

ISSN 1061-3781

BULLETIN OF AMERICAN  
ODONATOLOGY

Volume 5 Number 4  
30 July 1999

**THE ODONATA FAUNA OF CONNECTICUT**  
**David L. Wagner & Michael C. Thomas, p. 59 - 85**

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# The Odonata Fauna Of Connecticut<sup>1</sup>

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## ABSTRACT

This report adds 35 species and 471 county records to Garman's (1927) inventory, bringing the total number of Odonata documented from Connecticut to 147 species (48 damselflies, 99 dragonflies). An annotated checklist of this fauna-based on a database of over 6,000 occurrence records-appears below. Each species account includes county records, the range of observation dates, an assessment of the species' conservation status, and brief biological notes. A State Heritage Program rank is proposed for each taxon; we estimate that 21.7% of Connecticut's odonate fauna can be regarded as rare (S1, S1S2, S2, S1S3, SH). Issues pertinent to the conservation of dragonflies and damselflies in Connecticut are discussed briefly. While there remains much to be discovered about Connecticut's odonate fauna, this preliminary report provides a benchmark for judging rarity, assessing faunal changes and, most importantly, for making land use decisions.

## INTRODUCTION AND BIOGEOGRAPHY

Connecticut is the third smallest state, and southernmost of the New England states, with an area of approximately 14,359 sq. km. It is situated in a transitional zone between the northern and central forest types. Elevation increases gradually from sea level along Long Island Sound to a high point of 725 m in the northwest corner of the state. For the purpose of this report, the state has been divided into five physiographic areas: Coastal Lowland, Connecticut Valley Lowland, Northwest Highland, Northwest Upland, and Northeast Upland (Flint 1930, Dowhan and Craig 1976) (Figure 1). The unequal distribution and abundance of the state's odonate fauna among these regions reflect differences in climate, elevation, geological history, land use history, and water chemistry.

**Coastal Lowland-** The Coastal Lowland extends inward from the shore for approximately 15-30 km, gradually rising from sea level to about 100 m. The

bedrock is predominantly metamorphic, consisting of schists and gneisses. Critical odonate habitats within this region include sandy coastal plain ponds and Atlantic white cedar (*Chamaecyparis thyoides*) swamps and bogs. The latter is a favored habitat of *Williamsonia lintneri*, Connecticut's only state-endangered dragonfly. The Coastal Lowlands support a number of southern species that are near their northern limit in New England: *Enallagma doubledayi*, *E. minusculum*, *E. pictum*, *Ischnura ramburii*, *Celithemis fasciata*, *C. martha*, *Ladona deplanata*, and *Libellula needhami*. Other southern species, known from but one or two locations, include *Calopteryx dimidiata*, *Lestes disjunctus australis*, *Ischnura prognata*, *Anax longipes*, *Progomphus obscurus*, and *Libellula auripennis*. Coastal estuaries and tidal marshes are home to *Enallagma durum*, *Ischnura hastata*, and *Erythrodiplax berenice*. Rhode Island species record by Virginia Carpenter (personal communication) that might be expected to occur in the this region, especially along our eastern border include *Enallagma daeckii*, *E. recurvatum*, *Nehalennia integricollis*, and *Gomphaeschna antilope*. Migratory species (*Anax junius*, *Epiaeschna heros*, *Libellula semifasciata*, *Libellula vibrans*, *Pachydiplax longipennis*, *Pantala flavescens*, *P. hymenaea*, *Tramea lacerata*, and *T. carolina*) are especially common along the coastal corridor (Soltesz et al. 1995; Sones 1995a, 1995b; May 1998). Rare vagrants to New England, such as *Libellula axilena*, *Libellula flavida*, *Sympetrum corruptum*, and *Tramea abdominalis*, also are more likely to be encountered in this region (Carpenter 1995, Sones 1995b, Soltesz et al. 1995, Muller 1997, Russell et al. 1998).

**Connecticut Valley Lowland-** The Connecticut Valley Lowland splits Connecticut roughly in half and occupies an area of approximately 32 km in width, extending from near the coast northward into Massachusetts and beyond. The valley floor, underlain by Triassic sedimentary bedrock composed primarily of shale and reddish-brown sandstones, may be lower by several hundred feet

<sup>1</sup> Bulletin of American Odonatology, 1999, 5(4): 59-85

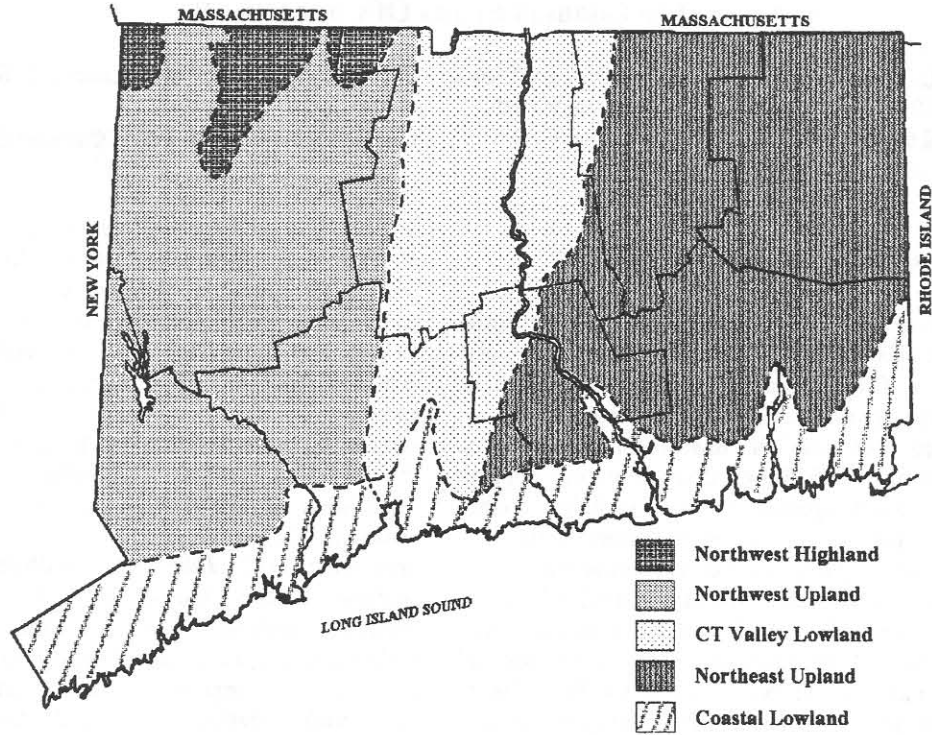


Fig. 1 Physiographic regions of Connecticut

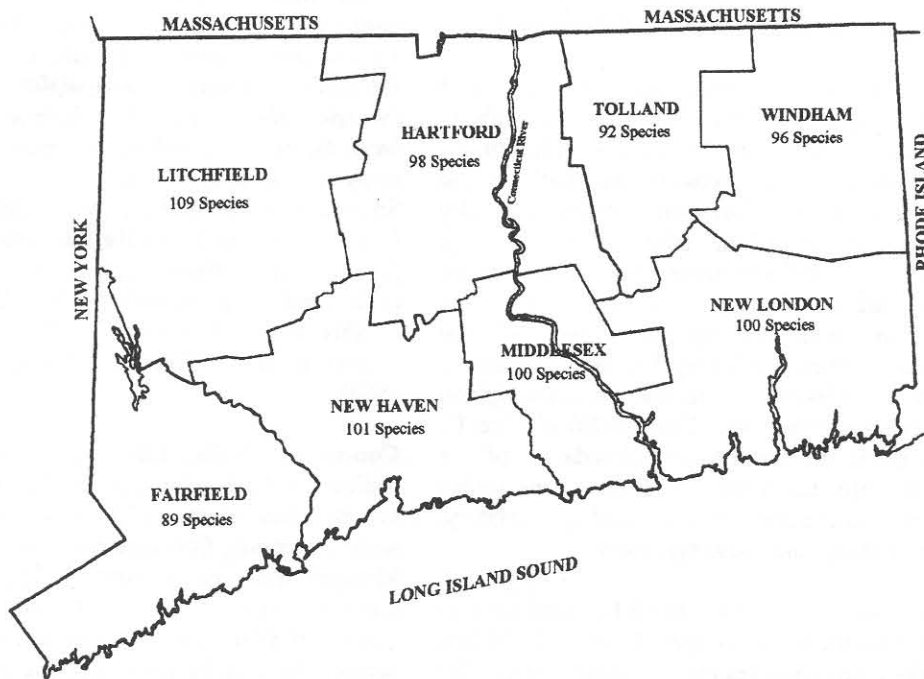


Fig. 2 Map of Connecticut, showing species tallies for each of Connecticut's eight counties

from the uplands. Rising above the valley are several north-south running ridges (e.g., Higby Mountain, Talcott Mountain, and Onion Mountain) composed of erosion-resistant basalt.

The most prominent feature of the valley is the Connecticut River, which empties into Long Island Sound. During the 1950's, the Connecticut River and many of its tributaries suffered from chronic pollution. The raw sewage and industrial wastes dumped into the river impacted fish populations and, presumably, invertebrates as well. Since the passage of the Clean Water Act in 1972, the water quality of the River has dramatically improved. Recent survey efforts along the Connecticut River have demonstrated the presence of a rich dragonfly assemblage that includes *Gomphus abbreviatus*, *G. fraternus*, *G. vastus*, *G. ventricosus*, *Stylurus amnicola*, *S. scudderi*, *S. spiniceps*, *Neurocordulia obsoleta*, and *N. yamaskanensis*. Of special note are the sandy beaches and sand bar communities that are home to many of the clubtails, as well as the federally threatened tiger beetle, *Cicindela puritana*. Unfortunately, few of the state's best sandbars are protected presently, and many are heavily impacted by weekend boating and other recreational activities. Two of Connecticut's most uncommon damselflies, *Hetaerina americana* and *Argia translata*, are found along the river. Odonate diversity diminishes rapidly below the salt boundary, approximately 27 km inland from the river's mouth. Species tolerant of brackish water, such as *Enallagma civile* and *E. durum*, may be especially common where there is mixing of fresh and salt water.

**Northwest Highland and Upland-** On either side of the Connecticut Valley Lowland lie the more erosion-resistant Highlands and Uplands, with bedrock composed predominantly of metamorphic schists and gneisses. The Northwest Highland region delineates the southern extension of the Berkshires and Taconic plateaus into the extreme northwest corner of the state. This rugged landscape contains the highest point in the state, the south slope of Mount Frissel, with an elevation of 725 m. Several other peaks with elevations in excess of 500 m include Bald Peak, Bear Mountain, Bradford Mountain, Canaan Mountain, Gridley Mountain, Mount Riga, and Round Mountain. To the south are the Northwest Uplands, with elevations generally above 300 m. In addition to metamorphic schists and gneisses, there are extensive areas where the bedrock is composed of soft marble. The principle drainages are the Housatonic system, which includes the Housatonic,

Naugatuck, and Shepaug Rivers, as well as the Farmington River branch of the Connecticut River system.

The Northwest Highland and Upland contain some of the state's finest examples of sphagnum bogs, brooks, beaver ponds, and calcareous wetlands (e.g., Beckley Bog, Moore Brook, and Robbin's Swamp). Here we find a number of boreal species at the southern limit of their range in New England: *Coenagrion resolutum*, *Aeshna interrupta*, *Gomphus borealis*, *Somatochlora elongata*, and *Leucorrhinia glacialis*. Cold water streams in this region support other essentially northern species, including *Calopteryx amata* and *Gomphus descriptus*. If *Gomphus quadricolor* is still extant in the state, we would expect it here. In addition, there are recent records for *Neurocordulia yamaskanensis* and *Gomphus ventricosus* from upper stretches of the Housatonic River (although the latter was found just across the Massachusetts state line). *Enallagma carunculatum* frequents the shores of some of the oligotrophic lakes, but tends to be local and uncommon to the south and east of this region. Two Massachusetts species that occur just north of the state line, above Hartford County, include *Boyeria grafiana* and *Ophiogomphus carolus*.

