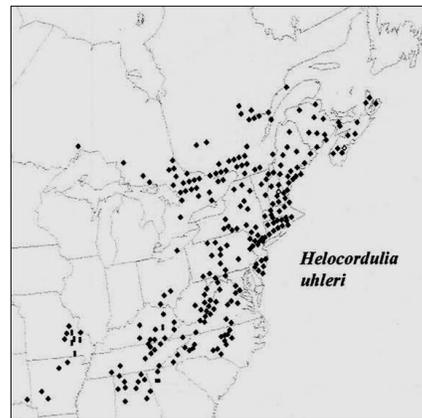
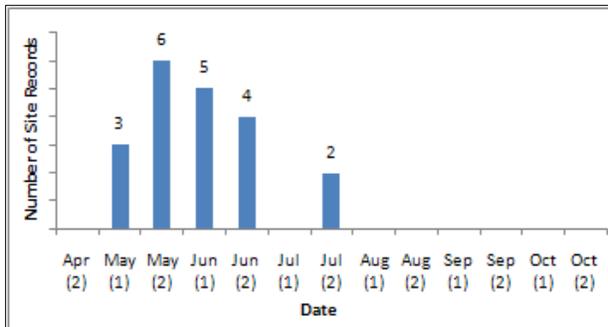
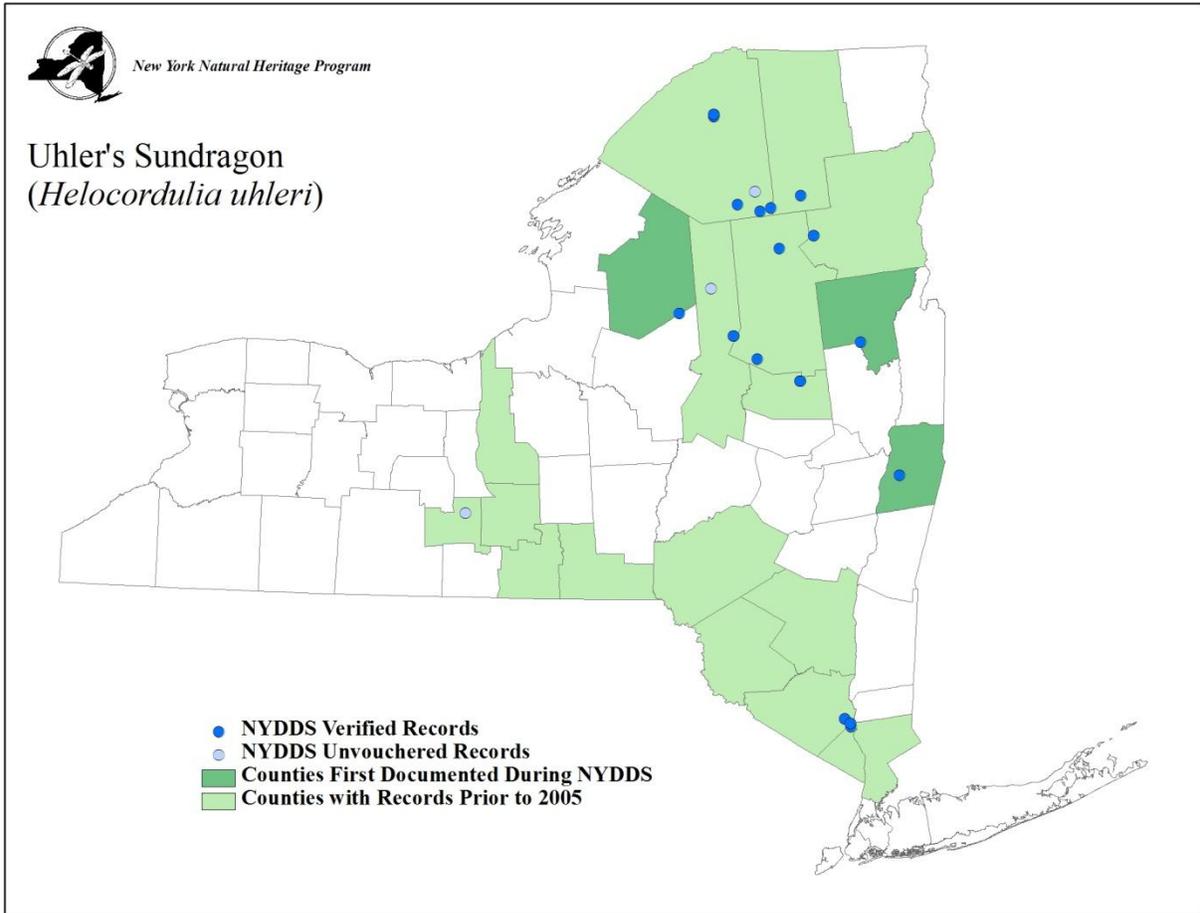


CORDULIIDAE

Uhler's Sundragon (*Helocordulia uhleri*)

Pre-NYDDS Status: G5, S4S5

Draft Revised Status: S3



(Donnelly 2004d)

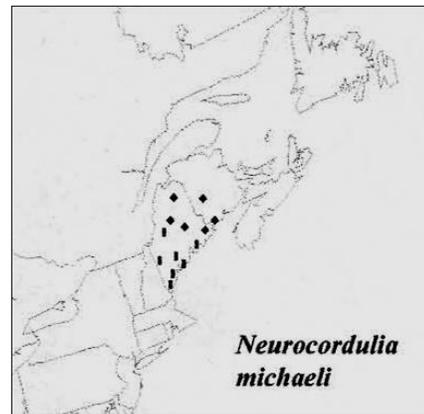
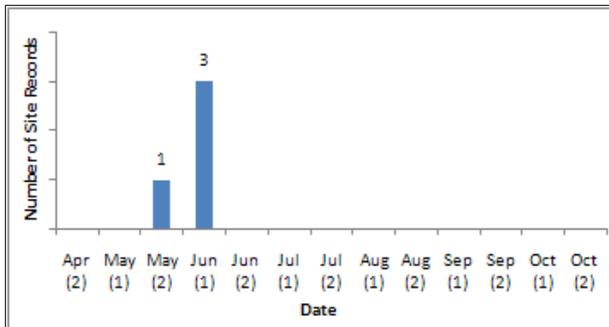
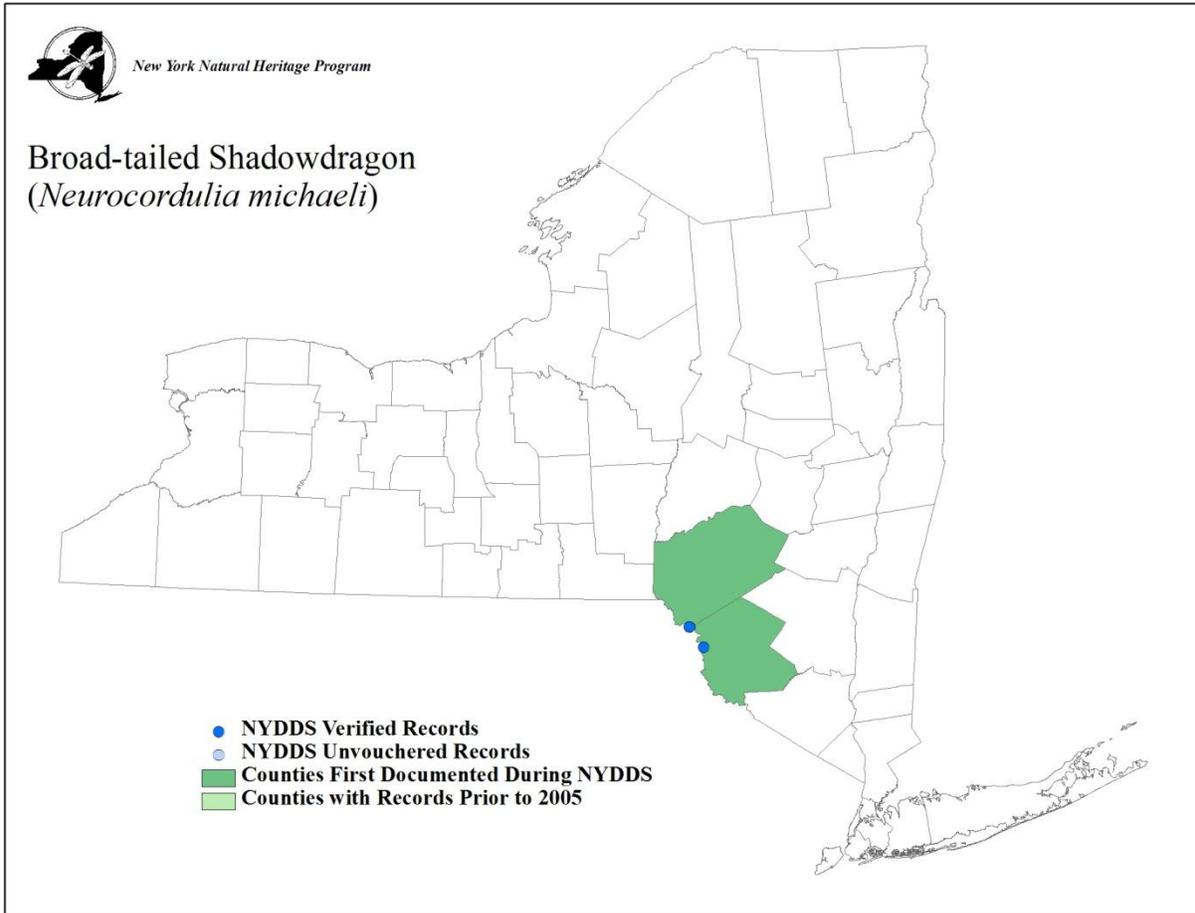


CORDULIIDAE

Broadtailed Shadowdragon (*Neurocordulia michaeli*)

Pre-NYDDS Status: G3G4, SNR

Draft Revised Status: S1



(Donnelly 2004d)

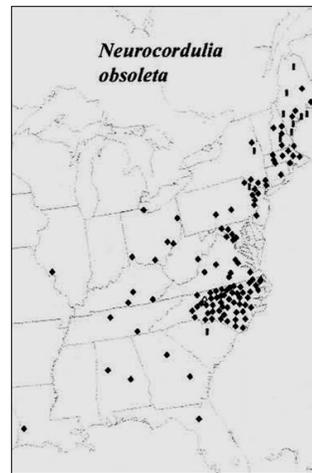
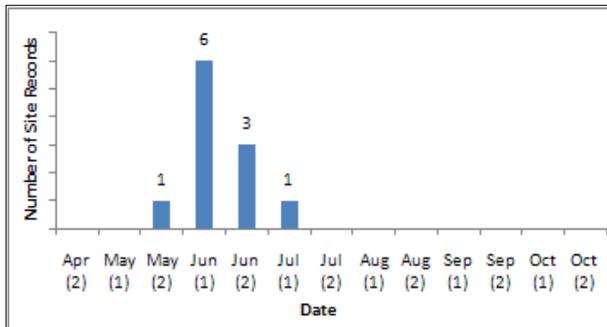
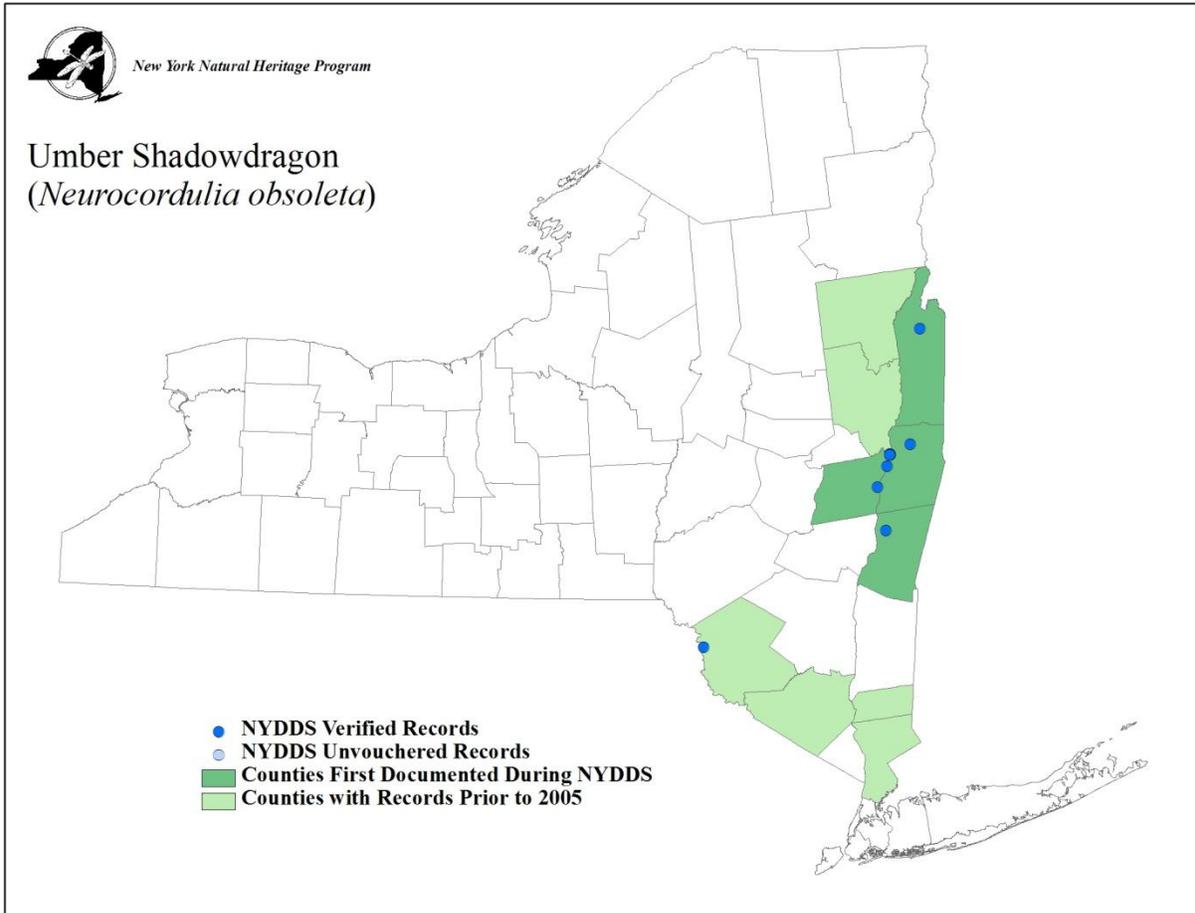


