



NEWSLETTER

of the WISCONSIN ENTOMOLOGICAL SOCIETY

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Les Ferge, Editor

June 1993

THE BUGS OF 1993

Phil Pellitteri - UW Insect Diagnostic Lab

Spring has already brought with it the first wave of insect activity. The press is always hungry for predictions on what new insect disasters await us. They do not appreciate how little we understand what really controls many populations, and how minor changes in weather patterns at just the right time can blow most predictions out the window. Most entomologists I know get more humbled each season and just sit back and watch the insects continually change the game plan.

It was no great revelation that the heavy rains of spring bring mosquitoes. Dr. Hilsenhoff found large numbers of *Aedes stimulans* out by the middle of May. This species does not migrate far from its breeding sites, but can be a big problem if you decide to camp in the wrong spot. Blackflies also came early and started causing problems far from their river or stream habitat. They often blow in from a great distance, and we think we may be getting some bird-feeders going through a host switch. We have some records of *Simulium meridionale* from July of 1968. We are now busy trying to get enough collected to see what is going on. I have heard of people being carried away at a golf course two blocks from my house, but have not seen any in my back yard.

Ant problems have been larger than normal this spring and pavement ants have become the second most identified household pest. The loose, moist soil has allowed many mound builders to build high-rise colonies. We have found four more infestations of *Hypoponera*, the imported mystery ant. The infestation at the hospital in eastern Wisconsin is still going, much like the "Eveready rabbit".

The State is in the middle of the gypsy moth spraying, and we had a case of Japanese beetle arrive at Milwaukee County stadium on some sod from Ohio. I do believe that the series of mild winters has opened the door for more problems. We have picked up a number of new county records for *Yponomeuta multipunctella*, the American ermine moth, also known as the euonymous caterpillar. We have been getting extensive damage on ornamental plants from this small webworm. There have been no great flights of Painted Ladies this spring, and the cool weather has slowed most Lepids.

My hope for this summer is for at least a 2 week period of things going according to the book. If things remain as unstable as they have been, I will need a whole new library.

The Newsletter of the Wisconsin Entomological Society is published three times a year, at irregular intervals. It is provided to encourage and facilitate the exchange of information by the membership, and to keep the members informed of the activities of the organization. Members are strongly encouraged to contribute items for inclusion in the Newsletter. Please send all news items, notes, new or interesting insect records, season summaries, research requests, and report any address changes to the editor: Les Ferge, 7119 Hubbard Avenue, Middleton, WI 53562.

WISCONSIN DRAGONFLY CHECKLIST PUBLISHED

The Wisconsin Entomological Society is pleased to present the second publication in its fledgling series of Miscellaneous Publications, devoted to providing information on the state's insect fauna. The Checklist of Wisconsin Dragonflies by William A. Smith, Timothy E. Vogt and Karen H. Gaines, included with this newsletter, updates and summarizes the range, seasonal occurrence and status of the 108 species currently known.

DRAGONFLY WORKSHOP TO BE HELD

Bill Smith, Zoologist, Wisconsin DNR Natural Heritage Inventory Program, will present a course introducing dragonfly biology, identification and collection/observation techniques in the field. It will be held on July 9-10 at the University of Wisconsin-Milwaukee Field Station (Cedarburg Bog). The course fee is \$30.00, and enrollment is limited to 20. For further information and registration materials, contact Dr. James Reinartz, UWM Field Station, 3095 Blue Goose Road, Saukville WI 53080, or phone (414) 675-6844.

1993 NABA-XERCES FOURTH OF JULY BUTTERFLY COUNT Ann B. Swengel

The 19th annual NABA-Xerces Fourth of July Butterfly Count will be held this summer. Volunteer participants select a count area with a 15-mile diameter and conduct a one-day census of all butterflies sighted within that circle. The counts are usually held in the few weeks before or after the Fourth of July. Last summer, the Xerces Society and the newly formed North American Butterfly Association (NABA) agreed to transfer administration of the Fourth of July Butterfly Counts to NABA in 1993.

The annually published results of the butterfly count provide important information about the geographical distribution and population sizes of the species counted. Comparisons of the results over the years enable monitoring of changes in butterfly populations and study of the effects of weather and habitat change on the different species throughout the continent. In some years the butterfly count shows dramatic changes in butterfly populations, while other years indicate little fluctuation in butterfly numbers. Either way, butterfly counters are always curious about what next year's results will be!

No matter how much or how little butterfly watching you've done, the results of butterfly counting can be surprising and interesting. If a count already exists in your area, please join them for a day of fascinating butterfly counting. If there is no count in your area, you may start one of your own if you know how to identify butterflies. Otherwise, inspire a nature center or butterfly club to start one for you! For more information on the count program, counts in your area, and how to conduct a count, contact:

Mrs. Ann B. Swengel
National count co-editor
909 Birch Street
Baraboo, WI 53913

For information on the North American Butterfly Association, also contact Mrs. Swengel, treasurer for NABA.

