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## Invasive Species in Iowa: An Introduction

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Concern over the increasing spread of invasive species and the potential impacts of those species on native communities has been the subject of several books and hundreds of research papers in recent years. President Clinton's Executive Order on invasive species in February 1999 raised national attention to this issue. Natural resource agencies have been plagued by an ever-increasing number of invasive species and now consider this issue the second most important problem (after habitat loss) in their fight to maintain some semblance of natural communities on this planet. One group of experts estimated that in the United States alone, invasives cost more than \$100 billion annually (Pimentel et al. 2000). As the global economy continues to grow, it is reasonable to assume that this problem will increase in its severity as additional species extend their ranges.

In Iowa, the issue has received increased recognition and concern as species after species has been identified as a problem for natural communities. A small sampling of some of the problem species identified include leafy spurge, garlic mustard, purple loosestrife, Eurasian water milfoil, zebra mussels, bighead carp, and mute swan. This ignores several well-established invasive species such as house sparrow, European starling, rock dove, house mouse, Norway rat, feral domestic cats, and common carp, some of which have been around for more than a century to which we have adjusted to living.

Plants in particular seem to be a major source of concern. Garden stores are full of non-native plants and seeds that we willingly plant in our yards and flowerbeds. Although most of these species have shown little evidence of becoming invasive and pose little threat to natural communities, we have no good way of knowing which ones will pose a threat in the future. The few that do become a problem threaten the integrity of natural areas purchased to preserve natural flora and fauna. Besides the threats that the plants themselves pose, there is also the threat of invasive animals either attached to the plants or in the soil around their roots, leading to additional problems. Already gypsy moths have reached Iowa this way several times, and it seems inevitable that eventually that species will get a foothold in the state. Clearly the problem is not going to go away on its own.

The issue is not confined to natural communities. In particular, agriculture has also faced an every growing number of new problem species that threaten crops, nursery stock, and livestock. One has to only consider such issues as European corn borers, gypsy moths, and soybean aphids to gain some comprehension of the scope of the problem. In Iowa alone, agriculture's losses to invasive species easily amounts to tens of millions of dollars yearly. Clearly the issue is important for Iowans although many of our citizens are not aware of it.

It was against this background that we began working on this symposium. In the summer of 1999, we met in Toledo, Iowa, and discussed the possibility of organizing a meeting on invasive species

in Iowa. Our goals were relatively simple. We hoped to assemble a broad range of people who had an interest in the issue of invasive species and provide a forum in which they could learn about and discuss the issue of invasive species as it related to problems in Iowa. With the end of the century approaching, it seemed like a good time for Iowans to exam the issues, assess the extent and distribution of invasive species in Iowa, and provide a benchmark for coming generations. We also hoped that by doing so, we could provide a spark that would lead to further work in this field in Iowa.

We started with the premise that the Iowa Academy of Science would be involved with whatever meeting we arranged. As we discussed some of the issues related to invasives, we quickly realized that the usual format for symposia sponsored by the Iowa Academy of Science would not do justice to the topic. Those symposia, often confined to a half-day session or spread out into several sessions over the two-day IAS meeting, simply did not provide enough time for the range of topics that we hoped to cover. We soon realized that we needed to consider having a separate symposium that was confined to the topic of invasives if we were to do the topic justice. Neil presented this idea to the Iowa Academy of Science in fall, 1999, and received their strong support.

As we talked, several other ideas soon surfaced and became part of the plan. One was to include at least a few speakers who had a national perspective on the problem. By doing so, we hoped to make our audience in Iowa aware of the broad extent of the problem and some of the actions that were being taken to control some invasive species elsewhere. We also realized that we needed to provide plenty of time for discussion, both during the paper sessions and in organized discussion sessions. We hoped that by stimulating discussion, we could interest some of the participants into formally organizing a group that would continue work on invasive species. Finally we thought that it would be worthwhile to try to collect formal papers from most of the speakers and to have these published as single issue of the Journal of the Iowa Academy of Science. This had been done previously for symposia on the Loess Hills (Farrar et al. 1985) and for two symposia on Iowa's declining fauna and flora (Farrar 1981, Mutel 1998).

The meeting was held on 6–7 October 2000 at the Iowa State Center on the Iowa State University Campus in Ames with a total of 19 presentations on the program. It was soon apparent that the speakers had much to say and that even with extra time designated for discussion, there was not enough time for all of the questions that were raised. Even the break times were too short for the lively discussion that occurred. Although attendance was a somewhat disappointing 125, it was encouraging to see that there was a broad mix of individuals with plant and animal interests as well as individuals from natural resource agencies, non-government organizations, colleges and universities, private citizens, and a few from the

agricultural community. The first day and a half were confined to formal papers covering a broad range of topics related to invasives. Breakout sessions were planned for the second afternoon with the intent of collecting ideas on where to go next and, hopefully, planning for some future work. As we began that session, it soon became apparent that most people present already had some notion that they wanted something to continue to happen with invasives, probably in the form of a central committee that would develop a more organized approach to the problems of invasives in Iowa. Two attendees, John Walkowiak of the Iowa Department of Natural Resources and John Haanstad of Iowa Department of Agriculture and Land Stewardship in a presentation earlier in the program had described an existing group that was interested in the problems of forest insects. They indicated a willingness to expand that group into a broader Invasive Species Council for Iowa. It was apparent that we had some focus for the future and the conference concluded with the selection of several attendees to work with Walkowiak and Haanstad on developing such a council. Perhaps some of the haste at the end of the meeting was spurred by the arrival of hoards of red-clad University of Nebraska football fans. Many used the hallway outside our meeting room as shelter from the somewhat cold afternoon wind and they also were eyeing the soda and cookies that had been put in the hallway for our upcoming break!

So, how did this all turn out? The publication of this volume fulfills one of the goals of our meeting. Bernstein has cajoled, threatened, and in other ways been able to assemble many of the papers resulting from the meeting. We believe that these will provide a lasting statement on the issue of invasives in Iowa, both by documenting what invasives are established in Iowa and by pointing out some of the management steps that already are taking place. Perhaps some other group in future years will use this volume as a benchmark in assessing the role of invasives in Iowa's fauna and flora and in evaluating our progress in attacking the problems these species present.

Careful readers will note that several topics are not covered. A few speakers chose not to prepare papers for this publication. Their topics included freshwater mussels, leafy spurge, and introduced mammals. In addition, we decided not to deal with domestic and agricultural species at this symposium. Both groups are important in Iowa's econ-

omy and in the issues related to invasive species, but we simply did not have enough time to cover them adequately. We hope that they will receive the attention that they deserve in the future.

The Invasive Species Council, which received a starting boost at the symposium, has been active over the past year. The members have met several times and organized a tour of some areas with invasive species problems and control efforts this past summer. They also are now beginning plans for a second statewide conference for September 2002. We all know that the challenges are great and that the problems will not go away quickly. However, we believe that we in Iowa are off to a good start in meeting these issues. As you read the pages in this volume, we hope that you will gain a better understanding of some of these challenges and that you will join others in finding a way to meet them.

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