CORDULIIDAE

Umber Shadowdragon (*Neurocordulia obsoleta*)

Pre-NYDDS Status: G5, SU

Draft Revised Status: S1



(Donnelly 2004b)

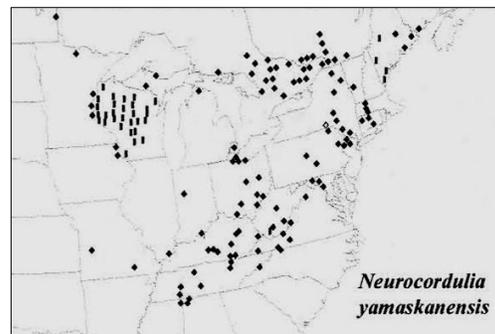
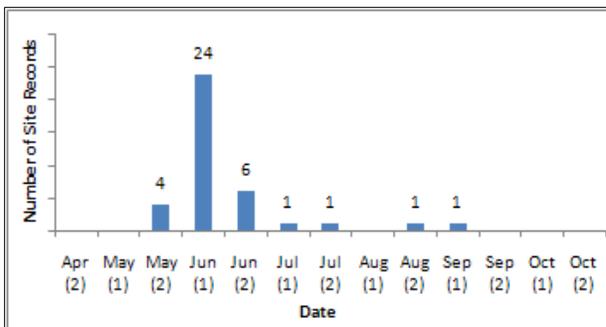
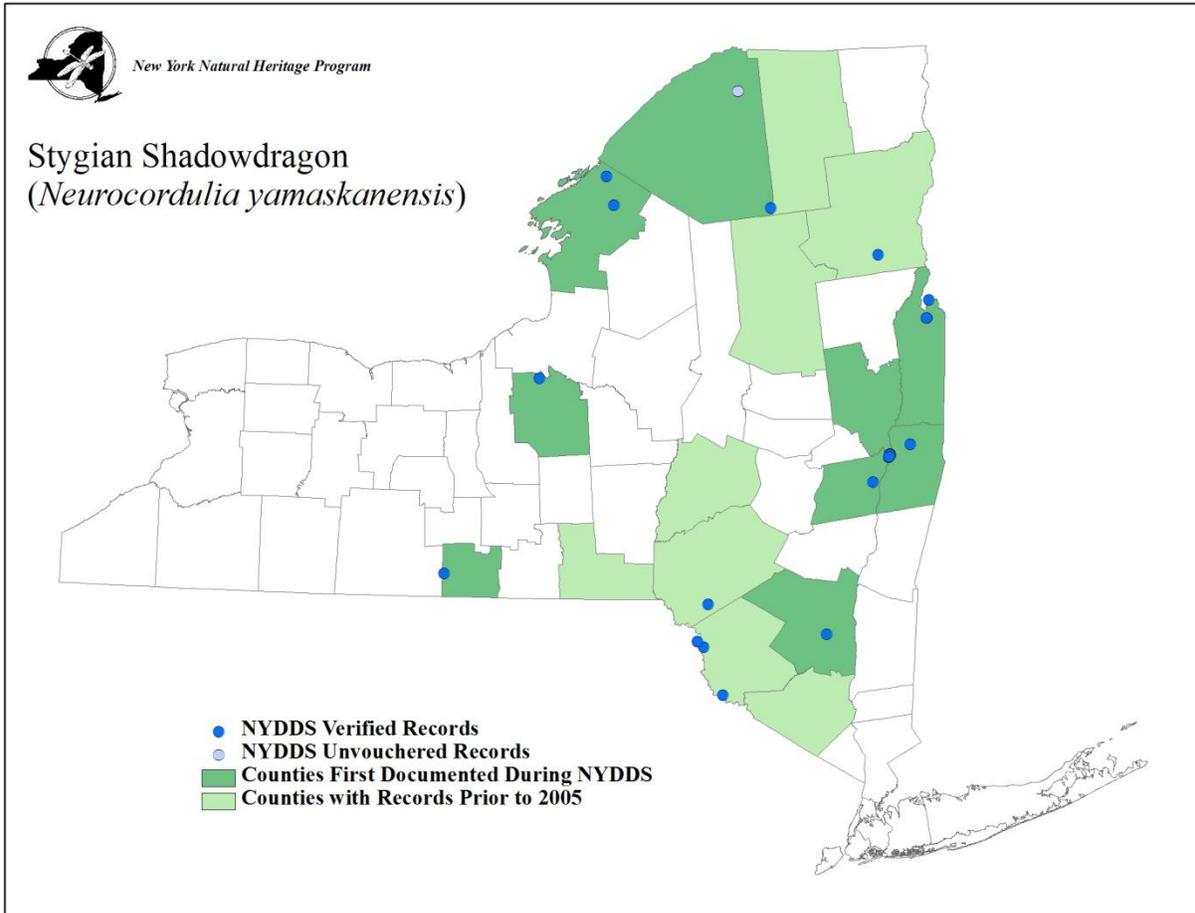


CORDULIIDAE

Stygian Shadowdragon (*Neurocordulia yamaskanensis*)

Pre-NYDDS Status: G5, SU

Draft Revised Status: S3



(Donnelly 2004d)



CORDULIIDAE

Ringed Emerald (*Somatochlora albicincta*)

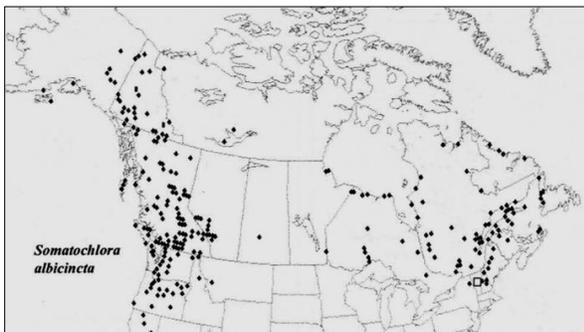
Pre-NYDDS Status: G5, SH

Draft Revised Status: SH

Habitat Characteristics: In the northeast, this species occupies cold smaller ponds and lakes at forested higher elevations (> 2200 ft.) with some water movement and often with shallow boggy shores and scattered, sparse sedge vegetation (Dunkle 2000; Pfeiffer 2007). In the northwestern Rocky Mountains, all occupied habitats are relatively open, unvegetated, shallow, rocky-bottomed ponds in valleys and mud-bottomed mossy fen ponds in the mountains (Cannings & Cannings 1994). Walker & Corbet (1975) observed that males favor low flight over the water near the mouths of small tributary streams. Boreal *Somatochlora* nymphs take at least 4 years to develop and they occupy shallow water meadows, sedge-filled pools, and sedge-filled shallows of small ponds. During this time, they are drought resistant and can survive dry conditions for up to 4-9 months through certain physiological adaptations and by actively burrowing in mud and seeking out sheltered locations in moss, cracks in mud, crevices in rotting logs, and sedge root clumps (Wiley & Eiler 1972).



Denis A. Doucet



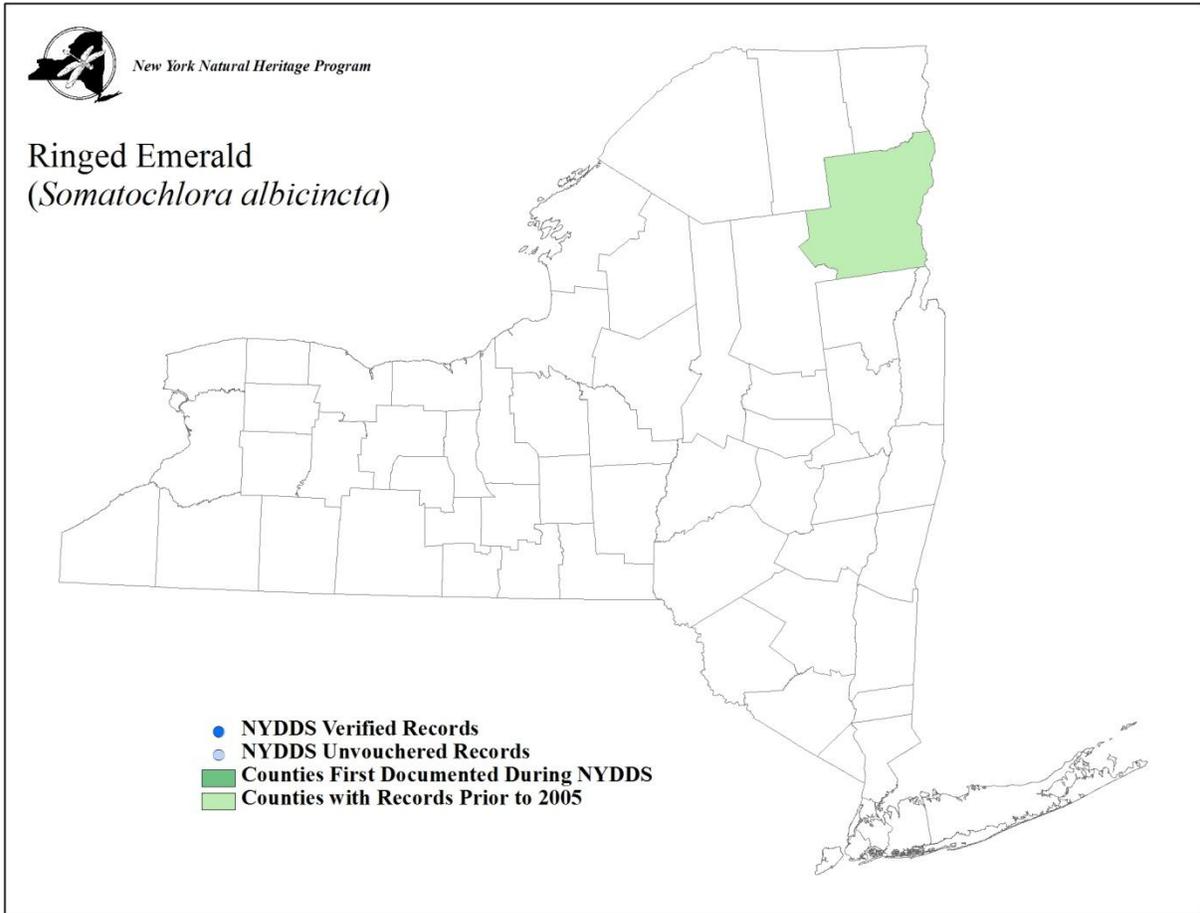
(Donnelly 2004d)

Distribution and Inventory Needs: The center of distribution for *S. albicincta* lies in northwestern Manitoba in the mid-Continental Canadian Forest ecoregion. It ranges west to Alaska, south to northern California, and northeast to Newfoundland and Labrador. New York lies at the southern range extent (Donnelly 2004d) and an older record from Lake Tear of the Clouds below Mt. Marcy and an older record from Mt. Marcy (Donnelly

1999) are the southernmost known occurrences in the northeast. It has not been seen in New York for at least 80 years, when Needham (1928) reported it from the Adirondack High Peaks. An excursion to Lake Tear of the Clouds by experienced surveyors on August 20, 2009 failed to turn it up (although survey duration and weather were not ideal) and it was not observed elsewhere during the NYDDS. An adult of this species was recently collected at Lake of the Clouds on Mt. Mansfield in Vermont (Pfeiffer 2007) at about 4000' elevation, and during the recent Maine Odonata survey several new locales were discovered in the White Mountains (Brunelle & deMaynadier 2005). It has not been found in southern Ontario since the early 1980s and extant records in this province are currently confined to regions along the shore of Hudson Bay (Ontario Natural Heritage Information Centre 2010b). Given the recent Vermont record, it seems plausible that this species still occurs on small, high elevation ponds or lakes in the Adirondack High Peaks, especially since *Somatochlora* almost always occur at low densities, they often fly high (30-50'), and adults are extremely elusive and difficult to capture (Packauskas 2005).



Phenology: Both historical records of *S. albicincta* in New York were in July (Needham 1928; Donnelly 1999), and Brunnelle & deMaynadier (2005) reported that the flight season in Maine runs from July 1 through the first week of August.