**Northeast Upland-** The Northeast Upland occupies much of the eastern half of Connecticut and extends into Rhode Island and Massachusetts. Like the Northwest Upland, the bedrock is predominantly metamorphic schists and gneisses, but average elevations are lower, dropping to 130-320 m. The principle drainages include the Thames system, which includes the Hop, Natchaug, Quinebaug, Shetucket, Thames, and Willimantic Rivers, as well as parts of the Connecticut River system. In contrast to the Northwest Upland, a number of species more characteristic of the coastal plain, such as *Enallagma minusculum*, *E. pictum*, *Ischnura kellicotti*, *Celithemis martha*, and *Ladona exusta* occur in the Northeast Upland. Conversely, boreal species are all but absent. Only one of the species (*Enallagma carunculatum*) mentioned above for the Northwest Upland and Highland has been taken in this region.

#### FAUNAL CHANGES?

All of New England was covered by more than a mile of ice as recently as 18,000 ybp; low tundra and boreal vegetation dominated the landscape 15,000 ybp, and it was not until 12,000 ybp that appreciable deciduous forest had reestablished

	Garman (1927)	Recent Surveys (1994-1998)	Known Fauna
ZYGOPTERA	38	46	48
Calopterygidae	4	5	5
Lestidae	9	8	9
Coenagrionidae	25	33	34
ANISOPTERA	74	98	99
Petaluridae	0	0	0
Aeshnidae	12	15	15
Gomphidae	16	23	24
Cordulegastridae	4	4	4
Macromiidae	1	2	2
Corduliidae	12	16	16
Libellulidae	29	38	38

Table 1. Species totals by family of Connecticut's odonate fauna.

(Pielou 1991, Webb et al. 1993). In many ways it is remarkable that Connecticut has such a rich odonate fauna—nearly 150 species—given its recency of glaciation. Of special interest are regional endemics, such as *Enallagma laterale*, whose entire range falls within the boundary of the most recent glacial maximum. Molecular distance data for mitochondrial DNA (McPeck 1998, Brown et al. unpublished manuscript) indicate that *E. laterale* is of recent evolutionary origin, perhaps even young enough to have arisen within New England since the glacial maximum. The geological nascency of Connecticut's biota may explain, in part, why the distributions of several of our odonates appear to be in flux. The genus *Enallagma* contains a number of species whose ranges may be expanding: e.g., *E. aspersum* (Catling and Pratt 1997), *E. basidens* (Cannings 1989, Westfall and May 1996, Muller 1996), and *E. civile* (Hellebuyek 1993, Catling 1996, 1998). *Enallagma laterale*, may prove to be an especially good example. Garman (1927) had but a single record for this species, yet we have more than 25 records representing six counties. Moreover, there are no early records from Tolland County, which includes the University of Connecticut, where students have been making insect collections for more than a half century. Presently, *E. laterale* is one of the most common and widespread springtime damselflies in the eastern half of the state. It is also curious that neither of our *Pantala* species, both of which are now regular migrants, were recorded by Garman (1927).

#### Historical Notes

The first accounting of the state's Odonata fauna was that of R. Heber Howe Jr.'s (1917-1921)

Manual of the Odonata of New England in which 83 species were documented from Connecticut. Among the many collectors that forwarded specimens or records to Howe were C. W. Atwater, Benedict (initials unknown), S. W. Bromley, P. P. Calvert, H. A. Hagen, C. W. Johnson, E. J. S. Moore, A. P. Morse, R. C. Osburn, and L. B. Woodruff. Foremost of these was Woodruff, who collected extensively around the Litchfield area, and even published a paper on the discovery of interesting species near his home in 1914. Wilton E. Britton, published his Checklist of the Insects of Connecticut in 1920, a work based on literature searches and the collection at the Agricultural Experiment Station, which for many years was the state's premier insect collection. His publication added another 18 species, bringing the state total to 101.

On the heels of these two studies, Philip Garman (1927) published his monographic work on The Odonata or Dragonflies of Connecticut, which raised the state total to 112 species. Garman's was an excellent, well illustrated work, with numerous keys for the identification of both adults and larvae that still stands as one of the primer taxonomic works on the northeastern odonate fauna. Important collectors, not already cited above, who aided Garman's studies include P. L. Buttrick, J. Cronin, H. B. Kirk, H. L. Viereck, B. H. Walden, and M. P. Zappe.

This flurry of attention was followed by more than a half century of modest odonatological activity. Although specimens continued to accumulate in the collections at the Connecticut Agricultural Experiment Station (New Haven), and the university collections at Yale and the University of

Connecticut, almost no literature appeared on the state's dragonfly and damselfly fauna. For example, Needham and Westfall's (1955) *Dragonflies of North America* added only two species to the state tally. The next serious effort came in 1983 and 1984, when Paul S. Miliotis conducted an odonate survey for the Connecticut Chapter of The Nature Conservancy. His results were not available to this study.

Beginning in 1994, the authors, a cadre of students, and several collaborators began a statewide dragonfly and damselfly survey. The overriding goal was to gather occurrence data for those species likely to be of conservation interest and to evaluate the status of species listed under the state's rare and endangered species legislation (see below). Greatest emphasis was placed on the survey of critical habitats such as bogs, coastal plain ponds, cold, open streams with riffles, and the riverine communities of the Connecticut River. Conversely, other odonate habitats, such as early successional bodies of water, eutrophic lakes and ponds, and brackish communities, received little attention.

This preliminary report adds 35 species and 471 county records to Garman's (1927) inventory. Of these, 23 of the state and 419 of the county records were added since 1994, when we, Robert Muller, and others, began our surveys in earnest. (An "official" accounting of state and county records will not be possible until all specimens in institutional and private collections have been documented.) A taxonomic summary for Connecticut's odonate fauna is provided in Table 1.

#### DATABASE

Beginning in 1994, we began collecting occurrence data into a database that resides at the University of Connecticut (upon publication of this paper, static copies will be deposited with the Connecticut Department of Environmental Protection and the Connecticut Chapter of The Nature Conservancy). This preliminary report of the state's odonate fauna summarizes more than 6,000 occurrence records found within this database. A large fraction of the records are tied to specimen vouchers in the collections at the University of Connecticut, Connecticut Agricultural Experiment Station, Dinosaur State Park, and the private collections of Ann Colson, Frank Dirrigl, Ed Force, Valerie Giles, Carol Lemmon, Chris Maier, Robert Muller, Linda Ruth, Fred Sibley, William Sigmund, Ken Soltesz, Ryan Wagner, Virginia Wagner, as well as those of the authors. We have examined Yale University's

collection at the Peabody Museum for unusual records, but we have not yet documented the specimen data for this large and important collection. The authors examined every individual for all specimen records, and thus any misidentifications are ours. The database also includes over 600 literature records from Garman (1927) and Howe (1917-1921). Although our database also contains sight records (mostly of the authors), all but two of the 147 species listed in this report is referable to one or more specimen vouchers.

The species tallies for each of Connecticut's eight counties are given in Figure 2. The richest fauna occurs in Litchfield County (109), with richness falling off eastward and southward. The lowest total is that for Fairfield County (89 species). Although it is tempting to speculate that this low number is due to urbanization (Fairfield is Connecticut's most densely populated county) it also happens to be the most poorly surveyed county.

#### CONSERVATION ISSUES

This survey was motivated by a need to have reliable data for the state's dragonflies and damselflies that might be in need of legal protection. Equally importantly, several odonate species listed by the state's endangered species legislation as recently as 1995 as Endangered (e.g., *Dorocordulia libera*), or of Special Concern (e.g., *Arigomphus furcifer* and *Leucorrhinia hudsonica*), were believed by Ken Soltesz and Virginia Carpenter to be rather widespread species. As a result of the collective survey efforts that have occurred in Connecticut over the past five field seasons, the composition of the state's list of protected species has changed markedly since the early 1995 legislation; e.g., three of the four listed species in 1995 have been dropped. Sixteen species are presently state listed: 1 as Endangered, 3 as Threatened, and 12 as Special Concern (Table 2).

A species' legal status does not always relate directly to the number of extant occurrences. For example, *Williamsonia lintneri*, which is known from three sites, has been the subject of intensive searches since the spring of 1994. It truly is rare in Connecticut, or at least truly difficult to locate, as we have searched more than 50 sphagnum wetlands in central and eastern Connecticut for this species. Another reason why the numbers of known occurrences do not correspond to the state rankings is that the advisory committee meetings and

Taxon	Legal status	Number of extant localities
<i>Calopteryx amata</i>	Special Concern	3
<i>Calopteryx dimidiata</i>	Special Concern	2
<i>Enallagma doubledayi</i>	Special Concern	2
<i>Enallagma minusculum</i>	Threatened	3
<i>Enallagma pictum</i>	Special Concern	2
<i>Gomphus fraternus</i>	Special Concern	3
<i>Gomphus vastus</i>	Special Concern	4
<i>Progomphus obscurus</i>	Threatened	1
<i>Stylurus amnicola</i>	Special Concern	4
<i>Stylurus spiniceps</i>	Special Concern	5
<i>Cordulegaster erronea</i>	Threatened	1
<i>Somatochlora elongata</i>	Special Concern	1
<i>Williamsonia lintneri</i>	Endangered	3
<i>Ladona deplanata</i>	Special Concern	2
<i>Leucorrhinia glacialis</i>	Special Concern	3
<i>Libellula auripennis</i>	Special Concern	1

Table 2. Connecticut's state listed odonate fauna. The number of extant localities includes records from the 1980 through 1998 field season. In accordance with The Connecticut Endangered Species Act, Chapter 495, General Statutes of Connecticut, an ENDANGERED SPECIES is defined as "any native species documented by biological research and inventory to be in danger of extirpation throughout all or a significant portion of its range within the state and to have no more than five occurrences in the state, and any species determined to be an "endangered species" pursuant to the federal Endangered Species Act." A THREATENED SPECIES is "any native species documented by biological research and inventory to be likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range within the state and to have no more than nine occurrences in the state, and any species determined to be a "threatened species" pursuant to the federal Endangered Species Act." A SPECIES OF SPECIAL CONCERN is "any native species documented by scientific research and inventory to have a naturally restricted range or habitat in the state, to be at a low population level, to be in such high demand by man that its unregulated taking would be detrimental to the conservation of its population or has been extirpated from the state."

rankings for the current legislation were established in 1997-prior to the 1998 field season. In addition to the discovery of several new populations for presently listed taxa in Table 2, the 1998 field season also yielded two localities of *Gomphus descriptus*, a species that will likely receive some measure of legal protection the next time the state's list is reevaluated. The Department of Environmental Protection's Rare and Endangered Species Advisory Committee also considers perceived rarity and threats. *Cordulegaster erronea*, a southern species that ekes out a marginal existence in Connecticut, is a denizen of cold springs and creeks that flow throughout the summer (Barlow 1995, Ken Soltesz personal communication). Because this habitat is scarce within a state heavily impacted by colonial and subsequent settlement, this spiketail is thought to be especially imperiled within our borders.

Many of Connecticut's rare species are more common in adjacent states, and some abundantly so. For example, all the libellulids listed in Table 1

are common elsewhere in the East. The most important exceptions to this statement are the *Stylurus* and *Gomphurus* clubtails that inhabit stretches of the Connecticut River. Two of these, *Gomphus (Gomphurus) fraternus* and *Stylurus amnicola*, may have especially large populations in Connecticut relative to those of Massachusetts and other northeastern states, and thus the conservation of these insects by Connecticut should be regarded as being of regional importance. On a global scale, Connecticut's most imperiled species is the Ringed Boghaunter, *Williamsonia lintneri*, a former United States Fish and Wildlife Service C2 candidate. Our discoveries of *Williamsonia* at two sites in Windham County appreciably expanded the known range of this insect in Connecticut.

