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A 2011 Inventory of Dragonflies and Damselflies at Dyke Marsh Wildlife Preserve, Fairfax County, Virginia



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**A 2011 Inventory of Dragonflies and Damselflies at
Dyke Marsh Wildlife Preserve, Fairfax County, Virginia**

Prepared for:

The Friends of Dyke Marsh

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Introduction

The Friends of Dyke Marsh contracted with the Virginia Department of Conservation and Recreation in January 2011 to conduct a survey of the dragonflies and damselflies (Odonata) of Dyke Marsh during the 2011 field season. This project was devised to produce a more thorough knowledge of the identity and distribution of these elements of the insect fauna that would assist natural resource staff of the George Washington Memorial Parkway (GWMP) in making informed management decisions. The study also provides baseline data concerning the composition and distribution of the current Odonate fauna of Dyke Marsh Wildlife Preserve for comparison with its future status. The findings provide both the National Park Service (NPS) and the Friends of Dyke Marsh (FODM) with additional information, photographs and specimens that can be used for educational purposes.

In the past two decades, two groups of insects, the Lepidoptera (butterflies, skippers and moths) and Odonata (dragonflies and damselflies), have gained greatly increased popularity among the general public, particularly birdwatchers and naturalists, primarily because of the proliferation of user-friendly field guides and on-line identification resources. Many have come to realize the joy and ease with which these groups can be studied with close-focus binoculars and easy-to-use digital photography. As a result, there has been both an increase in knowledge about and a call for conservation of these insects.

Odonata are an ecologically important group of insects that are predaceous in both the larval and adult stages. Worldwide, there are nearly 6,000 described species, including about 450 in North America. Virginia harbors one of the most diverse Odonata faunas (191 species including 136 dragonflies and 55 damselflies) of any state, including a good representation of both northern/boreal and southern/austral species, as well as many widespread species. However, the Odonate faunas of most local, state, and national parks in the Commonwealth are poorly documented, thus preventing natural resource managers from making informed decisions about issues that may affect these elements of biological diversity.

There is a growing body of literature demonstrating recent shifts in the geographic distributions of some species of dragonflies and damselflies in response to climate warming, as well as changes in community composition. Natural resource managers worldwide are beginning to implement inventory and monitoring programs to document and evaluate such changes in the biota while also attempting to develop appropriate conservation strategies for their parks and preserves.

This report summarizes the results of survey efforts at Dyke Marsh Preserve during 2011, and provides an annotated list with information on the abundance and distribution of species found, as well as a discussion of management issues at Dyke Marsh.

Study Area

This inventory was conducted at Dyke Marsh Wildlife Preserve, a unit of the George Washington Memorial Parkway on the banks of the Potomac River in the Mount Vernon area of Fairfax County, just south of Old Town Alexandria. Congress designated Dyke Marsh as a national preserve in 1959. In the early 1800s, earthen walls were built around the perimeter of the marsh to create upland habitat that would otherwise be inundated by high tides. These upland areas were used for grazing.

Habitats at the preserve consist of open water, marsh, beaver pond, and deciduous swamp forest, almost all of which are influenced by flooding and tidal cycles. The marsh comprises the largest remaining tidal freshwater wetland (485 acres) on the upper Potomac River, but has decreased in size in recent years. Cattails, pickerelweed, arrow arum, and spatterdock are the dominant plant species over most of the marsh. The swamp forest was possibly formed by an old river bed. The upper reaches of creeks that extend across the GW Parkway have a noticeable beaver presence, and persistent influence by beaver may provide for additional species diversity of both plants and animals with mitigated tidal influence from beaver dams.

Today, Dyke Marsh Wildlife Preserve is best known for its resident and migratory bird populations, but the marsh is home to a host of reptiles, amphibians, fish, insects, and other wildlife. As important as Dyke Marsh remains ecologically in the upper Potomac, there are numerous challenges that managers face including the introduction of exotic species such as *Phragmites australis*, trash deposition, bank erosion, water quality changes, and climate change.