CORDULIIDAE

Lake Emerald (*Somatochlora cingulata*)

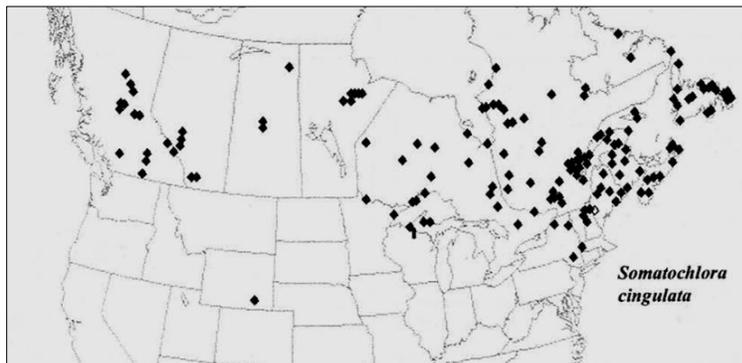
Pre-NYDDS Status: G5, S1

Draft Revised Status: S1

Habitat Characteristics: This boreal species does not seem to have clear habitat preferences, being found in both lentic and lotic habitats (Walker & Corbet 1975). Lentic habitats include shallower, boggy lakes as well as deeper rocky ponds with sandy beaches. Lotic habitats include sluggish well-vegetated reaches of medium-sized and large rivers (Cannings & Cannings 1994; Nikula *et al.* 2003). Despite being seen in New York only about six times, it has been found in all of these habitat types. Adults usually fly out of reach far out over the water (Walker & Corbet 1975). Boreal *Somatochlora* nymphs take at least 4 years to develop and they occupy shallow water meadows, sedge-filled pools, and sedge-filled shallows of small ponds. During this time, they are drought resistant and can survive dry conditions for up to 4-9 months through certain physiological adaptations and by actively burrowing in mud and seeking out sheltered locations in moss, cracks in mud, crevices in rotting logs, and sedge root clumps (Wiley & Eiler 1972).



Blair Nikula



(Donnelly 2004d)

Distribution and Inventory

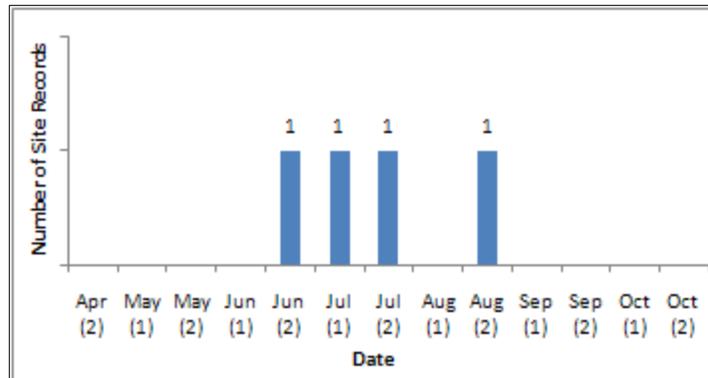
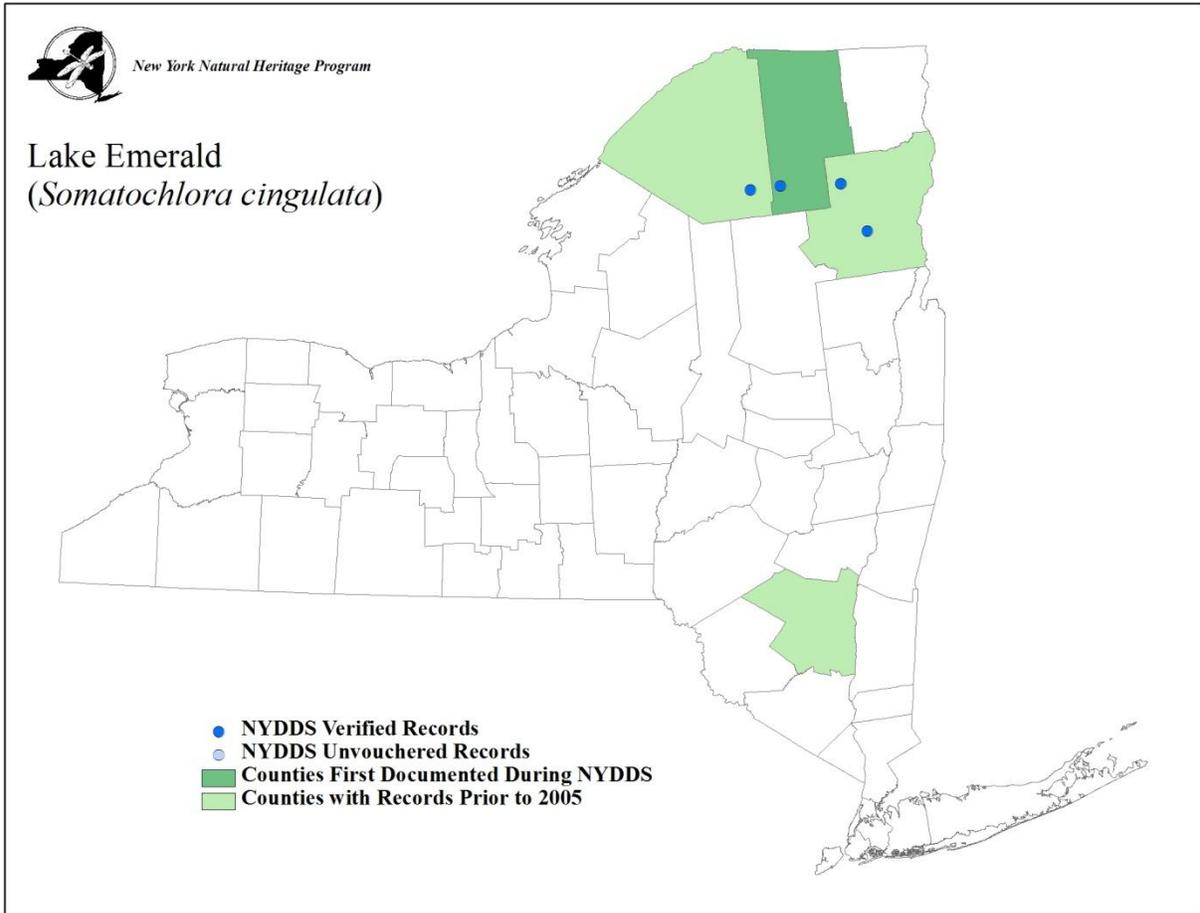
Needs: The center of distribution lies in northwestern Ontario in the central Canadian Shield forest, and ranges west to British Columbia, south to Wyoming, and northeast to Newfoundland and Labrador. New York lies at the southern range extent and a 1966 record from Slide Mountain in the Catskills is the southernmost known occurrence

in the northeast (Donnelly 1999, Donnelly 2004d). Sometime in the late 1960s-early 1970s, it also made a brief appearance at a high elevation nonbreeding habitat at Mt. Greylock in Massachusetts (Nikula *et al.* 2003). Pre-NYDDS presumed breeding records came from the Boreas River in Essex County, and at Massawepie Mire in St. Lawrence County. During NYDDS, they were observed and photographed at Massawepie Mire in 2007, and new records were located at beaches on ponds in Essex County (Clear Pond), and Franklin County (Little Wolf Pond) and on one river (Chubb in Essex County). It seems likely that this species occurs on other ponds, and perhaps rivers in the Adirondacks, and since the adults are very difficult to observe, exuviae can be sought on small sand beaches at ponds.

Phenology: *S. cingulata* has an extended flight season and all pre-and NYDDS records of adults and exuviae in New York have been found between June 25-August 15. This is shorter than in



Maine (Brunelle & deMaynadier 2005) where the flight season extends through September. Walker & Corbet (1975) reported that the majority of dates were in July and August.

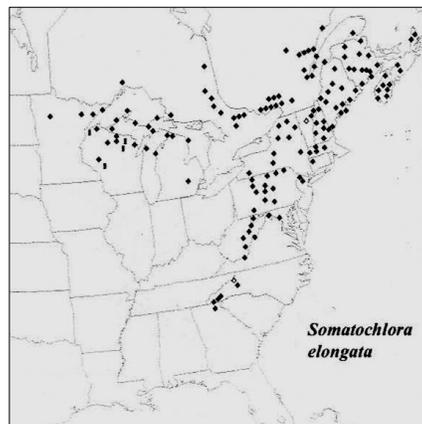
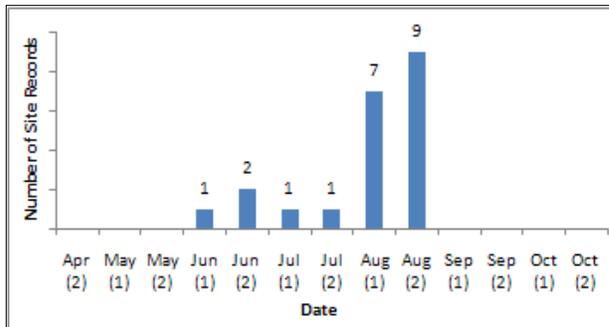
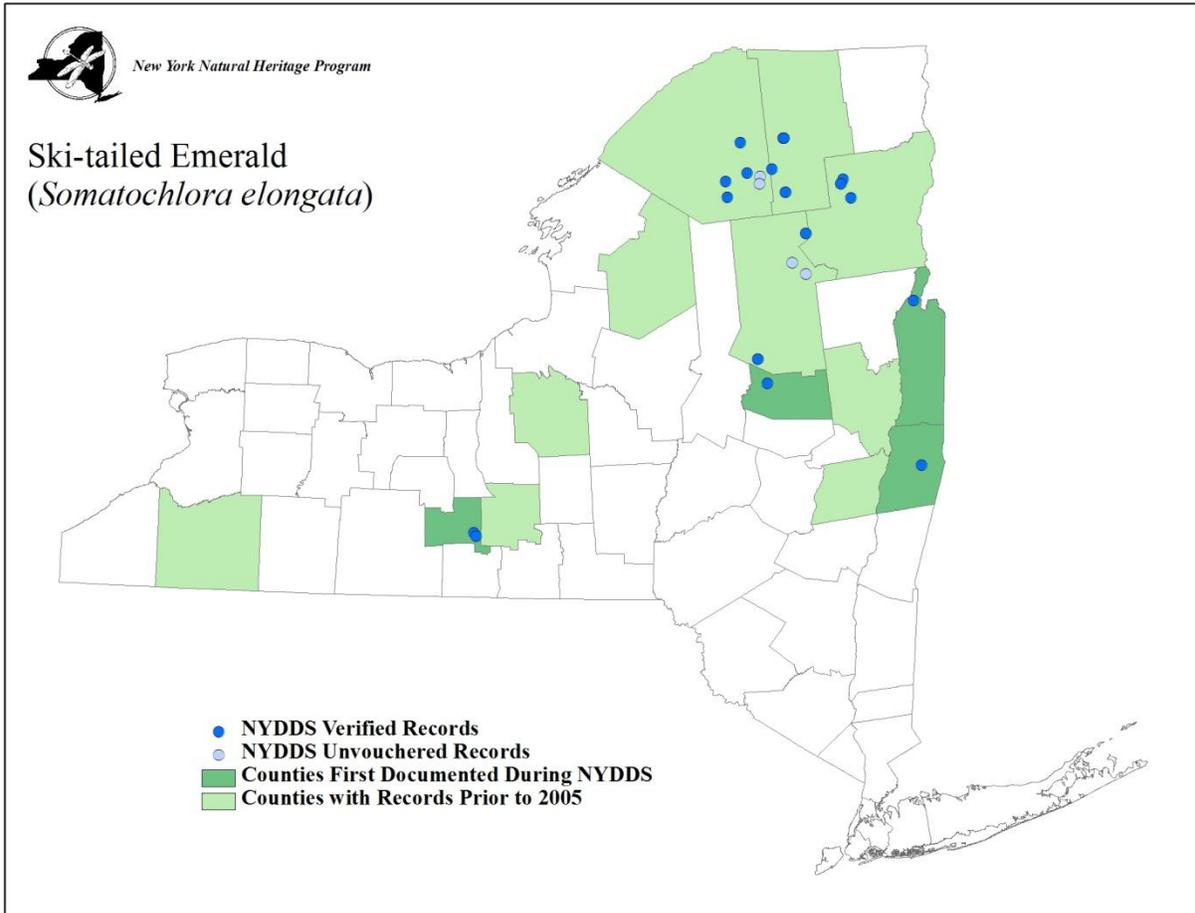


CORDULIIDAE

Ski-tailed Emerald (*Somatochlora elongata*)

Pre-NYDDS Status: G5, S4

Draft Revised Status: S3S4



(Donnelly 2004d)



CORDULIIDAE

Forcipate Emerald (*Somatochlora forcipata*)

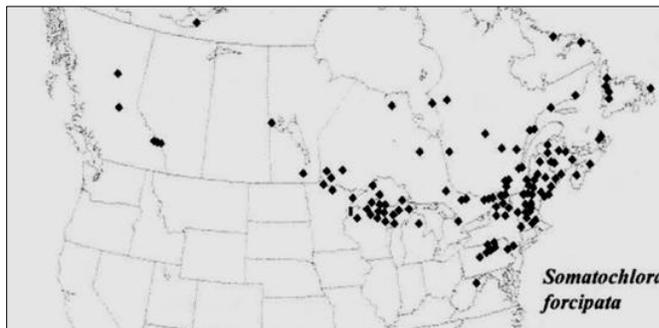
Pre-NYDDS Status: G5, S1

Draft Revised Status: S1S3

Habitat Characteristics: Throughout its range, this species inhabits small spring-fed boggy streams and it feeds in sunny glades and along roads, perching in trees 15-20' high (Walker & Corbet 1975). In New York, specific habitat characteristics include large bogs and boggy swales. The boggy swale has a lush growth of *Carex*, blue flag, and sphagnum. Water flows slowly through the swale and pools are present in some areas; the water was several inches deep in July. The swale is connected to a large poor fen/spruce tamarack bog complex. Boreal *Somatochlora* nymphs take at least 4 years to develop and they occupy shallow water meadows, sedge-filled pools, and sedge-filled shallows of small ponds. During this time, they are drought resistant and can survive dry conditions for up to 4-9 months through certain physiological adaptations and by actively burrowing in mud and seeking out sheltered locations in moss, cracks in mud, crevices in rotting logs, and sedge root clumps (Wiley & Eiler 1972).



