

Species Accounts, Distributional Maps, and Phenology Charts

We extracted spatial data from the NYDDS database and compiled them using ArcGIS 9.3 mapping software to view survey locations of species observations. We completed a map for each species ever detected in New York (with the exception of the Seepage Dancer [*Argia bipunctulata*], since county specific information was not known).



Banded Pennant (*Celithemis fasciata*), by Alan W. Wells 2008

Each species map includes counties shaded in light green, which represent those New York counties with records prior to 2005. This information was obtained from Donnelly's 2004 list of odonate species by county, compiled as part of his dot map project described earlier (Donnelly 2004a, Abbott 2010). In those very few cases where the specific county was unknown, but New York City was noted for older records in the Donnelly 1999 list, New York county was chosen to represent that record. Donnelly's dot maps were included in this section as a reference for the entire species' ranges as well as a reference for the known distributions right before the project began (Donnelly 2004b,c,d).

Every effort was made to determine precise coordinates for locations of NYDDS surveys completed, represented as dots on the species maps. Occasionally, coordinates represented approximate locations if the information on a survey form was vague. Dark blue dots represent "NYDDS Verified Records" and refer to all records that met the criteria outlined in the Odonate List for Volunteers (Appendix I); these were either species that were accepted by observation only, or submitted vouchers that were verified to the species level (White 2007). Any records that could not be confirmed to the species level following the protocol were not included in the species or county lists. There were a number of records submitted to the project that did not meet the criteria in Appendix I. Many of these were observational records for species which NYDDS required a voucher for confirmation, but because of the difficulty of capturing these insects, even for the most experienced surveyor, a voucher simply was not always possible. These records are indicated by a light blue dot on the species maps and labeled as "NYDDS Unvouchered Records," although they may represent vouchered records that were not able to be confirmed by experts due to various reasons, like a photo of a determining character was not taken or the species was teneral (newly emerged) and difficult to identify. These records may either indicate possible or probable locations for species occurrences, and would be excellent places for future study. New county records were determined by recognizing counties with records in the "verified" category that did not overlap pre-NYDDS confirmed county data. These were highlighted with dark green shading with the following designation: "Counties first documented during NYDDS." The same legend appears on each NYDDS map, but the map may or may not contain each of the features in the legend, if that information was not available. For instance, there are no light blue dots for Ebony Jewelwing (*Calopteryx maculata*), as this is a species we accept by observation only, thus all records were verified (dark blue dots). Similarly, as there were no NYDDS records for Subarctic Bluet (*Coenagrion interrogatum*), only the light green pre-NYDDS county shading exists for that map. We were unable to confirm the presence of 15 Odonata previously documented in New York by Donnelly 2004a): Four damselflies (*Calopteryx angustipennis*, *C. dimidiata*, *Coenagrion interrogatum*, *Ischnura prognata*); four Gomphids (*G.*



viridifrons, *Ophiogomphus colubrinus*, *Stylurus amnicola*, *S. notatus*); three emeralds (*Somatochlora albicincta*, *S. kennedyi*, *Williamsonia lintneri*); and four Libellulids (*Erythrodiplax minuscula*, *Sympetrum corruptum*, *Tramea abdominalis*, *T. calverti*). Two other species were recorded as slightly uncertain, but probable during the NYDDS, *Libellula flavida* (see page 254) and *Gomphus septima* (see page 146). For more discussion on this, see the Conservation and Monitoring section (page 299).

NYNHP generated phenology charts for every species that had verified records during the NYDDS. Flight season data are displayed in half-month increments, with the first three letters of the month on the x-axis followed by a number “1,” for the first half of the month, or a “2,” for the second half. The number of site records is displayed on the y-axis and a site refers to a unique survey, which may include the same site visited a number of times. This is not the number of individuals observed at a single site; rather, the number of records (one per survey site visit form) observed in a given half-month increment across all surveys completed during that time-frame. For instance, if Canada Darner (*Aeshna canadensis*) had 29 site records in the second half of August, that species was confirmed on 29 separate survey site visits during that time frame.

For the purposes of obtaining data for adult flight seasons in New York, larval records (35 verified) were excluded. That said, there were many cases where larvae were sampled in early spring for tank-rearing to adult form in indoor aquaria. In general, tank-reared adults emerge earlier than those in the wild, perhaps due to increased water temperature in a tank environment. Any dates that seem early for a species, especially in the first part of May for some of the *Gomphus* spp., should be compared with field guides and other literature for the northeastern United States, adjacent states or Donnelly’s *The Dragonflies and Damselflies of New York* (Donnelly 1999). This is addressed in the narratives of species accounts for some of the SGCNs, but other species do not have a narrative accompaniment.



Dragonhunter (*Hagenius brevistylus*) larva, by Stephen Diehl and Vici Zaremba 2009

Confirmed exuviae that were identified to species level were included in flight season analysis, as they would generally represent timing from emergence of the adults. While exuviae can still be found late in the season, potentially even after an odonate’s flight season has concluded, this is usually not the case, as they are generally found mostly within a one- or two-week period after emergence (Lubertazzi & Ginsberg 2009).

Please refer to the maps above for county boundaries and names (Figure 7), ecoregional boundaries (Figure 9), and survey site locations (Figure 3) to provide context for viewing the species maps in the next section, as this may aid in their interpretation.

The species maps and charts are organized below taxonomically by family, and then alphabetically within family. Species accounts are included in this section for New York’s SGCN. A list of all odonate SGCN can be found in Appendix I and Table 5 as bolded species. Species accounts include status, habitat description, distribution, inventory needs, and phenology information. For some of the accounts, future survey site suggestions were determined by using Element Distribution Models (EDMs) generated by NYNHP. Element Distribution Models map places with environmental conditions similar to known species’ locations by statistically evaluating the relationship between occupied sites and a suite of environmental factors (Guisan & Zimmerman 2000). While not guaranteeing occupancy in these new locations, EDMs can help



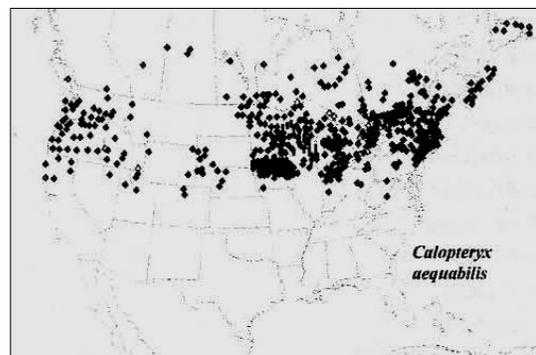
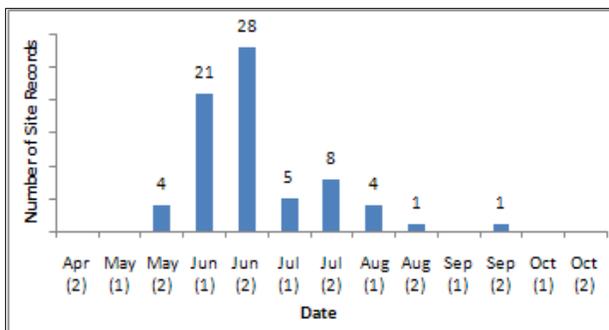
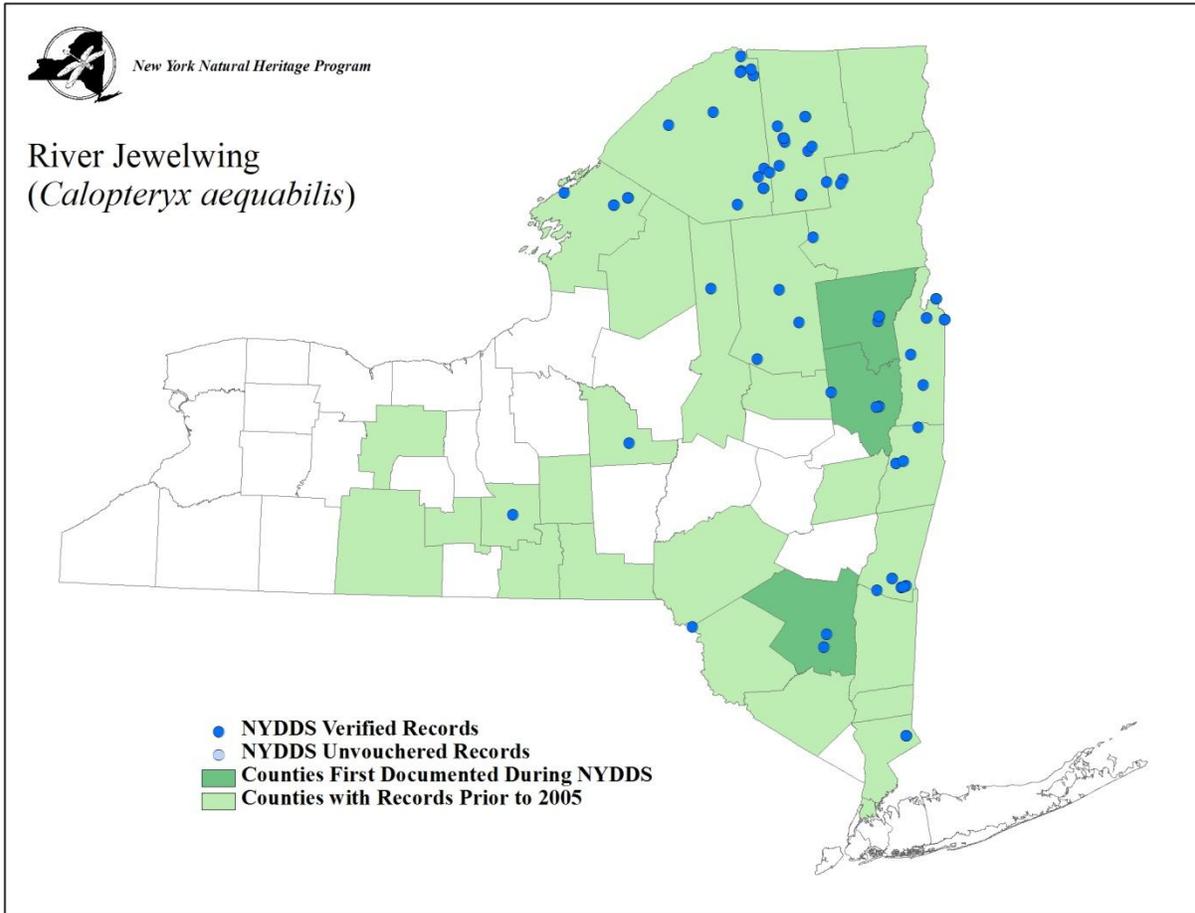
prioritize field inventory, and indeed, such models have been shown to significantly improve rare species discovery success rates in the past (e.g., Guisan et al. 2006).



CALOPTERYGIDAE

River Jewelwing (*Calopteryx aequabilis*)

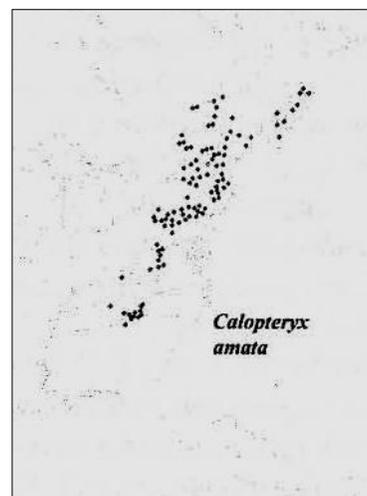
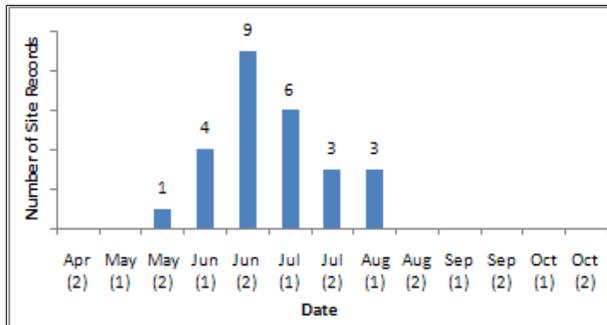
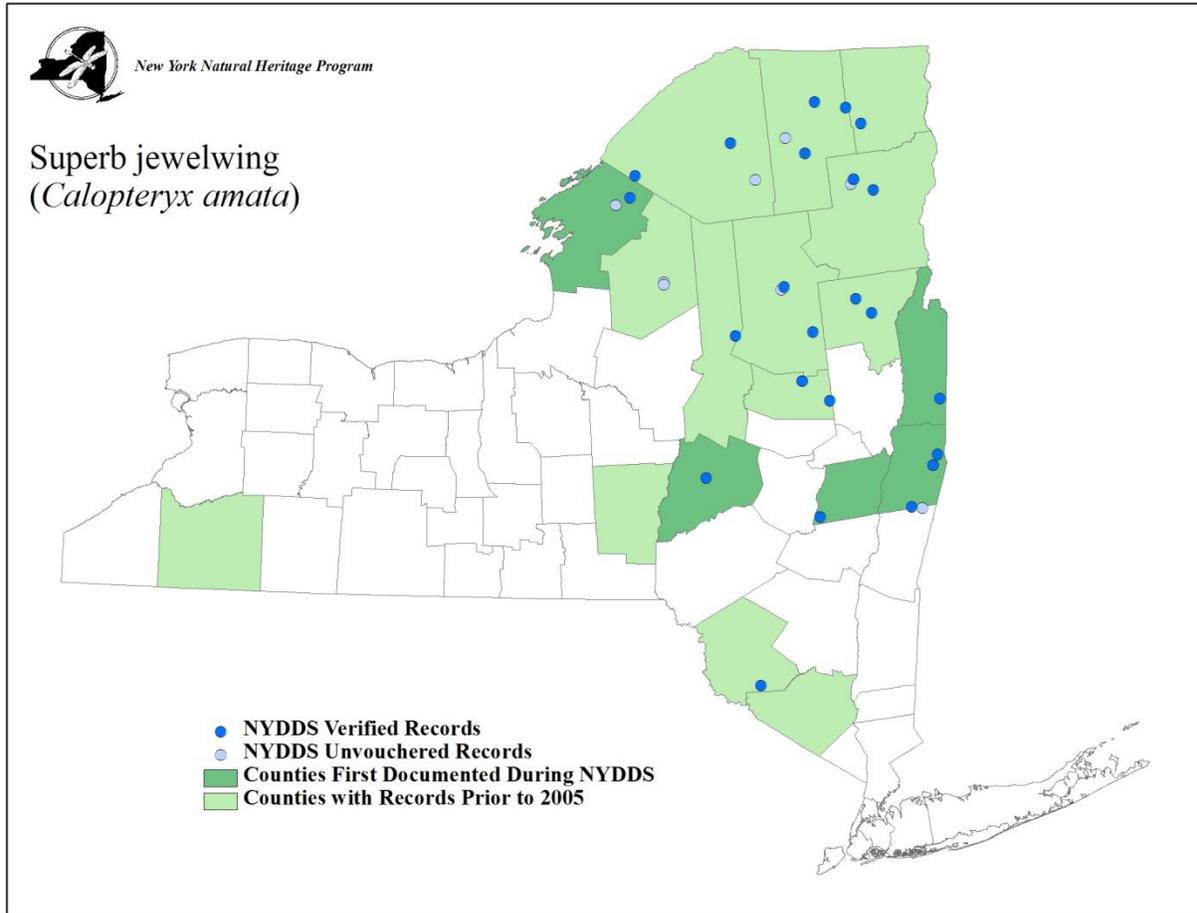
Pre-NYDDS Status: G5, S3S4



(Donnelly 2004b)



CALOPTERYGIDAE
Superb Jewelwing (*Calopteryx amata*)
Pre-NYDDS Status: G4, S3
Draft Revised Status: S3



(Donnelly 2004b)



CALOPTERYGIDAE

Appalachian Jewelwing (*Calopteryx angustipennis*)

Pre-NYDDS Status: G4, SH

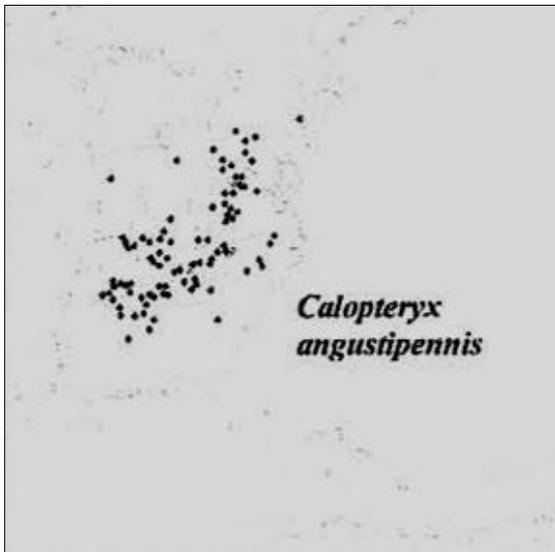
Draft Revised Status: SH

Habitat Characteristics: *Calopteryx angustipennis* is known to inhabit small rivers or large streams, preferring riffle areas and rapids in other states (Lam 2004), but the habitat in New York is unknown.



