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27–78 The Odonata of North Carolina, Part 1: Introduction and Zygoptera
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Front cover: **Top** (left to right): *Lestes vidua* (Carolina Spreadwing), *Enallagma concisum* (Cherry Bluet), and *Argia moesta* (Powdered Dancer). Photos by Mark A. Shields. **Middle**: Relief map of North Carolina. **Bottom** (left to right): *Hetaerina americana* (American Rubyspot), *E. hageni* (Hagen's Bluet), and *Ischnura hastata* (Citrine Forktail). Photos by John Petranka.

The Odonata of North Carolina, Part 1: Introduction and Zygoptera

Harry E. LeGrand Jr, Thomas E. Howard Jr, John Petranka, Mark A. Shields

Abstract

In this, the first of two publications about the odonate fauna of North Carolina, USA, we present a brief historical account of odonatology in the state, describe the major biogeographic regions, and provide species accounts for each of the 53 species of damselflies (Zygoptera) known to occur in North Carolina. The second publication will provide species accounts for the 136 species of dragonflies documented in North Carolina. Together, they are a full treatment of the 189 total odonates species known from the state. These species accounts draw on our database of over 63,000 records and describe the distribution, abundance, conservation status, flight seasons, habitats, and behavior of each species.

Keywords: North Carolina, dragonflies, damselflies, Zygoptera

Odonata de Carolina del Norte, Parte 1: Introducción y Zygoptera

Resumen

En esta, la primera de dos publicaciones sobre la fauna de odonatos de Carolina del Norte, EE. UU., damos un breve relato histórico de la odonatología en el estado, describimos las principales regiones biogeográficas y proporcionamos descripciones de especies para cada una de las 53 especies de caballitos del diablo (Zygoptera) que se sabe que existen en Carolina del Norte. La segunda publicación proporcionará descripciones de las 136 especies de libélulas (Anisoptera) documentadas en Carolina del Norte. En conjunto, son un tratamiento completo de las 189 especies totales de odonatos conocidas en el estado. Estas cuentas de especies se basan en nuestra base de datos de más de 63,000 registros y describen la distribución, abundancia, estado de conservación, temporadas de vuelo, hábitats y comportamiento de cada especie.

Palabras clave: Odonata, Carolina del Norte, libélulas, caballitos del diablo, Zygoptera

Introduction

We present here an account of the species of Odonata (damselflies and dragonflies) of North Carolina. This account will be presented in two installments: the present installment includes a brief history of odonatology in North Carolina, descriptions of the geographic setting and odonate habitats, and species accounts for the 53 species of damselflies (Zygoptera) documented for the state; the second will comprise species accounts for the 136 documented species of dragonflies (Anisoptera).

With 189 Odonata species, North Carolina ranks fourth highest among U.S. states and Canadian provinces in odonate species richness (Smith 2021). This high rank is due largely to the wide elevational range (sea level to over 2000

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m) and concomitant habitat diversity found within the state (see Geographic Regions and Habitats below). Latitude also plays a role, as several species with northern affinities reach the southern limits of their ranges in North Carolina (e.g., Hagen's Bluet [*Enallagma hageni*], Black-tipped Darner [*Aeshna tuberculifera*]) and several with southern distributions reach the northern limits of their ranges here (e.g., Cherry Bluet [*E. concisum*], Sandhill Clubtail [*Phanogomphus cavillaris*]).

North Carolina has a relatively long history of odonatology (see History below), but coverage of the state's 100 counties has not been even (Fig. 1). Records are concentrated in metropolitan areas one would expect, such as Wake, Orange, and Durham counties where the cities of Raleigh, Chapel Hill, and Durham (i.e., the Triangle) lie, and in Buncombe County, home of Asheville. But, this correlation is not perfect because, for example, Mecklenburg County, home of Charlotte, the state's largest city, is one with limited records in our database. This is where other factors need to be considered, including that we have not incorporated all available community science data, which tend to be focused in highly populated areas. Also, demographics (age, income, nature-oriented mindsets, etc.) undoubtedly play a role, as does availability of public lands. Not surprisingly, there is a concentration of records in state parks, state game lands, national forests, and other public lands. Finally, our data sources have shifted over time from being contributed primarily by entomologists to an ever-increasing contribution by community scientists who, again, are focusing efforts in and near highly populated areas (see, for example, North Carolina maps for Odonata in iNaturalist or Odonata Central). Regardless of why records are distributed as they are, there is particular need for fieldwork in the northeastern

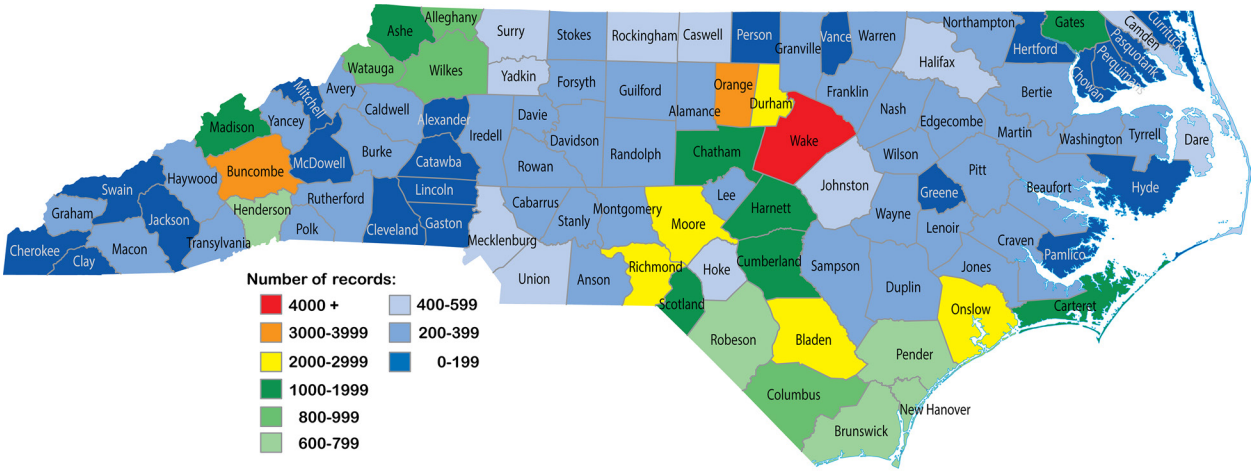


Figure 1. Number of odonate records by county in North Carolina. The preponderance of records for Wake County—home of Raleigh, the state capital—reflects the relatively long history of odonatology there. Other counties with 600 or more records contain public lands often visited by odonate enthusiasts. Rural counties in the northeastern, west-central, and southwestern regions of the state have received much less attention.

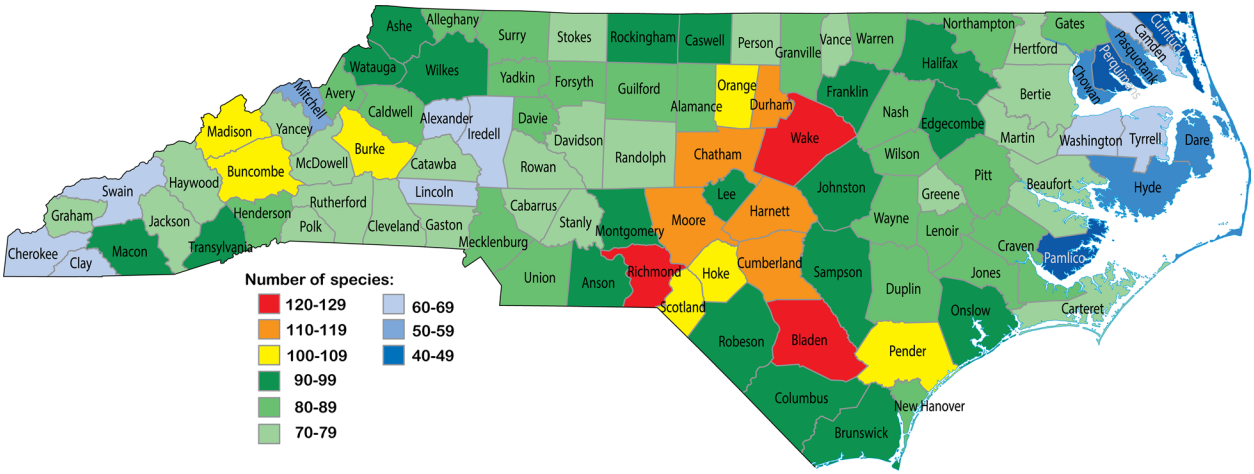


Figure 2. Number of odonate species by county in North Carolina. Species richness correlates with both the number of records and habitat diversity.

two-thirds and most of the western half of the state (i.e., counties shaded in blue in Fig. 1). Odonate species richness (Fig. 2) correlates with sampling effort, as well as with habitat diversity, as described below in Geographic Regions and Habitats.

The continuing efforts of odonate enthusiasts will be essential to fill gaps in our knowledge of North Carolina's odonate fauna. We hope this publication will stimulate more interest in and study of North Carolina's damselflies and dragonflies. We further hope to encourage reporting of records of rare species to the North Carolina Natural Heritage Program (hereafter, NCNHP; ncnhp.org), which keeps a database of records of rare species that can be used to advocate for protection of species and their habitats.

History

The 19th century. Published occurrences of North Carolina's odonate fauna first appear in the early 19th century with nine species documented between 1826–1885 (Appendix 1). Among these nine species are two for which the type specimen was collected in western North Carolina by Herbert K. Morrison: Tiger Spiketail (*Zoraena erronea*) and Cherokee Clubtail (*Stenogomphurus consanguis*). Eight additional species were added by other collectors after 1885, bringing the state total to 17 species by the end of the century (Appendix 1).

First half of the 20th century. In 1900, Franklin Sherman Jr. was appointed as North Carolina's first State Entomologist and he soon instituted a long-term survey to document the state's insect fauna (Sherman & Brimley 1904). Sometime prior to his appointment, he had become acquainted with Clement S. Brimley (Brimley 1938, Cooper 1979), and as early as 1899 the pair began collecting odonates in the Raleigh area. Brimley (1903) published an annotated list of 60 species that included the Raleigh sightings, other collections by Sherman, and six state records gleaned from publications and museum specimens by Phillip P. Calvert. Over the next two decades, Brimley and Sherman published additional species lists (Brimley 1906a, 1906b, 1908, 1918, 1920, 1923, 1925; Brimley & Sherman 1904), raising North Carolina's odonate total to more than 100 species. In 1938 Sherman's ambitious state insect survey came to fruition with the publication of *The Insects of North Carolina* (Brimley 1938). The work contained an annotated list of the 9,566 insect species then known from North Carolina, including 126 species of odonates. Three supplements to *The Insects of North Carolina* were published, the first edited by Brimley (1942), and the second and third by David L. Wray (1950, 1967).

A number of new state records were published by others during this same period, including C. Francis Byer's (1931) list of 23 species that included six first state occurrences (Appendix 1) and E.B. Williamson's (1934) addition of two more species. Minter J. Westfall Jr published an annotated list of 80 species collected near Brevard during July and August of 1938–1941 (Westfall 1942). Among those were seven species new to the state, plus ten unusual *Macromia* specimens that he initially assigned to Allegheny River Cruiser (*M. alleghaniensis*), but later designated as type specimens for Mountain River Cruiser (*M. margarita*) (Westfall 1947).

The Duncan Cuyler era: 1947–2005. By 1947, the North Carolina odonate checklist had grown to 141 species (Appendix 1), although two, Edmund's Snaketail (*Ophiogomphus edmundo*) and Diminutive Clubtail (*Phanogomphus diminutus*), whose type specimens were collected in North Carolina in 1917 and 1927, respectively, were not described as species new to science until the early 1950s. At this time, coverage of the state by collectors was uneven, with almost two thirds of the 100 counties having no documented occurrences. There were also taxonomic gaps, especially in the Lestidae (four of nine current species had been found), the Gomphidae (only 24 of 48 found), and the Corduliidae (five of 12 species found).

The late R. Duncan Cuyler (Donnelly 2010) filled most of those distributional and taxonomic gaps by his monumental collecting efforts from 1947 through 2005. He collected over 12,500 odonate specimens covering all 100 North Carolina counties, making him the preeminent authority on North Carolina's odonates and making North Carolina one of the most thoroughly surveyed states in the nation. His 31 first state occurrences included two lestids, three coenagrionids, two aeshnids, 15 gomphids, five corduliids, and four libellulids (Appendix 1).

During this same period, several other collectors added three additional lestids, six more gomphids, another corduliid, and two more libellulids, bringing the state total to 184 species by 2004 (Appendix 1).

2006 to the Present. A significant milestone for North Carolina odonatology was reached in 2009 when one of us (Thomas E. Howard Jr) created the Dragonflies and Damselflies of North Carolina website (https://auth1.dpr.ncparks.gov/odes/a/accounts.php). This website, on which all four of us currently work, is hosted by North Carolina State Parks and is now also part of the North Carolina Biodiversity Project (nc-biodiversity.com). At first, the database consisted mainly of records obtained from staff at state parks and from a few other naturalists. A major contribution to the database was made in 2012, when Bill Mauffray, curator of the Odonata collection at the Florida State Collection of Arthropods, sent a spreadsheet to Howard containing information on every record from North Carolina housed

in the collection. This included complete records from all 12,592 specimens collected by Cuyler and 499 specimens obtained by over a dozen other collectors, as well as 2,150 undated county Dot Map Project records from Donnelly (2004a,b,c). Harry E. LeGrand Jr wrote species accounts for the website, which included descriptions of the distribution, abundance, and flight seasons for each species derived from the information in the database. To obtain new records, the website was opened up to qualified observers to enter their own observations, including sight and photo-vouchered records. In late 2016, John Petranka and Mark A. Shields joined the team to aid in reviewing and vetting the ever-increasing number of user-submitted records.

By the end of 2021, the state list had grown to 189 species, with the last five documented by photos submitted to our website. Recently, we began to add carefully vetted iNaturalist (inaturalist.org) records for species that are of conservation concern or that fill significant distributional gaps. As of the end of 2023, we had added about 500 of these records and our database contained a total of over 63,000 records, the majority submitted by users of our website, including nearly 5,000 photo-vouchered records.

Geographic Regions and Habitats

North Carolina is a long and rather narrow (north to south) state, extending about 500 miles (800 km) from the Atlantic Ocean to the Blue Ridge Mountains (Fig. 3), topping out at 6,684 ft (2,037 m) above sea level at Mount Mitchell, the highest point in the eastern United States. Owing to such a length and elevation range, the state has a very high diversity of odonate habitats. The wide elevation range also causes variation in odonate flight seasons across the state, with the warmer southeastern coastal region having the longest flight season and the cooler northwestern mountains having the shortest.

The state is divided into three major biogeographic provinces: Mountains, Piedmont, and Coastal Plain (Fig. 3). The Mountain and Piedmont provinces are equivalent to the Blue Ridge and Piedmont level III ecoregions, respectively, identified by the Environmental Protection Agency (EPA) (Griffith et al. 2002), except that we include monadnocks and isolated foothill ranges in the Piedmont rather than Mountains. The EPA splits the Coastal Plain into two level III ecoregions: Middle Atlantic Coastal Plain and Southeastern Plains. These subdivisions appear to be of little relevance to the distribution of odonates, so we refer to the Coastal Plain as a single province. Because our database is increasingly dependent upon public input of records to our website, we believe use of the simpler and more familiar terminology of the three major provinces makes input of records easier and less confusing for our users.

Mountains—The western 10–15% of the state lies in the Blue Ridge physiographic region of the southern Appalachian Mountains, bounded on the east by the Blue Ridge Escarpment. Elevations across the mountains generally range above 2500 ft (762 m) in the north, and above 2200 ft (671 m) in the southern portions. Many mountains reach over 5000 ft (1524 m), with some topping 6000 ft (1829 m). Nearly the entire region lies in the Tennessee River/Gulf of Mexico drainage. Several major rivers, such as the New in the north and the French Broad in the central mountains (Fig. 3), are very important for odonates. A few snaketails (*Ophiogomphus*) are essentially limited to the New River, and a number of other clubtails have been noted only along the French Broad and a few other rivers. The region is riddled by hundreds of clear, rapidly flowing creeks and smaller rivers, some of which are important breeding sites for odonates, such as Superb Jewelwing (*Calopteryx amata*) and Sable Clubtail (*Stenogomphurus rogersi*). There are no natural lakes in the mountains, but there are a number of man-made lakes and ponds, in addition to several rapidly

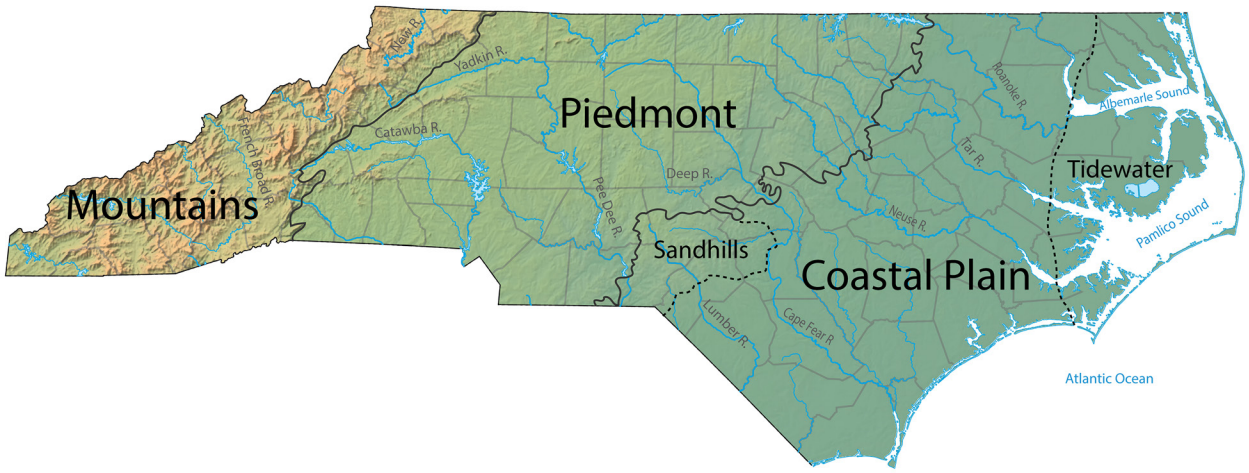


Figure 3. Major biogeographic provinces and rivers of North Carolina.

declining natural bogs, fens, and beaver marshes. A handful of northern odonates occur in the state only at such natural bogs, fens, seeps, and other isolated wetlands (e.g. Ski-tipped Emerald [*Somatochlora elongata*], White-faced Meadowhawk [*Sympetrum obtrusum*]); a few others do occur at man-made ponds (e.g. Hagen's Bluet [*Enallagma hageni*], Black-tipped Darner [*Aeshna tuberculifera*], American Emerald [*Cordulia shurtleffii*]).

Piedmont—This physiographic province comprises the large central region of the state, covering roughly 40% of North Carolina (Fig. 3). Consisting of rolling hills and a few scattered monadnocks and outlier foothill ranges, elevations range generally from about 250 ft (76 m) at the Fall Line, the geological boundary between the more erosion-resistant rocks of the Piedmont and the softer rocks of the Coastal Plain, on the east to about 1500 ft (457 m) at the base of the Mountains. A few foothill ranges extend above 2500 ft (762 m) in elevation. The primary odonate habitats are limited mainly to the handful of large brownwater rivers, such as the Catawba, Yadkin/Pee Dee, Cape Fear/Deep, Neuse, and Tar; and to the very numerous man-made lake and pond margins (Fig. 3). Brownwater rivers originate in the Piedmont and their turbid waters carry a high suspended load of silt and clay (Schafale 2023) which gives them the brown tint for which they are named. A number of clubtail species occur along these rivers, and a few are limited in the state essentially to the Piedmont, such as Septima's Clubtail (*Gomphurus septima*), Skillet Clubtail (*G. ventricosus*), Midland Clubtail (*G. fraternus*), and Spine-crowned Clubtail (*Hylogomphus abbreviatus*). Many clubtails, such as Cocoa Clubtail (*G. hybridus*), Blackwater Clubtail (*G. dilatatus*), and Riverine Clubtail (*Stylurus amnicola*), also occur down these rivers into the Coastal Plain. Damselflies commonly seen along these rivers include Stream Bluet (*Enallagma exsulans*), Blue-fronted Dancer (*Argia apicalis*), Powdered Dancer (*A. moesta*), and Blue-ringed Dancer (*A. sedula*). Despite the relative scarcity of rare odonate habitats, the eastern Piedmont has a very high diversity of odonate species (Fig. 2), as many Coastal Plain species range westward into the eastern Piedmont. A few of these have only recently been documented, nearly all at ponds (e.g. Duckweed Firetail [*Telebasis byersi*], Two-striped Forceptail [*Aphylla williamsoni*], Roseate Skimmer [*Orthemis ferruginea*]).

Coastal Plain—This physiographic province covers the remaining 40–45% of the state, from the Atlantic west to the Fall Line, where the Piedmont begins (Fig. 3). The topography is very subdued in most places, ranging to about 250 ft (76 m) on the west, with the exception of the highly unusual Sandhills region in the southwestern portions, which can reach over 450 ft (137 m) in elevation. There are two very large brackish water areas, Albemarle Sound in the north and Pamlico Sound to its south (Fig. 3). Though most of the brownwater rivers in the Piedmont continue flowing through the Coastal Plain, many of the province's waterways consist of blackwater rivers and streams. The dark tannin-stained waters for which these low-gradient streams are named originate within the province, flow over primarily sandy bottoms, and are clearer but more acidic than those of brownwater rivers (Flotemersch 2023, Schafale 2023). A few species of dragonflies—Gray-green Clubtail (*Arigomphus pallidus*), Shining Clubtail (*Stylurus ivae*), and Townes's Clubtail (*S. townesi*)—are restricted in North Carolina to blackwater streams in the Coastal Plain. The Blackwater Bluet (*Enallagma weewa*), as its name suggests, is found mainly, though not exclusively, along blackwater streams.

Within the province are several significant biophysical regions important to odonates. The Sandhills region covers portions of nine counties in the southwestern corner of the Coastal Plain (Fig. 3). This unique region, which extends southwestward from North Carolina into Georgia, is characterized by rolling hills covered by deep, sandy soils that overlay very deep deposits of clay (Griffith et al. 2002, Sorrie 2011). These impervious clay layers cause lateral movement of rainwater percolating through the well-drained sand, resulting in the formation of many seeps and streamheads, which give rise to numerous blackwater streams. These streams and seeps, along with many man-made lakes and ponds, contain several dozen species, and counties in this small region contain some of the highest odonate diversity in the state (Fig. 2), especially for damselflies. A few species are limited in the state to, or at least have their strongholds in, this small region (e.g. Sandhill Bluet [*Enallagma davisi*], Burgundy Bluet (*E. dubium*), Clearlake Clubtail [*Phanogomphus australis*], Diminutive Clubtail [*P. diminutus*]).

Farther to the east of the Sandhills, particularly in Bladen County, are clusters of natural Carolina bay lakes, very unusual features that pepper parts of the Coastal Plain both north and south of the state. Named for the several species of bay trees that grow along their shores, these shallow lakes, whose origins are uncertain, are oriented along a northwest-to-southeast axis and have a sandy rim along the southwestern edge. The waters are tannin-stained and acidic, with the exception of Lake Waccamaw, which has a limestone outcrop on the northeast edge that buffers the water, and White Lake, named for its once clear and nearly colorless waters (Frey 1949). Several odonate species (e.g. Little Bluet [*E. minusculum*], Belle's Sanddragon [*Progomphus bellei*]) are found in the state only in these sand-bottomed water bodies, but many additional species, especially damselflies such as Variable Dancer (*Argia fumipennis*), Blue-tipped Dancer (*A. tibialis*), and Pale Bluet (*Enallagma pallidum*), abound along the shores of these odd geomorphic features.

Nearer to the coast, natural limesink ponds also contain a great array of damselflies and are highly important freshwater sources for breeding, particularly for the scarce Carolina Spreadwing (*Lestes vidua*). These depression ponds form where subsurface limestone has dissolved and the overlying substrate collapses (Kirkman 1999). The Tidewater Region, comprising the many counties that surround the two large sounds (Fig. 3), is low in odonate richness (Fig. 2), as few species oviposit and develop in brackish or salt waters. There are, however, a handful of species essentially limited to brackish waters or adjacent freshwater impoundments in the state, such as Big Bluet (*Enallagma durum*), Four-spotted Pennant (*Brachymesia gravida*), Seaside Dragonlet (*Erythrodiplax berenice*), Needham's Skimmer (*Libellula needhami*), and Marl Pennant (*Macrodiplax balteata*).

Species Accounts

Common names follow those of A Checklist of North American Odonata (Paulson, Dunkle, Johnson 2024); scientific names are from the 25 September 2024 revision of the World List of Odonata (Paulson, Schorr, et al. 2004). Families are arranged in taxonomic order; within each family the sequence is alphabetical by genera, then by species within a given genus.

Each species account contains a county occurrence map that is color-coded according to the type and recency of records in our database. We recognize two categories of records based on the degree of corroborating evidence: confirmed and unconfirmed. Confirmed records are those documented by either (a) specimens deposited in curated collections and reported in the literature or reported as "Accepted" with "ID Confidence: High" on Odonata Central (odonatacentral.org), or (b) photographs uploaded to our website, iNaturalist, Odonata Central, or BugGuide (bugguide.net) that have been vetted with high confidence. Unconfirmed records are those supported only by sightings. Although many, if not most, of these sight records probably are correctly identified, we consider them unconfirmed because of the lack of corroborating evidence. We also categorize records according to the period (within the last 20 years or older than 20 years) of the most recent county record to aid us in tracking changes in distribution over time. In our color-coding scheme, we give precedence to confirmed over unconfirmed records and recent (from 2004 or later) over older (before 2004) records. In some cases, a county has older confirmed records as well as more recent unconfirmed sightings. Consequently, we have five overall record categories: (1) confirmed from 2004 or later, regardless of earlier status; (2) confirmed before 2004 plus more recent unconfirmed sightings; (3) confirmed before 2004 only; (4) unconfirmed sighting from 2004 or later only; and (5) unconfirmed sighting from before 2004 only. Rarely, a county has only an undated record, in which case we created a separate category. Each map also shows the three major biogeographical provinces described earlier, and the total number of counties (out of 100) for which we have records.