Figure 1. A portion of Dyke Marsh Hog Island Gut, a tributary that flows beneath the George Washington Memorial Parkway and joins the Potomac River at Dyke Marsh (photo C.S. Hobson)

Methods

Survey methods included capturing adult dragonflies and damselflies with aerial nets or identifying perching or flying adults at close range (if readily identifiable) with close-focus binoculars or the naked eye. A combination of field sightings, digital photographs, and voucher specimen collections were used to document the Odonate fauna of Dyke Marsh Wildlife Preserve. Surveys specifically targeting larvae or exuviae (larval skins) were not conducted for most species, although incidental collections of these life stages were made. Exuviae were sought in microhabitats such as the water's edge, on ground vegetation, shrubs, tree trunks, cattail stalks, and other wetland plants.

Some species were observed or captured by walking the preserve trails, Haul Road, Belle Haven Marina, and marsh boardwalk. However, the use of a canoe or kayak was required to gain access to the majority of the marsh and open water habitats.

Field surveys began in May 2011 and continued until September 2011, encompassing a time frame that accounts for variability in emergence times for species that may inhabit the Potomac River and its marshes. During this period, a two-person survey team conducted surveys on four occasions for a total of 8 person-days. This level of effort by skilled observers is considered sufficient to document most of the species that inhabit Dyke Marsh Wildlife Preserve.

Pertinent field observations and other data were recorded, including date, time, weather, river conditions, areas surveyed, noteworthy biological observations, and all Odonate species that were observed or collected.

Captured adult specimens that were not identified in the field were preserved using standard methods for Odonata. Exuviae were collected and preserved dry and identified in the laboratory using a dissecting microscope and appropriate keys for Odonata larvae. All specimens will be properly labeled and deposited with the NPS.

Readily available data from previous surveys of the aquatic insect fauna of Dyke Marsh Wildlife Preserve were reviewed, including Malaise trap results for several years of sampling conducted by Dr. Edward Barrows of Georgetown University. A list of specimens already known from Dyke Marsh was also utilized. These data provided a basis for expectations and field planning during the 2011 surveys.

Results and Discussion

According to the searchable online database maintained by the Laboratory of Entomology and Biodiversity at Georgetown University and the National Park Service (NPS), only 13 species of Odonata (7 dragonflies and 6 damselflies) were documented on the preserve prior to the initiation of this study. However, it was suspected that a larger number of species could be found at Dyke Marsh with additional survey effort.

DCR-DNH surveys did not reveal a dramatic difference in species number and composition, however, there were some differences noted. We recorded 16 species, including 4 damselflies and 12 dragonflies. Table 1 shows the species documented at Dyke Marsh during 2011 surveys.

Table 1. Dragonfly and Damselfly species documented at Dyke Marsh Wildlife Preserve during 2011 DCR-DNH surveys

Zygoptera	Anisoptera
<i>Enallagma durum</i> (Big Bluet)	<i>Anax junius</i> (Common Green Darner)
<i>Enallagma signatum</i> (Orange Bluet)	<i>Epitheca princeps</i> (Prince Baskettail)
<i>Ischnura posita</i> (Fragile Forktail)	<i>Erythemis simplicicollis</i> (Common Pondhawk)
<i>Ischnura verticalis</i> (Eastern Forktail)	<i>Libellula incesta</i> (Slaty Skimmer)
	<i>Libellula needhami</i> (Needham's Skimmer)
	<i>Libellula vibrans</i> (Great Blue Skimmer)
	<i>Pantala flavescens</i> (Wandering Glider)
	<i>Pachydiplax longipennis</i> (Blue Dasher)
	<i>Perithemis tenera</i> (Eastern Amberwing)
	<i>Plathemis lydia</i> (Common Whitetail)
	<i>Stylurus plagiatus</i> (Russet-tipped Clubtail)
	<i>Tramea lacerata</i> (Black Saddlebags)

This list also compares favorably with the species found in a study using Malaise trapping during the late 1990's by Dr. Edward Barrows (pers. comm., 2011). In that study, the Malaise traps captured three damselflies that we did not record in 2011, including *Archilestes grandis*, *Enallagma civile*, and *Ischnura ramburii*. They also recorded the dragonfly *Arigomphus villosipes*. However, we found eight dragonflies that were not captured in the Malaise trap study, including *Anax junius*, *Epitheca princeps*, *Erythemis simplicicollis*, *Pantala flavescens*, *Stylurus plagiatus*, *Tramea lacerata*, *Libellula incesta*, and *Libellula vibrans*.