Blair Nikula

Distribution and Inventory Needs: The Appalachian Jewelwing ranges from Alabama northward to Indiana and eastward to the Atlantic coast of the U.S. (Donnelly 2004b), but has not been confirmed in New York since the early 1900s. There is one confirmed record from Rockland County, NY from “Ramapo” circa 1910 (Donnelly 1999).



(Donnelly 2004b)

Searches both on the Ramapo River in southeastern New York and on the Mahwah River in the town of Ramapo were completed by NYDDS volunteers; however, the species was not documented. There is an additional possible record from 1931 from Allegany State Park in Cattaraugus County, but the identification may have been confused with *Calopteryx amata* and was not confirmed (Donnelly 1999). Further inventory is warranted on small rivers in the southeastern portion of the state as well as Allegany State Park to assess the current status of the species in New York.

Phenology: The single confirmed specimen in New York was an adult taken in June (Donnelly 1999). Ohio survey records indicate mid-June as the prime flight season (The Ohio Odonata

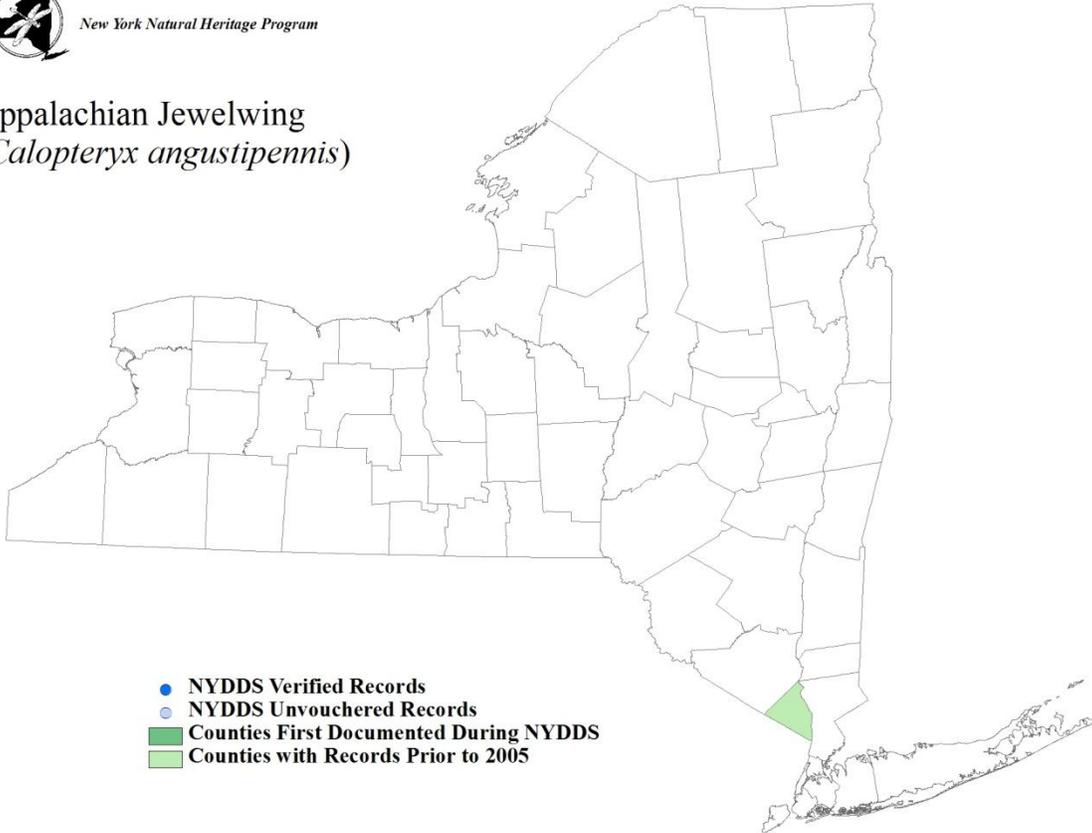
Society 2000), while mid-May through mid-July is the known flight window in Virginia (Lam 2004).





New York Natural Heritage Program

Appalachian Jewelwing (*Calopteryx angustipennis*)



CALOPTERYGIDAE

Sparkling Jewelwing (*Calopteryx dimidiata*)

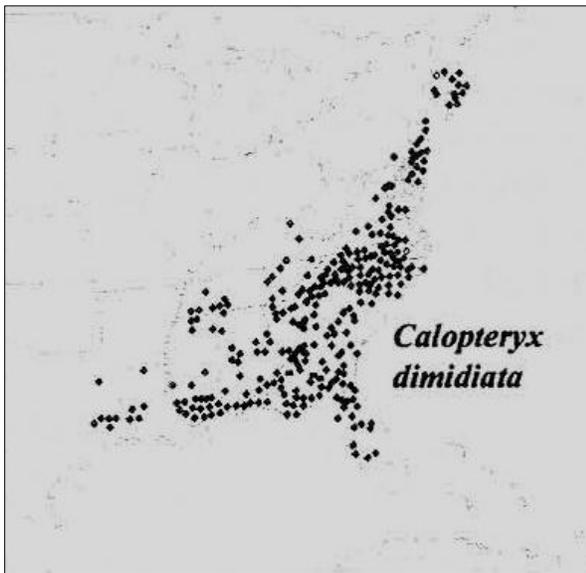
Pre-NYDDS Status: G5, SH

Draft Revised Status: SH

Habitat Characteristics: The habitat is unknown for Sparkling Jewelwing in New York, but in other northeastern states it includes sandy-bottomed and slow-flowing streams and rivers along the coastal plain (Lam 2004) with stands of eelgrass (Bangma & Barlow 2010) or other emergent vegetation (Nikula *et al.* 2003).



Blair Nikula



(Donnelly 2004b)

Distribution and Inventory Needs: This southern species ranges in the U.S. from Texas eastward to the Atlantic coast and northward to southern New Hampshire (Donnelly 2004b, Abbott 2010). *C. dimidiata* is ranked SH (state historical) in both Pennsylvania and New York (NatureServe 2009b). There are two confirmed records for New York without specific location or habitat information, one from Westchester county in 1973 and one from New York City in 1928 (Donnelly 1999). While heavy survey effort during the NYDDS and prior to the NYDDS in this portion of the state did not yield verified records for this species, it has recently been documented in nearby New Jersey (Bangma & Barlow 2010) and other adjacent states along the coastal plain (Abbott 2010),

so an occurrence for New York is within the realm of possibility.

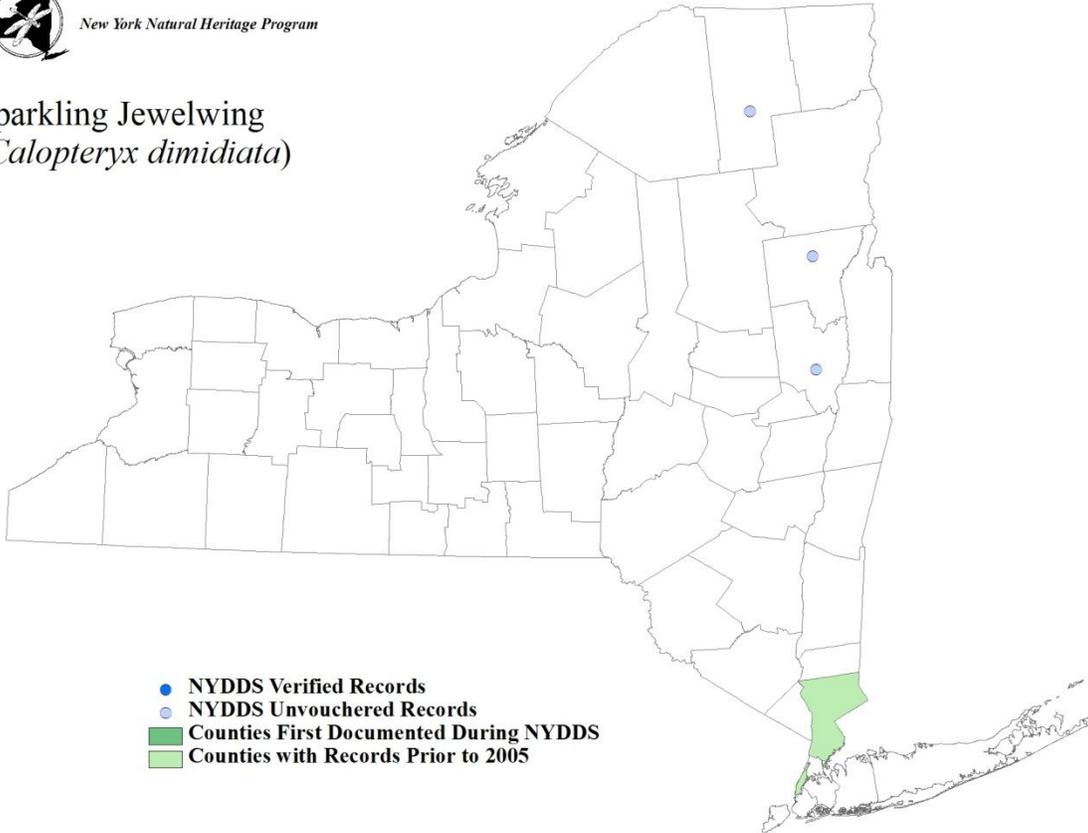
Phenology: *Calopteryx dimidiata* has been observed in flight from mid-May through mid-September in New Jersey (Bangma & Barlow 2010).



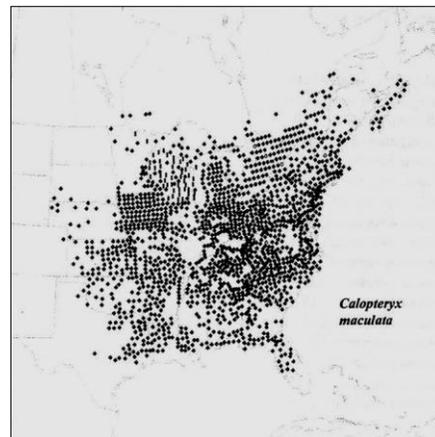
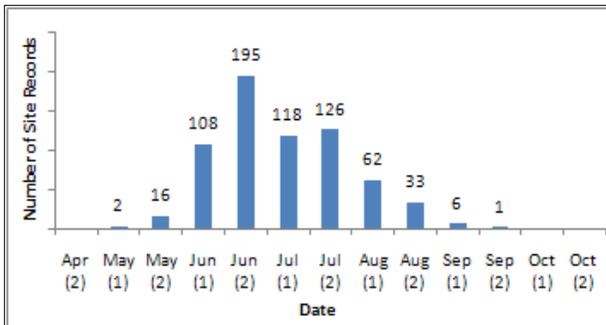
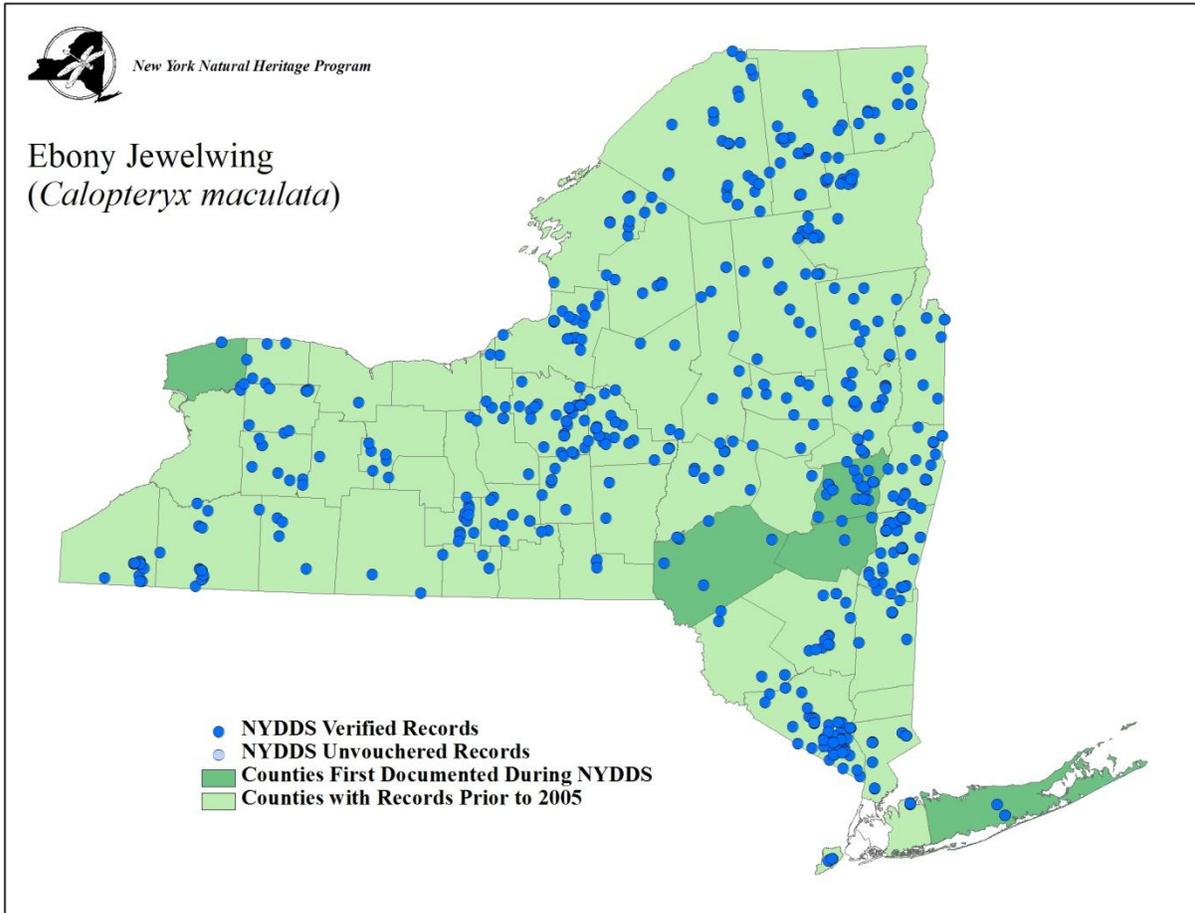


New York Natural Heritage Program

Sparkling Jewelwing (*Calopteryx dimidiata*)



CALOPTERYGIDAE
Ebony Jewelwing (*Calopteryx maculata*)
Pre-NYDDS Status: G5, S5



(Donnelly 2004b)



CALOPTERYGIDAE

American Rubyspot (*Hetaerina americana*)

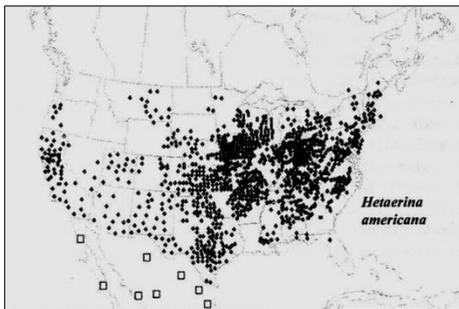
Pre-NYDDS Status: G5, S3

Draft Revised Status: S3

Habitat Characteristics: Throughout its wide range this species is a lotic habitat generalist. In New York it inhabits open, sunny, smaller to medium-sized creeks and small rivers, including rocky, swiftly-flowing streams with sandy bottoms in places. Other habitats for New York are more sluggish, muddy or silty creeks with well-vegetated banks. During the daytime, adults perch on and hunt from low vegetation along the banks and at night they form loose roosting aggregations (up to 65 individuals) on the side of the stream that receives early morning sun for thermoregulatory and anti-predator functions (Switzer & Grether 2000, Grether & Switzer 2000). Little is known of the larval habitat.