For each of Connecticut's 147 species, we propose a Natural Heritage Program S rank, or estimate of the taxon's abundance. An explanation of the Natural Heritage codes used in this report is provided in appendix 1. Our ranks are conservative, in that we have estimated the number of viable localities that



will be found in Connecticut, rather than basing our rankings on the number of known occurrences as given in Table 2. Even with our conservative estimates, 21.7% (32/147) of our fauna can be regarded as rare (S1, S1S2, S2, S1S3, and SH). If species with an S2S3 rank are considered, the percentage rises to 31.9% (47/147). An additional three species, all known from but a single specimen, are ranked as SU (= status unknown): *Coenagrion resolutum*, *Ischnura prognata*, and *Aeshna interrupta*.

Three species of odonates have not been taken in more than fifty years: *Lestes unguiculatus*, *Gomphus quadricolor*, and *Sympetrum corruptum*. The former was found nearby on Block Island, Rhode Island, recently (Carpenter 1998), and thus should be looked for along the coast. Noble Proctor reported this lestid from New London County in 1998, but a voucher was not taken. *Sympetrum corruptum* is not a state resident, but a rare vagrant in New England. *Gomphus quadricolor* may be the only truly historical species of our odonate fauna. Thus an exceptionally high percentage (99.3%) of our fauna appears to be intact. We find this surprising given that Connecticut ranks among the most impacted states with regard to the draining and filling of its wetlands—with some estimates of wetlands losses ranging as high as 74% for the state (World Resources Institute 1993). Moreover, all of its largest rivers have been dammed, and most of these were at one time polluted as well. Two species that may have been resident in the state along the Connecticut River, but for which there are no records, are *Ophiogomphus howei* and *O. anomalus*. The former was described from Amherst, in central Massachusetts, and the latter occurs in large rivers to the north and west. Damming, dredging and other anthropological activities in and about the river, likely have eliminated any suitable habitat that may have been here for these gomphids. *Ophiogomphus carolus* is resident in the Farmington River, just north of the state line. Connecticut's damming of the River to form Barkhamstead Reservoir, which now fills the basin upstream to beyond the Massachusetts border, may well have brought about the demise of *O. carolus*. Repeated recent attempts to find this former resident downstream from the Barkhamstead Reservoir have failed.

A number of habitat types warrant special attention from the conservation community. Foremost among these may be the cool, surface-running springs that are home to *Cordulegaster erronea*.

Many springs that once occurred naturally in Connecticut were converted into wells and pump houses by colonists. Seepage areas that would be suitable for the larval development of *Tachypteryx thoreyi* are rare, especially in the eastern half of Connecticut. Especially fine or extensive examples of this unique community type should be another of the state's top conservation priorities. Largely because of damming, there are almost no streams and rivers with riffles that would be suitable for *Gomphus quadricolor*. And although Connecticut has hundreds of creeks, streams, and small rivers, relatively few of these have appreciable stretches with the sand deposits and sunny openings that are frequented by many gomphids. This may well explain why *Gomphus rogersi* and *Ophiogomphus carolus* have not yet been found in Connecticut, and why others such as *Gomphus descriptus* and *Stylurus scudderi* are rare. Coastal plain ponds with shallow sandy bottoms are few in number, and none of these has the broad sandy shorelines favored by *Progomphus obscurus*. Coastal plain ponds would certainly make for interesting restoration projects, especially in light of the rich odonate fauna of this aquatic community. Shallow, sand bottomed ponds could be made (at little cost) in many of the state's abandoned sand and gravel pits. One possibility would be to change the permitting requirements for sand and gravel operations in the state. Presently all sand and gravel pits must be covered and revegetated upon the quarry abandonment. We would urge that permittees be allowed or even encouraged to leave intact any ponds that have formed as a result of mining activity, especially across the eastern half of Connecticut.

Development, pollution, and damming, all pose threats to the state's odonate fauna. Less obvious conservation concerns would include boat traffic along the Connecticut River and the introduction of fish into fishless bodies of water. Large boat waves can deliver a mortal blow to emerging dragonflies, especially *Gomphus* and *Stylurus* species that tend to crawl only a short distance beyond the water's edge before eclosing (Charlton 1991, Wagner et al. 1995, Wagner and Thomas 1996). A more serious threat may be the heavy recreational (boating, picnicking, and camping) activity that occurs on most of the Connecticut River's cleaner beaches. The sandy peninsula that extends down from the Massachusetts state line, which is home to three *Gomphurus* and two *Stylurus* species, is so densely packed with people on weekends that emerging adults surely must suffer heavy tolls. The sand bar communities along the Connecticut present an

interesting management problem, especially with regard to ownership, as they tend to move down river, and alternate from being islands to peninsulas.

Much of Connecticut's odonate fauna is fish intolerant, i.e., they have lower survivorship in the presence of bass, pickerel, sunfish, perch, and other insectivorous fish (McPeck 1989, 1990; Sigmund 1994; McPeck and Schrot 1996). Evidently trout are an exception to the above (McPeck 1998), as several species of odonates that are otherwise fish intolerant coexist with brook trout. The majority of our darners and corduliids tend to occur over fishless bodies of water, e.g., bogs, swamps, and vegetation choked areas of ponds and lakes, where predatory fish have little access. The genus *Enallagma* contains both fish tolerant and intolerant species. *Enallagma ebrium*, *E. hageni*, *E. geminatum*, and *E. vesperum* can coexist with many species of insectivorous fish, because the larvae are still or move only very slowly in the presence of fish; fish intolerant species, e.g., *Enallagma aspersum*, *E. boreale*, and *E. cyathigerum*, thrive only in waters where the top predators are aeshnids (Johnson and Crowley 1980, McPeck 1989, 1990, 1998). Fish were not native to many of Connecticut's ponds, smaller lakes, and creeks; efforts should be made to maintain examples of wetlands that are free of fish, especially introduced game species.

At its core, invertebrate conservation is about the identification, preservation, and management of critical habitats. Conscientious collecting, as established in the collecting guidelines of the Dragonfly Society of the Americas (DSA, 1996), would not be expected to impact a species' welfare. To the contrary, it is not until we have adequate occurrence data that conservation biologists can know what species or habitats are in need of protection. There is an immediate need for well documented records, be these specimen vouchers or unequivocal photographs for the S1, S2, and SH taxa in this report, as well as the handful of additional species (e.g., *Enallagma recurvatum*) that may be resident. Because a species' ranking is largely a function of the number of sites from which it is known, the conservation and entomological communities should be reluctant to accept sight records of rare taxa whose occurrence has not been rigorously documented. Collecting permits, required on all state lands, may be obtained by writing to the Wildlife Division, Department of Environmental Protection, 79 Elm Street, Hartford, CT 06106-5127.

## ACKNOWLEDGMENTS

Jane O'Donnell and Linda Ruth made numerous suggestions that improved an early version of this manuscript. The reviews of Ginger Carpenter, Blair Nikula, Clark Shiffer, and Ken Soltesz, and editorial suggestions of Nick Donnelly were of considerable value. We extend thanks to all those who provided us with records, shared personal observations, or allowed us to examine their specimens: especially Ralph Charlton (Kansas State University), Ann Colson (The Nature Conservancy), Frank Dirrigl, Ed Force (Southern Connecticut University), Valerie Giles, Charlene Houle, Larry Kalinowski, Carol Lemmon (The Connecticut Agriculture Station), Chris Maier (The Connecticut Agriculture Station), Mark McPeck (Dartmouth College), Paul Miliotis, Mike Nelson, Jane O'Donnell (University of Connecticut), Dave Primozich, Noble Proctor (Southern Connecticut University), Charles Remington (Yale University), Linda Ruth, Fred Sibley (Yale University), Bill Sigmund, Eric Thomas (Dinosaur State Park), Jeremiah Trimble, John Viens, Monty Volovski, Ryan and Virginia Wagner, and Ben Williams (Research Associate, University of Connecticut). We especially acknowledge the endless hours of fieldwork by Robert Muller, and his willingness to share data and voucher material. Jane O'Donnell (University of Connecticut Insect Collection), Raymond Pupedis (Peabody Museum, Yale University), and Ken Welch and Chris Maier (The Connecticut Agriculture Station) facilitated our efforts to work with the collections in their care. Nick Donnelly examined many of the *Sympetrum internum* on which this report is based. Ken Soltesz was a seemingly inexhaustible source of information on our fauna. Early on he provided determinations, larval and adult specimens, collecting tips, and considerable encouragement. Much of the latter also poured in from Ginger Carpenter, Blair Nikula, and Nick Donnelly. Monetary support for our survey efforts was provided by contract grants from The Nature Conservancy (1997, 1998), the Connecticut Department of Environmental Protection (US EPA State Wetland Protection Development Grant, 1994; Endangered Species Species/Wildlife Income Tax Check-off Fund, 1997, 1998), and the Great Mountain Forest Cooperation and Edward C. Childs Family (Norfolk, CT)(1997, 1998). We dedicate this paper to the memory of our friend, Denise Simmonds, whose survey efforts along the Connecticut River during the summer of 1995, first

alerted us to the remarkable gomphid fauna of New England's largest river.

#### ANNOTATED SPECIES LIST

Below we provide a brief account for 147 species (and one additional subspecies, *Lestes disjunctus australis*) of Odonata recorded from Connecticut. Each account includes the common name [adopted from ARGIA, 8(2), August 1996], flight dates, county records, an assessment of each taxon's conservation status (with a proposed Heritage rank), and some brief biological notes. This information is preliminary and based on only a portion of the specimens presently housed in collections. For example, flight dates are only for records in our database-no effort has been made to rigorously document the full period of activity for any species. The 35 additions to the Connecticut State list since Garman's 1927 monograph are identified by an asterisk (\*).

#### ZYGOPTERA

##### CALOPTERYGIDAE

*Calopteryx aequabilis* Say, 1839 - River Jewelwing

Flight Dates: 19 May - 29 July

County Records: Fairfield, Litchfield, Middlesex, Hartford, New Haven, New London, Tolland, Windham

Conservation Status: Common; proposed rank: S4  
Comments: Prefers streams and rivers, especially quiet sections with muddy bottoms.

*Calopteryx amata* Hagen, 1889 - Superb Jewelwing

Flight Dates: 3 June - 7 July

County Records: Hartford, Litchfield

Conservation Status: Rare, local; listed by Connecticut DEP as a species of Special Concern; proposed rank: S2

Comments: Inhabits cold, shallow streams and rivers, especially with sandy bottoms. Often associated with *Ophiogomphus aspersus*. Presently known from three river systems in northwestern and north central Connecticut: Salmon Brook (Hartford County), Hollenbeck and Nepaug Rivers (both Litchfield County).

\**Calopteryx dimidiata* Burmeister, 1839 - Sparkling Jewelwing

Flight Dates: 6 - 11 July

County Records: New London

Conservation Status: Rare, local; listed by Connecticut DEP as a species of Special Concern; proposed rank: S1S2

Comments: Coastal plain species currently known from two sites in southeastern Connecticut: Pawcatuck River, Stonington, and Schnock Brook, North Stonington, both near Rhode Island border.

*Calopteryx maculata* (Beauvois, 1805) - Ebony Jewelwing

Flight Dates: 23 May - 18 September

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5  
Comments: Most commonly observed species of genus, inhabiting a wide range of lotic habitats, from tiny woodland rivulets to the Connecticut River. Males perch over pools on snags and overhanging vegetation.

*Hetaerina americana* (Fabricius, 1798) - American Rubyspot

Flight Dates: 23 August - 18 September

County Records: Hartford, Litchfield, Windham

Conservation Status: Rare, local; proposed rank: S1S2

Comments: Species of rivers and larger streams, preferring sunny stretches. Seemingly more widespread historically and declining. Recent records from Natchaug River in Chaplin (Windham County) and upper Connecticut River (Hartford County).

