Name of proposed new unit: Department of Neurobiology

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Members of the team that developed the proposal:

Faculty members of the ARL Division of Neurobiology (ARLDN):
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- John G. Hildebrand, Ph.D., Regents Professor of Neurobiology & Director of the ARLDN
- Richard B. Levine, Ph.D., Professor of Neurobiology and Physiology
- Alan Nighorn, Ph.D., Associate Professor of Neurobiology and MCB
- Lynne A. Oland, Ph.D., Research Scientist in Neurobiology
- Linda L. Restifo, M.D., Ph.D., Professor of Neurobiology, CBA, & Neurology, Member of BIO5 Institute, Evelyn F. McKnight Brain Institute
- Nicholas J. Strausfeld, Ph.D., FRS, Regents Professor of Neurobiology and Professor of EEB and Entomology; Director, Center for Insect Science
- Leslie P. Tolbert, Ph.D., Regents Professor of Neurobiology and Professor of CBA
- Konrad E. Zinsmaier, Ph.D., Professor of Neurobiology and MCB

in consultation with courtesy joint-appointment faculty in the ARLDN:
- Ralph Fregosi, Ph.D., Professor of Physiology and Neurobiology
- Katalin Gothard, M.D., Ph.D., Assistant Professor of Physiology and Neurobiology
- Charles Higgins, Ph.D. Associate Professor of ECE and Neurobiology
- Daniela Zarnescu, Ph.D., Assistant Professor of MCB and Neurobiology

and with other professional appointees in the ARL:
- Lisa Gentry, Assistant Director of the ARL for Business and Administration
- Charles Hedgcock, R.B.P., Research Specialist, Senior
- Jennifer L. Lawrence, Division Administrator of the ARLDN

Current unit that would be reorganized:

Arizona Research Laboratories Division of Neurobiology (ARLDN)
Proposed disposition of the ARL Division of Neurobiology in the UofA reorganization process:

The Arizona Research Laboratories Division of Neurobiology (ARLDN) is an organized-research and teaching unit devoted to cellular, molecular, genetic, developmental and neurophysiological investigations of nervous systems and the natural behaviors they control. It is the only teaching and research unit in an American university devoted to the neurobiology and behavior of insects. Since its founding in 1985, the focus on insects as experimental models has unified the multidisciplinary activities in the ARLDN. There is no official ranking of such an enterprise, but many lines of evidence support the assertion that this unique academic unit is distinguished internationally, attracts outstanding trainees to the UofA, and has helped to enhance the reputation of the UofA. With only 9 tenure-track faculty FTEs (including one currently vacant pending recruitment of a new faculty member and one held by the Vice President for Research), the ARLDN has been exceptionally successful in research and productive scholarship. Among its faculty members are 3 Regents Professors, a Fellow of the Royal Society and MacArthur Fellow, and a Member of the National Academy of Sciences, American Academy of Arts and Sciences, and German Academy of Sciences.

The ARLDN compares its performance with that of other units in the Colleges of Agriculture and Life Sciences, Engineering, Medicine, Science, and Social and Behavioral Sciences in terms of the "productivity cost-effectiveness" ratio introduced by Dr. Eugene Levy when he was Dean of the College of Science -- it is calculated as follows: [unit's % of total UA SCH + unit's % of total UA ICR] / [unit's % of total UA state expenditures]. Based on data provided by the ARL Business Office for FY08, the ARLDN's productivity cost-effectiveness ratio by that formula was 6.1. For comparison, the values for selected other units were: Astronomy 5.9, Biochemistry 4.1, Cell Biology & Anatomy 2.0, Chemistry 4.0, Ecology & Evolutionary Biology 2.6, Entomology 1.2, Molecular & Cellular Biology 4.1, Physics 2.3, Planetary Sciences 9.4, Plant Sciences 3.5, Psychology 5.8, Speech, Language & Hearing Sciences 2.4, and Tree-Ring Laboratory 1.7. The primary concern of the faculty members of the ARLDN is to maintain and build upon the very high profile, outstanding record of achievement, and cost-effectiveness already earned by the ARLDN by positioning our enterprise to become even stronger and to contribute more fully to education in the UofA.