Meena Haribal 2009



(Donnelly 2004b)

Distribution and Inventory Needs: This species is widely distributed across the U.S. and Mexico, with the center of its distribution along the Oklahoma/Kansas border in the central/south mixed grasslands ecoregion. Johnson (1973) suggested that it was limited in its northern distribution by low temperature (although he did not indicate a mechanism), and this southern species does not range north of about 48 degrees north latitude. In New York, Rubyspots are near their northeastern range margin and have a disjunct distribution, being found primarily in

far eastern (upper Hudson and Lake Champlain watersheds) and western (Lake Erie, southwest lake Ontario watersheds) New York. In western New York, many of the creeks (i.e., Tonawanda, Cayuga, Cazenovia, Cattaraugus, Buffalo) draining into Lake Erie east and south of Buffalo support populations, as do some of those draining north into Lake Ontario through Niagara County (Johnson, Oak Orchard). Most of the eastern New York records were from tributaries of the Hudson River, and one from a tributary of Lake Champlain (New York Natural Heritage Program 2010).

The distribution in central New York is much spottier. Here, there were repeated observations at Fall Creek in Tompkins County and a roadkill report in Ontario County near Canandaigua Creek. Further survey effort is needed in central New York to determine whether this species ranges more or less continuously across the state. The current disjunct distribution strongly suggests post-glacial colonization via separate pathways (Beatty & Beatty 1968); a coastal route up the Hudson and Champlain Valleys and a Great Lakes route with a putative contact zone in central New York.

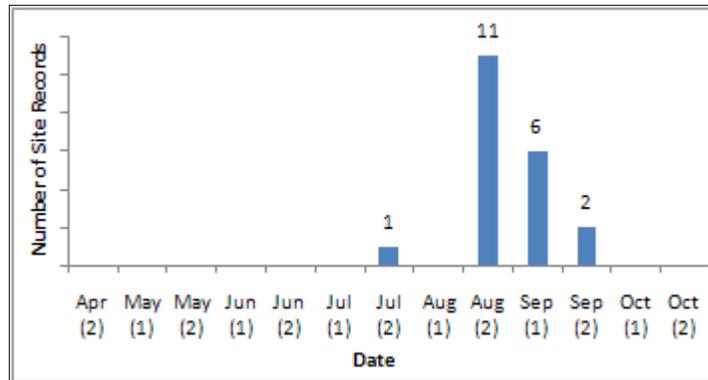
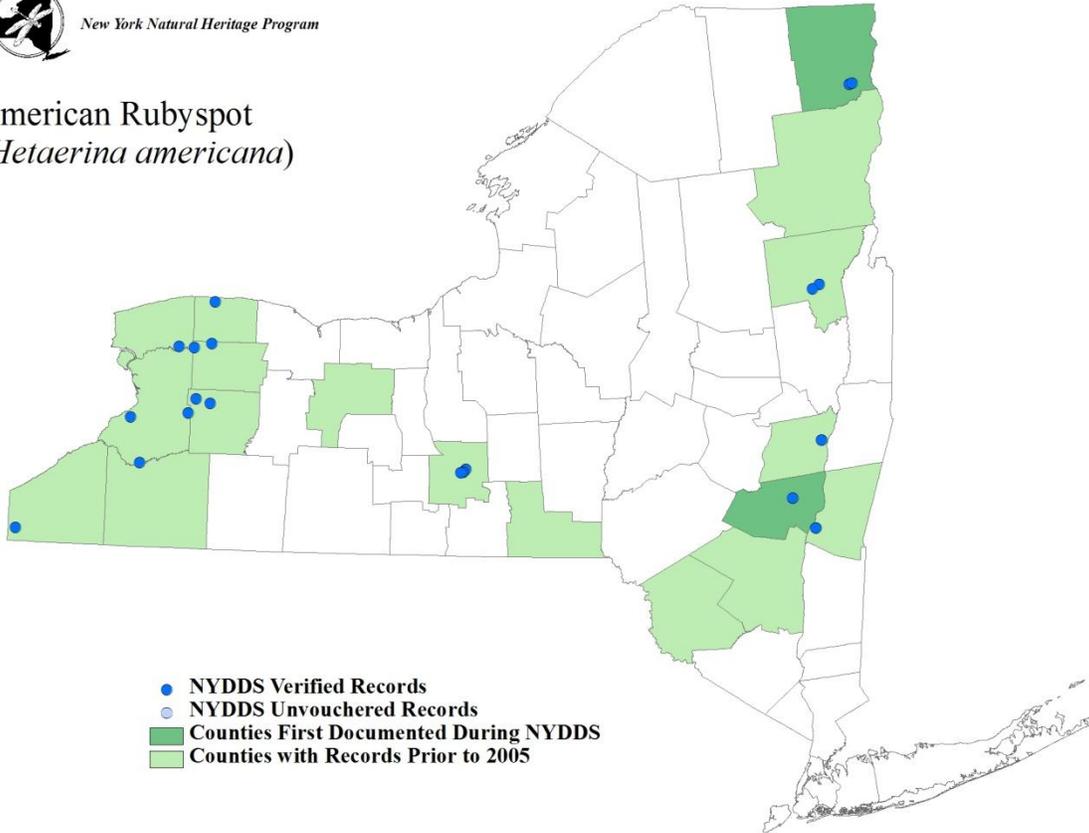
Phenology: This is a late-season damselfly, with about a five-week flight period from the very end of July to the first week of September, with most sightings coming in late August and early September in New York.





New York Natural Heritage Program

American Rubyspot (*Hetaerina americana*)

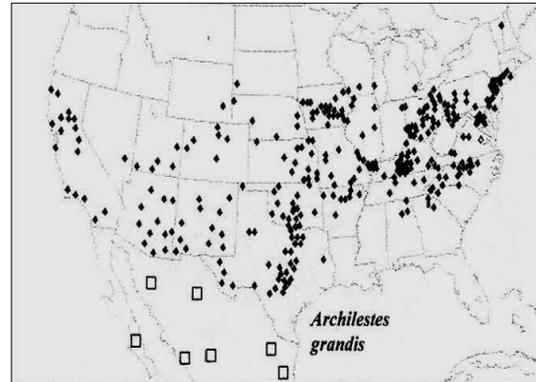
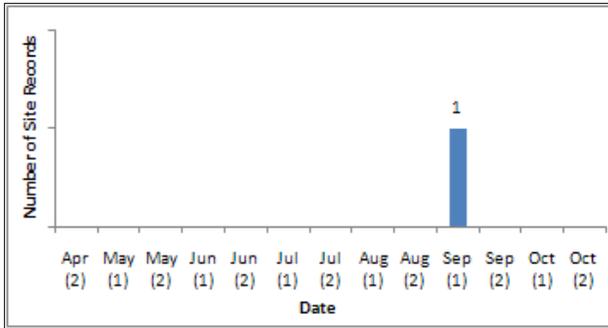
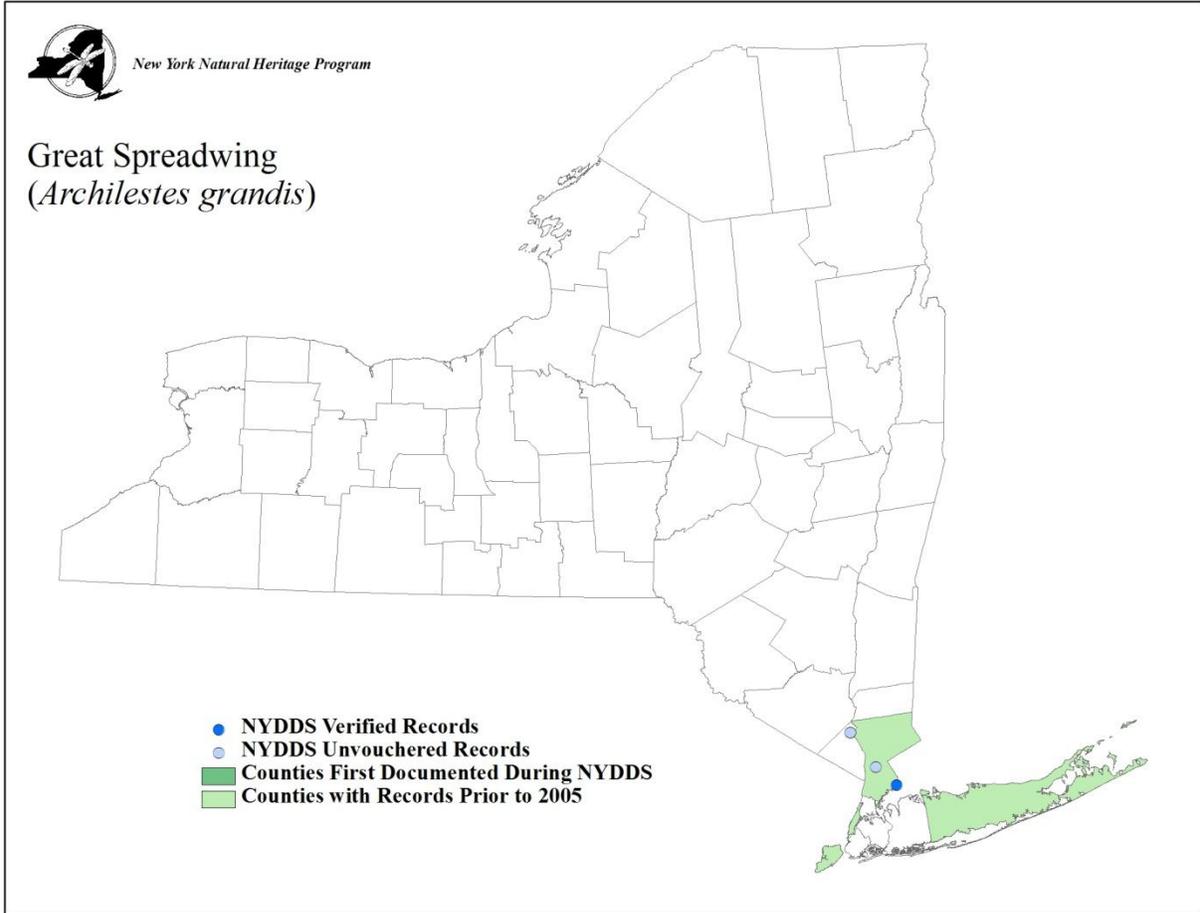


LESTIDAE

Great Spreadwing (*Archilestes grandis*)

Pre-NYDDS Status: G5, SNA

Draft Revised Status: S1



(Donnelly 2004b)

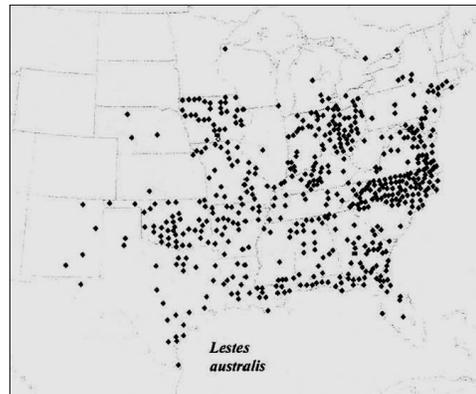
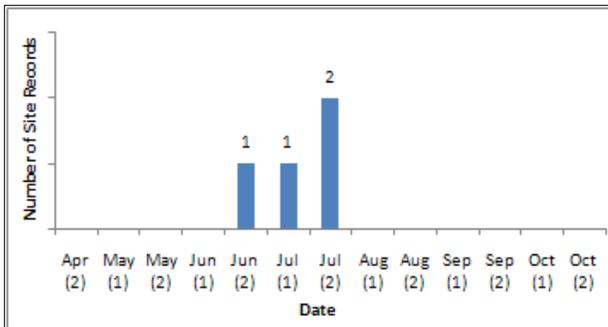
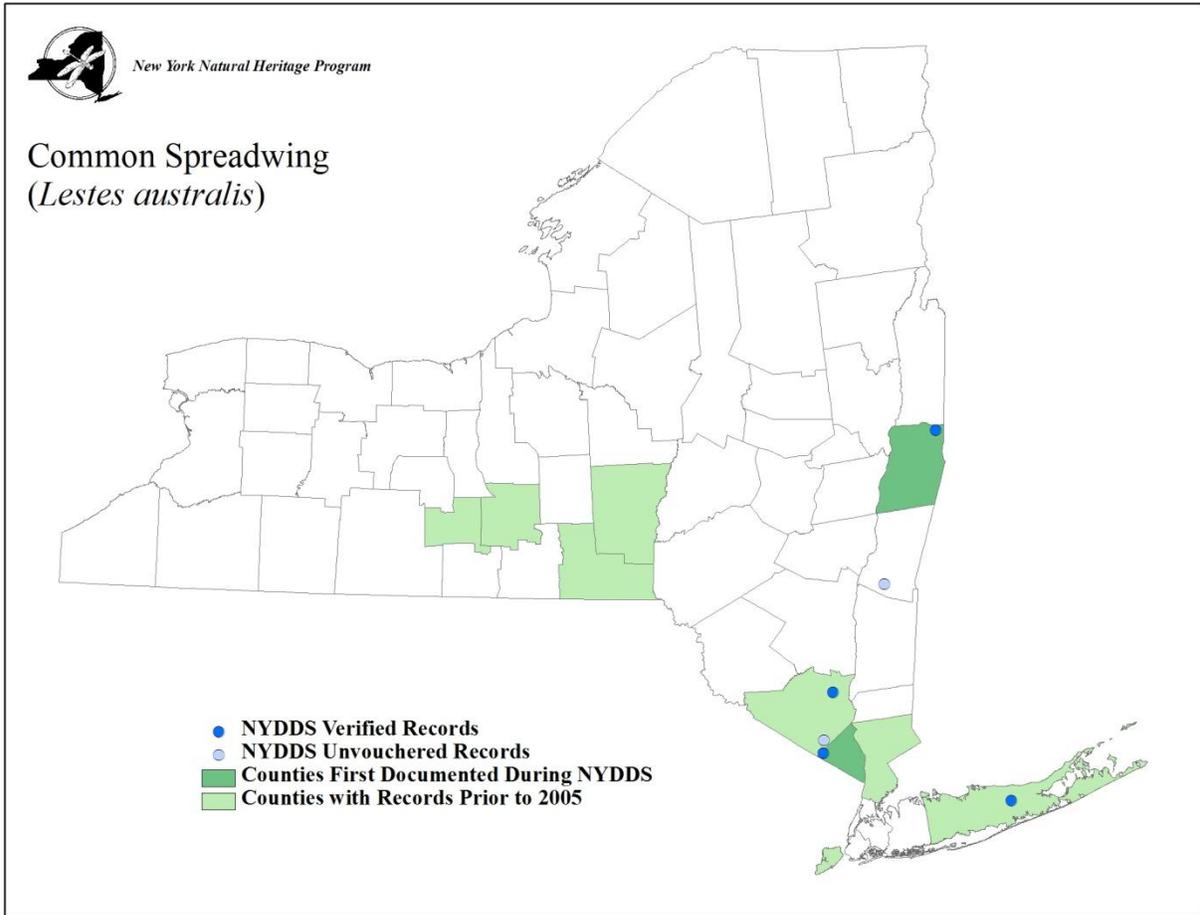