##### LESTIDAE

*Lestes congener* Hagen, 1861 - Spotted Spreadwing

Flight Dates: 4 July - 24 October

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5  
Comments: Latest emerging damselfly in Connecticut, flying well into October. Often encountered in fields adjacent to highly vegetated lakes and pond shores.

*Lestes disjunctus disjunctus* Selys, 1862 - Common Spreadwing

Flight Dates: 27 June - 30 August

County Records: Fairfield, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Very common; proposed rank: S5

Comments: Especially common in bogs but also occurring in fens and swamps. Local, outside of Litchfield County. We rarely find it flying with *L. forcipatus*, which seems to replace it in more impacted lentic habitats.

*Lestes disjunctus australis* Walker, 1952 - Southern Common Spreadwing  
Flight Dates: 7 May - 21 May  
County Records: Fairfield

Conservation Status: Rare, local; proposed rank: S1S2

Comments: Early season spreadwing known from two sites discovered by Robert Muller in the southwestern corner of the state: Baird Mill Pond (Shelton) and Roosevelt Pond (Stratford). Its rarity, restricted distribution, and early flight period in Connecticut, support arguments that *L. d. australis* represents a full species. For the purposes of conservation decisions, we recommend that it be regarded as a distinct entity.

*Lestes dryas* Kirby, 1890 - Emerald Spreadwing

Flight Dates: 31 May - 14 August

County Records: Fairfield, Hartford, Litchfield, New Haven, Tolland, Windham

Conservation Status: Uncommon, local; proposed rank: S3

Comments: Local species that typically occurs in low numbers. It frequents wet meadows and grassy areas along the edges of swamps and vernal pools.

*Lestes eurinus* Say, 1839 - Amber-winged Spreadwing

Flight Dates: 28 May - 30 July

County Records: Fairfield, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Common, local; proposed rank: S3S4

Comments: Early season spreadwing of bogs, and boggy pond and lake margins. Often occurring in low-density populations.

*Leste forcipatus* Rambur, 1842 - Sweetflag Spreadwing

Flight Dates: 5 June - 20 September

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Very common to abundant; proposed rank: S5

Comments: Third most frequently recorded spreadwing, often reaching high local densities. Frequents bog, lake, and pond edges, tolerating appreciable seasonal water draw down.

*Lestes inaequalis* Walsh, 1862 - Elegant Spreadwing

Flight Dates: 3 June - 11 August

County Records: Fairfield, Hartford, Litchfield, Middlesex, New London, Tolland, Windham

Conservation Status: Very common, local; proposed rank: S4S5

Comments: Found near open water of bogs, lakes, and even slow moving sections of rivers. Rarely have we encountered high-density populations.

*Lestes rectangularis* Say, 1839 - Slender Spreadwing

Flight Dates: 22 May - 1 October

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5

Comments: Most commonly encountered spreadwing in Connecticut, inhabiting a wide range of habitats from lentic bogs, lakes, and vernal pools to lotic woodland rills, streams, and open expanses along the Connecticut River. Adults are fond of shady habitats.

*Lestes unguiculatus* Hagen, 1861 - Lyre-tipped Spreadwing

Flight Dates: 9 July - 27 July

County Records: Fairfield, New Haven, New London

Conservation Status: Rare, historic; proposed rank: SU

Comments: Not verified within state since July, 1920 (Garman 1927). One of two species recorded for state, for which we have not examined a voucher. In New York this species cycles in abundance (Donnelly 1992). Noble Proctor (personal communication) reported this species from Blackwell Pond (New London County) in 1998, but no specimen was taken.

*Leste vigilax* Hagen in Selys, 1862 - Swamp Spreadwing

Flight Dates: 3 June - 30 August

County Records: Fairfield, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Very common; proposed rank: S4S5

Comments: Second most frequently recorded lestid, often seen around highly vegetated ponds, lake edges, and bogs.

#### COENAGRIONIDAE

*Amphiagrion saucium* (Burmeister, 1839) - Eastern Red Damsel

Flight Dates: 14 May - 20 July

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Uncommon, local; proposed rank: S3

Comments: Early season species of grassy areas along the margins of bogs and fens, seeps, and rivulets.

\**Argia apicalis* (Say, 1839) - Blue-fronted Dancer  
Flight Dates: 11 July - 20 September  
County Records: Hartford, Litchfield, Middlesex, New Haven, Tolland, Windham  
Conservation Status: Common, local; proposed rank: S3S4

Comments: Evidently not established prior to 1927 when Garman published his monograph. Now found locally along rivers, and not uncommonly, about impacted waters. Adults often perch on sunny, bare ground and gravel away from water.

*Argia fumipennis violacea* (Hagen, 1861) - Variable Dancer  
Flight Dates: 4 June - 20 September  
County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
Conservation Status: Abundant; proposed rank: S5  
Comments: Inhabits slow to moderate flowing creeks and streams, as well as ponds and lakes, sometimes reaching exceptionally high local densities.

*Argia moesta* (Hagen, 1861) - Powdered Dancer  
Flight Dates: 28 May - 26 September  
County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
Conservation Status: Abundant; proposed rank: S5  
Comments: Inhabits streams and rivers of moderate flow, especially those with rocky or sandy shores; also open ponds and lakes. Adults perch on sand, rocks, or sticks near water surface. Fairly tolerant of polluted waters.

*Argia translata* Hagen in Selys, 1865 - Dusky Dancer  
Flight Dates: 8 July - 6 September  
County Records: Litchfield, Middlesex, New Haven  
Conservation Status: Very uncommon, local; proposed rank: S2  
Comments: Southern species often seen along shady stretches of ponds, lakes, and large rivers. MCT observed males perching on fishing poles a considerable distance from shore of Lake Wononskopomuc (Litchfield County).

*Chromagrion conditum* (Hagen in Selys, 1876) - Aurora Damselfly  
Flight Dates: 6 May - 18 July

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed status: S5

Comments: Early season damselfly of wooded swamps, marshes, and boggy pond margins, reaching very high local densities.

\**Coenagrion resolutum* (Hagen in Selys, 1876) - Taiga Bluet  
Flight Dates: Late May-early July (elsewhere in the Northeast)  
County Records: Litchfield  
Conservation Status: Rare, local; proposed rank: SU (S1 if resident)

Comments: Paul Miliotis took a single individual in northwestern Connecticut (personal communication). Subsequent efforts to locate this species during June have failed to yield additional records. Until a breeding population can be located, this species is best regard as a vagrant in Connecticut.

*Enallagma aspersum* (Hagen, 1861) - Azure Bluet  
Flight Dates: 1 June - 18 October  
County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
Conservation Status: Very common; proposed rank: S4S5  
Comments: Inhabits fishless bogs and ponds and lakes with grassy or peaty margins.

\**Enallagma basidens* Calvert, 1902 - Double-striped Bluet  
Flight Dates: 16 September (June - September elsewhere)  
County Records: New Haven  
Conservation Status: Rare; proposed rank: SA  
Comments: Early successional species expanding its range northward and eastward (Cannings 1989, Westfall and May 1996) that should be sought in southwestern Connecticut. Taken once, in Devon Park (Milford) - along the shore of a shallow, mud-bottomed, city park pond.

*Enallagma boreale* Selys, 1875 - Boreal Bluet  
Flight Dates: 21 May - 15 June  
County Records: Hartford, Litchfield, New London, Tolland, Windham  
Conservation Status: Uncommon, local; proposed rank: S2S3

Comments: Early season denizen of bogs and vegetated areas along edges of fishless ponds and lakes where aeshnids are top predators.

Occasionally flying with *E. cyathigerum* (e.g., Great Pond, Simsbury) but more often only one of these two closely related species is present at a given site.

*Enallagma carunculatum* Morse, 1895 - Tule Bluet

Flight Dates: 19 June - 29 September

County Records: Fairfield, Litchfield, Middlesex, Tolland

Conservation Status: Locally common; proposed rank: S3

Comments: Mid to late season species of lakes and large rivers. Preferring oligotrophic lakes with modest shoreline vegetation. Although frequently seen on lakes in Litchfield County, uncommon to absent across much of the state. On Lake Wonoskopomuc (Litchfield County), individuals perch on beds of emergent plants considerable distances from shore.

*Enallagma civile* (Hagen, 1861) - Familiar Bluet

Flight Dates: 19 May - 12 October

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5

Comments: Attractive damselfly that shows considerable tolerance for both brackish water and pollution. Especially common in (slow moving) lotic or lentic habitats with sandy bottoms. Flying with *E. durum* on large rivers.

*Enallagma cyathigerum* (Charpentier, 1840) - Northern Bluet

Flight Dates: 20 May - 9 July

County Records: Hartford, Litchfield, New Haven, New London, Tolland, Windham

Conservation Status: Common, local; proposed rank: S3

Comments: Circumboreal species of bogs and fishless ponds and lakes. Sometimes occurring in very high densities, often in association with *E. ebrium* and *E. hageni*. We have searched for but not found its sibling species, *E. vernale*, a bluet of lake shores and slow rivers (McPeck 1998).

*Enallagma divagans* Selys, 1876 - Turquoise Bluet

Flight Dates: 31 May - 18 July

County Records: Fairfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Locally common; proposed rank: S3S4

Comments: Prefers small, slow streams, rivers, and pond edges. Rarely seen after mid July.

\**Enallagma doubledayi* (Selys, 1850) - Atlantic Bluet

Flight Dates: 14 July - 7 August

County Records: New London

Conservation Status: Rare, local; listed by Connecticut DEP as a species of Special Concern; proposed rank: S1S2

Comments: Coastal plain species of bogs and ponds, especially those with sandy bottoms. Known from only two sites along eastern border: Green Falls and Dawley Ponds (both in Voluntown). Although reported to be a species of fishless ponds (Brown et al. unpublished manuscript), the former site is rich in fish.

*Enallagma durum* (Hagen, 1861) - Big Bluet

Flight Dates: 7 June - 21 September

County Records: Fairfield, Hartford, Middlesex, New Haven, New London

Conservation Status: Common, local; proposed rank: S3

Comments: Southern species associated with brackish estuarine waters and large rivers. Common to abundant in beds of emergent vegetation on lower Connecticut River; local and generally uncommon north of Middlesex County, but occurring northward through Massachusetts.

*Enallagma ebrium* (Hagen, 1861) - Marsh Bluet

Flight Dates: 22 May - 3 August

County Records: Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed status: S5

Comments: Often found in high-density populations along vegetated margins of bogs, marshes, ponds, lakes, as well as slow moving sections of streams and rivers. A vagile species that is quick to invade new bodies of water. Often flying with *E. hageni*.

*Enallagma exsulans* (Hagen, 1861) - Stream Bluet

Flight Dates: 6 June - 3 September

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5

Comments: Most frequently encountered bluet along rivers and medium-sized streams.

*Enallagma geminatum* Kellicott, 1895 - Skimming Bluet

Flight Dates: 19 May - 16 September

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5  
 Comments: Inhabits lakes, ponds, and slow flowing streams. Like *Ischnura kellicotti* often perching on lily pads.

***Enallagma hageni*** (Walsh, 1863) - Hagen's Bluet  
 Flight Dates: 20 May - 2 August  
 County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, Tolland  
 Conservation Status: Abundant; proposed rank: S5  
 Comments: Denizen of marshes, small ponds, and bogs, but also flying along slow sections of rivers and streams; often seen with *E. ebrium*.

***Enallagma laterale*** Morse, 1895 - New England Bluet  
 Flight Dates: 16 May - 22 June  
 County Records: Hartford, Litchfield, Middlesex, New London, Tolland, Windham  
 Conservation Status: Common; proposed rank: S3S4  
 Comments: Evidently more common and widespread than in early part of this century (cf. Garman 1927). Among most widespread and frequently encountered springtime bluets east of the Connecticut River. Prefers edges of vegetated coastal plain ponds, lakes, and bogs; often flying with *E. boreale*.