In the current reorganization process, the ARLDN proposes the following alternative courses of action:
1) to become a Department of Neurobiology in the College of Science (CoS), or
2) to remain a Division of the ARL

In either case the unit would want to be associated with a new School of Mind, Brain and Behavior or School of Neuroscience (which are being proposed by separate teams) in the CoS. That association could be as part of the new School or as an affiliate of it, depending on the details of plans for a new School if one in fact does materialize. Of paramount importance to the ARLDN, in any case, is to continue to be a self-determining, independent unit dedicated to cellular, molecular, genetic and neurophysiological studies of nervous systems and the natural behaviors they control. We assume that the next phase of the "transformation" process will make clearer how appropriately our neurobiology endeavor would fit in, or in affiliation with, a new School.

Benefits for teaching:

As a Division of the ARL, the ARLDN since its founding in 1985 has had research as its primary mandate and mission, but the unit also has invested much energy and effort in teaching. The GIDP in Neuroscience was established by faculty in the ARLDN in 1988 and had its administrative home in the ARLDN until 2004, when the leadership moved to our sister unit (the ARL Division of Neural Systems, Memory and Aging). Just now the leadership of the GIDP in Neuroscience is returning to the ARLDN, as Prof. Konrad Zinsmaier has been elected chairman. Moreover, from the outset, the primary faculty
members of the ARLDN (with their FTEs in the ARL) have had courtesy joint appointments in one or more academic departments and have taught wherever their expertise has been needed. Indeed, over the last 23 years ARLDN faculty have taught courses in six Colleges.

In 2005 the ARLDN's faculty launched a planning process for a new undergraduate minor in Neurobiology. An informal market survey of students in several large biology and physiology courses revealed a high level of interest in such a minor. At the time, however, we were told that as a Division of the ARL, we could not offer our own undergraduate academic program. Therefore the idea was put on hold. Now, as part of the UofA's transformation process, the ARLDN proposes to become a Department of Neurobiology in the CoS. As such, we could proceed to organize and offer the new minor in Neurobiology. Depending on the success of that new program and the potential growth of our faculty, we would hope to add a major in Neurobiology or Neuroscience in the near future. Having such undergraduate offerings would bring the UofA into line with a growing number of our peer and aspirational research universities that already offer such programs. [Note: "Neurobiology" and "Neuroscience" are not the same; Neuroscience is a broad and big field that includes Neurobiology along with other endeavors such as cognitive, computational, theoretical, and translational neuroscience. The current faculty of the ARLDN would welcome an opportunity to develop a larger, broader faculty -- through transfers of faculty members from other units within the UofA and/or recruitment of new faculty to the UofA -- and, in so doing, to warrant reconfiguration as a Department of Neuroscience.]

Benefits for research and scholarship:

As a Department in the CoS, the faculty members of the ARLDN believe that we would be better positioned to build productive collaborations with colleagues in other, related units. That would be especially true if there were an appropriate new School in the CoS with which we could be associated as a unit either within the School or affiliated with it. For example, the proposal for a new School of Mind, Brain and Behavior outlines a scheme in which several independent departments and programs would be joined within the School and others would be strongly affiliated with the School but not in it. Consolidating many of the UofA's enterprises that deal with the nervous system, cognition, and related areas through formation of such a new School should encourage and facilitate collaboration and cooperation in research and scholarly activities, as well as educational programs, and significantly enhance our competitiveness for recruiting faculty and students and for securing extramural support for educational programs and team research projects. Whether or not such a School comes into being, moving the ARLDN into the CoS as a new Department should position this unit better for productive cooperation with other entities in the College, including especially Ecology & Evolutionary Biology, Chemistry, and Computer Science. Moreover, if a new College of Science and Engineering were formed, the proposed Department of Neurobiology would be able to build on current associations with colleagues in the Departments of Aerospace & Mechanical Engineering and Electrical and Computer Engineering. Again, potential enhancement of competitiveness for major research funding (e.g. contracts from DoD agencies such as DARPA, ONR, and AFOSR) would be a welcome outcome.