LESTIDAE

Southern Spreadwing (*Lestes australis*)

Pre-NYDDS Status: G5, S3S4

Draft Revised Status: S2S3



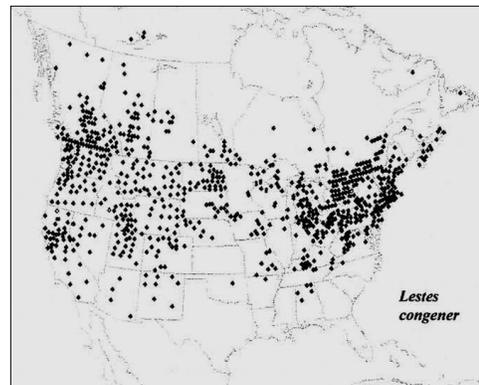
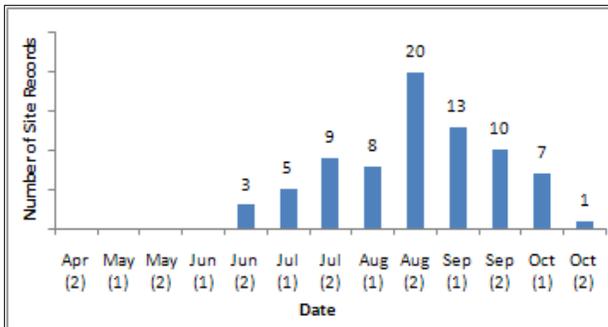
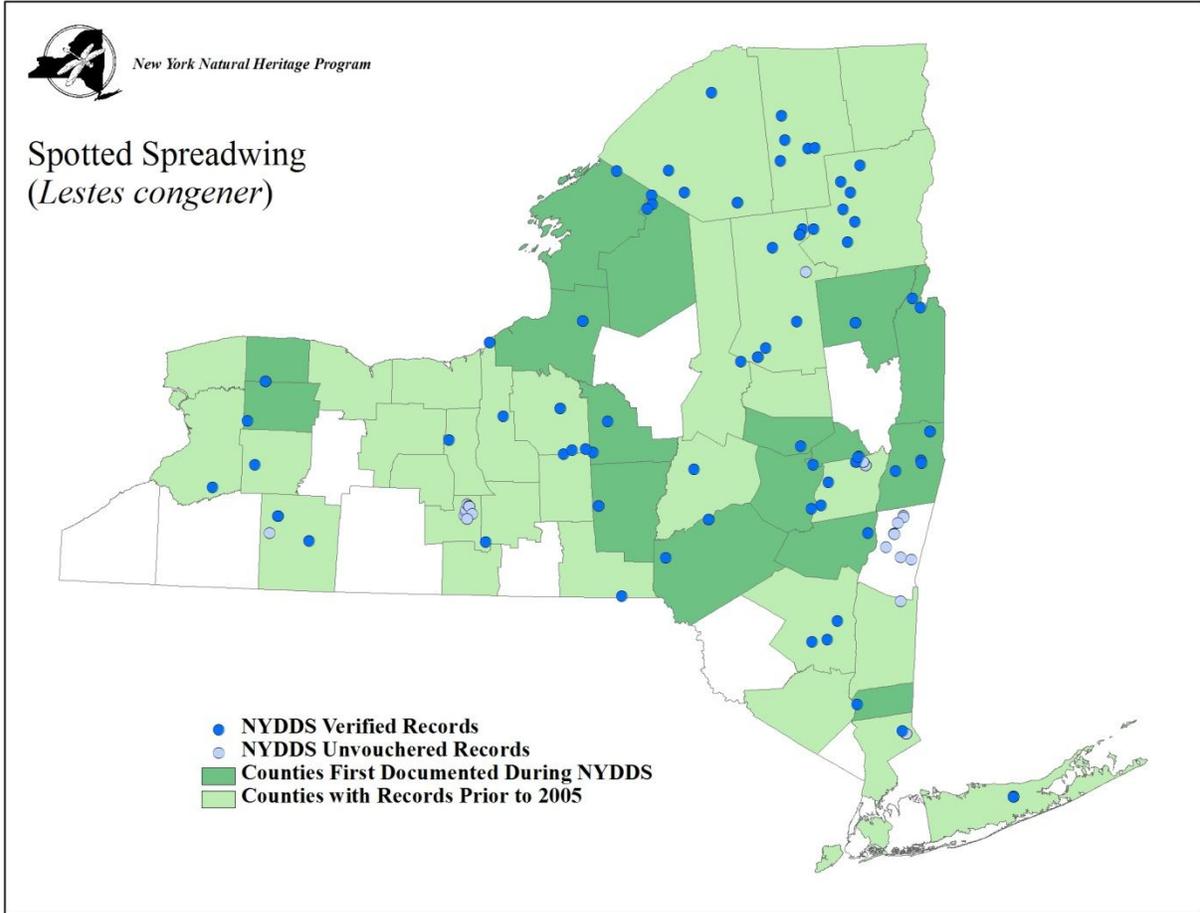
(Donnelly 2004b)



LESTIDAE

Spotted Spreadwing (*Lestes congener*)

Pre-NYDDS Status: G5, S5



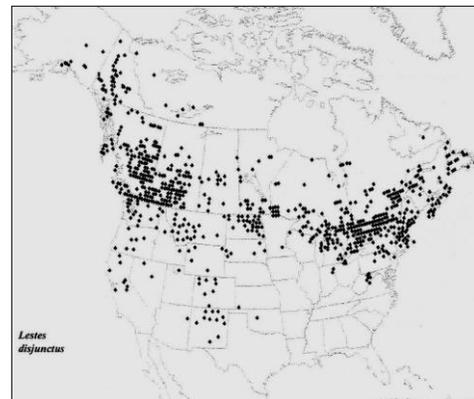
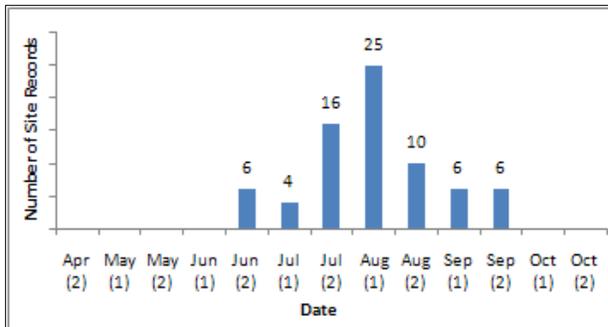
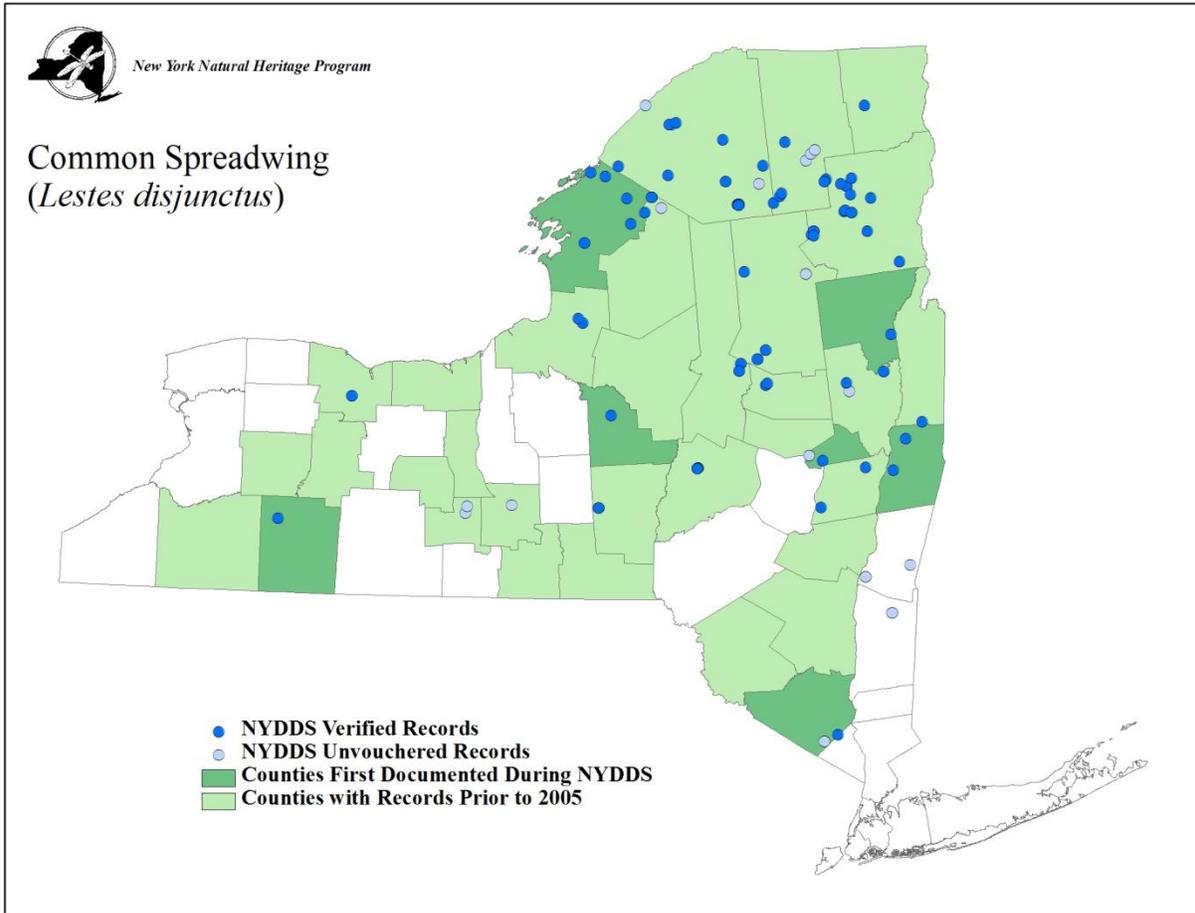
(Donnelly 2004b)



LESTIDAE

Common Spreadwing (*Lestes disjunctus*)

Pre-NYDDS Status: G5, S5



(Donnelly 2004b)

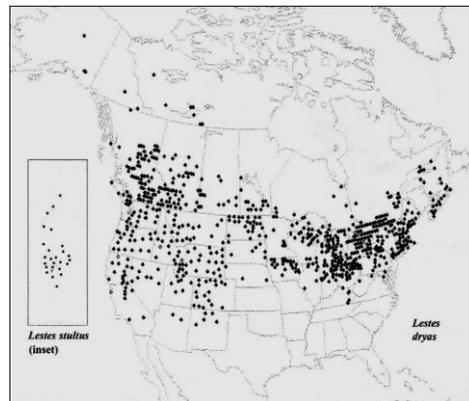
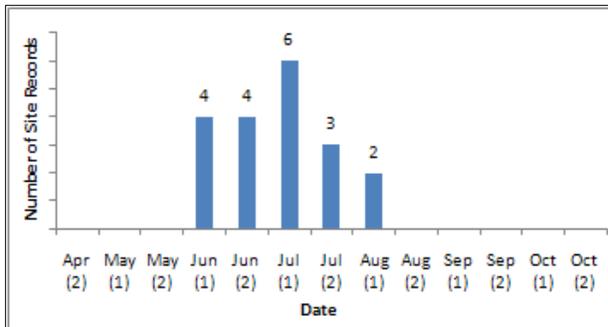
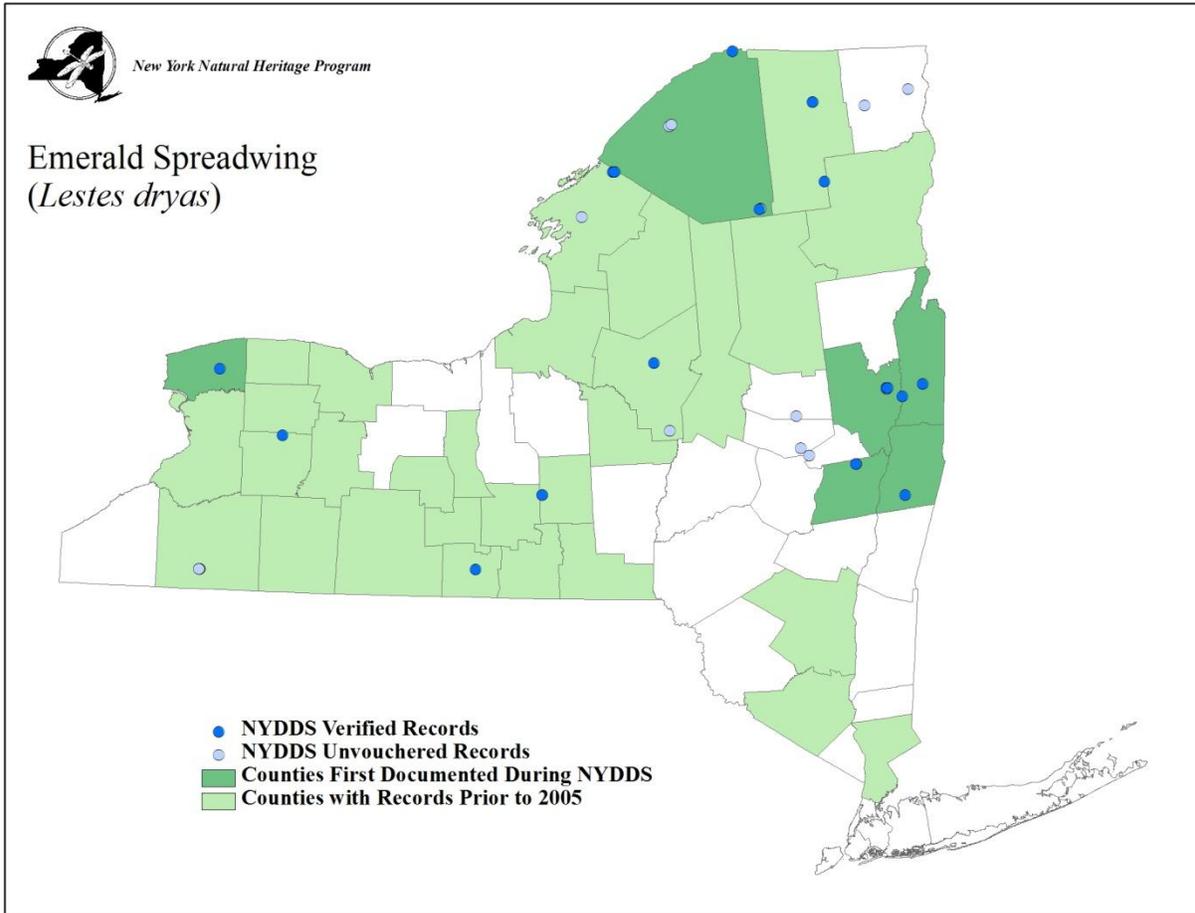


LESTIDAE

Emerald Spreadwing (*Lestes dryas*)