CHECKLIST OF WISCONSIN DRAGONFLIES

By

William A. Smith¹, Timothy E. Vogt², and Karen H. Gaines¹

In 1975, William Hilsenhoff reported (tallied) ninety species of dragonflies (Odonata: Anisoptera) in Wisconsin, one of which was reported in error. Nineteen additional species have been found in the state since 1975. This checklist provides a current summary of Wisconsin's 108 dragonfly species with an indication of population and legal status, breeding habitat, and estimates of range and flight period based on records maintained by the Natural Heritage Inventory Program (NHI) of the Wisconsin Department of Natural Resources. Five species reported from Wisconsin, but never substantiated as part of the state's fauna, are listed in addition. Most of the state records (species) added since 1975 have not been published and are included here with the permission of the discoverers. English names are from a 1988 unpublished checklist of North American odonates by Paulson and Dunkle with appropriate revisions from Dunkle's 1989 volume, Dragonflies of the Florida Peninsula, Bermuda, and the Bahamas. A technical paper documenting new state records is in preparation by the authors.

SPECIES: Species are grouped phylogenetically by family; species names in each family are arranged in alphabetical order.

STATUS: Population status is indicated with the Global and State species ranks as defined below. This species population ranking system is utilized by NHI for all plant and animal species found in the state. Only those ranks assigned to any Wisconsin dragonflies are defined below.

GLOBAL Species Ranks:

- G1 = Critically imperiled globally because of extreme rarity (5 or fewer populations or very few remaining individuals) or because of some factor(s) making it especially vulnerable to extinction.
- G2 = Imperiled globally because of rarity (6 to 20 populations or few remaining individuals) or because of some factor(s) making it very vulnerable to extinction throughout its range.
- G3 = Vulnerable to extinction throughout its range because it is rare (21 to 100 populations or individuals) and local throughout its range, or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single state, a physiographic region), or because of other factors.
- G4 = Apparently globally secure, although it may be quite rare in parts of its range, especially at the periphery.
- G5 = Demonstrably secure globally, although it may be quite rare in parts of its range, especially at the periphery.

STATE Species Ranks:

- S1 = Critically imperiled in the state because of extreme rarity (5 or fewer populations or very few remaining individuals) or because of some factor(s) making it especially vulnerable to extirpation from the state.
- S2 = Imperiled in the state because of rarity (6 to 20 populations or few remaining individuals) or because of some factor(s) making it very vulnerable to extirpation from the state.
- S3 = Rare or uncommon in the state (21 to 100 populations).
- S4 = Apparently secure in the state, with many populations.

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²The Nature Conservancy, Route 1, Box 53E, Ullin, IL 62992

- S5 = Demonstrably secure in the state and essentially ineradicable under present conditions.
- SA = Accidental in the state, including species recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside of their usual ranges; a few of these species may even have bred on one or two occasions.
- SH = Of historical occurrence in the state, perhaps having not been verified in the past 20 years, and suspected to be still extant. A species would become SH without such a 20-year delay if the only known population in the state were destroyed, or if it had been extensively and unsuccessfully looked for. Upon verification of an extant population, SH-ranked species would typically receive an S1 rank.
- SR = Reported from the state, but without persuasive documentation which would provide a basis for either accepting or rejecting the report. Some of these are very old single records for which the NHI program hasn't yet received first-hand information; others are old, obscure reports that are hard to dismiss because the habitat is now destroyed.

SRF = Reported falsely (in error) from the state, but this error persists in the literature.

The limits of uncertainty with regard to rank are indicated by a range (e.g., "G1G2" or "S2S3"), and species with a questionable taxonomic assignment are given a "Q" after the Global rank.

BREEDING HABITAT: Suitable aquatic habitat for the larvae is a primary factor determining odonate presence. Important habitat parameters include substrate, waterbody size, dissolved oxygen content, rate of flow, pH, structure of emergent and submergent vegetation, and water quality. The adjacent terrestrial land use can also be limiting. Many dragonflies, especially stream species, are apparently limited to waterbodies in largely forested watersheds.

RANGE: Data on Wisconsin dragonfly distribution are inconsistent. Some species or species groups are well known, most are not. In some cases, species (often those with S1 or S2 ranks) are represented by a single record; range and flight period estimates should be considered in that light. Several species (including some ranked S1 or S2) which may be common elsewhere in North America are at the edge of their ranges in Wisconsin. Knowledge of the distribution of suitable habitat in Wisconsin can give the reader a more likely indication of a species' range in the state than the current records summarized here. Wisconsin range delineations are made using a modified version of Leslie A. Ferge's floristic province divisions in Ferge's Checklist of Wisconsin Butterflies, with permission of the author. See map and range key on page 3. Modifications to this system have been made to more accurately reflect the distribution of records:

- When records are restricted to a section of a region, its designation is modified to reflect this; e.g., southern section of the Western region = "W(s)."
- When records appear to be concentrated near a major river, that river's (abbreviated) name follows the region designation. Lower Wisconsin River = "LWR," Mississippi River = "MissR," Saint Croix River = "StCrR."
- Some species appear to have the Northern portion (or the entirety) of their range limited to the Door County peninsula; this is indicated by "N(Door)."
- Some species appear to have the Western portion of their range concentrated in the Baraboo Range; this is indicated by "W(Baraboo)."
- Some records in the Milwaukee area are entirely historical (occurring near the beginning of the 20th century); this group is indicated by "E-h."