Benefits for service and outreach:

The faculty members and other personnel of the ARLDN already are exceptionally active in service within the UofA and in external national and international scientific endeavors (including national and international professional societies, editorial boards of major journals, review panels for NIH, NSF and other government agencies, and international educational programs such as the Schools Program of the International Brain Research Organization). Likewise, faculty, staff and students of the ARLDN participate enthusiastically in a wide range of outreach activities in service to the community (ranging from partnerships with local public and charter schools to educational activities in retirement communities and provision of public information through Websites and local organizations). Our hope is
to sustain our high level of commitment to and effort in these areas after the UofA has undergone its transformation, irrespective of whether we remain in the ARL or become a Department in the CoS.

Benefits for the ARLDN's and the University's ranking and reputation:

Because the CoS already supports excellent development and public-relations efforts, the ARLDN would gain significant exposure and enhanced assistance with development activities if it were to become a Department of Neurobiology in the CoS. It is likely that that advantage would be even greater if the new Department were associated with a new School of Mind, Brain, and Behavior or Neuroscience (as proposed separately). Moreover, because many key people inside and outside the UofA simply do not understand what the ARL is and does, the ARLDN has found it difficult to win local recognition and appreciation comparable to the excellent reputation it enjoys nationally and internationally. We believe that becoming a new Department of Neurobiology in the CoS would help greatly to remedy our local "image problem" and lead to better credit for what we do.

Process of development of this proposal:

During its preparation, this proposal has been discussed on several occasions with Drs. Joaquin Ruiz (Dean of the CoS) and Michael Cusanovich (Director of the ARL). Both have expressed strong support for our plans. All of the ARLDN's primary faculty and courtesy joint-appointment faculty have been involved in the deliberations that generated this proposal. In addition, other proposals are being submitted by teams of faculty members that include the following from the ARLDN: Drs. Hildebrand and Zinsmaier on the team proposing a School of Mind, Brain and Behavior, and Drs. Levine and Restifo on the team proposing a similar School of Neuroscience. Drs. Hildebrand, Strausfeld, and Zinsmaier also have been involved in discussions among the Division Directors of the ARL regarding its proposal in the transformation process. All staff members of the ARLDN whose salaries include state support have been consulted about these plans, as have individual graduate students and postdoctoral fellows irrespective of their source of support. (The ARLDN currently has no undergraduate program.) Although individuals have expressed concerns and reservations about one or more of the alternative proposals involving the ARLDN, no more than two people have expressed displeasure or opposition to any individual proposal.

Budgetary implications:

As a Division in the ARL, the ARLDN already for a long time has been part of an arrangement that could be seen as a paradigm of what could be achieved throughout the UofA in the transformation process: we benefit from centralized, consolidated business, IT, and Human Resources services that handle most of the relevant needs of all of the ARL's Divisions. Indeed, we are so pleased with the efficient, highly professional, and splendidly effective services we receive from those offices that we would seek to retain their services after becoming a Department of Neurobiology in the CoS if that were possible. Indeed, benefiting from those services is one of our strongest motivations to remain in the ARL. It follows that because all of those services already are centralized and consolidated, we foresee no savings in those arenas as a result of the reorganization. The small administrative staff of the ARLDN is only partly supported on state funds and is needed for our successful operations. Dr. Hildebrand has advocated fervently for changing Department Heads to elected Department Chairs and for limiting their enhanced compensation and reduced teaching obligations to the period of service as a chair. (That model has not been welcomed by many current UofA Department Heads, however.) As Director of the ARLDN, he has no salary supplement but does have a reduced teaching load as well as underwriting of two months' summer salary in case grants do not provide that support.