**\**Enallagma minusculum*** Morse, 1895 - Little Bluet  
 Flight Dates: 10 June - 16 August  
 County Records: Middlesex, New London, Tolland  
 Conservation Status: Rare; listed by Connecticut DEP as a Threatened Species; proposed rank: S1S2  
 Comments: Local coastal plain species known from just three localities, all in eastern half of state. Common on Uncas Pond (New London County) where adults may be observed perching on emergent vegetation considerable distances from shore, along with *E. geminatum*.

**\**Enallagma pictum*** Morse, 1895 - Scarlet Bluet  
 Flight Dates: 6 July - 10 August  
 County Records: New London, Windham  
 Conservation Status: Rare, local; listed by Connecticut DEP as a species of Special Concern; proposed rank: S1S2  
 Comments: Coastal plain species restricted to our easternmost counties. Only two populations are known: Hampton Reservoir (Windham County) and Bailey Pond (New London County). Adults perch on lily pads (*Nuphar* and *Nymphaea*) with *E. geminatum* and *Ischnura kellicotti*.

***Enallagma signatum*** (Hagen, 1861) - Orange Bluet

Flight Dates: 4 June - 14 September  
 County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
 Conservation Status: Abundant; proposed rank: S5  
 Comments: Found about lakes, ponds, and slow moving sections of rivers and streams, where it perches on grass, twigs, and lily pads near open water.

***Enallagma t. traviatum*** Selys, 1876 - Slender Bluet  
 Flight Dates: 23 June - 29 July  
 County Records: Fairfield, Hartford, Middlesex, New Haven, New London  
 Conservation Status: Uncommon, local; proposed rank: S2S3  
 Comments: Coastal plain species of small ponds usually with sandy bottoms and emergent vegetation along shoreline. Fond of perching on lily pad flowers.

***Enallagma vesperum*** Calvert, 1919 - Vesper Bluet  
 Flight Dates: 14 June - 5 October  
 County Records: Litchfield, Middlesex, New Haven, Windham  
 Conservation Status: Uncommon; proposed rank: S3  
 Comments: Crepuscular species of lakes, ponds, and slow rivers with abundant floating vegetation, especially lily pads. During day, adults seek shelter in vegetation; evidently they have a predilection for roosting in conifers. Teneral adults come to light.

***Ischnura hastata*** (Say, 1839) - Citrine Forktail  
 Flight Dates: 21 May - 26 September  
 County Records: Fairfield, New Haven, New London  
 Conservation Status: Uncommon, local; proposed rank: S3  
 Comments: All of our records for this southern species are from coastal localities. Found about seeps and margins of ponds and lakes with abundant vegetation; somewhat tolerant of brackish habitats.

**\**Ischnura kellicotti*** Williamson, 1898 - Lilypad Forktail  
 Flight Dates: 31 May - 23 August  
 County Records: Litchfield, Middlesex, New Haven, New London, Windham  
 Conservation Status: Common, local; proposed rank: S3S4  
 Comments: Found about ponds and lakes with abundant floating vegetation, especially lily pads (*Nuphar* and *Nymphaea*). When perched, end of abdomen is curled under and held in contact with

the substrate. Often flying with *Enallagma geminatum* and *E. pictum*.

*Ischnura posita* (Hagen, 1861) - Fragile Forktail  
 Flight Dates: 7 May - 30 September  
 County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
 Conservation Status: Abundant; proposed rank: S5  
 Comments: Inhabits a wide variety of aquatic habitats, including marshes, swamps, ponds, and slow streams with grassy margins. Rarely encountered in high-density populations.

\**Ischnura prognata* (Hagen, 1861) - Furtive Forktail  
 Flight Dates: 28 May  
 County Records: Fairfield  
 Conservation Status: Rare, local; proposed rank: SU (S1 if resident)  
 Comments: Single adult taken by Muller (1997) at a small pond in Shelton. Evidently secretive in habit; apt to be encountered amongst vegetation away from water.

*Ischnura ramburii* (Selys, 1850) - Rambur's Forktail  
 Flight Dates: 24 June - 26 September  
 County Records: Fairfield, New Haven, New London  
 Conservation Status: Uncommon, local; proposed rank: S3  
 Comments: Coastal species of marshes, ponds, estuaries, and rivers. Replacing *Ischnura verticalis* close to the sea shore, especially where water is slightly brackish. Rarely seen inland.

*Ischnura verticalis* (Say, 1839) - Eastern Forktail  
 Flight Dates: 6 April - 29 September  
 County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
 Conservation Status: Abundant; proposed rank: S5  
 Comments: Connecticut's most frequently encountered odonate, found about bogs, marshes, swamps, ponds, lakes, slow streams and rivers, especially those with marshy borders.

\**Nehalennia gracilis* Morse, 1895 - Sphagnum Sprite  
 Flight Dates: 23 May - 8 August  
 County Records: Fairfield, Hartford, Litchfield, Middlesex, New London, Tolland, Windham  
 Conservation Status: Very common, local; proposed rank: S4

Comments: Denizen of sphagnum bogs and pools; most common in eastern half of state. Coastal populations are sometimes more robust, approaching *N. irene* in stature.

*Nehalennia irene* (Hagen, 1861) - Sedge Sprite  
 Flight Dates: 18 May - 2 August  
 County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
 Conservation Status: Abundant, local; proposed rank: S5

Comments: Inhabits many lentic habitats, including bogs, marshes, and the grassy margins of ponds and lakes; also slow sections of streams and rivers. Most common in northwestern area.

**ANISOPTERA  
 AESHNIDAE**

*Aeshna canadensis* Walker, 1908 - Canada Darner  
 Flight Dates: 30 June - 18 October  
 County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, Tolland, Windham  
 Conservation Status: Very common; proposed rank: S5

Comments: Most records are from northern half of state, where it inhabits large ponds, lakes, swamps, and sphagnum bogs. While surveying moths at Twin Lakes (Litchfield County), we observed numerous tenerals coming to ultraviolet lights, mainly after midnight.

*Aeshna clepsydra* Say, 1839 - Mottled Darner  
 Flight Dates: 7 July - 10 October  
 County Records: Fairfield, Litchfield, New Haven, New London, Tolland, Windham  
 Conservation Status: Uncommon, local; proposed rank: S3

Comments: Adults patrol over emergent vegetation in bogs and in rushes growing along lake edges; especially common about ponds with good populations of water lilies.

*Aeshna constricta* Say, 1839 - Lance-tipped Darner  
 Flight Dates: 27 June - 4 October  
 County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
 Conservation Status: Very common; proposed rank: S4

Comments: Breeding in bogs, ponds, and lakes with peaty edges; frequently seen in fields away from water. Fluctuating in yearly abundance.

\**Aeshna interrupta* Walker, 1908 - Variable Darner



Flight Dates: 2 September (July - September elsewhere)

County Records: Litchfield

Conservation Status: Rare; proposed rank: SU (S1 if resident)

Comments: Known from single male taken in September along Moore Brook (Salisbury).

*\*Aeshna mutata* Hagen, 1861 - Spatterdock Darner  
Flight Dates: 28 May - 16 June

County Records: Hartford, Middlesex, New Haven, New London, Tolland

Conservation Status: Rare, local; proposed rank: S2

Comments: Early season darner associated with ponds rich with spatterdock (*Nuphar*). Two of our populations are associated with ponds that are known to have gone dry, and therefore are fishless. A sizable population is located in Great Pond (Simsbury, Hartford County).

*Aeshna tuberculifera* Walker, 1908 - Black-tipped Darner

Flight Dates: 20 June - 18 October

County Records: Fairfield, Hartford, Litchfield, Middlesex, Tolland, Windham

Conservation Status: Very common; proposed rank: S4

Comments: Often flying with *A. canadensis* and *A. verticalis* in bogs and marshy areas, but also at home along heavily vegetated streams and rivers. Most of our records are from northern half of state.

*Aeshna umbrosa* Walker, 1908 - Shadow Darner

Flight Dates: 25 June - 13 October

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5

Comments: Most widespread member of genus in Connecticut. Adults feed early in morning, from late afternoon until dark, and under overcast conditions, along roads, in yards, and fields.

*Aeshna verticalis* Hagen, 1861 - Green-striped Darner

Flight Dates: 5 July - 13 October

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Common to very common; proposed rank: S3S4

Comments: Closely related to, and sometimes difficult to distinguish from, *A. canadensis*. Found about bogs and along shores of highly vegetated ponds, lakes, slow streams, and rivers.

*Anax junius* (Drury, 1770) - Common Green Darner

Flight Dates: 1 May - 7 December

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5

Comments: Our most widespread and abundant darner, breeding in a variety of lotic and lentic habitats, especially those without fish. Migrants may be first dragonflies seen over water in the spring. Along immediate coast, fall migrants may reach densities of hundreds per acre.

*\*Anax longipes* Hagen, 1861 - Comet Darner

Flight Dates: 6 July - 25 July

County Records: New London

Conservation Status: Rare; proposed rank: S1S2

Comments: Dawley Pond (Voluntown), where it is presumed to be a resident, is a shallow, coastal plain pond with abundant shoreline vegetation. Ann Colson, Noble Proctor, and Mike Thomas report sightings at other ponds, located near the coast, two of which are draw down ponds (without fish).

*Basiaeschna janata* (Say, 1839) - Springtime Darner

Flight Dates: 7 May - 26 June

County Records: Fairfield, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5

Comments: Small, early spring darner that frequents open waters of streams, rivers, ponds, and lakes. Like other darners, feeding individuals may move into fields, under power lines, and other open habitats.

*Boyeria vinosa* (Say, 1839) - Fawn Darner

Flight Dates: 15 May - 13 October

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Very common; proposed rank: S5

Comments: Commonly observed late in afternoon and evening patrolling along, and under, banks of streams and rivers.

*Epiaeschna heros* (Fabricius, 1798) - Swamp Darner

Flight Dates: 24 May - 16 August

County Records: Hartford, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Uncommon to common; proposed rank: S3S4

Comments: More easily seen than captured, this enormous insect is undoubtedly more common than our records indicate. Leaving its daytime roosts in trees (and buildings) to forage in late afternoon and early evening, especially active at dusk. Larvae are found in fishless marshes and swamps. A migratory species seen frequently along immediate coast, in both spring and fall.

*Gomphaeschna furcillata* (Say, 1839) - Harlequin Darner

Flight Dates: 9 May - 7 July

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Common, local; proposed rank: S4

Comments: Early spring species of bogs, swamps, and forested pools. Adults perch in sunny patches on sides of telephone poles and trees, especially those that are lighter in color.

*Nasiaeschna pentacantha* (Rambur, 1842) - Cyrano Darner

Flight Dates: 2 June - 28 June

County Records: Hartford, Litchfield, Middlesex, New London, Tolland, Windham

Conservation Status: Uncommon, local; proposed rank: S3

Comments: Usually observed over pools along slow streams and rivers, often at rather modest densities; also breeding in small kettle holes and ponds.

#### GOMPHIDAE

*Arigomphus furcifer* (Hagen in Selys, 1878) - Lilypad Clubtail

Flight Dates: 26 May - 26 July

County Records: Fairfield, Hartford, Litchfield, Windham

Conservation Status: Uncommon, local; proposed rank: S3

Comments: Locally common on ponds and lakes, especially where there is an abundance of water lilies (*Nymphaea*) and spatterdock (*Nuphar*), upon which it frequently perches.

*Arigomphus villosipes* (Selys, 1854) - Unicorn Clubtail

Flight Dates: 19 May - 26 July

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Very common; proposed rank: S4S5

Comments: More widespread than previous species. Commonly perching on lily pads and muddy banks of slow moving streams and eutrophic ponds and lakes.

