

eNEWSLETTER



An informational e-newsletter for the friends of the Douglas County Wildlife Management Area

June 2004

Dragonfly Survey of the DCWMA

By Robert B. DuBois, Department of Natural Resources

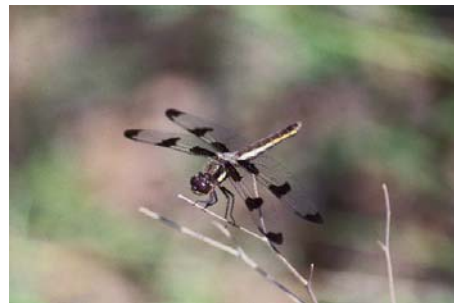
On June 19, 2004, I will be leading a class and field outing on the ecology and identification of dragonflies and damselflies of northern Wisconsin. This event will be held at the clubhouse and grounds of the Douglas County Wildlife Management Area (DCWMA). The goals for this event are twofold:

The Department of Natural Resources (DNR), Bureau of Endangered Resources (ER) is conducting a statewide survey of Odonata (dragonflies and damselflies) in Wisconsin. Thus, the first goal is to alert interested citizens (YOU) to the need for volunteers to assist us with this survey. For this survey to be successful we need as much help from citizen volunteers as possible because there are simply too many important habitats to survey throughout the state for the few professionals available to do the work. A citizen-based, volunteer workforce has the potential to be a great aid, as was the case with the recently completed Wisconsin Breeding Bird Atlas that was supported by a number of agencies and organizations. The purpose of the Odonata survey is to better understand the statewide distributions and necessary habitats of all of our species of dragonflies and damselflies. However, the survey is especially focused on the rarer species about which little is typically known. In order to preserve and protect the biodiversity of Wisconsin, we need to know about critical habitats for rare species so that we can prioritize the preservation of those kinds of habitats. This class and outing will provide you with all the information you would need to become involved with the statewide

survey if you're interested. Of course there is no obligation for you to help with the survey just because you attend this event. You are welcome to come and learn about these fascinating creatures just to have fun!



The second goal is to learn more about the species of Odonata that are found in the depressional wetlands of the DCWMA. The DCWMA is located in a level IV Ecoregion known as St. Croix Pine Barrens (also known as the Northwest Sands Ecological Landscape). The odonate community of this ecoregion is not well known, especially regarding wetland and bog habitats. We will be looking for several rare emeralds (Corduliidae) that are possible in this area, and we are likely to learn a great deal about the early-season damselfly community as well. A number of skimmers are likely to be showing their interesting mating behavior. See you there!



Twelve-spotted Skimmer images (male, top; female, bottom) courtesy of Derek Johnson.

Odonata – A Dragonfly Primer

By Robert B. DuBois

DNR Natural Resources Research Scientist

Dragonflies and damselflies form the Order Odonata, one of many Orders in the Class Insecta. This Order contains two main Suborders: Anisoptera (dragonflies) and Zygoptera (damselflies). Odonates (as the group as a whole is often called) are easy to separate from other Orders of insects: adults have large compound eyes that take up most of the head, the usual three pairs of legs, two pairs of large, membranous wings, and a long, slender abdomen having ten segments. As adults they breathe through spiracles (holes) in the abdomen. During their earlier larval stage when they live under water, they breathe through gills. During both stages they are voracious predators, feeding on a wide variety of insects and other small animals.

Dragonflies can be identified from damselflies by their generally larger size, thicker bodies, stronger flight, and their eyes, which usually touch on top of the head (except for clubtails), whereas in damselflies the eyes are well separated. Differences in the wings are also evident between the Suborders. Dragonflies at rest hold their wings away from the body, at an angle of about 180°, and the fore wings and hind wings are different in shape (hence the name Anisoptera). Damselflies at rest usually hold the wings close to the body (except for spreadwings), and the fore wings and hind wings have the same shape (hence the name Zygoptera).

Odonates have a fascinating life history in which most of their lives are spent as larvae under water, finally to emerge for a brief time of adult life when they are among the finest fliers on the planet. After mating the adult females deposit eggs in the water, in mud near the waters edge, or into plant material (endophytic oviposition) above or below the surface of the water, depending on the

species. Although some species over-winter as eggs, most eggs start to develop soon after they were laid and the larvae hatch out one to three weeks later. The larval stage is the growth stage of an insect's life. To grow, the developing larva must periodically shed its hard outer skin in order to grow a new and larger one. Periods between these molts are called "instars", and the number of instars necessary to complete larval development ranges from eight to fifteen. The larvae of dragonflies are generally more robust and flattened than damselflies and the gills are located inside the rectum. Damselfly larvae have a similar anatomy to dragonfly larvae but are more slender and the gills usually take the form of large, leaf-like appendages at the tip of the abdomen. The larvae of both Suborders are preyed upon by frogs and fish, and they in turn prey on the larvae of smaller insects, as well as tadpoles and even small fish. Depending on species, the larval stage can vary in duration from about three months to four years or more.

