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Introduction to the 1997 Symposium on Iowa's Declining Flora and Fauna

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In 1980, Iowa's biologists and ecologists gathered at the 92nd annual meeting of the Iowa Academy of Science to present a symposium on the state's declining flora and fauna. Papers were published a year later in a single issue of *The Proceedings of The Iowa Academy of Science* (Vol. 88, No. 1), which has since been widely cited and much used as a baseline for research efforts. The symposium was a noble undertaking, for although the highly altered composition of Iowa's presettlement ecology had been widely recognized throughout the previous century, no single publication or gathering to that date had attempted to deal with the multiple facets of declining numbers and diversity of the state's natural ecosystems and native species since Euroamerican settlement.

Much has happened since that original symposium, now nearly two decades in the past. Some of the changes have been good for the state's "original inhabitants," whose distribution and abundance continue to fluctuate and respond to their altered environment. The amount of Iowa's land dedicated to preserving native ecosystems and species has risen, along with the number of public and private conservation programs. A few natives have been reintroduced to the state and thrived while others have increased naturally. The significance of preserving native flora and fauna has become more widely recognized, in part because of the growing number of publications and interest groups dedicated to our native species and ecosystems. Research on native habitats has continued, multiplying our scientific knowledge. Concepts of restoration of native habitats have expanded greatly and now incorporate practices such as the burning of woodlands. Among the general public, biodiversity has become a commonplace term. Indeed, preservation of the world's native biodiversity is now widely recognized as one of the crucial environmental challenges of modern life, while the continued decline of native systems is accepted as a threat to the physical and economic survival of human society.

Yet despite the increased awareness and efforts regarding our native flora and fauna, many species continue the seemingly inevitable descent toward extirpation. We are recognizing that preserving a species requires management tools that may be beyond our ken and capabilities. In addition to the need for more research and broader understanding, we are now recognizing problems that may have been only dreams in the past—steady declines of neotropical migrating songbirds, crashes in amphibian populations, concerns that crucially important soil fungi may be declining in diversity and abundance, and rising environmental threats such as stratospheric ozone depletion and global warming. We thus have grown both in the scope of our knowledge and in recognizing the depth of our ignorance.

Recognizing trends that mingled hope with despair, members of the Iowa Natural History Association in 1995 began to organize a second symposium on the state's declining flora and fauna. The goal was to update the picture presented at the 1980 symposium, but also to broaden coverage to include groups of organisms that had

not been included in the first symposium. In this way, the symposium would provide a new baseline and create a unified vision of Iowa's biodiversity as it enters the 21st century. It was hoped that the symposium would point out (both through specific statements and through omissions) gaps in our knowledge, in this way inspiring additional investigations. Symposium presenters for groups that had not been discussed in 1980 were asked to trace the history of their subject since 1850; in contrast, presenters for groups covered in the original symposium needed only to trace changes in the interim. Thus the 1980 symposium would retain its status as an unduplicated baseline and reference.

The result was a symposium again entitled *Perspectives on Iowa's Declining Flora and Fauna*, presented at the Iowa Academy of Science's 109th annual meeting at Clarke College, Dubuque, Iowa, in April of 1997. The symposium consisted of 13 papers, prepared by twice as many contributors—an effort large enough to require both morning and afternoon sessions and still create some overflow into other conference sessions. Topics covered included all those of the 1980 symposium and several additions, namely terrestrial plants, algae and aquatic plants, fungi, Odonata, and Lepidoptera. The interest and enthusiasm with which talks were received emphasized the need for this type of synthesis of our knowledge. The proceedings of this symposium are contained, for the most part, in this and the following issue of the *Journal of the Iowa Academy of Science*.

While the symposium represented a noble attempt to present the status of our knowledge, readers of these proceedings may note a few apparent discrepancies and obvious omissions. These resulted from the still-incomplete status of our knowledge or from the continuing debate over terminology and detail. We are, for example, only now attempting to create a uniform system for naming specific prairie and forest ecosystems; until such a system is widely adopted, any reference to a certain ecosystem type will rely partly on an individual's conceptions and experiences. This problem is compounded by our evolving understanding of the nature of Iowa's presettlement ecosystems. Since 1980, we have greatly broadened our understanding of Iowa's original wetlands and woodlands, and fens and savannas have become significant topics of research. The nature and extent of Iowa's original woodlands remain largely a mystery; thus it is no surprise that references to the extent or character of "forest land" and related ecosystems at the time of settlement may vary from one paper to another.

An astute reader will note some obvious omissions in the following discussions. Some of these—for example a failure to discuss many groups of Iowa's insects, non-vascular plants, and stream inhabitants—result from a continuing lack of sufficient knowledge. Others stem from the fact that natural resources are viewed from many perspectives and are addressed by researchers with varying biases and training. It is difficult for any one person to present a full spectrum of concepts for large and diverse ecosystem complexes such as wet-

lands and forests, which are here approached primarily in terms of their production capabilities.

Any compilation of diverse information, such as this one, is likely to have many such shortcomings. While acknowledging these inadequacies, the editors trust that the following proceedings will, in combination with the 1981 proceedings, serve as a launch pad for the coming millenium, simultaneously providing a comprehensive look backward at a century-and-a-half of changes and creating a vision that will direct Iowa's research community toward more in-depth efforts.

Thanks are due to the authors for their excellent presentations, and for their patience and effort when working through several revisions of their papers; the many reviewers who provided insightful comments; Neil Bernstein for organizing the symposium and, along with the author, editing the proceedings and guiding them through to publication; IAS annual meeting organizers and Clarke College personnel for making the symposium possible; and the Iowa Natural History Association, which both conceived the symposium and provided a grant that partially funded the publication of these proceedings.