

National Park Service  
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Northeast Region  
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## **An Evidence-Based Checklist of the Damselflies and Dragonflies of Delaware Water Gap National Recreation Area**

Technical Report NPS/NER/ERMN/NRTR—2011/155



**ON THE COVER**

Septima's clubtail (*Gomphus septima delawarensis*).

Allen Barlow photograph, used with permission.

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Technical Report NPS/NER/ERMN/NRTR—2011/155

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## Abstract

An evidence-based checklist of damselflies and dragonflies was compiled for Delaware Water Gap National Recreation Area (DEWA). The checklist of 122 species, based on field surveys conducted from 2007 through 2010, is accompanied by digital photographs of 92 of these species.

The Park supports a rich odonate fauna. The most frequently observed species were common whitetail (*Plathemis lydia*), common green darner (*Anax junius*), eastern forktail (*Ishnura verticalis*), widow skimmer (*Libellula luctuosa*), and spangled skimmer (*Libellula cyanea*). More than 60 species on the park's checklist are ranked rare, imperiled, or critically imperiled by one or both state's (PA or NJ) natural heritage programs. Nineteen species are rare in both states and three of them are globally rare or imperiled: green-faced clubtail (*Gomphus viridifrons* is G3); New England bluet (*Enallagma laterale* is G3); and Septima's clubtail (*Gomphus septima delawarensis* is G2).

DEWA's diverse aquatic habitats are complimented by riparian fields and forests that adult odonates need for foraging, maturation, and mating. Grassy fields along the Flat Brook and Delaware River, especially near Minisink Island, are utilized by dozens of species and are vital to their conservation. Periodic mowing or controlled burns are beneficial and should be scheduled from mid-October through mid-April, when most of the resident odonates are in the aquatic stage of their lifecycles.

Important still-water habitats include high-elevation *Sphagnum* wetlands on the Kittatinny Ridge. Many of these wetland systems support northern species that are not found elsewhere in the park. Management to control exotic invasive plants is warranted.

More fieldwork is needed on the Pennsylvania side of the park to map species' distributions and to refine abundance estimates. For rare species, more information on post-emergent habitat use would benefit management of riparian areas along the Delaware River and Flat Brook. Key species include brook snaketail (*Ophiogomphus aspersus*), green-faced clubtail, and Septima's clubtail.

## Objectives

The main objectives of the project were to compile an evidence-based checklist of damselflies and dragonflies (odonates) recently observed in the Delaware Water Gap National Recreation Area (“the park”) and to voucher these species with high resolution, digital photographs.

## Methods

An ad hoc team of six expert field naturalists (the “team”) was assembled to carry out this project (Appendix A). Each team member is a skilled odonate observer. Time in the field was provided at no cost to the park.

Species lists provided by the National Park Service, the Pennsylvania Natural Heritage Program (Betsy Leppo), and the New Jersey Odonata Survey (Allen Barlow), along with the personal records of team members, were used to develop a preliminary checklist of 105 species seen in the park in recent years.

Group field trips were planned to diverse habitats throughout the park to observe and photograph as many species as possible. No physical specimens were collected. Individuals were netted in the field for positive identification, photographed, and then released.

Observations were recorded on paper datasheets and then transferred to a Microsoft Access database. Database queries were written to create species lists and generate summary statistics. Preliminary assignments were made regarding the relative abundance of each species.

## Results and Discussion

### Field Trips & Observations

The team conducted nine group field trips in 2007 and 2008, each attended by four or more members. Each trip included stops at multiple sites, where observers compiled species lists and made counts or abundance estimates of each species observed. Field trips conducted in connection with the Dragonfly Society of the Americas’ northeastern regional meeting (June 2007) added new observations. To accommodate team member interests, most trips were conducted within the New Jersey portion of the park. Key field trips are listed in Table 1.

Data from these group trips were supplemented by observations and photographs provided by individual team members. Many of these had a single species focus.

Table 1. List of Key Field Trips, 2007-2010.