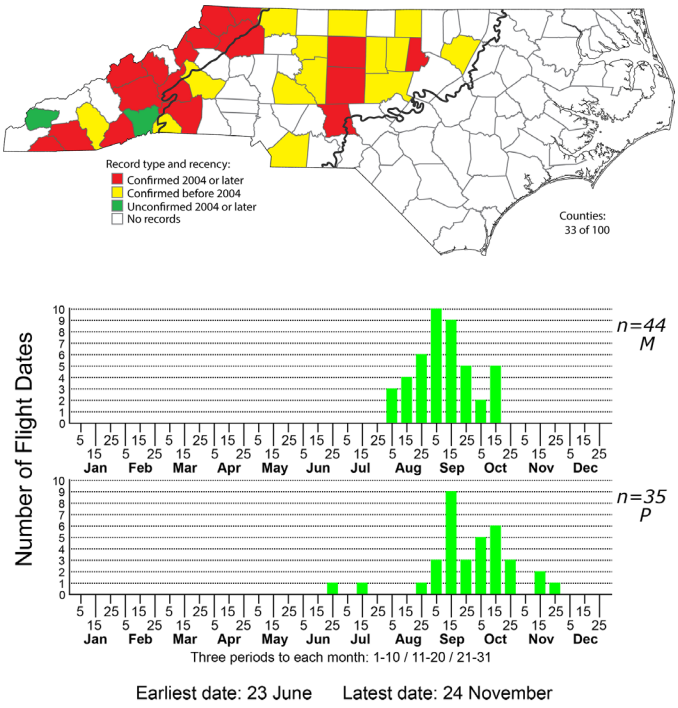
Flight charts, one for each biogeographical province in which the species occurs (M = Mountains, P = Piedmont, C = Coastal Plain), also are presented. These charts illustrate the number of records per three 10-day periods (days 1–10, 11–20, and 21–31) in each month throughout the year. The total number of records for which we have specific dates is shown to the right of each chart. Note that Dot Map Project records provided no dates and some iNaturalist records lack a specific day (i.e., only the month and year are shown). Thus, these records are not represented in the charts or total number of records shown. The earliest and latest flight dates for the state are provided below the charts.

The main text of each account describes the distribution, abundance, conservation status, flight season, habitat, and behavior of the species. Life history information is based in part on our field experience and on published information from Dunkle (2000), Beaton (2007), and Paulson (2011). Abbreviated accounts for four additional unconfirmed species (one damselfly and three dragonflies) reported from North Carolina are provided in Appendix 2.

Suborder Zygoptera (Damselflies)

Family Lestidae (Spreadwings)

Archilestes grandis (Rambur, 1842) — Great Spreadwing



Distribution: Spotty range in the Mountains and Piedmont, though assumed to occur essentially throughout these regions. The range appears to stop at the Fall Line, as there are no records for the Coastal Plain.

Abundance: Uncommon in the Mountains; generally rare in the western and central Piedmont (with few recent records), and very rare along the eastern edge of the range (Fall Line vicinity). It might be truly absent from the far northeastern Piedmont. High counts of:

12 – Madison, 14 October 2016
4 – Forsyth, 18 September 1977
3 – Watauga, 22 September 2017

Status: G5/N5/S3S4

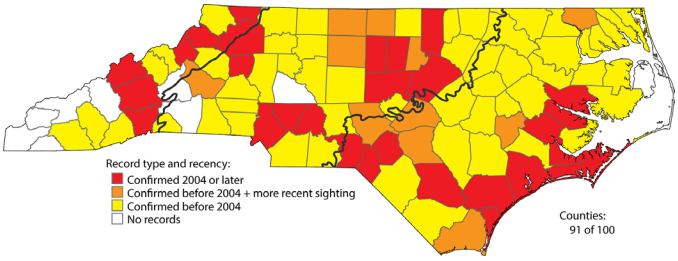
Flight: A late season damselfly. In the Mountains, flies from early August to mid-October, and in the Piedmont from late June to late November, but most records are not until after late August.

Habitat: Along slow streams and fish-free ponds, sometimes in rather degraded urban locales. May be seen well away from water in fields/forest edges.

Behavior: Males perch over water, often higher up in vegetation than other spreadwings. Females, usually in tandem with males, oviposit in plant stems, sometimes high in trees.

Comments: This is a very large damselfly, larger than other spreadwings. It should not be confused with any other odonate, as it is practically the only damselfly with a dragonfly-like thorax of a dark ground color and a single very contrasting yellow lateral stripe.

Lestes australis Walker, 1952 — Southern Spreadwing



Distribution: Essentially statewide. No records yet from several counties at the southwestern tip of the state and a few others, but probably present in all 100 counties.

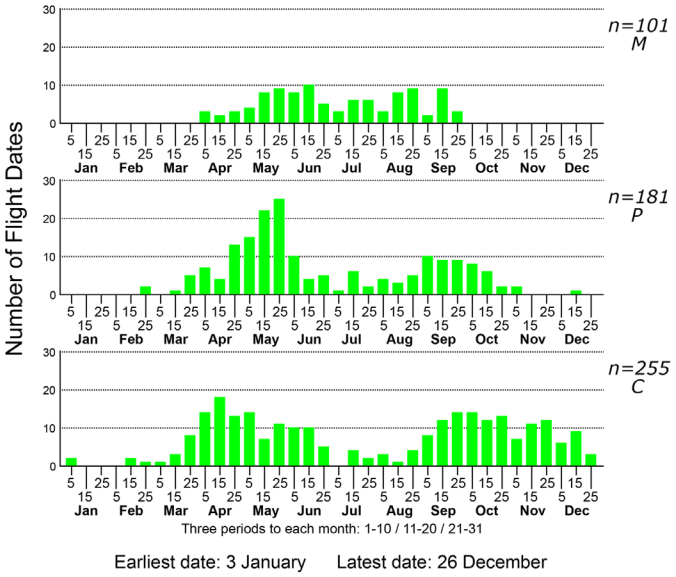
Abundance: Fairly common statewide, except for obviously very rare to rare in the southwestern Mountains. Does not occur in high densities but can be locally common in some places in the southeastern Coastal Plain. High counts of:

35 – New Hanover, 03 December 2021
31 – New Hanover, 18 December 2016
28 – New Hanover, 16 December 2021

Status: G5/N5/S5

Flight: A remarkably wide flight period, even into early winter. In the Coastal Plain and Piedmont, flies from as early

as mid-February to mid-December (rarely near the coast into January). In the Mountains, the flight occurs between early April and late September. Interestingly, the flight charts for all three provinces show a dip in records in the heat of summer. The species is not known to be migratory so perhaps some individuals aestivate in the summer or there are seasonal broods. Further research is needed to determine why there are fewer adults in the summer.



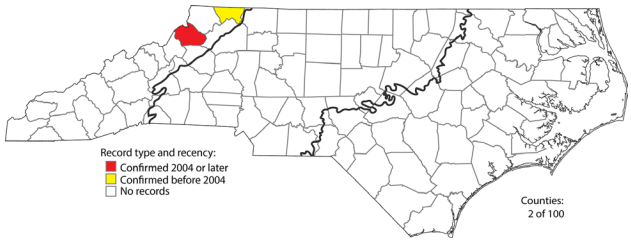
Habitat: Generally around ponds or small lakes, with much vegetation around their margins, including marshes.

Behavior: This spreadwing tends to be slightly more obvious than most others in the genus, as the males may perch more readily on twigs and grass blades over water instead of deep within heavy vegetation.

Comments: Once considered a subspecies *(L. disjunctus australis*), the Southern Spreadwing is now split from its counterpart the Northern Spreadwing (*L. disjunctus*) (Donnelly 2003, Paulson 2004), which is not known from North Carolina.

Lestes congener Hagen, 1861 — Spotted Spreadwing

Distribution: Currently the northwestern Mountains only. North Carolina is near the southeastern edge of the range of this widespread species.

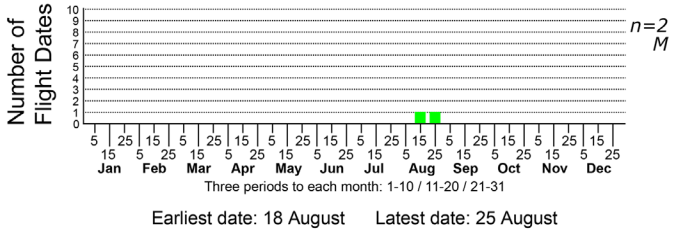


Abundance: As we are aware of just two records, it is considered very rare in the state. However, it is possible that the species is just under surveyed. High counts of:

2 – Watauga, 18 August 2007
2 – Allegheny, 25 August 1987

Status: G5/N5/S1

Flight: North Carolina's two records are from August. Paulson (2011) lists flight dates from May to October over the range.

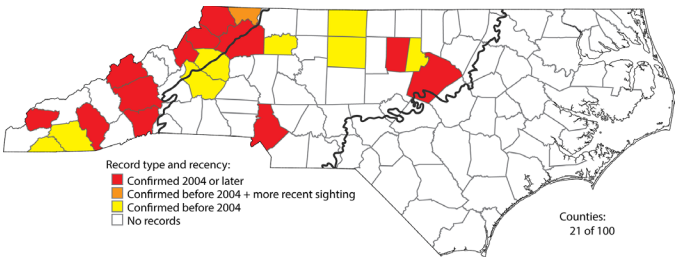


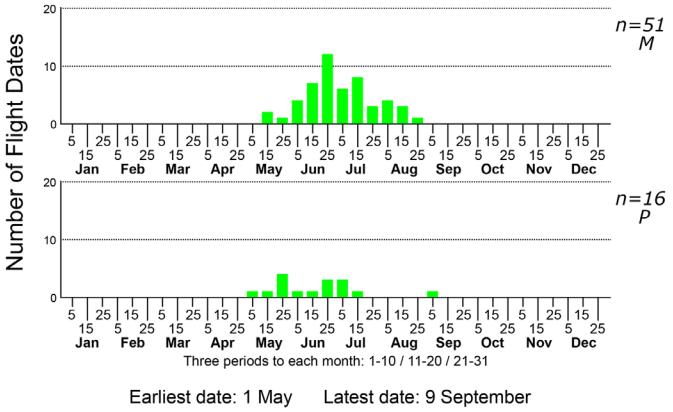
Habitat: Lakes and ponds, with some emergent vegetation around the margins. Roosts in woody vegetation, to a height of 10 feet (3 m) or more.

Behavior: Behavior of this rare species in North Carolina is poorly known. Reportedly can perch well up into trees (Paulson 2011), perhaps also explaining the few records.

Comments: The species is obviously poorly known in the state and is considered Significantly Rare by NCNHP. North Carolina is at the southeasternmost edge of the species' range, which likely attributes to its rarity. But, additional surveys should be conducted in the northern Mountain counties, particularly around ponds with bordering alder thickets that provide roosting habitat.

Lestes eurinus Say, 1840 — Amber-winged Spreadwing





Earliest date: 1 May Latest date: 9 September

Distribution: Scattered throughout the Mountains and the northern Piedmont, with one record for the southern half of the Piedmont. This is a northern species nearing the southeastern extent of its range in the state; there are records from South Carolina and western Georgia.

Abundance: Uncommon and local in the Mountains, but it can be numerous at a few ponds. Rare in the Piedmont portion of the range. There are only a few daily counts of more than eight individuals. High counts of:

30 – Jackson, 25 June 2018
20 – Watauga, 17 July 2021
12 – Allegheny, 1 August 1988

Status: G5/N5/S3

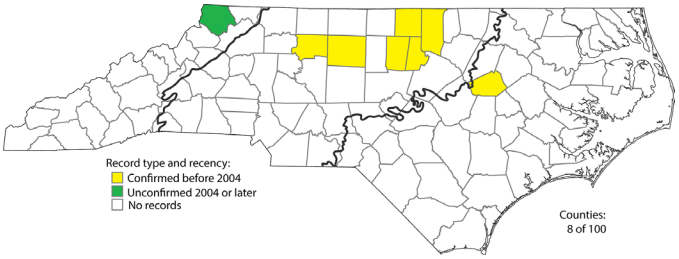
Flight: In the Mountains, from mid-May to late August. The relatively few Piedmont records fall between early May and early September.

Habitat: Mainly in ponds and lakes, even small wetlands, but with some emergent vegetation along the shores.

Behavior: This species is more active along pond margins than other spreadwings. With its large size, it is easier for an observer to spot along the edges, especially given the notable amounts of light blue on the male's thorax and abdomen tip.

Comments: Considering the potential to occur in most Piedmont counties, we have only a few recent records from the province, possibly suggesting a decline in this region. Thankfully, there have been a moderate number of recent records, many documented with photos, for the Mountains.

Lestes forcipatus Rambur, 1842 — Sweetflag Spreadwing



Distribution: This is a northern species whose range extends south only to North Carolina, Tennessee, and northern Georgia. In the state, it is limited to the northern third, thus far recorded only in the northern Mountains and northern Piedmont, with an odd disjunct record in the western Coastal Plain.

Abundance: Rare or overlooked. Very rare or rare in the Piedmont and extreme northern Mountains and presumed extremely rare in the northwestern Coastal Plain. Sadly, there are no known photographs for the state, and the last observation came in 2004, clearly indicating a decline. High counts of:

3 – Person, 15 July 1980
2 – Person, 16 July 1979
2 – Guilford, 4 May 1990

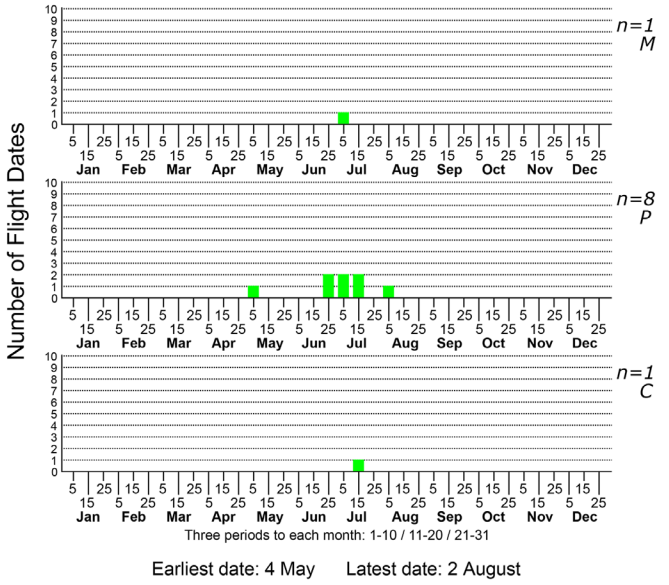
Status: G5/N5/S1S2.

Flight: From early May to early August in the Piedmont. The single record (a sight report) for the Mountains is for early July, whereas the single one for the Coastal Plain is for mid-July. Flight occurs from June into September in Georgia (Paulson 2011).

Habitat: Ponds and lakes with emergent vegetation, even in small pools.

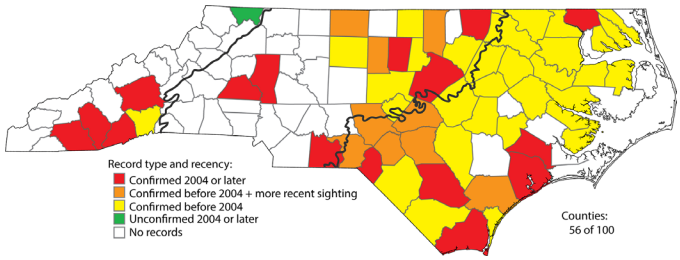
Behavior: Probably similar to most other spreadwings, along pond margins. However, as hardly anyone alive has seen the species in North Carolina, it is probably inconspicuous, not to mention quite rare and difficult to identify without detailed photos.

Comments: Though there are seven old county records for the Piedmont and Coastal Plain, we have no recent records for these provinces, despite a moderate number of biologists working in these regions. Maybe the similarity of males to Southern Spreadwings (*L. australis*) is the main reason for this lack of recent records. A specimen may be necessary to confirm identity, given the minute differences between males of these two species (Donnelly 2003, Patten and Smith-Patten 2013). Females are more easily distinguished from other species by their noticeably larger ovipositors.



Lestes inaequalis Walsh, 1862 — Elegant Spreadwing

Distribution: Most of the eastern half of the state, except perhaps parts of the immediate coast, plus scattered in the western Piedmont and Mountains. Interestingly, Paulson's (2011) range map shows the entire state within the range, as the species is present throughout the eastern half of the country. A recent (2018) sight record is the only record for the northwestern quarter of the state.



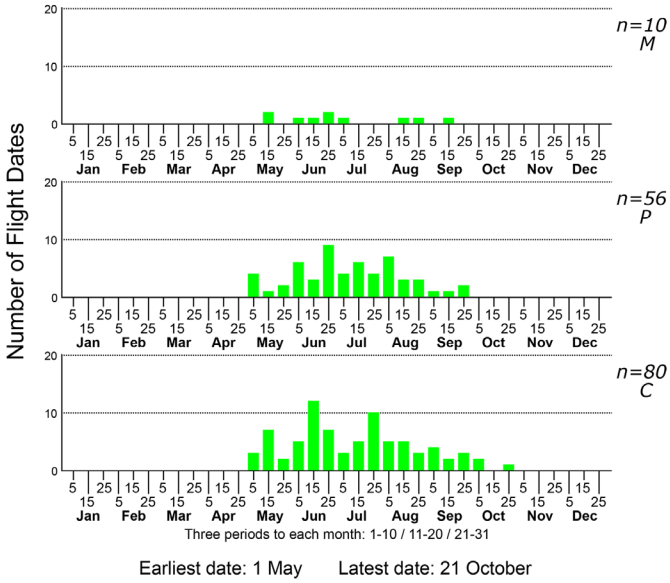
Abundance: Uncommon over the eastern Piedmont and most of the Coastal Plain, and likely is rare in many areas close to the coast (where there are no records for most counties that border the coast). Rare in the southern Mountains, but absent to very rare over the northern Mountains and the western Piedmont. High counts of:

9 – Cumberland, 29 May 2022
9 – Cumberland, 20 May 2023
8 – Wake, 16 May 2023

Status: G5/N5/S4

Flight: The flight period is from early May to late October in the Coastal Plain and from early May to late September in the Piedmont. The relatively few Mountain records fall between mid-May and mid-September.

Habitat: Ponds and lakes with emergent vegetation, including marshes. It also occurs along



slow-moving streams, as long as marshy vegetation is present.

Behavior: Despite its large size, the species is rather inconspicuous amid often fairly dense vegetation along and near a pond or lake shore. It can often be inactive until afternoon and remain in somewhat shaded places.

Comments: The scarcity of recent records in the northern Coastal Plain is puzzling. Perhaps it is being overlooked, but there are also few biologists currently working in this half of the Coastal Plain, especially on damselflies.

Lestes rectangularis Say, 1840 — Slender Spreadwing

Distribution: Nearly statewide, but practically absent close to the coast. This species ranges over most of the eastern United States.

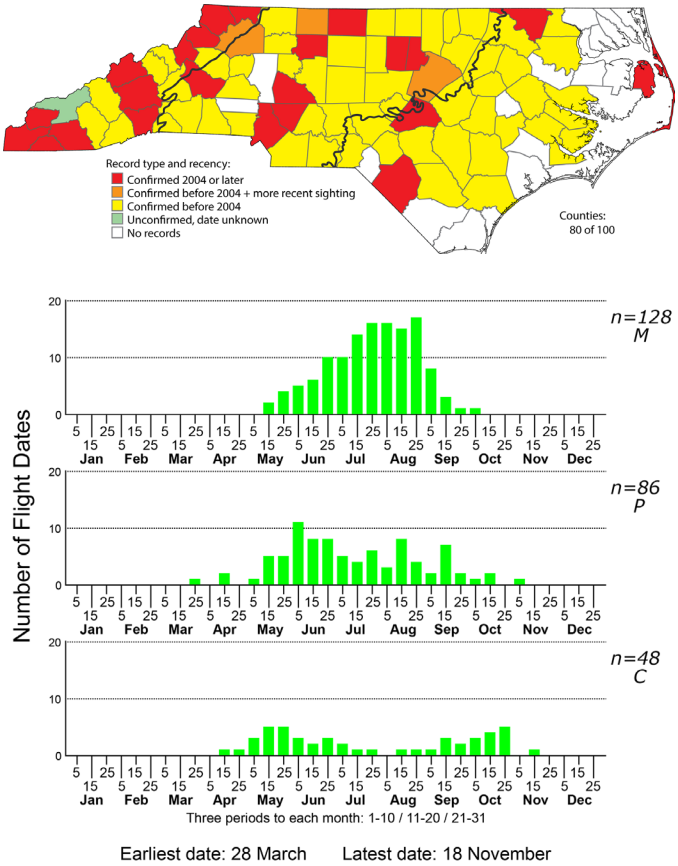
Abundance: Fairly common to locally common, and widespread, in the Mountains; generally uncommon in the Piedmont; rare to uncommon in the western and central Coastal Plain; apparently absent from most of the eastern Coastal Plain. Clearly more numerous in the Mountains than downstate, with the three highest single-day counts from this province, and roughly 1.5 times the number of records there than in the Piedmont, despite having only a third of the geographic area. High counts of:

20 – Watauga, 3 September 2018
15 – Buncombe, 21 May 2013
15 – Watauga, 5 August 2018

Status: G5/N5/S5

Flight: A long flight period, covering most of the odonate season. From late March to early November in the Piedmont, and mid-April to mid-November in the Coastal Plain. Surprisingly, the earliest record in the Mountains is not until mid-May, and it occurs to at least early October.

Habitat: Marshy areas, typically around ponds or lakes, but also sometimes slow streams with emergent vegetation.



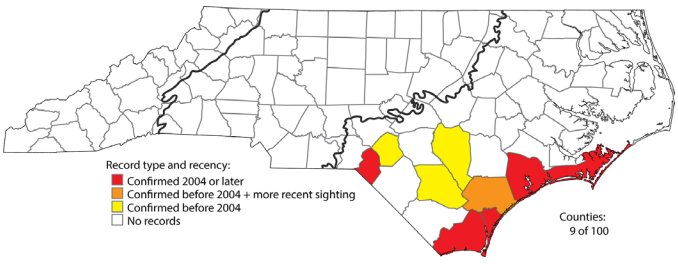
Behavior: As with other spreadwings, despite its large (i.e., very long) size, adults are usually inconspicuous down into grassy vegetation fairly low along a pond or large shore.

Comments: This is one of the more numerous damselflies in the Mountains, but it is scarce (though widespread) downstate. Its range in the lower Coastal Plain needs more elucidation, though it is certainly rare close to tidal waters.

Lestes vidua Hagen, 1861 — Carolina Spreadwing

Distribution: Restricted to the southern Coastal Plain. However, a record from Virginia Beach, Virginia (Roble 1994), suggests that this southeastern species might occur elsewhere in the North Carolina Coastal Plain north of the known range.

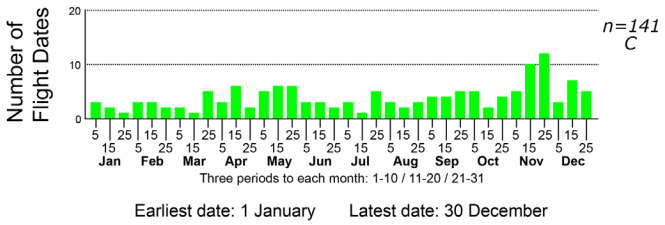
Abundance: Generally rare (or at least quite local) over the range in the state, but abundant at a few sites. High counts of:



354 – Carteret, 4 September 2016
254 – Carteret, 23 October 2016
233 – Carteret, 26 June 2016

Status: G5/N5/S3

Flight: Occurs in all months of the year at several (mostly limesink) pond sites. Very few other odonates can be seen throughout the year. In fact, the flight chart shows at least one record in each of the 36 10-day time periods throughout the year!



Habitat: Edges of lakes and ponds, including temporary ponds, with emergent grasses and sedges. May also occur at freshwater marshes. Typically in fish-free waters, within natural areas and mostly at limesink ponds.

Behavior: Males typically perch on herbaceous stems over water, usually some distance from shore, where no algae grow at the water's surface. Such sites offer unobstructed access to tandem pairs descending below the surface to oviposit in the stem. When not mating, females are most often found in vegetation along shorelines and farther upland.

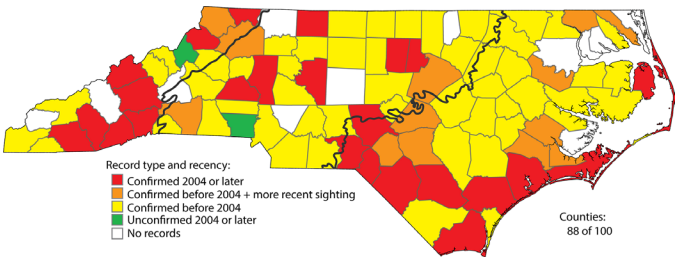
Comments: This species clearly deserves some search efforts in North Carolina. Until 2015, it was one of the most poorly known damselflies in the state, as evidenced by only 12 known records from just six counties prior to that year (Shields 2016). Fortunately, new populations were discovered in four counties since 2015.

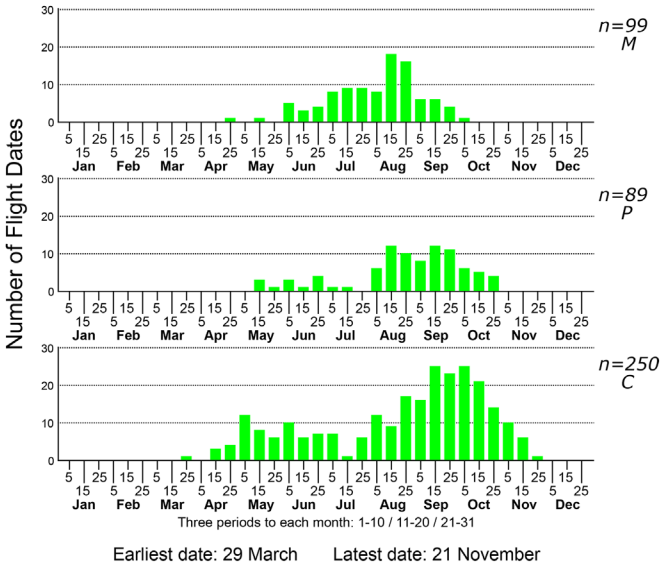
Lestes vigilax Hagen in Sélys, 1862 — Swamp Spreadwing

Distribution: Statewide, though lacking records for 12 scattered counties across the state. Presumed to occur in all 100 counties.