The apparent difference in the number of dragonfly species between these two studies may be explained in part by the methodology. Whereas the Malaise trap is a passive trap method, it may not be as effective in sampling large active dragonflies, and may be more likely to efficiently sample damselflies that are in and amongst vegetation where the traps are typically set. Damselflies, which are less powerful fliers, and typically more cryptic in their habits, would be more likely to come into contact with and be captured by the Malaise trap method. Conversely, our failure to detect three species of damselflies during 2011 that were captured in the Malaise traps, may be due to the inherent limitations of visual surveys in a dense marshy environment.

By far, the most abundant species during our surveys were *Enallagma durum* and *Enallagma signatum* which numbered in the hundreds or thousands, followed by *Libellula needhami*, *Ischnura verticalis*, *Perithemis tenera*, *Epithea princeps* and *Plathemis lydia*. *Pachydiplax longipennis*, *Erythemis simplicicollis*, *Stylurus plagiatus*, *Anax junius* and *Libellula vibrans* were found in much smaller numbers. Only a single *Libellula incesta* was documented.

Our 2011 survey results represent only a snapshot of the Odonate fauna at Dyke Marsh. Variation in tides, rainfall (flooding and drought), survey period, and other factors could have an impact on survey results, and may lead to an underrepresentation of the total fauna. However, the riverine dragonfly and damselfly fauna of the preserve may be somewhat limited owing to the tidal nature of the Potomac River at this location, and the effects of flooding. The marsh fauna combined with beaver pond associates are thought to have greater potential diversity.

There seems to be a core group of species that can be found consistently in and around the marsh. However, there are a number of species that could occur at Dyke Marsh Wildlife Preserve, and with additional survey effort they may be added to the known fauna. These include migratory and resident species, and those wandering from other wetland habitats along the Potomac. Some of the more likely species include the following: *Celithemis eponina*, *Tramea carolina*, *Pantala hymenea*, *Argia moesta*, *Argia fumipennis*, *Argia apicalis*, *Argia tibialis*, *Ischnura hastata*, *Boyeria vinosa*, *Calopteryx maculata*, *Epiaeshna heros*, *Libellula semifasciata*, and *Libellula pulchella*. All of these potential species have been documented at other sites in northern Virginia. A continued effort to collect and verify records for Odonates at Dyke Marsh is recommended, and may add some of these or other species to the fauna list over time.

Compiling all known records of Odonata for the Dyke Marsh Wildlife Preserve, the total number of species is 20, including 13 dragonflies and 7 damselflies. Contrasted to the 60 species recorded at Fort Belvoir from 1994-2012 (Hobson and Orndorff 2013), the fauna of Dyke Marsh is depauperate. However, Fort Belvoir encompasses a wider variety of habitats, and includes a variety of non-tidally influenced freshwater wetlands and streams. All of the species found at Dyke Marsh can be found in and around the tidally influenced marshes at Accotink Bay Wildlife Refuge at Fort Belvoir.

While visual and hand collection surveys with qualified observers may be the easiest to accomplish and may account for a more widespread survey in a short period of time, there is some merit to including other trap methodologies, such as Malaise trapping. One drawback to Malaise trapping is that if not checked daily to release specimens, it becomes necessary to preserve and kill specimens which may be less than desirable in some cases, particularly if rare species are likely.

Annotated Species list

Common Green Darner (*Anax junius*) - This large (68-84 mm), common and widely distributed species occupies a wide variety of wetland habitats including ponds, marshes, slightly brackish waters, and lakes (Dunkle 1989). Several features distinguish this dragonfly from others, including a bulls-eye like mark on the forehead, and an entirely green thorax. Males typically have a bright blue abdomen and females have gray-green, or lilac coloration on the abdomen.

This dragonfly does not appear to be abundant at Dyke Marsh, however numbers may fluctuate seasonally to some degree. None were seen during May and June surveys in 2011, and only a few were observed well upstream in the gut near the GW Parkway bridge in July. Individuals and small swarms were seen flying over open marsh and marsh edges during later surveys in September. This species is migratory, and may be seen in larger numbers when migration is under way. This species is considered a resident breeder and migrant at Dyke Marsh.



Figure 2. A mated pair of the Common Green Darner (*Anax junius*) with the female ovipositing in emergent vegetation (photo A.C. Chazal)

Orange Bluet (*Enallagma signatum*) - This slender, medium sized (30-36 mm), and rather common species can be found in a variety of habitats including lakes, ponds, bogs, and slow streams and rivers (Dunkle 1990). While mostly black along the abdomen, this damsel gets its name from the orange coloration of the shoulder stripes, sides of the thorax, and terminal appendages. Females can be of three color forms, blue, green, or orange. This species typically flies low over the water, but may be found perching on aquatic vegetation, and may be active during different times of the day seasonally.