Date	Locations Surveyed	No. of species seen this date
05/20/2007	VanCampens Brook, Watergate Ponds, Flatbrookville/Walpack Bend area	15
06/03/2007	Mountain Rd/Flat Brook fields, Silver Spray Farm, Haney's Mill	23
06/10/2007	Old Mine Rd/Delaware River fields, Rte 206 to Dingmans	24
06/19/2007	Ponds and wetlands near Yards Creek Upper Reservoir	28
06/22-23/2007	Dragonfly Society of the Americas field trips to Delaware River, fields along Old Mine Rd, fields along Caddoo Rd.	30
07/28/2007	Crater Lake, Lake Success wetland, County Line Pond	25
08/11/2007	Delaware River, Depew, VanCampens Glen	14
08/26/2007	Catfish Pond, Wetlands, Outlet Stream	15
05/24/2008	Blue Mtn Lake and upstream wetlands; Hemlock Pond; Mtn Ridge Pond	15
06/14/2008	Delaware River and fields at Walpack Bend NJ, Rivers Bend Campground, Decker Ferry Farm, Auns Landing	19
07/22/2008	Blue Mountain Lake and upstream wetlands; Hemlock Pond	33
05/29/2010	Catfish Pond and wetlands	14
06/02/2010	Flat Brook, Mountain Road, Walpack area	15
06/10/2010	Rattlesnake Mountain wetlands	8

### Common Species

The most frequently observed species (Table 2) were habitat generalists with long flight periods, including many skimmers (family: Libellulidae), such as common whitetail (*Plathemis lydia*) and widow skimmer (*Libellula luctuosa*). Other commonly encountered species include common green darner (*Anax junius*), springtime darner (*Basiaeschna janata*), eastern (*Ishnura verticalis*) and fragile (*Ishnura posita*) forktail, and ebony jewelwing (*Calopteryx maculata*). About one-quarter of the species were seen only once; these include species that are uncommon or rare (e.g., lilypad clubtail [*Arigomphus furcifer*]), easily overlooked (e.g. sphagnum sprite [*Nehalenna gracilis*]), or difficult to net (e.g., ocellated darner [*Boyeria grafiانا*]).

Table 2. Most frequently encountered species. Frequency = number of sites at which a species was observed on field trips.

Common Name	Scientific Name	Frequency
Common whitetail	<i>Plathemis lydia</i>	26
Common green darner	<i>Anax junius</i>	24
Eastern forktail	<i>Ishnura verticalis</i>	23
Widow skimmer	<i>Libellula luctuosa</i>	18
Spangled skimmer	<i>Libellula cyanea</i>	15
Slaty skimmer	<i>Libellula incesta</i>	13
Fragile forktail	<i>Ishnura posita</i>	12
Calico pennant	<i>Celithemis elisa</i>	12
Twelve-spotted skimmer	<i>Libellula pulchella</i>	11
Ebony jewelwing	<i>Calopteryx maculata</i>	10
Swamp spreadwing	<i>Lestes vigilax</i>	10
Springtime darner	<i>Basiaeschna janata</i>	10
Dot-tailed whiteface	<i>Leucorrhinia intacta</i>	10

## Rare Species

More than 60 species on the park checklist are ranked rare, imperiled, or critically imperiled (S3 or higher) by one or both state's natural heritage programs. Nineteen species (Table 3) are of conservation concern in both states and three of them are globally rare or imperiled (G3 or G2).

## Species Checklist

Our surveys compiled nearly 600 observations and confirmed 122 unique damselfly and dragonfly taxa. The evidence-based species checklist, with preliminary assignments on abundance, is presented in Appendix B. Abundance rankings reflect the combined experience and judgment of team members.

Scientific and common names are those used in Barlow, Golden, and Bangma's "Field Guide to the Dragonflies and Damselflies of New Jersey," first edition (2009), which follows Needham, Westfall, and May (2000) for dragonflies and Westfall and May (1996) for damselflies. We list the commonly encountered "dirty-faced" form of cherry-faced meadowhawk as *Sympetrum internum*, rather than *S. janae*. We list southern spreadwing (*Lestes australis*) but not northern spreadwing (*L. disjunctus*), based on distribution maps from Barlow et al. and Lam (2004).

Our species tally compares to 141 species listed for northwestern NJ, Valley and Ridge Province (New Jersey Odonata Survey website; January 2007) and 96 species listed for northeastern PA, Pike-Monroe-Northampton Counties (pers. comm., Betsy Leppo, PA Natural Heritage Program, January 2007).

## Digital photographs

Digital photographic vouchers of 92 species were prepared and cataloged in the project database. Filenames follow the format: "ParkCode\_Genus\_Species\_Date\_Photographer." When needed for positive identification, complementary images of an individual specimen show multiple views or close-up details of body parts (e.g., lateral and head-on views of mustached clubtail [*Gomphus adelphus*]). Altogether, over 150 images accompany this report.