Pre-NYDDS Status: G5, S4

Draft Revised Status: S3



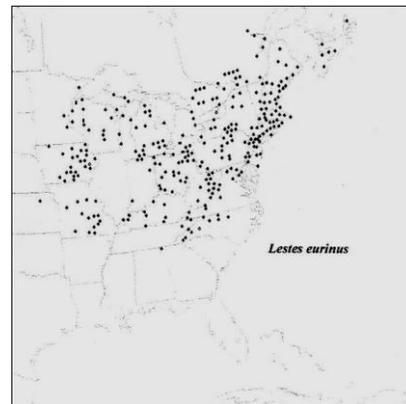
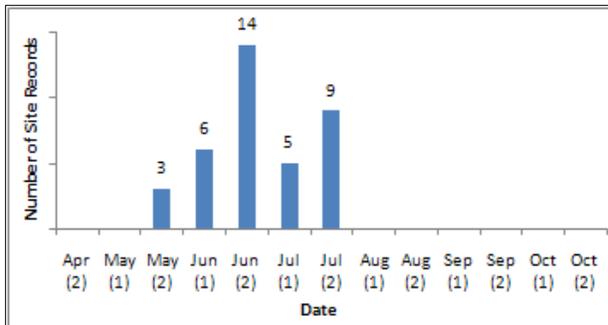
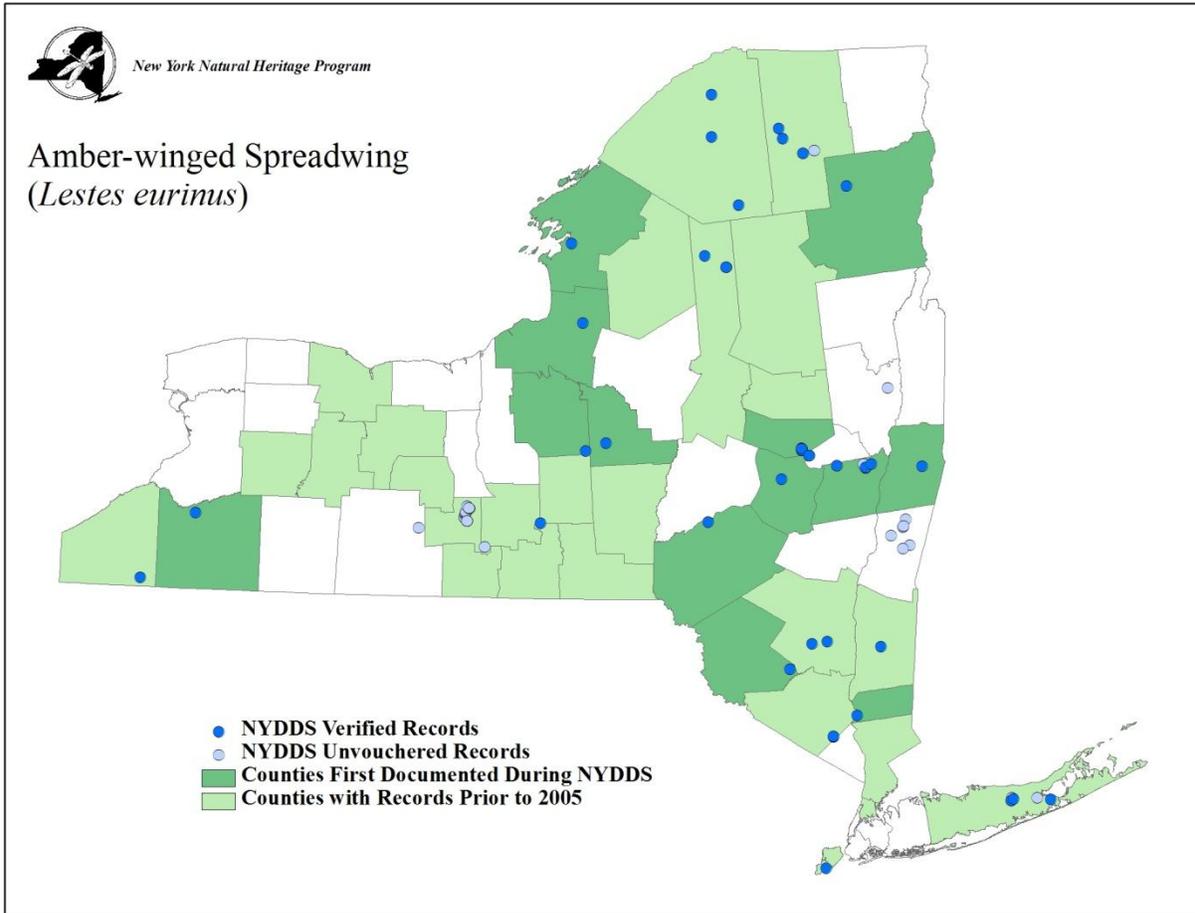
(Donnelly 2004b)



LESTIDAE

Amber-winged Spreadwing (*Lestes eurinus*)

Pre-NYDDS Status: G4, S3S4



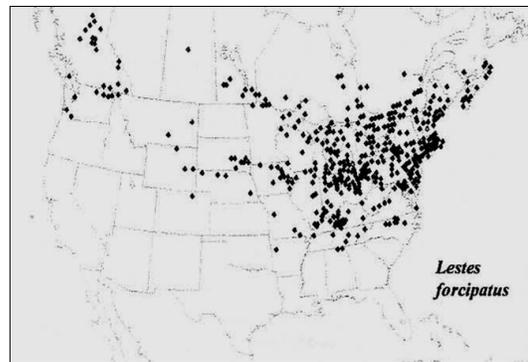
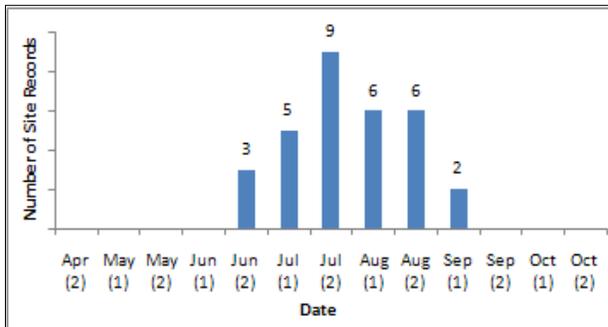
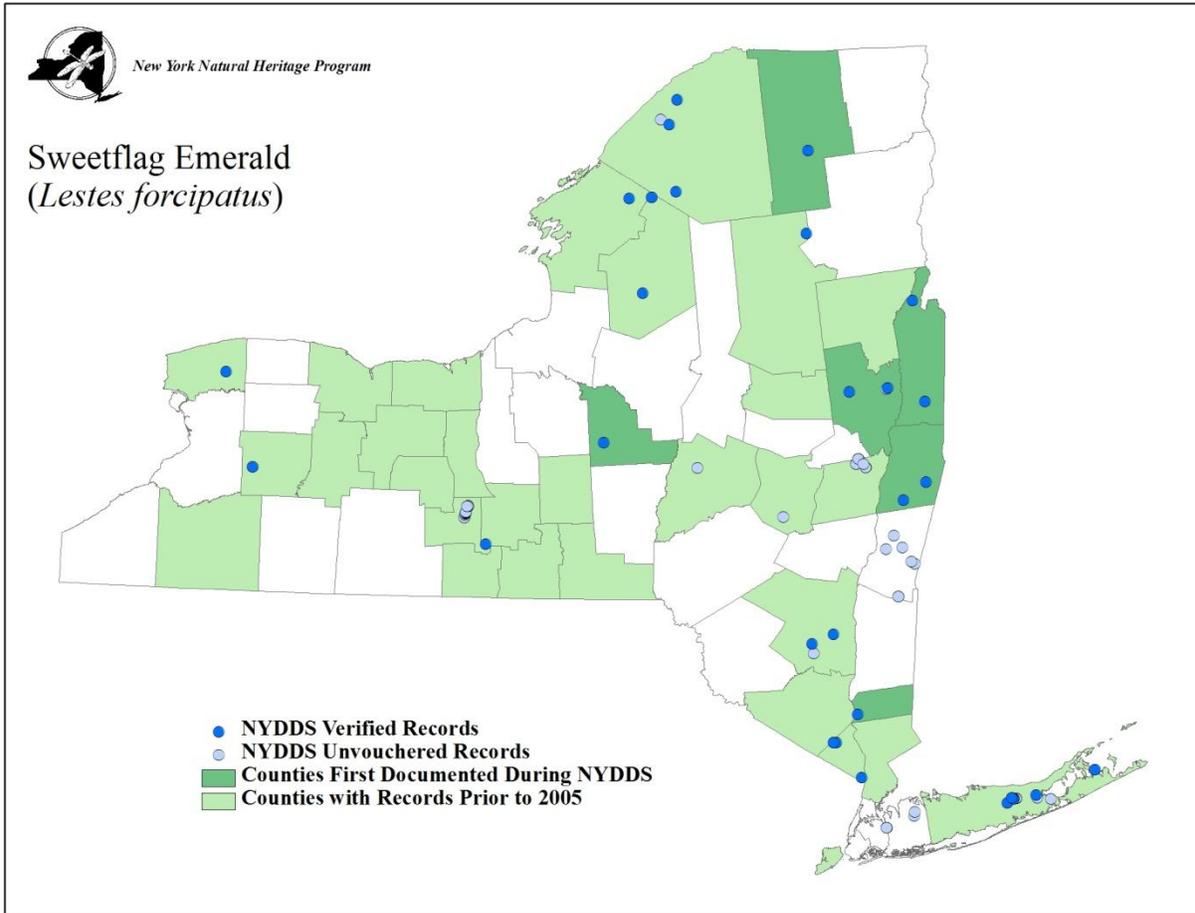
(Donnelly 2004b)



LESTIDAE

Sweetflag Spreadwing (*Lestes forcipatus*)

Pre-NYDDS Status: G5, S5



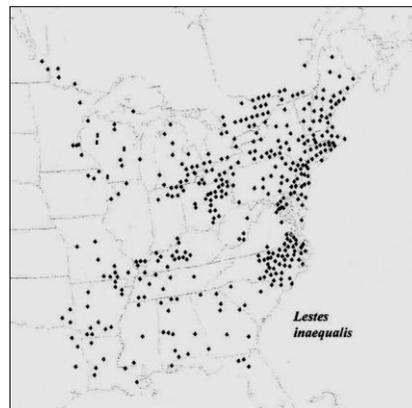
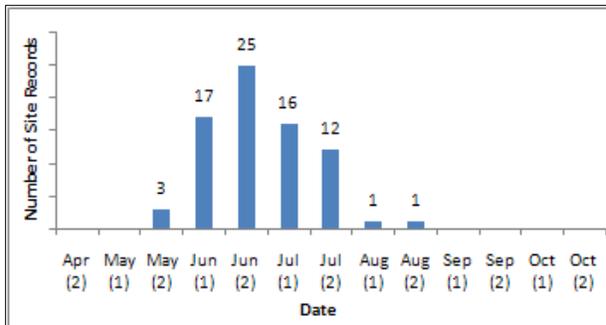
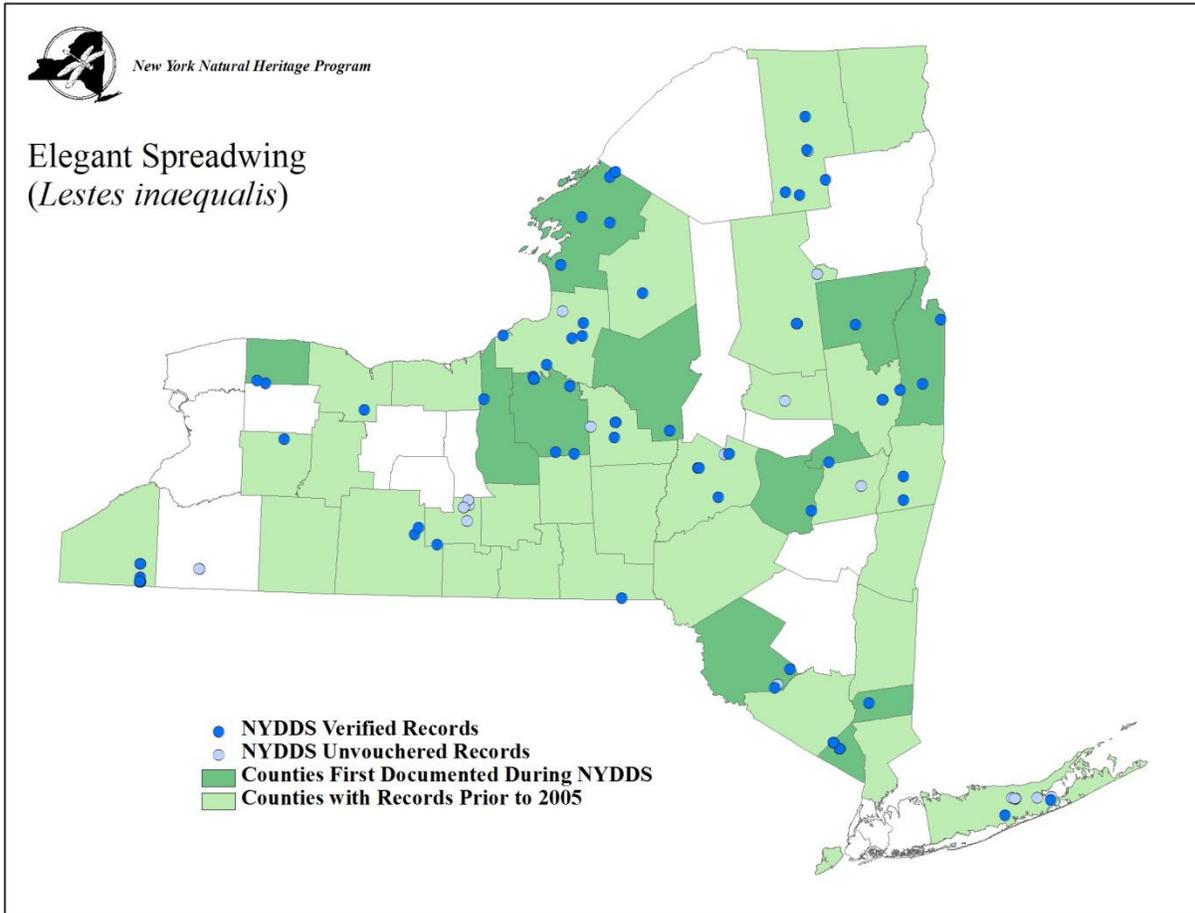
(Donnelly 2004b)



LESTIDAE

Elegant Spreadwing (*Lestes inaequalis*)

