and thematic new faculty hires will be needed to strengthen existing programs.

Biomedical Research and Teaching

CANR and CAS both have strong records of successfully competing for large extramural awards from the National Institutes of Health (NIH) and other public and private health-related funding agencies. For example, nine members of the Molecular Biology Department are currently supported by nine major independent awards from the NIH alone. Importantly, the Molecular Biology faculty who hold these grants are the sole principal investigators on each of them, with several individual 4–5-year grants totaling in the \$2–4M range. Two additional members of Molecular Biology serve as permanent members on NIH grant-review panels and the department is heavily involved in the administration of the NIH INBRE award, together with Zoology & Physiology. This renewable 5-year program-project grant brings ~\$17.5M to Wyoming and funds biomedical research, critical infrastructure, new-faculty startups, and scientific training for literally 100s of students throughout UW and the state's seven community colleges (CC). INBRE has invested ~\$7.7M to build the INBRE Research Network that engages faculty and students on every community college in basic and biomedical research and created a pipeline to funnel CC students pursuing degrees in biomedical sciences to UW. In addition, the Department of Zoology & Physiology houses the university's sole NIH COBRE grant, another major program-project mechanism that specifically supports research, training, and faculty hires in the areas of neuro and sensory biology. The envisioned College of Agriculture and Life Sciences will effectively

aggregate the great majority of externally supported biomedical researchers on this campus, including all of the current faculty who administer the two NIH program-project grants. It is anticipated that the proposed new college configurations, which will bring biomedical researchers from the two colleges into closer proximity, will lead to even greater outcomes moving forward. Moreover, the further addition of biologists studying wildlife diseases, population genetics, and health–environment interactions, may foster new areas of collaboration that are relevant to agencies that fund health-related research.

Additionally, the School of Biomedical Science (BMS) would house >350 undergraduate majors (MOLB, Physiology, Microbiology, Vet Sci) and is well positioned to become the gateway for UW pre-professional health education for students aspiring to science-based disciplines ranging from human to veterinary medicine. Creation of BMS consolidates faculty expertise to create interdisciplinary teaching programs focused on discovery-based inquiry, active learning, and professional development to prepare students for success in healthcare careers. BMS teaching synergies will promote opportunities to articulate and test hypotheses; and encourage students to communicate scientific objectives, analyses, and conclusions for a robust and multifaceted undergraduate academic and research experience. Additionally, the Wyoming State Veterinary Laboratory employs >90 undergraduates; and provides opportunities for students to work with “real world” diagnostic samples under experts in animal disease, and explore emerging pathogen outbreaks. Collectively, BMS will play a critical role in the University by educating future professionals who can provide quality health care to the state.

Ecology, Evolution, and Natural Resources Research and Teaching

Similar to the success of INBRE, collaborative efforts of faculty across departments (Botany, ESM, Zoo/Phys, Chemistry, Geology, of which several would be housed under the new school of “Ecology, Evolution and Natural resources”) have resulted in successfully acquiring NSF EPSCoR awards, which have brought in several 3-5 year grants totaling \$20M (Track 1), and \$15M (Track-2). These awards have supported start-up funding for new faculty, postdoc and graduate student training across disciplines, and the start of core labs that support research across campus and the state. EPSCoR projects have highly interdisciplinary research goals, while also promoting outreach and education across the state and in collaboration with the community colleges and the sovereign tribes of the Wind River Reservation. Two of the most recent EPSCoR awards, the Microbial Ecology Collaborative and the Modelscape Consortium, have heavily invested in both the application and education of data science to understand microbial life and its link to ecosystem services, and to create predictive and explanatory models for the life sciences, respectively. This investment will enhance the digital characteristic of UW as put forward as one of the four pillars by the president. By bringing faculty members of Botany, ESM and Zoology & Physiology under one school of “Ecology, Evolution, and Natural Resources”, it is anticipated that these collaborative efforts such as EPSCoR grants will only be enhanced, and result in the training and education of undergraduate and graduate students to become professionals in data science and computing, genomics research, environmental consultants, and science communication, which are all components of NSF key priority areas. Moreover, the experience in writing and executing EPSCoR grants positions UW to lead and compete for larger NSF awards such as STCs and Mid- and Large-scale infrastructure with appropriate institutional support including clear policies and procedures to start, competitively subsidize, and sunset core facilities and institutes. The EPSCoR grants have also resulted in more than \$1 million in leveraged private gifts through coordinated efforts of the UW Foundation, Office of Research and Economic Development, and the Biodiversity Institute, so we anticipate that private giving will increase with this new School.

The School of “Ecology, Evolution, and Natural Resources (EENR)” is well placed to establish transdisciplinary collaborations across multiple schools at the University. For example, synergies exist with Wildlife Scientists, Ag extension and the Haub School to research and promote wildlife friendly agricultural practices. Additionally, Wildlife scientists and Ecologists engaging with Ag business and the

Haub School can ensure sustainable and well-managed tourism and recreation economic development to protect Wyoming's treasured ecosystems. Wildlife disease ecologists within the veterinary science department have ongoing collaborations with faculty members in the Coop, while other collaborative research projects have focused on disease at the wildlife-livestock interface. Additional opportunities occur through ongoing collaborations between hydrologists, ecologists, and evolutionary biologists to address how Wyoming citizens may adapt to ongoing climate change. Collectively, EENR brings together various ecological disciplines, evolutionary biologists and wildlife and fisheries biologists in closer proximity to basic and applied scientists in the existing CANR which creates numerous opportunities for synergy and collaboration to enhance competitiveness for external funding, address constituent issues, and enhance graduate and undergraduate education and training.

The Program in Ecology and Evolution (PiEE) is a great example of interdisciplinary graduate education, and the formation of CALS will result in the majority of PiEE faculty being housed together, with most faculty being part of the School of "Ecology, Evolution, and Natural Resources (EENR)", but also representatives in the other 2 units. Potential for synergy in research and education will be enhanced to include a mix of applied and fundamental research projects.

New Expertise. We see exciting potential within and among proposed interdisciplinary schools for increased synergy that will provide the impact desired by the Provost and President from a reorganization of the life sciences. Cluster hires, proposed by the new schools, would yield creative ideas that would foster camaraderie and facilitate a rapid shift to capitalize on NIH/NSF/USDA discovery and outreach initiatives at the nexus of Agriculture, Ecology and Health (Figure 2) as well as promote curricula for our 21st century land grant university that will provide an inquisitive, innovative, and well-educated workforce and citizenry.

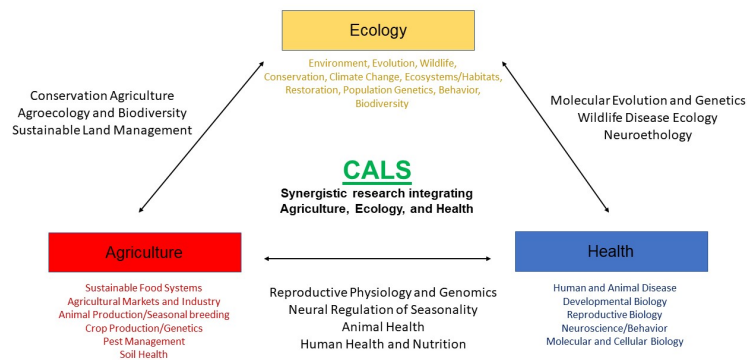


Figure 2. Potential synergies among schools in the reorganized CALS. Opportunities are exciting; however, strategic investment is necessary to maximize and sustain high levels of synergism.

Unintended Consequences, Mitigation Strategies, & Suggestions for Alternative Approaches (Limit to 2 pages)

Unintended Consequences. Among the myriad of considerations in the reorganization, the notion of primum non nocere – first do no harm, should be at the forefront. Some departments are among the most successful at UW with respect to extramural funding, high-impact scholarship, graduate PhDs, and international reputation. Other departments are notable for many of these qualities and for extraordinary teaching and 'land-grant' service to the state. In moving forward, it will be critical to maintain and expand upon these achievements and core missions. Factors critical to enable

departments to build unique successful programs with high standards for both education and research include:

1) Continued control over indirect cost spending. In addition to driving research and supporting students at all levels, extramural grants serve to bring considerable indirect costs (ICs) to the university, a small portion of which (~15%) are returned to departments. Such departmental ICs are critical for: (i) Maintaining and acquiring new departmental equipment and infrastructure that is essential for research and education; (ii) Assembling competitive startup packages for new faculty, without which departments would no longer be able to recruit top candidates and remain successful; and (iii) Supporting a myriad of scholarly and educational functions including external seminar series, fostering research collaborations, supplementing university laboratory courses, and providing professional-development opportunities and a safety net for graduate and undergraduate students. Changes brought about by reorganization must leave ICs intact for the affected divisions or departments. Moreover, the recent update to Unireg 9-2 continued the department allocation of IC return and emphasized much of the logic above to maintaining department autonomy of IC returns.

