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ODONATA AT A SMALL WOODLAND POND IN SOUTHERN ILLINOIS

T. E. Vogt, J. E. McPherson,¹ and W. T. McDowell²

ABSTRACT

A survey of the adult odonate fauna of a small woodland pond in Pope County, Illinois, was conducted during 1983–1984. Twenty-four species were collected including *Aeshna mutata* and *Anax longipes*. In addition, *Libellula vibrans* was collected in 1982, and *Aeshna* sp. (probably *u. umbrosa*) observed the same year but not collected.

Vogt and McPherson (1986) presented a list of the Odonata of the La Rue-Pine Hills Ecological Area (hereafter referred to as Pine Hills) and included ranges of flight activity for both this locality and for southern Illinois. Pine Hills, located in the northwest corner of Union County, Illinois, includes both terrestrial and aquatic habitats. The primary aquatic habitat is La Rue Swamp (including Winters Pond with which it is continuous). The sources of water are springs that issue from the base of the Pine Hills bluffs and from runoff.

During 1983–1984, we studied the odonate fauna of a small woodland pond in southern Illinois. Presented here is information on this fauna and a comparison with that of Pine Hills.

MATERIALS AND METHODS

On 1 June 1982, we observed several individuals of the aeshnids *Aeshna mutata* Hagen and *Anax longipes* Hagen patrolling a small pond in Pope County, 8 km west of Delwood. Closer inspection suggested that the odonate species diversity was high and, thus, presented an excellent opportunity to compare a pond assemblage with that of a swamp. Therefore, collecting trips were made once per week from May through August, and sporadically in September and October, during 1983 and 1984. Records consisted of specimens collected and later deposited in the Southern Illinois University Entomology Collection, Zoology Research Museum, and sight records (i.e., specimens not collected).

The pond is ca. 19 × 24 m, shallow (depth appears not to exceed 2 m), and encircled by planted pines and second growth hardwoods. It was excavated for wildlife by the USDA Forest Service and although it presently contains various amphibians (e.g., *Ambystoma*, *Notophthalmus*, *Rana*) and reptiles (e.g., *Nerodia*), it apparently contains no fish. Dominant vascular plants associated with the pond include *Carex squarrosa* L., *Alisma subcordatum* Rafinesque-Schmaltz, *Leersia oryzoides* (L.), *Scirpus atrovirens* Willdenow, *Eleocharis macrostachya* Britton, *Potamogeton diversifolius* Rafinesque-Schmaltz, and *Bidens aristosa* (Michaux).

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RESULTS AND DISCUSSION

Twenty four species were collected during this study (Table 1); also, *Libellula vibrans* Fabricius was collected on 20 June 1982, and *Aeshna* sp. (probably *u. umbrosa* Walker) was observed on 25 October 1982 but not collected. As was expected, several of the species were found throughout much of the season (i.e., *Enallagma aspersum* (Hagen), *Ischnura posita* (Hagen), *Anax junius* (Drury), *Erythemis simplicicollis* (Say), *Libellula cyanea* Fabricius, *Pachydiplax longipennis* (Burmeister), and *Plathemis lydia* (Drury)), whereas others were rarely observed (i.e., *Argia fumipennis violacea* (Hagen), *Enallagma signatum* (Hagen), and *Gomphus exilis* Selys).

Table 1. Seasonal flight distribution of Odonata in Pope County, Illinois, during 1983-1984.

Species	Date ^a																							
	May				June				July				Aug.				Sept.				Oct.			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>Lestes disjunctus australis</i> Walker	X	X			X	X	X										X	X						
<i>Lestes eurinus</i> Say					X	X	X	X	X	X			X											
<i>Argia fumipennis violacea</i> (Hagen)																	X							
<i>Enallagma aspersum</i> (Hagen) ^b	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
<i>Enallagma signatum</i> (Hagen) ^b					X				X															
<i>Ischnura posita</i> (Hagen) ^b	X		X	X	X	X	X	X	X	X	X	X	X	X			X	X			X			
<i>Ischnura verticalis</i> (Say) ^b	X				X		X				X													
<i>Gomphus exilis</i> Selys						X	X																	
<i>Aeshna mutata</i> Hagen			X	X	X	X	X	X																
<i>Anax junius</i> (Drury) ^b		X	X			X	X			X	X	X	X	X										
<i>Anax longipes</i> Hagen					X	X	X	X	X	X														
<i>Tetragoneuria cynosura</i> (Say) ^b	X	X	X																					
<i>Erythemis simplicicollis</i> (Say) ^b					X	X	X	X	X	X	X	X	X	X	X	X	X	X						
<i>Libellula cyanea</i> Fabricius ^b		X			X	X	X	X	X	X	X	X	X	X										
<i>Libellula incesta</i> Hagen ^b									X	X			X	X										
<i>Libellula luctuosa</i> Burmeister ^b									X	X			X	X	X	X								
<i>Libellula pulchella</i> Drury ^b						X							X	X										
<i>Pachydiplax longipennis</i> (Burmeister) ^b					X	X	X	X	X				X	X	X	X	X	X						
<i>Perithemis tenera</i> (Say) ^b							X	X	X	X	X	X	X	X										
<i>Plathemis lydia</i> (Drury) ^b	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X			
<i>Sympetrum ambiguum</i> (Rambur) ^b													X				X	X						
<i>Sympetrum vicinum</i> (Hagen) ^b																					X	X		X
<i>Tramea carolina</i> (Linnaeus) ^b					X				X	X	X													
<i>Tramea lacerata</i> Hagen ^b											X	X	X	X										

^a1,2,3,4 = weeks of the month.

^bAlso collected at Pine Hills (Vogt and McPherson 1986).

Two of the three most aggressive species, *A. mutata* and *A. longipes* (the third was *A. junius*) each occurred over a 7-week period and these periods greatly overlapped. *A. mutata* was active from the third week of May to early July, and *A. longipes* from early June to the third week of July. *A. junius* was rarely observed during these periods.

When *A. mutata* was the only aeshnid at the pond, it patrolled the entire surface area and along the margins. However, when *A. longipes* was also present, *A. mutata* primarily patrolled the margins and *A. longipes* the margins and the rest of the pond. Based on visual estimates, both species usually flew within 2 m of the surface. Within this height, *A. longipes* generally flew at a higher elevation than *A. mutata*. Conspecific and nonconspecific encounters involving these species rarely resulted in physical contact.

Of the 24 species, 18 also occur at Pine Hills (Table 1). This is not surprising because we have often found these same 18 species at other types of freshwater habitats (e.g., lakes, sluggish streams, temporary pools) in southern Illinois. Interestingly, the species of Lestidae, Gomphidae, and Aeshnidae (with the exception of *A. junius*) differed between the two habitats; i.e., *Lestes disjunctus australis* (Walker), *Lestes eurinus* Say, *Gomphus exilis* Selys, *A. mutata*, and *A. longipes* were found at the pond and *Lestes inaequalis* Walsh, *Lestes rectangularis* Say, *Arigomphus submedianus* (Williamson), *Epiaeschna heros* (Fabricius), and *Nasiaeschna pentacantha* (Rambur) at Pine Hills. We have only observed *L. eurinus* and *A. mutata* at woodland ponds in southern Illinois.

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- Vogt, T. E., and J. E. McPherson. 1986. A list of the Odonata of the La Rue-Pine Hills Ecological Area. Great Lakes Entomol. 19:1-5.