

NESCent Catalysis Meeting Proposal

The Nature of Regulation: How Evolutionary Theory Can Inform the Regulation of Large-Scale Human Social Interactions

Short Title: The Nature of Regulation

Project Leader:
David Sloan Wilson
Co-Director of the Evolution Institute
SUNY Distinguished Professor
Departments of Biology and Anthropology
Binghamton University
Binghamton, New York 13902
Tel: 607-777-4393 Fax: 607-777-6521
dwilson@binghamton.edu
<http://evolution.binghamton.edu/dswilson/>

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Project Summary

The regulation of large-scale human social interactions is arguably the most important public policy issue of our time. Our current regulatory systems are not working, in part because of inadequacies in the economic theories upon which they are based. Experimental and behavioral economists are already drawing upon the fields of psychology and (increasingly) neurobiology to remedy the limitations of classical economic theory. Evolutionary theory expands the view by including, but also going beyond, the study of proximate human psychological and neurobiological mechanisms. Additional relevant areas include: a) living systems as highly regulated molecular interactions; b) the evolution of higher-level units (e.g., multicellular organisms and social insect colonies) as highly regulated societies of lower-level units; c) the genetic evolution of human groups as highly regulated small-scale societies; and d) the cultural evolution of regulatory mechanisms at increasingly large scales throughout human history. This catalysis meeting will convene a diverse group of evolutionists, economists, and public policy experts to create a new interdisciplinary foundation for the study and practice of large-scale human regulatory systems. The project will initiate a collaboration between NESCent and the Evolution Institute, a newly formed think tank for informing public policy from an evolutionary perspective. The involvement of the Evolution Institute will insure a lasting impact of the catalysis meeting on public policy, in addition to the future academic study of human regulatory systems from an evolutionary perspective.

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Central Theme

We are an impressively social species, but our adaptations for social life evolved in the context of small groups (e.g., Boehm 1999). Today, human social interactions take place at a spatial and temporal scale that our hunter-gatherer ancestors could never have imagined (e.g., Diamond 1997). It is amazing that our modern large-scale societies work as well as they do, but it is equally clear that they must work better to avoid economic, political, and environmental disasters of cataclysmic proportions (e.g., Diamond 2004, Penn and Mysterud 2007).

Social policy is guided primarily by people trained in the human social sciences, especially economics and political science. For most of the 20th century, the human social sciences have *not* been well integrated with evolutionary theory. The reasons are complex but two factors are especially relevant for this proposal. First, evolution became associated with ideologies that justify social inequality (social Darwinism). Egalitarian-minded social theorists could have challenged the association, but instead they chose to distance themselves from the theory (e.g., Richards 1987). Second, the human social sciences have been dominated by minimalistic theoretical frameworks, such as rational choice theory in economics. If the single principle of individual utility maximization suffices to explain human social and economic interactions, then who needs evolutionary theory?

The failure of rational choice theory in economics led to the emergence of experimental and behavioral economics. Experimental economics recognizes the need to conduct empirical research on human social preferences, if they cannot be elegantly deduced from rational choice theory. Behavioral economics draws its inspiration from psychology and increasingly from neurobiology. These subfields have transformed the broader field of economics and earned the Nobel Prize in 2002 for two pioneers, Vernon Smith and Daniel Kahneman. In an October 28, 2008 *New York Times* article, columnist David Brooks wrote “My sense is that this financial crisis is going to amount to a coming out party for behavioral economists and others who are bringing sophisticated psychology to the realm of public policy. At least these folks have plausible explanations for why so many people could have been so gigantically wrong about the risks they were taking.”