2) Continued control over hiring practices. Success of a department can largely be attributed to its approaches for hiring and mentoring faculty. Top departments at UW have consistently sought and hired the best candidates – new faculty whose expected accomplishments are deemed likely to exceed those of the current group - an essential philosophy for success that will be the lynch pin for UW's goal to achieve Research I (R-I) status. Changes brought about by reorganization must not negatively affect faculty division or departmental hiring practices and their resultant continued upward trajectories.

3) Continued control over standards and expectations. The affected departments have all cultivated a supportive atmosphere in which high-level instruction and scholarship are the norm. Notably, these cultures have been thoughtfully developed over time, are unique, and are understood to apply specifically to given fields. To maintain these cultures, it is essential that individual divisions or departments continue to set and enforce appropriate high standards for the promotion and tenure of faculty and for student requirements and advancement. Changes brought about by reorganization should not alter, dilute, or otherwise confound current expectations that have proven to be effective and appropriate. To do so would erode departmental cultures, morale, and progress towards R-I status.

4) Stable maintenance of job descriptions. Faculty in different departments/colleges can have vastly different expectations for teaching, advising, research, and outreach work. Importantly, all faculty hired to date signed on because their job descriptions were compatible with their career goals and skill sets. They also signed on to work collectively with a group of colleagues that held similar values and goals. Changes to job descriptions, expectations, or environments resulting from forced mergers run a high risk of forcing top faculty to look for positions elsewhere, something that is already an epidemic.

5) Stable maintenance of support staff. Faculty are only one component of what allows a successful department to function and thrive. Equally important are the support staff who administer complex grants and budgets, facilitate teaching and outreach, directly aid students and university personnel, and conduct tasks essential to the daily functioning of a department. In many cases these staff also possess invaluable institutional memory. Changes brought about by reorganization should not separate existing staff from their home departments nor should this exercise be viewed as a means to reduce staff positions as previous cuts have already left departments operating at the very margin.

6) Scholarships, donations, endowments. Most donors had specific requests for departments and/or programs when setting up scholarships/donations/endowments. These requests must be honored moving forward or we risk losing current and future support.

7) Stable maintenance of successful degree programs. Current degree programs are administered at the department level, and the associated courses have been developed and adjusted over many years based on skill sets needed by students for professional jobs. Faculty that teach within each degree program were selected based on their expertise which would allow them to give students a well-

rounded education in a specific field. Over the past 10-20 years we've lost faculty that contributed significantly to these core teaching missions, which have not been refilled, resulting in courses being taught less regularly or faculty with an overload of teaching. To continue providing the best education for our students, while at the same time making progress towards R-I status, will likely require additional personnel. This may include supplemental teaching faculty who can alleviate some of the high course loads, providing faculty with sufficient time for research and student-training activities.

Mitigation Strategies and Implementation. The key to preventing potential harm caused by the reorganization – and to capitalize on these new organizational structures as a means for continuous improvement and community building – will be to allow affected departments to work closely with each other and with college leadership during the critical implementation phase. Ultimately it is this diverse collective of committed community members that possess the relevant working knowledge, wisdom, and vision needed to make the projected reorganization a functioning reality. Current and new members of CALS should be shown trust and provided with sufficient leeway in the many pending decisions including unit substructures and leadership, budgets, staffing, degree programs, and extension, along with a multitude of other details. The success of implementation will depend on thoughtful, transparent, and strategic discussion with an inclusive approach to implementation committee membership.

While we have matched all degree programs and certificates to academic programs and mapped each on the recommended reorganization charts, interdisciplinary programs like LIFE, PiEE, and Microbiology will need special stewardship to retain their widely accepted value and current high level of function. The opportunity to move beyond cross listed courses through courses offered at the school level might further promote interdisciplinarity, collaboration, and simplify the undergraduate student experience.

Paths to Synergy and Excellence. Assuming that synergy is a goal of the reorganization process, we believe it prudent that a pool of financial resources be directed to the reorganization to support faculty and staff-generated ideas to be incorporated during the implementation phase. We trust the creativity of our academic community to propose mechanisms to facilitate reorganization efficiencies, foster collegiality and hasten development of new collaborations. Given our present financial austerity and the concomitant loss of faculty, we suggest a call for creative cluster hires that would promote strategic planning across schools and encourage thoughtful partnerships to integrate cultures and build momentum to sustain synergies. Cluster hire competitions also provide opportunities to increase DEI; we would suggest that additional funds be allocated for diversity-based hires within clusters.

A current strength of both CANR and CAS faculty is their outreach and service efforts to the state, region, and world through Cooperative Extension (ANR) and a variety of mechanisms in CAS including NSF-funded Broader Impacts, state and federal partnerships such as the Wyoming Cooperative Fish & Wildlife Research Unit, and NIH-INBREs and NSF-EPSCoR's outreach and support of Wyoming's community colleges and the sovereign tribes of the Wind River Reservation. While some philosophical differences in the approaches to outreach and service exist between faculty who primarily identify with fundamental or applied research, the goal is the same: communicate and involve communities directly in the benefits of science and research to society so that decision making and human lives are improved. We thus see clear synergies in between cooperative extension, NSF-based broader impacts, and NIH-INBRE programs into a wholistic outreach and service approach within CALS, with clear external funding opportunities, including private support, that may arise from collaborations between these groups.

Other

Table 1. Academic unit location of current life science degrees involved in the 2-13 Life Sciences Reorganization. Current primary departments will maintain stewardship of academic degree/minor/certificate programs through the transition and shepherd each through the reorganization and implementation process.

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College of Agriculture and Natural Resources	Current Primary Dept	Current Secondary Dept
Major		
• Agroecology, B.S.	PSD	
• Animal and Veterinary Science, B.S.	ANSCI and VETSCI - joint	
• Animal and Veterinary Science, Communication Option, B.S.	ANSCI	
• Animal and Veterinary Science, Meat Science & Food Technology Option, B.S.	ANSCI	
• Microbiology, B.S.	MOLB and VETSCI - joint	ESM
• Molecular Biology, B.S.	MOLB	
• Rangeland Ecology and Watershed Management, B.S.	ESM	
Minor		
• Agroecology Minor	PSD	
• Equine Science Minor	ANSCI	VETSCI
• Forest Resources Minor	ESM	
• Horticulture Minor	PSD	
• Insect Biology Minor	ESM	
• Insect Biology/Entomology Graduate Study Minor	ESM	
• Molecular Biology Minor	MOLB	VETSCI
• Plant Protection Minor	PSD	
• Rangeland Ecology and Watershed Management Minor	ESM	
• Reclamation and Restoration Ecology Minor	ESM	
• Soil Science Minor	ESM	
Graduate		
• Animal Science, M.S.	ANSCI	
• Animal Science, Ph.D.	ANSCI	
• Ecosystem Science and Management/Applied Economics, Ph.D.	ESM	
• Entomology, M.S.	ESM	
• Entomology, Ph.D.	ESM	
• Hydrology, Ph.D.	ESM	
• Molecular Biology, M.A.	MOLB	
• Molecular Biology, M.S.	MOLB	
• Molecular Biology, Ph.D.	MOLB	
• Molecular and Cellular Life Sciences Ph.D.	MOLB	
• Plant Sciences, M.S.	PSD	
• Plant Sciences, Ph.D.	PSD	
• Rangeland Ecology and Watershed Management, M.S.	ESM	
• Rangeland Ecology and Watershed Management, Ph.D.	ESM	
• Rangeland Ecology and Watershed Management/Water Resources, M.S.	ESM	
• Soil Science, M.S.	ESM	
• Soil Science, Ph.D.	ESM	
• Soil Science/Water Resources, M.S.	ESM	
• Veterinary Science, M.S.	VETSCI	
• Veterinary Science, Ph.D.	VETSCI	
• Water Resources, M.A.	ESM	
• Water Resources, M.S.	ESM	
Certificate		
• Reclamation/Restoration Ecology Graduate Certificate	ESM	
College of Arts & Sciences		
Major		
• Biology, B.S.	BOT	
• Biology, Ecology and Evolution Concentration, B.S.	BOT	
• Botany, B.S.	BOT	
• Wildlife and Fisheries Biology and Management, B.S.	ZP	
• Zoology, B.S.	ZP	
• Physiology, B.S.	ZP	
Minor		
• Biology, Minor	BOT	
• Botany, Minor	BOT	
• Human and Animal Physiology Minor	ZP	
• Wildlife Fisheries Biology Management Minor	ZP	
• Zoology Minor	ZP	
• Neuroscience Minor	ZP	
Graduate		
• Botany, M.S.	BOT	
• Botany, Ph.D.	BOT	
• Zoology and Physiology, M.S.	ZP	
• Zoology and Physiology, Ph.D.	ZP	
Interdisciplinary Programs		
• Hydrology, Ph.D.	Independent of any degree	ESM, BOT, ZP, GEO, CIVIL Eng contribute
• Life Sciences		MOLB, ZP, BOT contribute
• PiE		ZP, ESM, VETSCI, BOT, PSD, ENR, GEO, AgEcon