At Dyke Marsh this species can be extremely abundant, but may peak in abundance during late summer and early fall as only a few individuals were seen from May-July 2011. Hundreds were observed during the September survey, particularly in open water habitat in Dyke Marsh Hog Island Gut in association with emergent vegetation or floating debris.



Figure 3. Male Orange Bluet (*Enallagma signatum*) perching on emergent vegetation at Dyke Marsh Wildlife Preserve, Fairfax County, Virginia. (Photo C.S. Hobson)

Big Bluet (*Enallagma durum*) – This is a large bluet (36-43 mm) with somewhat more blue than black on the abdomen with black dorsal markings on segments 3-5 pointing forward like elongate arrowheads (Dunkle 1990; Nikula et al. 2003). It inhabits coastal ponds and large, sluggish, often brackish or tidally influenced rivers and embayments.

This is by far the most abundant species at Dyke Marsh according to our observations. They can be found in virtually any part of the Preserve, particularly areas with abundant shoreline vegetation, but occasionally along trails and clearings near the shoreline. None were seen in May, but thousands were observed in June and July in and around shoreline vegetation. Our observations documented a decline in numbers in September from what was seen in prior surveys in 2011, but they were still abundant.

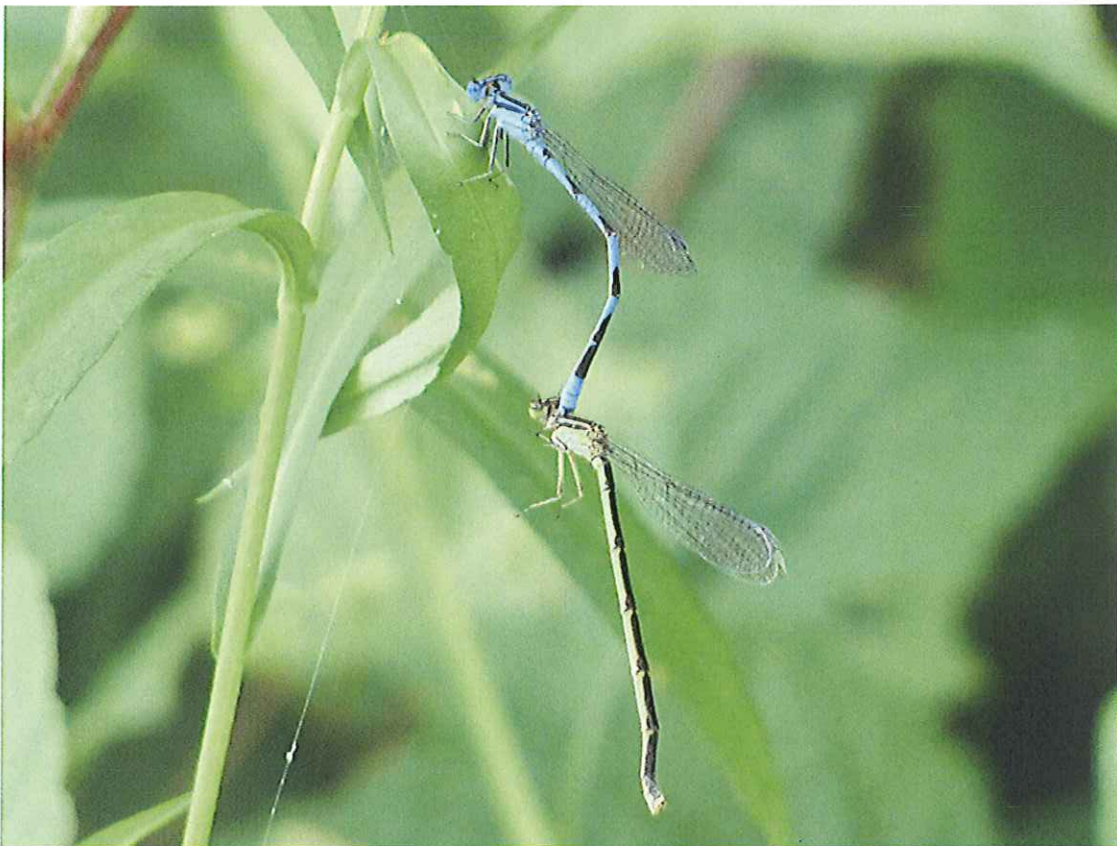


Figure 4. Mated pair of the Big Bluet (*Enallagma durum*) showing sexual dimorphism in both color and pattern. Dyke Marsh Wildlife Preserve, Fairfax County, Virginia.
(Photo C.S. Hobson)