Pre-NYDDS Status: G5, S5



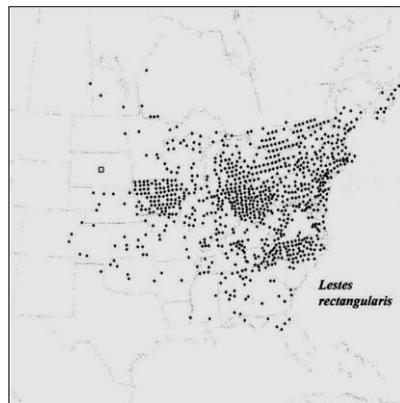
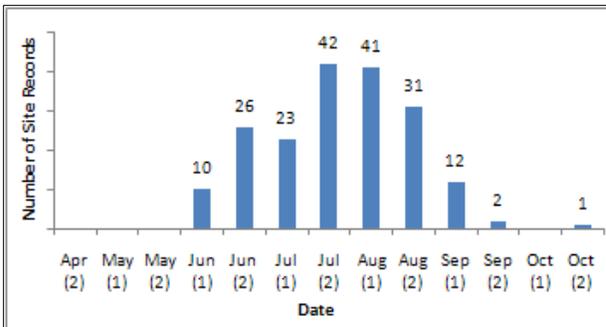
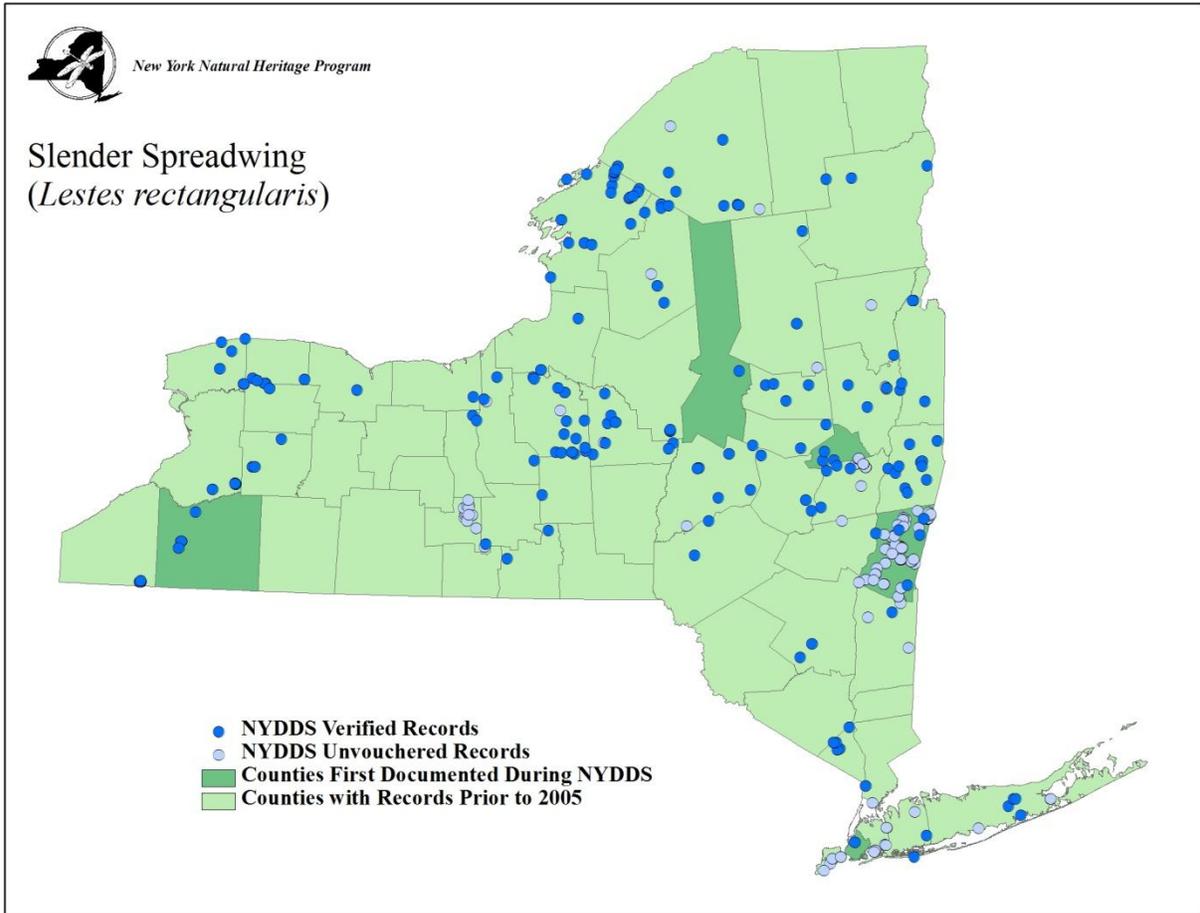
(Donnelly 2004b)



LESTIDAE

Slender Spreadwing (*Lestes rectangularis*)

Pre-NYDDS Status: G5, S5



(Donnelly 2004b)

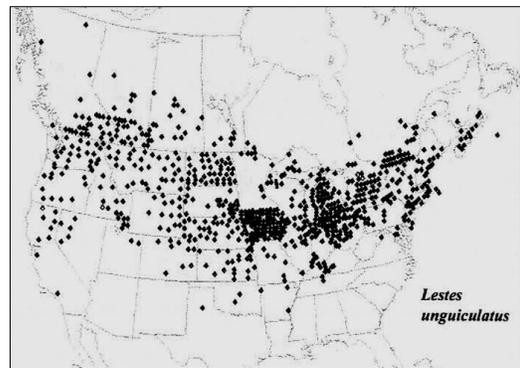
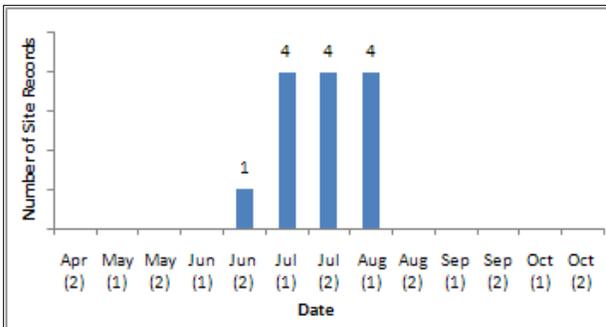
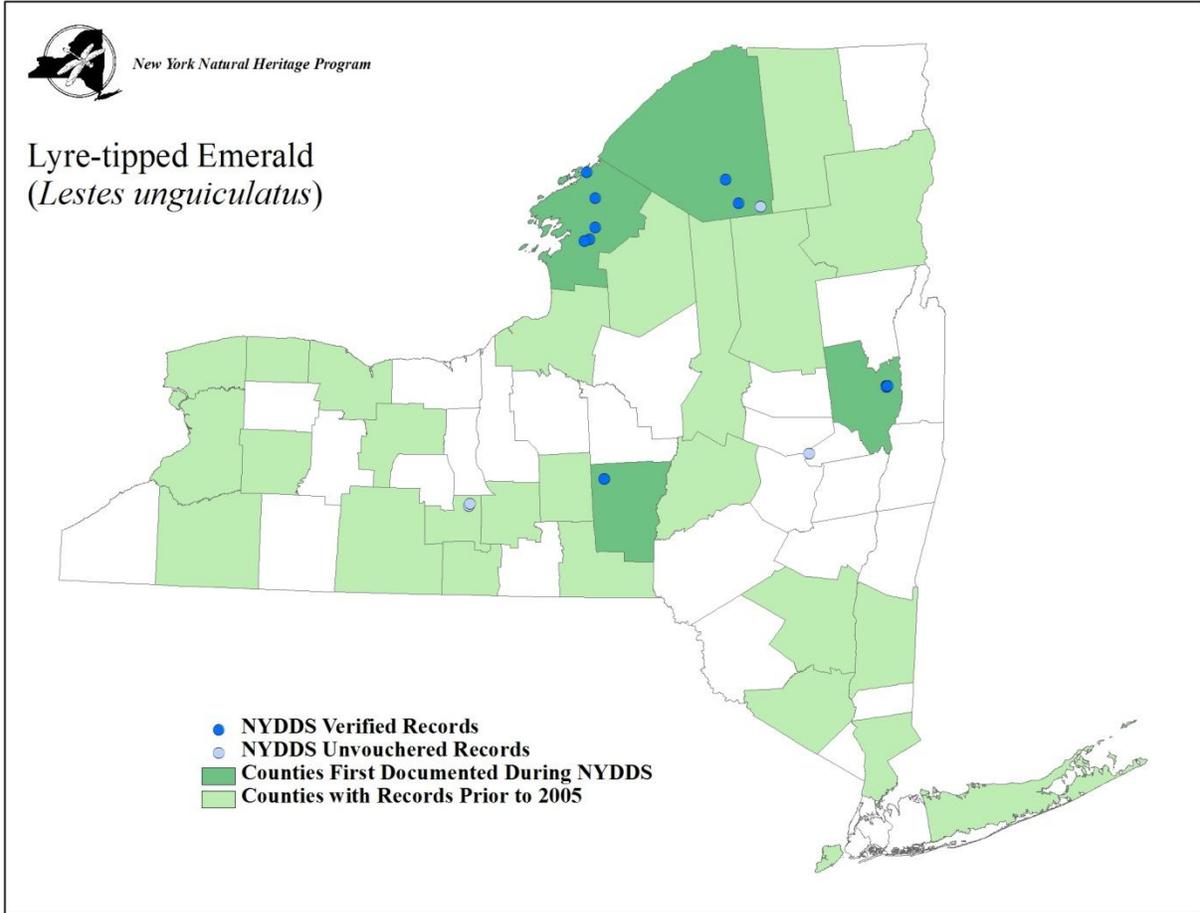


LESTIDAE

Lyre-tipped Spreadwing (*Lestes unguiculatus*)

Pre-NYDDS Status: G5, S3S4

Draft Revised Status: S2S3



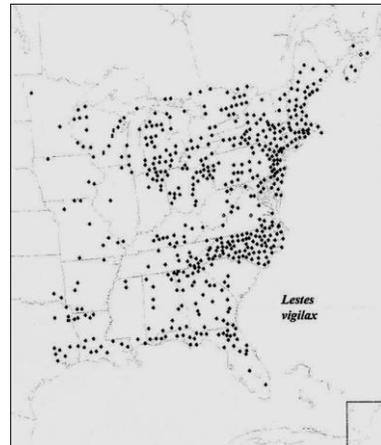
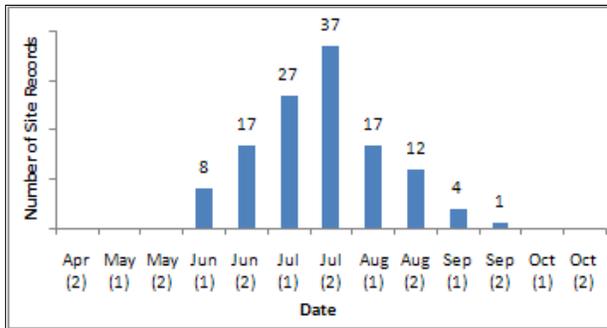
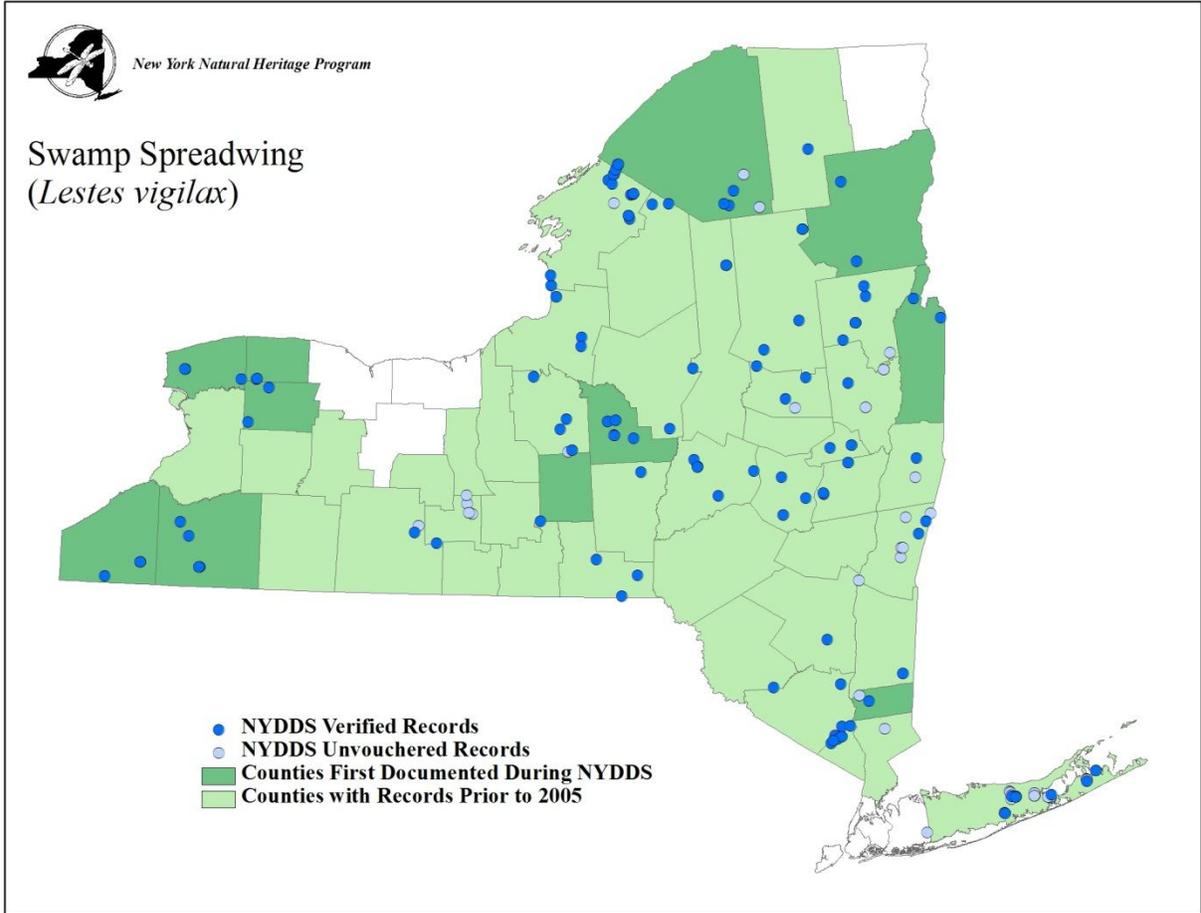
(Donnelly 2004b)



LESTIDAE

Swamp Spreadwing (*Lestes vigilax*)

Pre-NYDDS Status: G5, S4



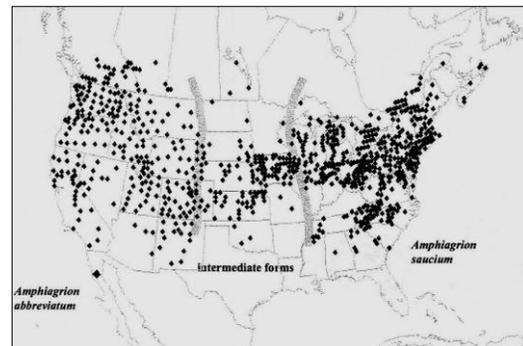
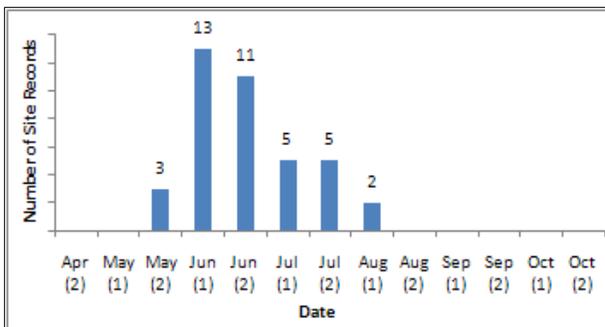
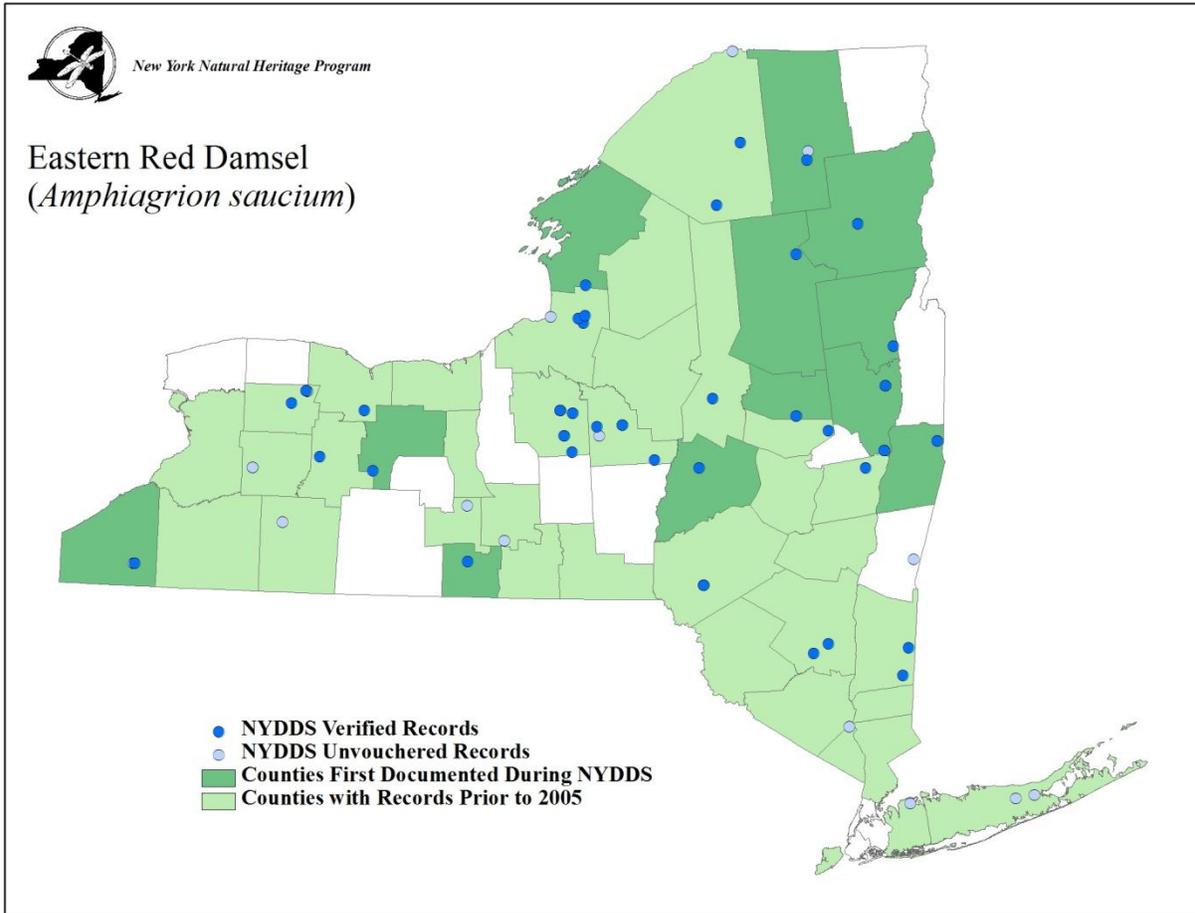
(Donnelly 2004b)