Stephen Diehl and Vici Zaremba 2008



(Donnelly 2004d)

Distribution and Inventory Needs:

The center of distribution lies in north-central Ontario in the central Canadian Shield forest ecoregion and ranges northwestward to the Northwest Territories, south to northern Wisconsin and West Virginia, northeastward to Newfoundland and Labrador (Donnelly 2004d). New York lies near the center of the range, but this species was not discovered in the state until 1980 in

Hamilton County (Donnelly 1999) at McGinn Meadows. It was already known from several northeastern states, including farther south in Pennsylvania, before this time (Walker & Corbet 1975), but most northeastern U.S. records came after the 1920s (Walker 1925). During the 1990s, it was discovered in large bog complexes in Franklin County (Bloomindale Bog, Spring Pond Bog, Kildare peatlands), and St. Lawrence County (Hitchins Pond Bog) as well as sites in Essex and Lewis County (Donnelly 1999, 2004a). Additional new bog sites in the Adirondacks were added during the NYDDS in Hamilton and Franklin Counties and at least two of the known sites have been extant for 10-15 years. In 2007, the range was extended significantly southward in New York to the Rensselaer Plateau when an adult was captured at the Dyken Pond Educational Center and records are known from nearby in western Vermont and Massachusetts (Donnelly 2004d).

This pattern could suggest a recent range expansion for this species or simply increased survey efforts; similarly, the number of known townships inhabited by this species in Maine doubled to over 25 during recent atlas efforts in that state (Brunelle & deMaynadier 2005). It is



likely that this species occurs on small streams primarily within larger bogs (more infrequently at smaller ones) throughout the Adirondacks and perhaps the Tug Hill and Rensselaer Plateaus, especially since *Somatochlora* almost always occur at low densities, they often fly high (30-50'), and adults are extremely elusive and difficult to capture (Packauskas 2005). In addition, appropriate bog/fen habitats should be searched in Sullivan and Orange Counties and along the central Southern Tier in Steuben, Tioga, Chemung and Broome Counties because there are known records in adjacent New Jersey and Pennsylvania (Donnelly 2004d).

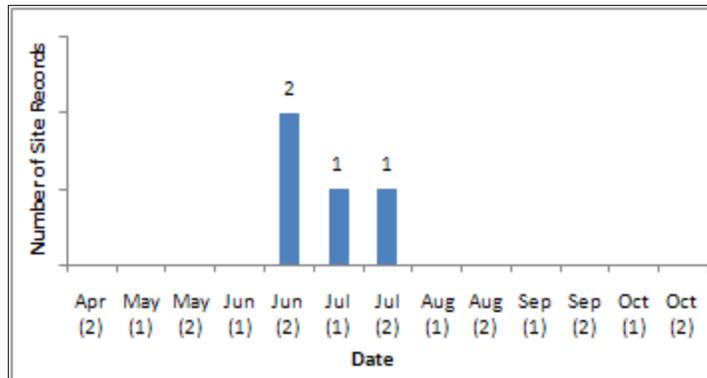
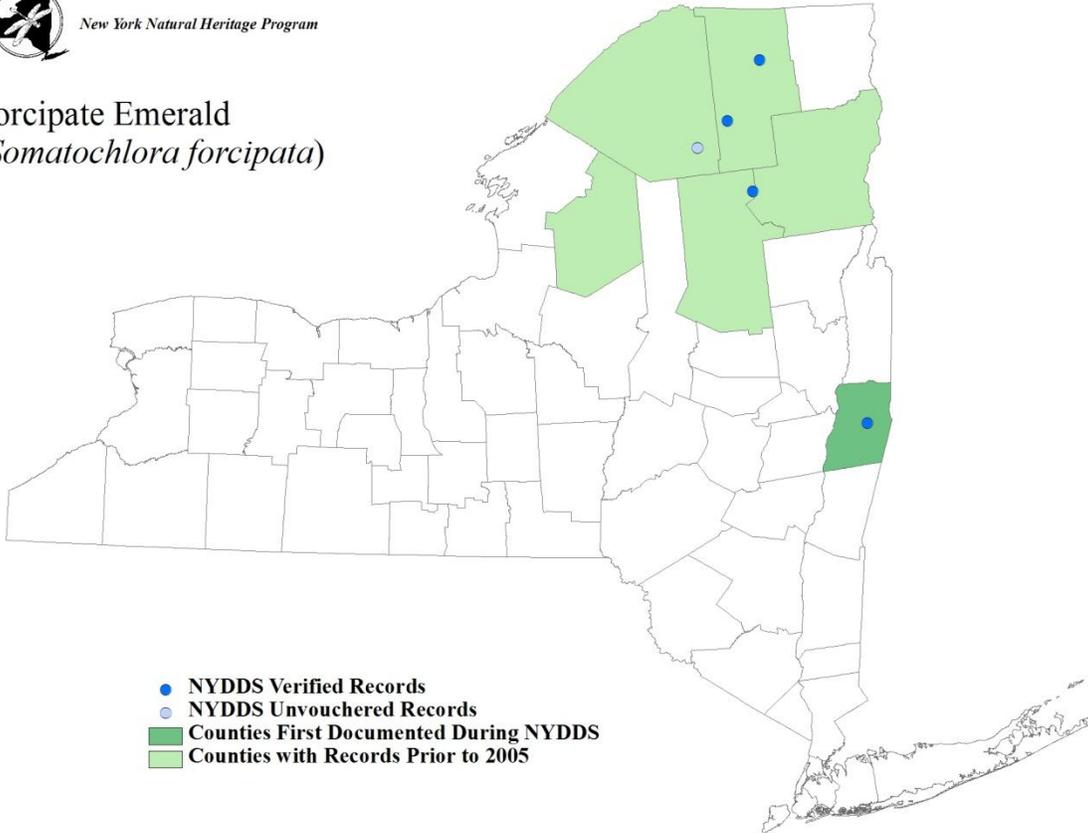
Phenology: Donnelly (1999) reported the flight season in New York as June 23 to July 11. This is significantly shorter than reported in Maine (Brunelle & deMaynadier 2005) and Massachusetts (Nikula *et al.* 2003) which runs from the end of May to early-September, which is also similar to the flight season reported by Walker & Corbet (1975), who stated that July was the peak flight season. Our phenology data both from NY Natural Heritage database records, as well as the newer NYDDS sightings, supports Donnelly's (1999) description of a more protracted three week flight season in New York, from June 23 to July 15.





New York Natural Heritage Program

Forcipate Emerald (*Somatochlora forcipata*)

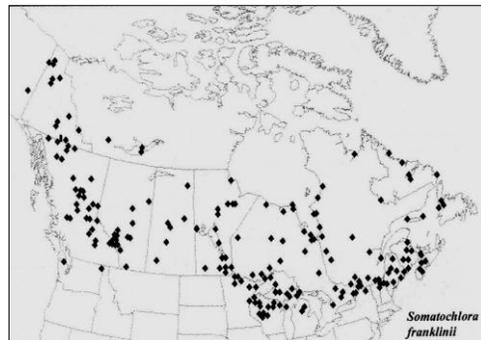
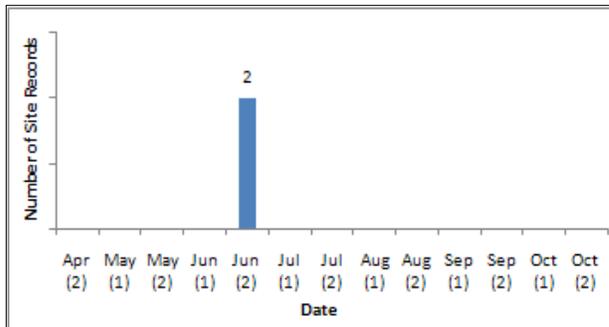
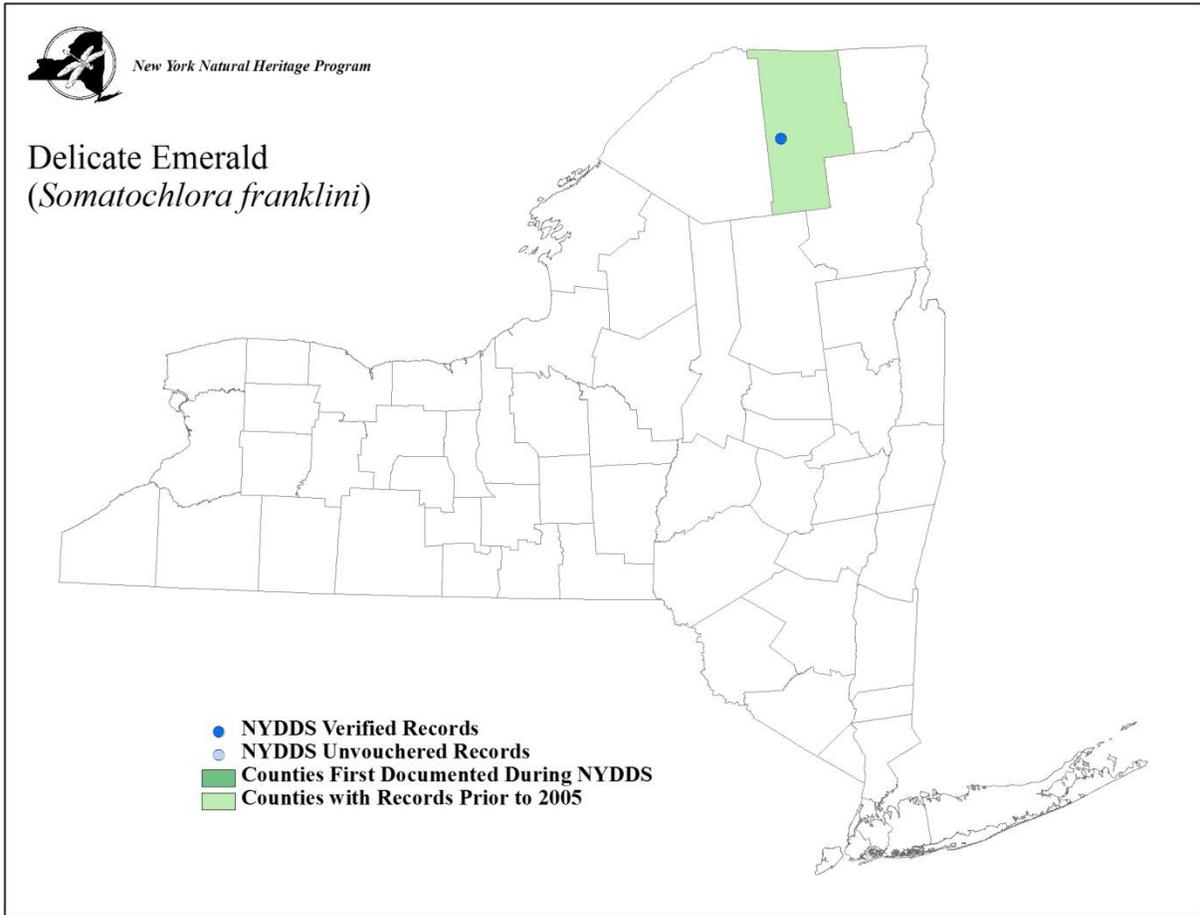


CORDULIIDAE

Delicate Emerald (*Somatochlora franklini*)

Pre-NYDDS Status: G5, SNR

Draft Revised Status: S1



(Donnelly 2004d)



CORDULIIDAE

Incurvate Emerald (*Somatochlora incurvata*)

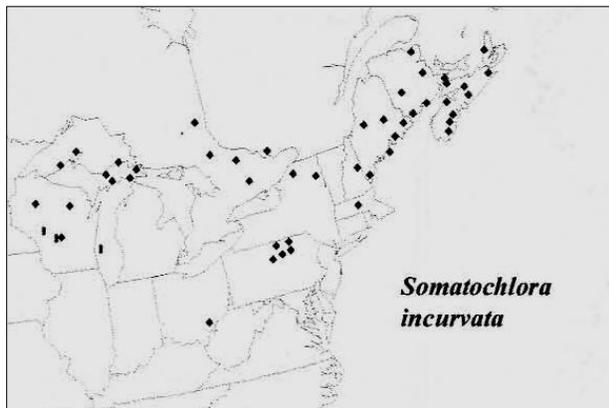
Pre-NYDDS Status: G5, S1

Draft Revised Status: S1S3

Habitat Characteristics: In New York this species inhabits large, open, forest-bordered bogs, poor fens, and peatlands with widely scattered tamarack and black spruce, and ericaceous bog shrubs interspersed with sedges and Sphagnum, with abundant shallow, pooled water and rivulets. The water in these pools is clear and cold and moves almost imperceptibly through the sphagnum mat (Shiffer 1993). In Michigan, *S. incurvata* can be found in patterned peatlands and northern fens associated with marl- or peat-containing flowing alkaline groundwater (Lee 1999). Wisconsin habitats are large wetland complexes on old glacial lake beds, often adjacent to sandy pine uplands. Larvae have only recently been described and were found clinging to the underside of sphagnum mounds at pool edges in partially decomposed dark brown sphagnum and sedges (Wisconsin Natural Heritage Inventory Program 2010). Boreal *Somatochlora* nymphs take at least 4 years to develop and they occupy shallow water meadows, sedge-filled pools, and sedge-filled shallows of small ponds. During this time, they are drought resistant and can survive dry conditions for up to 4-9 months through certain physiological adaptations and by actively burrowing in mud and seeking out sheltered locations in moss, cracks in mud, crevices in rotting logs, and sedge root clumps (Wiley & Eiler 1972). Males fly low and erratically over vegetation and occasionally perch on tree branches or hover over open pools.



