



# Increasing the Diversity of U.S. Conservation Science Professionals via the Society for Conservation Biology

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## Introduction

Professional societies can be major forces for change and development within their fields (Parker 2006). The Society for Conservation Biology (SCB), the preeminent conservation biology society, has the opportunity to play such a role in broadening the base of biological conservation professionals. The SCB highlights the importance of a diversified membership in its strategic plan, focusing on the “global and regional development of programs and services valuable to a *diverse* body of conservation scientists and practitioners” (*italics added*) (SCB 2011). Specific implementation strategies toward equity and diversification remain to be articulated.

Here, we aim to provide background information and recommendations to facilitate diversification of conservation science professionals in the United States via SCB. Our recommendations are based on a literature search concentrated on the United States’ biodiversity conservation workforce and therefore are appropriate to the SCB North America section. However, they mirror discussions about engagement across all of the SCB, and future global implementation should consider related research and programs developed in other countries, such as the Australian Government’s Expert Working Group in Indigenous Engagement with Sciences (e.g., Hill et al. 2012).

A more diverse and equitable workforce in conservation science is crucial to achieving the goals of local and global biodiversity conservation (Bonta & Jordan 2007; Manolis et al. 2009). Complex issues such as biodiver-

sity conservation require diverse perspectives to resolve. When the members of a group come from diverse backgrounds and have diverse conceptual toolkits, group decision making is less likely to stall at suboptimal solutions (Page 2007). Also, the conservation of natural resources depends on the support of a wide diversity of citizens because of the common pool nature of natural capital and the environmental services it provides. Citizen groups may be diverse culturally, ethnically, and economically and can differ in their core values and beliefs about environmental management priorities (Bryan et al. 2010). Increasing the diversity of environmental professionals could be key to facilitating outreach to and a better understanding of a variety of groups, which can then improve research agendas, policies, and action (Hovardas & Poirazidis 2007).

We conducted a comprehensive literature review of strategies used to increase the diversity of the science, technology, engineering, and mathematics (STEM) workforce in the United States. In the U.S. STEM workforce, historically underrepresented groups include American Indian and Alaska Native, African-American, and Hispanic or Latino ethnic origin (NSF 2011). These same groups are underrepresented in the conservation workforce. For example, students from these groups were only 5.4% of bachelor’s degrees and 6.3% of master’s degrees earned in the environmental and conservation sciences in 2009 (NCES 2011). Several intervention strategies used by educational institutions can improve academic success for students from underrepresented groups in STEM: financial support, mentoring and advisement, research

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opportunities, curriculum reform, cohort building, and career counseling and awareness (M.J. Foster et al., unpublished). From this review, we drafted a unique set of steps that combine aspects of these strategies and are tailored toward both educational and other institutions related to biodiversity conservation. One of the steps includes engaging the power of professional society networks (M.J. Foster et al., unpublished). We put forward specific recommendations for a particularly important professional network in the field of biodiversity conservation, the SCB.

## Recommendations to the SCB

We offer 6 recommendations for SCB to ramp up, expand, and scale movement toward increasing the diversity of the biodiversity conservation field from the professional perspective. Although these recommendations are focused on actions in the United States and therefore the North America Section of SCB, many of these recommendations could be adjusted for international application for SCB at large.