## Overview of Aquatic Habitats

Odonates live separate lives as adults and larvae (nymphs). Nymphs winter-over in many types of aquatic habitat - rivers and streams, lakes and ponds, seeps and wetlands. Adults emerge in spring or summer and live about a month, utilizing riparian habitat, including upland fields and forests, to mature, forage, and find mates.

The park hosts a diversity of aquatic habitats suitable for larval development. Running-water habitats include headwaters and seeps, wadeable streams, and the Delaware River. Still-water habitats range from deepwater lakes to shallow ponds and wetlands. In addition to marshes and swamps, wetland habitats include regionally rare community types, such as limestone fens and *Sphagnum* peatlands.

Table 3. Species of conservation concern - ranked S3 or higher by both NJ and PA. Ranks shown in parentheses are proposed.

Family	Scientific Name	Common Name	Global Rank	NJ Rank	PA Rank
Calopterygidae	<i>Calopteryx aequabilis</i>	River Jewelwing	G5	S2	S2
Calopterygidae	<i>Calopteryx amata</i>	Superb Jewelwing	G4	S1	S2S3
Coenagrionidae	<i>Enallagma laterale</i>	New England Bluet	G3	S1S2	S1
Lestidae	<i>Lestes eurinus</i>	Amber-winged Spreadwing	G4	S2	S3
Gomphidae	<i>Arigomphus furcifer</i>	Lilypad Clubtail	G5	S2	S2 (S3)
Gomphidae	<i>Gomphus abbreviatus</i>	Spine-crowned Clubtail	G3G4	S2S3	S2
Gomphidae	<i>Gomphus descriptus</i>	Harpoon Clubtail	G4	S1	S1S2
Gomphidae	<i>Gomphus quadricolor</i>	Rapids Clubtail	G3G4	S2	S1S2
Gomphidae	<i>Gomphus septima delawarensis</i>	Septima's Clubtail -- Delaware River subspecies	G2	S1	SNR (S1)
Gomphidae	<i>Gomphus viridifrons</i>	Green-faced Clubtail	G3	S1	S1
Gomphidae	<i>Ophiogomphus carolus</i>	Riffle Snaketail	G5	S1	S2S3
Gomphidae	<i>Ophiogomphus mainensis</i>	Maine Snaketail	G4	S2	S3
Aeshnidae	<i>Aeshna clepsydra</i>	Mottled Darner	G4	S2S3	S2S3
Aeshnidae	<i>Aeshna tuberculifera</i>	Black-tipped Darner	G4	S1S2	S2S3
Aeshnidae	<i>Anax longipes</i>	Comet Darner	G5	S2S3	S1S2
Aeshnidae	<i>Boyeria grafiana</i>	Ocellated Darner	G5	S1S2	S3
Aeshnidae	<i>Rhionaeschna mutata</i>	Spatardock Darner	G4	S1S2	S1 (S2)
Corduliidae	<i>Somatochlora linearis</i>	Mocha Emerald	G5	S2	S1
Corduliidae	<i>Somatochlora walshii</i>	Brush-tipped Emerald	G5	S1S2	S2

Many common species are generalists and utilize a variety of aquatic habitats. Look for the common whitetail, for example, in virtually any body of water, including disturbed or polluted sites.

Other species are habitat specialists. Illinois river cruiser (*Macromia illinoensis*), dragonhunter (*Hagenius brevistylus*), and green-faced (*Gomphus viridifrons*) and Septima's (*Gomphus septima delawarensis*) clubtail are big-river dragonflies found along the Delaware. The two clubtails are globally at-risk. Green-faced clubtail (globally rare) is limited to rivers of the Northeast. Septima's clubtail (globally imperiled) is one of North America's rarest clubtails. Our form is a disjunct regional subspecies restricted to the Upper Delaware River and tributaries (Barlow et al. 2009).

The Flat Brook, another of the park's most important waterways, supports a diverse assemblage of dragonflies and damselflies, including several locally rare species – Maine (*Ophiogomphus mainensis*) and brook (*Ophiogomphus aspersus*) snaketail, harpoon clubtail (*Gomphus descriptus*), and superb jewelwing (*Calopteryx amata*).