Yet, “sophisticated psychology” is only part of what evolutionary theory can contribute to the study of large-scale human social interactions. A basic tenet of evolutionary theory is that all adaptations require both proximate-level and ultimate-level explanations, which mutually inform each other and must be studied in a complementary fashion. Experimental and behavioral economics are heavy on the study of proximate psychological mechanisms and light on the study of how they arose through their contribution to survival and reproduction, compared to many other conceivable psychological traits. Moreover, nonhuman social systems are highly relevant to the study of human social systems. A complete evolutionary foundation for the study of large-scale human social interactions would include the following elements:

- a) Living systems as highly regulated molecular interactions.
- b) The evolution of higher-level units (e.g., multicellular organisms and social insect colonies) as highly regulated societies of lower-level units (e.g., Maynard Smith and Szathmary 1995, Michod 1999, Holldobler and Wilson 2008).
- c) The genetic evolution of human groups as highly regulated small-scale societies (e.g., Sober and Wilson 1998, Wilson 2004, 2006, 2007).
- d) The cultural evolution of regulatory mechanisms at increasingly large scales throughout human history (e.g., Richerson and Boyd 2005, Turchin 2005, Wilson 2002).

If the relevance of non-human regulatory systems (a and b) to modern human regulatory systems appears far-fetched, the study of higher-level biological units such as multicellular organisms and social insect colonies has already merged with the study of cooperation in human groups (e.g. Hammerstein 2003). In all cases, the evolution of cooperation and coordination at the higher level requires the suppression of interactions at the lower level that in human terms qualify as exploitation, cheating, and free-riding. The entire vocabulary of human social interactions has been borrowed by biologists to describe multicellular organisms and social insect colonies as highly regulated societies (e.g. Haig 1997). The regulatory mechanisms are usually decentralized (even the brain is a decentralized system) and often rely on competitive processes that are structured to provide positive outcomes for the larger-level unit (e.g., Edelman 1988). These biological systems contain a goldmine of information for human planners trying to construct large-scale social (including financial) systems that make the most of decentralized market processes while avoiding the dysfunctional outcomes associated with exploitation, cheating, and free-riding.

Rationale for NESCent support and a partnership with the Evolution Institute

The subject of this proposal fits squarely within NESCent's mission to "facilitate broadly synthetic research to address fundamental questions in evolutionary biology." In the NESCent summit meeting that I attended during September 10-12 2008, a consensus emerged that NESCent is doing a good job facilitating empirical synthesis, especially with respect to large databases, but needs to become more conceptually oriented. There was also talk about what would constitute a "home run" in terms of world-changing synthesis. At the risk of seeming excessively promotional, this proposal qualifies as a conceptually oriented "home run." The 21st century will witness an integration of human-related subjects from an evolutionary perspective comparable to the integration of biology that took place during the 20th century. The integration is already in progress but can be vastly accelerated by an organization such as NESCent. Integrating evolutionary theory with the human-related sciences should be high on NESCent's priority list in general terms. This catalysis meeting proposal provides a specific example that is exceptionally relevant to public policy in addition to its academic importance.

My own credentials for submitting the proposal are threefold: 1) Although I was trained as an evolutionary biologist, most of my research is now dedicated to the study of

evolution in relation to human affairs; 2) I initiated and direct EvoS, the first campus-wide program that expands evolutionary training beyond the biological sciences to include all human-related subjects. EvoS recently received NSF funding to expand into a nationwide consortium (http://evolution.binghamton.edu/evos/News_Consortium.html); 3) I co-direct a newly formed think tank called the Evolution Institute (http://evolution.binghamton.edu/evos/News_EvolutionInstitute.html) that will be instrumental for helping to organize and expand upon the catalysis meeting.

The EI is designed to accomplish for the world of public policy formulation what EvoS is designed to accomplish for the world of higher education. The Advisory Board, which is still in the process of being formed, includes E.O. Wilson and Robert Pennock among others. As a proof of concept, the EI recently organized a highly successful workshop on early childhood education, which was held at the University of Miami on Nov 14-17, 2008 (http://evolution.binghamton.edu/evos/News_Workshop.html). The workshop was similar to a catalysis meeting and will greatly accelerate the incorporation of evolutionary thinking into both basic research and real world applications for this focal topic. “The Nature of Regulation” is the second focal topic chosen by the Evolution Institute, hopefully in partnership with NESCent.