The order of ranges listed reflects the representation of each range in the distribution of records, with the range with the most occurrences listed first, and so on.

FLIGHT PERIOD: The range of dates given for adult presence begins with the earliest recorded larval emergence (often as evidenced by exuviae) and ends with the latest recorded capture or sighting of an adult. Most species require one to two weeks to become sexually mature after emergence and usually are not seen in their breeding habitat until then. In an attempt to summarize the available data, the authors have used the following convention when indicating the times of the earliest emergence and latest adult records:

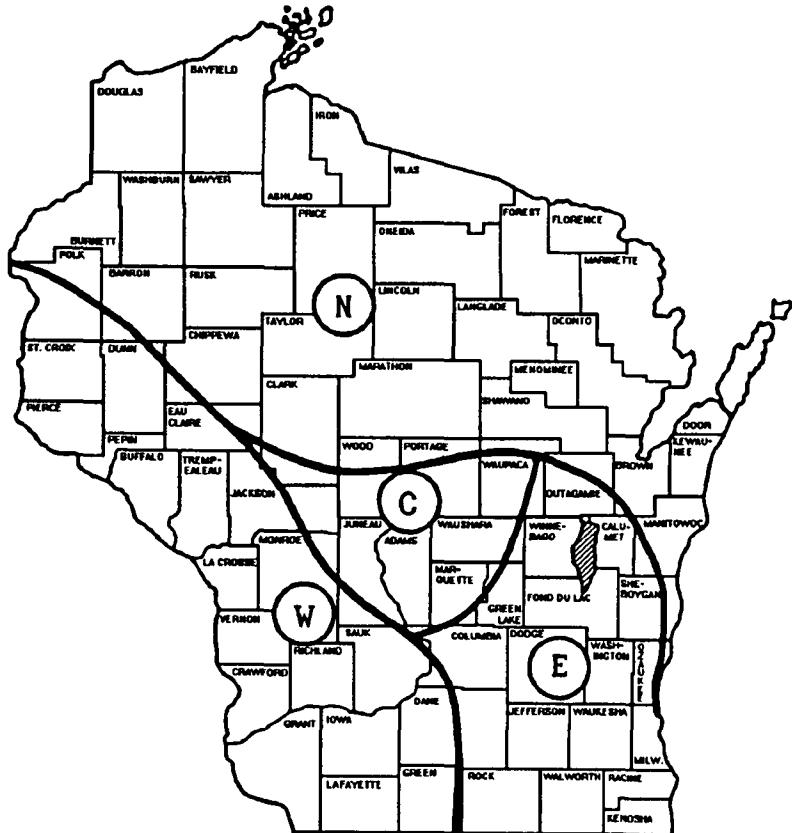
- E (month) = from the 1st to the 10th day of that month.
- M (month) = from the 11th to the 21st of that month.
- L (month) = from the 22nd to the end of that month.

Be advised that these flight periods are approximate; for instance, adults may still be flying in the middle of a month even though the latest recorded sighting occurred on the tenth day of that month.

The Wisconsin DNR's Natural Heritage Inventory Program is currently compiling a distributional atlas of the state's odonates. Readers are encouraged to contribute species occurrence records to the senior author. We are especially interested in detailed information on species considered rare, i.e. State rank of S1, S2, S3, and SH.

ACKNOWLEDGEMENTS: In addition to data provided by the authors, information was obtained from the following sources: Aquatic Insects of Wisconsin by William L. Hilsenhoff, 1981 (Publication of the Natural History Council, University of Wisconsin-Madison, No. 2); The Odonata of Canada and Alaska, Volume II by Edmund M. Walker, 1958, and Volume III by Edmund M. Walker and Philip Corbet, 1975 (University of Toronto Press); Dr. Kenneth Tennessen; Dr. Thomas Pleyte; The Milwaukee Public Museum; Susan Borkin; Dr. Everett D. Cashatt; Corbin Smith; Brendon Smith; Richard Lillie; David Heath; Glenn Miller; "Check-List of the Odonata of North America, with English Names" by Dennis Paulson and Sidney Dunkle (Unpublished Draft, 1988); Dragonflies of the Florida Peninsula, Bermuda and the Bahamas by Sidney W. Dunkle, 1989 (Scientific Publishers Nature Guide).

The map reproduced below is an adaptation of the one in Leslie A. Ferge's publication Checklist of Wisconsin Butterflies, February 1990 (Wisconsin Entomological Society Miscellaneous Publication No. 1) and is used with permission of the author.