*Dromogomphus spinosus* Selys, 1854 - Black-shouldered Spinyleg

Flight Dates: 13 June - 3 September

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Very common; proposed rank: S4S5

Comments: Found on streams, rivers, lakes, and reservoirs, perching on logs and rocks that provide a clear view of nearby water.

\**Gomphus (Gomphurus) fraternus* Say, 1839 - Midland Clubtail

Flight Dates: 28 May - 24 July

County Records: Hartford, Middlesex

Conservation Status: Very uncommon to rare, local; listed by Connecticut DEP as a species of Special Concern; proposed rank: S2

Comments: First recorded in Connecticut in June, 1995, by Denise Simmonds on a sandy beach along the Connecticut River in Middlesex County. Subsequent survey efforts have shown this species to be well established on the Connecticut River between Middletown and the Massachusetts border. Perches on ground with a clear view and escape route to the river, over which it flies when alarmed.

\**Gomphus (Gomphurus) vastus* Walsh, 1862 - Cobra Clubtail

Flight Dates: 31 May through August (in Massachusetts)

County Records: Hartford, Middlesex

Conservation Status: Very uncommon to rare; listed by Connecticut DEP as a species of Special Concern; proposed rank: S2

Comments: Exuviae are encountered much more frequently on the Connecticut River than those of other *Gomphurus*, yet only one adult has been taken over the past decade. Distributed along the Connecticut River between Middletown and the Massachusetts border, especially common in the vicinity of Kings Island (Hartford County). Wagner and Thomas (1996) provide an account of adult behavior in central Massachusetts.

*Gomphus (Gomphurus) ventricosus* Walsh, 1863 - Skillet Clubtail

Flight Dates: 1 June - 24 June

County Records: Hartford, Litchfield, Middlesex  
 Conservation Status: Rare; proposed status: S2  
 Comments: We observed two males perching on a sandy peninsula of the Connecticut River, adjacent to a muddy cove. South of where these individuals were seen, where beaches opened up, only *Gomphus fraternus* was encountered. Ken Soltesz observed *G. ventricosus* along the Housatonic River, at Bartholomew's Cobble, just over the state line in Massachusetts.

\**Gomphus (Gomphus) borealis* Needham, 1900 - Beaverpond Clubtail  
 Flight Dates: 29 May - 16 June  
 County Records: Hartford, Litchfield  
 Conservation Status: Rare; proposed rank: S2  
 Comments: Known from but two sites: Moore Brook (Litchfield County) and Guy Pond (Hartford County), both of which have active beaver lodges. DLW observed a female ovipositing directly into backside of a beaver dam at the former site.

\**Gomphus (Gomphus) descriptus* Banks, 1896 - Harpoon Clubtail  
 Flight Dates: 6 June - 22 June  
 County Records: Hartford, Litchfield  
 Conservation Status: Rare; proposed rank: S2  
 Comments: Only two known sites: Valley Brook (Hartford County) and Hollenbeck River (Litchfield County). Both sites are sunny, sandy stretches, along good trout streams.

*Gomphus (Gomphus) exilis* Selys, 1854 - Lancet Clubtail  
 Flight Dates: 9 May - 30 July  
 County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
 Conservation Status: Abundant; proposed rank: S5  
 Comments: Our most abundant gomphid, reaching great densities along edges of ponds and lakes; also breeding along slow sections of streams and rivers.

*Gomphus (Gomphus) lividus* Selys, 1854 - Ashy Clubtail  
 Flight Dates: 20 May - 6 July  
 County Records: Fairfield, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
 Conservation Status: Very common; proposed rank: S4  
 Comments: Common along sunny stretches of rocky creeks, streams, and rivers. Tolerating rockier bottoms than many other gomphids.

\**Gomphus (Gomphus) quadricolor* Walsh, 1863 - Rapids Clubtail

Flight Dates: 6 June  
 County Records: Litchfield  
 Conservation Status: Rare, historic; proposed rank: SH  
 Comments: One individual taken by Garman on 6 June, 1928, in North Canaan. Recent surveys of cold streams with strong current in Litchfield and Hartford Counties have failed to locate this species. An elusive gomphid whose presence is most easily confirmed by larval or exuvial collections.

*Gomphus (Gomphus) spicatus* Hagen in Selys, 1854 - Dusky Clubtail  
 Flight Dates: 23 May - 27 July  
 County Records: Hartford, Litchfield, New London, Tolland, Windham  
 Conservation Status: Very common; proposed rank: S4  
 Comments: Inhabiting beaver ponds, bogs, lakes, and reservoirs. Often observed with *Arigomphus* species.

*Gomphus (Hylogomphus) abbreviatus* Hagen in Selys, 1878 - Spine-crowned Clubtail  
 Flight Dates: 5 June - 2 August  
 County Records: Fairfield, Hartford, Litchfield, Middlesex, Tolland, Windham  
 Conservation Status: Uncommon, local; proposed rank: S2S3  
 Comments: Wary species of larger streams and rivers that is quick to move off its perch when approached. Most of our adults have been taken along power line right-of-ways away from water. Although we have not seen adults on the Connecticut River, exuviae have been collected from a number of sites along the River during June.

*Gomphus (Hylogomphus) adelphus* Selys, 1858 - Mustached Clubtail  
 Flight Dates: 23 May - 11 July  
 County Records: Hartford, Litchfield, Middlesex, Windham  
 Conservation Status: Rare; proposed rank: S2  
 Comments: Found along clean, cold rivers and streams, perching on rocks in or near riffles. Often flying with *Ophiogomphus*. Presently known from only two localities in eastern half of state: Eight Mile River (Middlesex County) and Natchaug River (Windham County).

*Hagenius brevistylus* Selys, 1854 - Dragonhunter  
 Flight Dates: 10 June - 29 August  
 County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Common, local; proposed rank: S3S4

Comments: An impressive predator of streams and rivers. Perches on snags and vegetation, 1-2 m above water, that provide a clear view of water over which potential prey will be flying.

*Lanthus vernalis* Carle, 1980 - Southern Pygmy Clubtail

Flight Dates: 2 June - 6 July

County Records: Hartford, Litchfield, Tolland, Windham

Conservation Status: Uncommon, local; proposed rank: S2S3

Comments: Inhabitant of sunny stretches of springs, rills, and small creeks. Males perch on vegetation in sun flecks adjacent to breeding pools.

*Ophiogomphus aspersus* Morse, 1895 - Brook Snaketail

Flight Dates: 4 June - 30 July

County Records: Hartford, Litchfield, New Haven, Tolland

Conservation Status: Uncommon, local; proposed rank: S2S3

Comments: Species of cold, clean creeks and streams, especially with sandy bottoms. Healthy populations of brook trout are often associated with this species. Look for adults perching in riffles or, especially, on streamside vegetation.

*Ophiogomphus m. mainensis* Packard in Walsh, 1863 - Maine Snaketail

Flight Dates: 3 June - 4 July

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, Tolland, Windham

Conservation Status: Uncommon, local; proposed rank: S3

Comments: Although more widespread than previous species, typically occurring in smaller numbers along wooded creeks and streams. Males perch on sunny rocks in riffles or pools with strong water flow.

*Ophiogomphus rupinsulensis* (Walsh, 1862) - Rusty Snaketail

Flight Dates: 2 June - 22 August

County Records: Fairfield, Hartford, Litchfield, New London, Tolland, Windham

Conservation Status: Uncommon, local; proposed rank: S3

Comments: Snaketail of larger creeks, streams, and rivers. It tolerates rockier bottoms than our other *Ophiogomphus*. Newly emerged adults are often seen well away from water, such as along powerline right-of-ways.

\**Progomphus obscurus* (Rambur, 1842) - Common Sanddragon

Flight Dates: 15 July (June - August elsewhere)

County Records: New London

Conservation Status: Rare, local; listed by Connecticut DEP as a Threatened Species; proposed rank: S1

Comments: Larvae of this species require generous deposits of sand through which they can tunnel. In the Northeast, occurring locally along shores of coastal plain ponds and sandy rivers. Three individuals were seen near the spillway at Great Meadows Wildlife Area (New London County) in July of 1993; it has not been seen there since.

*Stylogomphus albistylus* (Hagen in Selys, 1878) - Least Clubtail

Flight Dates: 5 June - 17 August

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant, local; proposed rank: S5

Comments: Commonly observed perching on rocks in riffles of sunny, fast moving sections of creeks, streams, and shallow rivers. Our most widely distributed stream gomphid, with a fairly high tolerance for human impacts.

\**Stylurus amnicola* (Walsh, 1862) - Riverine Clubtail

Flight Dates: 21 June - 31 July

County Records: Hartford, Middlesex

Conservation Status: Rare, Connecticut River only; listed by Connecticut DEP as a species of Special Concern; proposed rank: S2

Comments: Wary, secretive gomphid of large sandy rivers and lakes, rarely seen as an adult. We have found exuviae at several sites along the Connecticut River, from Middletown to Massachusetts border.

*Stylurus scudderi* (Selys, 1873) - Zebra Clubtail

Flight Dates: 10 August - 11 September

County Records: Hartford, Litchfield, New Haven

Conservation Status: Rare, very local; proposed rank: S2

Comments: Elusive clubtail found along sunny stretches of sandy streams and rivers. Although present along the Connecticut River, also inhabiting smaller rivers than our other two *Stylurus*. Wary insect, quick to move up into trees when approached.

\**Stylurus spiniceps* (Walsh, 1862) - Arrow Clubtail

Flight Dates: 8 July - 15 September  
County Records: Hartford, Middlesex  
Conservation Status: Very uncommon; listed by Connecticut DEP as a species of Special Concern; proposed rank: S2S3  
Comments: Collections of exuviae indicate that this clubtail is fairly common along the Connecticut River from Middletown to Massachusetts border. Adult records in collections give another impression, as less than six individuals have been taken of this wary gomphid. Found also along stretches of the Farmington River. Adults are strong fliers that patrol rather than perch over open sunny areas of water (Wagner and Thomas 1996).

#### CORDULEGASTRIDAE

*Cordulegaster diastatops* (Selys, 1854) - Delta-spotted Spiketail

Flight Dates: 30 May - 14 July  
County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
Conservation Status: Very common, local; proposed rank: S4

Comments: Most widely distributed and frequently encountered member of genus, inhabiting small muddy creeks and seepages in meadows and other open habitats. Newly emerged individuals are often encountered in fields and meadows, during the latter part of May and early June.

*Cordulegaster erronea* Hagen in Selys, 1878 - Tiger Spiketail

Flight Dates: 8 June - 20 June  
County Records: Fairfield, New Haven  
Conservation Status: Rare, local; listed by Connecticut DEP as a Threatened Species; proposed rank: S1

Comments: Only recent record is a larval shell (exuviae) taken near a spring outlet in Fairfield County by Ken Soltesz. The preferred habitat of this southern dragonfly is along cold springs in woodlands or marshes that have good flow even in drought years; rivulets as narrow as 25 cm or so in width are suitable for larval development (Barlow 1995, Ken Soltesz personal communication).

*Cordulegaster maculata* Selys, 1854 - Twin-spotted Spiketail

Flight Dates: 23 May - 9 July  
County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
Conservation Status: Very common; proposed rank: S5

Comments: Our only spiketail likely to be seen along streams and rivers. Prefers cool, moving water, especially if substrate is sandy or gravelly. Sometimes patrolling on overcast days, when other odonates are inactive.

*Cordulegaster obliqua* (Say, 1839) - Arrowhead Spiketail

Flight Dates: 6 June - 6 July  
County Records: Fairfield, Hartford, Middlesex, New Haven, Tolland  
Conservation Status: Uncommon; local; proposed rank: S2S3

Comments: Preferred habitat is small, forested rills and brooks. Breeding in the smallest creeks of our four spiketails, including some that partially dry up over summer months. Often encountered in fields and other open sites, where it is hunting bees and other sizable quarry.

