

Science as a Way of Knowing—Biodiversity¹

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Biodiversity, the variation of genes, species and ecosystems, has emerged as a unifying discipline, bringing together scientist, conservationist, economist, politician and philosopher in an attempt to address the daunting problems that face an ever increasing population of *Homo sapiens* within a defined global environment. The evolution of this discipline has paralleled an understanding within the scientific community that there is a need to develop scholarly curricular materials for use in developing science courses for college and university undergraduate education. Students need to be exposed to current research and ideas to enable them to pursue formal and informal science education and to participate in local and global decisions in the years ahead. Issues relating to biodiversity are certain to be a part of that future.

“Science As A Way of Knowing” (SAA-WOK) is a program originated by Professor John A. Moore and organized by the Education Committee of the American Society of Zoologists for the purpose of improving the teaching of biology. The goals of SAA-WOK are to encourage teachers to 1) evolve entry-level courses that emphasize concepts with materials consistent with the changing needs of students and society, 2) relate how scientific procedures lead to a better understanding of the natural world and to the solutions of important human problems, and 3) present biology as a relevant, humanistic discipline. This set of papers on Biodiversity is the result of a SAAWOK Symposium

held at the 1992 Annual Meeting of the American Society of Zoologists in Vancouver, Canada.

Three areas discussed in these papers are, 1) species and processes, 2) biological diversity of communities: effects of human activity on diversity, and 3) actions and priorities for biodiversity. We begin with the overview essay by a leading advocate for Biodiversity, Professor E. O. Wilson. The papers which follow Wilson’s essay address three areas. The first area includes evolutionary history and the species problem, biodiversity in geological time, evolution of biotas, the role of natural history studies for understanding and conserving biodiversity and some of the ways we study species numbers in habitats. The second section comprises papers on the biological diversity of communities and the effects of human activity on diversity. Such topics as microbial symbionts, polar marine communities, coral reefs, oceanic islands and temperate coastal marine communities are considered in light of biodiversity. Within these papers there is also a discussion of the impact of *Homo sapiens* on the particular environment. The final section brings into focus some of the actions and priorities of scientists and institutions that are currently underway within the scientific community. Biodiversity is discussed in light of the interactions of economics with ecological systems, the role of zoos in the maintenance of biodiversity and the ways in which a future for biodiversity is being formulated.

Dr. Tom Lovejoy (Assistant Secretary of External Affairs, Smithsonian Institution), who presented the “John A. Moore Lecture” at the Vancouver Symposium, spoke of the need for us all to become teachers and students of biodiversity. It is not enough

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to read books; we must take the politicians into the rain forest to understand the complexity of the problems associated with forest destruction. Likewise, we must expose our undergraduates to our current research concepts of species and ecosystems, and present discussions of the tangible threats to biodiversity. We all must consider the changing roles for man in the preservation of local and global diversity, and the options on which we are able to act.

In this SAAWOK volume some of the leading biodiversity researchers bring into focus much of the latest thinking on the topic. Our global future will depend on the teachers and their students in coming gen-

erations understanding and sharing these concepts. As co-organizers of the symposium, we wish to express our sincere thanks to the National Science Foundation, Division of Undergraduate Education, for financial support for this meeting. Additionally we thank Dr. David Wake (President of ASZ, 1992) and Dr. John A. Moore for their encouragement, and Ms. Laura Jungen, ASZ Executive Officer and Ms. Bridget Farley from the ASZ headquarters for their managerial skills. Finally, we thank each of the symposium participants for their dedication to the concepts of SAAWOK and their contributions to the future teaching of Biodiversity.