Abundance: Fairly common to common in the Mountains, and locally very common in parts of the Coastal Plain. Oddly, appears to be less numerous (i.e., uncommon) in the intervening Piedmont, as there are slightly fewer records there than in the Mountains, which has a much smaller geographic range and many fewer observers than in the Piedmont. There are single-party counts of at least 20 individuals in each of the three provinces. High counts of:

120 – Carteret, 25 May 2016
50 – Buncombe, 21 August 2011
45 – Scotland, 7 October 2017





Status: G5/N5/S5

Flight: A wide flight period, extending to late autumn. In the Coastal Plain, it occurs from late March to late November. Piedmont records fall between mid-May (and should occur by late April) and late October; Mountain records fall between late April and early October.

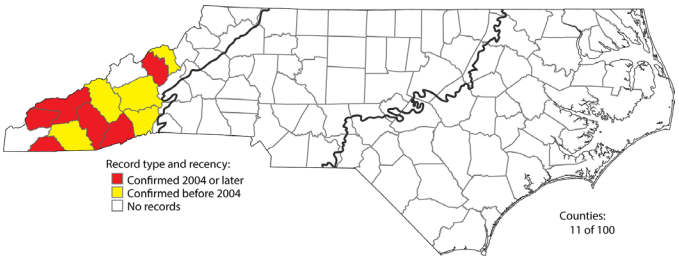
Habitat: Ponds and lakes in somewhat wooded country, especially where shrubs grow in the water; or where marshy vegetation grows along the margins of such waters.

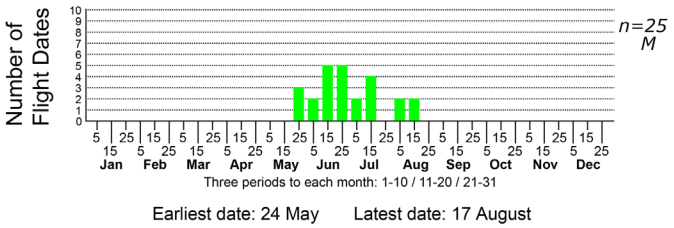
Behavior: Despite being one of the more widespread and numerous spreadwings, it can be difficult to spot in the shade or partial shade of semi-forested pond and lake margins.

Comments: This is another reasonably common spreadwing across the state, with large numbers of records in all three provinces.

Family Calopterygidae (Broad-winged Damsels)

Calopteryx amata Hagen, 1889 — Superb Jewelwing





Earliest date: 24 May Latest date: 17 August

Distribution: The southern two-thirds of the Mountains, if not the entire Mountain region. The range map in Paulson (2011) shows that this region is a southerly disjunct area from central West Virginia, with apparently no records for western Virginia. Thus, this northeastern North American species might truly be missing from the northern counties of the North Carolina Mountains.

Abundance: Rare, to perhaps locally uncommon, with a handful of recent records—five in 2022 alone. High counts of:

9 – Jackson, 26 June 2018
4 – Yancey, 1 June 2021
4 – Swain, 8 July 2023

Status: G5/N5/S1S2

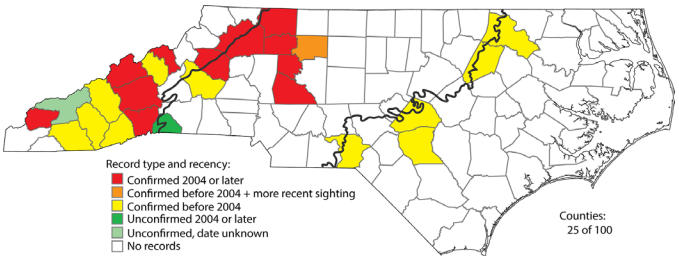
Flight: Flies from late May to mid-August.

Habitat: Rocky streams or rivers in wooded areas.

Behavior: Seems to always stay very close to rivers and large streams, often perching on rocks along such waters. Habitat and behavior in North Carolina seem not to be well differentiated from Appalachian Jewelwing (*C. angustipennis*), though the Appalachian is much more widespread and also occurs in the warmer upper Piedmont.

Comments: The NCNHP considered this as a Watch List species in 2010. However, as there were so few recent data, and relatively few records overall, that Program elevated the species to Significantly Rare status in fall 2012. Thankfully, there have been 18 records, most photographic, from five counties (including two new county records) since 2015. Perhaps there are now more observers/photographers in recent years, and more visits to the southern Mountains (where few odonate enthusiasts live).

Calopteryx angustipennis (Sélys, 1853) — Appalachian Jewelwing



Distribution: Nearly throughout the Mountains and Piedmont foothills. Scattered records near the Fall Line of the eastern Piedmont and upper Coastal Plain, but of uncertain presence now in most of the central and eastern Piedmont. This central and eastern portion of the Piedmont has been rather well worked, especially the Triangle area, and thus the species may be truly absent now in much of the middle of the state. There is also an odd gap in the northern Mountains.

Abundance: Uncommon to locally fairly common in the southern Mountains, but seemingly rare (but likely not absent) in the northern Mountains. Uncommon (at least locally) in the northwestern Piedmont, but very rare to possibly locally absent in the central and eastern Piedmont and western edge of the Coastal Plain. In fact, there are no records since 1998 for the Fall Line counties. High counts of:

25 – Yadkin, 17 May 2017
15 – Madison, 17 May 2012
15 – Caldwell, 9 May 2016

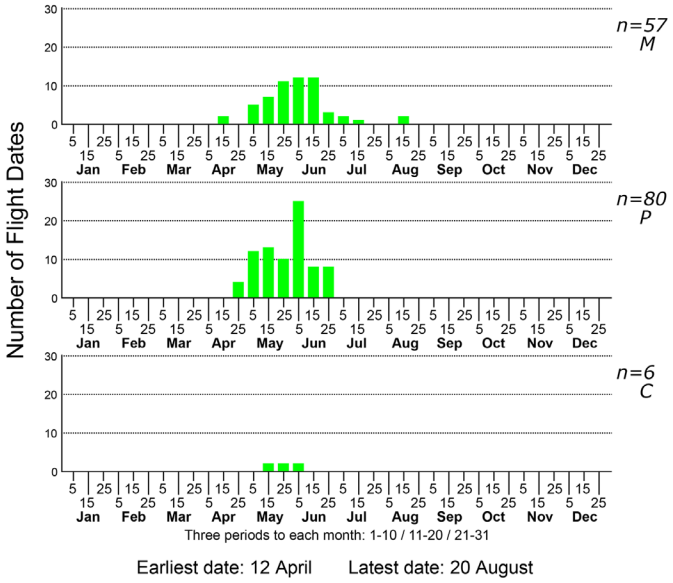
Status: G4/N4/S3S4

Flight: Mainly mid-April to mid-August, at least in the Mountains, and probably also in the Piedmont. However, records downstate are only from late April to late June.

Habitat: Rivers and large streams, usually where rocky and with moderate current; generally where the waters are cold or cool.

Behavior: Males often perch on vegetation close to rivers and streams, though, like the rare Superb Jewelwing (*C. amata*), can also be seen perched on rocks in mid-stream.

Comments: The gap in the range in the Piedmont is most unusual, and might actually be real, as there has been much odonate fieldwork conducted in the eastern half of the Piedmont. Searches east of the western Piedmont are greatly needed to clarify this range. Perhaps the northern Mountain counties are too high in elevation for this species; records are needed in this region, as well, to fill an odd gap. The fact that there are no records for the eastern Piedmont or western Coastal Plain since 1998 is clearly a sign of recent declines in the population near the Fall Line, as this should be an easily identified species.



Calopteryx dimidiata Burmeister, 1839 — Sparkling Jewelwing

Distribution: Nearly statewide, but seemingly absent from the northeastern third of the Coastal Plain. Of spotty occurrence in the Mountains, but likely present in all counties there except perhaps ones lacking low elevations (< 2500 feet [762 m]).

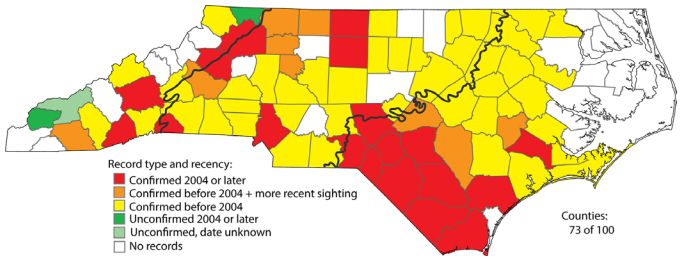
Abundance: Locally common (to occasionally abundant) in the southern Coastal Plain, including the Sandhills. Uncommon (with relatively few recent records) throughout the Piedmont and central/northern Coastal Plain, except for the northeastern third of the latter province, where rare to absent. Very rare in the Mountains. Seems to be declining in numbers in the Piedmont and Mountains, and probably also in most of the central and northern Coastal Plain. High counts of:

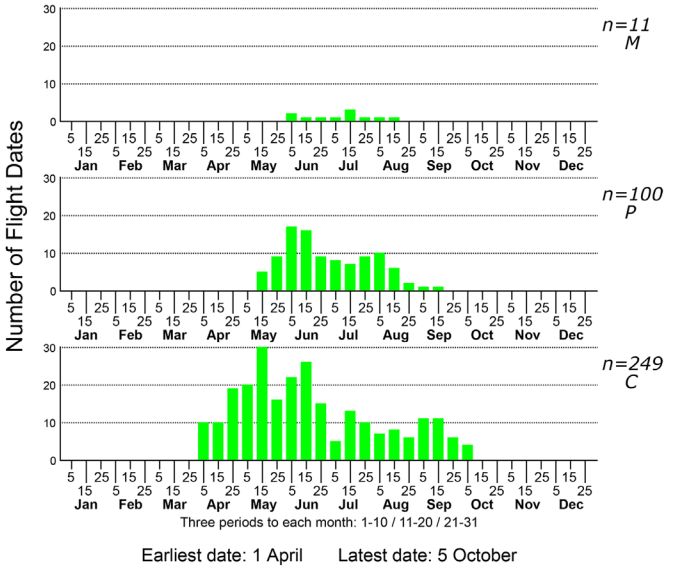
450 – Columbus, 17 May 2017
450 – Robeson, 17 May 2017
350 – Bladen, 27 May 2016

Status: G5/N5/S5

Flight: Early April to early October in the Coastal Plain, but so far just from mid-May to mid-September in the Piedmont. Though there are at least nine counties with records for the Mountains, we have flight data only from early June to mid-August.

Habitat: Small to moderate streams as well as blackwater rivers, generally fast-flowing and acidic, and not necessarily in forested areas (though favoring semi-shaded waters).





Behavior: The black wingtips of the males are very conspicuous and make the individuals much easier to spot in flight over their shaded creeks than would be if the wings were clear. However, this species is more often found in sunnier places, such as wider creeks or rivers, than is the more shade-loving Ebony Jewelwing (*C. maculata*).

Comments: Range maps in Beaton (2007) and Paulson (2011) show all of North Carolina within the range of the species. This may be generous and "broad-brush," as it appears to be truly absent in northeastern North Carolina and may be absent in some of the northern Mountain counties. The species is surprisingly rare in the Mountains, considering its relative numbers in the Piedmont. Also, despite the heavy amount of odonate fieldwork in the northeastern Piedmont, where many biologists live, there are no recent records there!

Calopteryx maculata (Palisot de Beauvois, 1805) — Ebony Jewelwing

Distribution: Statewide, lacking records only in three far eastern counties, though likely present in all 100 counties.

Abundance: Very common (to locally abundant) across the state, except less numerous in the eastern Coastal Plain. Seemingly rare in counties surrounding Albemarle Sound, and perhaps absent on the Outer Banks. One of the most abundant odonates in the Mountain province. High counts of:

118 – Onslow, 4 June 2016
118 – Jones, 4 June 2016
98 – Buncombe, 16 May 2012

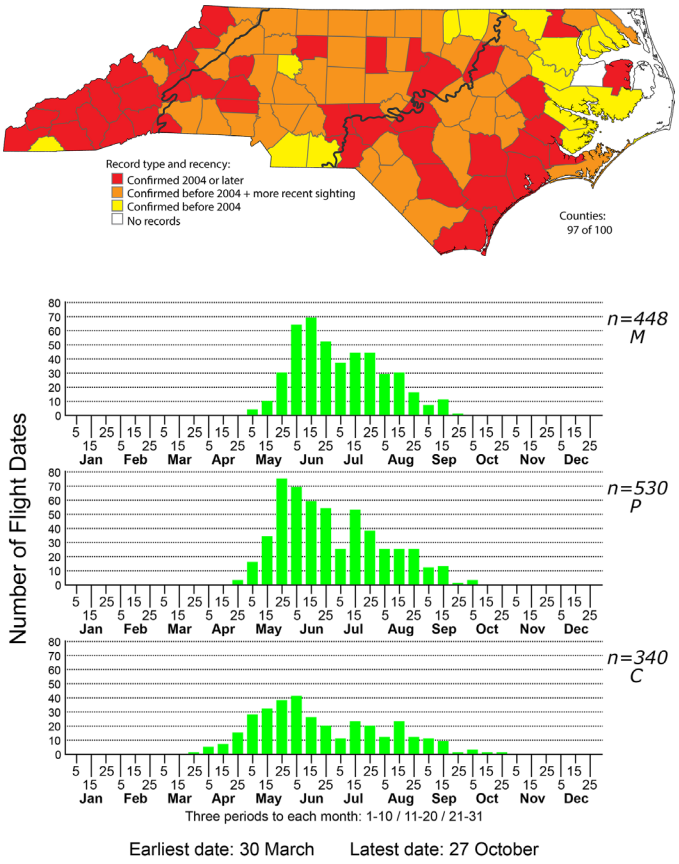
Status: G5/N5/S5

Flight: Late March to late October in the Coastal Plain; late April or early May to early October in the Piedmont, and to late September in the Mountains.

Habitat: A wide variety of stream habitats, but most common along small, forested streams.

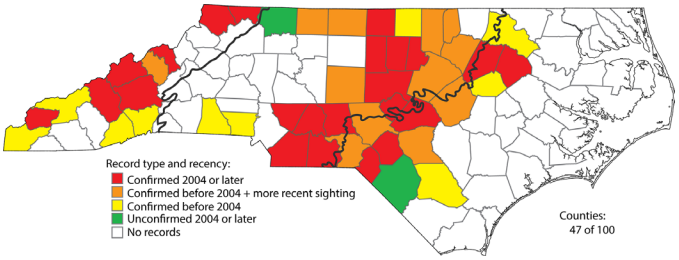
Behavior: Where present, easily seen flitting slowly amid vegetation close to a stream, usually in shade or in small openings inside a forest.

Comments: This is, by far, the most commonly seen of North Carolina's Calopterygidae, and it is also one of the most obvious and easily identified of all of the state's damselflies.



Hetaerina americana (Fabricius, 1798) — American Rubyspot

Distribution: Throughout the Mountains, presumably throughout the Piedmont, and the western third of the Coastal Plain, including the Sandhills. Absent from the eastern 60–65% of the Coastal Plain; absence of records from much of the western Piedmont is perhaps partly due to poor survey coverage but certainly must represent a general scarcity there.



Abundance: Common to locally abundant in the Mountains and also in the eastern Piedmont, near the Fall Line. Seemingly quite rare in the western half of the Piedmont, for unknown reasons. Also, rare to very uncommon in the western Coastal Plain/Sandhills. High counts of:

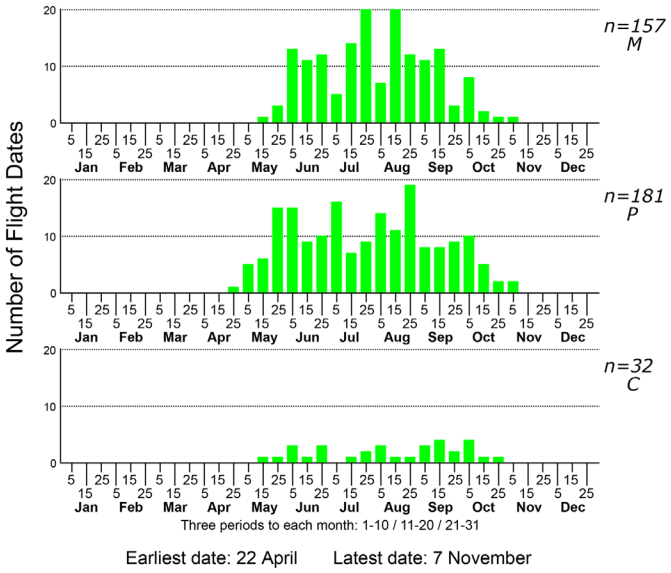
1155 – Wake, 27 September 2012
600 – Wake, 20 July 2012
505 – Wake, 27 July 2013

Status: G5/N5/S5

Flight: Late April to early November in the Piedmont; apparently slightly shorter flight period in the Mountains from mid-May to early November. Coastal Plain flight period probably is similar to that of the Piedmont, though currently we have flight dates only from mid-May to mid-October.

Habitat: Rocky streams and rivers, generally where clear and with moderate current.

Behavior: Typically seen perched on rocks or stems/twigs very close to the river or large stream, often in somewhat open/sunny conditions.



Comments: There are a number of daily counts over 75 individuals and a few over 500. The range in high counts is puzzling. Most of these high counts are close to the Fall Line and a few are in the Mountains. Yet, there are no records at all from essentially any foothills county or other counties nearby in the Piedmont. It would seem that there are plenty of suitable rocky streams and rivers in this area. This species is one of the larger and more beautiful of the damselflies, with the deep red/crimson color of the thorax and wing bases of the adult males being quite spectacular in sunlight, and making them quite conspicuous, so their absence in portions of North Carolina is mysterious.

Hetaerina titia (Drury, 1773) — Smoky Rubyspot

Distribution: Present essentially throughout the Piedmont and the southern and western Coastal Plain; apparently absent from the eastern third of the Coastal Plain. Scattered across the length of the Mountains, but with several large gaps in the range; likely present in all 17 Mountain counties.

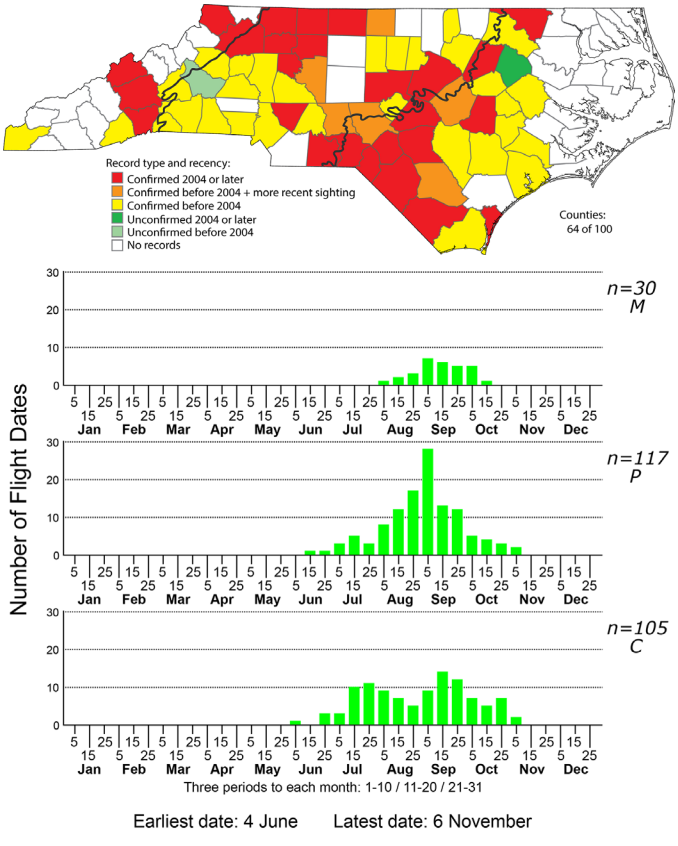
Abundance: Uncommon over its range in the state. Locally fairly common to common at a few sites in the western Coastal Plain/Sandhills and eastern and northwestern Piedmont. Absent in the eastern Coastal Plain. High counts of:

123 – Wilkes, 22 September 2018
100 – Robeson, 27 August 2016
100 – Columbus, 27 August 2016

Status: G5/N5/S5

Flight: Early to mid-June to early November in the Piedmont and Coastal Plain; Mountain records are fairly late in the season, from early August to mid-October.

Habitat: Rivers and larger streams, typically where the current is slow to moderate flowing. Apparently at larger rivers and slower-flowing waters than is the American Rubyspot (*H. americana*), though the habitats overlap, and both can occur along the same stream or river.



Behavior: This species is more wary than is the American Rubyspot, making photography or close observation more challenging.

Comments: This species is somewhat similar to the American Rubyspot in appearance and habitats, often perching on rocks next to the creeks or rivers. The locations of the highest counts are oddly scattered in the state; one in the northwestern Piedmont and two others in the southern Coastal Plain. The absence or scarcity of recent records for the southwestern Piedmont is odd and somewhat concerning.

Family Coenagrionidae (Pond Damsels)

Amphiagrion saucium (Burmeister, 1839) — Eastern Red Damsel

Distribution: Throughout the Mountains and presumably over much or most of the Piedmont. Perhaps present in the western Sandhills. There is an isolated record for the central Coastal Plain. The species is a somewhat northern species, ranging south to central Georgia.

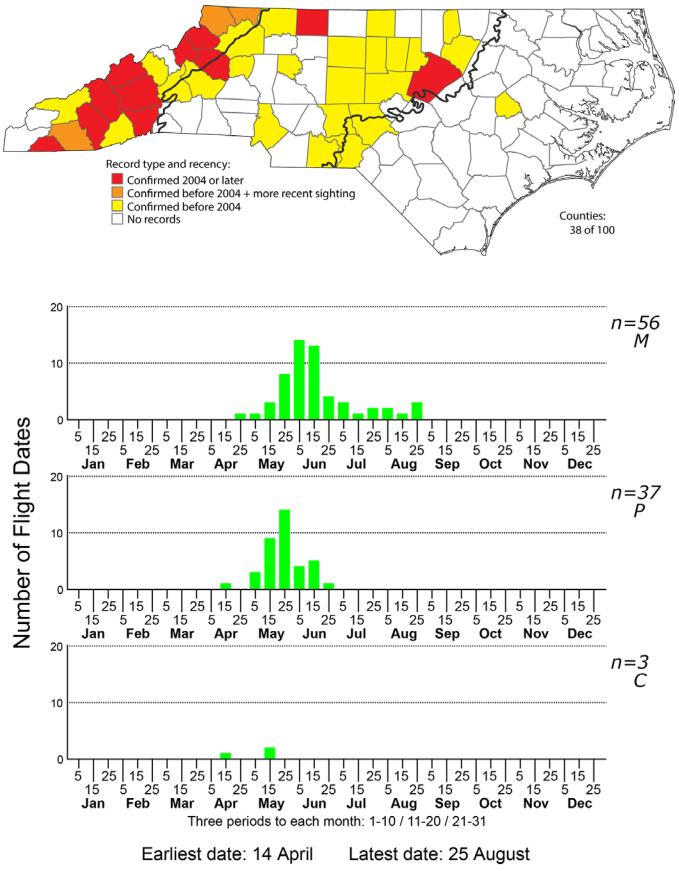
Abundance: Fairly common, to locally common, in the Mountains. Seemingly rare in the western half of the Piedmont, and rare to very uncommon in the eastern half, though it can be locally numerous there. Very rare in the western Coastal Plain. Seems to be declining east of the Mountains, as there are few recent records in this large region. High counts of:

50 – Wake, 21 June 2010
20 – Wake, 30 May 2010
20 – Madison, 9 May 2018

Status: G5/N5/S2S3

Flight: Ends rather early in the season, by midsummer. The Mountain flight occurs between late April and late August. The Piedmont flight is from mid-April to late June, but it should occur into August. The few Coastal Plain records are in a narrow window from mid-April to mid-May, but records should occur into July or August.

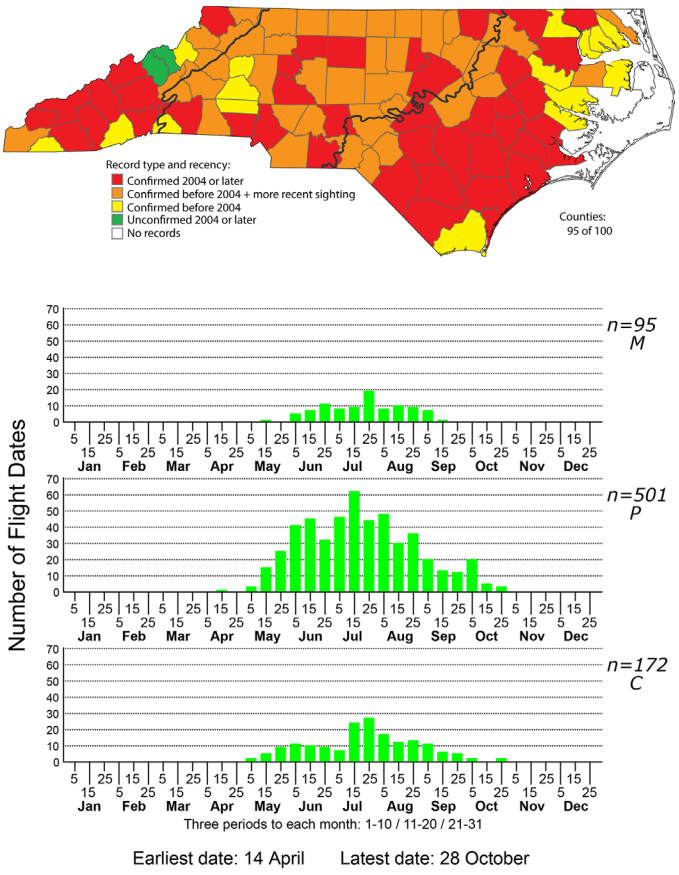
Habitat: Small streams, seeps, bogs, or marshes, with thick vegetation.



Behavior: Perches on grasses and sedges, seldom on broad, flat leaves. Though a colorful species with a reddish abdomen, it is quite tiny and easy to overlook.