Streams draining the Kittatinny Ridge support other forest-dwelling species such as fawn (*Boyeria vinosa*) and ocellated (*Boyeria grafiana*) darner, twin-spotted spiketail (*Cordulegaster maculata*), clamp-tipped emerald (*Somatochlora tenebrosa*), and the ubiquitous ebony jewelwing (*Calypteryx maculata*). Vegetated, spring-fed seeps, including the headwaters of many of these mountain streams, provide breeding habitat for specialists such as southern pygmy clubtail (*Lanthus vernalis*) and delta-spotted (*Cordulegaster diastatops*) and arrowhead (*Cordulegaster obliqua*) spiketail.

At high elevation on the Kittatinny Ridge, *Sphagnum*-dominated wetlands are home to a number of northern species -- crimson-ringed (*Leucorrhinia glacialis*) and hudsonian whiteface (*Leucorrhinia hudsonica*), elfin skimmer (*Nannothemis bella*), Northern (*Enallagma annexum*), New England (*Enallagma laterale*) and Hagen's bluet (*Enallagma hageni*), and several emeralds.

Vernal pools and fishless ponds support lance-tipped darner (*Aeshna constricta*) and amber-winged (*Lestes eurinus*) and other spreadwings (*Lestes* spp.).

### Habitat Management

Soon after hatching, young adult odonates disperse to surrounding uplands where they find shelter and prey as they mature. These same riparian fields and forests remain vital for mating (Barlow et al. 2009). Fields along the Delaware River and Flat Brook rank as top priorities for management. Fields on and adjacent to Minisink Island, in particular, are utilized by dozens of species.

Management of these riparian fields is key to sustaining the park's diverse odonate fauna. Open fields bordering forest are ideal. Some woody structure is beneficial. Schedule mowing or controlled burns from mid-October to mid-April, when most resident odonates are in the aquatic (nymph) stage.

A number of wetlands, developed in the basins of drained impoundments on Kittatinny Ridge, now support diverse odonate communities, but are infested with common reed (*Phragmites australis*), an invasive weed. These include the former Lake Success (near Crater Lake) and the former Upper Blue Mountain Lake. Aggressive management to control the *Phragmites* may help prevent degradation of these habitats.

#### Additional Fieldwork

More work is needed, especially in the Pennsylvania portion of the park, to map species' distributions and to refine estimates of species' abundance. Priority locations include the high-quality streams between Milford and Bushkill, wetlands on and near the Hogback Ridge, Bushkill Creek, and well-vegetated ponds and lakes, including those with water or pond lilies.

For rare species, more information on post-emergent habitat use would benefit management of riparian areas along the Delaware River and Flat Brook. Key species include brook snaketail, green-faced clubtail, and Septima's clubtail.

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## Appendix A: Survey team.

Allen Barlow. Senior author of “Field Guide to Dragonflies and Damselflies of New Jersey” (2009) and co-founder of the New Jersey Odonata Survey, which disseminates occurrence and distribution information via the “njodes” website.

Thomas Halliwell. Retired educator and field naturalist with expertise in botany, birds, butterflies, and odonates. Extensive field experience throughout northern New Jersey.

George Nixon. Retired educator and field naturalist with special interest in odonates. As a trip leader for Jersey Odonate Enthusiasts (JOE), has introduced many beginners to the joys of observing and identifying dragonflies and damselflies.

Bill Olson. Botanical consultant with 30 years of field experience in the park with passion for all things natural. Recruited this survey team, facilitated the group field trips, and drafted the final report.

Sharon and Wade Wander. Owners and operators of Wander Ecological Consultants, specializing in inventories of terrestrial wildlife and vegetation since 1985. Extensive field experience throughout northern NJ.

Jeff Shreiner. National Park Service biologist. Managed project database and cataloged digital photos.

Appendix B: Species list.