N = Northern Highland

C = Central Sands

W = Western Upland (driftless area)

E = Eastern Ridges and Lowlands

NOTE: Some records appear to fall on the border between two regions; this is indicated by a slash between the designations. For instance, between the Central and Western regions = "C/W."

SPECIES	STATUS	BREEDING HABITAT	RANGE	FLIGHT PERIOD
SUBORDER ANISOPTERA (DRAGONFLIES)				
FAMILY AESHNIDAE (DARNERS)				
<i>Aeshna canadensis</i> Walker, 1908 Canada damer	G5 S5	bog- or marsh-bordered lakes; sluggish marsh-bordered streams	N C E W-LWR	M June - E Oct
<i>Aeshna clepsydra</i> Say, 1839 mottled damer ¹	G3G4 S2	reed-bordered lakes; deep sterile lakes	N E-h	M June - E Sept
<i>Aeshna constricta</i> Say, 1839 lance-tailed damer	G5 S4	ponds; small lakes; marshes; slow streams in open marshes	E N C W	M July - E Sept
<i>Aeshna eremita</i> (Scudder, 1866) lake damer	G5 S3	bog- or marsh-bordered ponds and lakes	N	L July - E Oct
<i>Aeshna interrupta</i> Walker, 1908 variable damer	G5 S5	shallow marsh-bordered bays; bog or beach ponds; slow streams	N	L July - M Sept
<i>Aeshna mutata</i> Hagen, 1861 spatterdock damer ¹	G3G4 S2	shallow peaty lakes with abundant floating vegetation	C	E June - L June
<i>Aeshna tuberculifera</i> Walker, 1908 black-tipped damer	G4 S3	acidic bog ponds; peaty acidic lakes	C N	M Aug - M Sept
<i>Aeshna umbrosa</i> Walker, 1908 shadow damer	G5 S5	partially- to heavily-shaded streams, ditches, and forest ponds	N C W(s)	L June - M Oct
<i>Aeshna verticalis</i> Hagen, 1861 green-striped damer	G5 S2S3	spring ponds; marsh-bordered lakes	C E N	M June - L Sept
<i>Anax junius</i> (Drury, 1770) common green damer	G5 S5	still water with emergent or floating leaved aquatics	Statewide	E April - M Oct
<i>Anax longipes</i> Hagen, 1861 comet damer	G5 SA	ponds; small lakes	C	L June - E July
<i>Basiaeschna janata</i> (Say, 1839) springtime damer	G5 S4	well-oxygenated ponds, lakes, streams	Statewide	L May - E July
<i>Boyeria vinosa</i> (Say, 1839) fawn damer	G5 S5	shady edges of streams with moderate current	N W-LWR C	M June - M Sept
<i>Epiaeschna heros</i> (Fabricius, 1798) swamp damer	G5 S2S3	shady ponds, ditches; sloughs bordering woods	N(Door) E W(s)	E June - L July
<i>Gomphaeschna furcillata</i> Say, 1839 harlequin damer	G5 S1S3	sphagnum bogs; alder swamps; wooded swamps	N(w)	Early June
<i>Nasiaeschna pentacantha</i> (Rambur, 1842) cyrano damer	G5 S3	swampy streams; lake coves & ponds with roots or branches in water	W-LWR E N	E June - E July
FAMILY GOMPHIDAE (CLUBTAILS)				
<i>Arigomphus cornutus</i> Tough, 1900 horned clubtail	G4 S3S4	sluggish marsh- or bog-bordered streams; muddy ponds	N E-h	M June - M July
<i>Arigomphus furcifer</i> Hagen, 1878 lilypad clubtail	G5 S3S4	marshy ponds, lakes & sluggish streams with abundant floating vegetation	Statewide (local)	L May - E July
<i>Arigomphus submedianus</i> Williamson, 1914 jade clubtail ¹	G5 S1	backwaters; ponds; sloughs	E(s)	Early July
<i>Arigomphus villosipes</i> Selys, 1854 unicorn clubtail	G5 S2	ponds and sluggish streams with little vegetation	E	Late June
<i>Dromogomphus spinosus</i> Selys, 1854 black-shouldered spinyleg	G5 S4	streams; large lake shores	N C W-StCrR W/C	E June - L July
<i>Gomphus (Gomphurus) externus</i> Hagen, 1858 plains clubtail ¹	G5 S2	rivers with moderate current and turbid water	W C	E June - L July
<i>Gomphus (Gomphurus) fraternus</i> Say, 1839 midland clubtail	G5 S4	relatively clean medium-large streams with at least mod. current; large lakes	W N C E-h E/W	L May - L July
<i>Gomphus (Gomphurus) lineatifrons</i> Calvert, 1921 splendid clubtail ¹	G4 S2	medium to large fast-flowing streams with good water quality	W-StCrR N C	L May - M July
<i>Gomphus (Gomphurus) vastus</i> Walsh, 1862 cobra clubtail	G5 S4	medium to large rivers with moderate to rapid current	W N W/E	L May - L July
<i>Gomphus (Gomphurus) ventricosus</i> Walsh, 1863 skillet clubtail	G3G4 S2S3	medium to large rapid streams with good water quality	N W-StCrR C	L May - L July
<i>Gomphus (Gomphus) adelphus</i> (Selys, 1857) moustached clubtail	G4 S3S4	small to medium rapid clean streams	N C	L May - L July
<i>Gomphus (Gomphus) viridifrons</i> (Hine, 1901) green-faced clubtail	G3 S2S3	medium to large rapid clean streams	N W-StCrR C	E May - M July
<i>Gomphus (Phanogomphus) exilis</i> Selys, 1854 lancet clubtail	G5 S3S4	quiet marsh-bordered lakes and streams; marshy corners of rocky streams	N C E	E June - L July