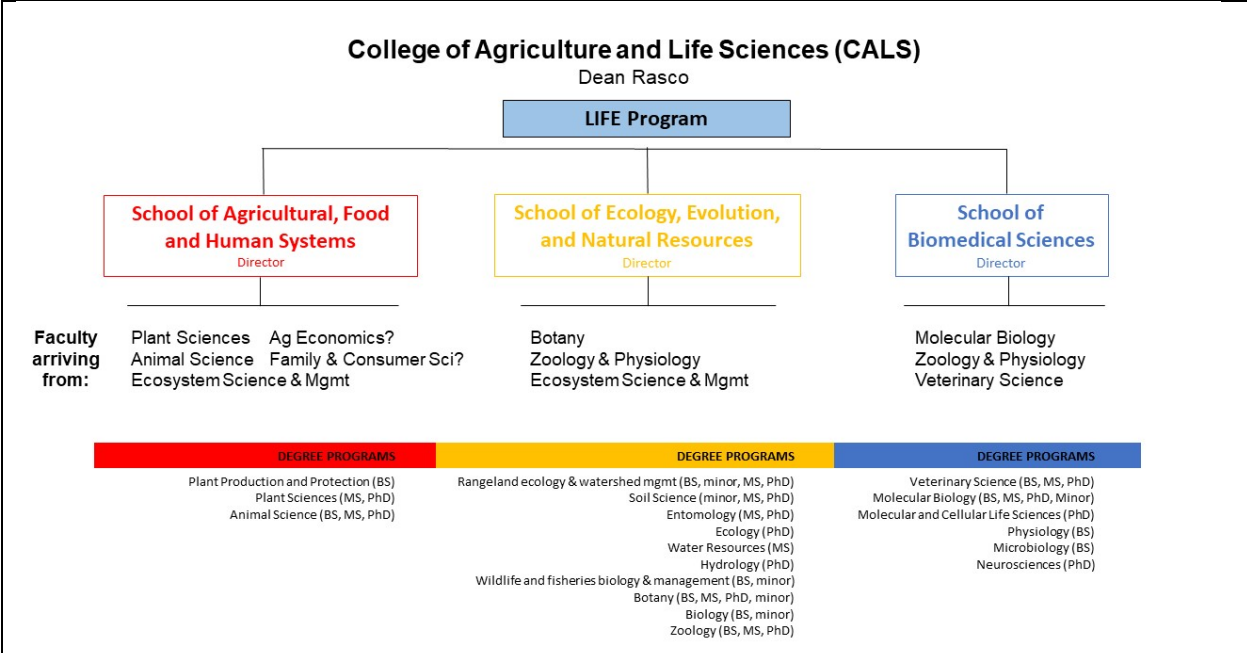


Figure 1. Recommended reorganization of the life sciences into 3 schools, departments that would populate the new schools, and degree programs that would likely be seated in each new school.

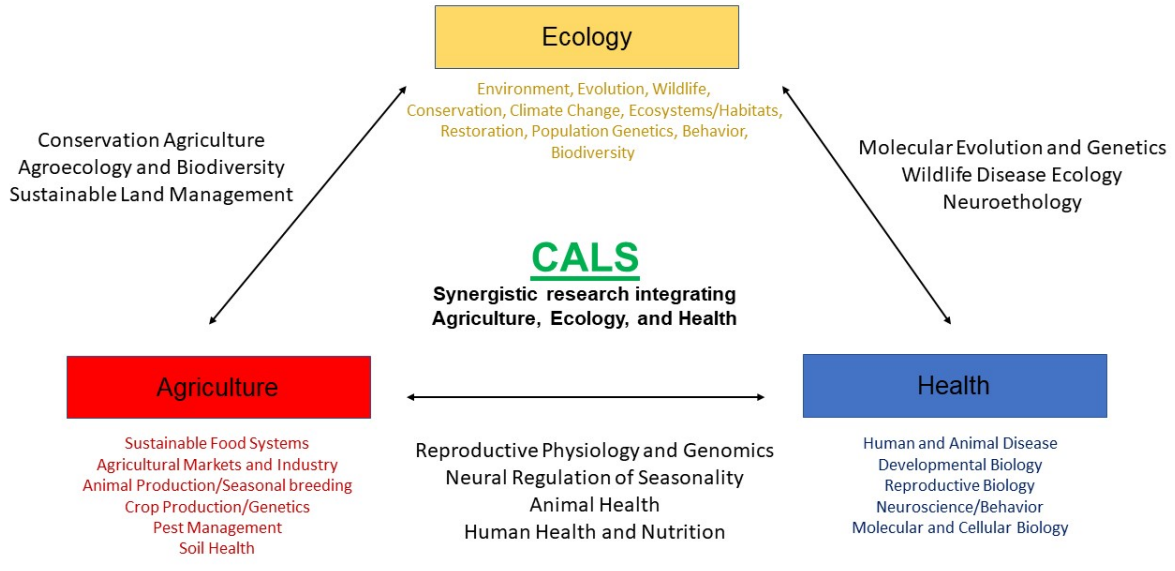


Figure 2. Potential synergies among new schools in the reorganized life sciences. Opportunities are exciting; however, strategic investment will be necessary to maximize and sustain high levels of synergism.

Appendix A to H – Unit-authored Department Synopses and Answers to Guiding Questions.



UNIVERSITY
OF WYOMING

College of Agriculture
and Natural Resources
Animal Science

Uniqueness of Animal Science Culture:

The applied research conducted within the department focused on livestock production and management, most of which is supported through Extension programs, commodity agreements, and federal funding sources, offers one of the strongest opportunities for UW to engage with and share new and timely research findings with Wyoming stakeholders. Such engagement efforts in Animal Science offer perhaps the clearest example of how UW is maintaining its land grant mandate. A second unique feature of the department is the many experiential learning opportunities that it offers undergraduate and graduate students. These outstanding hands-on experiences are elevated further by a robust internship program that gives students real-time opportunities to learn animal production and management practices, obtain meat and food science skills, and directly network with industry stakeholders. Animal Science research labs are deeply committed to providing additional undergraduate student opportunities to apply information learned in the classroom to novel research questions. In contrast to many other departments, our graduate program offers broad training opportunities that span the applied:basic research continuum. Further, our various faculty-driven research programs, which are supported by a diverse funding portfolio, offer unique training in both agricultural and biomedical sciences. The diversity of research approaches and programs is respectfully embraced and fostered by all members of the department.

New Reorganizational Structure:

Animal Science supports the addition of Botany and Zoology & Physiology in the new College of Agriculture, (Natural Resources) and Life Sciences. Animal Science believes that a two-tiered system that includes three to four major units/schools/zones, each with subordinate but autonomous divisions is appropriate. Given our unique culture, it is essential that Animal Science maintain control over our undergraduate and graduate curricula, new faculty hires, research focus, and at least some oversight of academic advising as this becomes centralized on campus to ensure healthy maintenance of a strong Animal Science program in an agriculture college at UW. The question of whether or not this would offer a cost savings was briefly discussed in the department with a similar overall conclusion as anyone might expect (*i.e.*, no cost savings). At least one, and possibly two, unit/school/zone(s) should be dedicated to agriculture that includes both applied and basic research in agriculture production systems and food science. While a focus on research is viewed as important, Animal Science robustly discussed the importance of agriculture production at UW and around the state of Wyoming. One proposed name for the unit/school/zone is **Agricultural and Food Sciences**. The department was disappointed that Extension was not considered as part of the charge of the 2-13 Life Sciences Reorganization Committee given that efforts in Animal Science are split about 1/3 teaching, 1/3 research, 1/3 Extension. Many of our experiential learning opportunities and our vigorous internship program that supports undergraduate training, as well as our applied research programs, derive from Extension efforts in our unit.