Group	Family	Scientific Name	Common Name	Abundance	Last Seen	Most Recent Photo
Jewelwings	Calopterygidae	<i>Calopteryx aequabilis</i>	River Jewelwing	Uncommon	06/02/2010	06/03/2007
Jewelwings	Calopterygidae	<i>Calopteryx amata</i>	Superb Jewelwing	Rare	05/29/2005	05/29/2005
Jewelwings	Calopterygidae	<i>Calopteryx maculata</i>	Ebony Jewelwing	Abundant	06/02/2010	06/10/2007
Rubyspots	Calopterygidae	<i>Hetaerina americana</i>	American Rubyspot	Uncommon	08/17/2008	08/17/2008
Pond Damsels	Coenagrionidae	<i>Amphiagrion saucium</i>	Eastern Red Damsel	Uncommon	06/10/2010	06/15/2007
Pond Damsels	Coenagrionidae	<i>Argia apicalis</i>	Blue-fronted Dancer	Common	06/10/2007	
Pond Damsels	Coenagrionidae	<i>Argia fumipennis violacea</i>	Violet Dancer	Common	07/22/2008	
Pond Damsels	Coenagrionidae	<i>Argia moesta</i>	Powdered Dancer	Abundant	08/06/2010	08/06/2010
Pond Damsels	Coenagrionidae	<i>Argia translata</i>	Dusky Dancer	Uncommon	07/28/2010	07/28/2010
Pond Damsels	Coenagrionidae	<i>Chromagrion conditum</i>	Aurora Damsel	Common	05/24/2008	
Pond Damsels	Coenagrionidae	<i>Enallagma annexum</i>	Northern Bluet	Rare	05/29/2008	
Pond Damsels	Coenagrionidae	<i>Enallagma aspersum</i>	Azure Bluet	Common	07/22/2008	07/22/2008
Pond Damsels	Coenagrionidae	<i>Enallagma basidens</i>	Double-striped Bluet	Common	08/06/2010	08/06/2010
Pond Damsels	Coenagrionidae	<i>Enallagma civile</i>	Familiar Bluet	Common	08/06/2010	08/06/2010
Pond Damsels	Coenagrionidae	<i>Enallagma divagans</i>	Turquoise Bluet	Common	06/10/2007	
Pond Damsels	Coenagrionidae	<i>Enallagma exsulans</i>	Stream Bluet	Abundant	06/14/2008	
Pond Damsels	Coenagrionidae	<i>Enallagma geminatum</i>	Skimming Bluet	Abundant	05/29/2010	05/07/2006
Pond Damsels	Coenagrionidae	<i>Enallagma hageni</i>	Hagen's Bluet	Uncommon	06/20/2010	06/20/2010
Pond Damsels	Coenagrionidae	<i>Enallagma laterale</i>	New England Bluet	Rare	06/12/2009	06/12/2009
Pond Damsels	Coenagrionidae	<i>Enallagma signatum</i>	Orange Bluet	Common	2006	
Pond Damsels	Coenagrionidae	<i>Enallagma traviatum</i>	Slender Bluet	Uncommon	07/13/2009	07/13/2009
Pond Damsels	Coenagrionidae	<i>Enallagma vesperum</i>	Vesper Bluet	Uncommon	2006	
Pond Damsels	Coenagrionidae	<i>Ischnura hastata</i>	Citrine Forktail	Uncommon	08/12/2009	08/12/2009
Pond Damsels	Coenagrionidae	<i>Ischnura kellicotti</i>	Lilypad Forktail	Uncommon	05/29/2010	
Pond Damsels	Coenagrionidae	<i>Ischnura posita</i>	Fragile Forktail	Abundant	06/10/2010	
Pond Damsels	Coenagrionidae	<i>Ischnura verticalis</i>	Eastern Forktail	Abundant	05/29/2010	
Pond Damsels	Coenagrionidae	<i>Nehalennia gracilis</i>	Sphagnum Sprite	Uncommon	06/10/2010	
Pond Damsels	Coenagrionidae	<i>Nehalennia irene</i>	Sedge Sprite	Common	06/05/2010	06/05/2010
Spreadwings	Lestidae	<i>Archilestes grandis</i>	Great Spreadwing	Rare	2000	
Spreadwings	Lestidae	<i>Lestes australis</i>	Southern Spreadwing	Rare	06/14/2008	
Spreadwings	Lestidae	<i>Lestes congener</i>	Spotted Spreadwing	Common	08/17/2010	08/06/2010