Having completed its growth and development the larva will leave the aquatic environment when circumstances are right and emerge as an adult. To transform into an adult (metamorphosis), the larva crawls out of the water and usually climbs onto a nearby vertical surface, often a plant stem. Some species can emerge on the horizontal surface of the bank not far from the water's edge. After a pause, the larval casing breaks at the back of the head and thorax and slowly and laboriously, the new adult (called a teneral) emerges. Emergence usually occurs over a period of 20 - 30 minutes, an amazing spectacle to watch! Within an hour or so after emerging, the teneral weakly flies off leaving the larval casing (called an exuvia) behind. Exuviae are often identifiable to species and thus are important in the study of odonates. The presence of exuviae indicates a breeding site whereas a flying adult could have come from miles away.

The adult stage (imago) is the stage of dispersal and reproduction. The first flight of

the teneral is away from water to upland areas where they feed and mature sexually for several days to a week or more before they are ready to return to the breeding site. Tenerals lack the full coloration of adults and do not initially fly as strongly. At the breeding site males are usually highly territorial, aggressively defending their territories from other males. The mating of odonates is virtually unique in the animal kingdom. As in all insects, sperm is produced near the tip of the abdomen. However, the male has an accessory organ on the underside of his second abdominal segment (near the thorax) to which he must transfer his sperm prior to mating. When a male encounters a receptive female he will use the terminal appendages (claspers) at the tip of his abdomen to clasp the female securely on the back of her head (dragonflies) or neck region (damselflies). Both partners then curve their abdomens so that the female's genitalia engages with the male's accessory organ, the pair thus forming a characteristic "wheel" position. Mating may last from a few seconds to more than an hour. Before placing his own sperm, the male will sometimes remove any sperm that may have been deposited by a previous suitor. Right after mating, the female will begin egg-laying then will fly away from water until she has another batch of eggs ready for fertilization. In some species, egg-laying is carried out "in tandem", with the male continuing to hold the female's head while she oviposits. In other species, the male separates but hovers near the female as she oviposits to discourage other males from mating with her. In either case, the point is for the male to guard his investment from other males. In some species, the female oviposits completely unattended by the male, but in these cases, she does so in secluded places, often under a bank or among thick vegetation. In our area, life expectancy in the adult stage is only a month or two. A few species of dragonflies are migratory, and these may live longer. Also, adult odonates in the tropics live longer than those in our region.

2004 DCWMA Sharp-tail Grouse Survey Results

By Fred Strand, DNR

Sharp-tailed grouse images are courtesy of Rick Baetsen.

It was a dark and stormy night...well not quite. But this often-used opening story line almost described the weather for the first annual FOTBS sharptailed grouse survey. Thirteen hardy individuals braved the weather elements before sunrise on April 18 to search for sharptails on the Douglas County Wildlife Management Area. The group met the evening before at the Clubhouse to learn about sharptail breeding biology. Sharptails are a lek species: the males gather on a common breeding site, known as a dancing ground. Here the males 'stakeout' territories which they defend against other males. They perform a number of physical activities including 'dancing' and make many different vocalization calls. All of this to attract females to them in hopes that females will select them for breeding!



The surveyors were divided into 4 teams and were assigned parts of the Wildlife Area to survey the next morning. Weather the next morning was rainy, breezing with occasional thunder. The kind of weather where most people, if they had the option, would rather roll over in bed and go back to sleep for

awhile....or at least just lay in their warm bed and listen to the rain and thunder. But not these hardy volunteers! Everyone rose to the challenge of the early morning time and weather and conducted surveys of their assigned areas.

Even though this survey date was near the peak of the sharptail breeding most male sharptails were either not on dancing grounds this morning, or if they were they were not actively displaying or dancing...they would rather be sleeping in weather like this! With persistence all of the survey groups found/seen some sharptails, but fewer than would have been seen under better weather conditions.

Additional surveys were conducted under better weather conditions to help assure a more complete sharptail survey. Survey results for 2004 were 21 males on the Douglas County Wildlife Management Area. This is essentially the same number as in 2003 when 20 males were observed.

This year a sharptail dancing ground-viewing blind was placed on the Wildlife Area. At least nine groups of people observed sharptails dancing this spring. Comments received indicated that the observers enjoyed watching sharptails dance. Most mornings there were 6 males dancing and displaying on this dancing ground. We plan to offer this sharptail watching opportunity in future springs.

Sharp-tailed Grouse Status at DCWMA

Number of Dancing Males Counted during recent spring surveys:

2004	21	1999	20	1995	12
2003	20	1998	18	1994	8
2002	12	1997	9	1993	2
2001	11	1996	9	1992	4
2000	16				

The fall population is usually estimated at four times the number of springtime dancing males (adult males + adult females + two offspring per pair).

History and Current Status in Wisconsin



The Sharp-tailed grouse is native to Wisconsin's prairies and was once found statewide. Recently, however, man-made and natural changes in sharptail habitat have caused the population to decline. Modern land-use practices, especially farming, have resulted in the destruction of virtually all of Wisconsin's prairies. There may be as little as 1,000 square miles of Sharp-tailed grouse habitat left in Wisconsin, and most of that is poor quality.

Currently, Wisconsin's sharptail population numbers about 5,000. These birds are mainly found on 11 state wildlife areas and adjacent privately-owned lands. These wildlife areas are located in pockets of suitable habitat in the northern third of the state and in the central forested region.

Presently, however, the state's sharptail population is declining at an estimated rate of 2 percent per year, mainly because of habitat loss. To maintain a stable sharptail population in Wisconsin, management efforts on the state's wildlife areas must be intensified.