Comments: The absence of county records for much of the central and southwestern Piedmont is odd, given its local abundance in the Mountains and at the eastern edge of the Piedmont. It is not a species that is difficult to identify; thus, this odd abundance pattern might be real.

Argia apicalis (Say, 1840) — Blue-fronted Dancer



Distribution: Essentially statewide, though possibly absent in the eastern Tidewater Region. Presumably absent on the Outer Banks.

Abundance: Often very common in the Piedmont and western Coastal Plain, particularly around flowing water in the Piedmont. Fairly common to locally common in the Mountains and the central and southern Coastal Plain. Rare in the northeastern and far eastern Coastal Plain, and probably absent near the coast there. High counts of:

175 – Chatham, 11 July 2022
100 – Chatham, 11 July 2010
100 – Wake, 21 July 2021

Status: G5/N5/S5

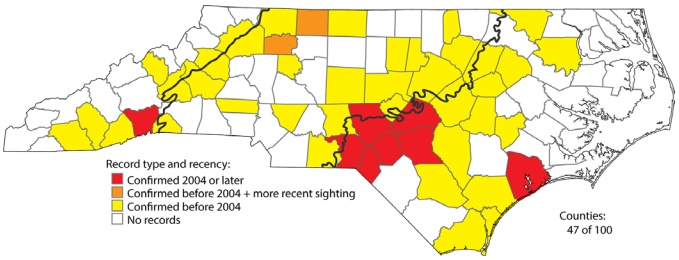
Flight: Mid-April to early May through late October in the Piedmont and the Coastal Plain; mid-May at least to mid-September (and likely later) in the Mountains.

Habitat: Favors rivers and large streams, but it can be found away from water. Also occurs around lake and pond margins.

Behavior: Prefers open areas with sunlight, using rocks, ground, or available vegetation for perching. It seems to be the most commonly seen dancer on dirt roads and other bare ground well away from water.

Comments: This is one of the state's most common and widespread damselflies, except near the northeastern and eastern coastal areas.

Argia bipunctulata (Hagen, 1861) — Seepage Dancer



Distribution: Scattered throughout the Piedmont and western two-thirds of the Coastal Plain; of spotty occurrence in the Mountains and eastern Coastal Plain, and no records for most counties in the Tidewater zone.

Abundance: Fairly common to locally common in the Sandhills region. Rare to uncommon (and perhaps local) across the Piedmont and the western 50–60% of the Coastal Plain (excluding the Sandhills). Rare in the Mountains and central Coastal Plain, and apparently absent from most Tidewater counties. There have been relatively few recent records from the Piedmont, and it seems likely to have declined there, as it has elsewhere in its overall range (e.g., Oklahoma [Smith and Patten 2021]). High counts of:

105 – Scotland, 8 June 2020
100 – Scotland, 16 June 2007
40 – Moore, 4 June 2014

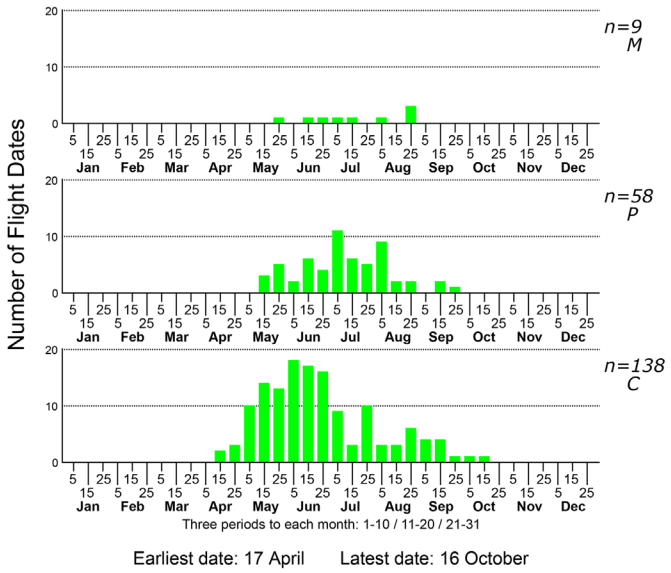
Status: G4/N4/S3S4

Flight: Mid-April to mid-October in the Coastal Plain, and mid-May (if not earlier) to late September in the Piedmont. The few Mountain records fall between late May and late August.

Habitat: As the common name implies, found around seeps or boggy places, where there are abundant sedges. Most records are from the margins of ponds, typically with boggy margins.

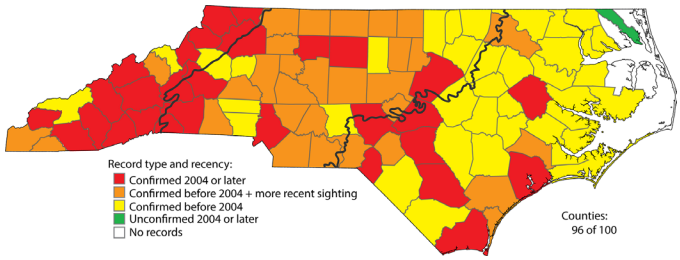
Behavior: This species looks and behaves like a bluet (genus *Enallagma*) and not a typical dancer (genus *Argia*). Males perch somewhat inconspicuously on grasses or other vegetation, very close to shore, but often in sunny places. They seldom perch on the ground like other dancers, another feature that makes a Seepage Dancer more like a bluet!

Comments: This dancer can be easily overlooked because it often perches low in dense herbaceous vegetation around pond margins and seepage areas. Despite it having been reported from 47 counties in the state, one must travel to the Sandhills to have a reasonable chance of finding this species.



Argia fumipennis (Burmeister, 1839) — Variable Dancer

Distribution: Essentially statewide, with the exception being the northeastern Coastal Plain, where it may be legitimately absent from several counties. Two subspecies occur in North Carolina: *A. f. fumipennis* in the Coastal Plain and far eastern Piedmont, and *A. f. violacea* in the Mountains and most of the Piedmont.



Abundance: Common to locally abundant across the state (except rare to absent in the extreme northeast); can often be the most numerous damselfly at a site. Most numerous in the Sandhills, where two of the state's three largest one-day totals have been made. High counts of:

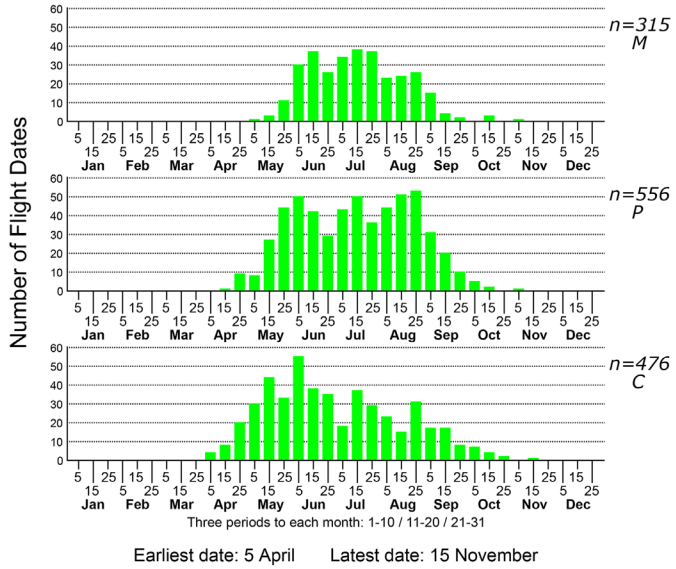
175 – Richmond, 13 May 2022
120 – Buncombe, 4 June 2022
110 – Richmond, 22 July 2023

Status: G5/N5/S5

Flight: Occurs nearly throughout the odonate flight season. Records fall from early April to mid-November in the Coastal Plain and between mid-April and early November in the Piedmont, while the Mountain flight starts slightly later in early May and lasts until early November.

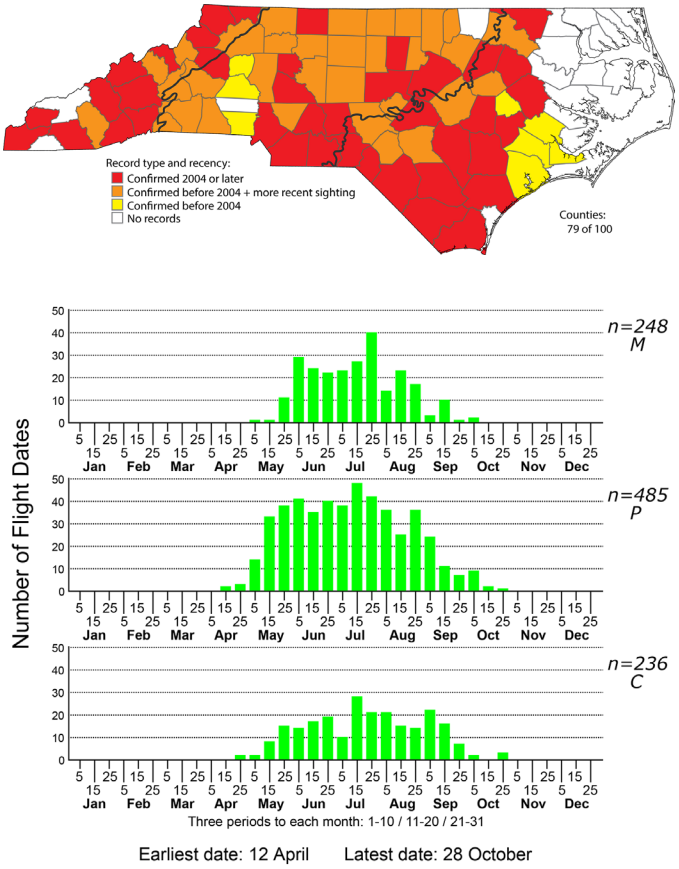
Habitat: Extreme variability in habitats: around small streams, ditches, pond margins, and other slow waters; usually where there are grasses and sedges. May often feed well away from water.

Behavior: Arguably the most conspicuous of the dancers, the males are easily seen perched on rocks or vegetation in or close to a stream. They also can be found on dirt tracks or roads away from water.



Comments: It is another of the more familiar damselflies in the state, being common to very common in each of the three provinces and recorded from every county except for four in the northeastern corner of the state.

Argia moesta (Hagen, 1861) — Powdered Dancer



Distribution: Throughout the Mountains, Piedmont, and the western two-thirds of the Coastal Plain. No records for most of the Tidewater.

Abundance: Common to abundant in the eastern Piedmont; common to very common in the rest of the Piedmont, the western 60–65% of the Coastal Plain, and the Mountains, though less numerous in the southwestern part of the Mountains. May be legitimately absent from nearly all counties in the Tidewater region. High counts of:

815 – Wake, 25 June 2014
575 – Wake, 27 July 2013
220 – Columbus, 10 August 2018

Status: G5/N5/S5

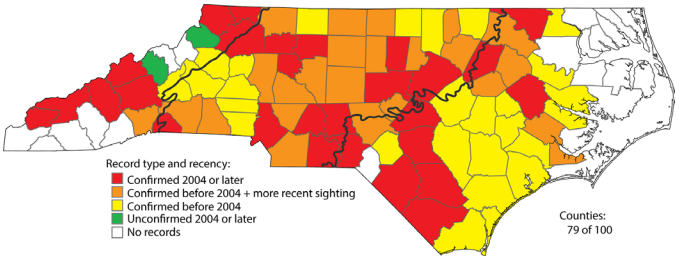
Flight: Occurs from mid-April to late October in the Piedmont, at least from late April (if not earlier) to late October in the Coastal Plain, and from early May to early October in the Mountains.

Habitat: Found along rivers and streams, more so along rockier ones and larger ones than all other dancers. Can also be found along roads and other places away from water, when foraging.

Behavior: This is the most frequently seen dancer along rockier streams and rivers, often perching on exposed rocks. As with several other dancers, this species can be frequently seen away from water at sunny patches along trails and dirt roads.

Comments: The two highest counts in the state are from the eastern Piedmont, though this might be an artifact of observer coverage rather than a true abundance pattern. Adult males are easily identified by their whitish pruinosity, particularly on the thorax and terminal abdominal segments.

Argia sedula (Hagen, 1861) — Blue-ringed Dancer



Distribution: Occurs over most of the state, but apparently absent in the Tidewater region. Probably present over all of the Mountains, but just one record for the southwestern counties.

Abundance: Common to locally abundant (at least near the Fall Line) in the Piedmont; fairly common in the western Coastal Plain, but likely uncommon to locally fairly common in the remainder of the Coastal Plain part of the range. Uncommon to locally fairly common in the Mountains, but apparently rare (though likely not absent) in the southwestern counties. High counts of:

1220 – Wake, 27 September 2012
769 – Wake, 6 October 2012
331 – Wake, 31 August 2013

Status: G5/N5/S5

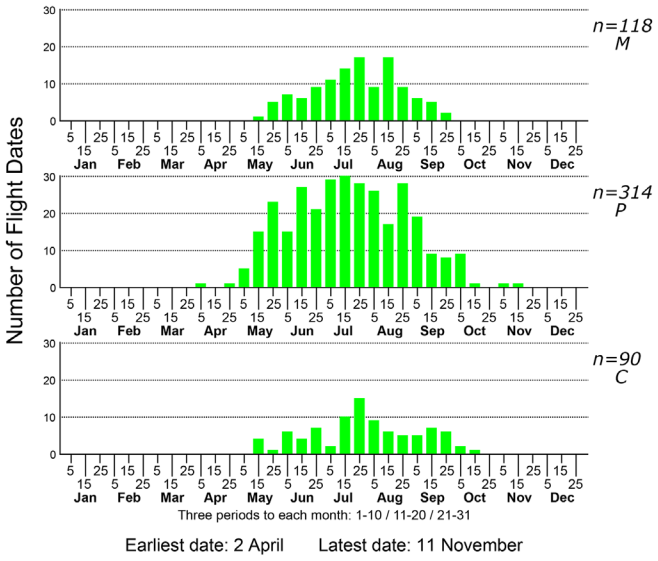
Flight: Occurs from early April to mid-October (sparingly to mid-November) in the Piedmont, from mid-May to late

September in the Mountains, and from mid-May to mid-October in the Coastal Plain.

Habitat: Streams and rivers, typically where somewhat rocky, and usually where there is some herbaceous vegetation along the water. Sometimes around shores of lakes and ponds, and can be found along roads and other corridors away from water.

Behavior: Males often perch higher off the water than other dancers. Females often (and males at times) can be found well away from water, on dirt tracks.

Comments: This is another of the common species of dancers, normally easily found in most parts of the state. The absence of records for the extreme southwestern Mountains seems puzzling, considering that range maps include most of the southeastern U.S. states.



Argia tibialis (Rambur, 1842) — Blue-tipped Dancer

Distribution: Statewide, though possibly absent along the extreme northeastern coastal areas. Likely found in all Mountain counties, though a few in the northern Mountains lack records.

Abundance: Common to locally very common in the Piedmont and most of the Coastal Plain; fairly common to locally common in much of the Mountains. Not common in the eastern part of the Coastal Plain, but at least uncommon to fairly common, except rare to absent in the extreme northeastern counties. High counts of:

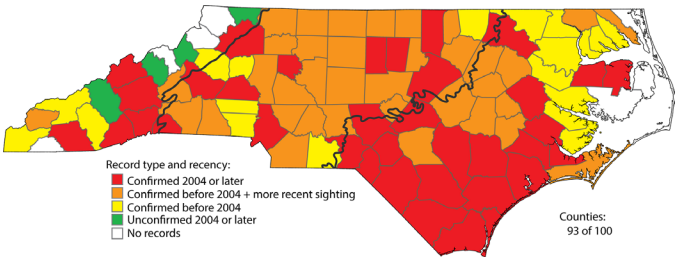
335 – Wake, 31 May 2013
235 – Pender, 19 May 2017
125 – Columbus, 17 May 2017

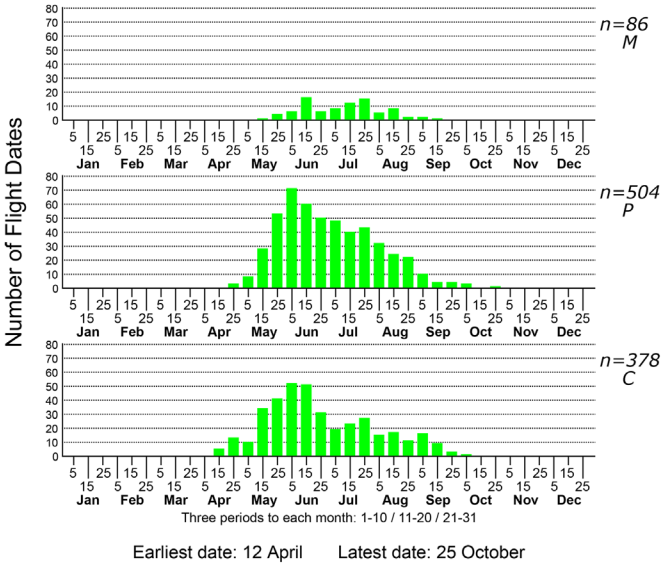
Status: G5/N5/S5

Flight: Occurs from mid- or late April to early October (and probably later) in the Coastal Plain and to late October in the Piedmont; the Mountain flight occurs between mid-May and mid-September.

Habitat: Small and mainly wooded creeks/streams, typically with a few riffles. Less often along rivers or larger streams without riffles. Typically closer to forested creeks than other dancers.

Behavior: The species is seen frequently away from water at sunny patches along trails and dirt roads, especially females. Males are often found in shade along wooded creeks, but the bright abdomen tip is conspicuous when they fly around.

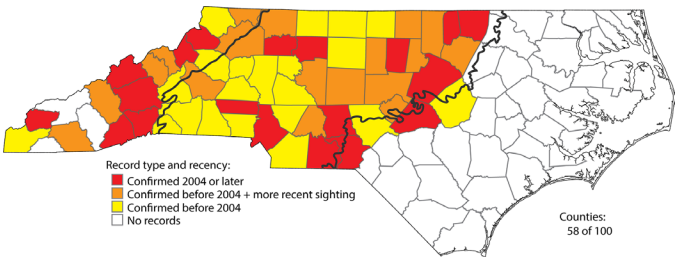


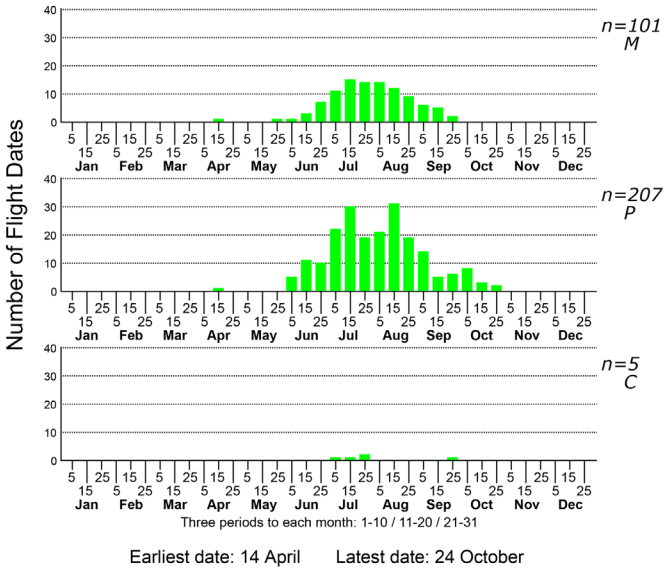


Comments: This is another dancer species that is common across most of the state and occurs in nearly all counties, but as with many other dancers, it is scarce or absent in the extreme northeastern part of the Coastal Plain. In Georgia, Beaton (2007) says it is "Often the most numerous dancer at any given site"; however, in North Carolina, it has similar

abundance to other dancer species but does not seem quite as numerous as the Variable, Blue-fronted, Powdered, and Blue-ringed dancers (*Argia fumipennis*, *moesta*, *sedula*), except in the southeastern Coastal Plain.

Argia translata Hagen in Sélys, 1865 — Dusky Dancer





Distribution: Throughout the Mountains and Piedmont, but essentially absent from the Coastal Plain, though present along the Fall Line in a few such counties.

Abundance: Fairly common in the Piedmont and Mountains (at least locally); nowhere truly common. Absent, or nearly absent, from the Coastal Plain (including the Sandhills), except near the Fall Line. High counts of:

17 – Wilkes, 17 July 2021
16 – Chatham, 27 June 2021
15 – Wake, 7 August 2009

Status: G5/N5/S4

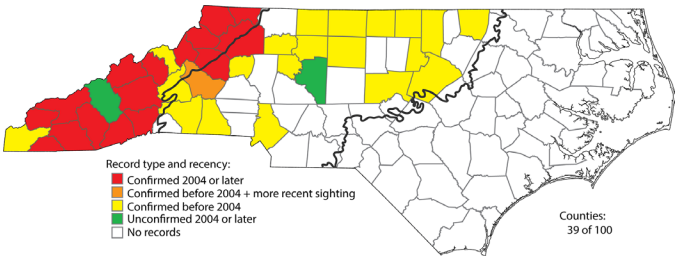
Flight: Mainly flies from late May or early June to late October in the Piedmont and to late September in the Mountains. Each province has a very early record for mid-April. The few Coastal Plain records are from early July to late September only, meaningless for establishing a flight period at the upper edge of that province.

Habitat: A variety of rivers and creeks; scarce at ponds or lakes. Often on rocks in the creek or river.

Behavior: This species normally stays close to its shaded creeks, perching on rocks or along vegetation along the shore where their dark coloration can make them much less conspicuous than other dancer species.

Comments: This and the Seepage Dancer (*A. bipunctulata*) are the two least abundant dancers in North Carolina.

Chromagrion conditum (Sélys, 1876) — Aurora Damsel



Distribution: Throughout the Mountains; scattered over the northern half of the Piedmont, but possibly absent in the extreme southeastern counties. Absent from the Coastal Plain.

Abundance: Fairly common in the Mountains, at least locally. Rare over most of the Piedmont, but apparently uncommon in the foothills; clearly declining in the state away from the Mountains, with hardly any recent records. Possibly absent in a few counties in the southeastern Piedmont. The highest counts are from the Mountains and foothills. High counts of:

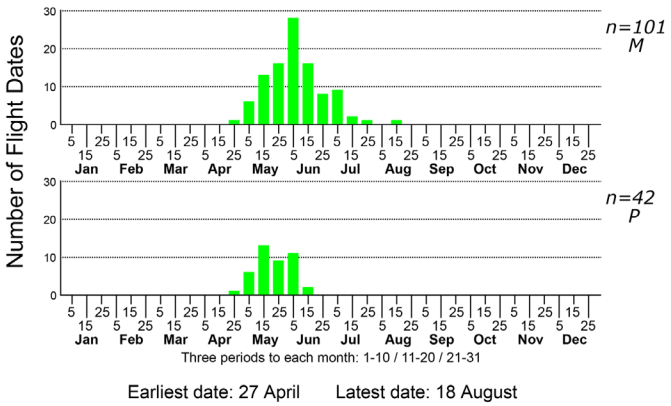
40 – Madison, 15 May 2021
20 – Buncombe, 6 June 2016
20 – Alleghany, 1 June 2017

Status: G5/N5/S3S4

Flight: The Mountain flight is from late April to mid-August, whereas the Piedmont flight is from late April to mid-June. However, there is no reason the flight in the Piedmont should be narrower than that in the Mountains, and it likely flies throughout July and into August.

Habitat: Still waters of pools/ponds, such as beaver ponds, bogs, seeps, and slow streams. Not often found far from water.

Behavior: Males readily perch on leaves of shrubs or saplings along shores, rarely out on emergent vegetation in the water. The partially spread wings help in identification.



Comments: There are relatively few recent records from the Piedmont, especially the southern half of the Piedmont. Perhaps this recent decline, if real, is a result of global warming. There has been an increase in Piedmont observers since the time of Cuyler a few decades ago, and yet the species is not being reported from this large region. The species should be easily identified, at least with photographs, if the yellow lower thorax is visible.

Enallagma aspersum (Hagen, 1861) — Azure Bluet

Distribution: Throughout the Mountains, and essentially throughout the Piedmont; in the Coastal Plain mainly in the western and central portions. Clearly absent from the eastern portions of the Coastal Plain.

Abundance: Common in the Mountains, at least locally. Uncommon in the Piedmont, though may be locally fairly common to common. Rare in the Coastal Plain, and possibly absent close to the coast, especially in the far eastern counties; few recent records for this province. High counts of:

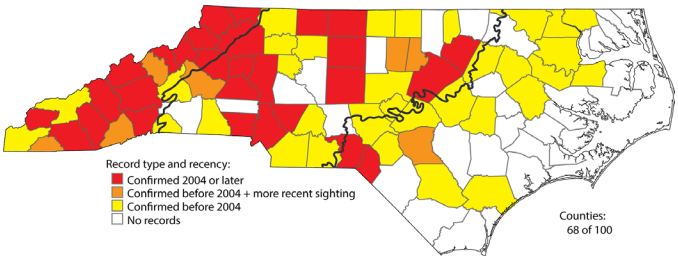
180 – Wake, 9 July 2016
175 – Wake, 19 May 2017
105 – Wake, 14 May 2016

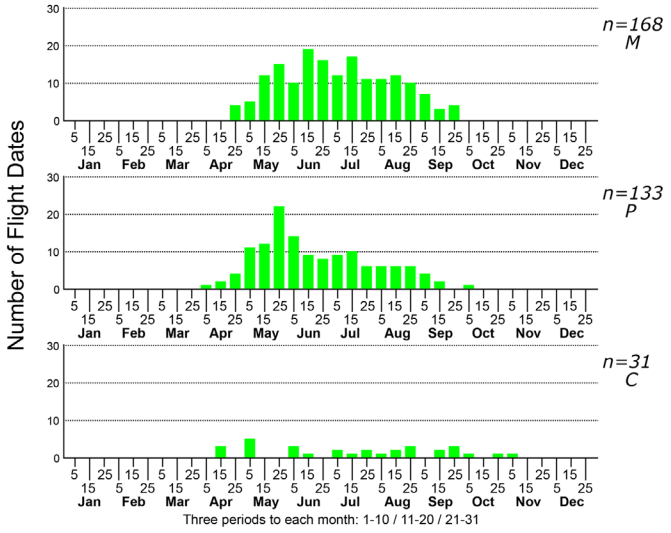
Status: G5/N5/S4

Flight: The Mountain flight occurs from late April to late September, whereas the Piedmont season is slightly longer—early April to early October, and the Coastal Plain flight even slightly longer—mid-April to early November.