Figure 5. Closeup view of a male Big Bluet (*Enallagma durum*) showing the forward pointed arrowhead black markings on the dorsum. Dyke Marsh Wildlife Preserve, Fairfax County, Virginia. (Photo C.S. Hobson)

Prince Baskettail (*Epitheca princeps*) – This is a common, large (70-80 mm) species, and the largest of the “baskettails” (Dunkle 1989). The wing tips are brown, with large brown spots at the base, and middle of the wing. Some specimens lack the spotting on the wings, others may have only basal spotting. The abdomen is mostly brown, and the eyes may be metallic green in adult males. A strong flyer, they rarely set down for any length of time, and wings are often held in a slight dihedral position during flight. They can be mistaken for some of the skimmers with similar wing patterns, but the slender abdomen and behavior distinguish this species from the skimmers.

We found this species to be quite common at Dyke Marsh, usually patrolling over open water within a few meters of shore. Hundreds of individuals were observed during June and July with none observed in May, and only a few in September. This species is considered a resident breeder at Dyke Marsh.



Figure 6. A typical specimen of the Prince Baskettail (*Epitheca princeps*) from Fluvanna County, Virginia (Photo Allen Bryan)

Common Pondhawk (*Erythemis simplicicollis*) - This is an abundant, medium sized (36-50 mm) species that exhibits a great deal of sexual dimorphism. Adult males are pale blue with a green face, and typically have whitish terminal appendages. However juvenile males and females are grass green with large rectangular dorsal black spots (Dunkle 1989). Arguably one of the most common, widespread and adaptable dragonfly species in eastern North America, it occurs in a wide range of habitat types from brackish marsh to isolated wetlands and pools. They are voracious predators, and are well known to be cannibalistic.

At Dyke Marsh this species does not appear to be abundant, but this could vary annually, and seasonally. Most individuals were observed in Dyke Marsh Hog Island Gut area on either side of the GW Parkway during 2011. Several were seen in the small cove adjacent to Belle Haven marina. Less than 20 individuals were observed during all surveys in 2011. This species is considered a resident breeder at Dyke Marsh.



Figure 7. Common Pondhawk (*Erythemis simplicicollis*) showing typical coloration (Photo I.T. Wilson)



Figure 8. Male Common Pondhawk (*Erythemis simplicicollis*) showing pruinosity typical of mature specimens. (Photo I.T. Wilson)

Eastern Forktail (*Ischnura verticalis*) – A small to medium sized (20-33 mm) damselfly that is widespread and abundant in the northeastern United States. It can occupy nearly any pond, lake, ditch, or slow stream. The male thorax is green with a mostly black abdomen, and segments 8-9 are blue. Immature females can be either orange, or similar to the adult male, but mature females are mostly grayish (Lam 2004). This species is very similar to the Rambur's Forktail (*Ischnura ramburii*), and the two species can occur together.

Our surveys documented this species from May through September. This was one of only two species documented during our May 2011 survey. It was commonly observed in and amongst emergent vegetation at the edge of the marsh, and along trails, particularly the Haul Road trail. This species is considered a resident breeder at Dyke Marsh.



Figure 9. Female Eastern Forktail (*Ischnura verticalis*) showing the orange type coloration. Dyke Marsh Wildlife Preserve, Fairfax County, Virginia.
(Photo C.S. Hobson)

Fragile Forktail (*Ischnura posita*) – This is a very small (21-29 mm) species that is typically quite abundant and occurs in a wide variety of habitats. Males and juvenile females of the species are easily recognized by the small size, along with the black font of the thorax which contains 2 interrupted pale stripes resembling a pair of upside-down exclamation marks. Adult females typically become pruinose gray but usually retain the exclamation marks (Dunkle 1990).