SPECIES	STATUS	BREEDING HABITAT	RANGE	FLIGHT PERIOD
<i>Gomphus (Phanogomphus) graslinellus</i> Walsh, 1862 pronghorn clubtail ¹	G5 S2	ponds; lakes; slow streams	N(w) E-h	E June - L July
<i>Gomphus (Phanogomphus) lividus</i> Selys, 1854 ashy clubtail	G5 S4	trout streams; small to medium fast streams; sheltered parts of large lakes	N C	L May - M July
<i>Gomphus (Phanogomphus) quadricolor</i> Walsh, 1862 rapids clubtail	G3G4 S3	small to large rapid clean streams	N C/W E-h	L May - M July
<i>Gomphus (Phanogomphus) spicatus</i> Hagen, 1854 dusky clubtail	G5 S5	boggy or marshy lakes and ponds	N C E	L May - M July
<i>Hagenius brevistylus</i> Selys, 1854 dragonhunter	G5 S4	protected portions of large lakes; moderate to fast forest streams	N W-StCrR W/C	E June - M Aug
<i>Ophiogomphus anomalus</i> Harvey, 1898 extra-striped snaketail ²	G2 S1	medium to large fast clean streams	N(w)	L May - L June
<i>Ophiogomphus aspersus</i> Morse, 1895 brook snaketail ¹	G3G4 S2	small to medium fast clean sandy streams	N N/W W/C	L May - M June
<i>Ophiogomphus carolus</i> Needham, 1897 riffle snaketail	G5 S3	small fast rocky streams with sand	N	L May - M Aug
<i>Ophiogomphus colubrinus</i> Selys, 1854 boreal snaketail	G5 S4	clean cool rapid streams; trout streams	N W-StCrR	M June - M Aug
<i>Ophiogomphus howei</i> Bromley, 1924 pygmy snaketail ²	G3 S3	small to large fast clean streams with gravel/sand substrate	N W-StCrR	L May - L June
<i>Ophiogomphus rupinsulensis</i> Walsh, 1862 rusty snaketail	G5 S4	small to large fast streams	N W-StCrR W/C C	L May - M Aug
<i>Ophiogomphus</i> sp. nov. Vogt & Smith, (in prep) St Croix R. snaketail ³	G1G2 S1	moderately large fast clean streams with cobble/gravel/sand substrate	N(w) W-StCrR	L May - L June
<i>Progomphus obscurus</i> Rambur, 1842 common sanddragon	G5 S3S4	very sandy streams and lakes	C N W/C W-LWR	E June - L July
<i>Stylogomphus albistylus</i> Hagen, 1878 least clubtail	G5 S3	small fast streams with cobble/boulder/gravel substrate	N	M June - E July
<i>Stylurus amnicola</i> Walsh, 1862 riverine clubtail	G3G4 S3	medium to large rivers with fast current and sandy substrate	W N C	M June - E Aug
<i>Stylurus notatus</i> Rambur, 1842 elusive clubtail ⁴	G3G4 S3	medium to large rivers with clean depositional sandy areas	W C E(s)	E June - L Sept
<i>Stylurus plagiatus</i> Selys, 1854 russet-tipped clubtail ¹	G5 S2	medium to large turbid rivers with silty sandy substrate	W E(s) C	L June - M Aug
<i>Stylurus scudleri</i> Selys, 1873 zebra clubtail	G3G4 S3	small to medium clean cool rapid sandy streams; trout streams	N W/C	E July - L Aug
<i>Stylurus spiniceps</i> Walsh, 1862 arrow clubtail	G5 S4	sandy depositional zones of relatively clean medium to fast streams	N W-StCrR W(c) C	M June - M Aug
FAMILY CORDULEGASTRIDAE (SPIKETAILS)				
<i>Cordulegaster diastatops</i> Selys, 1854 delta-spotted spiketail ¹	G5 S1S2	seeps; spring runs in clearings or brushy areas	N(e)	L June - E July
<i>Cordulegaster maculata</i> Selys, 1854 twin-spotted spiketail	G5 S4	small to medium fast clean forest streams; trout streams	Statewide (local E,W)	L May - L July
<i>Cordulegaster obliqua</i> Say, 1839 arrowhead spiketail	G4 S3	small wooded headwater seeps/streams	W(Baraboo) N E-h	E June - L July
FAMILY MACROMIIDAE (CRUISERS)				
<i>Didymops transversa</i> Say, 1839 stream cruiser	G5 S4	sandy forest streams; lakes with wave action	N C W	L May - E July
<i>Macromia illinoensis</i> Walsh, 1862 swift river cruiser	G5 S4	small to large fast clean streams; exposed shores of large lakes	N C/W E-h	L May - M Aug
<i>Macromia pacifica</i> Hagen, 1861 gilded river cruiser	G4 SH	rapid streams; one old record from Milwaukee River	E-h	Early July
<i>Macromia taeniolata</i> Rambur, 1842 royal river cruiser ¹	G5 S1	rocky open shorelines of large southern rivers	W(s)	L June - E Aug
FAMILY CORDULIIDAE (EMERALDS)				
<i>Cordulia shurtleffi</i> Scudder, 1866 American emerald	G5 S5	quiet marshy, boggy waters; small lakes; sphagnum bog ponds	N E C	L May - M July
<i>Dorocordulia libera</i> Selys, 1871 racket-tailed emerald	G5 S5	bog ponds; bog- or marsh-bordered lakes	N C E	E June - E Aug
<i>Epitheca (Epicordulia) princeps</i> (Hagen, 1861) prince baskettail	G5 S5	larger lakes; quiet portions of medium to large rivers	Statewide	E June - E Aug
<i>Epitheca (Tetragoneuria) canis</i> McLachlan, 1886 beaverpond baskettail	G5 S5	bog ponds; marshy, cool streams	N C	M May - E July