Participating Fields and Partial List of Proposed Participants

In preparation for this proposal, I e-mailed fifteen colleagues in diverse fields for their advice about a) the need for a catalysis-style meeting on this subject; b) their interest in participating; and c) other colleagues who should be included. Based on their responses, I compiled a list of 55 potential participants from fields as diverse as anthropology, behavioral ecology, business, cognitive science, environmental science and policy, economics (including behavioral, experimental, and neuro), evolution, finance, genomics, law, mathematical biology, organizational behavior, philosophy, political science, public policy, social insect biology, and sociology. Names include Samuel Bowles, Robert Boyd, Ernst Fehr, Herbert Gintis, Peter Hammerstein, Geoffrey Hodgson, Jessica Flack, Simon Levin, Richard Michod, Martin Nowak, Elinor Ostrom, Nelson Phillips, Francis Ratnieks, Peter Richerson, Reinhard Selton, Karl Sigmund, Vernon Smith, Eors Szathmary, Peter Turchin, and Paul Zak. This is *not* a list of final participants; it merely indicates the diversity of people and fields that are relevant to the subject. A more thorough search will result in an even larger pool of expertise from which the participants for a catalysis meeting can be drawn.

Based on my preliminary inquiry, including several hours of personal conversations with colleagues such as Robert Boyd, Ernst Fehr, Herbert Gintis, Peter Hammerstein, and Joseph Henrich at recent conferences, the following observations can be made about the need for a catalysis meeting.

- There is widespread agreement on the need for a catalysis-style meeting on “The Nature of Regulation,” as outlined in this proposal.

- People who are very distinguished within their own human-related disciplines already appreciate the need for an evolutionary perspective. One example is Andrew W. Lo, director of the MIT Laboratory for Financial Engineering, whose articles include “The Adaptive Markets Hypothesis: Market Efficiency from an Evolutionary Perspective” (Lo 2004). Other examples include Samuel Bowles (Research Professor and Director of Behavioral Sciences Program, Santa Fe Institute, author of *Microeconomics: Behavior, Institutions, and Evolution*), Elinor Ostrom (Arthur F. Bentley Professor of Political Science, Indiana University, author of *Governing the Commons: The Evolution of Institutions for Collective Action*), and Sven Holger Steinmo (Chair in Public Policy and Political Economy, European University Institute, author of the forthcoming *The Evolution of the Modern State*).
- These people are nevertheless largely isolated within their own fields, self-trained in evolution, and poorly connected to each other. This means that *a tremendous amount can be gained by bringing them together with evolutionists of equal distinction and facilitating future interactions.*
- Several people cautioned that a catalysis-style meeting might contribute to basic scientific understanding of large-scale human regulatory systems, but should not be expected to deliver detailed policy recommendations for specific problems such as our current financial crisis. As one of my correspondents (Geoffrey Hodgson) put it “I think that the expectations of participants and observers should be managed here.”
- While Hodgson’s point is well-taken, it is also necessary to challenge the assumption that the more “academic” the question, the longer the time required to become relevant to real-world solutions. Evolutionary theory can alter the agenda for basic and applied research simultaneously. This conclusion emerged strongly from our first workshop on early childhood education and is equally likely to result from a catalysis meeting on the nature of regulation.

**Kinds of networks, grand-scale collaborations,
primary research collaborations, and future synthesis**

- 1) If the proposal is accepted, a more thorough effort will be made to identify the multidisciplinary community of people relevant to the study of large-scale human social interactions from an evolutionary perspective.
- 2) This community will be considerably larger than the number of people who can attend a NESCent catalysis meeting. Nevertheless, we will still create a social identity for the larger group and organize the catalysis meeting so that the full group can benefit from it. This will be accomplished by creating a website with a library of publications, a discussion forum, and outputs from the catalysis meeting, including videotapes of the presentations.
- 3) Participation in the catalysis meeting will be based on a short application process, enabling us to assemble an optimally diverse group of approximately 30 people from

among the larger community. I am confident that demand will considerably exceed supply, placing us in the enviable position of being selective. Outstanding people such as Geoffrey Hodgson, Elinor Ostrom, Peter Richerson, and Sven Steinmo have already indicated their willingness to attend.