Denis A. Doucet



(Donnelly 2004d)

Distribution and Inventory Needs: The center of distribution lies in southeastern Ontario in the eastern Great lakes lowland forest ecoregion and ranges westward to Wisconsin, east to Nova Scotia and south to Ohio (Donnelly 2004d). New York lies near this center, but the species is exceedingly rare and only known from a handful of northern bogs. This species (all adults; exuviae have not been reported in New York) was not discovered in the state until the early-mid 1990s at Massawepie Mire and Bloomingdale Bog in the northern

Adirondacks (Donnelly 1999). It was not seen again until about 10 years later in the northern Adirondacks when a male was found at Sevey Bog in 2004 and at Jordan River Bog in 2005 (New York Natural Heritage Program 2010). The species seems to be highly ephemeral in New York because it has rarely been observed at a site subsequent to the initial sighting (with the exception of Massawepie Mire), despite numerous visits by experienced surveyors. This pattern is similar to Michigan where the species was first described in 1916, but not seen again until the early 1990s (Lee 1999). In Maine, (Brunelle & deMaynadier 2005), and Nova Scotia (Sjogren



2002) the species was found at several new locations after 1999. An informative distribution model developed by NY Natural Heritage highlighted several large bogs in southern Franklin County that would be worthy of intensive survey efforts including north of the St. Regis River near Whitney Pond and Black Pond Swamp and Bull Rush Bay on Middle Saranac Lake in the Saranac Lakes Wild Forest (New York Natural Heritage Program 2006).

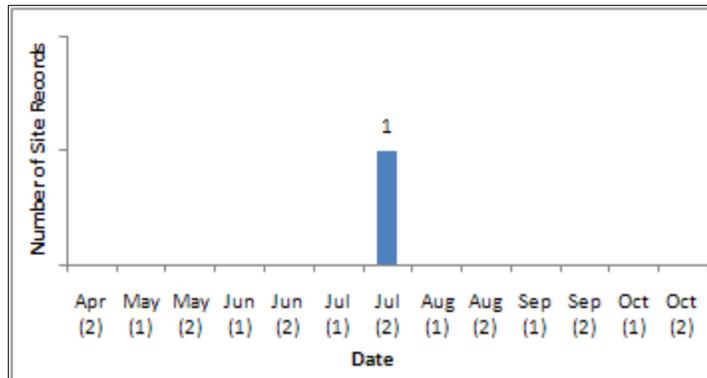
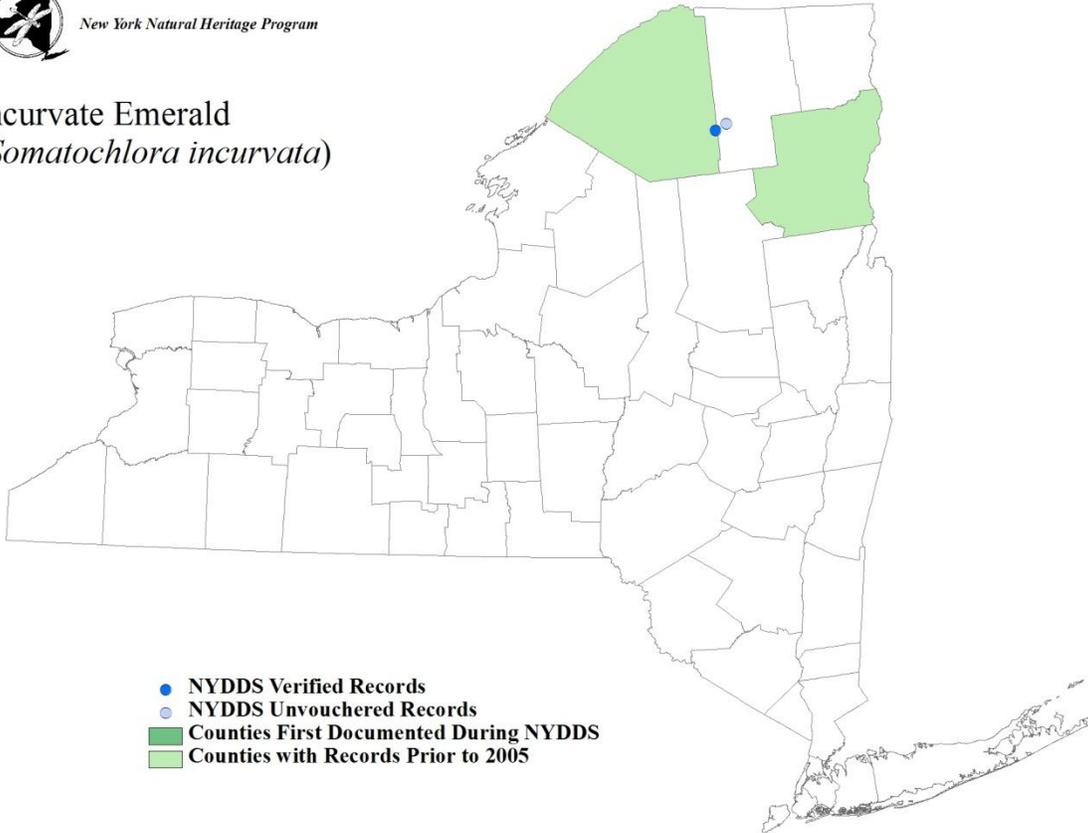
Phenology: All of the New York records were from July 20 through August 14. This is similar to the flight season in Michigan (Lee 1999), but significantly shorter than in the other parts of the range and in the northeast where it has been observed from late June to early October (Walker & Corbet 1975; Shiffer 1993; Nikula *et al.* 2003; Brunelle & deMaynadier 2005). Sjogren (2002) suggests that surveys for adults should be conducted from mid-July through August.





New York Natural Heritage Program

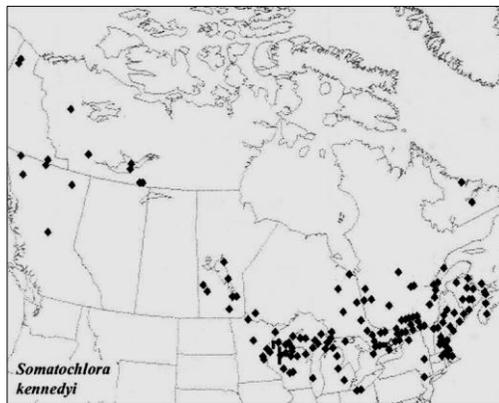
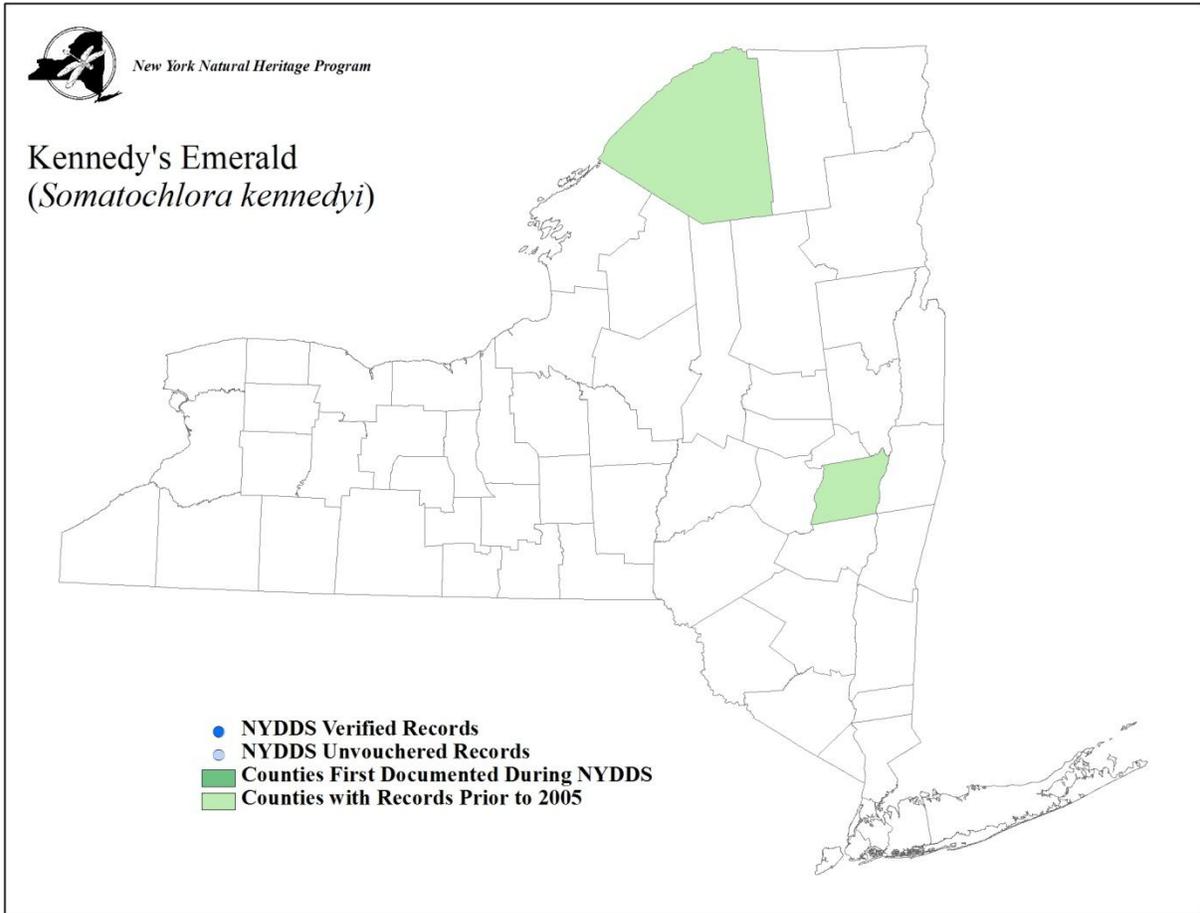
Incurvate Emerald (*Somatochlora incurvata*)



CORDULIIDAE

Kennedy's Emerald (*Somatochlora kennedyi*)

Pre-NYDDS Status: G5, SNA



(Donnelly 2004d)



CORDULIIDAE

Mocha Emerald (*Somatochlora linearis*)

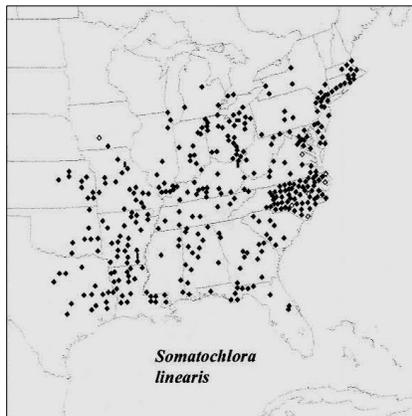
Pre-NYDDS Status: G5, S2S3

Draft Revised Status: S1



Steve Walter 2007

Habitat Characteristics: Rangelwide, *S. linearis* inhabits small (3-9' wide) intermittent, shaded streams with fine gravel and/or sandy substrates in deciduous forests (Dunkle 2000). The most complete habitat description comes from eastern Massachusetts where SaintOurs (2004) found large numbers in habitats where small intermittent forest streams crossed open areas, particularly utility easements and the substrate was muck-bottomed or boggy, often choked with sphagnum and smartweed. Individuals could also be found away from watercourses at forest ecotones. This habitat is similar to a site in Rockland County which is a low-gradient intermittent section of a forested stream flowing from a sedge meadow with vegetated banks containing sedge and sphagnum tussocks.



(Donnelly 2004d)

Distribution and Inventory Needs: The distributional center of *S. linearis* is in central Kentucky in the central U.S. Hardwood forest ecoregion and ranges south to Florida and Texas, north to Michigan and Massachusetts. Unlike most New York *Somatochlora*, this is a southern species that inhabits hardwood forests, and an older record from Oswego County (pre-1926) is the northernmost occurrence known (Needham 1928, Donnelly 2004d). Currently, it appears to be confined to extreme southeastern New York in the Lower Hudson River watershed as NYDDS records came from Orange, Rockland and Westchester Counties. One was observed as part of a multi-species feeding swarm on the edge of the Catskills in 2007 in Greene County.