Habitat: Ponds and small lakes, usually with emergent vegetation. Often, but not exclusively, in fishless waters.

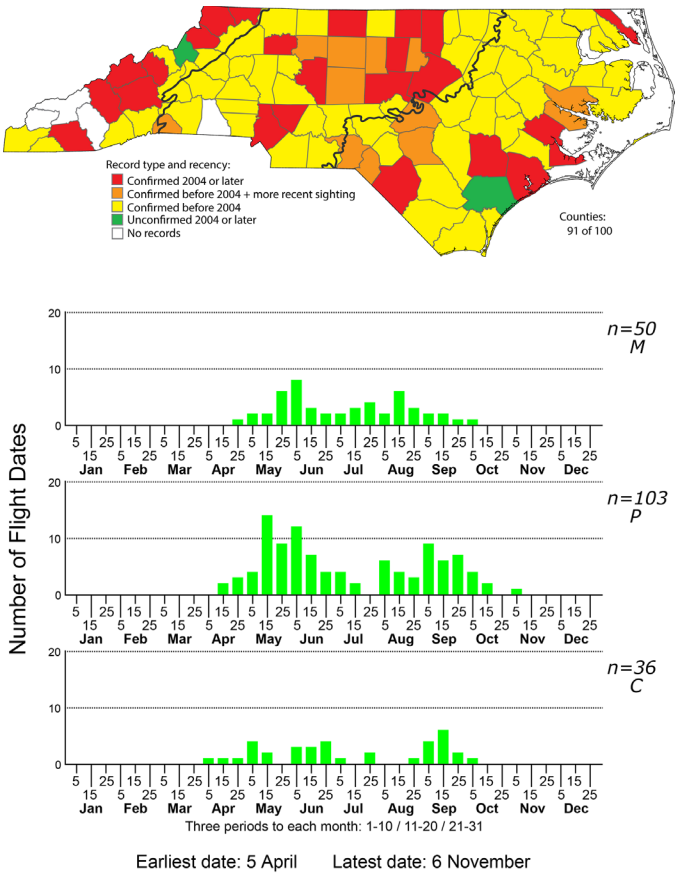
Behavior: Males are not shy, and often perch on emergent vegetation out from a pond shore in full sun. As with many bluets, populations are quite local, seemingly absent from many or most suitable-looking ponds.





Comments: The species is more easily found in the Mountains than downstate. Yet, the three highest counts are from the eastern Piedmont, and thus it is disturbing or at least odd there are no records for about 35% of the Piedmont counties. Whether this lack of records reflects actual scarcity or low sampling effort is unknown.

Enallagma basidens Calvert, 1902 — Double-striped Bluet



Distribution: Essentially statewide. Though no records from a handful of Mountain and far eastern Coastal Plain counties, it likely occurs in essentially all 100 counties.

Abundance: Despite its very wide range in the state, this is by no means a commonly encountered or numerous damselfly. It tends to be much less numerous than many other North Carolina bluets. Uncommon to locally fairly common in the Mountains and Piedmont, but mostly uncommon in the Coastal Plain, and rare near the coast. For example, in 2023, there were just two reports for the entire state reported to our website. High counts of:

35 – Orange, 13 June 2009
25 – Chatham, 12 May 2018
15 – Madison, 8 June 2012

Status: G5/N5/S5.

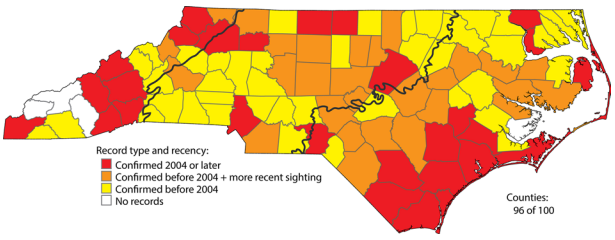
Flight: The flight starts in April in all provinces, being a bit earlier in the Coastal Plain and Piedmont (early or mid-April) than in the Mountains (late April). The long flight continues to mid-October (rarely to early November) in the Piedmont, at least to early October in the Coastal Plain, and to early October in the Mountains.

Habitat: Ponds and small lakes, as well as slow-moving streams, usually where there is emergent vegetation.

Behavior: Males often perch in the open at ponds at or very close to the water, but their small size (one of the state's smallest bluets) can cause them to be overlooked.

Comments: As with so many of North Carolina's damselflies, the number of recent records with flight dates is far fewer relative to the large number of county records historically, implying little recent effort studying damselflies. Though the species likely occurs in all 100 counties, it is not overly numerous anywhere, with just two single-day tallies of over 15 individuals.

Enallagma civile (Hagen, 1861) — Familiar Bluet



Distribution: Statewide. Though no records for three counties in the southwestern tip of the state and one eastern county, it is assumed to occur in all 100 counties.

Abundance: Common, at least locally, and widespread across the Coastal Plain and Piedmont; common in the northern and central Mountains, but less numerous in the southwestern Mountains. High counts of:

450 – Wilkes, 27 May 2018
375 – Wilkes, 20 May 2018
210 – Wilkes, 21 July 2018

Status: G5/N5/S5

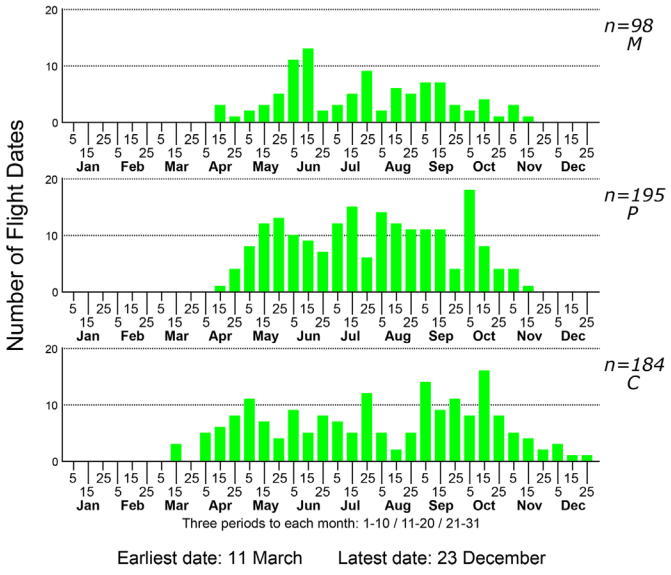
Flight: A very long flight period for a damselfly. Flies in the Coastal Plain from mid-March to late December, though

scarce after mid-November. In the Piedmont and Mountains, the flight starts around mid-April and extends to mid-November in both provinces.

Habitat: A wide array of ponds and other still water habitats, even slow-moving rivers—especially where emergent vegetation is present.

Behavior: As with many other bluets, it typically is found in full sun at ponds, perching on emergent vegetation just above the water. And, like most bluets, it can be quite local and not found in some ponds or lakes that appear to be suitable for them.

Comments: This is one of the state's most widespread and often seen pond damselflies. It is one of the few bluets that is numerous in truly coastal counties. It is quite similar in appearance to Atlantic Bluet (*E. doubledayi*), and thus sight reports of these two in the Coastal Plain and eastern Piedmont must be made with care and might be suspect. This is especially true as the Atlantic Bluet can often greatly outnumber the Familiar Bluet at many Coastal Plain ponds and lakeshores. Close-up views of male cerci and in-hand identification of females are musts to differentiate these species.



Enallagma concisum Williamson, 1922 — Cherry Bluet

Distribution: The southern third of the Coastal Plain only. North Carolina lies at the northeastern end of the species' range.

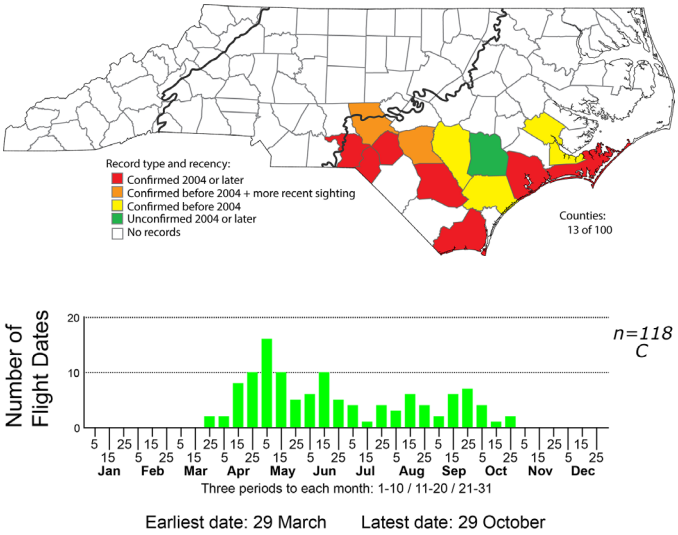
Abundance: Generally uncommon, but locally fairly common at a few sites. One of the state's less numerous bluet species. High counts of:

91 – Scotland, 8 June 2020
44 – Brunswick, 2 May 2017
34 – Bladen, 7 May 2017

Status: G4/N4/S3S4.

Flight: The flight is quite extended, from very late March to late October. It is more easily found in May and June than later in the season. Given the level of survey effort mid-summer, especially in July, we are confident the dip in abundance at that time of year is real.

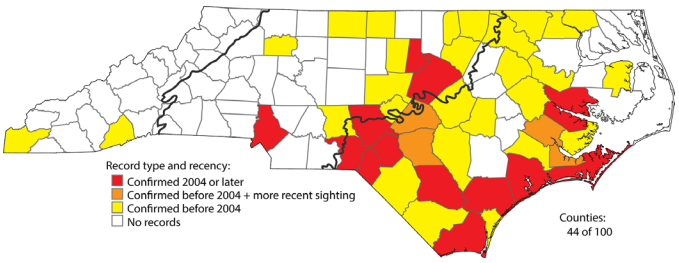
Habitat: Ponds or lakes with sandy bottoms, particularly where there is much emergent vegetation.

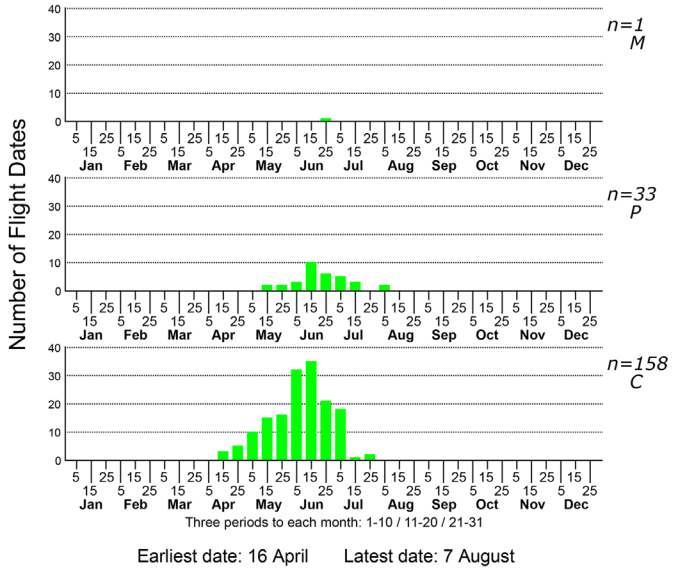


Behavior: Males perch on lily pads and other floating or emergent vegetation (such as twigs and grass blades), often well out from the shore.

Comments: The scarlet-red (not "cherry") and black banding pattern on the thorax of the adult male is very stunning! For whatever reason, many males of this species are infested with water mites, marring an otherwise beautiful photo.

Enallagma daeckii (Calvert, 1903) — Attenuated Bluet





Distribution: Nearly throughout the Coastal Plain (though perhaps absent in some Tidewater counties), the eastern third of the Piedmont, and very sparingly westward to include the extreme southern Mountains. Presumed absent from the central and northern Mountains; however, presumed to occur as a rarity in the western Piedmont counties.

Abundance: Common in the Sandhills, but mostly uncommon elsewhere in the southern half of the Coastal Plain. Rare to uncommon in the northern Coastal Plain, and perhaps absent close to the northern coast. Rare in the eastern Piedmont, and very rare at best elsewhere in the Piedmont and southern Mountains. High counts of:

85 – Carteret, 25 May 2016
67 – Carteret, 8 May 2016
60 – Moore, 12 June 2013

Status: G4/N4/S4

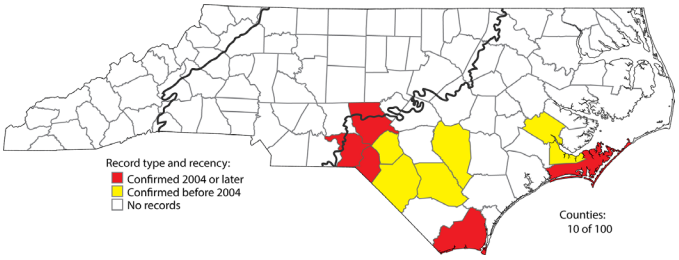
Flight: A shortened flight for a bluet, seemingly not occurring after mid-summer. In the Coastal Plain, it occurs from mid-April only to late July, and in the Piedmont from mid-May to early August. The only date record available for the Mountains is for late June.

Habitat: Sand-bottomed ponds and lakes, usually with shrubby margins.

Behavior: Typically perches within clumps of grass or shrubs, where it can be difficult to observe. However, when seen on the wing, it is usually quite obvious owing to its very long and slender abdomen and overall pale blue coloration. Males often fly very slowly, almost like huge forktails (genus *Ischnura*) and can be easily lost sight of among grassy stems.

Comments: North Carolina's two highest counts are now from the southeastern coastal area. There are also several sizable single-day counts from the Sandhills. Despite there being at least 15 county records west of the Fall Line, there are just a few recent reports from this large area. It has possibly declined in the Piedmont. More search efforts in the Piedmont and northern half of the Coastal Plain are needed. Careful observance is needed because this skinny species easily can be overlooked.

Enallagma davisi Westfall, 1943 — Sandhill Bluet



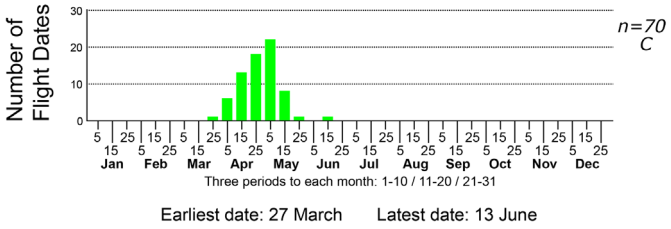
Distribution: Primarily the Sandhills region, but sparingly east to the southeastern corner of the state. North Carolina lies at the northern end of the range.

Abundance: Generally uncommon and local. Fairly common at a few favored locales in the Sandhills. High counts of:

40 – Scotland, 17 April 2020
25 – Scotland, 19 April 2008
25 – Scotland, 24 April 2022

Status: G5/N5/S3S4. The state rank probably should be S3, although we now have a few recent records away from the

Sandhills, documented by photos.



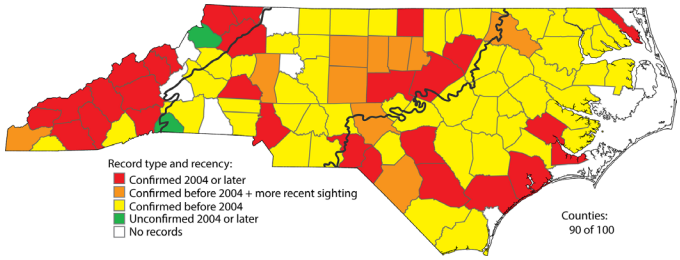
Flight: A spring-season flight only, unusual for a bluet. The flight occurs from very late March to mid-June but is mostly over by mid-May.

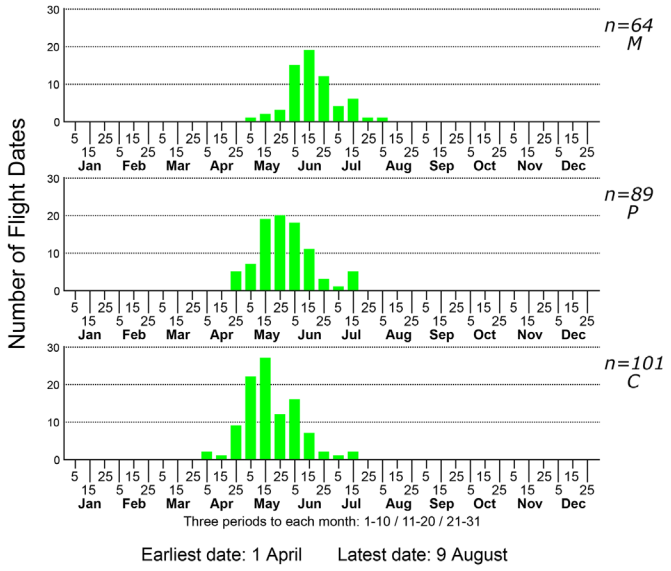
Habitat: Sandy-bottomed lakes or large ponds, with emergent vegetation along the shore.

Behavior: Males are not at all shy, often perching conspicuously on stubs or other emergent vegetation in a pond or lake, often a bit out from the shore. They also can occur with females in vegetation along a pond margin.

Comments: Though there are many dragonflies with a flight period in the spring season only, there are few such "spring only" damselflies in North Carolina.

Enallagma divagans Sélys, 1876 — Turquoise Bluet





Distribution: Nearly statewide. Possibly absent in one to several counties along the Outer Banks.

Abundance: Despite its very wide range in the state, as with the Double-striped Bluet (*E. basidens*), it is generally uncommon to locally fairly common across the state, though certainly rare in the extreme eastern counties and in the higher elevations. As with many other bluets, the species is quite local; numerous at some montane ponds, a handful of Coastal Plain creeks, and at various sites (pond margins and creeks) in the Piedmont. High counts of:

150 – Onslow, 18 May 2018
120 – Wake, 19 May 2014
65 – Cumberland, 13 May 2023

Status: G5/N5/S5

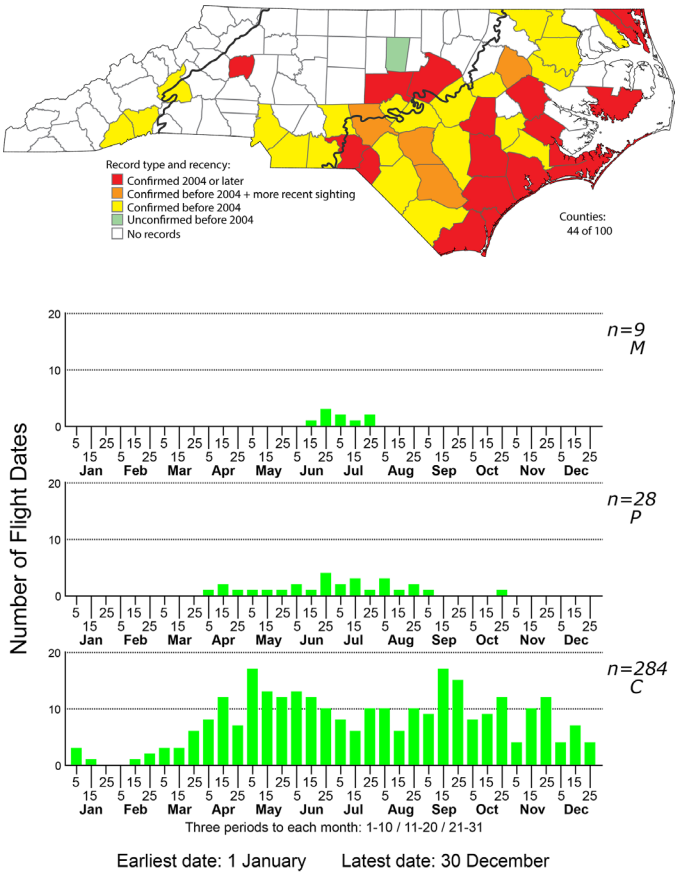
Flight: This is another bluet that ends its flight by mid-summer, as opposed to flying well into the fall season. In the Coastal Plain, it occurs from early April only to mid-July. The Piedmont flight is from late April to mid-July, and the Mountain flight is slightly later, early May to early August. Nonetheless, the flights are mostly over by mid-July across the state.

Habitat: Varied. More often at heavily shaded, slow-moving streams, but it also is found along shaded pond and lake margins. Interestingly, most montane records are from ponds, whereas farther eastward, there is a tendency for it to be a creekside species (at least in the Coastal Plain).

Behavior: This species is found more often in semi-shaded places with plenty of shrubs along the edge of a lake, pond, or slow-moving creek. It seldom can be found in full sun and never out in the open at a lake or pond, instead it tucks itself in along shorelines.

Comments: This bluet has an odd array of habitats, much more so than nearly all others. Most other bluets occur around pond margins, often in sunny places, where males may perch on grass blades or twigs out into the water, or at least fly within the grasses and sedges along the shore. The Turquoise Bluet usually shuns full sun and likes partial shade close to bushes along the water's edge, where they often perch; these sites can be along shaded rivers or creeks, or shaded ponds. Reports of the species seen well out from shore, at lakes and ponds, probably relate to the rather similar Slender Bluet (*E. traviatum*), which favors sunnier places.

Enallagma doubledayi (Sélys, 1850) — Atlantic Bluet



Distribution: Generally throughout the Coastal Plain, and in the southeastern third of the Piedmont; also sparingly in the southern Mountains. Seemingly absent over most of the northwestern half of the state, including most of the Piedmont and most of the central and northern Mountains. This is basically an Atlantic slope species, not found west of the Appalachians and rarely within them.

Abundance: Often overlooked because of identification difficulties, especially with Familiar and Big bluets. Fairly common to locally abundant in the southern half of the Coastal Plain, but rare to locally uncommon in the northwestern part of the Coastal Plain. Rare to locally uncommon in the extreme eastern Coastal Plain and in the southeastern Piedmont, and very rare west to the Mountains. High counts of:

1950 – Onslow, 29 May 2017
1930 – Onslow, 19 May 2016
1300 – Onslow, 4 May 2019

Status: G5/N5/S5

Flight: A very wide flight period, extending to early winter. In the Coastal Plain, records occur from mid-February to mid-January. The relatively few Piedmont records fall between early April and late October, whereas Mountain records occur only from mid-June to late July (so far).

Habitat: A variety of ponds and lakes, rarely slow-moving creeks/rivers, at least where emergent vegetation is present. Mainly a pond species.

Behavior: Males perch low on vegetation over water; females are more often found in shoreline vegetation or on the ground on nearby roads or trails. Males are often easily seen if present at all at a pond/lake (though compare carefully with Familiar Bluet!).

Comments: Beaton (2007) notes that the species in Georgia is likely under-reported, and certainly the same can be said for North Carolina. Though there are specimen records for about 35–38% of the counties, until a few years ago there were no posted photos on our website, suggesting that recent biologists had trouble distinguishing the species from other bluets by sight or even by photographs (easily distinguished in hand, so capture-photo-release is the best way besides a specimen to document the species if close-up photos of the male terminal appendages can be taken). Thankfully, we now have about 20 photos on the website. Much more data are desired to flesh out the range in the state, such as in the southern Piedmont and in the far-eastern Coastal Plain. Interestingly, Paulson (2011) calls it common, and the now 284 records with dates for the Coastal Plain suggest that it is locally abundant, at least in the southeastern portion of the province.

Enallagma dubium Root, 1924 — Burgundy Bluet

Distribution: Scattered over nearly all of the Coastal Plain, and sparingly into the extreme eastern Piedmont. Absent from the western half of the state, and possibly absent in northern coastal areas.

Abundance: Generally uncommon to locally fairly common in the southern half of the Coastal Plain and very rare and of spotty occurrence in the northern half. Rare in the narrow Piedmont portion of the range. High counts of:

50 – Bladen, 26 May 2017
30 – Moore, 17 September 2017

22 –Moore, 15 May 2022

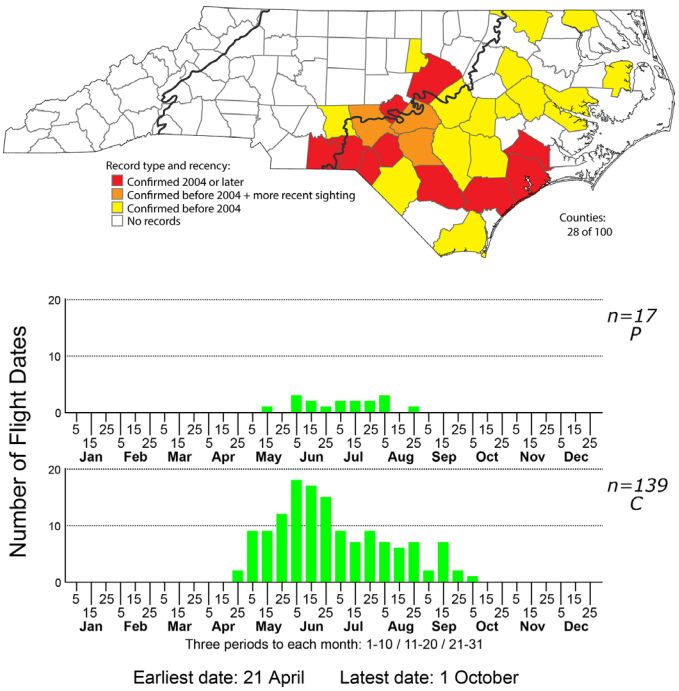
Status: G5/N5/S4

Flight: The Coastal Plain flight occurs from late April to very early October, whereas that in the adjacent Piedmont is from mid-May to late August.

Habitat: Generally in highly vegetated ponds or small lakes, especially with floating vegetation such as lily pads. Can occur on very slow-moving creeks if there is some floating or emergent vegetation in full sun.

Behavior: Often perches on lily pads or on other exposed snags, well out from shore. Can also be found closer to shore in shaded areas. Because of the dark colors on the thorax, an observer may need binoculars or a telephoto lens to clearly see the dark red/violet thorax stripes.

Comments: The male has a deep red and black thorax, fairly similar to (but darker red than) that of the Cherry Bluet (*E. concisum*). This species can be difficult to detect but records have greatly increased in the last five years, which may reflect an increase in visits to the Sandhills and other southern Coastal Plain areas with ponds. However, few people are searching for damselflies currently in the northern Coastal Plain. All of this makes it difficult to capture accurately the species' status in North Carolina, but it seems likely that it has always been relatively rare in this part of its range.