Group	Family	Scientific Name	Common Name	Abundance	Last Seen	Most Recent Photo
Spreadwings	Lestidae	<i>Lestes eurinus</i>	Amber-winged Spreadwing	Rare	07/22/2008	07/22/2008
Spreadwings	Lestidae	<i>Lestes forcipatus</i>	Sweetflag Spreadwing	Common	07/22/2008	
Spreadwings	Lestidae	<i>Lestes inaequalis</i>	Elegant Spreadwing	Abundant	2005	
Spreadwings	Lestidae	<i>Lestes rectangularis</i>	Slender Spreadwing	Common	07/22/2008	
Spreadwings	Lestidae	<i>Lestes vigilax</i>	Swamp Spreadwing	Common	07/22/2008	07/28/2007
Darners	Aeshnidae	<i>Aeshna canadensis</i>	Canada Darner	Rare	2005	
Darners	Aeshnidae	<i>Aeshna clepsydra</i>	Mottled Darner	Uncommon	09/08/2009	08/26/2007
Darners	Aeshnidae	<i>Aeshna constricta</i>	Lance-tipped Darner	Uncommon	09/14/2008	09/14/2008
Darners	Aeshnidae	<i>Aeshna interrupta</i>	Variable Darner	Rare	09/20/2009	09/20/2009
Darners	Aeshnidae	<i>Aeshna tuberculifera</i>	Black-tipped Darner	Rare	08/17/2010	08/12/2007
Darners	Aeshnidae	<i>Aeshna umbrosa</i>	Shadow Darner	Common	10/06/2010	10/06/2010
Darners	Aeshnidae	<i>Aeshna verticalis</i>	Green-striped Darner	Uncommon	08/06/2010	08/26/2007
Darners	Aeshnidae	<i>Anax junius</i>	Common Green Darner	Abundant	05/29/2010	06/10/2007
Darners	Aeshnidae	<i>Anax longipes</i>	Comet Darner	Uncommon	07/22/2008	06/19/2007
Darners	Aeshnidae	<i>Basiaeschna janata</i>	Springtime Darner	Common	05/29/2010	05/20/2007
Darners	Aeshnidae	<i>Boyeria grafiana</i>	Ocellated Darner	Rare	08/11/2005	08/11/2005
Darners	Aeshnidae	<i>Boyeria vinosa</i>	Fawn Darner	Common	08/26/2007	
Darners	Aeshnidae	<i>Epiaeschna heros</i>	Swamp Darner	Common	06/22/2007	06/06/2007
Darners	Aeshnidae	<i>Gomphaeschna furcillata</i>	Harlequin Darner	Common	06/19/2007	
Darners	Aeshnidae	<i>Nasiaeschna pentacantha</i>	Cyrano Darner	Uncommon	06/03/2008	06/03/2008
Darners	Aeshnidae	<i>Rhionaeschna mutata</i>	Spatterdock Darner	Rare	06/06/2009	06/02/2007
Clubtails	Gomphidae	<i>Arigomphus furcifer</i>	Lilypad Clubtail	Uncommon	06/11/2004	06/11/2004
Clubtails	Gomphidae	<i>Arigomphus villosipes</i>	Unicorn Clubtail	Common	06/13/2007	06/13/2007
Clubtails	Gomphidae	<i>Dromogomphus spinosus</i>	Black-shouldered Spinyleg	Common	06/22/2007	08/23/2005
Clubtails	Gomphidae	<i>Gomphus abbreviatus</i>	Spine-crowned Clubtail	Abundant	05/16/2010	06/10/2007
Clubtails	Gomphidae	<i>Gomphus adelphus</i>	Mustached Clubtail	Rare	05/14/2010	06/10/2007
Clubtails	Gomphidae	<i>Gomphus borealis</i>	Beaverpond Clubtail	Rare	05/31/2010	05/31/2010
Clubtails	Gomphidae	<i>Gomphus descriptus</i>	Harpoon Clubtail	Rare	05/20/2007	05/14/2007
Clubtails	Gomphidae	<i>Gomphus exilis</i>	Lancet Clubtail	Common	06/03/2010	06/03/2010
Clubtails	Gomphidae	<i>Gomphus lividus</i>	Ashy Clubtail	Common	05/16/2010	05/16/2010
Clubtails	Gomphidae	<i>Gomphus quadricolor</i>	Rapids Clubtail	Uncommon	06/25/2007	06/10/2007
Clubtails	Gomphidae	<i>Gomphus septima delawarensis</i>	Septima's Clubtail	Rare	05/25/2008	06/10/2007
Clubtails	Gomphidae	<i>Gomphus spicatus</i>	Dusky Clubtail	Uncommon	05/23/2007	05/23/2007

