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Conference Abstract

Emerging Education Resources and Initiatives: Harnessing the Potential of Disciplinary Societies to advance Biodiversity literacy

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Abstract

Symposium “Completing the Data Pipeline: Collections Data Use in Research, Education and Outreach.

The conference theme, *Collections and Data in an Uncertain World*, turns the spotlight on a number of opportunities that can advance the experience of undergraduate biology education. Today, millions of records from Natural History Collections worldwide are available to students and educators through portals such as iDigBio, https://www.idigbio.org/portal/search. These records facilitate explorations for disciplinary and interdisciplinary understanding of a changing and uncertain biodiversity landscape across space and time. Biological and paleontological specimens data can be combined with ecological or geological data to investigate large scale questions related to climate change, invasive species or resource management. This session highlights resources and initiatives of the Ecological Society of America (ESA) for undergraduate students and faculty that focus on emerging developments in core competencies, careers and diversity.

For too long, undergraduate biology/ecology education has centered primarily round mastery of disciplinary content often involving rote learning. The Vision and Change in Undergraduate Biology Education conference organized by the American Association for

the Advancement of Science (AAAS) in 2009 identified a set of core competencies that include understanding of the nature of science, communication, collaboration, and quantitative skills. These skills, and the fluency across disciplines such as ecology, environmental science, evolutionary biology and systematics are the hallmarks of the 21st century biologist. www.visionandchange.org

ESA has long advocated active learning in the classroom. In 2006, ESA education leaders launched, Teaching Issues and Experiments in Ecology (TIEE), an education journal designed to promote inquiry, scientific thinking, collaborative work, formative evaluation, and alternative assessment in the college classroom. Today, the LifeDiscoveryEd Digital Library (LDDL), www.lifediscoveryed.org, built on the metadata architecture of ESA's EcoEd Digital Library established in 2006, serves three disciplinary society communities including ESA, Botanical Society of America (BSA) and Society for the Study of Evolution (SSE), encouraging cross-dissemination of resources. Together, the three societies form the LifeDiscovery partners and co-organize the Life Discovery – Doing Science Biology Education conference (LDC) every 18 months, www.esa.org/ldc. A unique feature of the LDC is the Education Share Fair where participants may present teaching ideas at any stage of development to solicit feedback from their peers.

In a response to a need for a more robust approach to advancing data literacy, ESA joined with the Quantitative Undergraduate Biology Education and Synthesis (QUBES) project, to offer a series of Faculty Mentoring Networks (FMN) launched in 2016, https://qubeshub.org , http://esa.org/fed/fmn/.

Additionally, ESA is a pioneer in undergraduate diversity mentoring through the Strategies for Ecology Education, Diversity and Sustainability (SEEDS) program, www.esa.org/seeds which has a campus chapter network in 100 campuses developed since 1996. In 2016, ESA became involved in the 3dnaturalists project, led by Colorado State University, that seeks to understand how bioblitzes might make a difference in recruiting and retaining underrepresented minorities in ecology and sustainability sciences. In 2017, ESA joined the Core Team of the Biodiversity Literacy in Undergraduate Education (BLUE) network project to liaise with relevant scientific and professional societies and to provide input on engaging diverse participants in the project

This session will discuss:

1. how ESA's education initiatives can be leveraged for faculty professional development in the Biodiversity Literacy in Undergraduate Education (BLUE) project.
2. the ways that engaging students in biodiversity data in ecology research will open the doors to building key biological science competencies and 21st century careers
3. the potential of using place-based specimen data through bioblitzes to engage minority students in a culturally responsive scientific endeavor.

Keywords

undergraduate biology education, ecology, underrepresented minorities, diversity, faculty development, life discovery, digital library, biodiversity literacy, data literacy, bioblitz, place-based, culturally responsive, core competencies, disciplinary society

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Hosting institution

Ecological Society of America