

Dragonology 101: Understanding Dragon-Hunters and Odonata Interactions in Protected Areas

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Introduction

Upper-level predators such as Odonata/Odanates (dragonflies—Anisoptera; damselflies—Zygoptera) are used as bio-indicators for wetland quality in Europe, Japan, the USA, and Australia, and are a flagship species for certain tourism attractions (Clausnitzer and Jödicke 2004). Understanding the socioeconomic values of insects while also convincing management agencies and decision-makers to increase conservation procedures and policies, are just some of the challenges facing entomologists and conservationists. Others include taxonomic limitations, lack of research funding, and social misconceptions (i.e., insects being perceived as pests). This article presents how some of these barriers have been overcome through experiential learning and applied field experiences.

Historiography, literature reviews, on-site observations (i.e., attending dragonfly symposiums), and interviews with dragon-hunters were used to acquire a greater understanding of the human dimensions of Odonata-human interactions. A sociocultural, historical overview of the role of dragonflies is provided first, followed by an examination of emerging recreation and tourism trends. The findings highlight protected area management strategies, legislation, and education. The article concludes by examining current management challenges and proposing future research recommendations.

Objectives

Raising public awareness concerning insects and Odonata is an essential feature of effective conservation practices in protected areas. By focusing on the human dimensions of “dragonflying” (viewing, collecting, and participating in dragonfly counts) and by discussing participants’ experiences in attending various dragonfly symposia, we may be able to translate these findings into practical tools that will enhance the recognition that experiential activities and awareness are essential cornerstones of conservation, and protected area management strategies.

Literature Review

For most Europeans and Euro-North Americans, invertebrates such as Odonata remain largely unfathomable and alien. However, Odonates have inspired artists, scientists and engineers (Thakoor et al. 2002). Indeed, some researchers have asserted that Odonates are humanity’s best friend of the insect world, while some special interest groups (i.e., the British Dragonfly Society) have established sanctuaries dedicated solely for the protection of these insects.

Dragonfly gatherings (e.g., festivals, specimen counts, educational outings) have been increasing in popularity in North America. Some of the most popular events in North America include the Dragonflies in Our Wetlands hosted by the West Eugene Wetlands

Education in Oregon, and the Valley Nature Centre's Annual Dragonfly Days, in Weslaco, Texas. Some symposiums, like the Great Lakes Odonata Meeting (GLOM), or the Volunteer for Nature programs (e.g., in the Boundary Waters, and the Carden Alvar butterfly and dragonfly counts), are often held near or in protected areas (e.g., provincial, state, and national parks). Those unfamiliar with "dragon-hunting" might be surprised to learn that regional, national (or, more precisely, continental), and international organizations exist which share a common interest in Odonates. Conservative estimates place the number of individuals belonging to Odonate associations at over 4,500 worldwide. The largest of these national organizations are located in Japan and Britain. This number increases dramatically if participation in dragonfly symposiums, volunteer insect counts, and festivals are included.

Method

A number of dragonfly outings held in northern Ontario were attended by the researcher during a two-year period (2005–2007). Throughout each outing, extensive observations and field notes were taken. These notes were supplemented with in-depth interviews with twenty participants (recruited from these outings) and other noted enthusiasts (referred by the participants), lasting approximately 20 to 30 minutes each. More males (15) than females (5), ranging in age from their early twenties to their mid-seventies, and representing a wide range of socioeconomic, educational and sociocultural groups, participated in the interviews. A large proportion of these interviewees, ranging from beginners and hobbyists to biologists, were from two Canadian provinces (Ontario and Manitoba), although some were also from two Midwestern states (Minnesota and Wisconsin). Complementing the process were electronic conversations with Odonata enthusiasts. In total, over 25 individuals from across the world provided additional information and reflections on Odonata and Odonata-related activities. It is important to note that I did not interview or conduct any electronic interviews with professional collectors. Although I do mention this group in the findings, my ethnographic focus is on amateurs, hobbyists, and biologists.

Semi-structured interviews were conducted on an agreed-upon date and time. Some interviews were conducted over the telephone, while others were face-to-face. All interviews were recorded and journal notes taken. Interviews were then transcribed and coded. A myriad of complex and emerging concepts and themes from the interviews were coded, compared, and winnowed down. A number of salient themes emerged from the analysis, including conservation and protection, education, attraction (colors, beauty), physical prowess, collecting specimens, and the role of technology. In order to facilitate this analysis, only themes pertaining to anthropogenic impacts, conservation and protection (e.g., protected areas, legislation), and education are discussed next. To preserve the anonymity of the participants, interviewees are referred to in general.

Findings

A number of interviewees noted that current anthropogenic activities such as forestry, increased agricultural activities, pest control schemes involving insecticides (e.g., for hydro lines), hydroelectric developments, and suburban sprawl have destroyed habitats and greatly reduced Odonata populations (Moore 1997). Compounding these factors are recreation-

al activities (motorized water vehicles) and associated developments (cottages, resorts) along shorelines, coastlines and riparian zones.