Group	Family	Scientific Name	Common Name	Abundance	Last Seen	Most Recent Photo
Clubtails	Gomphidae	<i>Gomphus vastus</i>	Cobra Clubtail	Rare	06/19/2008	06/15/2008
Clubtails	Gomphidae	<i>Gomphus viridifrons</i>	Green-faced Clubtail	Rare	06/24/2007	06/23/2007
Clubtails	Gomphidae	<i>Hagenius brevistylus</i>	Dragonhunter	Uncommon	07/28/2010	06/06/2007
Clubtails	Gomphidae	<i>Lanthus vernalis</i>	Southern Pygmy Clubtail	Uncommon	05/30/2009	05/30/2009
Clubtails	Gomphidae	<i>Ophiogomphus aspersus</i>	Brook Snaketail	Rare	06/02/2010	06/03/2007
Clubtails	Gomphidae	<i>Ophiogomphus carolus</i>	Rifle Snaketail	Rare	05/31/2010	05/31/2010
Clubtails	Gomphidae	<i>Ophiogomphus mainensis</i>	Maine Snaketail	Uncommon	06/02/2010	05/20/2007
Clubtails	Gomphidae	<i>Ophiogomphus rupinsulensis</i>	Rusty Snaketail	Common	05/16/2010	06/10/2007
Clubtails	Gomphidae	<i>Stylogomphus albistylus</i>	Eastern Least Clubtail	Common	08/11/2007	06/13/2007
Clubtails	Gomphidae	<i>Stylurus spiniceps</i>	Arrow Clubtail	Uncommon	2006	
Spiketails	Cordulegastridae	<i>Cordulegaster diastops</i>	Delta-spotted Spiketail	Uncommon	05/30/2009	06/03/2007
Spiketails	Cordulegastridae	<i>Cordulegaster erronea</i>	Tiger Spiketail	Rare	07/19/2010	07/19/2010
Spiketails	Cordulegastridae	<i>Cordulegaster maculata</i>	Twin-spotted Spiketail	Common	06/02/2010	
Emeralds	Corduliidae	<i>Cordulia shurtleffii</i>	American Emerald	Uncommon	05/29/2010	06/11/2004
Emeralds	Corduliidae	<i>Dorocordulia lepida</i>	Petite Emerald	Uncommon	07/22/2008	
Emeralds	Corduliidae	<i>Dorocordulia libera</i>	Racket-tailed Emerald	Uncommon	06/02/2010	
Emeralds	Corduliidae	<i>Epitheca canis</i>	Beaverpond Baskettail	Common	05/14/2009	05/14/2009
Emeralds	Corduliidae	<i>Epitheca cynosura</i>	Common Baskettail	Common	06/02/2010	05/20/2007
Emeralds	Corduliidae	<i>Epitheca princeps</i>	Prince Baskettail	Common	06/15/2010	06/15/2010
Emeralds	Corduliidae	<i>Helocordulia uhleri</i>	Uhler's Sundragon	Common	06/02/2010	05/20/2007
Emeralds	Corduliidae	<i>Neurocordulia obsoleta</i>	Umber Shadowdragon	Uncommon	2006 (exuviae)	
Emeralds	Corduliidae	<i>Neurocordulia yamaskanensis</i>	Stygian Shadowdragon	Uncommon	06/23/2007	06/23/2007
Emeralds	Corduliidae	<i>Somatochlora linearis</i>	Mocha Emerald	Uncommon	08/18/2008	08/18/2008
Emeralds	Corduliidae	<i>Somatochlora tenebrosa</i>	Clamp-tipped Emerald	Common	07/22/2008	08/26/2007
Emeralds	Corduliidae	<i>Somatochlora walshii</i>	Brush-tipped Emerald	Rare	07/09/2008	07/09/2008
Cruisers	Macromiidae	<i>Didymops transversa</i>	Stream Cruiser	Common	05/30/2007	05/30/2007
Cruisers	Macromiidae	<i>Macromia Illinoiensis illinoiensis</i>	Illinois Swift River Cruiser	Common	06/14/2008	06/06/2007
Skimmers	Lebellulidae	<i>Ladona deplanata</i>	Blue Corporal	Uncommon	07/22/2008	
Skimmers	Libellulidae	<i>Celithemis elisa</i>	Calico Pennant	Common	06/16/2009	06/16/2009
Skimmers	Libellulidae	<i>Celithemis eponina</i>	Halloween Pennant	Common	07/22/2008	07/15/2008
Skimmers	Libellulidae	<i>Celithemis fasciata</i>	Banded Pennant	Common	07/16/2008	07/16/2008
Skimmers	Libellulidae	<i>Celithemis martha</i>	Martha's Pennant	Uncommon	07/22/2008	07/10/2008
Skimmers	Libellulidae	<i>Erythemis simplicicollis</i>	Eastern Pondhawk	Abundant	07/22/2008	