SPECIES	STATUS	BREEDING HABITAT	RANGE	FLIGHT PERIOD
<i>Epitheca (Tetragoneuria) cynosura</i> Say, 1839 common baskettail	G5 S5	marsh-bordered lakes, bays; slow stream mouths	Statewide	L May - M July
<i>Epitheca (Tetragoneuria) spinigera</i> Selys, 1871 spiny baskettail	G5 S5	marshy borders of lakes and slow streams	N C E	L May - E July
<i>Neurocordulia molesta</i> Walsh, 1863 smoky shadowfly	G3 S2	rocky segments of medium to large rivers	W	L May - E July
<i>Neurocordulia yamaskanensis</i> Provancher, 1875 stygian shadowfly	G5 S3	aerated rocky segments of streams; lakes	W N C E	E June - M June
<i>Somatochlora elongata</i> Scudder, 1861 ski-tailed emerald	G5 S3	forest streams with rapids; outlets of lakes and ponds	N	E June - L July
<i>Somatochlora ensigera</i> Martin, 1906 lemon-faced emerald ¹	G4 S1	small streams lined with woods	E(s)	Late June
<i>Somatochlora forcipata</i> Scudder, 1866 forcipate emerald	G5 S3	small spring-fed boggy streams	N	M June - E Aug
<i>Somatochlora franklini</i> Selys, 1878 delicate emerald ¹	G5 S2	spring-fed sphagnum bogs	N	E June - L June
<i>Somatochlora hineana</i> Williamson, 1931 Ohio emerald ⁵	G2 S1	small cool calcareous marshy streams on bedrock	N(Door)	E July - L July
<i>Somatochlora incurvata</i> Walker, 1918 warpaint emerald ¹	G3 S2	spring-fed bogs; poor fens	C	M July - L Aug
<i>Somatochlora kennedyi</i> Walker, 1925 Kennedy's emerald	G5 S3	slow streams through open bogs or marshes	N E	E June - L July
<i>Somatochlora minor</i> Calvert, 1898 ocellated emerald	G5 S4	clear gently-flowing forest streams	N(e)	L June - L July
<i>Somatochlora tenebrosa</i> Say, 1839 clamp-tipped emerald ¹	G5 S2	small forest streams with intermittent riffles and pools	W(Baraboo) N	E July - M Aug
<i>Somatochlora walshii</i> Scudder, 1866 Walsh's emerald	G5 S4	small headwater streams through conifer swamps and wetlands	N	M June - E Aug
<i>Somatochlora williamsoni</i> Walker, 1907 Williamson's emerald	G5 S4	quiet shady forest streams; small cool marshy streams	N W(local)	L June - L Aug
<i>Williamsonia flecheri</i> Williamson, 1923 ebony boghaunter ¹	G3G4 S2S3	sphagnum bog pools	N(e)	Mid June
FAMILY LIBELLULIDAE (SKIMMERS)				
<i>Celithemis elisa</i> Hagen, 1861 calico pennant	G5 S5	marshy ponds or lakes with emergent aquatics	E N C	E June - M Aug
<i>Celithemis eponina</i> Drury, 1773 halloween pennant	G5 S4	ponds; lakes; slow streams	E W-MissR	E June - E Sept
<i>Erythemis simplicicollis</i> Say, 1839 eastern pondhawk	G5 S5	lakes; ponds; slow streams	W(s) E N(local)	E June - E Sept
<i>Ladona julia</i> (Uhler, 1857) chalk-fronted skimmer	G5 S5	bog ponds; swampy bays	Statewide (local W)	L May - L July
<i>Leucorrhinia frigida</i> Hagen, 1890 frosted whiteface	G5 S4	bog ponds; bog lakes, especially with floating sphagnum	N C	L May - M Aug
<i>Leucorrhinia glacialis</i> Hagen, 1890 crimson-ringed whiteface	G5 S4	bog ponds; bog lakes; marshes	N C E	L May - M Aug
<i>Leucorrhinia hudsonica</i> Selys, 1850 Hudsonian whiteface	G5 S4	cold marshy waters; bog ponds	N	L May - L June
<i>Leucorrhinia intacta</i> Hagen, 1861 dot-tailed whiteface	G5 S5	marshy bays; ponds; slow streams	N C E W-LWR	M May - L Sept
<i>Leucorrhinia proxima</i> Calvert, 1890 variable whiteface	G5 S4	still marshy or bog waters	N E	L May - M Aug
<i>Libellula cyanea</i> Fabricius, 1775 white-spangled skimmer ¹	G5 S2	marshy ponds near floodplain forests	W-LWR C	L May - L June
<i>Libellula incesta</i> Hagen, 1861 slaty skimmer ¹	G5 S2	ponds; small marshy lakes; slow streams	N(e) E-h	E June - M July
<i>Libellula luctuosa</i> Burmeister, 1839 pied skimmer, widow	G5 S5	ponds; small streams; marshes	E C N	E June - L Aug
<i>Libellula pulchella</i> Drury, 1770 twelve-spotted skimmer	G5 S5	ponds; marshy borders of lakes, bays, slow streams	Statewide	L May - L Sept
<i>Libellula quadrimaculata</i> Linnaeus, 1758 four-spotted skimmer	G5 S5	still waters in marshy or boggy ground	Statewide (local W)	L May - E Aug
<i>Libellula semifasciata</i> Burmeister, 1839 painted skimmer	G5 SH	forest brooks; marshy bays; ponds	E-h	E July - L July
<i>Libellula vibrans</i> Fabricius, 1793 great blue skimmer	G5 SH	marshes; standing water	E-h	June