Donnelly (1999) however, reported it as far north as West Point and Swamp River (Dutchess County) in the Hudson Valley. A more severe range contraction has apparently occurred in western and central New York because it was historically known from scattered locales including at Red House Brook in Allegany State Park where it has not been found since it was first discovered in 1981, despite follow-up searches. Other upstate locales have not been reported since 1928 (Needham 1928) and the species is known from as early as the late 1800s from Grand Island in Erie County (Walker 1925).

This apparent contraction is peculiar as SaintOurs (2004) recently reported good numbers in eastern Massachusetts and the species is apparently expanding its range in the Midwest (The Ohio Odonata Society 2000, Johnson 2003). Purdue *et. al* (1999) found high genetic variation in *S. linearis* from Illinois and Arkansas, suggesting effective ongoing dispersal among these populations and their data supported the conclusion that occupied areas to the north (i.e., New York) that were covered in ice during the last glacial maximum were likely colonized by these more southerly populations in the lower Midwest. A distribution model developed by NY Natural Heritage indicated that the species may be temperature limited as it is not predicted to



occur north of the lower Hudson Valley or southwestern New York. A few locations in Putnam County, especially around Philipse Brook, Sprout Brook, and Canopus Creek may hold populations waiting to be discovered. Likewise, small watercourses in and around Allegany State Park (Sawmill Run, Quaker Run, Chipmunk Creek, Limestone Brook) could also prove fruitful (New York Natural Heritage Program 2005).

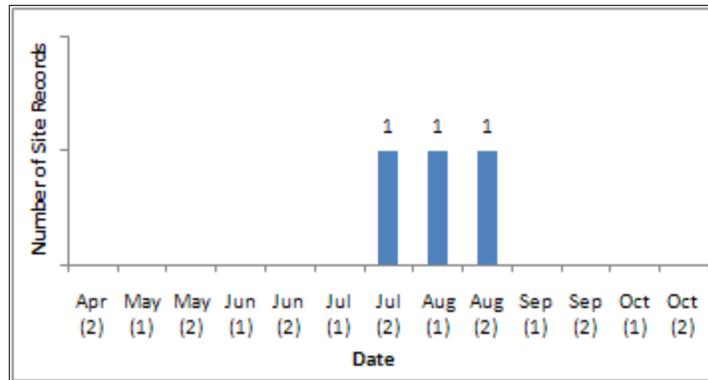
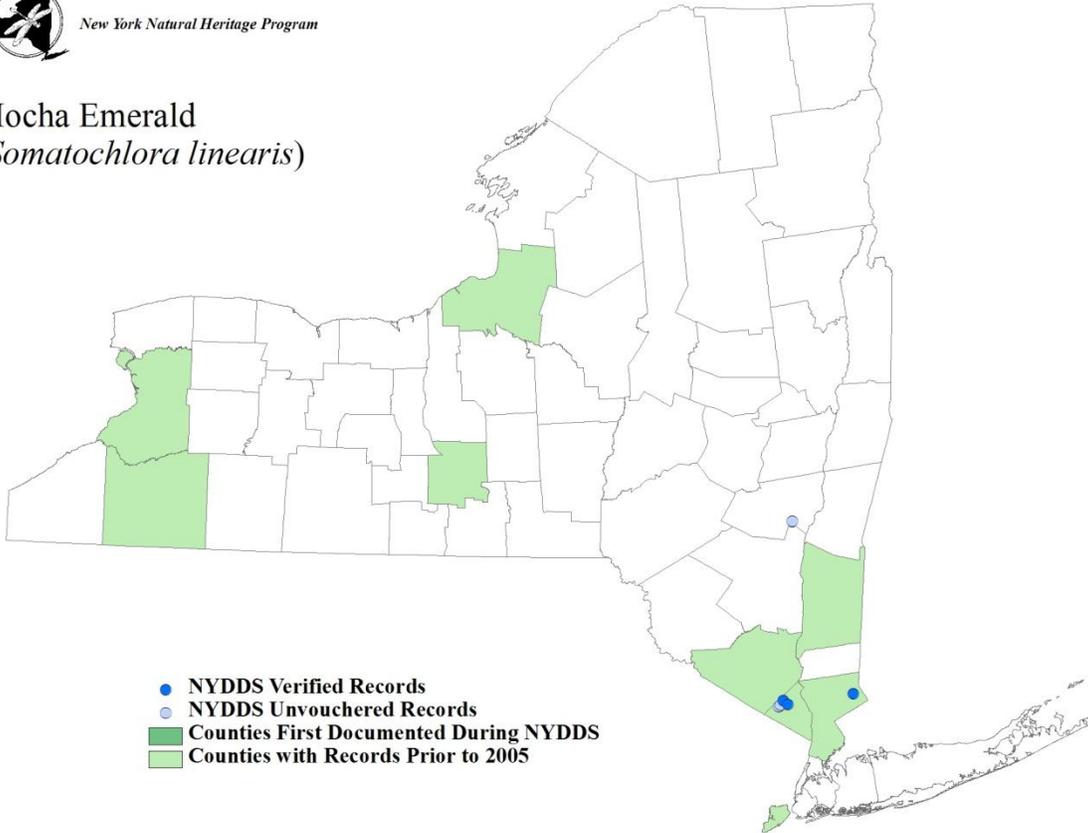
Phenology: Mid-June to mid-September (New York Natural Heritage Program 2007d) is the reported flight season in New York, which is similar to other states in the northeast (Massachusetts NHESP 2003f, Bangma & Barlow 2010b). Our phenology data, both from NY Natural Heritage database records, as well as the newer NYDDS sightings, support a more protracted seven-week flight season in New York, from July 22 to September 12, with most records coming in August.





New York Natural Heritage Program

Mocha Emerald (*Somatochlora linearis*)



CORDULIIDAE

Ocellated Emerald (*Somatochlora minor*)

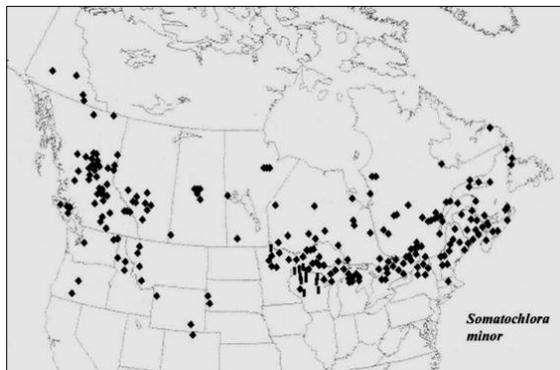
Pre-NYDDS Status: G5, S2S3

Draft Revised Status: S1S3



Stephen Diehl and Vici Zaremba 2008

Habitat Characteristics: In New York, the most thorough habitat description comes from a site in St. Lawrence County. The dragonfly was found in a wetland with a small stream (5-8' wide) running through the center with a mud and muck bottom. There is at least one small beaver dam and one end of the bog that appears to have been impounded in previous years and scattered dead spruce and a marshy portion at the far end. One end of the wetland is a more typical bog with stunted black spruce, tamarack, ericaceous shrubs, sedges, cranberries, and areas of standing water and rivulets. At the ends of the bog the spruce grades into dense 10-30 ft-tall black spruce and tamarack. Likewise, the remaining four extant locales in New York came from streams in, or near similar bog habitats. Habitats in Michigan (Ross 2001) were along thin outlet channels from beaver ponds and lakes within open sedge meadows where grasses overhang the waterways. Both of these habitat types are much narrower than the typical small clear, rocky gently flowing forest streams without emergent vegetation (Walker & Corbet 1975, Dunkle 2000), and this species is not considered an inhabitant of Cordilleran peatlands (Cannings & Cannings 1994). These differences may lie in alternative habitat preferences in eastern vs. western North American populations. Boreal *Somatochlora* nymphs take at least 4 years to develop and they occupy shallow water meadows, sedge-filled pools, and sedge-filled shallows of small ponds. During this time, they are drought resistant and can survive dry conditions for up to 4-9 months through certain physiological adaptations and by actively burrowing in mud and seeking out sheltered locations in moss, cracks in mud, crevices in rotting logs, and sedge root clumps (Wiley & Eiler 1972).



(Donnelly 2004d)

Distribution and Inventory Needs: The center of distribution lies in northwestern Ontario in the Midwest Canadian Shield forest ecoregion and ranges westward to the Yukon, south to Colorado and northeastward to Newfoundland and Labrador. New York lies along the southeastern range extent and the Adirondack records are some of the southernmost known occurrences in the northeast (Donnelly 2004d). Over the years, this species was known from a single vague museum record near Harrietstown in 1922 (Bloomingdale Bog?) in Franklin County (Walker 1925, Needham 1928). Donnelly (1999)

reported records from the early to mid-1990s at Bloomingdale Bog in Essex County, Spring Pond Bog near Derrick in Franklin County, and at Oswegatchie in St. Lawrence County. The range was extended further south in the early 2000s during field trips for Odonatology meetings when records were reported for Lewis and Hamilton Counties (Donnelly 2004a), and another at Leonard Pond Bog near Sevey Corners in St. Lawrence County. Then, in 2008, NYDDS



surveyors found *S. minor* along bog streams along Blue Mountain Road in southern Franklin County during a Northeast Dragonfly Society of the Americas (DSA) meeting.

This pattern could suggest a recent range expansion for this species, or simply increased survey efforts; similarly, the number of known townships inhabited by this species in Maine more than tripled to over 40 during atlas efforts in that state (Brunelle & deMaynadier 2005). It is likely that this species occurs on small streams within larger bogs throughout the Adirondacks and perhaps the Tug Hill Plateau, especially since *Somatochlora* almost always occur at low densities, they often fly high (30-50'), and adults are extremely elusive and difficult to capture (Packauskas 2005).

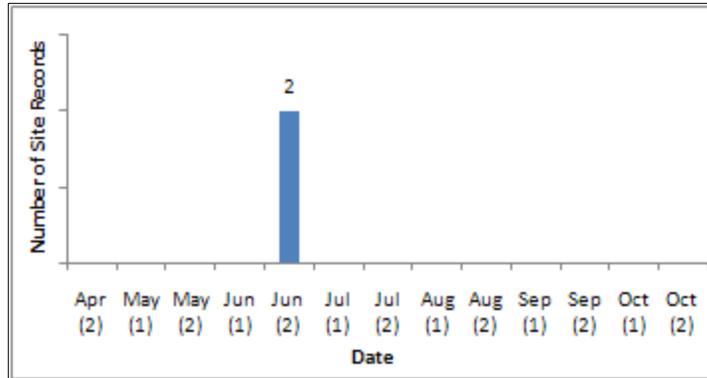
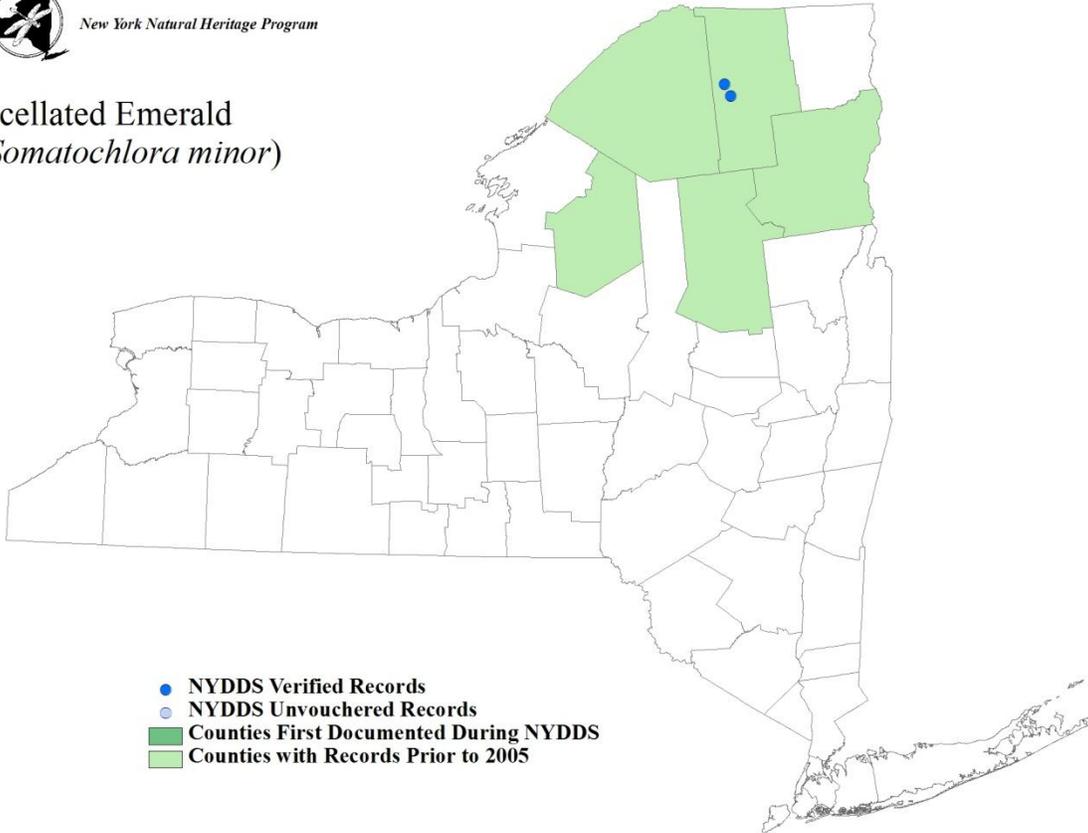
Phenology: Donnelly (1999) reported the flight season as June 12 to August 5, similar to the flight season (mid-June to mid-August) in Maine (Brunelle & deMaynadier 2005), but the above records (NYDDS) and those from the NY Natural Heritage database were all found over the span of about a month between June 27 to July 21.