At Dyke Marsh, we found this species to be uncommon during 2011 surveys. Abundance may vary annually, and seasonally with this species, but they did not appear to be as abundant as the Eastern Forktail, and were only recorded during our September survey. This species is considered a resident breeder at Dyke Marsh.



Figure 10. A male Fragile Forktail (*Ischnura posita*) showing the characteristic exclamation point marking on the thorax (Photo I.T. Wilson)

Slaty Skimmer (*Libellula incesta*) – This is a common, medium sized (45-46 mm) skimmer dragonfly that inhabits much of eastern North America. It can be found in nearly any quiet or still water habitat with a mucky substrate, including rivers, forested wetlands, beaver ponds, and freshwater marsh (Dunkle 1990). The thorax and abdomen of the male are entirely dark blue, often blackish, and the eyes and face are black (Nikula et al. 2003). Juveniles and females have a brown face, brown abdomen, and light colored markings on the sides of the thorax resemble the head of a cartoon wolf (Dunkle 1990).

This species was only documented on one occasion and only one individual was observed. This specimen was seen alongside the bike path bridge crossing of the unnamed creek that flows beneath the GW Parkway. Further investigation in the vicinity of beaver pond habitats at Dyke Marsh may show this species to be more common than we found it during 2011. This species is likely a resident breeder at Dyke Marsh.



Figure 11. A typical male Slaty Skimmer (*Libellula incesta*) (Photo I.T. Wilson)

Needham's Skimmer (*Libellula needhami*) – This is a common, medium sized (42-58 mm) skimmer that can inhabit brackish marshes, lakes, ponds, and canals. It occurs commonly along the coast, especially toward the northern portion of its range, but it can occur inland (Dunkle 1989). The species is very similar in appearance to the Golden-winged skimmer (*Libellula auripennis*). Males are typically deep golden-orange, while females are more yellowish with a yellow stripe on the dorsum of the thorax from just behind the head to the 1st abdominal segment. The sides of the thorax in both sexes are usually brown.

At Dyke Marsh, this dragonfly was common, and found throughout the open marsh habitat along the Potomac River, and along channels and marsh in Dyke Marsh Hog Island Gut. It was found from June through September, although in reduced numbers during September surveys. Needham's Skimmer is considered a resident breeder at Dyke Marsh.



Figure 12. A female Needham's Skimmer (*Libellula needhami*) perched on marsh vegetation at Dyke Marsh Wildlife Preserve, Fairfax County, Virginia (Photo C.S. Hobson)



Figure 13. A Needham's Skimmer (*Libellula needhami*) showing the dark orange coloration of the male (Photo I.T. Wilson)

Great Blue Skimmer (*Libellula vibrans*) - The largest of the skimmer dragonflies (49-62 mm). Juveniles have a white face, red-brown eyes, and the front of the thorax is brown with a white median stripe. The sides of the thorax are pale gray, and the abdomen is yellow with a black dorsal stripe. The wings are marked with black, including a basal black streak, a spot at the middle, and a black tip. In mature females the eyes become blue and the abdomen becomes brown. In mature males the eyes are blue, and the front of the thorax as well as the abdomen, become a pruinose pale blue. Males become pruinose first on the thorax. (Dunkle 1989). This species can be quite tame, and often allows approach to within a few feet.

At Dyke Marsh, this species was encountered most frequently (and in greatest abundance) in open marshy areas along Dyke Marsh Hog Island Gut proximal to the George Washington Memorial Parkway and nearby bike trail bridges. It was occasionally observed in the open marsh along the Potomac River, and in shaded areas and sunlit openings along the Haul Road trail. This species is considered a resident breeder at Dyke Marsh.



Figure 14. A male Great Blue Skimmer (*Libellula vibrans*) perched amidst marsh vegetation at Dyke Marsh Wildlife Preserve, Fairfax County, Virginia.
(Photo C.S. Hobson)

Wandering Glider (*Pantala flavescens*) - This is a common, medium sized (44-51 mm) dragonfly easily identified by its mostly yellow abdomen and sustained gliding flight. The abdomen tapers to the tip, the wings are long and broad, and the thorax is gray. The face is yellow in juveniles and females, but becomes reddish in males (Dunkle 1989). This is the only dragonfly found around the world, and can breed in temporary ponds, puddles, and some brackish ponds. It almost never rests, and can be seen flying over just about any habitat, natural or man-made. Females may occasionally be seen ovipositing on the windows or hoods of parked cars.