Major Concerns and Unintended Consequences:

- Loss of institutional focus on agriculture despite being housed within a College of Agriculture; a dilution effect and institutional focus on chasing research grants at the expense of applied science and stakeholder engagement.
- Loss of agriculture visibility needed to recruit both undergraduate and graduate students into our program, as well as new faculty – an issue of lost identity and the inability to properly “brand” Animal Science programs due to reorganizational dilution and administrative failure to invest in agricultural sciences.
- Loss of outstanding experiential learning opportunities, particularly for our undergraduate students. Animal Science is second to none in offering hands-on experiences and internship opportunities. This is a major component of what makes Animal Science unique. These changes may especially influence the role of academic professionals within the department. Academic professional positions are heavily composed of teaching, extension/4-H, and coaching within Animal Science. A loss of value and integrity of these programs would be especially detrimental to academic professionals while potentially influencing the future promotion of individuals in these positions.
- Loss of focus on agriculture production systems and applied sciences, as well as stakeholder interactions due to chasing research dollars.
- Loss of a “home base” that is uniquely grounded in both applied and basic research and agricultural production systems. This, in turn, would deteriorate meaningful relationships with commodity groups that help drive and fund research, Extension, and internship programs in Animal Science.

Benefits and New Opportunities:

- More resources (*i.e.*, capital, equipment, and personnel) from which to draw.
- Increased opportunities for collaboration to enhance fundability in our unit.
- With more collective resources in the College, there may be better opportunities for attracting new faculty hires.
- Better opportunities to offer conjoined courses with other units/divisions in life sciences.
- Real opportunities exist to expand Extension through interactions with other disciplines in the new College.
- Opportunities to expand certification programs and interdepartmental degree “options.”



Botany Department Mission, Goals, and Strengths

The mission of the department is to achieve excellence in biodiversity science through innovative research, teaching and outreach in ecology, evolution and systematics. Our goals are to 1) grow our reputation and lead the intellectual community at UW and beyond in biodiversity science and 2) enhance life sciences undergraduate education to address workforce needs and build pathways to professional opportunities.

The Department of Botany traditionally maintained strengths in plant and fungal taxonomy, systematics, physiology and ecology and has expanded since 2005 strengths in evolutionary biology, computational biology, statistical and process modeling, remote sensing and cutting-edge undergraduate education. Faculty in the department are highly successful scholars who publish in the top international journals, win substantial external funding, vigorously support graduate education and train postdoctoral scholars (Table 1). Our faculty helped to create the largest, most innovative and successful undergraduate teaching program at UW, LIFE. This centralized teaching program delivers introductory and advanced life sciences courses supporting degree programs and curricula for 2000 students per year from across the entire UW campus. Botany faculty now deliver about 1/3 of the instruction in LIFE, accounting for 5,170 student credit hours taught 2017-2020 (more than 50% of Botany's total student credit hours).

Table 1. Scholarly activities of Botany faculty.

Scholarship Products	2015 – 2020 Total Count
Published refereed articles and book chapters	332
Grants awarded as PI or CoPI	91
Grant dollars awarded	\$85,411,194 ¹
Private fundraising-dollars	\$412,000
Graduate and postdoctoral training	Current number of trainees (2021)
Graduate assistants	27
Postdoctoral fellows	11

¹Includes both individual research grants and large institutional grants where Botany faculty have served as PIs or Co-PIs/Core Directors (NSF EPSCoR and NIH INBRE). These institutional awards, each funded at \$17-20 million dollars, contribute substantial infrastructure in the form of support for new faculty hires, establishment of core facilities, and training of undergraduate and graduate students.

Departmental Degree Programs and Learning Goals

The department administers the Botany BS and Biology BS degrees. The Biology BS program includes an optional Concentration in Ecology and Evolution and serves a very large number of UW students (total 924 enrolled students and 171 degrees granted 2015-2020). The Biology BS

degree program also maintains a concurrent major offered through the College of Education whereby students fulfil all the major requirements for Biology on top of their requirements for the BS degree in Secondary Science Education with a major in Biological Sciences Education (<http://www.uwyo.edu/ste/secondary-education/undergraduate-programs/science-education/index.html>). Approximately 15% are on this Education degree path. The Biology major includes 2+2 articulation agreements and pathways for students attending any of the 7 community colleges in the state. Besides supporting Botany PhD and MS grees, Botany faculty play large roles in interdisciplinary PhD programs: Program in Ecology, the Hydrological Sciences and the Molecular and Cellular Life Sciences.

Departmental Faculty and Resources

The department has occupied the Aven Nelson Building since 1960 and has grown from 8 in the 1990's to 19. Twenty five percent of faculty have joint appointments highlighting the interdisciplinarity of the department's teaching, research and outreach efforts. Of the 19 current faculty members, there are: 9 Full Professors, 2 Associate Professors, 3 Assistant Professors, 2 Senior Academic Professional Research Scientists, 1 Senior Academic Professional Lecturer, 1 Associate Academic Professional Lecturer and 1 Assistant Academic Professional Lecturer.

Most of the Botany research faculty will move their labs to the new Science Initiative (SI) Building upon its completion in spring 2022. The SI Building will house state-of-the-art instrumentation (e.g., micro-CT scanners, NMR spectrometers, high throughput phenotyping) and capabilities for advanced plant growth studies (fully controllable growth chambers and research greenhouses). Other research facilities available to Botany faculty, students and postdocs include research core facilities for biogeochemical and stable isotope analysis, DNA sample prep and sequence data analysis and high-performance computing.

The most prominent and enduring research facility housed within the Botany Department is the Rocky Mountain Herbarium housed in the 3rd floor of Aven Nelson since 1960. The Rocky Mountain Herbarium is recognized internationally as the most important herbarium specializing in plants of the Rocky Mountain region and boasts the largest curated collection of vascular plants among public institutions between the Missouri Botanical Garden Herbarium to the east and the Jepson Herbarium at the University of California Berkeley to the west. The Herbarium, the 10th largest publicly funded herbarium in the US, celebrated the addition of its millionth specimen in 2020. The study of fungi (mycology) traditionally is organized with the study and teaching of botany, and the department has earned international recognition for research in mycology. Professor Wilhelm G. Solheim, Botany department head from 1931 to 1950, was widely recognized for his work on plant-parasitic fungi. His extensive collection, expanded by notable mycologists in the department, is now the W.G. Solheim Mycological Herbarium. The Rocky Mountain Herbarium and the Solheim Mycological Herbarium are foundational university facilities supporting fundamental and applied research, teaching and outreach, focused on societal grand challenges in biodiversity, agriculture, and earth system change.

The department maintains a living plant collection in the Williams Conservatory (WC), which is a greenhouse and laboratory on the south side of the Aven Nelson Building. The WC was built in 1994 and serves the research, education and outreach mission for the department. The collection includes over 600 tropical, neotropical, temperate and arid species from around the world spanning broad taxonomic diversity from non-vascular cryptogams, ferns and fern allies, gymnosperms and flowering plants. The WC is heavily used for teaching in the Life Science Program as well as other non-science courses in the visual arts. We are fortunate to have a full-

time greenhouse coordinator supported on state monies to manage and maintain the greenhouse facility and living plant collection.

Botany Department Answers to Life Sciences 2-13 Committee Questions

1. How do you envision the structure of the new college with the knowledge that existing departments will be combined into 3-4 units (i.e. schools /divisions /departments /concentrations, etc.) with the possibility of some subunit structure? Compose a diagram.

Botany faculty propose the formation of a new basic and applied life science department: Ecology, Evolution, and Biodiversity Science (EEBS). This proposal has the support of all Botany faculty and has been positively received by other departments and programs containing faculty with similar interests. The vision, mission, benefits, and risks associated with the proposal are included in the document previously seen by the committee and appended to this response.

With the information currently available to us, it appears premature to recommend additional organizational structures, including any above the department level. More time is needed for careful consideration of the pros and cons of aligning faculty and degree programs in different configurations. This will allow us to take maximum advantage of potential benefits of reorganization and mitigate potential adverse impacts.

2. What values/considerations are most important for your department in the restructuring effort to form the College of Agriculture and Life Sciences?

Botany faculty emphasize the importance of maintaining the following aspects of our current department:

- The ability to pursue our departmental vision, which incorporates a commitment to conducting basic research and engaging in high-quality education.
- Department expectations for the RTP process.
- Our academic and financial commitments to our current and future graduate students.
- Our commitments to support department facilities (e.g., Williams Conservatory, Rocky Mountain Herbarium)
- Our focus on active learning and research opportunities for undergraduate students, especially underrepresented students.
- Our collegial and supportive departmental culture.
- Our commitment to fostering diversity, equity, and inclusion.