New York Natural Heritage Program

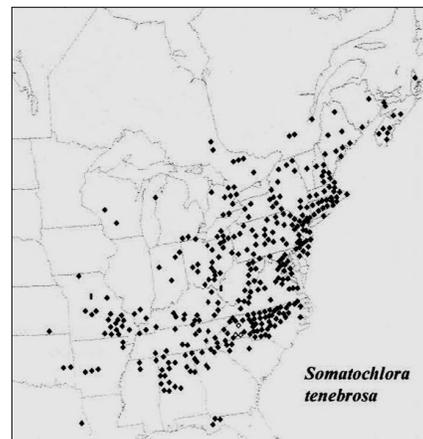
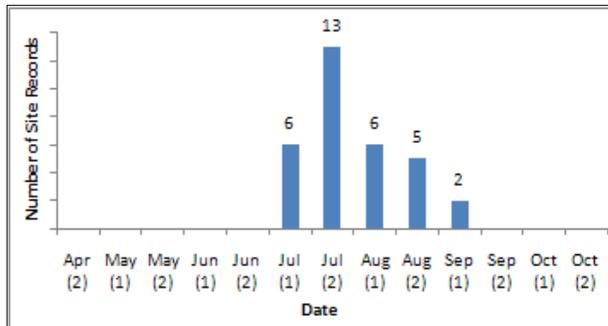
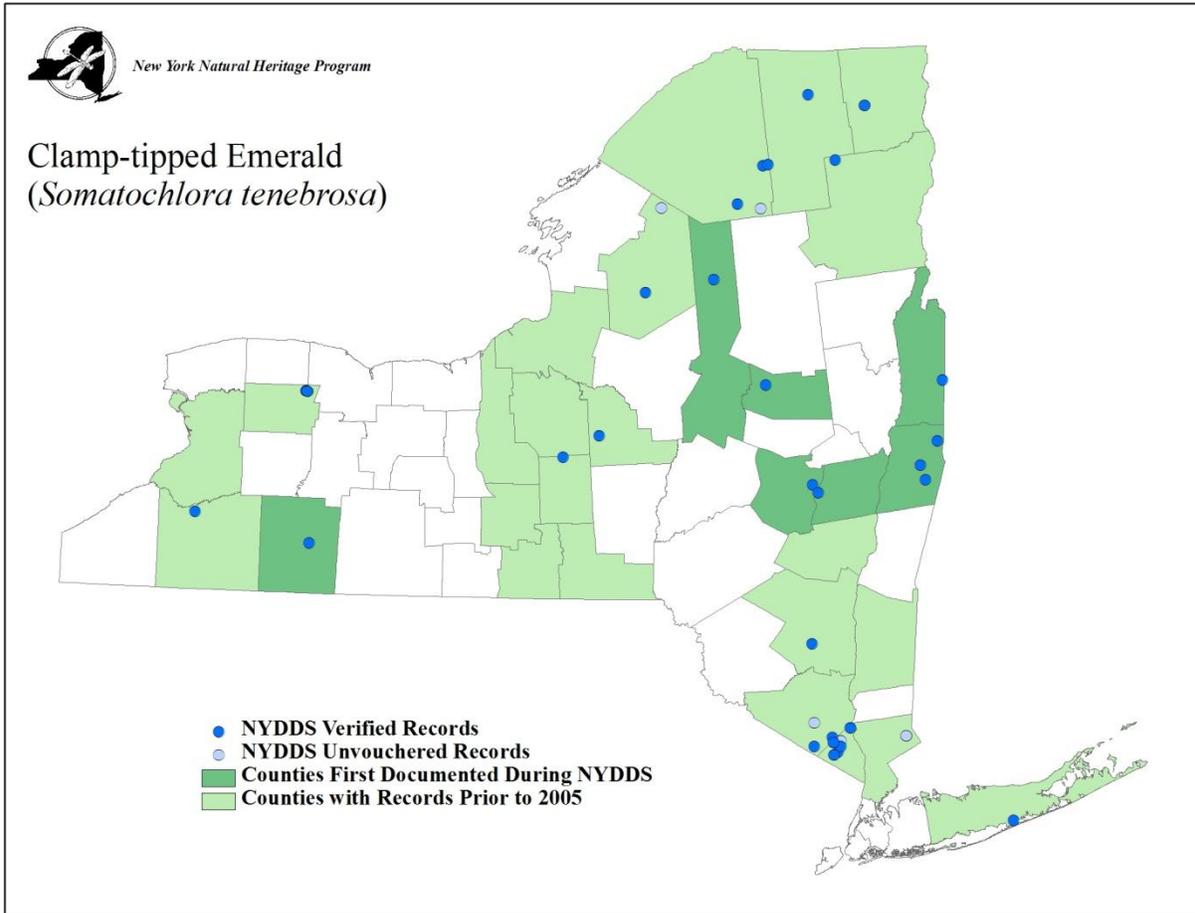
Ocellated Emerald (*Somatochlora minor*)



CORDULIIDAE

Clamp-tipped Emerald (*Somatochlora tenebrosa*)

Pre-NYDDS Status: G5, S5



(Donnelly 2004b)

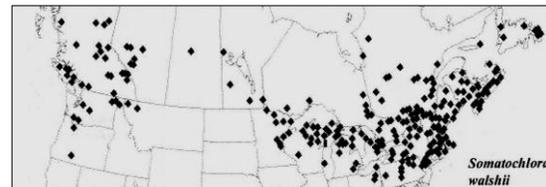
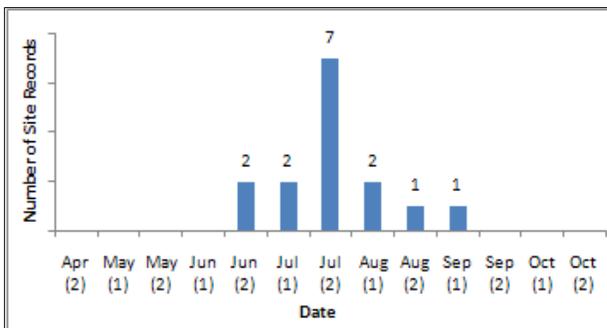
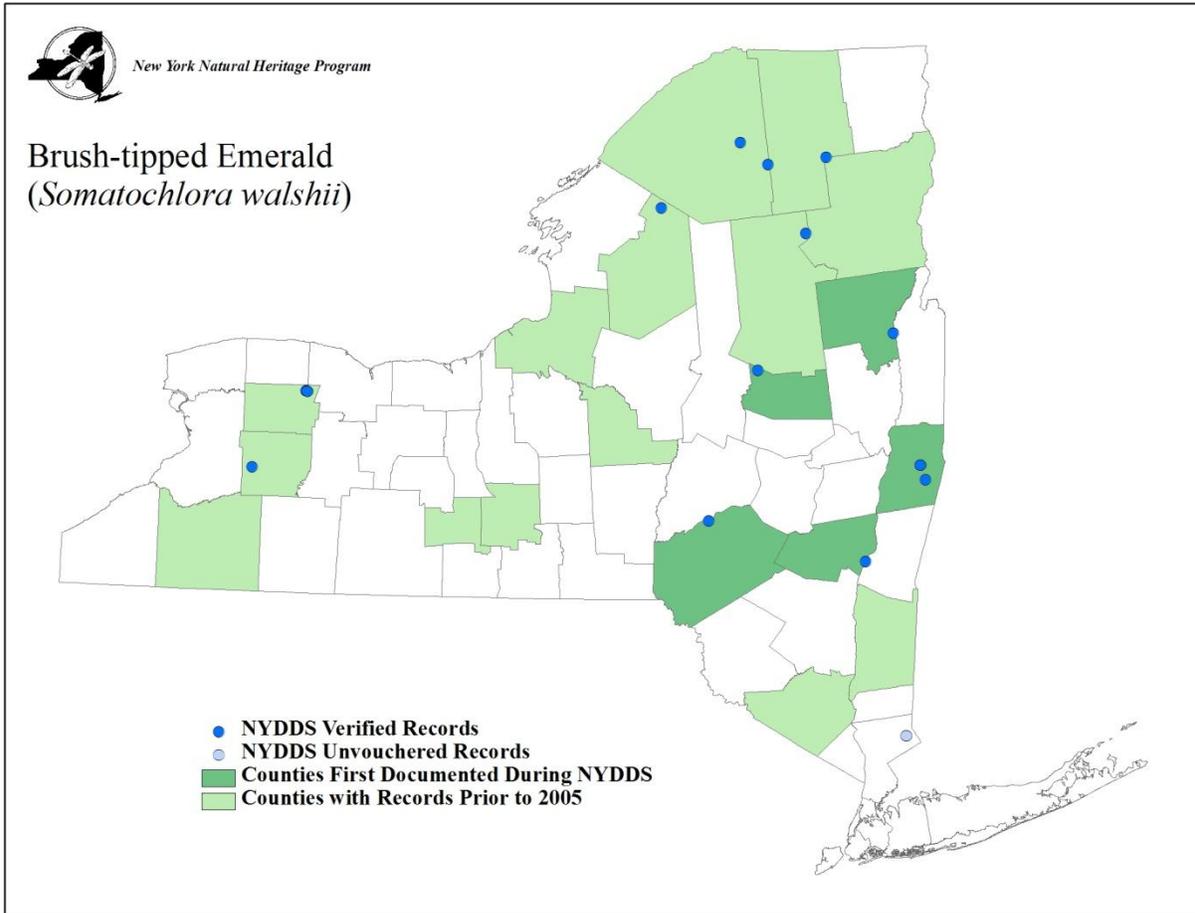


CORDULIIDAE

Brush-tipped Emerald (*Somatochlora walshii*)

Pre-NYDDS Status: G5, S3

Draft Revised Status: S3



(Donnelly 2004b)

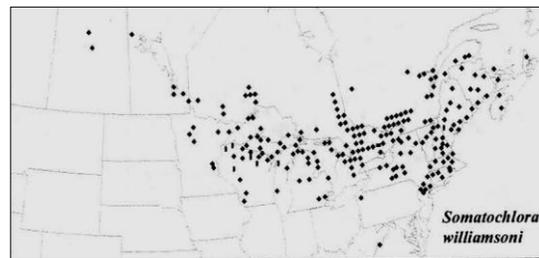
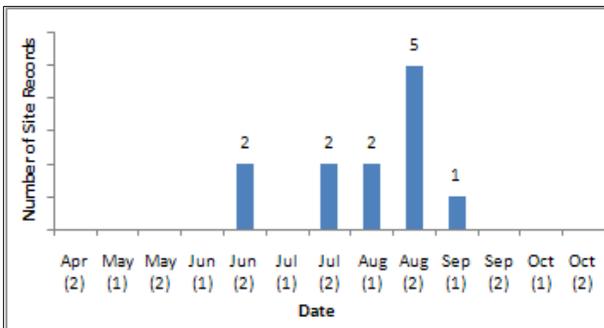
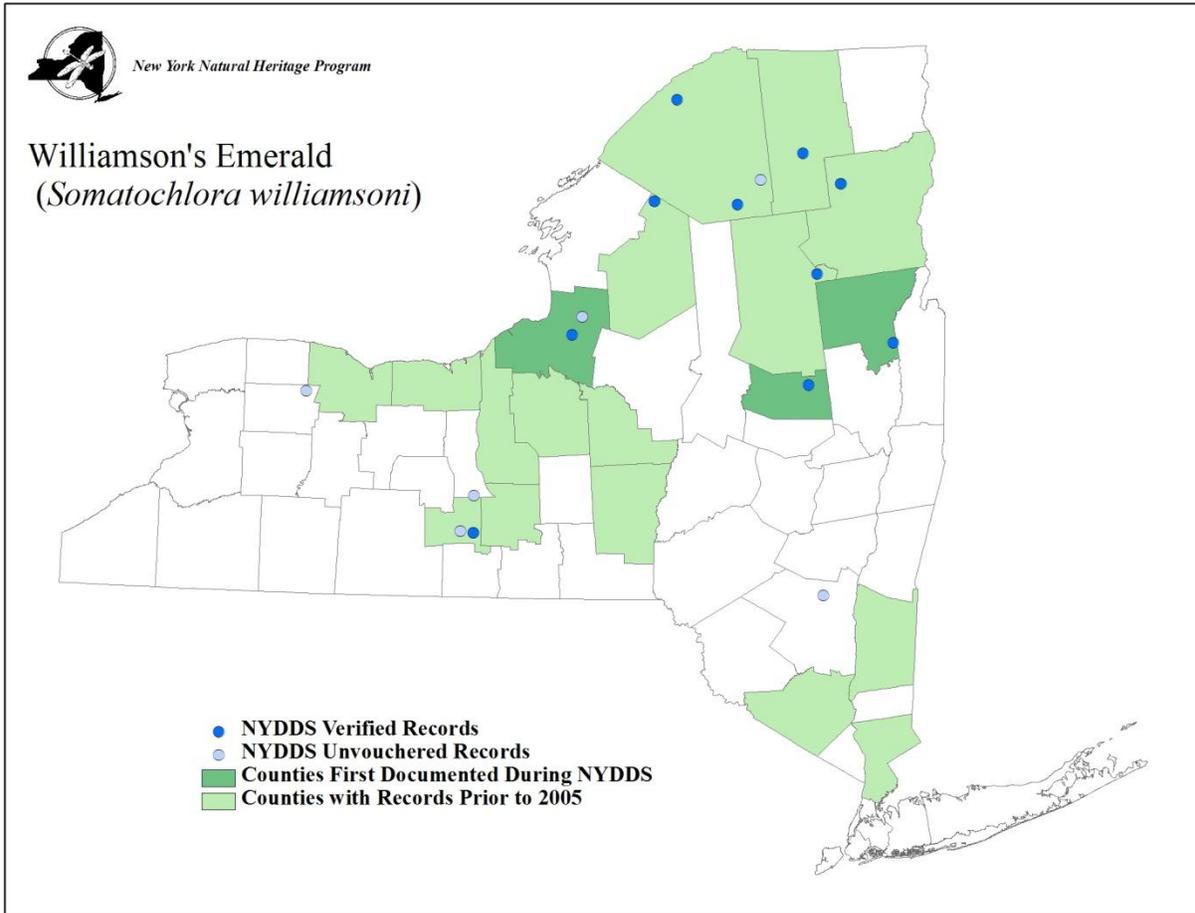