One individual of this species was observed flying over the boat slips at Belle Haven marina during June surveys. It may vary in number and distribution annually or seasonally, but is expected to be an occasional breeder, and migrant at Dyke Marsh.



Figure 15. A typical specimen of the Wandering Glider (*Pantala flavescens*) from Fort Belvoir, Virginia (photo C.S. Hobson)

Blue Dasher (*Pachydiplax longipennis*) - A small to medium sized (26-44 mm) dragonfly that is typically common or abundant in most any still or slow moving freshwater habitat such as marshes, ponds, ditches, and swamps. Mature males are easily identified by the white face, metallic green eyes, black and yellow striped thorax, and a pale blue tapered abdomen which has a black tip (Dunkle 1989).

Our surveys showed this species to be fairly uncommon at Dyke Marsh, particularly in the more exposed open marsh habitats. It was found most abundantly in the small inlet at Belle Haven marina, and in the upper reaches of Dyke Marsh Hog Island Gut that crosses the George Washington Memorial Parkway. We observed fewer than 20 total individuals of this species during all of our surveys from May-September 2011.



Figure 16. A typical example of the male Blue Dasher (*Pachydiplax longipennis*) (Photo I.T. Wilson)



Figure 17. A typical female Blue Dasher (*Pachydiplax longipennis*) showing foreset wing posture (Photo I.T. Wilson)

Eastern Amberwing (*Perithemis tenera*) – This is one of the smallest dragonflies in North America (20-25mm). Males are easily recognized by their orange wings. The thorax is typically brown with two large yellow lateral spots and the abdomen is orange-brown with very thin yellow rings (Nikula et al. 2003). Females can have a variable wing pattern but typically the wings have a “stained glass effect,” usually amber from base to between the nodus and stigma, with a brown spot at $\frac{1}{4}$ length of forewing, and brown bands at $\frac{1}{4}$ and $\frac{1}{2}$ length of hindwing (Dunkle 2000). It inhabits most permanent still or slowly moving waters such as ponds, lakes, ditches, and stream pools, including brackish water (Dunkle 2000).

During mid-summer surveys these stocky wasp mimics numbered in the hundreds making this one of the most abundant and widespread species at Dyke Marsh during 2011. They were found amongst emergent shoreline vegetation, and around floating debris and mats of vegetation near shore. They were found in the main marsh on the Potomac River, and well upstream along Dyke Marsh Hog Island Gut in the vicinity of the George Washington Memorial Parkway.