Group	Family	Scientific Name	Common Name	Abundance	Last Seen	Most Recent Photo
Skimmers	Libellulidae	<i>Ladona exusta</i>	White Corporal	Common	05/29/2010	06/19/2007
Skimmers	Libellulidae	<i>Ladona julia</i>	Chalk-fronted Corporal	Common	06/10/2010	06/05/2009
Skimmers	Libellulidae	<i>Leucorrhinia frigida</i>	Frosted Whiteface	Uncommon	08/13/2009	06/19/2007
Skimmers	Libellulidae	<i>Leucorrhinia glacialis</i>	Crimson-ringed Whiteface	Rare	07/16/2008	07/16/2008
Skimmers	Libellulidae	<i>Leucorrhinia hudsonica</i>	Hudsonian Whiteface	Rare	05/24/2008	06/02/2007
Skimmers	Libellulidae	<i>Leucorrhinia intacta</i>	Dot-tailed Whiteface	Common	06/03/2010	06/03/2010
Skimmers	Libellulidae	<i>Libellula cyanea</i>	Spangled Skimmer	Common	06/10/2010	07/28/2007
Skimmers	Libellulidae	<i>Libellula incesta</i>	Slaty Skimmer	Common	05/29/2010	
Skimmers	Libellulidae	<i>Libellula luctuosa</i>	Widow Skimmer	Abundant	06/10/2010	06/05/2010
Skimmers	Libellulidae	<i>Libellula pulchella</i>	Twelve-spotted Skimmer	Common	06/02/2010	07/24/2007
Skimmers	Libellulidae	<i>Libellula quadrimaculata</i>	Four-spotted Skimmer	Common	05/30/2009	05/20/2007
Skimmers	Libellulidae	<i>Libellula semifasciata</i>	Painted Skimmer	Common	06/28/2010	06/28/2010
Skimmers	Libellulidae	<i>Libellula vibrans</i>	Great Blue Skimmer	Rare	2006	
Skimmers	Libellulidae	<i>Nannothemis bella</i>	Elfin Skimmer	Uncommon	06/20/2010	06/03/2007
Skimmers	Libellulidae	<i>Pachydiplax longipennis</i>	Blue Dasher	Abundant	06/23/2010	06/23/2010
Skimmers	Libellulidae	<i>Pantala flavescens</i>	Wandering Glider	Uncommon	10/02/2010	10/02/2010
Skimmers	Libellulidae	<i>Pantala hymenaea</i>	Spot-winged Glider	Uncommon	06/14/2008	05/20/2007
Skimmers	Libellulidae	<i>Perithemis tenera</i>	Eastern Amberwing	Common	07/15/2008	07/15/2008
Skimmers	Libellulidae	<i>Plathemis lydia</i>	Common Whitetail	Abundant	08/06/2010	08/06/2010
Skimmers	Libellulidae	<i>Sympetrum internum</i>	Cherry-faced Meadowhawk	Abundant	08/06/2010	09/19/2009
Skimmers	Libellulidae	<i>Sympetrum obtrusum</i>	White-faced Meadowhawk	Rare	09/19/2009	09/19/2009
Skimmers	Libellulidae	<i>Sympetrum semicinctum</i>	Band-winged Meadowhawk	Common	06/29/2010	06/29/2010
Skimmers	Libellulidae	<i>Sympetrum vicinum</i>	Autumn Meadowhawk	Abundant	07/22/2008	
Skimmers	Libellulidae	<i>Tramea carolina</i>	Carolina Saddlebags	Uncommon	05/29/2010	09/10/2009
Skimmers	Libellulidae	<i>Tramea lacerata</i>	Black Saddlebags	Common	07/22/2008	

As the nation's primary conservation agency, the Department of the Interior has responsibility for most of our nationally owned public land and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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**National Park Service**  
**U.S. Department of the Interior**



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**Northeast Region**

Natural Resources and Science  
Eastern Rivers and Mountains Network  
University Park, Pennsylvania 16802

<http://science.nature.nps.gov/im/units/ermn/>