3. What are your major concerns in the transition process? Please identify potential drawbacks or adverse impacts on your current unit.

General disruption to a high-functioning department - Botany faculty are nationally recognized, highly competitive and successful researchers, exceptional educators, and fundamentally interdisciplinary in their academic approach. Our faculty perform extraordinarily well as a unit and are capable of attracting the nation's top graduate students, postdocs and new faculty to our ranks. While academic reorganization has potential benefits, it also can be disruptive and potentially weaken units that are already performing at the highest level and are adapting successfully to the vision for UW's future. We ask that such threats be recognized and mitigated during this exciting time of re-envisioning the University of Wyoming.

Threat to success of undergraduate degree programs - It is essential that reorganization establishes clear administrative ownership of undergraduate degree programs and does not undermine their success. Our department not only provides discipline-specific coursework in Botany but administers the BS in Biology degree. This program serves a very large number of

UW students and provides a thorough foundation in biology and other supporting areas of science and mathematics. Student demand for our BS in Biology program is strong, and based on predicted growth data, this is likely to continue. Botany is successfully administering this large-enrollment program and is best suited to continue doing so because of: (1) our past and current administration experience, (2) our substantial contributions to the LIFE program which is central to the Biology degree, and (3) the diverse teaching and research expertise of our faculty.

Threat to viability of graduate degree programs - It is not currently clear whether UW will provide additional graduate education resources after reorganization, and this uncertainty together with lack of clarity on the distribution mechanism for graduate assistantships, is one of the faculty's principal concerns. This could be mitigated by improved institutional communications regarding graduate student support. In our disciplines, research and teaching excellence is impossible to sustain without sufficient graduate assistantships and an equitable and carefully considered allocation mechanism. A greater institutional investment in graduate assistantships is arguably the most likely route to achieving R1 status (currently we support more than two graduate students from grants for every graduate student supported by state funded teaching assistantships), due to the amplifying effect of this investment on research productivity, graduate student recruitment, and graduate student completion.

Adverse impacts on junior faculty - We are concerned about disproportional adverse effects of reorganization on untenured assistant professors and early-career APLs. Potential negative impacts include the time burden associated with reorganization planning, disrupted RTP processes, and likely logistical hiccups in administrative support, especially accounting. All of these affect junior faculty at a time when they should be focused on the accomplishments needed for a successful tenure, promotion, or FTRC decision. Mitigation of these impacts could include grandfathering of department-level RTP processes and minimizing requests for junior faculty to serve on committees working on restructuring (while at the same time ensuring their views are represented).

Disruption of faculty recruiting priorities - Strength attracts strength, and Botany has successfully recruited new faculty who continue to elevate our stature and capabilities, especially in emerging areas of the life sciences, including genomics, computation and data science. This success is due in large part to a shared vision and a logical prioritization process for request of future positions. Reorganization that involves unit consolidation will necessarily disrupt this process.

Disturbance to departmental culture - Reorganization could disturb departmental cultures, which differ in their formal and informal expectations for faculty, staff, and students, their approach to governance, and their professional atmosphere. All of these cultures can allow successful pursuit of a unit's academic mission, but they each require individuals to understand and cooperate with the prevailing culture. Merger of units with very different cultures will inevitably be disruptive, affecting productivity and morale. This could be mitigated by adoption of a longer timeline for reorganization, and appointment of academic leaders equipped to manage this somewhat intangible, but nevertheless very important, aspect of reorganization

Disrupted staffing support: Botany currently receives administrative support from a shared life sciences staff center (LSSC). While the launch of this model has been associated with its own struggles, we appear to be moving into a phase of effective working relationships between faculty and administrative support staff. Breaking of these nascent relationships through reorganization, especially involving loss of staff FTEs, would reduce productivity and morale. Transferring the A&S administrative staff who currently work with the life sciences faculty into the new college would increase staffing efficiency. This would leverage the strength of existing

working relationships between these faculty and staff and mitigate the adverse impact (unsustainable workloads) of current Ag college administrative staff having to support the new incoming faculty.

Lack of information on resources to support reorganization - Adverse impacts described above will be magnified if sufficient resources are not provided to support this large and complex transition. Resources that would strengthen the success of the reorganization include dedicated academic leadership e.g. appointment of an Associate Dean to oversee reorganization) and teaching release for current department heads and other faculty heavily involved in the reorganization process.

4. Do you have any name suggestions for the new units in the restructured College of Agriculture and Life Sciences?

Other than our proposal of an EEBS department, we do not have additional name suggestions. Please see response to #1 above.

5. What potential benefits and new opportunities do you see coming from the consolidation process? How could this process potentially strengthen your existing department and the people within it?

Potential improvements in educational programs - Reorganization could provide opportunities to integrate efforts of Ag and A&S faculty who are developing graduate programs and certificate offerings that support data science training such as quantitative methods, spatial ecology, and data science/bioinformatics for natural resource professionals. Processes such as peer teaching evaluations could be strengthened, with a larger selection of excellent instructors to provide feedback. There could also be increased research opportunities for undergraduates, both through one-on-one mentorship and through courses. We'd have a larger pool of creative thinkers close at hand to collaborate with as we develop new opportunities for undergrads. Adding new experts with new perspectives has many potential benefits. Several of the faculty in the proposed reorganization are people with whom we have past or ongoing collaborations. The reorganization process could take steps towards the oft-repeated goal of breaking down silos across campus.

Strengthening extramural research funding in the new college - The proposed incoming life sciences units would bring additional research expertise and a track record of successful grantsmanship in ecology, evolution, and biodiversity sciences. Institutional support for maintaining and enhancing excellence in these areas will position the new College well to take advantage of future funding opportunities from federal agencies.

Expanded opportunities to address the needs of the state, and community engagement - Reorganization could provide opportunities to better address the needs of the State.

Incorporation of new disciplines (A&S life science units) increases the diversity of academic expertise, allowing the new College to address a broader set of State needs. For example, understanding how plants, wildlife, and environmental microbes contribute and interact to promote ecosystem health has important consequences for agricultural management and ecological tourism. Similarly, basic research in biomedical sciences, such as answering fundamental and important questions in cell or developmental biology, paves the way for future clinical interventions to improve the health of Wyoming residents with chronic or infectious diseases.

Reorganization could also offer exciting opportunities to extend ongoing community engagement efforts of Botany and Z&P faculty and students through art-science outreach to K-12 schools and the general public. Many of these efforts are already state-wide and would

benefit from intercalation with Ag Extension activities and administrative structures. Likewise, CANR and A&S life sciences faculty and students are actively involved in programs to increase diversity, equity, and inclusion in the sciences, including collaborations with the Wind River Reservation. These efforts could be more coordinated in the new college structure.



ESM Reorganization Synopsis

1. How do you envision the structure of the new college with the knowledge that existing departments will be combined into 3-4 units (i.e. schools /divisions /departments /concentrations, etc.) with the possibility of some subunit structure? Compose a diagram.

We've discussed both 4 and 3-unit systems as possibilities for the restructuring.

The main units would be divided up into an "Agriculture unit" focused on food production, both plant and animal science (as well as Ag Econ and FCS). In some original unit schematics rangeland management was part of this "Ag" unit. The second unit would be a "Biomedical unit" focused on molecular and cellular biology, physiology and neuroscience. The third unit (or third and fourth unit) would focus on Ecology, Evolution, and Natural Resources, which was voiced as an appropriate home unit for the majority of our faculty, in particular with 'Natural Resources' as part of the name to reflect the rangeland and water resources component of the undergraduate degree. The main difference between the third and fourth unit would be the scope of research, with one unit more focused on the larger scale systems (potentially including "Earth Systems" in the unit name), while the other unit would focus on smaller scales and the organism level. A potential concern for a 4-unit system is having our Department split between those 2 units as many faculty would identify with both units, while a potential concern for the 3-unit system is the large unit size as it would contain ESM faculty, Botany, and the Zoology group from the current Zoo/Phys Department (see concern listed under 3). We envision extension being part of each of the 3 (or 4) larger units, and can provide additional linkages between these units.

2. What values/considerations are most important for your department in the restructuring effort to form the College of Agriculture and Life Sciences?