4) In addition to the main participants, a number of observers will be invited who are especially influential in public policy forums and/or in a position to fund initiatives that emerge from the catalysis workshop through NESCent and/or EI. Journalists representing the national press will also be encouraged to attend the workshop.

5) The meeting will optimally take place over a two or three day period. The participants will be expected to read a considerable amount of material in preparation to leave ample time for discussion during the meeting. Sessions will be devoted to a) non-human regulatory systems, including basic theoretical issues associated with major transitions of evolution; b) human social systems from a genetic and cultural evolutionary perspective; and c) problems associated with the regulation of modern large scale social (including financial) interactions.

6) The immediate outcome of the meeting will be list of recommendations for how evolutionary theory can be incorporated into the study and practice of large-scale human social (including financial) interactions. These recommendations will be made available on the website and will provide the roadmap for future initiatives.

7) On the day following the workshop, the results will be publicized in a roundtable discussion attended by the public and press. Some of the catalysis meeting participants will stay an extra day to take part in the roundtable. This format worked well for our first workshop on early childhood education and should be repeated for the NESCent catalysis meeting. The fact that evolution in relation to human affairs can be powerfully and positively communicated to the general public was memorable for the participants and audience alike.

8) Over the longer term, the EI will continue to nurture the larger interdisciplinary community defined by the process. Minimally, this will consist of maintaining and publicizing the website, raising funds, and helping to coordinate the publicity, publication, grant-writing, and implementation efforts of community members.

Summary

The Evolution Institute is a nascent organization and it is difficult to predict how large or influential it will become. It has the potential to reframe evolution as a powerful framework for understanding and improving the human condition for the general public, the human-related sciences, and the world of public policy formulation. A partnership with NESCent will help to realize this goal for the single but very important focal topic of how to regulate large-scale human social interactions.

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- Ostrom, E. (1991). *Governing the commons: The Evolution of institutions for collective Action*. Cambridge, UK: Cambridge University Press.
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- Richerson, P. J., & Boyd, R. (2005). *Not by genes alone: how culture transformed human evolution*. Chicago: University of Chicago Press.
- Sober, E., & Wilson, D. S. (1998). *Unto Others: The Evolution and Psychology of Unselfish*

Behavior. Cambridge, MA: Harvard University Press.

Steinmo, S. H. (2008). *The Evolution of the Modern State*: in prep.

Turchin, P. (2005). *War and Peace and War*: Pi Press.

Wilson, D. S. (2002). *Darwin's Cathedral: evolution, religion, and the nature of society*. Chicago: University of Chicago Press.

Wilson, D. S. (Ed.). (2004). *The New Fable of the Bees* (Vol. 9). Greenwich CN: JAI Press.

Wilson, D. S. (2006). Human groups as adaptive units: toward a permanent consensus. In P. Carruthers, S. Laurence & s. Stich (Eds.), *The Innate Mind: Culture and Cognition* (pp. 78-90). Oxford: Oxford University Press.

Wilson, D. S. (2007). *Evolution for Everyone: How Darwin's Theory Can Change the Way We Think About Our Lives*. New York: Delacorte.

DAVID SLOAN WILSON<http://evolution.binghamton.edu/dswilson>**PROFESSIONAL PREPARATION**

INSTITUTIONS	FIELD OF STUDY	DEGREE	YEARS
Harvard/U. Wash	Ecology/Evolution	Post-doctoral	1975-1977
Michigan State	Zoology	PhD	1971-1975
U. Rochester	Biology	B.S.	1967-1971

APPOINTMENTS

2006-present	SUNY Distinguished Professor	
1989-2006	Professor	Departments of Biological Sciences and Anthropology Binghamton University (joint appointment)
1980-1989	Associate Professor	Kellogg Biological Station Michigan State University
1977-1980	Assistant Professor	Division of Environmental Studies University of California, Davis

RECENT GRANTS

1997-2000: *Community-level selection* (NSF; \$221,000)

1998-2000: *Forgiveness from a cross-cultural and evolutionary perspective* (John Templeton Foundation, \$200,000)

2001-2002: *Annotated bibliography and critical review of altruism from an evolutionary perspective* (Institute for research on unlimited love, \$13,500)

2003-2007: *Altruistic love, evolution, and individual experience* (Institute for Research on Unlimited Love, \$100,000 with \$7000 addition in 2006)

2006-2008: *Religious Conceptions of the Afterlife from a Cultural Evolutionary Perspective and a General Field of Evolutionary Religious Studies* (John Templeton Foundation, \$100,000).