Enallagma durum (Hagen, 1861) — Big Bluet

Distribution: Essentially just the eastern half of the Coastal Plain; absent from the western half of the Coastal Plain counties, including the Sandhills. Absent in the Mountains and Piedmont, except for a dubious specimen record from the western Piedmont Although this species is found mainly within tidal and estuarine areas along the east coast and Gulf of Mexico, the Odonata Central range map shows nearby inland records in Tennessee, northeastern Alabama, and north-central Georgia. Thus, the sole Piedmont record may well be legitimate.

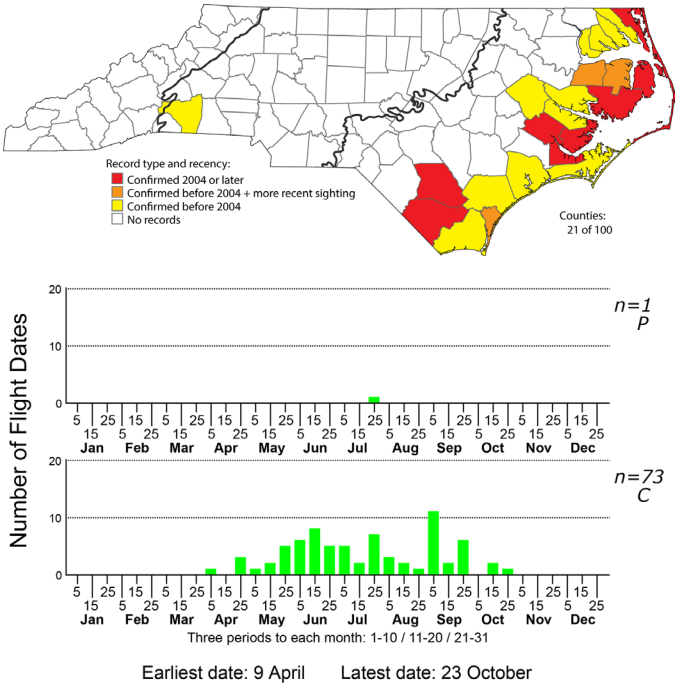
Abundance: Locally fairly common in coastal counties and those in the Tidewater zone. Rare to uncommon farther inland. High counts of:

217 – Hyde, 19 June 2016
70 – Dare, 8 September 2018
45 – Bladen, 7 July 2023

Status: G5/N5/S4

Flight: Occurs from late April (rarely early April) to late October. The Piedmont record is for late July.

Habitat: Unusual for most damselflies: mainly along the lower portions of large rivers near or at estuaries, including the vicinity of brackish marshes. Also at Carolina



bay lakes, as well as coastal impoundments.

Behavior: Often perches low on emergent vegetation, though often in sun and thus not one of the harder bluets to find, if you are able to reach its habitats.

Comments: This species has a range in North Carolina like no other damselfly, but quite a bit like several dragonflies, particularly Needham's Skimmer, Four-spotted Pennant, and Seaside Dragonlet (*Libellula needhami*, *Brachymesia gravida*, *Erythrodiplax berenice*). It is certainly one of the very few damselflies that can be locally numerous in coastal marshes and other wetlands along the coast.

Enallagma exsulans (Hagen, 1861) — Stream Bluet

Distribution: Throughout the Mountains and Piedmont; also in the upper Coastal Plain.

Abundance: Common, at least locally, in the Mountains and Piedmont; rare in the Coastal Plain portion of the range. Several counts of at least 100 individuals in a day have been made in the eastern Piedmont. High counts of:

235 – Durham, 24 August 2013
170 – Durham, 5 June 2014
115 – Wake, 25 June 2014

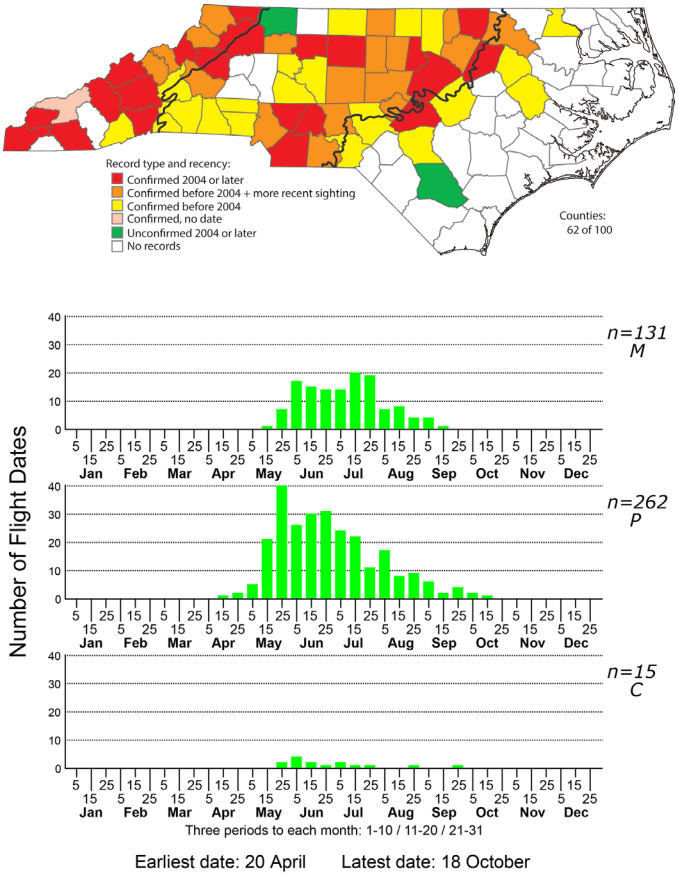
Status: G5/N5/S5

Flight: Mid-April to mid-October in the Piedmont, and mid-May to at least mid-September in the Mountains. The relatively few dates from the Coastal Plain fall between late May and late September, though the flight ought to be similar to that in the Piedmont.

Habitat: A wide variety of creeks and rivers, with slow to moderate current. Unlike most other bluets, it seldom occurs at ponds and lakes.

Behavior: The bluet most often and easily seen along flowing, semi-shaded waters in the Mountains and Piedmont. It often perches off the water on broad leaves of shrubs or trees, but it also can perch on snags barely above the water.

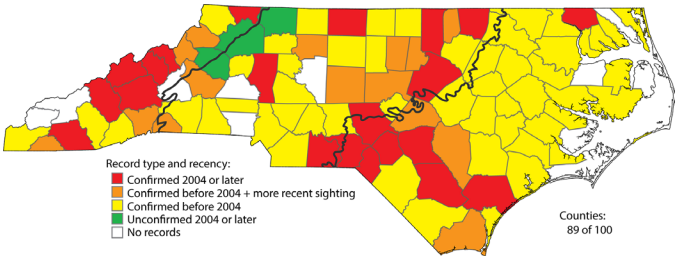
Comments: It seems to be one of the few bluets that observers in the Piedmont bother to photograph in recent years, perhaps as most people there are looking at creeks and rivers for clubtails and other dragonflies, and not looking around pond and lake margins for those many damselfly species that favor lentic over lotic habitats. This is especially the case in the western half of the Piedmont.



Enallagma geminatum Kellicott, 1895 — Skimming Bluet

Distribution: Essentially statewide, though of spotty distribution in the Mountains and upper Piedmont, and close to the coast. However, it likely occurs in all 100 counties.

Abundance: Fairly common statewide, and locally common (several daily counts over 100 individuals). Not obviously more numerous in one province than another, though the two highest



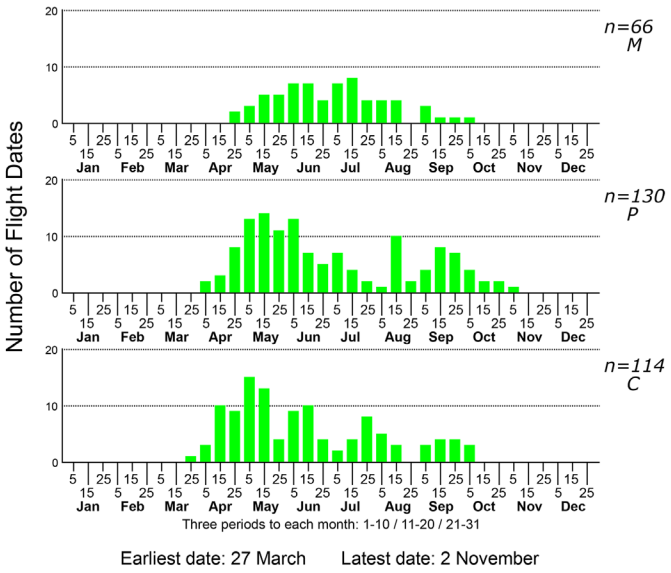
counts have come from the eastern Piedmont. Interestingly, there are few recent records for most of the Coastal Plain, outside of the Sandhills region and the southeastern counties; thus, it now appears to be rare to uncommon in this large region. High counts of:

345 – Wake, 13 May 2014
175 – Wake, 12 May 2013
135 – Moore, 15 May 2022

Status: G5/N5/S5

Flight: A long flight season; from late March or early April to mid-October (and sparingly to early November) in the Coastal Plain and Piedmont, and from late April to early October in the Mountains.

Habitat: A variety of still, open waters, typically lakes and ponds, especially where there are lily pads or other floating vegetation.

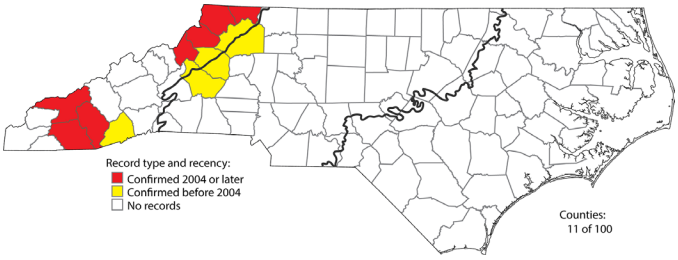


Behavior: This species likes full sun, and often is found on lily pads or on other vegetation close to shore, but in sun. However, like most bluets, it can be quite local, and many suitable ponds seem to lack this species.

Comments: Additional fieldwork in the western third of the state ought to provide new county records. However, there are fewer lakes and ponds in that part of the state that contain water lilies and other floating vegetation, not that this is a requirement to find this bluet. Careful inspection is needed to distinguish the similar looking Lilypad Forktail (*Ischnura kellicotti*).

Enallagma hageni (Walsh, 1863) — Hagen's Bluet

Distribution: Probably throughout the Mountains, and likely the extreme upper Piedmont foothills. North Carolina lies at the southern end of the species' range, it not having yet been recorded from South Carolina, and just at one site in extreme northeastern Georgia. There is a surprisingly wide gap in records in the central Mountains, despite considerable fieldwork in this area. Most records are from elevations higher than 3500 feet (1067 m), and it is clearly scarce below 3000 feet (914 m), partly explaining the absence of records in the central Mountains, where there seem to be few ponds or lakes at these higher elevations.

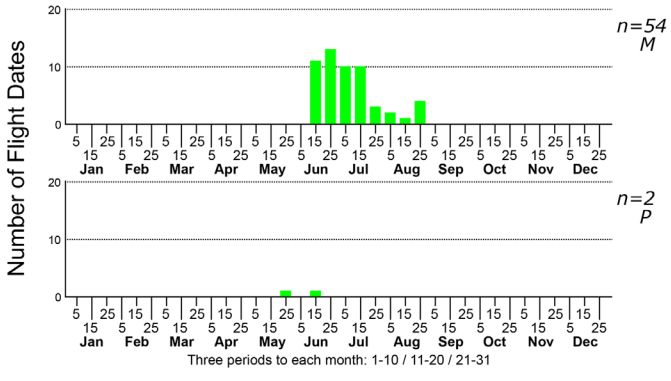


Abundance: Uncommon to locally fairly common in the Mountains, but very rare in the upper parts of Piedmont foothill counties. High counts of:

50 – Ashe, 14 July 2020
39 – Macon, 13 June 1953
25 – Watauga, 20 June 2010

Status: G5/N5/S3

Flight: Mountain records fall between mid-June and late August, though the flight there likely starts in May. The few Piedmont records are only for late May and mid-June.



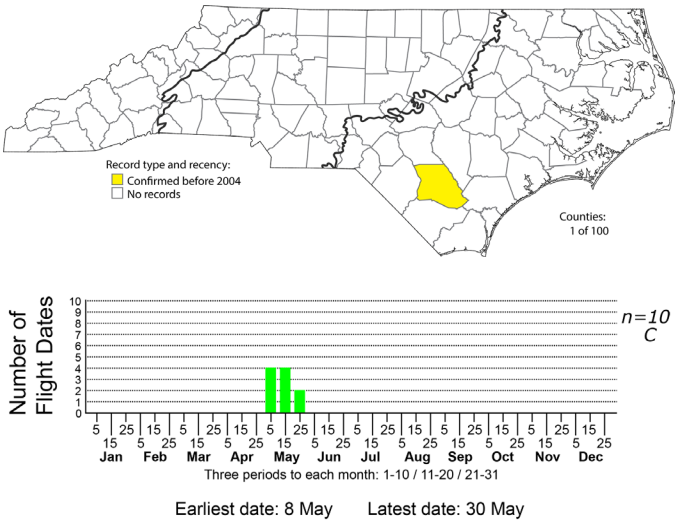
Habitat: High-elevation ponds, small lakes, and other open water with much emergent vegetation; often at bogs and marshes.

Behavior: Males are conspicuous along pond margins, though females stay relatively hidden in vegetation, as with other bluet species.

Comments: Though there are numerous dragonflies that occur in North Carolina only in the Mountains, there are very few such damselflies with this type of range. The lack of records in the central Mountain counties is puzzling, though this may represent poor coverage in its pond-like habitats; much of the coverage in these counties centers on the French Broad River and its tributaries (i.e., riverine habitats), sites perhaps too low and/or warm for this higher-elevation species.

Enallagma minusculum Morse, 1895 — Little Bluet

Distribution: Disjunct population, known only from White Lake in Bladen County. Believed to be introduced as the major portion of the range is Northeastern, from the southern Canadian Maritime Provinces south only to southern New Jersey (Odonata Central range map).



Abundance: Reported as "abundant" in the 1960's (Cuyler 1968). However, only two records since 1966; last reported in 1997. If it still occurs in North Carolina, it must be local and rare. High counts of:

17 – Bladen, 9 May 1965
8 – Bladen, 9 May 1965
6 – Bladen, 8 May 1966

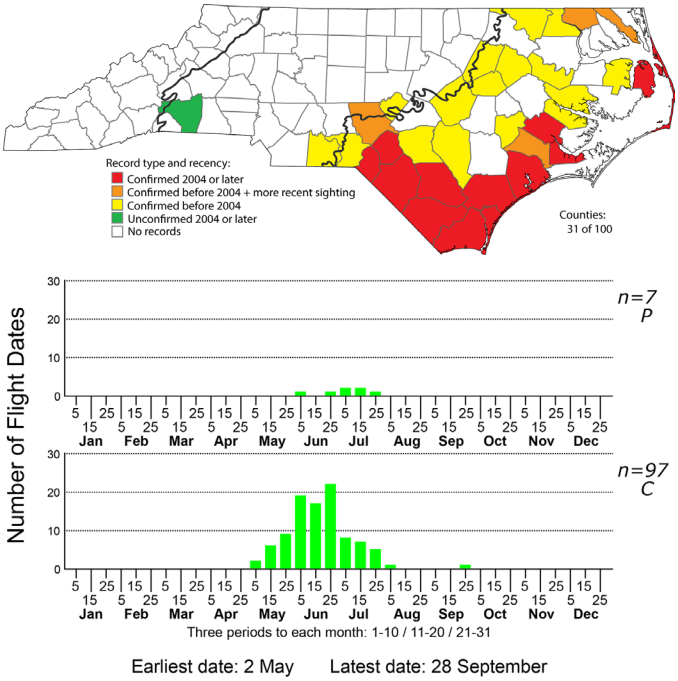
Status: G4/N4/SU

Flight: The 10 dates for North Carolina fall within a narrow time window—early May to late May. However, Cuyler (1968), who was responsible for essentially all records and other information on the species in the state, stated that it was abundant from May to July. Thus, the flight period extends for two to three months and covers that May to July span, if not a wider span of dates (when it might not be abundant).

Habitat: Floating or emergent vegetation along lakeshores.

Comments: This is likely the rarest damselfly in North Carolina, if it still exists in the state. The last observation was May 1997. We have hope that it still occurs around White Lake. However, several surveys of this now heavily developed lake specifically searching for this species have failed to find it. Other nearby Carolina Bay lakes have been well-worked over the past few decades, yet there are no records of Little Bluet for them. Why a northern species would be disjunct far to the south at only White Lake, and not at nearby similar lakes, is unclear. A small population was recently (2011) found in southern New Jersey (Odonata Central record 328841), though the gap in the range to Bladen County, North Carolina, is still nearly 400 miles (650 km).

Enallagma pallidum Root, 1923 — Pale Bluet



Distribution: Essentially limited to the Coastal Plain, where it likely occurs in all counties (though there are records for only 60% of them). Also occurs sparingly in the extreme southeastern Piedmont, near the Sandhills region. A sight report for the far-western Piedmont is open to question. There are no known Piedmont, much less upper Piedmont, records for South Carolina or Georgia (see Odonata Central map). We removed from our map and database recent reports, including those with photos, because we feel they are actually Slender Bluets (*E. traviatum*).

Abundance: Uncommon to locally fairly common in the southern Coastal Plain, but generally rare elsewhere in the Coastal Plain. Very rare in the narrow portion of the range in the southeastern Piedmont. High counts of:

75 – Onslow, 4 June 2016
75 – Jones, 4 June 2016
63 – Bladen, 25 June 2023

Status: G4/N4/S4

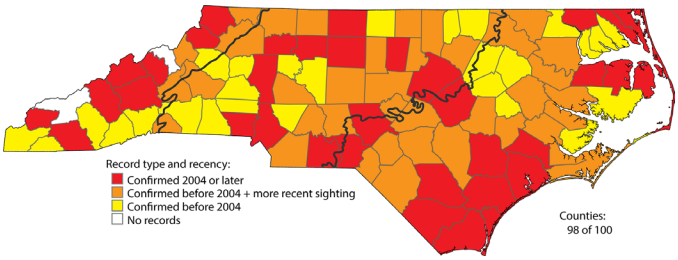
Flight: The flight occurs between early May and early August, with a collection record from late September being quite late. Essentially a late spring and early summer flying damselfly.

Habitat: Most often at lakes and ponds, especially where there are shrubby or swampy areas around the waters. Also at swampy edges of blackwater creeks and rivers. Thus, even though males may perch on snags out in a pond, lake, or creek, these sites tend to be closer to shrubby margins than along or near grasses or sedges along a shoreline.

Behavior: Behavior of males is somewhat similar to that of some other bluets, such as Orange (*E. signatum*) and Burgundy (*E. dubium*); perching very close to the water on snags or other vegetation. These all perch horizontally, ready to fly out low over a lake, pond, or slow-moving creek. However, this species tends to stay closer to shade and shrubby margins when at rest than those other species.

Comments: In the past several years, there have been quite a few photographs to document the species, especially in the southern Coastal Plain. However, we have only a single recent observation/photo from the northern two-thirds of this province, due perhaps mainly to poor surveys of damselflies in this part of the state. Note that separation of this species from Slender Bluet (*E. traviatum*) is very tricky, though that species does not range into the eastern Coastal Plain; however, both occur in the upper Coastal Plain (including the Sandhills). Both perch low over open water and behave in similar manners.

Enallagma signatum (Hagen, 1861) — Orange Bluet



Distribution: Statewide, lacking records from just two Mountain counties. Certainly present in all 100 counties. Unlike many damselflies with a "statewide" range, this species has been recorded from all coastal counties.

Abundance: Common and widespread in the Coastal Plain and Piedmont; locally abundant in a few areas. Fairly common to perhaps locally common in the Mountains. High counts of:

325 – Wake, 14 September 2013
265 – Wake, 16 August 2012

260 – Wake, 19 September 2015

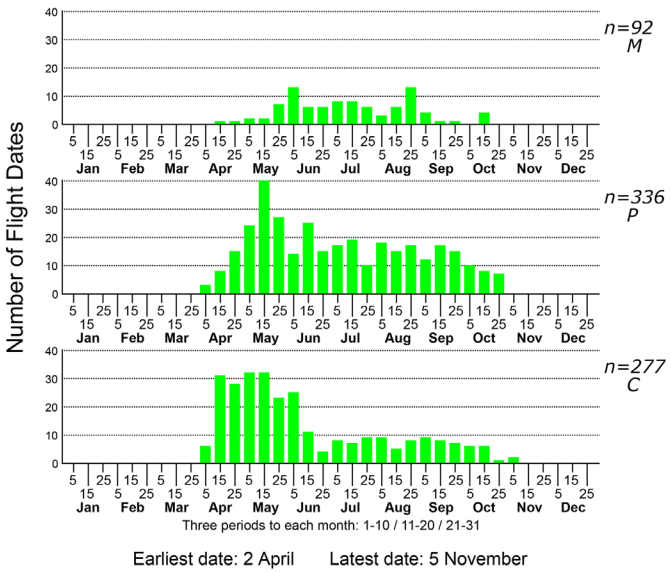
Status: G5/N5/S5

Flight: A long flight period from early or mid-April in all three provinces to mid-October in the Mountains, late October in the Piedmont, and early November in the Coastal Plain.

Habitat: A broad range of lakes, ponds, and slow-moving streams.

Behavior: This species is active mostly in the afternoons at its ponds and streams; often hard to find on a morning visit.

Comments: This is as widespread in the state as any damselfly and is reasonably common as well. The orange color on the male is quite noticeable. As mentioned above, if you visit pond and lake shores mostly in the morning, you might have trouble finding any and wonder why the species is considered to be common and widespread!



Enallagma sulcatum Williamson, 1922 — Golden Bluet

Distribution: One old report from New Hanover County. The locality, given as Wilmington (Brimley 1938), is presumed to be Greenfield Lake. Both Donnelly (2004c) and Paulson (2011) show a dot for southeastern North Carolina in their range maps, but these dots are shown in Columbus County, which is west of New Hanover County. This appears to be an error, as we know of no other records for North Carolina. This species is limited to the Gulf Coast region, from southern Alabama to central Florida; the nearest population is northern Florida.

Abundance: Cannot be estimated. In Florida, it can be abundant. High counts of: No data

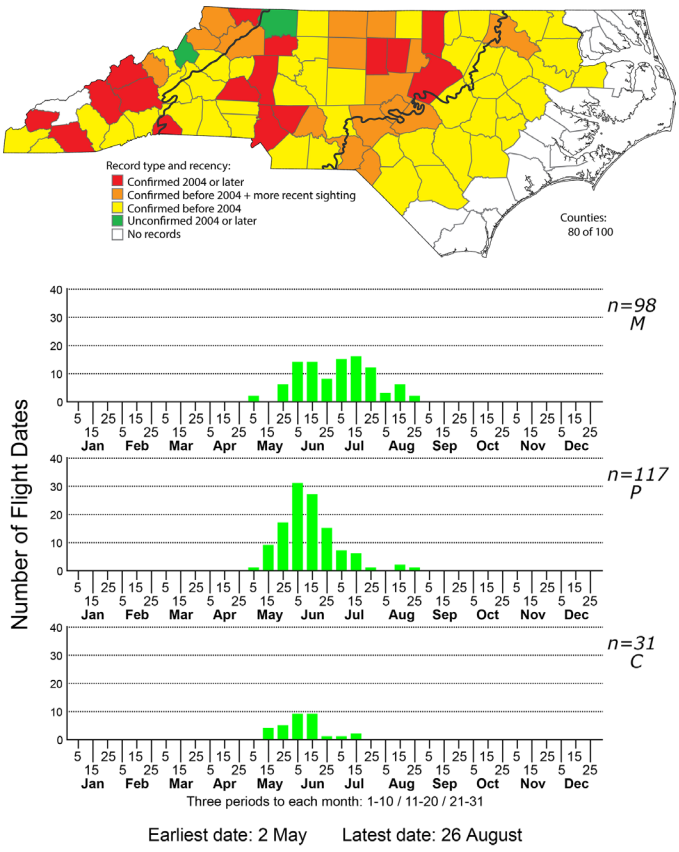
Status: G4/N4/SU. The state rank probably should be moved to SH (Historical), as the sole record was from before 1938.

Flight: In Florida, flies from February to November. The single North Carolina record is from April.

Habitat: Sand-bottomed lakes with shore vegetation (including grasses and lily pads).

Comments: This species, along with the Little Bluet (*E. minusculum*), are the most poorly known damselflies in North Carolina. However, unlike the northern Little Bluet, it is more likely that a southern species of large natural sand-bottomed lakes (in Florida) would be disjunct to North Carolina (without human intervention), which does have such lakes in Bladen and Columbus counties. Note that Belle's Sanddragon (*Progomphus bellei*) and Sandhill Clubtail (*Phanogomphus cavillaris*) also share this highly disjunct range from Florida to sand-bottomed bay lakes in southeastern North Carolina. Georgia and South Carolina have very few such sand-bottomed natural lakes. The species may be extirpated from North Carolina, of course, that is predicated on previous documentation being valid.

Enallagma traviatum Sélys, 1876 — Slender Bluet



Distribution: Throughout the Mountains and Piedmont, and over the western half of the Coastal Plain, barely reaching the western Tidewater region.

Abundance: Fairly common, to very locally common, over the Mountains and Piedmont; rare to uncommon (at least formerly) in the Coastal Plain, with but one recent report. More numerous in the Mountains than downstate. High counts of:

105 – Wilkes, 7 June 2018
100 – Orange, 11 June 2009
75 – Orange, 5 June 2010

Status: G5/N5/S5

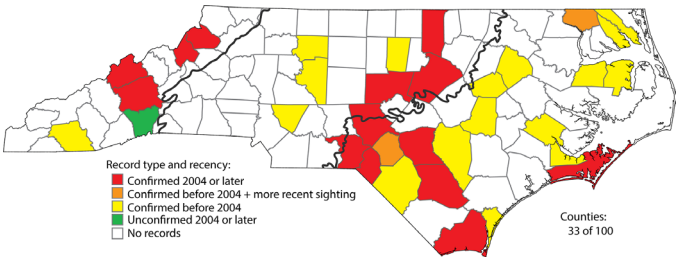
Flight: Early or mid-May to late August in the Mountains and Piedmont, but the Coastal Plain records extend only to mid-July, though it should occur here to the end of August.