SPECIES	STATUS	BREEDING HABITAT	RANGE	FLIGHT PERIOD
<i>Nannothemis bella</i> Uhler, 1857 elfin skimmer ¹	G4 S3	floating sphagnum bogs; fens	N E(s)	M June - E Aug
<i>Pachydiplax longipennis</i> Burmeister, 1839 blue dasher	G5 S5	lakes; ponds; marsh-edged streams	W(s) N C	M June - M Aug
<i>Pantala flavescens</i> Fabricius, 1798 wandering glider	G5 S4	small standing waterbodies; temporary and artificial ponds	C E W N(Door)	M July - E Sept
<i>Pantala hymenaea</i> Say, 1839 spot-winged glider	G5 S4	small standing waterbodies; temporary and artificial ponds	N E W	L June - M Sept
<i>Perithemis tenera</i> Say, 1839 eastern amberwing	G5 S4	ponds; quiet streams; backwaters	W(s) E	E June - L July
<i>Plathemis lydia</i> (Drury, 1770) common whitetail	G5 S5	ponds; puddles; quiet stream pools; marshes	Statewide	L May - M Oct
<i>Sympetrum corruptum</i> Hagen, 1861 variegated meadowhawk	G5 S4	ponds; slow streams in arid, sandy or gravelly areas	E N(e)	E July - M Sept
<i>Sympetrum costiferum</i> Hagen, 1861 saffron-bordered meadowhawk	G5 S4	reedy marshes bordering sandy, gravelly ponds	E N	E July - M Sept
<i>Sympetrum danae</i> Sulzer, 1776 black meadowhawk	G5 S3	marshy ponds, especially bog ponds	N E	L Aug - E Oct
<i>Sympetrum internum</i> Montgomery, 1943 cherry-faced meadowhawk	G5 S4	marshes; ponds; slow shady streams	N(e) E	M June - M Sept
<i>Sympetrum obtrusum</i> Hagen, 1867 white-faced meadowhawk	G5 S5	temporary to permanent ponds in fields or pastures; marshes	N C E	M June - M Oct
<i>Sympetrum rubicundulum</i> Say, 1839 ruby meadowhawk	G5 S4	ponds; ditches; open marshes; slow streams	N E-h	E June - M Sept
<i>Sympetrum semicinctum</i> Say, 1839 band-winged meadowhawk	G5 S4	spring-fed ponds and marshes	N E C	E July - L Aug
<i>Sympetrum vicinum</i> Hagen, 1861 yellow-legged meadowhawk	G5 S5	marshes; slow streams; permanent ponds	N C E	M Aug - M Sept
<i>Tamea carolina</i> Linnaeus, 1763 violet-masked glider ¹	G5 S2	ponds; small lakes; quiet water with firm bottom	E/N	L June
<i>Tamea lacerata</i> Hagen, 1861 black-mantled glider	G5 S5	ponds; small lakes; open marshy lagoons and bays	E C N(Door)	E June - E Oct
<i>Tamea onusta</i> Hagen, 1861 red-mantled glider	G5 S3	ponds; small lakes	E N(Door) W(local)	M June - L July
REPORTED FROM WISCONSIN, BUT NOT SUBSTANTIATED:		COMMENTS:		
<i>Dromogomphus spoliatus</i> Hagen, 1858 flag-tailed spinyleg	G4G5 SRF	Likely to be found in southern WI. Habitat: medium streams, small lakes.		
<i>Cordulegaster sayi</i> Selys, 1854 Say's spiketail	G1G2 SRF	Unlikely; possibly <i>Cordulegaster erronea</i> , known from Michigan's Upper Peninsula.		
<i>Dorocordulia lepida</i> Hagen, 1871 petite emerald	G5 SR	Unlikely; probably <i>Dorocordulia libera</i> .		
<i>Celithemis fasciata</i> Kirby, 1889 banded pennant (= <i>C. monomelaena</i> Williamson, 1910 black-spotted pennant, G5Q SR)	G5 SR	Likely to be found in southern WI. Habitat: ponds, small lakes. Not included in checklist because authors have not seen primary source or specimen, although a secondary report does exist in the literature.		