Research & Extension

- ESM is a multidisciplinary group (soils, rangelands, forest system, water, insects, wildlife), and we want to keep this multidisciplinary nature, which also aligns very well with the 'interdisciplinary' pillar put forward by the president.
- Ensuring our applied natural resource disciplines (entomology, rangeland ecology, soils, watershed management, and wildlife habitat) stay intact and produces applied research that is translational through our extension faculty to stakeholders throughout our state and region.
- Applied research often originates from fundamental research, and our current department represents that mix of applied and fundamental research, which should be maintained without diluting either.
- Maintaining the entomology graduate degree, which is important for the agricultural mission of the university. Entomology research plays an integral role in sustainable crop production as well as rangeland management.

Degree program

- Maintaining our undergraduate degree program in Rangeland Ecology and Management (largest in US and with accreditation), and the ability for students to qualify for OPM 0454 (Rangeland Management Specialist) positions with federal agencies (e.g, BLM, Forest Service, NRCS), while also maintaining our student training for federal positions such as wildlife biologist, botanist, ecologist, hydrologist, soil scientist.

3. What are your major concerns in the transition process? Please identify potential drawbacks or adverse impacts on your current unit.

Degree program

- Ensuring our current degree program continues to have accreditation, i.e. retain faculty that can teach classes in rangeland ecology and watershed management. We have lost many faculty throughout the past 10-15 years, and only half of them were replaced, resulting in some classes not being taught by professors and the Department Head teaching additional courses.
- If we want to move towards an R1 institution, we need to have a better balance of research and teaching. One suggestion for a better balance, and to be able to continue to teach all the required courses for our degree program, is the hiring of teaching faculty to teach the majority of base level courses, and have research faculty teach the upper level courses, in which they can incorporate examples from their own research.
- Ending up with a lopsided organization where student interests in majors are not aligned with faculty interests in units. For example, at Texas A&M they recently merged Ecosystem Science and Management with Wildlife. The outcome was a ‘Conservation Biology’ department with the majority of faculty and a ‘Rangeland, Wildlife, and Fisheries Management’ department with the majority of students.
- Concerns about dilution of the professional skill sets and KSAs related to rangeland management degrees (not specific to UW). These conversations also come up with NRCS and BLM; these agencies hire, specifically, students who qualify for the 454 series, and they explicitly do not want to broaden qualification for rangeland specific jobs to include the more general 401 series (general natural resources and biological series) or soil science and related series (470, 458, etc). If they want a 401 or 470, they announce as such.
- Creation of new degree programs should be done with considerations of existing programs, and faculty involved in teaching required courses within that program should get the appropriate credit.

T&P

- Tenure and promotion requirements cannot be treated the same among groups with different job descriptions and different histories. The transition as well as the outcome needs to consider consequences for individuals from the different colleges and different departments. Equity must be considered among groups at all times - what is fair, what is respectful? The impact of past teaching loads on career research productivity will need to be considered in future promotions.

Faculty, Staff and Administration

- Additional administrative layers: By merging several current departments into larger units such as schools, these will need to be administered beyond the capacity of a department head. Degree programs will move with departments, also needing some type of administration. Currently,

faculty in departments and their programs report directly to their Department head who reports to the Dean, but with the new organization into larger units, the faculty part of a program would have to report to the program director as well as the school director before reporting to the Dean.

- We have concerns about CPM - how do we restructure so that different units and also different emphases (plants, animals, ecology, etc.) receive fair shots at new hires in the future?
- We have concerns about losing staff members, which already is at a minimum. We have had a lot of turnover in our staff, often caused by the high workload for too little pay. With higher number of faculty in units, staff members may again need to take on more work. In addition, over the past several years faculty has had to take on additional tasks (e.g. accounting, PR, etc.), which is all on top of our regular job descriptions, and has negatively affected the morale of the faculty and staff.

Transition to new units

- It will be essential that individual faculty are given the freedom and opportunity to self-identify with, and join, whichever new unit they feel most affinity with.
- New unit names should correctly reflect the ongoing research by faculty and have logical links with the degree programs. The process of final selection of these names should be transparent and in collaboration with all levels involved, from (graduate) student to faculty, staff and stakeholders.
- No budgets are moving from A&S with the Botany and Zoo/Phys departments merging with the new College. This will result in the dilution of the budget of the other departments involved, which is already very tight.

4. Do you have any name suggestions for the new units in the restructured College of Agriculture and Life Sciences?

See also Q1. Inclusion of “Natural Resources”, “Ecology”, “Ecosystem Science”, “Earth System Science” in the ‘middle’ unit name was received positively by the majority of ESM faculty, while “Biodiversity” received less support, as this aspect runs across multiple units. It was suggested to remove the word “Agriculture” from the “Ag Unit”, as agriculture is an important aspect of research and degree programs across all units. Suggested alternatives are: Crop or Animal Science.

5. What potential benefits and new opportunities do you see coming from the consolidation process? How could this process potentially strengthen your existing department and the people within it?

- The opportunity to build more nimble and compatible groups and have a less fractured community of faculty. For example, a more dynamic group of people working on applied aspects of livestock and wildlife management on rangelands that incorporates Animal Science, Rangeland Management, etc. This might align nicely with the new Ranch Management program.
- The chance to rename or adjust our degree programs so the public, the students, and the Legislature better understand our mission and our appeal.
- Increased use of AES research stations by faculty outside of current ANR college
- Better access to facilities such as AMK, animal research facilities (Red Buttes, 5th floor Biological Sciences).



UNIVERSITY
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College of Agriculture
and Natural Resources

Molecular Biology

Overview of Department.

The Department of Molecular Biology consists of 14 faculty (12 tenure-track and two AP-teaching) with broad research interests. Our department vision states that by *recognizing and embracing the rapidly evolving nature of biological research, we will create a diverse cohort of trainees with the skillsets necessary to address important biological challenges facing our global society*. Current faculty are exceptionally well funded, consistently placing this group at or near the top of research faculty at Wyoming. Currently, 11/11 research-active faculty in the department have extramural funding from, e.g., the National Institutes of Health (NIH; 10+ grants totaling \$9.7M), the National Science Foundation (NSF: 3 grants totaling \$1M), the United States, Department of Agriculture (USDA: 2 grants totaling \$0.8M) and Defense Advanced Research Projects Agency (DARPA: 1 grant totaling \$4.5M). The department is also highly productive with respect to scholarship, with recent publications in journals including Science, Nature, Nature Chemical Biology, Developmental Cell, Proceedings of the National Academy of Sciences, and eLife.

Educationally, our departmental mission is to *provide students with the education and research experience needed to excel in biological research and biotechnology-related fields*. The Molecular Biology program provides students with the education and research experience needed to excel in biological research and biotechnology-related fields. The emergence of molecular biology has blurred the distinctions previously drawn between biochemistry, microbiology, genetics, zoology, and botany by identifying the many common, unifying principles that are the essence of all life forms. The department's goals are to (i) introduce students to these principles, (ii) to create a diverse cohort of trainees with the skillsets necessary to address important biological challenges facing our global society, and (iii) to undertake fundamental research to extend the frontiers of biology. In addition to offering undergraduate and graduate degrees in Molecular Biology, the department contributes to programs such as LIFE, Microbiology, and WWAMI medical training. At an administrative level Molecular Biology has led or co-led programs including the Molecular & Cellular Life Sciences (MCLS) PhD program, the Science Initiative, and the NIH Wyoming INBRE program project grant.

General concerns regarding reorganization.

We believe that the incoming A&S life science faculty will add strength and breadth to our college along with welcome new ideas, expertise, and energy. From our perspective, the consolidation of life scientists into one college makes sense and will enhance interactions. At the same time, we believe it imperative that the CALS reorganization support and accommodate key elements that have enabled the Molecular Biology department to be highly successful for >40 years. These factors have been essential to building and maintaining our departmental culture, infrastructure, and outstanding staff, and are tightly linked to our teaching and training missions. These factors will *continue to be critical* to our future success as researchers, instructors, entrepreneurs, and members of the UW community.

Specifics concerns.

1) Return of indirect costs. Molecular Biology is among the most successful departments on campus at bringing in competitive external grants from federal and private agencies. In addition to funding research and supporting students, these grants serve an additional important function in that a portion

of the indirect costs (ICs) are returned to the department (15%). These funds are critical to multiple departmental functions: (1) ICs support our external seminar series, which bring in top scientists from around the country each week. In addition to fostering scholarship and research collaborations, the seminar series functions as an integral course and professional-development opportunity for graduate and undergraduate students, who directly engage with speakers each week. (2) ICs are critical for maintaining departmental equipment and infrastructure that is essential to our research. Without such funds research would not be possible. (3) ICs are essential for assembling competitive start up packages for new faculty, without which the department could no longer recruit top candidates and remain successful. (4) ICs provide a safety net for students in need of support.