#### MACROMIIDAE

*Didymops transversa* (Say, 1839) - Stream Cruiser

Flight Dates: 9 May - 16 July  
County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5  
Comments: Early spring species occurring along streams, rivers, lakes, and large ponds. When adults are young they move away from water to forage along roads, powerline right-of-ways, and woodland edges.

\**Macromia illinoensis* Walsh, 1862 - Illinois River Cruiser

Flight Dates: 15 June - 29 August  
County Records: Fairfield, Hartford, Middlesex, New London, Tolland, Windham  
Conservation Status: Very common, local; proposed rank: S4

Comments: Curiously absent from Garman (1927) and early collections. Usually occurring in low numbers along streams, rivers, and edges of lakes.

#### CORDULIIDAE

*Cordulia shurtleffi* Scudder, 1866 - American Emerald

Flight Dates: 20 May - 1 July  
County Records: Hartford, Litchfield, Middlesex, New Haven, New London, Windham  
Conservation Status: Common, local; proposed rank: S3S4

Comments: Majority of records are from northern half of state, where it inhabits bogs and ponds with swampy edges. We have seen foraging adults over clear cold rivers and streams.

*Dorocordulia lepida* (Hagen in Selys, 1871) - Petite Emerald

Flight Dates: 31 May - 26 July

County Records: Litchfield, New London, Windham

Conservation Status: Uncommon to common; local; proposed rank: S3

Comments: Preferred habitat is bogs and boggy pond shores, although foraging adults may be encountered over rivers, forested trails, and roads. Rarely seen in large numbers.

*Dorocordulia libera* (Selys, 1871) - Racket-tailed Emerald

Flight Dates: 15 May - 14 July

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, Tolland, Windham

Conservation Status: Common to very common; proposed rank: S4

Comments: Common species of bogs, swamps, recently flooded beaver ponds, and eutrophic ponds. Foraging adults are seen away from water, often along woodland edges or forested roads.

*Epitheca (Epicordulia) princeps* Hagen, 1861 - Prince Baskettail

Flight Dates: 8 June - 30 August

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Very common; proposed rank: S5

Comments: Large, conspicuous species, frequently seen patrolling lakes, rivers, and large streams. Feeding swarms form over water or open meadows and fields, often at considerable heights.

\**Epitheca (Tetragoneuria) canis* (McLachlan, 1886) - Beaverpond Baskettail

Flight Dates: 7 May - 29 June

County Records: Fairfield, Hartford, Litchfield, Middlesex, New London, Tolland, Windham

Conservation Status: Uncommon; proposed rank: S3

Comments: Early spring corduliid most frequently encountered in northern half of state. Commonly seen over beaver ponds, also bogs and along rivers, creeks, and highly vegetated pond shores.

*Epitheca (Tetragoneuria) cynosura* (Say, 1839) - Common Baskettail

Flight Dates: 18 May - 29 July

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5

Comments: Most widespread and abundant spring dragonfly, inhabiting bogs, ponds, lakes, creeks, streams, and rivers. Smaller form with enlarged hind wing basal spots (known as variety *simulans*) has been taken on the Hollenbeck River (Litchfield County).

*Epitheca (Tetragoneuria) spinigera* (Selys, 1871) - Spiny Baskettail]

Flight Dates: 30 May - 16 July

County Records: Litchfield, New Haven

Conservation Status: Rare, local; proposed rank: S1S2

Comments: Known from two sites in Litchfield County. The adult taken along Moore Brook was flying with *Epithica canis* and *E. cynosura*.

*Helocordulia uhleri* (Selys, 1871) - Uhler's Sundragon

Flight Dates: 4 May - 27 June

County Records: Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Common, local; proposed rank: S3S4

Comments: Early spring corduliid of rocky creeks, streams, rivers, and shores of wave-washed lakes, often encountered considerable distances from breeding sites. Newly emerged adults are fond of perching on bare ground along sunny stretches of trails, dirt roads, and railroad beds.

\**Neurocordulia obsoleta* (Say, 1839) - Umber Shadowdragon

Flight Dates: 25 June - 11 July

County Records: Middlesex

Conservation Status: Uncommon to rare, local; proposed rank S2

Comments: Retiring dragonfly known only from the Connecticut River (Cromwell). At dusk adults fly along shores of lakes and rivers, patrolling close to water's surface. Docks that project well into river make especially good observation sites.

*Neurocordulia yamaskanensis* (Provancher, 1875) - Stygian Shadowdragon

Flight Dates: 13 June - 27 June

County Records: Hartford, Litchfield, Middlesex

Conservation Status: Local, uncommon to rare; proposed rank: S2S3

Comments: Dusk-active adults are elusive, rarely encountered insects, yet exuviae are common along stretches of the Connecticut and Housatonic Rivers. Flying with *Neurocordulia obsoleta* on the Connecticut River.

\**Somatochlora elongata* (Scudder, 1866) - Skitailed Emerald

Flight Dates: 30 July (late June - August elsewhere)

County Records: Litchfield

Conservation Status: Rare; listed by Connecticut DEP as a species of Special Concern; proposed rank: S1S2

Comments: Although common in the Adirondacks and parts of Massachusetts, this emerald appears to be restricted to the most northerly areas of our state. Male found patrolling along Moore Brook (Salisbury) represents our only record.

*Somatochlora linearis* (Hagen, 1861) - Mocha Emerald

Flight Dates: 2 July - 14 September

County Records: Fairfield, New Haven, New London

Conservation Status: Very uncommon, local; proposed rank: S2S3

Comments: Southern species of forested streams and rivers - no doubt more widespread than our records indicate. Like other *Somatochlora*, adults will feed in swarms over fields, clearings, and dirt roads considerable distances from breeding sites.

*Somatochlora tenebrosa* (Say, 1839) - Clamp-tipped Emerald

Flight Dates: 11 July - 30 September

County Records: Fairfield, Litchfield, New Haven, New London, Tolland, Windham

Conservation Status: Common; proposed rank: S4

Comments: Most widespread and frequently encountered member of genus. Adults have been taken alongside forested streams, bogs, and lakes. Both sexes forage in fields, along powerlines, and dirt roads, especially in late afternoon and early evening.

*Somatochlora walshii* (Scudder, 1866) - Brush-tipped Emerald

Flight Dates: 19 June - 14 July

County Records: Litchfield, Tolland

Conservation Status: Very uncommon; proposed rank: S2S3

Comments: Presently known from two northern counties, where it flies in vicinity of bogs and fens. At Twin Lakes males patrol over a fen dominated by sphagnum, grasses, and cranberry. MCT observed what appeared to be oviposition in a marshy area along a slow-moving section of Moore Brook (both Salisbury).

*Somatochlora williamsoni* Walker, 1907 - Williamson's Emerald

Flight Dates: 2 August (late June - September elsewhere)

County Records: Litchfield

Conservation Status: Rare; proposed rank: S1S3

Comments: Inhabits shrub swamps and shrubby stretches of rivers. MCT observed an ovipositing female along the muddy edge of a pool in Robbins Swamp (Canaan) bordered by trees and shrubs on one side and tall marsh grasses on the other. Ken Soltesz has suggested that the best way to search for this emerald is to canoe through shrub swamps.

\**Williamsonia lintneri* (Hagen in Selys, 1878) - Ringed Boghaunter

Flight Dates: 25 April - 5 June

County Records: New London, Windham

Conservation Status: Rare, local; listed by Connecticut DEP as an Endangered Species; proposed rank: S1

Comments: Rare, early spring denizen of sphagnum wetlands known from but three sites in eastern half of state. Often found in association of three-way sedge (*Dulichium*) (Virginia Carpenter personal communication). Breeding occurs in soupy sphagnum pools, free of fish.

#### LIBELLULIDAE

*Celithemis elisa* (Hagen, 1861) - Calico Pennant

Flight Dates: 4 June - 16 August

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5

Comments: Widespread throughout state, inhabiting ponds and lakes. Often seen in grassy fields and meadows away from water.

*Celithemis eponina* (Drury, 1773) - Halloween Pennant

Flight Dates: 15 June - 15 September

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5

Comments: Common skimmer of ponds and lakes. Like the former species, often seen in fields.

*Celithemis fasciata* Kirby, 1889 - Banded Pennant

Flight Dates: 16 June - 16 August

County Records: Fairfield, Middlesex, New Haven, New London

Conservation Status: Rare to very uncommon, local; proposed rank: S2

Comments: Species of coastal plain ponds and quarry ponds. Widespread but extremely local across southern counties; rare inland. Robert

Muller (in litt.) notes that this species and the next are most active between 10:00 and 12:00 PM, and by mid afternoon both may be scarce.

*\*Celithemis martha* Williamson, 1922 - Martha's Pennant

Flight Dates: 27 June - 23 August

County Records: Middlesex, New Haven, New London, Windham

Conservation Status: Very uncommon to common, local; proposed rank: S2S3

Comments: Pennant of coastal plain ponds and lakes. Most records from coastal counties, but one inland population occurs at Hampton Reservoir (Windham County).

*Erythemis simplicicollis* (Say, 1839) - Eastern Pondhawk

Flight Dates: 23 May - 10 October

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5

Comments: Widespread and conspicuous predator of other damselflies and dragonflies. Occurs along shores of swamps, ponds, lakes, brackish marshes, as well as in adjacent fields.

*Erythrodiplax berenice* (Drury, 1770) - Seaside Dragonlet

Flight Dates: 11 June - 20 September

County Records: Fairfield, Middlesex, New Haven, New London

Conservation Status: Very common; proposed rank: S4

Comments: Widely distributed in brackish areas along coast.

*\*Ladona deplanata* (Rambur, 1842) - Blue Corporal

Flight Dates: 16 June - 15 July

County Records: New London

Conservation Status: Rare, local; listed by Connecticut DEP as a species of Special Concern; proposed rank: S1S2

Comments: Coastal plain species that enters Connecticut in New London County. Our only sizable population was discovered by Robert Muller at Uncas Pond.

*Ladona exusta* (Say, 1839) - White Corporal

Flight Dates: 7 May - 21 July

County Records: Hartford, Middlesex, New Haven, New London, Windham

Conservation Status: Very common; proposed rank: S4

Comments: Closely associated with bogs and ponds with peaty or highly vegetated shorelines. Dominant corporal in southeastern Connecticut, giving way to *Ladona julia* to north and west.

*Ladona julia* (Uhler, 1857) - Chalk-fronted Corporal

Flight Dates: 20 May - 28 July

County Records: Fairfield, Hartford, Litchfield, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5

Comments: Inhabitant of bogs, lakes, and ponds, especially across northern and western half of state. Where it co-occurs with *Ladona exusta*, it tends to be more closely associated with lakes and open water, while the latter is decidedly a bog lover.

*Leucorrhinia frigida* Hagen, 1890 - Frosted Whiteface

Flight Dates: 23 May - 10 August

County Records: Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Very common, local; proposed rank: S3S4

Comments: An associate of bogs and fens, but also seen about marshes and highly vegetated pond shores. Fond of perching on emergent plants and sticks adjacent to pools of open water.

*\*Leucorrhinia glacialis* Hagen, 1890 - Crimson-ringed Whiteface

Flight Dates: 3 June - 2 August

County Records: Hartford, Litchfield

Conservation Status: Rare, local; listed by Connecticut DEP as a Threatened Species; proposed rank: S1S2

Comments: Known from just three localities in northwestern corner of state: Lamson's Corner bog (Hartford County), Bingham Pond, and Old Man McMullen Pond (both Litchfield County). It is common at all three of these boggy sites.

*\*Leucorrhinia hudsonica* (Selys, 1850) - Hudsonian Whiteface

Flight Dates: 6 May - 25 June

County Records: Litchfield, Middlesex, New London, Tolland, Windham

Conservation Status: Uncommon, local; proposed rank: S2S3

Comments: Another bog-loving *Leucorrhinia*, often flying with *L. frigida* and spring corduliids.