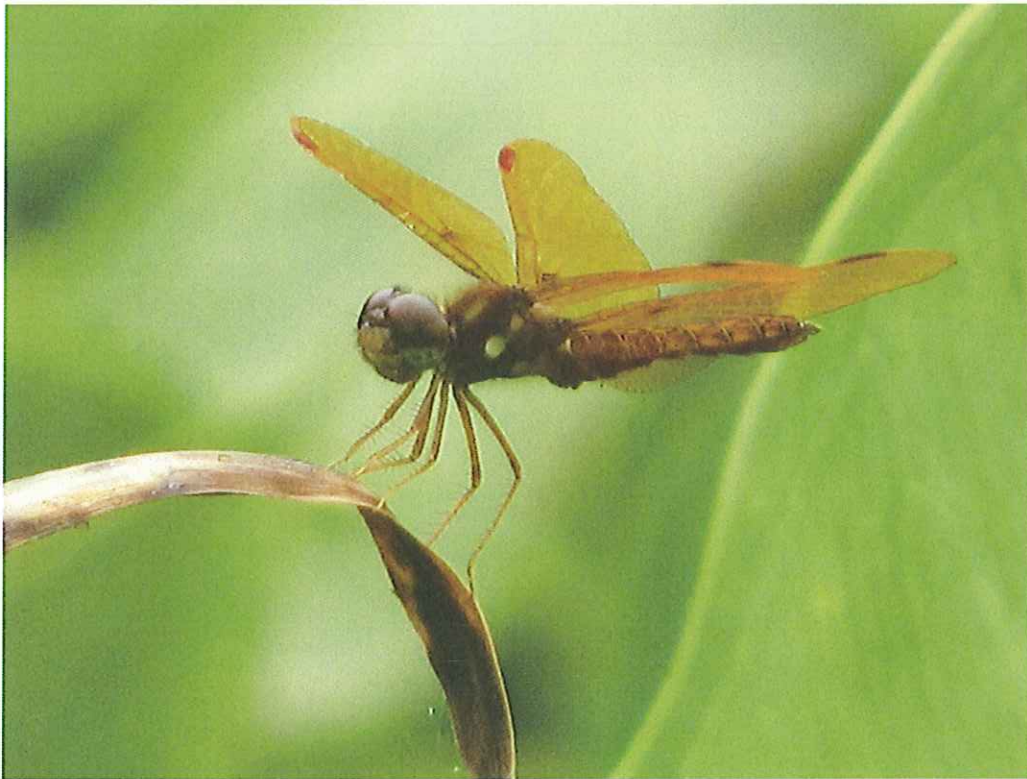


Figure 18. Male Eastern Amberwing (*Perithemis tenera*) perched on marsh vegetation at Dyke Marsh Wildlife Preserve, Fairfax County, Virginia (Photo C.S. Hobson)



Figure 19. Female Eastern Amberwing (*Perithemis tenera*) at Fort Belvoir, Fairfax County, Virginia (Photo W. Harback)

Common Whitetail (*Plathemis lydia*) – This is one of the most conspicuous and common dragonflies in freshwater habitats in the eastern United States. A highly sexually dimorphic species, the males have a single large black squarish patch on each wing, and typically no color at the tips of the wings. The abdomen in mature males is white. Females have a black bar at the base of each wing, a large black patch at mid length of each wing, and the wing tips are black. The abdomen in the female is brownish with light colored dashes along the sides.

At Dyke Marsh this species was seen along the Haul Road trail, in open areas along the Potomac River shoreline and along the shoreline of the Dyke Marsh Hog Island Gut. Although not particularly abundant during our surveys, they were widespread in distribution throughout the preserve.



Figure 20. A male Common Whitetail (*Plathemis lydia*) perching on a downed log at Dyke Marsh Wildlife Preserve, Fairfax County, Virginia (Photo C.S. Hobson)



Figure 21. A female Common Whitetail (*Plathemis lydia*) showing different pattern and coloration from the male (Photo I.T. Wilson)

Russet-tipped Clubtail (*Stylurus plagiatus*) - This is a common, medium sized species (53-66 mm) that ranges across much of the United States. The thorax is gray-green with black stripes, and the slender abdomen bears a rusty orange club. The face is brown, the eyes are dark green, and the legs are short. They occur in rivers, streams, and lakes, and while they can be found throughout much of the summer, they tend to be most common in the autumn (Dunkle 1989).

No mature adults of this species were observed at Dyke Marsh. On 28 July 2011, more than 20 exuviae were found, and 5-6 teneral adults were observed emerging on pylons and large submerged stumps and trees toward the southern end of the preserve. The species was identified by examination of exuviae and teneral specimens collected. This species is a resident breeder at Dyke Marsh Preserve.



Figure 22. A male Russet-tipped Clubtail (*Stylurus plagiatus*) showing the expanded terminal abdominal segments and russet coloration that give this species its common name (Photo Allen Bryan)



Figure 23. A teneral Russet-tipped Clubtail (*Stylurus plagiatus*)(right) just after emergence from its exuvial exoskeleton (left) at Dyke Marsh Wildlife Preserve (Photo C.S. Hobson)

Black Saddlebags (*Tramea lacerata*) - This dragonfly is a common, medium sized (48-55 mm) glider that is mostly black, with a full width iridescent black band covering the basal fourth of each hindwing. Females and juvenile males have a yellow-brown face and large white dorsal spots on abdominal segments 3 to 7. In mature males the face becomes black and the abdominal spots darken, with the spot on segment 7 persisting the longest. It can be found over much of the U.S., and breeds in ponds, slow streams and rivers, lakes, and ditches. (Dunkle 1989)

This species was found in small numbers during several of the 2011 surveys. It was most evident during the September survey when numerous individuals were seen flying (with *Anax junius*) over and above tall marsh vegetation along the Potomac River, apparently foraging. This species is migratory, and may be more common during migration, but it is likely to occur throughout the warmer months and is considered a resident breeder at Dyke Marsh.



Figure 24. A Black Saddlebags (*Tramea lacerata*) captured at Fort Belvoir, Fairfax County, Virginia (Photo C.S. Hobson)

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