2) Control over faculty hiring. The success of Molecular Biology can largely be attributed to its hiring practices. The department has consistently sought and hired top candidates whose expected accomplishments are deemed likely to exceed those of the standing faculty. On more than one occasion the department has terminated faculty searches when remaining candidates were projected to fall below this benchmark. The faculty of Molecular Biology are strongly committed to this hiring philosophy as we understand it to be essential to our future success and upward trajectory.

3) Control over faculty expectations, tenure, and promotion. The Molecular Biology department has cultivated a supportive atmosphere in which high-level instruction and scholarship are the norm. To maintain this culture, it is essential that the department continues to set and enforce appropriate high standards for T&P. Altering expectations would irreversibly undermine departmental culture and significantly erode progress of the university towards R1 status.

4) Maintenance of teaching and advising loads. Current departmental teaching and advising assignments are compatible with our expectations for research accomplishments, external funding success, and professional progress. It is safe to say that none of the current faculty would have taken positions at UW had teaching assignments been appreciably higher. Nevertheless, departmental faculty are fully committed to both classroom and laboratory instruction. In particular, the ability of Molecular Biology faculty to provide students with up-to-date coursework and cutting-edge research opportunities is directly attributable to the department's research success. Molecular Biology students receive training equivalent to that at top national universities and are fully prepared to succeed after leaving UW.



UNIVERSITY
OF WYOMING

College of Agriculture
and Natural Resources
Plant Sciences

Plant Sciences Department (PSD)

Overview

- PSD supports the 3-unit split as proposed in the most recent version modified by BOT;
- This split aligns well with the sources of large-scale funding, such as USDA (Ag/Food and Human Systems), NSF and USFS (Biodiversity and ESS) and NIH (Biomedical Sciences) with some possible exceptions as well;
- The proposed model will help fuse cross-collegial cultures and will support the T&P processes currently in place.
- It also aligns well with teaching and outreach responsibilities carried out by faculty in different departments. Examples include Extension, LIFE Program, Etc.
- School of Agricultural, Food and Human Systems seems like a good name for the unit where PSD is proposed to be aligned with;
- To ease concerns voiced by some, individual units (schools) could function as separate coops and not as units led by a director. Such model could provide a framework of joint leadership reporting to the dean and avoid additional level of administrative burden;
- PSD offers UG degrees in Agroecology, soon to be changed to Plant Production and Protection with many concentrations, and MS and PhD degrees in Plant Sciences. Formation of new/novel cross-disciplinary minors and degree concentrations within the college is viewed as a great opportunity;

Potential Synergies

- **Recruiting:**
 - The reorganization could lead to way to “synergize” recruiting, advising and mentoring efforts.
 - Ease at navigating around programs offered by the College for the purpose of prospective students. If interested in Agriculture, the student would know where to find the information, and recruiting could then highlight the different types of Ag programs within a given school. Same with other disciplines

- **Advising and mentoring:**
 - o Undergrad advising, internship programs, career skills events, etc can be organized at the school level (rather than a bunch of departments redundantly doing the same things).

Opportunities

- **School-level coursework:**
 - o Moving beyond cross-listing classes, if such a reorganization moved forward, we could consider offering classes at the school-level. For example, COM2 and COM3 courses, FYS, other project-based courses with an interdisciplinary lens to:
 - 1) better represent ag and food systems and
 - 2) to teach skills classes of more general interest

Challenges/Questions

- **Rangeland management IS agriculture** - it would be confusing to be a student interested in Rangeland Management;
- Some of the current ESM faculty may view themselves as fitting within a natural resources/conservation;
- Does ESM being in the Biodiversity and ESS unit mean all of the current ESM faculty go into that unit? If not, where does the REWM degree go? Similar questions about the Zoo/Phys degrees?



Introduction to the Department of Veterinary Sciences

The mission of the Department of Veterinary Sciences is to provide quality animal disease diagnostic services; conduct research that impacts animal and human disease; and deliver instruction and experiential learning for students, veterinarians, and citizens of Wyoming, the Rocky Mountain West and beyond. The department comprises 13 faculty, 23 staff, and 1 research scientist. A major component of the department is the Wyoming State Veterinary Laboratory (WSVL), which provides animal disease diagnostic capabilities to the state and nation. Another key aspect of the department is the UW Biocontainment Facility (UWBF), which comprises biosafety level 3 (BSL3) research and diagnostic facilities required for working with regulated infectious pathogens that are common in Wyoming including those that cause plague, brucellosis, and Q-fever.

Wyoming State Veterinary Laboratory

The WSVL provides animal disease diagnostic services to food animal producers, companion animal owners, and wildlife agencies within the state, region, and nation. Eleven of the departmental faculty have significant (50%) diagnostic appointments within the WSVL. Most of the staff have 100% WSVL appointments. The WSVL faculty are experts in veterinary pathology, virology, bacteriology, parasitology and, toxicology. The WSVL receives >20,000 animal disease accessions a year. The WSVL is accredited nationally by the AAVID (American Association of Veterinary Laboratory Diagnosticians), and is also a tier II NAHLN laboratory (National Animal Health Laboratory Network). This involves being certified and prepared to respond on short notice to a foreign animal disease outbreak on US soil (eg. Foot and Mouth disease, African swine fever, etc). WSVL faculty work closely with the WY Public Health Department (WPH). Diagnosis of zoonotic infections in animals [eg. rabies, tularemia, plague, salmonellosis] is reported to this agency to support human disease control and prevention. The collective expertise in high volume animal disease diagnosis and genetic testing, as well as our existing quality management program, positioned us well to be of assistance during the COVID-19 pandemic. We continue to provide high throughput surveillance and testing for UW employees/students, and residents of Albany county; in addition to our normal animal testing caseload.

Departmental Research

Departmental faculty have research expertise that centers broadly on infectious disease of domestic animals and wildlife. We study infectious disease from the molecular to landscape levels. We have two endowed chairs within our department: the Wyoming Excellence Chair in Disease Ecology, and the Riverbend Endowed Chair of Wildlife-Livestock Disease. Current/long-term impacts of our research includes new diagnostic tests for animal diseases, new management approaches for conserving wildlife species and preventing disease spread, and the possibility of new or improved vaccines for animals diseases. We collaborate widely across UW departments. Our most numerous collaborations are with the Departments of Zoology and Physiology, and Animal Science; others are with Botany, Molecular Biology, Ecosystems Sciences and Management, WWAMI, and Chemical Engineering. We also have research collaborations with the Wyoming Game and Fish Department, wildlife agencies in other states and a number of Universities in the U.S and abroad. The UWBF provides new capacity and

opportunities for working with federally regulated select agents. This will enable us to compete in new areas of research that are not accessible to investigators at many other institutes, and to address relevant challenges in Wyoming.

Teaching

Our faculty provide major instructional contributions to undergraduate ANVS and microbiology majors. Departmental courses offered are in areas including virology, pathogenic bacteria, parasites, immunology, disease ecology, mechanisms of disease, equine health, food animal diseases and two FYS courses. We have graduate students in the ANVS and PiE degree programs. Other instructional activities include mentoring pre-veterinary students for success in applying and attending veterinary school following their undergraduate degree, contributing to required continuing education of veterinary practitioners, and animal producer talks. In addition, we have many experiential learning opportunities for undergraduate students through part time positions in the WSVL, and through engagement in diverse independent research projects funded through INBRE, Wyoming Research Scholars, the department, and other external funding sources. Undergraduates are an integral part of our research and veterinary diagnostic medicine missions.



Department of Zoology and Physiology
1000 E. University Ave., Dept. 3166
Laramie, WY 82071

ZOOLOGY AND PHYSIOLOGY UNIQUE CULTURE AND PARTNERSHIPS

Faculty and Research Depth: The Department of Zoology and Physiology (ZP) is a diverse group of Faculty that make up the *largest and most integrative academic department* at the University of Wyoming, with 27 faculty that generate ~\$3,000,000 in extramural research funding yearly. ZP's multi-faceted structure places a strong emphasis on collaborative, basic, applied, and inter/transdisciplinary approaches. Our work spans the full range of biological organization from molecules to ecosystems and encompasses wildlife management, conservation biology, ecology, organismal biology, ecosystem science, neuroscience, behavior and physiology. Our combined research is synergistic and produces novel understandings of how biological systems function and interact across different scales of organization. Through numerous research and internship experiences our students experience the frontiers of scholarship and become prepared for the complexities of an interdependent world. *Our faculty lead 3 NIH IDeA infrastructure programs* (WY INBRE, Sensory Biology COBRE, and MW Clinical and Translational Research-Infrastructure Network).