*Leucorrhinia intacta* (Hagen, 1861) - Dot-tailed Whiteface

Flight Dates: 7 May - 21 July



County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5  
 Comments: Most widespread *Leucorrhinia*; in addition to bogs, frequenting ponds, marshes, vernal pools, and other waters. Often present in city parks and other impacted waters.

*\*Leucorrhinia proxima* Calvert, 1890 - Red-waisted Whiteface

Flight Dates: 26 May - 20 July

County Records: Hartford, Litchfield, Windham

Conservation Status: Uncommon, local; proposed rank: S2S3

Comments: Species of bogs, fens, and slow sections of rivers. Inexplicably local, being absent from many habitats that appear suitable.

*\*Libellula auripennis* Burmeister, 1839 - Golden-winged Skimmer

Flight Dates: 23 July (June - September elsewhere)

County Records: Fairfield

Conservation Status: Rare; listed by Connecticut DEP as a species of Special Concern; proposed rank: S1

Comments: Although common to south and over much of Cape Cod, very rare in Connecticut. Robert Muller took a single specimen along a freshwater spring in Shelton, approximately 15 km inland from the coast.

*\*Libellula axilena* Westwood, 1837 - Bar-winged Skimmer

Flight Dates: 1 August (May - August elsewhere)

County Records: New Haven

Conservation Status: Rare; proposed rank: SA

Comments: Robert Muller captured a single male of this rare migrant, along Spring Creek in Milford in August of 1997.

*Libellula cyanea* Fabricius, 1775 - Spangled Skimmer

Flight Dates: 23 May - 30 August

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5  
 Comments: Familiar dragonfly of lakes, ponds, marshes, bogs, as well as streams and rivers. Often seen off water, in fields, under powerlines, and in other open habitats.

*Libellula incesta* Hagen, 1861 - Slaty Skimmer

Flight Dates: 16 May - 15 September

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5  
 Comments: Like *Libellula cyanea*, a habitat generalist, occupying bogs, ponds, lakes, and the slow sections of rivers and streams; especially common over warm, shallow waters.

*Libellula luctuosa* Burmeister, 1839 - Widow Skimmer

Flight Dates: 23 May - 15 September

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5  
 Comments: Another common and widespread skimmer of lakes, ponds, marshes, bogs, and slow waters of streams and rivers. Often encountered away from water, foraging in fields and other open habitats.

*Libellula lydia* (Drury, 1770) - Common Whitetail

Flight Dates: 16 May - 15 September

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5  
 Comments: If not the most common midsummer dragonfly, then surely most familiar. Found across state in virtually any lentic habitat, reaching high densities in shallow ponds and marshes.

*Libellula needhami* Westfall, 1943 - Needham's Skimmer

Flight Dates: 25 June - 7 September

County Records: Fairfield, New Haven

Conservation Status: Uncommon, local; proposed rank: S2S3

Comments: Found along immediate coast, often over modestly brackish ponds. Garman's (1927) historical reports of *Libellula auripennis* refer to this species.

*Libellula pulchella* Drury, 1770 - Twelve-spotted Skimmer

Flight Dates: 14 May - 30 September

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Very common; proposed rank: S5

Comments: Common and widespread skimmer of ponds, lakes, marshes, and backwaters of rivers and lakes. Wary and difficult to approach when on territory.

*Libellula quadrimaculata* Linnaeus, 1758 - Four-spotted Skimmer

Flight Dates: 16 May - 11 July

County Records: Fairfield, Hartford, Litchfield, New Haven, New London, Tolland, Windham

Conservation Status: Very common; proposed rank: S4

Comments: Early season *Libellula* inhabiting bogs, fens, marshes, and highly vegetated shorelines of lakes and rivers. An occasional spring migrant (Dumont and Hinnekint 1973, Russell et al. 1998).

*Libellula semifasciata* Burmeister, 1839 - Painted Skimmer

Flight Dates: 23 May - 29 July

County Records: Fairfield, Litchfield, Middlesex, New Haven, New London, Windham

Conservation Status: Uncommon; proposed rank: S4

Comments: Early season migrant that breeds in bogs, marshes, and ponds. It is unknown what percentage of our population is resident and what fraction is reestablished each year by immigrants. Rather scarce in some years.

*Libellula vibrans* Fabricius, 1793 - Great Blue Skimmer

Flight Dates: 6 June - 25 August

County Records: Middlesex, New Haven

Conservation Status: Rare; proposed rank: S2 (if resident) or SN

Comments: A migratory species whose general scarcity suggests that it rarely, if ever, breeds successfully in state. Preferred habitats include pond shores and slow sections of rivers and streams, as well as quarry ponds and other early successional bodies of water.

*Nannothemis bella* (Uhler, 1857) - Elfin Skimmer

Flight Dates: 21 May - 21 July

County Records: Hartford, Litchfield, Middlesex, New Haven, Tolland, Windham

Conservation Status: Uncommon, local; proposed rank: S2S3

Comments: Most of our localities are from bogs, where it flies with *Leucorrhinia* and corduliids. Other sites include fens, swamps, and muddy floodplains with low vegetation along rivers and streams.

*Pachydiplax longipennis* (Burmeister, 1839) - Blue Dasher

Flight Dates: 23 May - 30 September

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Abundant; proposed rank: S5

Comments: Where there is water there are Blue Dashers, even tolerating some brackish water and pollution. Only skimmer to consistently establish territory over DLW's swimming pool. Evidently, at least some of our individuals represent southern migrants.

\**Pantala flavescens* (Fabricius, 1798) - Wandering Glider

Flight Dates: 12 May - 2 October

County Records: Fairfield, Hartford, Middlesex, New Haven, Litchfield, New London, Tolland, Windham

Conservation Status: Very common; proposed rank: S5SN

Comments: Curiously absent from Garman's (1927) accounting of Connecticut's fauna, this migrant is now seen regularly throughout state. Like many migrants, numbers fluctuate yearly. Breeding in quarry ponds, temporary pools, and other early successional waters. Females commonly seen in parking lots, ovipositing on shiny surfaces of cars!

\**Pantala hymenaea* (Say, 1839) - Spot-winged Glider

Flight Dates: 11 May - 30 September

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Common; proposed rank: S4SN

Comments: Like *Pantala flavescens*, this migratory species was not mentioned in Garman (1927). It too breeds in early successional habitats. In most years and locations, less common than *P. flavescens*.

*Perithemis tenera* (Say, 1839) - Eastern Amberwing

Flight Dates: 9 June - 20 September

County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham

Conservation Status: Very common; proposed rank: S5

Comments: Common species of pond and lake margins, especially those with mixture of emergent vegetation and open water. Females often encountered in meadows and other open habitats away from water.

*Sympetrum corruptum* (Hagen, 1861) - Variegated Meadowhawk  
Flight Dates: 10 June (May - September elsewhere)  
County Records: New Haven  
Conservation Status: Rare; proposed status: SA  
Comments: Rare migrant to New England taken but once along the coast in 1906.

*Sympetrum costiferum* (Hagen, 1861) - Saffron-winged Meadowhawk  
Flight Dates: 15 July - 26 July  
County Records: Litchfield, New London, Windham  
Conservation Status: Rare; proposed status: S2  
Comments: Surprisingly rare given its abundance on Cape Cod and Block Island. Although no breeding localities have been found, a teneral taken in Windham County in 1997 confirmed its residency.

*Sympetrum internum* Montgomery, 1943 - Cherry-faced Meadowhawk  
Flight Dates: 3 June - 5 December  
County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
Conservation Status: Abundant; proposed rank: S5  
Comments: Abundant summer dragonfly, flying into November. Adults often seen in fields, yards, and open sites well away from water. Although Carle (1993) reported both *S. rubicundulum* and *S. janeae* from the state, we are unable to differentiate these entities with certainty. More than fifty *Sympetrum*, collected from across the state in the University of Connecticut insect collection were recently determined by T.W. Donnelly as assignable to *S. internum*, which he considers indistinguishable from *janeae*. Molecular data should prove especially helpful for this *Somatochlora*.

*Sympetrum obtusum* (Hagen, 1867) - White-faced Meadowhawk  
Flight Dates: August - September (June - September elsewhere)  
County Records: New Haven, New London  
Conservation Status: Rare; proposed rank: S1S2 (if resident)  
Comments: Although abundant in the Adirondacks of New York, there are no records from Litchfield and Hartford Counties. The only recent record is an individual taken at Connecticut College Arboretum (New London County) by Jeremiah Trimble.

*Sympetrum semicinctum* (Say, 1839) - Band-winged Meadowhawk  
Flight Dates: 17 June - 13 September  
County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland  
Conservation Status: Uncommon, local; proposed rank: S3  
Comments: Although known from many lentic habitats including bogs, fens, marshes, and quarry ponds, this species is local in occurrence. Seldom encountered in large numbers.

*Sympetrum vicinum* (Hagen, 1861) - Yellow-legged Meadowhawk  
Flight Dates: 15 June - 9 December  
County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham  
Conservation Status: Abundant; proposed rank: S5  
Comments: Second most common and widespread *Sympetrum*. A habitat generalist that breeds in bogs, marshes, and along highly vegetated sections of streams, rivers, lakes, and ponds. Active into December along immediate coast.

*Tramea carolina* (Linnaeus, 1763) - Carolina Saddlebags  
Flight Dates: 23 May - 30 September  
County Records: Fairfield, Hartford, Middlesex, New Haven, New London  
Conservation Status: Uncommon to common; proposed rank: S3SN  
Comments: Regular migrant, showing up in May and present through September. Although most common along coast, apt to turn up anywhere there are ponds and slow moving waters. Although we have observed females ovipositing in Connecticut, it seems unlikely that this species successfully overwinters here.

*Tramea lacerata* Hagen, 1861 - Black Saddlebags  
Flight Dates: 6 June - 2 October  
County Records: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland  
Conservation Status: Very common; proposed rank: S4SN  
Comments: A frequent migrant, especially along the coast. More common and generally distributed than *Tramea carolina*, with which it sometimes occurs. We think it unlikely that it is a year round resident.

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**APPENDIX 1. THE NATURAL HERITAGE PROGRAM STATE RANKING SYSTEM:**

S1 = Critically imperiled in the state because of extreme rarity, with 5 or fewer estimated occurrences. Species ranked S1 are often restricted to very specialized habitats and/or restricted to an extremely small geographical area of the state. May be especially vulnerable to extirpation.

S2 = Imperiled in state because of rarity, with 6 to 20 estimated occurrences. Often susceptible to becoming extirpated.

S3 = Rare to uncommon with 21 to 100 estimated occurrences. Includes species that are widely distributed in the state but often occurring in small populations. Also included are those species having a moderately restricted distribution in the state, but are locally abundant. S3 species may be susceptible to large-scale disturbances.

S4 = Common. Apparently secure in state under present conditions, with more than 100 estimated occurrences. Usually not susceptible to immediate threats.

S5 = Very common to abundant. Demonstrably secure in state under present conditions.

SA = Accidental in the state. A rare vagrant, well outside its usual range.

SE = An exotic established in the state (accidentally or deliberately introduced through human actions). Taxa ranked SE are not a conservation priority.

SH = Historically documented from the state, but not verified in the past 20 years. Historically ranked taxa are considered possibly extant, and remain a conservation priority for continued field surveys.

SN = Regularly occurring, usually migratory and typically nonbreeding species.

SR = Reported from the state, but without persuasive documentation that would provide a basis for either accepting or rejecting the report.

SU = Possibly in peril in state but status uncertain. More survey data is required to resolve rank.

SX = Apparently extirpated from the state. Extirpated taxa are not a current conservation priority.

SZ = Not of practical conservation concern for a reason other than being accidental (SA) or exotic (SE).

Note: The combining of two ranks indicates a range (e.g., S1S3).