COENAGRIONIDAE

Eastern Red Damsel (*Amphiagrion saucium*)

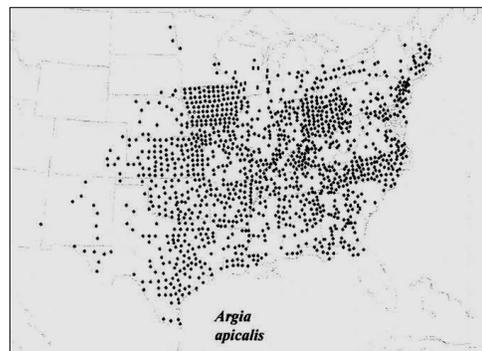
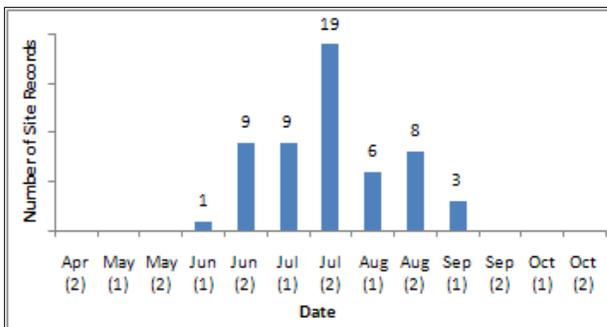
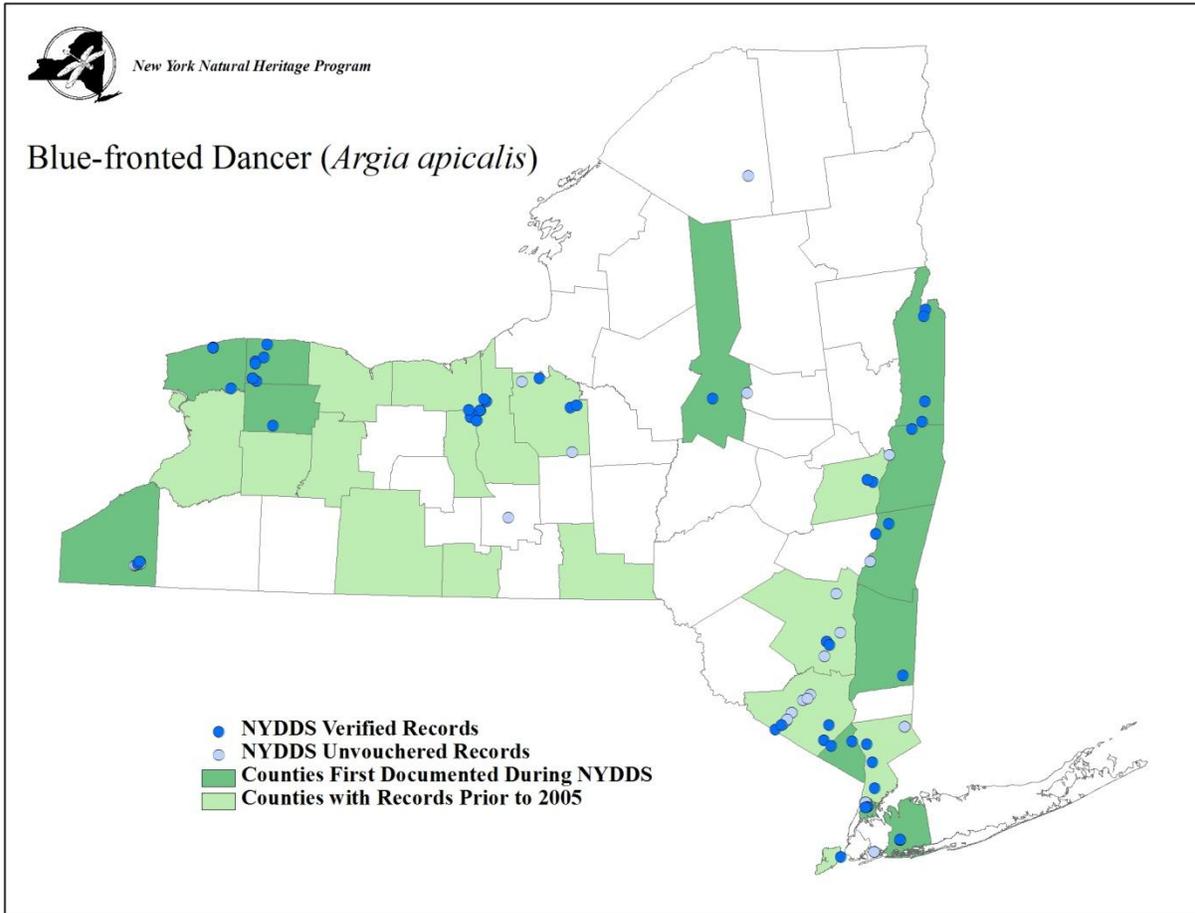
Pre-NYDDS Status: G5, S5



(Donnelly 2004b)



COENAGRIONIDAE
Blue-fronted Dancer (*Argia apicalis*)
Pre-NYDDS Status: G5, S3
Draft Revised Status: S3



(Donnelly 2004b)



COENAGRIONIDAE

Seepage Dancer (*Argia bipunctulata*)

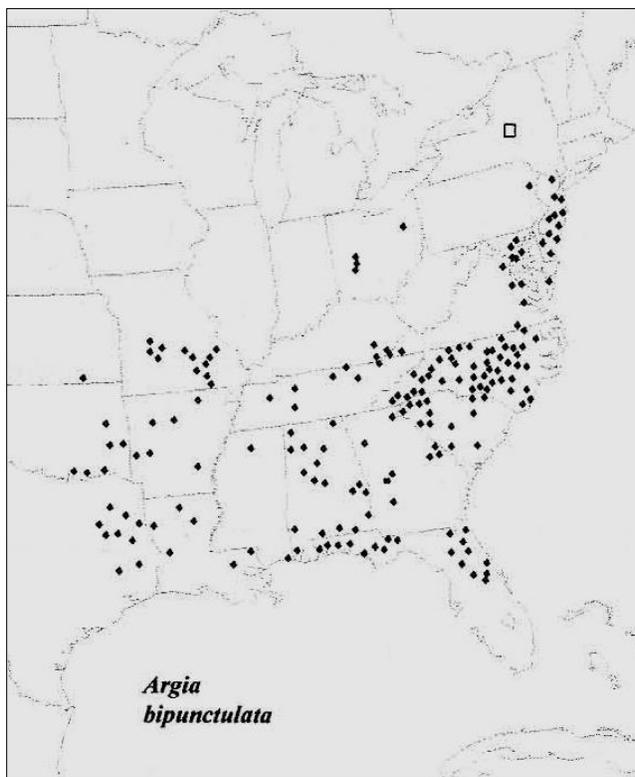
Pre-NYDDS Status: G4, SH

Draft Revised Status: SH

Habitat Characteristics: As this is a historical species in New York, the habitat in the state is unknown. In other parts of its range, it is found in grassy seeps, bogs, small lakes, ponds, and streams (Lam 2004, Bangma & Barlow 2010).



Bryan Pfeiffer, Wings Photography



(Donnelly 2004b)

Distribution and Inventory Needs: The species ranges from the south-central states eastward to the coast and northward to Pennsylvania and New Jersey (Donnelly 2004b). There are recent records from these adjacent states as well as Ohio (Bangma & Barlow 2010, NatureServe 2009b, The Ohio Odonata Society 2000), but the last confirmed record in New York was from the 1890s and attributed only to NYS without specific location information (Donnelly 1999). For this reason, no distributional map was generated for this species. As this is a more southern species with records from Pennsylvania and New Jersey, if it shows up again in New York, it will likely be in the southern portion of the state (Donnelly 2004b).

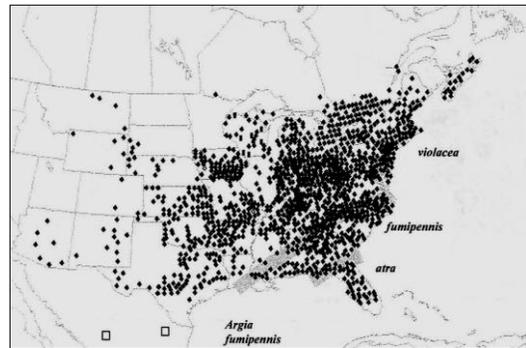
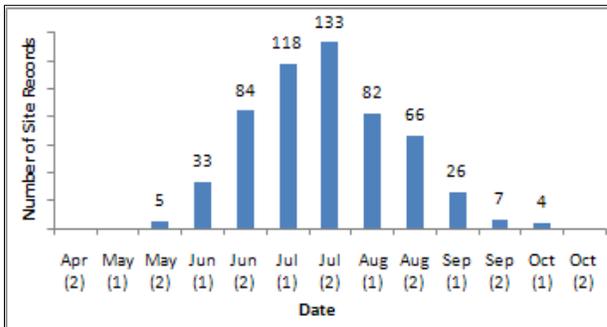
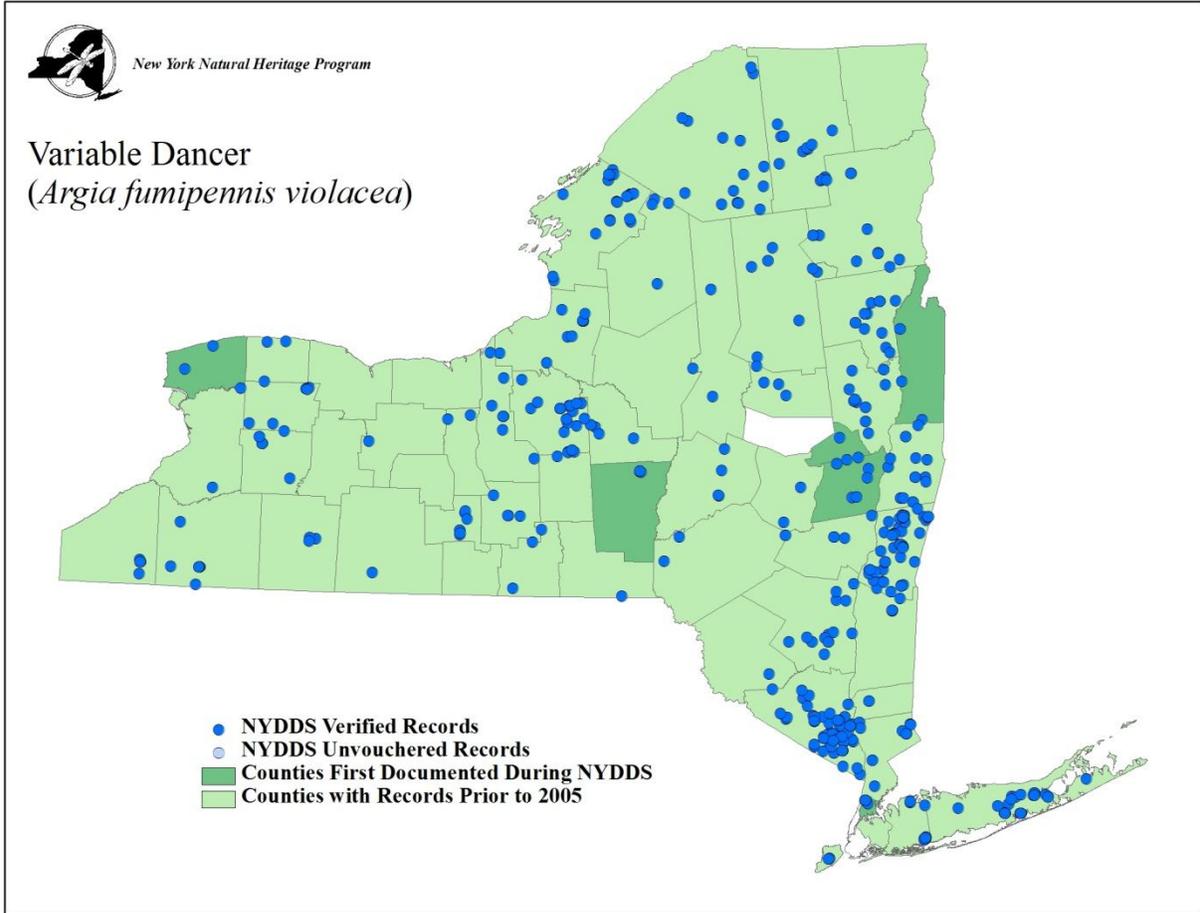
Phenology: In Ohio, adults are known to fly from June through mid-September (The Ohio Odonata Society 2000), while in New Jersey they may show up as early as mid-May (Bangma & Barlow 2010).