Habitat: A variety of lakes and ponds, typically with emergent vegetation.

Behavior: Males often perch on stubs or twigs low over the water, well out from shore. Thus, it is more readily visible in full sun than a number of other bluet species. Of course, females tend to stay close to shore in thick vegetation, as with other bluets.

Comments: As with so many of the state's damselflies, there are few people looking for them in recent years in the upper half of the Coastal Plain; thus, it is no surprise that there is but a single recent flight date record from this large region.

Enallagma vesperum Calvert, 1919 — Vesper Bluet



Distribution: Widely scattered over the entire state, though no records yet for the upper third of the Piedmont. In theory, could occur in all 100 counties, but so far recorded only from one-third (33) of them.

Abundance: Uncommon but rather widespread in the Sandhills region, and not local there. However, it is rare to locally uncommon over the rest of the state, being quite rare in most of the Piedmont (with just 11 records there). The many counties in the Coastal Plain and Piedmont where it has yet to be recorded attest to the difficulty of finding the species in the state. High counts of:

50 – Madison, 21 June 2022
25 – Gates, 3 May 2020
25 – Madison, 4 August 2021

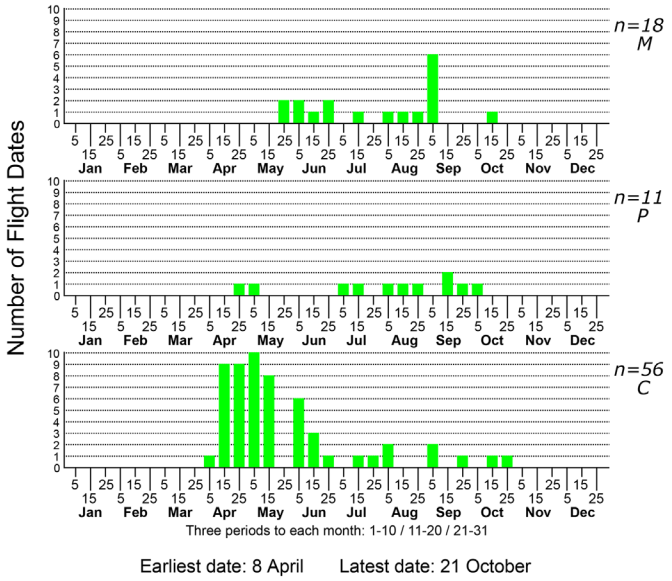
Status: G5/N5/S3S4

Flight: Occurs from early-April to late October in the Coastal Plain, late April to early October in the Piedmont, and late May to mid-October in the Mountains. More data are needed to fill in gaps in the flight charts, though it appears that the starting and ending dates of the flight periods are rather well established.

Habitat: Lakes or ponds, typically where forests are nearby, for perching (typically in shade). Waters with lily pads are often used.

Behavior: As the name implies, the species flies mainly in late afternoon into twilight. And, when seen before late afternoon, the individuals are usually perched in dark, shaded places.

Comments: The unusual daily flight timing is perhaps responsible for the scarcity of records for this otherwise geographically widespread species, which ranges from the Gulf Coast north to southern Canada. Males have a bright yellow thorax and are not likely to be overlooked, especially in combination with the highly contrasting light blue end of the abdomen.



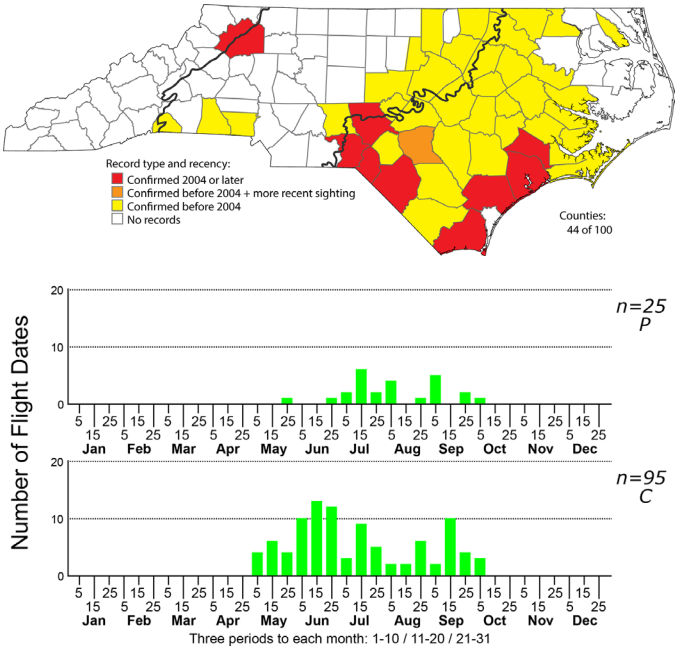
Earliest date: 8 April Latest date: 21 October

Enallagma weewa Byers, 1927 — Blackwater Bluet

Distribution: Nearly throughout the Coastal Plain (except perhaps for a few Tidewater counties), and the extreme eastern and southern Piedmont. One surprising recent record from the northwestern half of the Piedmont; absent from the Mountains.

Abundance: Though recorded from most Coastal Plain and lower Piedmont counties, suggesting that it is not rare, there are relatively few recent reports, and just a modest number of photographs. Seems to be uncommon and overlooked within the range (if not also declining), at least in the southern portion of the Coastal Plain (where most recent records have been made). Certainly, rare in the Piedmont portion of the range, as (despite many observers in the Triangle region) there are no recent records from this province. High counts of:

13 – Moore, 4 June 2022
10 – Richmond, 14 June 2015
10 – Onslow, 27 May 2017



Earliest date: 7 May Latest date: 6 October

Status: G5/N5/S4

Flight: In the Coastal Plain, the flight occurs from early May to early October, and the Piedmont flight is similar, though the earliest record is from late May.

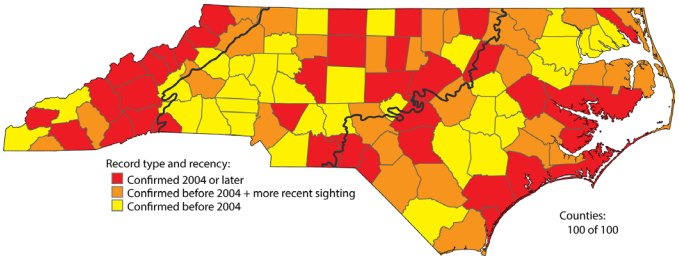
Habitat: Unusual for a damselfly: as the common name suggests, it is found around tannic (acidic) waters of blackwater streams, rarely around larger rivers and lakes. However, several recent records have been at margins of lakes and ponds (in the Sandhills, where waters are acidic).

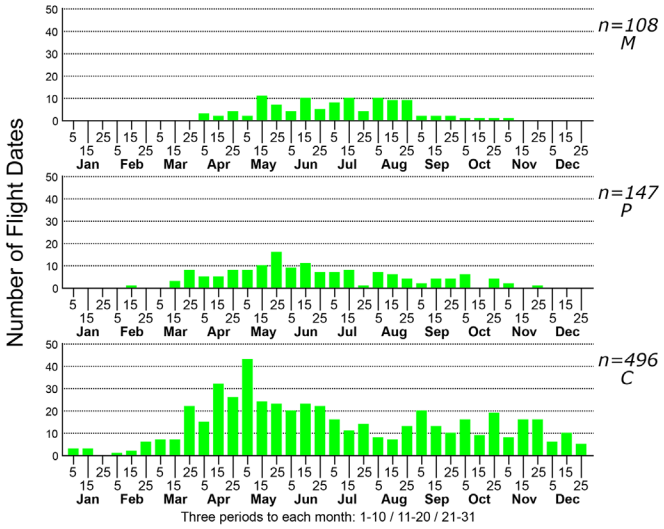
Behavior: Both sexes tend to stay in shade in vegetation along the banks of streams where they are very hard for an observer to spot. And, they seem to be less active than most other bluets. Males often perch on grasses or other shaded vegetation about a foot or two (30–60 cm) off the water, along the stream bank, often in a vertical or diagonal position.

Comments: It seems remarkable that Cuyler collected the species from 41 counties, yet there are relatively few recent observations. This scarcity of recent records is likely because few observers look for odonates along blackwater streams;

most fieldwork is done around ponds, lakes, and larger creeks and rivers. There are barely a dozen photographs available for the species in North Carolina, and none from the northern half of the Coastal Plain or eastern Piedmont.

Ischnura hastata (Say, 1840) — Citrine Forktail





Distribution: Statewide, found in all 100 counties.

Abundance: Very common to locally abundant in the Coastal Plain, and common westward. There are several counts of 1,000 individuals in a day, and others with over 100 individuals; most of these are in the Sandhills region of the Coastal Plain, but there are now several triple-digit counts for a coastal county. High counts of:

1000 – Scotland, 16 June 2007
1000 – Scotland, 24 June 2007
600 – Carteret, 12 April 2021

Status: G5/N5/S5

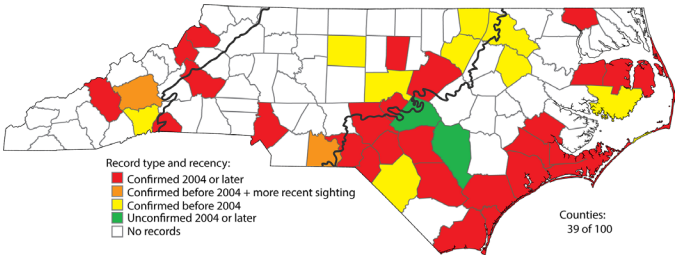
Flight: A very long flight period. Early February to mid-January in the Coastal Plain, mid-February to late November in the Piedmont, and early April to early November in the Mountains.

Habitat: Lakes or ponds with much grassy vegetation around the margins; bogs, marshes. May also be found along slow-moving rivers.

Behavior: Perching low within vegetation, this tiny damsel can be difficult to spot, though the bright colors of mature males and immature females help. Typically flies in a slow, hovering manner keeping within vegetation. Both sexes and all ages often occur together.

Comments: This is one of the most abundant odonates (not just damselflies) in North Carolina, from the coast to the Mountains. As all forktails are very small (many barely an inch [25 mm] long), they can be easily passed over unless you carefully inspect the grasses and sedges along the shoreline.

Ischnura kellicotti Williamson, 1898 — Lilypad Forktail



Distribution: Spottily distributed over most of the Coastal Plain and the eastern third of the Piedmont; also sparingly in the Mountains and foothills. Many gaps in the range (records for less than half of the counties within the Coastal Plain and Piedmont portion of the range). Might be truly absent in some counties in the western Piedmont and parts of the Mountains.

Abundance: Uncommon to locally common in the Sandhills and southern Coastal Plain. Rare to locally uncommon elsewhere in the Coastal Plain and eastern Piedmont. Rare in the foothills/Mountain part of the range. Ought to be present in the western parts of the Piedmont and at least the lower-elevation Mountain counties. High counts of:

540 – Bladen, 7 May 2017
100 – Cumberland, 22 April 2018

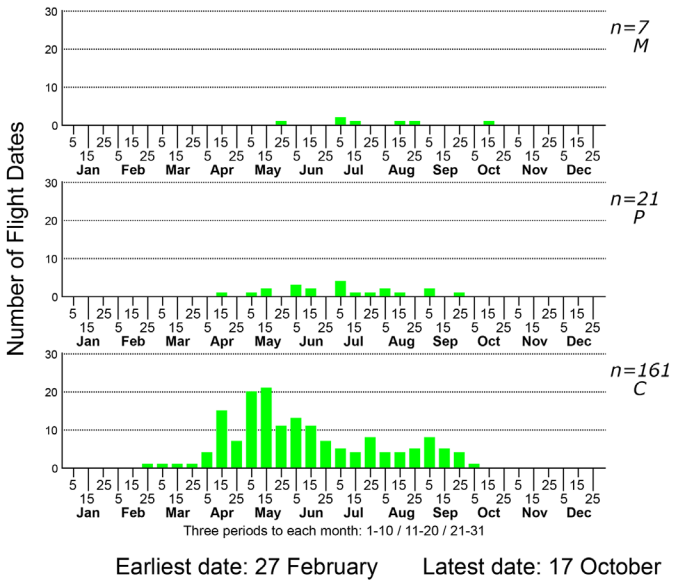
75 – Bladen, 26 May 2017

Status: G5/N5/S4

Flight: Occurs from late February to early October in the Coastal Plain and from mid-April (probably earlier) to late September in the Piedmont. The few Mountain dates fall from late May to mid-October, surprisingly late.

Habitat: As the common name implies, it is essentially found only at lakes or ponds with lily pads.

Behavior: Adults characteristically curve the abdomen such that the tip touches the lily pad. Note, however, that male Skimming Bluets (*Enallagma geminatum*), quite similar looking to male Lilypad Forktails, also will bend their abdomen down to a lily pad. You may need to take a photo of your damselfly to be certain. (And, male Cherry Bluets, *E. concisum*, also perch on lily pads, and can be mistaken for immature female Lilypad Forktails.)



Comments: There is much opportunity for observers to "fill in the holes" in the range map with new county records. The number of recent records, as compared with those older collection records by Cuyler, suggests that the species is likely increasing in numbers and range in the state. The state rank was thus moved from S3S4 to S4 in 2020.

Ischnura posita (Hagen, 1861) — Fragile Forktail

Distribution: Statewide, recorded from all 100 counties.

Abundance: Abundant nearly everywhere; arguably the most widespread and frequently seen damselfly in the state, though not occurring in the abundance that the Citrine Forktail can be found in the Sandhills region. High counts of:

475 – Wake, 27 April 2013

375 – Wake, 23 April 2014

245 – Wake, 3 May 2013

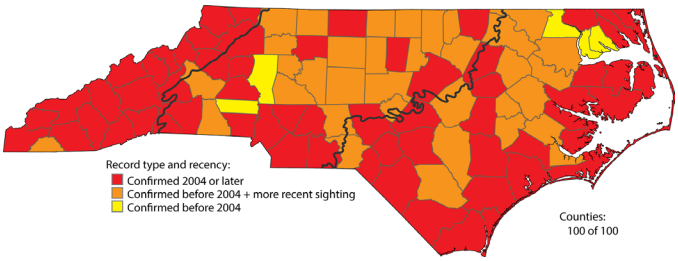
Status: G5/N5/S5

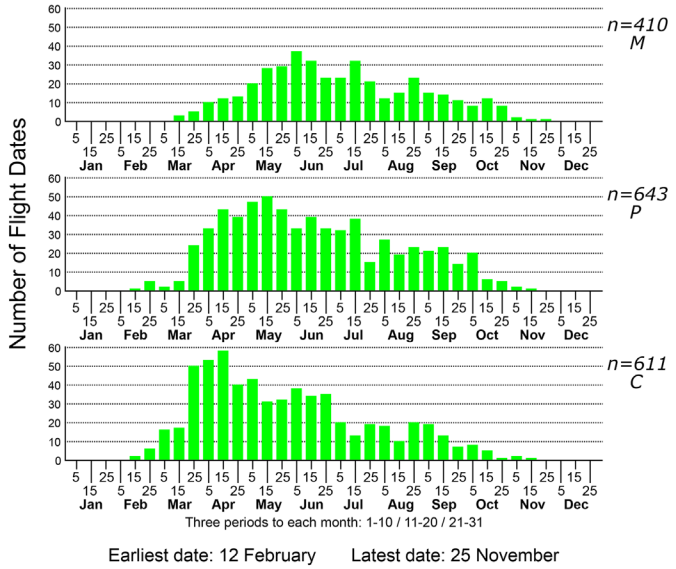
Flight: As with many forktails, the flight is very long: mid-February to mid-November in the Coastal Plain and Piedmont, mid-March to late November in the Mountains.

Habitat: A wide variety of wet grassy areas, typically around pond or lake margins and slow-moving streams.

Behavior: This tiny species (as are other forktails) is easily overlooked by the casual observer, often hidden amid the grasses and other vegetation along a pond margin or the edge of a creek or river.

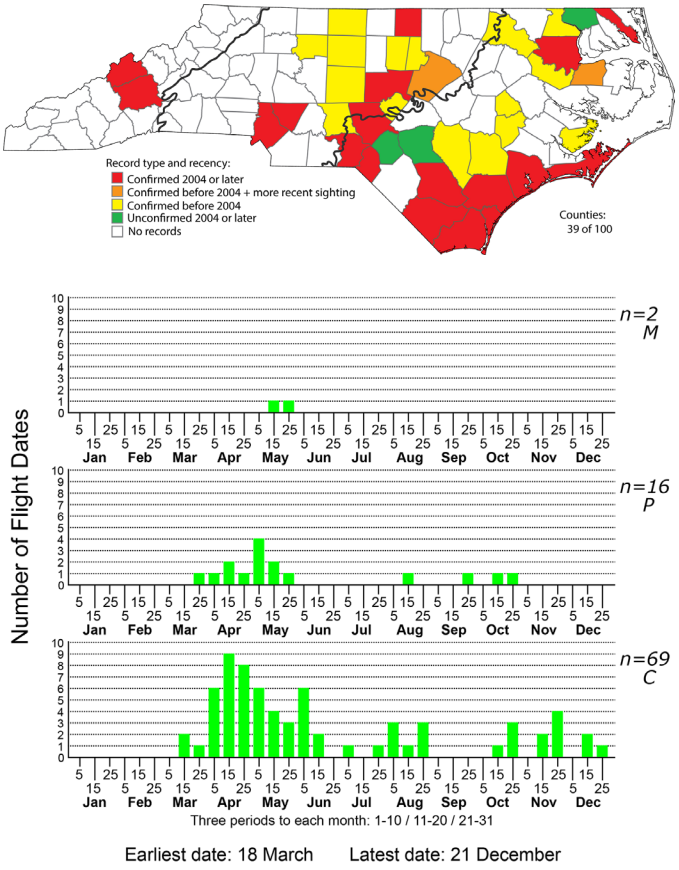
Comments: As with the Citrine Forktail (*I. hastata*), this is an easily found species all across the state for most of the warmer months. Because it is a tiny and common species, it is not typically (or easily) accurately censused. We





suspect its numbers in the state may equal or exceed the numbers of individuals of abundant dragonfly species such as Blue Dasher (*Pachydiplax longipennis*) and Eastern Pondhawk (*Erythemis simplicicollis*). Observers need to be patient, bend down to look closely in the dense waterside vegetation, and often simply wait for movement to spot (and count) these damselflies.

Ischnura prognata (Hagen, 1861) — Furtive Forktail



Distribution: Scattered over most of the Coastal Plain and the eastern half of the Piedmont. Nonetheless, it has been recorded from slightly fewer than half of the counties within this eastern North Carolina range. Two recent records for the Mountains. Thus, it could range throughout the Piedmont, but in the Mountains clearly is found only at very low elevations, so far only in the French Broad River valley.

Abundance: Rare to uncommon in the lower half of the Coastal Plain, and certainly rare in the upper Coastal Plain and into the eastern half of the Piedmont. Extremely rare farther westward, with just two Mountain records and two records for southern Piedmont counties. It is certainly overlooked in its shady habitat. The peak count of just 12 individuals is indicative of its relative scarcity, as is its spotty range in the state. High counts of:

12 – Bertie, 29 April 2018
9 – Onslow, 31 March 2019
8 – Sampson, 1 May 1996

Status: G4/N4/S3S4

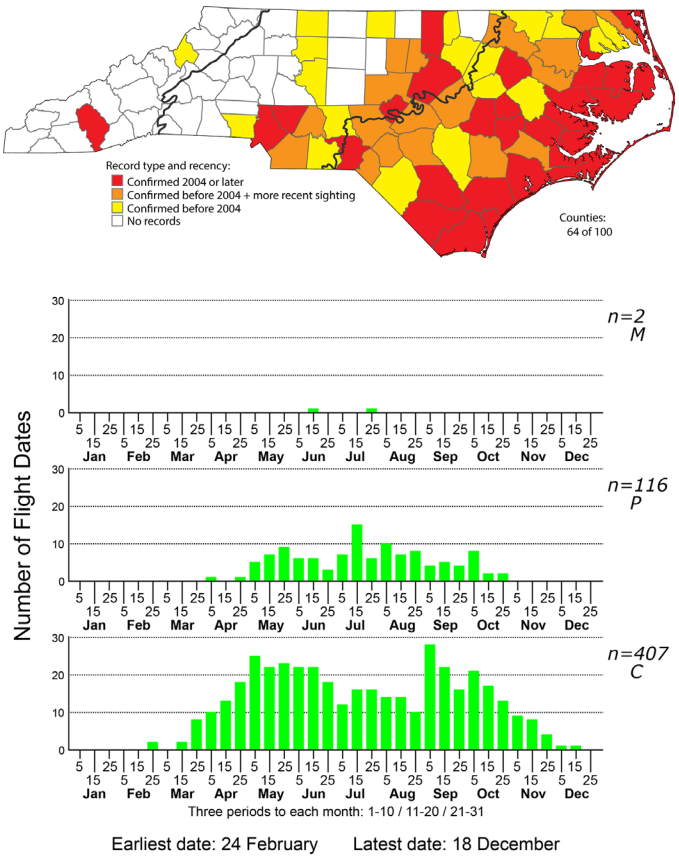
Flight: Mid-March to late December in the Coastal Plain and late March to late October in the Piedmont, with relatively few records in the summer. The reason for this somewhat bimodal pattern is not known. Only two records for the Mountains, both in May.

Habitat: Streams, swamp edges, and other pools under heavy shade, essentially always under a forest canopy.

Behavior: Quite shy, this species comes by its common name honestly. Individuals perch low, often hidden in vegetation, especially in shady places (Padgett 2023).

Comments: This species' habitat selection of shaded waters in forests makes it somewhat more difficult to survey for and observe/photograph than other damselflies. This "furtive" behavior is at least partly responsible for its spotty range in the state.

Ischnura ramburii (Sélys, 1850) — Rambur's Forktail



Distribution: Occupies the eastern 60% of the state, with scattered records in the western Piedmont; only two county records for the Mountains. Thus, it is unclear if it occurs statewide, though it certainly is very scarce in the western third of the state.

Abundance: Common to locally very common in the lower Coastal Plain, particularly around brackish pools along the coast. Generally common elsewhere in the Coastal Plain, but locally abundant in the Sandhills. Uncommon to locally common in the eastern and southeastern Piedmont, rare in the central Piedmont, and very rare farther westward. High counts of:

515 – Richmond, 13 May 2022
245 – Richmond, 27 May 2017
150 – Richmond, 28 April 2022

Status: G5/N5/S5

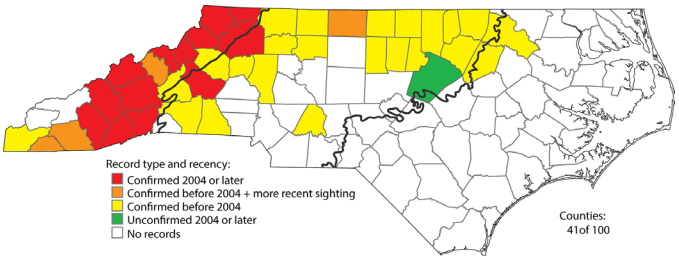
Flight: Flies from late February to mid-December in the Coastal Plain and from early April to late October in the Piedmont. The two Mountain flight dates are in mid-June and late July.

Habitat: Bay lakes, saline pools and shores, and heavily vegetated ponds.

Behavior: Tends to perch on low vegetation in the open, where easily seen.

Comments: This is one of the few damselflies that is quite common along and near the immediate coast. The range in the western half of the state still needs much elucidation.

Ischnura verticalis (Say, 1840) — Eastern Forktail



Distribution: Throughout the Mountains and the northern half of the Piedmont, including most of the foothills counties. Ranges eastward to the northeastern Piedmont; only one record for the southeastern Piedmont. No records for the Coastal Plain.

Abundance: Common to very common over most or all of the Mountains. Uncommon to fairly common in the extreme upper Piedmont (foothills), but rare to locally uncommon eastward in the Piedmont portion of the range, with no confirmed records since the 1980s. Whether it is truly absent in the southeastern Piedmont is uncertain. High counts of:

100 – Mitchell, 16 May 2019
33 – Wake, 13 August 2009
27 – Henderson, 11 August 1941

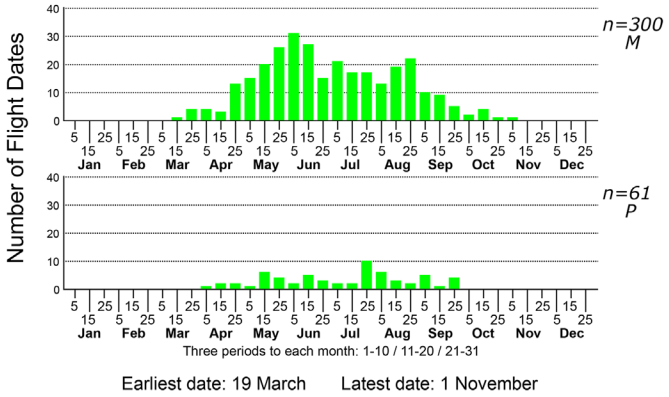
Status: G5/N5/S4

Flight: In the Mountains, it occurs from mid-March to early November, but the Piedmont flight is only from early April to late September, though it likely occurs in late March and well into October or early November (as it does so in the cooler Mountains).

Habitat: Lakes, ponds, and slower streams, where there is vegetation along the margins.

Behavior: Males behave like most other forktails, moving slowly low along the margins of ponds and lakes. As with the Citrine, Fragile, and Rambur's forktails (*I. hastata*, *posita*, *ramburii*), Eastern Forktails might be difficult to spot if they were not so common to abundant at these water bodies!

Comments: This is one of the relatively few damselflies that is clearly more common in the Mountains than downstate. In fact, we lack records for just two of the 17 counties wholly within the Mountain province.