1. SCB could form a diversity taskforce or committee. The diversity taskforce or committee would be integral to developing a diversity audit, a diversity plan, and metrics for measuring diversity. For these structured approaches to be fully effective, the plan should include specific goals with benchmarks and a mechanism for reporting changes with respect to a baseline. The SCB recently established a board-level committee for diversity action, taking the first step toward implementing this recommendation and those that follow.
2. The SCB could implement diversity training and accountability for the diversity plan at leadership levels, including the board and within the executive office. In a study of group decision making, diverse groups that underwent diversity training outperformed non-diverse groups (Sommers 2006), and research suggests further improvement with training within diverse groups (Page 2007; Sommers 2008). Diversity training programs and broader diversity plans work best when a specific intra-organizational entity is held responsible for results (Williams & Wade-Golden 2007). Ideally, professional societies would hire a staff person to focus on education and capacity development with a specific mandate for increasing diversity and equity and cultural competency skills. However, at small organizations such as SCB, where hiring a new executive might not be feasible, explicit accountability at existing leadership levels may be sufficient. The SCB can also help other organizations achieve diversity and equity through fostering organization training opportunities and networks and encourage donor investment in these issues.
3. The SCB could develop an integrated conservation education pathway, encompassing several activities. After the model of programs such as Strategies for Ecology Education, Development and Sustainability (Ecological Society of America), SCB could develop a young professional program that sponsors underrepresented student field trips, research fellowships, and annual meeting travel awards with built-in mentorship opportunities. Mentoring has been identified as a particularly important social tool for increasing the participation of women and other underrepresented groups in STEM (Ramirez 2002). Mentorship opportunities at a professional meeting should include both mentor-mentee and peer-to-peer mentoring. Because of the lack of conservation science faculty and professionals from underrepresented groups, peer-to-peer mentoring will be essential to create a strong learning community that is both academic and social (Taylor 2010). The power of mentorship within the conservation community is already apparent at the Student Conferences on Conservation Science in New York, Cambridge, Bangalore, Australia, and Beijing (Nuwer 2011).
4. The SCB could foster partnerships with and integrate into its structure organizations and programs that already serve underrepresented groups, such as minority serving institutions. Minority serving institutions are post-secondary colleges or universities in the United States founded to service racial or ethnic communities that have a history of improving overall undergraduate and graduate college enrollment, retention, and completion rates, especially in STEM (Raines 1998; NSF 2011). Minority serving institutions represent models of functions and relationships important in the conservation science community and among underrepresented communities, such as capacity building and cross-institutional collaboration. Also, by working together, many minority serving institutions have formed national and politically active affiliation groups to coalesce around, improve on, and build upon their collaborative efforts to serve racial or ethnic communities. These practices are applicable and complementary to conservation organization endeavors (Foster et al. 2011). Minority serving institutions and local groups working with underrepresented groups should be part of planning committees for SCB congresses held in the United States.
5. The SCB could develop new fellowships in the style of the David H. Smith Conservation Research Fellowship Program targeting graduate students from underrepresented groups for leadership training and experience. Examples of targeted graduate STEM grant aids include the Woods Hole Oceanographic

Institution Minority Fellowship Program, the American Geological Institute Minority Fellowship, and the American Meteorological Society's Minority Scholarships. This approach would begin to address, in part, financial barriers to recruitment of underrepresented groups in conservation (M. J. Foster et al., unpublished). Factors related to finances were among the strongest predictors of completion of science degrees for students from underrepresented groups (Anderson & Kim 2006).

6. The SCB could engage in targeted marketing to raise awareness among students from underrepresented groups about careers in biodiversity conservation. Targeted campaigns are increasing in other scientific disciplines. The Association of American Medical Colleges, for example, developed a marketing campaign to raise awareness among minority college students about medical careers (AAMC 2006). Likewise, the American Fisheries Society has designated an Equal Opportunities Section to "increase the representation and involvement of diverse ethnic/racial groups and females in the American Fisheries Society" (AFS 2011).

## Moving Forward to Foster Individual Engagement and Institutional Change

To increase the recruitment, retention, and professional success of underrepresented groups in biodiversity conservation, steps must be taken to intervene against structural barriers that make it difficult for underrepresented groups to enter and remain in the conservation workforce. For example, professional societies such as SCB should develop diversity programs that foster individual engagement and institutional change in diversity and equity. Regional networks or learning communities that connect professional societies, conservation organizations, and majority- and minority-serving academic institutions could strengthen organization planning for diversity and equity; enhance early exposure to the field through directed research mentoring and scientific meeting attendance; develop career fluency skills; and create peer-to-peer mentoring, addressing in concert several of the academic, financial, and social barriers that underrepresented students and professionals may face. Future work should explore key effective partnerships between SCB and other institutions to move forward on these recommendations and also to broaden them for global application across SCB.

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