CORDULIIDAE

Williamson's Emerald (*Somatochlora williamsoni*)

Pre-NYDDS Status: G5, S3S4

Draft Revised Status: S3S4



(Donnelly 2004b)



CORDULIIDAE

Ebony Boghaunter (*Williamsonia fletcheri*)

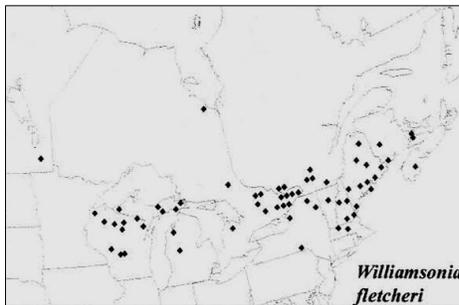
Pre-NYDDS Status: G4, S1

Draft Revised Status: S1

Habitat Characteristics: Habitats where Ebony Boghaunters are found include sphagnum bogs, fens, and swamps with open pools near woodlands (Nikula *et al.* 2003), often with soupy sphagnum pools (Massachusetts NHESP 2003). While the larvae live in these wet areas, the nearby woodland component appears essential for adult behaviors such as hunting, roosting, and mating (Charlton 1985, Massachusetts NHESP 2003). It is often found in the same locations as *W. lintneri* in other states and provinces, but there are no known extant populations of *W. lintneri* in New York (Wisconsin Odonata Survey 2009, New York Natural Heritage Program 2010). Larvae of *W. fletcheri* develop in small, open pools of water within bogs/fens or sphagnum mats (U.S. Forest Service 2010) that are often connected by ditches of standing, or slightly flowing, water (Hutchinson & Ménard 1999).



Denis A. Doucet 2009



(Donnelly 2004d)

Distribution and Inventory Needs: A North American species, *Williamsonia fletcheri* is found in the Canadian provinces of Manitoba, Ontario, Quebec, New Brunswick, and Nova Scotia (Charlton 1985, Abbott 2010). In the United States, it is known from Wisconsin, Michigan, New York, Vermont, New Hampshire, Massachusetts, and Maine (Donnelly 2004d, Abbott 2010). In New York, a 1947 records exists from Chenango Valley State Park in Broome county; this record has not been relocated despite efforts by many

odonatologists (Donnelly 1999). There are currently four extant locations in the state. Heron Marsh in Franklin county and Perch River Swamp in Jefferson county were documented in the 1990s (New York Natural Heritage Program 2010). New locations during the NYDDS include a marsh on the Raquette River in Franklin County and a bog near Oseetah Lake also in Franklin County. Other appropriate habitats in northern New York should be searched in May and June to try to document new locations for this species. Mead (2003) notes that populations tend to be very small and susceptible to local extinction, so known populations should be monitored in the future and threats to the habitat should be assessed.

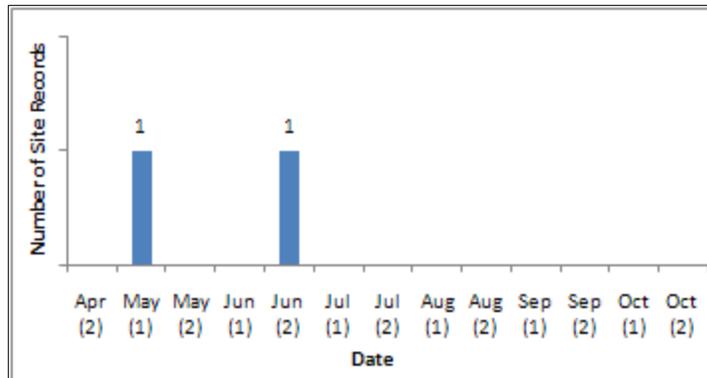
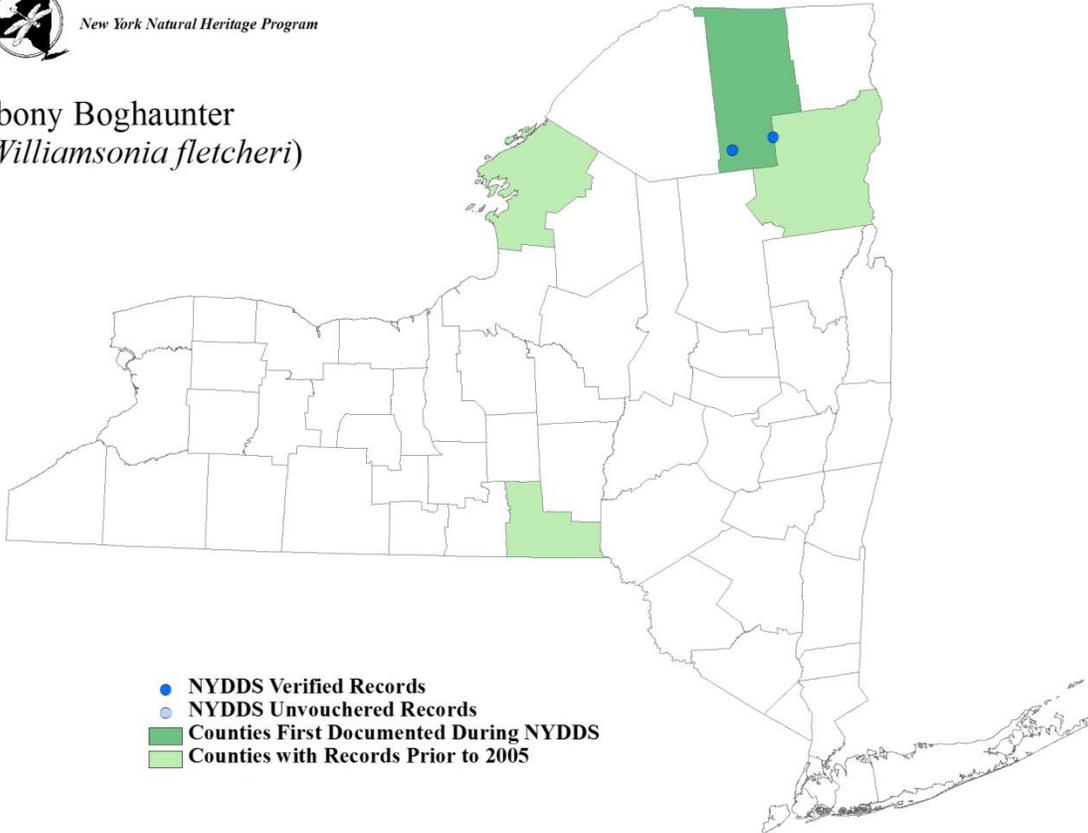
Phenology: There were two new location records during the NYDDS for *W. fletcheri*, one adult from May 11 and another from June 23. The flight season is from early May through early July in Wisconsin and Maine (Brunelle & deMaynadier 2005, Wisconsin Odonata Survey 2009), and May and June in Massachusetts (Massachusetts NHESP 2003). The flight season appears to be very early and brief compared to most dragonflies. This is one reason why they are infrequently encountered by surveyors in addition to their rarity and elusive behavior (Charlton & Cannings 1993).





New York Natural Heritage Program

Ebony Boghaunter (*Williamsonia fletcheri*)



CORDULIIDAE

Ringed Boghaunter (*Williamsonia lintneri*)

Pre-NYDDS Status: G3, SH

Draft Revised Status: SH

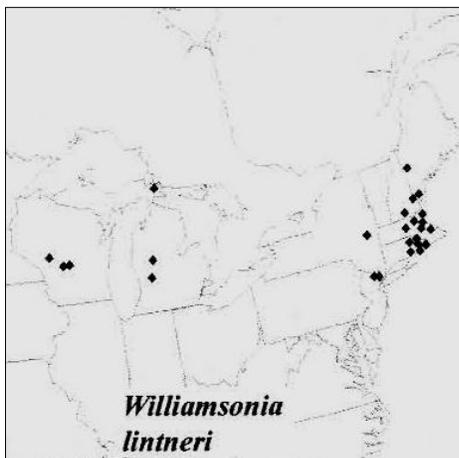
Habitat Characteristics: Throughout their range, Ringed Boghaunters are known to occur in acidic sedge fens and sphagnum bogs that contain “soupy” sphagnum pools and are surrounded by wooded uplands (Massachusetts NHESP 2003e). Habitat analysis for New England revealed that *W. lintneri* sites fall into two main types of



Tom Murray

peatlands, each containing an aquatic form of sphagnum: acidic shrub fens (dominated by Leatherleaf (*Chamaedaphne calyculata*) and Water Willow (*Decodon verticillatus*)) and acidic sedge or graminoid fens (dominated by Three-way Sedge (*Dulichium arundinaceum*) and/or various other sedges (*Carex* sp.) (Lundgren 1999). Other plants that have been noted to co-occur with *W. lintneri* include Highbush Blueberry (*Vaccinium corymbosum*) and Sheep Laurel (*Kalmia angustifolia*) (Massachusetts NHESP 2003d). The sizes of wetlands where *W. lintneri* is known to breed vary from less than one acre to hundreds of acres (Lundgren 1999). Many breeding locations are surrounded by Atlantic White Cedar (*Chamaecyparis thyoides*) in the southern portion of the species’ range, and by Black Spruce (*Picea mariana*) in the northern part of their range (Carpenter 1993).

The fen pools containing sphagnum (which is suspended in the water column or anchored and inundated) are the larval habitat, where exuviae are often found clinging to *Dulichium* stems after emergence in the spring (Biber 2002, Brown 2007c). Biber (2002) found that *W. lintneri* sites had significantly less developed upland habitats and deeper water levels in the fens, allowing standing water at least two weeks longer than similar sites where the species is not known to occur. Biber (2002) suggested that having a two-month period between mating and fen dry-down may be critical to the development and survival of newly hatched larvae. Woodlands that surround appropriate fen habitat appear to be essential to the persistence of the species, as adults have been observed using these areas for resting and mating (Massachusetts NHESP 2003c). Odonate experts in Rhode Island have had success locating adults by walking slowly along wooded paths (near appropriate larval habitat) and observing them tree trunks in the sun and wooded paths and roads (Carpenter 1993).



(Donnelly 2004d)

Distribution and Inventory Needs: *Williamsonia*

lintneri is known from Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New Jersey, Wisconsin, Michigan, and historically, from New York (Donnelly 1999, Biber 2002). Specimens were collected on May 21 and May 27, 1874 in Karner, NY at “a sandy pine woods region”, which is now Colonie in the Albany area (Howe Jr 1923, Donnelly 1999). There have not been confirmed sightings of this species in New York since then (Donnelly 1999, New York Natural Heritage Program 2010). Experts searched for the species in appropriate habitats in southern New York in 1997 due



to the proximity to the northern New Jersey site, and at the historical location around the Albany Pine Bush Preserve in 1998, but none were found (Soltesz 1997, Novak & Gifford 1998). Surveyors note that these potential *W. lintneri* habitats are fragile and susceptible to trampling, suggesting caution if repeated visits to sites are made (Novak & Gifford 1998, Brown 2007c). During the NYDDS, we devoted a significant effort, especially in the spring 2006 to 2008, toward searching for this species and potential habitats in New York. NYDDS participants visited locations in Albany, Columbia, Rensselaer, Oneida, Oswego and Franklin counties to assess habitats for their suitability for harboring *W. lintneri* populations. Excellent potential habitat was assessed in Rome and Grafton, NY, but no Ringed Boghaunters were documented, despite repeat visits to these areas. Many have not given up the quest in New York and dedicated odonate enthusiasts will continue to look for potential habitats in the future for this rare dragonfly that has been recommended for listing as federally endangered (Carpenter 1993). To read more about the special effort for this species, see page 294.

Phenology: Originally collected on May 21 and 27 in 1874 in New York and it has not been seen in the state since (Donnelly 1999). It was collected from New Jersey on May 9, 1993 (Soltesz 1997). They have a brief and early flight season. Maine adult sightings are from early May through mid-June and in Rhode Island the third week of April (Carpenter 1993, Brunelle & deMaynadier 2005).