1. Under review for state listing as endangered or threatened
2. State endangered; under federal review for listing as endangered or threatened
3. Proposed for state listing and under review for federal listing as endangered or threatened
4. Under review for federal listing as endangered or threatened
5. Proposed for state and federal listing as endangered

1992 XERCES SOCIETY NORTH AMERICAN BUTTERFLY COUNT Ann Swengel

The 18th annual Fourth of July Butterfly Count, sponsored by the Xerces Society, was held in the summer of 1992. Volunteer participants conducted a one-day census of all butterflies observed at sites within the count area, a 15-mile diameter circle. Most counts were held in late June and July.

The 185 counts held in 1992 represent a considerable increase from the 1991 total of 149 and 124 in 1990. The number of people participating in each count adds up to 1,297, although some people are tallied more than once, since they participated in two or more counts. The year's counts included 50 first year counts (39 in 1991 and 22 in 1990). The 1992 counts occurred in 39 states (five more than last year), four Canadian provinces (one more than last year), as well as one state in Mexico (none last year). California and Wisconsin tied for state with the most counts (15). Four counts, Berkely, California; Gilpin County, Colorado; High Line Canal, Colorado; and Lower Pearl River, Louisiana/Mississippi, have been held for all 18 years of the count program.

Three counts surpassed the previous all-time high for species diversity of adult butterflies on a single count in North America north of Mexico. The previous record was 97, achieved by both the Gilpin County (lower circle) Colorado count in 1981 and the Ramsey Canyon, Arizona count in 1991. The new record is 102, achieved by the Patagonia, Arizona count, followed by 101 by the Gilpin County (lower circle), Colorado and 98 by the Atascosa Highlands, Arizona. In Mexico, the Puerta Vallarta count beat the previous record it set (115 species in 1990) with an amazing 169 in 1992. By counting a mind-boggling total of 16,994 adult butterfly individuals, the Klamath Falls, Oregon count demolished the previous record total of 10,475 individuals on the Ramsey Canyon, Arizona count in 1987.

The 1992 counts clearly reflected the lower numbers of "Mexican" *Danaus plexippus* (the monarch population breeding east of the Rocky Mountains and wintering in Mexico) compared to last year, as measured by monarchs per party-hour of counting effort. The average number per party-hour for counts within the breeding area of Mexican monarchs declined about 75%, but still remained about three times higher than the average in 1988, which was about as hot and dry a summer as 1992 was cool and gray. The 1992 results fall within the range of average for all years since 1980. Since the 1991 counts produced the highest levels of Mexican monarchs ever recorded by the count program, the decline from 1991 to 1992 was quite obvious, but we should remember when making comparisons that 1991 was at least as good a year for monarchs as 1992 was poor. Butterfly counters around the country should be proud that their effort is being used to monitor the ups and downs of the Mexican monarchs, as reported in the October 13, 1992 *New York Times*.

For the second year in a row, the painted lady (*Vanessa cardui*) was widespread and abundant throughout the continent. In 1991, 94 of 149 counts (63%) reported this species, compared to 139 of 185 counts (75%) in 1992. The 1991 counts averaged 28.9 painted ladies per count; in 1992 the average was 27.3. By contrast, in the years 1987-1989, the percentage of counts reporting this species varied from 27-32% and the average individuals per count ranged from 1.4 to 2.1.

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ADDRESS CORRECTION REQUESTED