Since dragonflies can spend as much of two-thirds of their life in aquatic environments and require these areas for reproduction, a number of protected areas have been established with the specific purpose of protecting Odonata and their environments (e.g., Great Britain's sites of special scientific interest). In other locations, Ramsar sites and protected areas (e.g., Ba Be National Park, Vietnam) are essential biodiversity reservoirs. Some participants more familiar with international (Ramsar sites), national, and regional policies (Ramsar Sites, the Canadian Federal Wetlands Policy, and the Ontario Wetlands Policy Statement) in Canada stated that these policies provide additional protection to wildlife and their environments, including Odonates. Yet, research into wetlands management indicate that while great advances have been made in the public's understanding of these areas, the most notable feature of wetlands management in the province of Ontario and Canada is that there is still no specific or comprehensive national wetland law. Rather, as one participant explained, federal statutes regulating or otherwise protecting wetlands habitats in Canada have evolved piecemeal over the years. As a result, jurisdiction for wetland protection in Canada is a mixed of regional, provincial, and federal policies.

As two interviewees familiar with Odonata protection indicated, protected areas are not always synonymous with Odonata preservation. For example, some management approaches favoring tourism (i.e., the construction of visitor facilities, clearing undergrowth from stream banks) in the Khao Phanom Bench and Doi Suthep National Parks in Thailand, have been found to be detrimental to insect populations, especially Odonates (Hämäläinen 2004). Compounding these issues are the limited success that protected areas strategies have had in minimizing direct and indirect anthropogenic disturbances such as invasive species and climate change (Hoyle and James 2005). These limitations are further aggravated by our lack of knowledge surrounding dragonflies and their migratory patterns, e.g., the North American Dragonfly Migration Project (Wikelski et al. 2006).

While most participants understood the need to collect and preserve individual specimens for scientific purposes, a large majority opposed "recreational collections" and also questioned the need to collect and kill Odonates in the name of conservation. These perspectives however, were often dismissed by biologists and entomologists, who were quick to point out that potential impacts from collecting (personal, research) are minimal when one considers the various impacts on wildlife through human activities (e.g., industrial waste, suburban sprawl). They also noted that various legislation strategies designed to control the harvesting and collecting of specimens on endangered species lists (e.g., CITES, the Convention on International Trade in Endangered Species of Wild Fauna and Flora) and the Convention of Biological Diversity) have been implemented. None of the participants addressed the limitations of these legislative approaches to protected area management.

Last, while nearly all participants supported experiential approaches with insects and Odonata (e.g., guided interpretations in protected areas), and although a number of participants discussed the importance of early childhood exposure (e.g., outdoor recreation, environmental education) to nature and wildlife in fostering their environmental awareness, only in a few cases did this curiosity result in career pursuits. Thus, interest in dragonflies appears

to be a later-life manifestation, often occurring after several other activities have been experienced and mastered (e.g., birding).

Conclusion

From a parks and protected area management perspective, insects are rarely addressed in interpretation strategies, and when they are, they are often labeled as pests, living in disagreeable environments. Yet, as one study conducted on wildlife tourists visiting South African protected areas highlighted, managers were often “fairly surprised to learn that tourists had indicated an interest in being shown the invertebrate fauna” (Kerley et al. 2003:18). Repercussions from these information lapses are numerous, including people who may influence conservation procedures and priorities, such as politicians and land managers, who “commonly take the lack of definitive species lists of invertebrates as symptomatic of disinterests by biologists, or lack of importance, rather than reflecting major ecological complexity. It means also that with some exceptions, we cannot state categorically whether or not a particular invertebrate species is rare or otherwise worthy of conservation, because we do not know where else it occurs and what detailed environmental needs may be” (New 1997:6).

A far more effective translation of the diverse values (biological, social) of invertebrates and their environments will be needed to reverse the current trend toward increasing impoverishment of the planet’s species diversity. This will require public recognition and education as essential elements of policy changes regarding invertebrate conservation (Rykken 2007). Examples of such strategies already exist in various protected areas in Canada and the USA, including various interpretation programs in protected areas (e.g., Bruce Peninsula and Point Pelee National Parks in Canada, Rondeau and Sleeping Giant Provincial Parks in Ontario), experiential approaches promoted by such organizations as the Invertebrate Conservation Trust (also known as Buglife), the Boston Harbor Islands National Recreation Area All Taxa Biodiversity Inventory (Rykken 2007), and Odonata symposiums (e.g., Great Lakes Odonata Meeting). All of these methods are raising public, professional, and conservationist awareness of the diversity of invertebrates, their functions, and conservation needs.

On a more optimistic note, this research indicates that large, conspicuous, colorful, diurnal and aerial insects such as Odonata are excellent subjects for nature interpretation programs and public education. Indeed, participants noted that codes of conduct, greater information exchange, applied field experiences, interpretation, and new technologies (i.e., digital cameras, portable scanners, on-line verification) can increase our understanding of Odonates by producing species inventories, while minimizing our ecological effect on these creatures and their environments. In order to increase awareness of Odonates and provide a better understanding of their habitats, Odonata counts and symposiums should be open and marketed to individuals of various backgrounds and ages, and they should also seek to lessen, whenever possible, ecological impacts of these activities on Odonata habitat. Last, the findings from these interviews indicate that further interpretation strategies pertaining to this charismatic macrofauna of various stakeholders including biologists, managers, members of environmental not-for-profits groups, and various other social actors is still required.

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