COENAGRIONIDAE

Variable Dancer (*Argia fumipennis violacea*)

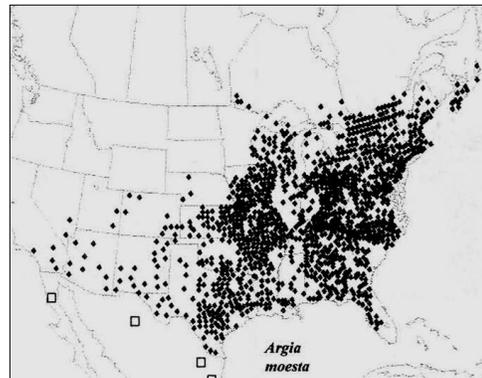
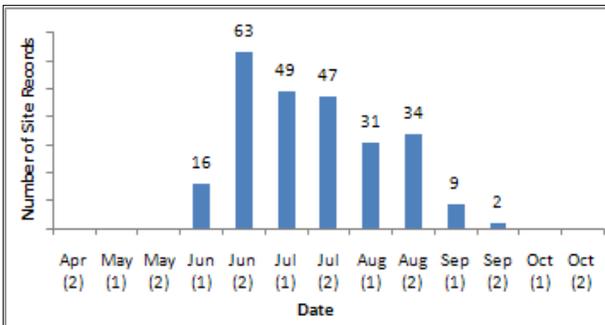
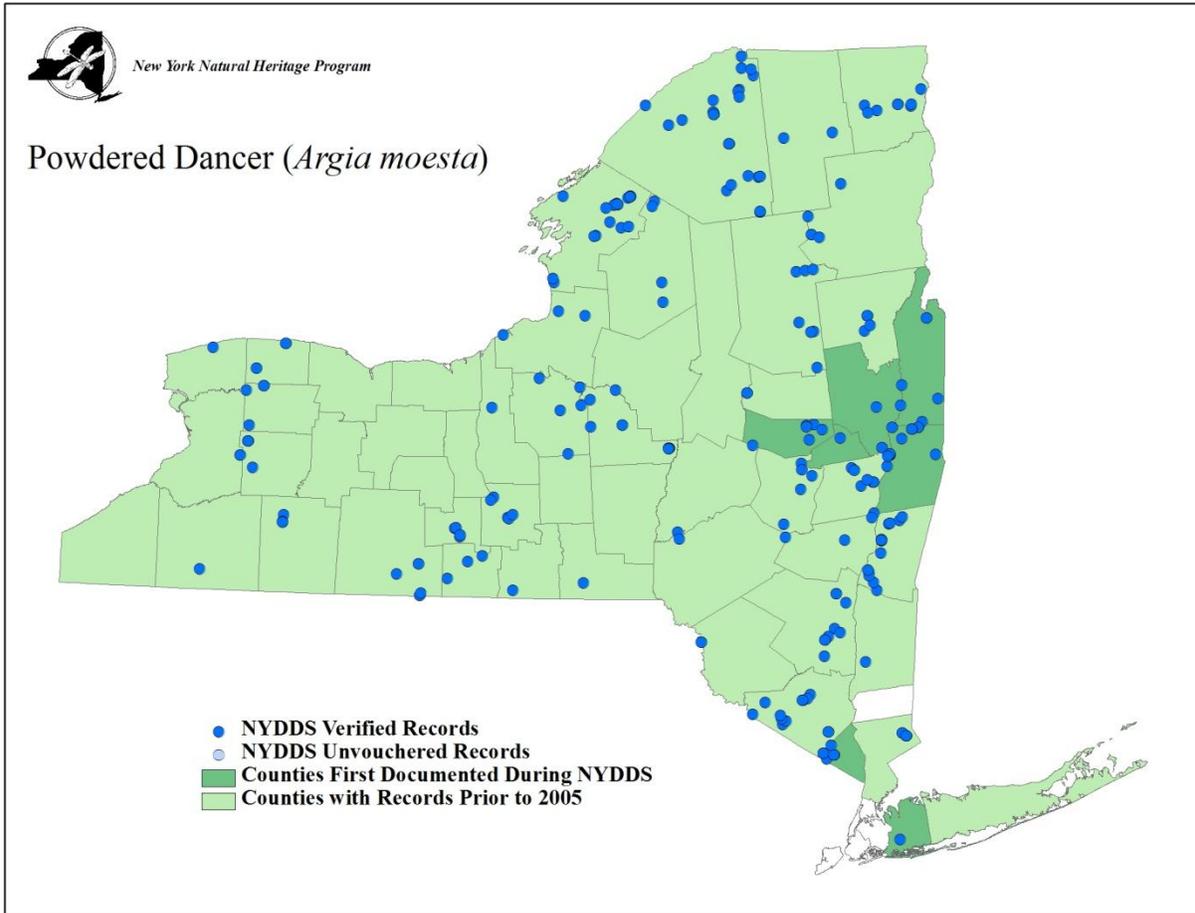
Pre-NYDDS Status: G5, S5



(Donnelly 2004b)



COENAGRIONIDAE
Powdered Dancer (*Argia moesta*)
Pre-NYDDS Status: G5, S5



(Donnelly 2004b)



COENAGRIONIDAE

Blue-tipped Dancer (*Argia tibialis*)

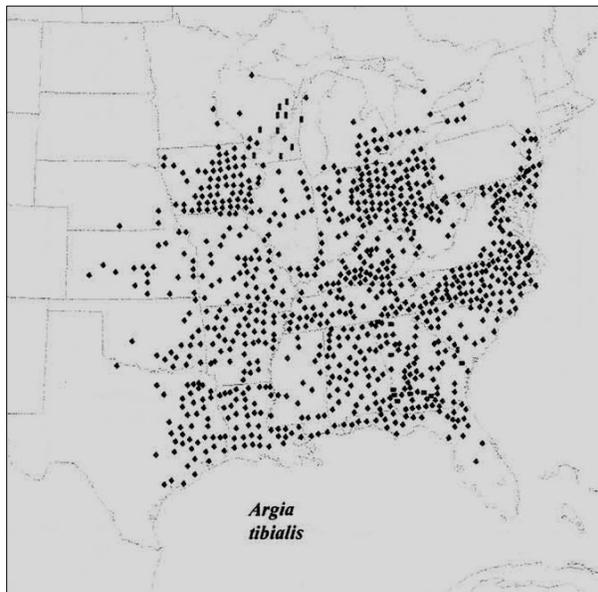
Pre-NYDDS Status: G5, S2

Draft Revised Status: S3

Habitat Characteristics: Blue-tipped Dancers are known to occur in a variety of habitats in the northeast including fast or slow-flowing rivers and streams, swamps, and ponds (Lam 2004). In New York, however, they are known from only river and stream habitats (New York Natural Heritage Program 2010).



Jeremy Martin 2006



(Donnelly 2004b)

Distribution and Inventory Needs: *Argia tibialis* ranges from the gulf coast of the U.S. northward into southern Ontario and throughout the central United States eastward to the Atlantic coast and northward into New York State (Donnelly 2004b, Abbott 2010), so New York lies in the northeast corner of its range. Within New York, Blue-tipped Dancers occur in the Allegheny River watershed from three rivers and creeks in Chautauqua county, at least two creeks in the Lake Erie watershed, five lotic waters in southwestern Lake Ontario, four to six locations in southeastern Lake Ontario, one occurrence in the Lower Hudson, and many points along the Wallkill River in Orange county within the Upper Hudson watershed (New York Natural Heritage Program 2010).

Many locations were added during the NYDDS, and the species will likely be found at more locations within these watersheds in the future. NYDDS records from Madison and Onondaga counties represent the most northeastern locations known throughout the entire species' range (Abbott 2010). Based on the new information from the last five years, a revision of the state rank to an S3 is suggested.

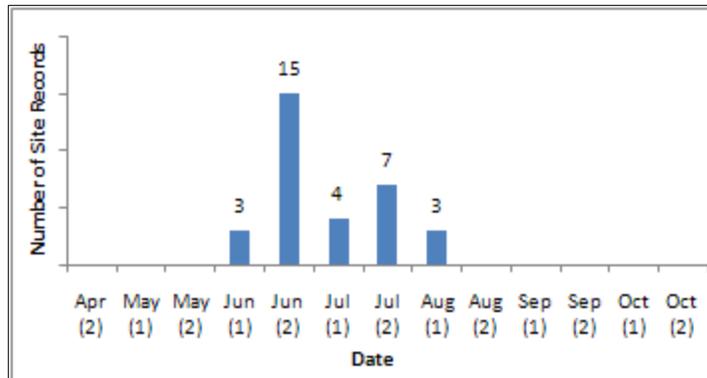
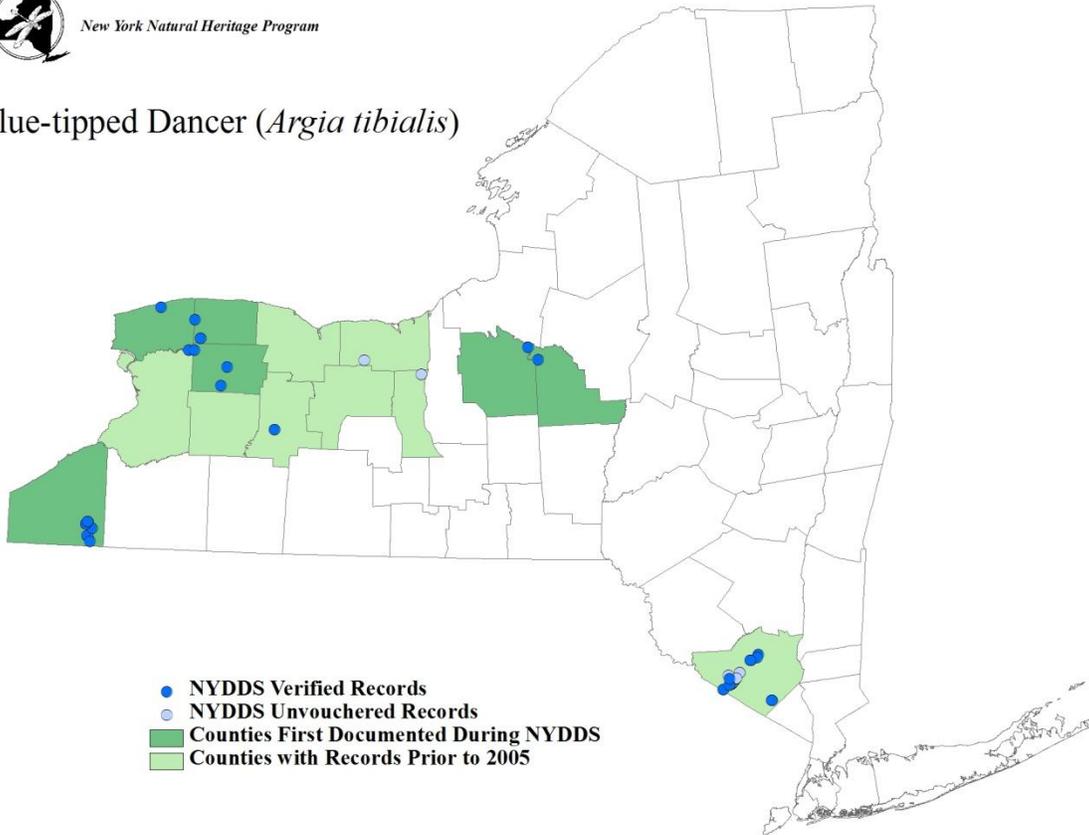
Phenology: In recent years pre-NYDDS and during, adults were documented in New York between mid-June and early September, with most records in late June (New York Natural Heritage Program 2010).



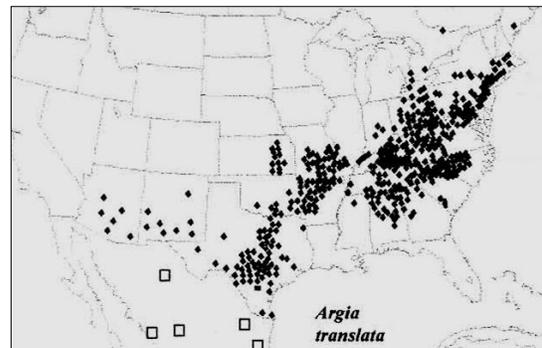
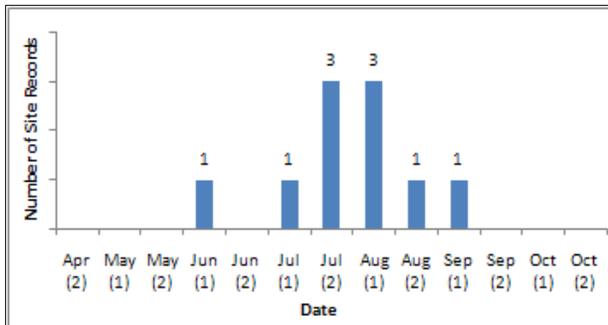
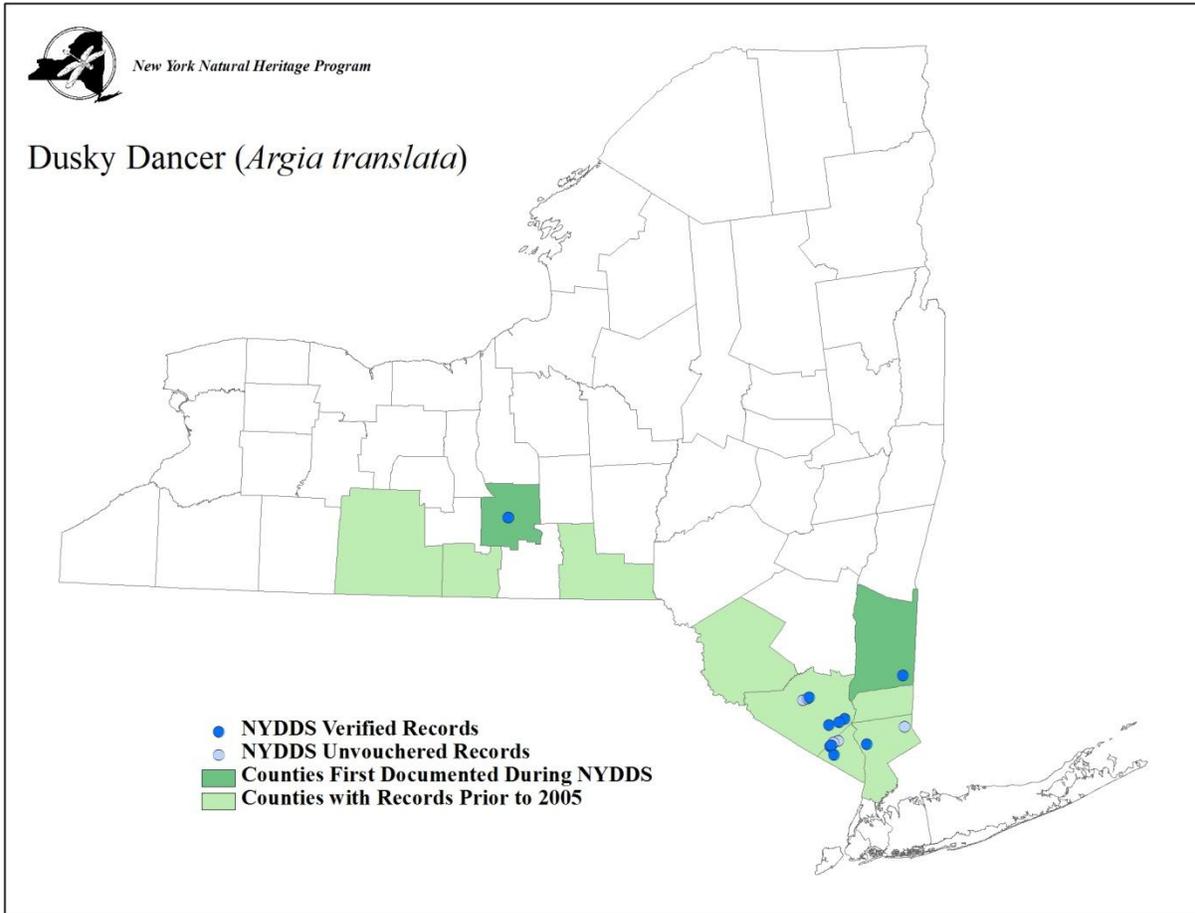


New York Natural Heritage Program

Blue-tipped Dancer (*Argia tibialis*)



COENAGRIONIDAE
Dusky Dancer (*Argia translata*)
Pre-NYDDS Status: G5, S3
Draft Revised Status: S1



(Donnelly 2004b)