2008-2010: Teaching social complexity in multi-disciplinary team building: an experimental engineering approach. (Co-PI, NSF CCLI, \$149,955).

2008-2010: Expanding Evolutionary Studies in American Higher Education (NSF Phase II CCLI, \$300,000 as part of \$500,000 shared with SUNY New Paltz).

FIVE MOST RELEVANT PUBLICATIONS (out of 189)

Wilson, D.S. (forthcoming). *Evolving the City: An evolutionist contemplates changing the world—one city at a time.* Little, Brown & Co.

Wilson, D.S. (2007). *Evolution for Everyone: How Darwin's Theory Can Change the Way We Think About Our Lives* New York: Bantam Press.

Wilson, D.S. and E.O. Wilson (2007). Rethinking the theoretical foundation of sociobiology. *Quarterly Review of Biology* 82:327-348.

Wilson, D.S., M. Van Vugt, and R. O'Gorman (2008). Multilevel selection and major transitions of life: implications for psychological science. *Current Directions in Psychological Science* 17:6-9.

Wilson, D. S. (2002). *Darwin's Cathedral: Evolution, Religion and the Nature of Society*. Chicago: University of Chicago Press.

FIVE OTHER SIGNIFICANT PUBLICATIONS

Wilson, D. S. (2005). Evolutionary Social Constructivism. *The Literary Animal: Evolution and the Nature of Narrative*. J. Gottshcall and D. S. Wilson. Evanston, IL, Northwestern University Press.

Wilson, D. S. (2006). Human groups as adaptive units: toward a permanent consensus. *The Innate Mind: Culture and Cognition*. P. Carruthers, S. Laurence and s. Stich. Oxford, Oxford University Press.

Gervais, M. and D. S. Wilson (2005). The Evolution and Functions of Laughter and Humor: A Synthetic Approach. *Quarterly Review of Biology* **80**: 395-430.

Wilson, D. S. (2004). What is wrong with absolute individual fitness? *Trends in Ecology and Evolution* **19**: 245-248.

Wilson, D. S., J. Timmel, and R. R. Miller. (2005). Cognitive cooperation: when the going gets tough, think as a group. *Human Nature* 15:225-250

HONORS

2006: Promoted to SUNY distinguished professor (highest rank within SUNY system)

2005: Delivered Yale University Terry Lectures (a series of 4 lectures)

2004: Charter Lecture, University of Georgia

2003: SUNY Chancellor's Award for Excellence in Scholarship and Creative Activities

Vice President, American Society of Naturalists (1996)

J.S. Guggenheim fellow (1987)

SYNERGISTIC ACTIVITIES

Evolutionary theory has been the conceptual foundation of the biological sciences for decades. However, it has had minimal impact on other areas of knowledge such as the human social sciences, philosophy, and even the health and environmental sciences. In addition to my mainstream biological research, I have made a major effort to extend the boundaries of evolutionary theory, lecturing widely and publishing in anthropology, economics, philosophy, and psychology and religion journals. Since publishing *Darwin's Cathedral* I have been especially active in the area of science and religion (<http://evolution.binghamton.edu/religion/>). In addition to these global academic activities, I decided several years ago that it would be worthwhile to extend the boundaries of evolutionary theory at my own university. The result is EvoS, arguably the first program to make evolutionary theory part of the normal intellectual discourse at the scale of an entire university (<http://evolution.binghamton.edu/evos/>). More recently, I have extended EvoS in the direction of community-based research to understand and improve the quality of everyday life (<http://evolution.binghamton.edu/bnp/>).