Wyoming Cooperative Fish and Wildlife Research Unit: ZP hosts the Wyoming Cooperative Fish and Wildlife Research Unit whose ecological research is essential to understanding, managing, and conserving fish and wildlife populations within the state and beyond. Through this collaboration, our faculty and students conduct research to address key informational gaps in conjunction with agency cooperators pertaining to wildlife species of concern and their habitats. Examples include documenting migration corridors for ungulates, establishing temperature guidelines to protect fish populations, and investigating the effects of a wide variety of human-induced habitat changes on sensitive species.

Teaching Depth: ZP offers three *high-enrollment* undergraduate degrees (500+ total majors): Zoology; Physiology; and Wildlife and Fisheries Biology and Management. M.S. and Ph.D. degrees in Zoology and Physiology also are offered (60+ graduate students). *Collectively, ZP addresses critical needs of the state and region by training students for natural resource management and human health care professions.* Our faculty are major contributors to teaching in the LIFE Science Program and also teach in the WWAMI Medical Education program. Our teaching also has strong collaborations across campus, including transdisciplinary efforts involving Art- Science integration, History of Medicine, and scientific communication.

BENEFITS OF ZP REORGANIZATION INTO CALS

- ZP sees opportunity to reinforce and build our existing interdisciplinary capacity by creating novel thematic research clusters across the college.
- ZP anticipates improved efficiencies in teaching by reducing course redundancy and creating larger pools of faculty able to teach high demand courses.
- The reorganization will allow ZP to modify/expand existing degrees to create novel, relevant in-demand curricula for students including transdisciplinary courses (eg., natural resource management, bio-engineering, computer sciences/artificial intelligence) that prepare students for future jobs. Additionally, ZP could develop new grad offerings (4+1 MSc degree in Physiology, MSc degree in Science Communication), and certificate programs (quantitative methods, spatial ecology, and bioinformatics) for natural resource professionals.
- Wildlife scientists (both terrestrial and aquatic) working with Ag extension, colleagues in the Ag and Haub Schools to research and promote Wildlife friendly Ag practices.
- Wildlife scientists working with Ag business and Haub School to better inform tourism/recreation economic development.
- Physiology and Neuroscience would have enhanced opportunity to interact and collaborate with MOLB and Vet Sciences to establish a larger critical mass with potential to enhance external funding, opportunity to serve the state (ag/wildlife disease research, diagnostics, epidemiology, etc.), and increase intellectual property potential and economic development. The Interaction also provides opportunity for development of research teams/foci that could result in additional NIH IDeA COBRE proposals in the future.

CHALLENGES TO ZP WITH REORGANIZATION INTO CALS

Like every other department in the reorg, ZP has concerns of cultural incompatibility within the newly formed Units. ZP also seeks to retain autonomy over faculty hiring decisions and have appropriate returns of indirect costs to Units/Faculty.

ZP Specific challenges:

- ZP is one of the most productive and integrative departments on campus. Dividing ZP across multiple units and diluting its success is counterintuitive to the models the 2-13 committee is asked to form (divisions that are larger and more integrative). In particular, splitting the current ensemble of faculty working in wildlife, conservation, ecology and evolution into separate units/divisions would reduce the collaborative research that has made us one of the top wildlife/ecology programs in the country. Such as split is backward looking and does not represent the cutting edge of wildlife biology, ecology, and evolution.
- Our department has a long and respected history and stands on the shoulders of many prominent alumni who hold important positions in natural resource management, education, and human health care throughout the state and the Rocky Mountain region. ZP's loss of visibility and identity is concerning for our stakeholders and donors.
- Based on our prolonged excellence, ZP has established a substantial pool of Scholarships and Endowments. If ZP is split across multiple units, separating out scholarships and endowments poses a significant challenge to the department. For example, the Clarke Fund is not easy to assign to a single unit.
- It is unclear how the Life Sciences Business Center integrates in CALS. There is a tremendous amount of institutional memory that will be lost if the business center is assigned exclusively to the Biomedical or Ecology unit hampering overall faculty productivity.
- It is unclear how our current departmental TA's will be split. This is a huge issue because about 1/3 of ZP grad students are supported by TAs in any given semester. While some TAs will follow particular courses such as for physiology or wildlife courses, we have a large number of TAs associated with the Life Science courses (gen biology) that could go with either the biomedical or the ecology units.
- It is unclear what happens to our shared departmental facilities such as the 5th floor vivarium and the Red Buttes Laboratory. Will they be assigned to the Biomed and Ecology units, respectively? That could reduce access for faculty placed in other units.
- It is unclear how consistency in faculty teaching loads and centralized advising will work within CALS.
- We have concerns about the significant challenges in creating Retention, Tenure and Promotion standards across large units and divisions. We feel faculty should be given the choice to be grandfathered under their current structure or adopt the new standard of the unit (if more advantageous).



The mission of the Life Sciences Program is to serve the University by offering excellent and broadly relevant courses that are the foundation for a wide range of degree programs. LIFE educates approximately 2,000 students each academic year, serving students in over 90 majors spanning all schools and colleges except the College of Law (24,508 student credit hours in 2017-2020). As the largest interdisciplinary educational effort at UW, it is already closely aligned with the mission of the University and the goal of providing efficient and broadly beneficial educational opportunities. Thus, preserving this broadly beneficial program of foundational courses should be a high priority as we consider how to implement reorganizational plans. Central in that effort should be ensuring that the Life Sciences Program has sufficient instructional capacity to provide the courses that compose the LIFE curriculum. Presently, the LIFE Program consists of a team of approximately 60 faculty instructors, graduate instructors, and staff, but LIFE has only one faculty member with an appointment in the Life Sciences Program (Dr. Michele Larson). The remaining team members are drawn from departments spanning the College of Arts & Sciences, the College of Agriculture and Natural Resources, the College of Health Sciences, and UW Casper. Those contributions are obtained through informal arrangements negotiated by the Program Director and leaders of those departments and colleges. In the past three years (2018-2021), LIFE has populated its instructional needs by receiving 41 instructors from 6 departments across 4 colleges and UW Casper. These instructors have included faculty (80%), postdoctoral researchers (5%), and graduate students (15%). Instructional contributions come primarily from the College of Arts & Sciences, with 33 faculty instructors (80%) coming from A&S, 1 faculty (2.5%) from the College of Health Sciences, 1 faculty (2.5%) from the College of Agriculture and Natural Resources, 1 faculty (2.5%) from the Honors College, and 5 faculty (12.5%) from UW Casper. These arrangements can be advantageous in that departments can use instructional contributions in the LIFE Program to motivate faculty hiring opportunities. These arrangements can be disadvantageous in that they are not enforceable and can be changed without consultation with LIFE Program leadership. For example, instructors can choose to no longer serve in the way that was previously arranged, and the responsibility for replacing that lost capacity is borne by the Life Sciences Program rather than by replacement from the department or college that is vacating that position. This lack of formalized contributions to the LIFE Program can lead to instability of instructional capacity and failure to develop experience and expertise in essential courses that are broadly beneficial to degree programs across the University. If the Life Sciences Program is to have sustainable success in meeting their educational mission, it is imperative that they receive support from UW leadership in developing and implementing solutions to this recurring problem.

LIFE is closely dependent on graduate students for instruction in laboratory and discussion sections, but LIFE has no graduate students in their Program. Over the last four years, LIFE has populated its instructional needs by receiving 114 different graduate instructors from 12 departments and one interdisciplinary program across 4 colleges. As in the case of faculty instruction, graduate contributions come primarily from the College of Arts & Sciences, with 65 students (57%) coming from A&S, 25 students (22%) coming from the College of Agriculture and Natural Resources, 20 students (17%) coming from the

College of Health Sciences, 4 students (4%) coming from the College of Engineering. This arrangement is advantageous in that LIFE receives a diverse group of graduate instructors and our partner degree programs receive support for their students. This arrangement is also limiting in that LIFE has no input regarding the quality or continuity of instructors that they receive, and their partner programs have only two years of assured support with which they can seek to grow their graduate research programs. The Life Sciences Program Director (Dr. Jonathan Prather) is working together with leaders across campus to implement ways to improve instructional stability and address other challenges to the quality of instruction in the Program (e.g., partial appointments to ensure sufficient capacity to fulfill the LIFE instructional mission).