Increasing Diversity in the Conservation Sciences through Active Teaching, Faculty Communities, and Conservation Leadership

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BACKGROUND
Between 1996 and 2006 Non-White Hispanics, African-Americans, and Native Americans/Alaska Natives students (collectively called underrepresented students (URS)) made up only 7% of students graduating with a conservation or conservation related degree5. This despite that in 2001 Non-White Hispanics, African-Americans, and Native Americans/Alaska Natives made up 27% of the U.S. population. The comparison, the fields of sociology, education, math, and computer and information sciences graduated more than twice as many URS for the period 1996-2006. While Non-Hispanic students earned 90% of all conservation related degrees from 1996-2006. Although no longer a matter of legal concern, for underrepresented students (URS) the effects of educational discrimination are still felt at all educational levels. When URS begin school, they enter into the science, technology, engineering, and mathematics (STEM) pipeline— a system of training that begins in primary school and ends with the graduated qualified working science5. For a variety of reasons, a high percentage of URS agree, or lack, from the STEM pipeline before completing their training. These reasons can include academic tracking (the specific process of separating students along specific lines of academic preparation or vocational training), lack of academic preparation and vocational training, lack of the capacity challenge in the conservation workforce thus can be attributed to a combination of historical5, educational5, social4, and financial barriers1 URS face to becoming professional conservation scientists.

THE CATEGORY CHALLENGE
What are the barriers URS face to becoming conservation professional?

• Biological
• Socioeconomic equals problems, area of focus (i.e. environmental science, natural history, etc.)
• Educational
• Academic isolation (i.e. lack of mentors, lack of faculty involvement)
• Social isolation (i.e. lack of mentorship)
• Financial barriers
• Difficulty in finding practitioners to work with

OUR HYPOTHESIS
Our hypothesis is that we can increase the representation of students from underrepresented groups if we work to create conservation science communities that foster academic and social integration and are characterized by culturally competent pedagogy, active teaching methods, access to research opportunities, and access to financial support.

OUR RESPONSE
Recognizing the need to increase diversity in the field, the Center for Biodiversity and Conservation (CBC), at the American Museum of Natural History (AMNH) has initiated the featured Diversity in Conservation Science Education (DI). The DI’s current efforts are dedicated to:

1. Building bridges between the CBC/AMNH and MSIs on topics related to the conservation of cultural and biological diversity and;
2. Identifying and supporting tomorrow’s emerging conservation leaders
3. Building bridges between the CBC/AMNH and MSIs on topics related to the conservation of cultural and biological diversity and;
4. Inspiring, developing, and supporting tomorrow’s emerging conservation leaders

At this time, the work has contributed to these goals by generating interest among MSI faculty for education research, training in active pedagogical methods, and a conservation science communities. Our Faculty Focus Groups conducted education research on their campuses and in their own classrooms. We also provide the materials and resources for teachers seeking to improve their conservation teaching practices. Moreover, to maintain the status of praxis in community that scientific teaching and active teaching require we encourage members to use webpages we provide on our servers or those of ConservationOnline.

REFERENCES
References are provided on the accompanying sheet.

THE ACTIVITIES & PRELIMINARY RESULTS
Culturally competent pedagogy
“Cultural competency requires effectively providing services to people of all cultures, races, ethnic backgrounds and religions in a manner that respects the worth of the individual and preserves their dignity.” Quick Reads on Diversity: Mentoring Students from Historically Underrepresented Groups.18 We can also turn to work by educators who have generated educational resources, integrates the concepts of culturally competent mentoring and developmentally appropriate monitoring. This document is intended to give faculty and administrators a quick practical overview of mentoring and easy to remember tips on mentoring students of color.

Active Teaching Methods
Another project of the CBC, the Network of Conservation Educators and Practitioners (NCEP, http://ncep.amnh.org) works extensively throughout the world to train conservation educators, informal and formal, on scientific teaching including active teaching and active teaching pedagogy. The DI has worked closely with NCEP to recruit and train faculty from MSIs. To date NCEP has worked with 18 faculty members from 10 different MSIs.

Access to Research Opportunities
The DI hosts high school junior or senior interns. Much of the work interns do is primary research related to aspects of scientific and STEM educational achievement among underrepresented students. Some interns connect to the CBC from the National Research Excellence for Undergraduates (REU) program. Other interns find us via the web of the networks of CBC staff.

Access to Financial Support
Accessing financial support is an important factor for those considering studies in conservation. We actively looked for an organization to partner with to build and maintain a database of financial opportunities and useful tools, such as preparing applications and preparing for interviews.

BUILDING CONSERVATION LEADERSHIP
From our interactions with faculty members at MSIs, we have come to understand that our goal should be not only to increase the number of URS in conservation, but also to foster the development of conservation leadership among URS so that they can take part in shaping the future of the field. Mandell et al., in press, describe two types of conservation leadership research (to which we also include teaching and training of educational researchers and integrating conservation here, we also include education science into policy, management and society-at-large. In our discussions with school administrators, and faculty at MSIs on conservation leadership they espoused various perspectives including:

• Some faculty perspectives

1. Curricular change can also be an effective way to begin to build conservation leadership among students.
2. Some schools still lack an institutional tradition or an institutional culture of environmentally sustainable practices, despite extensive conservation and ecology curricula.

Leadership at any institution will require:

• aspiring and assessing core leadership skills and competencies
• communicating and bringing attention to a specific ecological or conservation problem
• managing time, projects, people and resources effectively
• bringing diverse people, talents, and views to bear on the issues, and;
• assessing progress regularly and changing course when necessary.

There is a concern that lack of an institutional culture of environmentally sustainable practices on some MSI campuses, might prove to be a barrier to creating curricular change.

Nonetheless MSIs offer perspectives that upon investigation may yield valuable insights. MSIs can play an especially critical role in conservation leadership within teaching and research. Because leadership involves selecting and inspiring diversity as a priority19, a practice in which MSIs have been engaged for a long time, MSIs are in the unique position of having been on the cutting edge of these areas of leadership for decades. For example MSIs have offered URS various leadership opportunities20, as opportunity for URS to respond to community needs21 and a place for URS to be part of empowering communities.

JOIN US!
You are invited to participate by:

• Testing, reviewing, and adapting modules in the classroom
• Attending one of our workshops on Active Teaching
• Joining our Faculty Focus Group for MSI Educators

Contact us at biodiversity@amnh.org

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