Nehalennia gracilis Morse, 1895 — Sphagnum Sprite

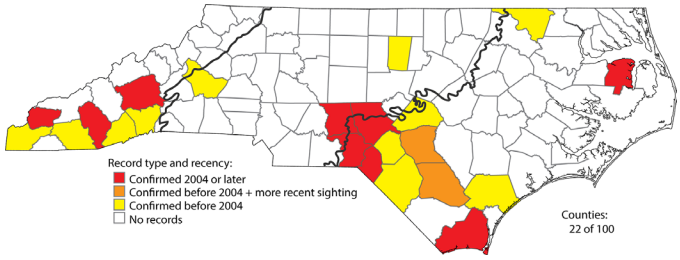
Distribution: Primarily the southern Coastal Plain, including the Sandhills region, as well as the southern Mountains. Otherwise, very widely scattered over the state, though mainly in the southern part. There are no records yet for the northern half of the Mountains, nearly all of the Piedmont, and nearly all of the northern Coastal Plain.

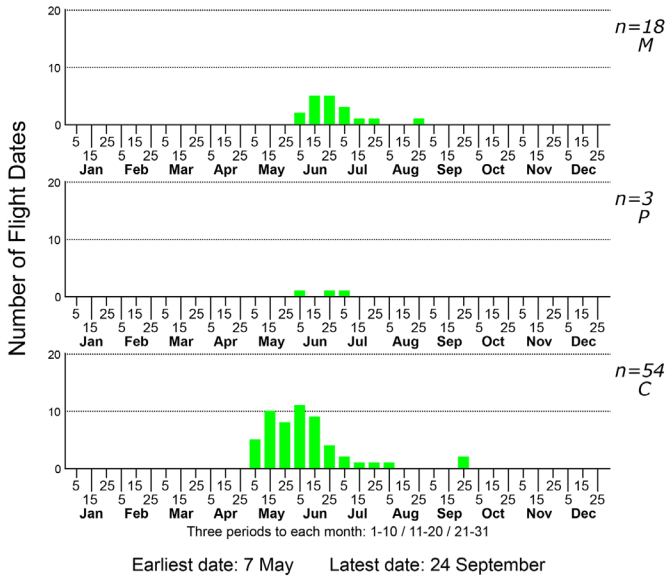
Abundance: Oddly geographically bimodal, being more numerous in the Coastal Plain and the southern Mountains than in the Piedmont. Uncommon to very locally fairly common in the Sandhills and in the southern Mountains. Very rare to rare elsewhere, mainly in the southern Coastal Plain east of the Sandhills. High counts of:

41 – Henderson, 17 June 1941
30 – Moore, 12 June 2013
21 – Richmond, 28 May 2022

Status: G5/N5/S3

Flight: The Coastal Plain records fall from early May to late September, whereas those from the Mountains are from early June to late August. The very few (three) records from the Piedmont are from early June to early July, though certainly the flight is much wider than this. Most of the flight is finished by the end of July.



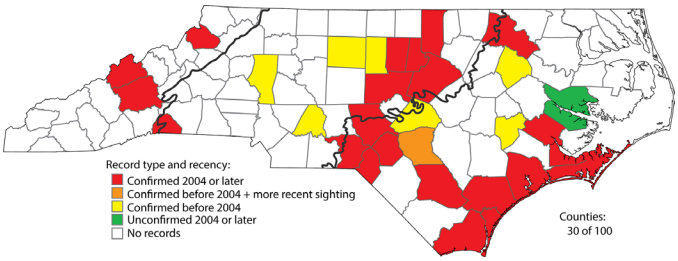


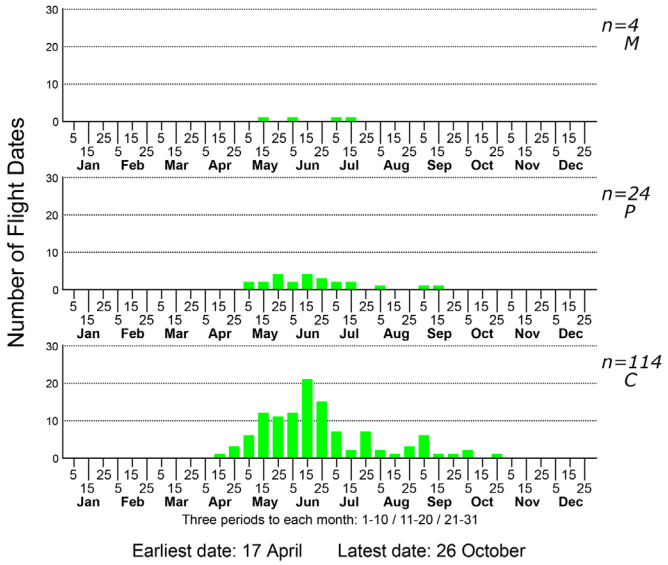
Habitat: Typically where sphagnum moss (*Sphagnum* sp.) is present around seeps and other boggy spots, such as some pond margins.

Behavior: Males fly slowly above the sphagnum and other vegetation, often a foot or two (30–60 cm) off the ground, and can perch somewhat conspicuously on a bare twig (though usually in light shade). The similar Southern Sprite (*N. integricollis*), a shorter species, tends to stay somewhat closer to thick vegetation than does a Sphagnum Sprite. Both can occur in the same sites; thus, care must be taken to correctly identify these species.

Comments: Because of the sparse array of county records across much of the state, range maps in reference books tend to incorrectly show all of North Carolina within the range of the species, which is more common in states to the north than to the south. Though not one of North Carolina's rarest damselflies, it is one of the rarest away from its Sandhills stronghold.

Nehalennia integricollis Calvert, 1913 — Southern Sprite





Distribution: Most of the central and southern portions of the Coastal Plain and the Piedmont. Formerly thought to be absent from the Mountains, but three records from this province since 2011 make it clear that it can be found sparingly in the Mountains. Seemingly absent from the northeastern Coastal Plain; however, as it ranges far up the Coastal Plain of the eastern United States, the species likely occurs in the state's northern Tidewater area.

Abundance: Uncommon (to locally fairly common) or easily overlooked in the southern half of the Coastal Plain. Rare to locally uncommon in the Piedmont portion of the range, and very rare to absent in the northern half of the Coastal Plain. Seemingly very rare to absent in the Tidewater region. Very rare or overlooked in the Mountains. High counts of:

32 – Hoke, 19 June 2022
30 – Bladen, 26 May 2017
26 – Scotland, 11 June 2022

Status: G5/N5/S3S4

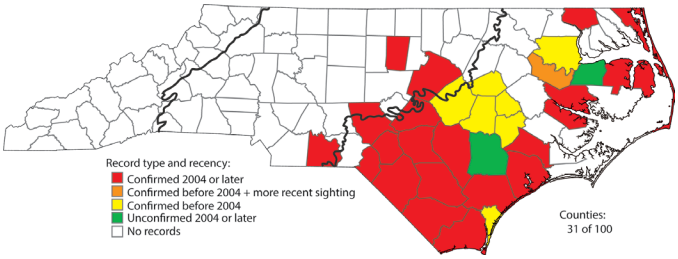
Flight: Flies from mid-April to late October in the Coastal Plain and from early May to mid-September in the Piedmont; the few Mountain records fall between mid-May and mid-July.

Habitat: Ponds or lakes, but where there is dense grassy vegetation along the margins, where it can easily hide.

Behavior: Perches low in dense vegetation. Difficult to see until flushed.

Comments: This species is so small that it is easily overlooked amid its dense, grassy habitats. Paulson (2011) says that it "can be very common in dense vegetation". "Very common" may not be appropriate for its abundance in North Carolina, except perhaps very locally, as the highest single-day count is just 32 individuals. But it can be easily overlooked and thus, may be present in most of the state's counties.

Telebasis byersi Westfall, 1957 — Duckweed Firetail



Distribution: Throughout the Coastal Plain, but essentially absent from the adjacent Piedmont, though there are recent records for the eastern portion. Absent from the Mountains. Possibly absent in some counties in the northeastern Coastal Plain. Expanding its range inland and presumably also at more sites within the Coastal Plain in the last 10 years.

Abundance: Uncommon and local over much of the Coastal Plain but can be numerous in a few places. Very rare in the Piedmont portion of the range. High counts of:

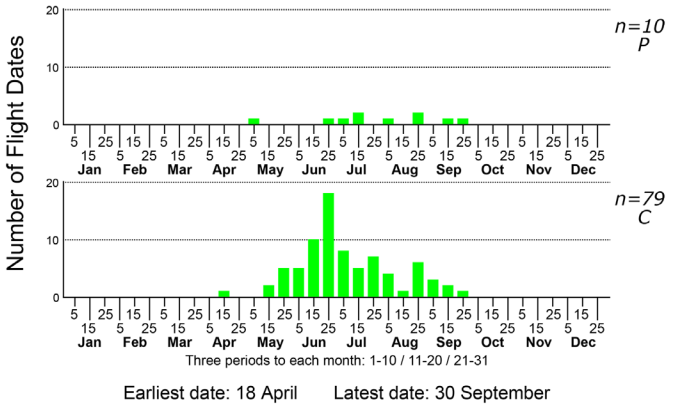
168 – Bladen, 5 June 2022
80 – Duplin, 23 July 2021
62 – Bladen, 19 August 2023

Status: G5/N5/S3S4

Flight: The records fall between early May to late September, though there is a recent sight record for mid-April at a location with numerous records.

Habitat: As the common name implies, found mostly at ponds or swampy pools where there are dense mats of duckweeds (*Lemna* sp.); older millponds have a handful of records. However, it seems to avoid, or be scarce in, areas where Eastern Pondhawks (*Erythemis simplicicollis*; a presumed predator) are abundant.

Behavior: Commonly perches on duckweed or other floating vegetation.



Comments: Spotty distribution in the Sandhills seems related to lack of appropriate habitat: most Sandhills ponds have plenty of floating aquatic plants but seem to lack duckweed species. Depredation by Eastern Pondhawks may limit populations, even at sites with an abundance of duckweeds.

Literature Cited

Beaton G. 2007. *Dragonflies and damselflies of Georgia and the Southeast*. University of Georgia Press, Athens, Georgia.

Bockhahn B. 2022. First record for North Carolina of *Rhionaeschna multicolor* (Blue-eyed Darner). *Argia* 34(1): 23–24.

Brimley CS. 1903. List of dragonflies (Odonata) from North Carolina, especially from the vicinity of Raleigh. *Entomological News and Proceedings of the Entomological Section of the Academy of Natural Sciences of Philadelphia* 15: 150–157.

Brimley CS. 1906a. Notes on the Odonata and other insects of Lake Ellis, North Carolina. *Entomological News and Proceedings of the Entomological Section of the Academy of Natural Sciences of Philadelphia* 17: 81–85.

Brimley CS. 1906b. North Carolina records of Odonata in 1904 and 1905 with corrections of some previous records. *Entomological News and Proceedings of the Entomological Section of the Academy of Natural Sciences of Philadelphia* 17: 91–92.

Brimley CS. 1908. North Carolina records of Odonata for 1906 and 1907. *Entomological News and Proceedings of the Entomological Section of the Academy of Natural Sciences of Philadelphia* 19: 134–135

Brimley CS. 1918. Records of North Carolina Odonata from 1908 to 1917. *Entomological News and Proceedings of the Entomological Section of the Academy of Natural Sciences of Philadelphia* 24: 227–229.

Brimley CS. 1920. Notes on North Carolina dragonflies (Odonata). *Entomological News and Proceedings of the Entomological Section of the Academy of Natural Sciences of Philadelphia* 31(5): 138–139.

Brimley CS. 1923. Odonata of North Carolina (Libellulidae). *Entomological News* 34(10): 314.

Brimley CS. 1925. Odonata notes from North Carolina. *Entomological News* 36(3): 85.

Brimley CS. 1938. *The insects of North Carolina, being a list of the insects of North Carolina and their close relatives*. North Carolina Department of Agriculture, Division of Entomology, Raleigh, North Carolina.

Brimley CS. 1942. *Supplement to The insects of North Carolina*. North Carolina Department of Agriculture, Division of Entomology, Raleigh, North Carolina.

Brimley CS, Sherman F Jr. 1904. North Carolina records of Odonata in 1903. *Entomological News* 15(3) :100–103.

Byers CF. 1931. Dixie dragonflies collected during the summer of 1930 (Odonata). *Entomological News* 42: 113–119.

Carle FL. 1982. *Ophiogomphus incurvatus*: a new name for *Ophiogomphus carolinus* Hagen (Odonata: Gomphidae). *Annals of the Entomological Society of America* 75(3): 335–339. DOI: 10.1093/aesa/75.3.335

Cooper JE. 1979. The Brothers Brimley: North Carolina naturalists. *Brimleyana* 1(1979): 1–14.

Cuyler RD. 1968. Range extensions of Odonata in the SE United States. *Entomological News* 79(2): 29–34.

Cuyler RD. 1984. Range extensions of Odonata in North Carolina, United States. *Notulae odonatologicae* 2(4): 53–72.

Daigle JJ. 1994. The larva and adult male of *Somatochlora georgiana* Walker (Odonata: Corduliidae). *Bulletin of American Odonatology* 2(2): 21–26.

Donnelly TW. 2003. *Lestes disjunctus*, *forcipatus*, and *australis*: A confusing complex of North American damselflies. *Argia* 15(3): 10–13.

Donnelly TW. 2004a. Distribution of American Odonata. Part 1. Aeshnidae, Petaluridae, Gomphidae, Cordulegastridae. *Bulletin of American Odonatology* 7(4):

61–90.

Donnelly TW. 2004b. Distribution of American Odonata. Part 2. Macromiidae, Corduliidae, Libellulidae. *Bulletin of American Odonatology* 8(1): 1–32.

Donnelly TW. 2004c. Distribution of American Odonata. Part 3. Calopterygidae, Lestidae, Coenagrionidae, Protoneuridae, Platystictidae with data sources and bibliography, Parts 1–3. *Bulletin of American Odonatology* 8(2–3): 33–99.

Donnelly TW. 2010. R. Duncan Cuyler, 1929–2010. *Argia* 22(2): 2–4.

Dunkle SW. 2000. *Dragonflies through binoculars: A field guide to dragonflies of North America*. Oxford University Press, New York, New York.

Flotemersch JE. 2023. Conservation of blackwater rivers and streams of the coastal plains of United States: knowledge and research needs. *Ambio* 52: 665–677.

Frey DG. 1949. Morphometry and hydrography of some natural lakes of the North Carolina Coastal Plain: The bay lake as a morphometric type. *Journal of the Elisha Mitchell Scientific Society* 65(1): 1–37.

Garrison RW, von Ellenrieder N. 2019. An annotated list of the types of Odonata housed at the Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, U.S.A. *International Dragonfly Fund-Report* 134: 1–148.

Gloyd L. 1936. Three new North American species of Gomphinae (Odonata). *Occasional Papers of the Museum of Zoology University of Michigan* 326: 1–25.

Griffith GE, Omernik JM, Comstock JA, Schafale MP, McNab WH, Lenat DR, MacPherson TF, Glover JB, Shelburne VB. 2002. *Ecoregions of North Carolina and South Carolina* (color poster with map, descriptive text, summary tables, and photographs). Reston, Virginia, United States Geological Survey (map scale 1:1,500,000). This and associated files at: https://www.epa.gov/eco-research/ecoregion-download-files-state-region-4#pane-31

Hagen HA. 1873. Report on the Pseudoneuroptera and Neuroptera of North America in the collection of the late TH. W. Harris. *Proceedings of the Boston Academy of Natural History* 15: 263–276.

Kennedy JH, White HB III. 1979. Description of the nymph of *Ophiogomphus howei* (Odonata: Gomphidae). *Proceedings of the Entomological Society of Washington* 81(1): 64–69.

Kirkman LK. 1999. Impacts of fire and hydrological regimes on vegetation in depression wetlands of southeastern USA. Pp. 10–20 in Cerulean CI and Engstrom RT, eds. Fire in wetlands: a management perspective. *Proceedings of the Tall Timbers Fire Ecology Conference*, No. 19. Tall Timbers Research Station, Tallahassee, Florida.

LeGrand H, Howard T, Petranka J, Shields M. 2023. The Dragonflies and Damselflies of North Carolina. 14th Approximation [Internet]. Raleigh (NC): North Carolina Biodiversity Project and North Carolina State Parks. https://auth1.dpr.ncparks.gov/odes/a/accounts.php

Lutz PE. 1968. Life-history studies on *Lestes eurinus* Say (Odonata). *Ecology* 49(3): 576–579.

Muttkowski RA. 1911. A new *Gomphus*. *Entomological News and Proceedings of the Entomological Section of the Academy of Natural Sciences of Philadelphia* 22: 221–223.

Needham JG. 1950. Three new species of North American Dragonflies with notes on related species. *Transactions of the American Entomological Society* 76(1): 6–8.

Needham JG. 1951. A new species of *Ophiogomphus* (Odonata). *Entomological News* 62(1): 41–43.

Needham JG, Westfall MJ Jr, May ML. 2014. *Dragonflies of North America*, 3rd edition. Scientific Publishers, Inc., Gainesville, Florida.

Padgett AG. 2023. Common where found: Furtive Forktail, *Ischnura prognata*, observations. *Argia* 35(1): 31–34.

Patten MA, Smith-Patten BD. 2013. Two new species, *Lestes eurinus* Say and *L. forcipatus* Rambur, for Oklahoma, with comments on other vagrant *Lestes* recorded in the state (Zygoptera: Lestidae). *Notulae Odonatologicae* 8(2): 29–32.

Paulson D. 2004. New common names for some North American odonates. *Argia* 16(3): 29–30.

Paulson D. 2011. *Dragonflies and damselflies of the East*. Princeton University Press, Princeton, New Jersey.

Paulson DR, Dunkle SW, Johnson JT. 2024. *A checklist of North American Odonata including English name, etymology, type locality, and distribution*. 2024 edition. https://www.odonatacentral.org/public/media/uploads/files/NA_Odonata_Checklist_2024.pdf

Paulson D, Schorr M, Abbott J, Bota-Sierra C, Deliry C, Dijkstra K-D, Lozano F. (Coordinators). 2024. *World Odonata List*. OdonataCentral, University of Alabama. Available at: https://www.odonatacentral.org/app/#/wol/

Pollard CL. 1911. A remarkable dragonfly (Odon.). *Entomological News and Proceedings of the Entomological Section of the Academy of Natural Sciences of Philadelphia* 22: 79–81.

Roble SM. 1994. A preliminary checklist of the damselflies of Virginia, with notes on distribution and seasonality (Odonata: Zygoptera). *Banisteria* 4: 3–23.

Say T. 1839. Descriptions of new North American neuropterous insects, and observations on some already described. *Journal of the Academy of Natural Sciences of Philadelphia* 8: 9–36.

Schafale M. 2023. *Classification of the natural communities of North Carolina*. Fourth approximation. North Carolina Natural Heritage Program, North Carolina Department of Natural and Cultural Resources, Raleigh, North Carolina.

Sélys Longchamps E de. 1878. Quatrièmes additions au synopsis des Gomphines. *Bulletin de l'Académie Royale des*

sciences, des lettres et des beauxarts de Belgique Série 2 46 (11): 688.

Sélys Longchamps E de. 1879. Revision des Ophiogomphus et descriptions de quatre nouvelle Gomphines américaines. *Comptes Rendus de la Société de Entomologie de Belgique* II(64): 6–13.

Sherman F Jr, Brimley CS. 1904. Working up the entomological fauna of North Carolina. *Journal of the Elisha Mitchell Scientific Society* 20(4): 134–136.

Shields MA. 2016. New records of *Lestes vidua* (Carolina Spreadwing) in North Carolina. *Argia* 28(1): 8–9.

Smith BD. 2021. Update to the Odonata Species Richness Project. *Argia* 33(4): 37–39.

Smith BD, Patten MA. 2021. *Dragonflies at a biogeographical crossroads: the Odonata of Oklahoma and complexities beyond its borders*. CRC Press, Boca Raton, Florida.

Sorrie BA. 2011. *A field guide to wildflowers of the Sandhills region*. The University of North Carolina Press, Chapel Hill, North Carolina.

Westfall MJ Jr. 1942. A list of the dragonflies (Odonata) taken near Brevard, North Carolina. *Entomological News* 53: 94–100, 127–132.

Westfall MJ Jr. 1947. A new *Macromia* from North Carolina. *Journal of the Elisha Mitchell Scientific Society* 63: 32–36.

Westfall MJ Jr. 1957. A new species of *Telebasis* from Florida (Odonata: Zygoptera). *The Florida Entomologist* 40(1): 19–27.

Westfall MJ Jr, May ML. 2006. *Damselflies of North America*, revised edition. Scientific Publishers, Inc., Gainesville, Florida.

Williamson EB. 1934. Dragonflies collected in Kentucky, Tennessee, North and South Carolina, and Georgia in 1931. *Occasional Papers of the Museum of Zoology University of Michigan* 288: 1–20.

Wray DL. 1950. *Insects of North Carolina*, Second Supplement. North Carolina Department of Agriculture, Division of Entomology, Raleigh, North Carolina.

Wray DL. 1952. The occurrence of *Archilestes grandis* (Rambur) in western North Carolina, Entomological News 63(9): 237.

Wray DL. 1967. *Insects of North Carolina*, Third Supplement. North Carolina Department of Agriculture, Division of Entomology, Raleigh, North Carolina.

Yates EL. 2003. Observations on the Odonata of a streambog complex in Panthertown Valley, North Carolina. Master's Thesis, Western Carolina University, Cullowhee, North Carolina.

Appendix 1. Odonate species of North Carolina, listed in chronological order by date first recorded.

	Scientific Name	Common Name	First Recorded	County	Locality	Collector	Source
1	*Hetaerina americana*	American Rubyspot	1826–1830	not given	North Carolina	Hentz N	Hagen 1873
2	*Calopteryx maculata*	Ebony Jewelwing	1826 –1830	not given	North Carolina	Hentz N	Say 1839, Garrison and von Ellenrieder 2019
3	*Plathemis lydia*	Common Whitetail	prior to 1856	not given	North Carolina	not given	Hagen 1873
4	*Argia moesta*	Powdered Dancer	prior to 1856	not given	North Carolina	not given	Hagen 1873
5	*Argia tibialis*	Blue-tipped Dancer	1877	Burke	Morganton	Morrison HK	Brimley 1903
6	*Zoraena erronea*	Tiger Spiketail	1876 –1878	Burke	Morganton	Morrison HK	Selys 1878
7	*Stenogomphurus consanguis*	Cherokee Clubtail	1876 –1879	Burke	Morganton	Morrison HK	Selys 1879
8	*Argia bipunctulata*	Seepage Dancer	1876 –1885	Burke	Morganton	Morrison HK	Brimley 1903
9	*Ophiogomphus incurvatus*	Appalachian Snaketail	prior to 1885	not given	North Carolina	not given	Carle 1982, Garrison and von Ellenrieder 2019
10	*Libellula flavida*	Yellow-sided Skimmer	June 1892	Mitchell	not given	Skinner H	Brimley 1903
11	*Sympetrum obtrusum*	White-faced Meadowhawk	3 July 1898	Watauga	Blowing Rock	Moore JP	Brimley 1903
12	*Gomphaeschna furcillata*	Harlequin Darner	28 April 1899	Wake	Raleigh	Brimley CS	Brimley 1903
13	*Argia apicalis*	Blue-fronted Dancer	22 June 1899	Wake	Raleigh	Brimley CS	U.S. Nat. Museum of Nat. History USNMENT355217
14	*Phanogomphus borealis*	Beaverpond Clubtail	24 July 1899	Mitchell	Buladean (formerly Magnetic City)	Ley APW	Brimley 1903
15	*Boyeria vinosa*	Fawn Darner	27 July 1899	Mitchell	Buladean (formerly Magnetic City)	Ley APW	Brimley 1903
16	*Macromia illinoiensis*	Swift River Cruiser	28 July 1899	Wake	Raleigh	Brimley CS	Brimley 1903
17	*Hetaerina titia*	Smoky Rubyspot	September 1899	Wake	Raleigh	Brimley CS	NC State University Insect Museum NCSU 46939
18	*Progomphus obscurus*	Common Sanddragon	5 June 1900	Wake	Raleigh	Brimley CS	Brimley 1903
19	*Gomphaeschna antilope*	Taper-tailed Darner	3 June 1901	Wake	Raleigh	Sherman F	NC State University Insect Museum NCSU 67113
20	*Tramea carolina*	Carolina Saddlebags	August 1901	Wake	Raleigh, Green's Quarry	Brimley CS	Brimley 1903
21	*Pachydiplax longipennis*	Blue Dasher	7 March 1902	Wake	Raleigh	Sherman F	NC State University Insect Museum NCSU 55472
22	*Perithemis tenera*	Eastern Amberwing	7 March 1902	Wake	Raleigh	Sherman F	NC State University Insect Museum NCSU 46374
23	*Epitheca cynosura*	Common Baskettail	April 1902	Wake	Raleigh	Brimley CS	Brimley 1903
24	*Epitheca semiaquea*	Mantled Baskettail	April 1902	Wake	Raleigh	Brimley CS	Brimley 1903
25	*Zoraena bilineata*	Brown Spiketail	12 April 1902	Wake	Raleigh	Brimley CS	Brimley 1903
26	*Phanogomphus lividus*	Ashy Clubtail	15 April 1902	Wake	a small Creek near Raleigh	Brimley CS	Brimley 1903
27	*Zoraena maculata*	Twin-spotted Spiketail	21 April 1902	Wake	Raleigh	Brimley CS	Brimley 1903
28	*Anax junius*	Common Green Darner	22 April 1902	Wake	Raleigh	Sherman F	Brimley 1903
29	*Didymops transversa*	Stream Cruiser	22 April 1902	Wake	Raleigh	Brimley CS	Brimley 1903
30	*Phanogomphus exilis*	Lancet Clubtail	2 May 1902	Wake	Walnut Creek, near Raleigh	Brimley CS	Brimley 1903
31	*Libellula cyanea*	Spangled Skimmer	22 May 1902	Johnston	Clayton	Sherman F	Brimley 1903
32	*Libellula semifasciata*	Painted Skimmer	22 May 1902	Johnston	Clayton	Sherman F	Brimley 1903
33	*Celithemis elisa*	Calico Pennant	9 June 1902	Mecklenburg	Charlotte	Sherman F	Brimley 1903
34	*Nasiaeschna pentacantha*	Cyrano Darner	1 July 1902	Wake	Raleigh	Brimley CS	Brimley 1903
35	*Dromogomphus spinosus*	Black-shouldered Spinyleg	2 July 1902	Wake	Raleigh	Brimley CS	NC State University Insect Museum NCSU 67021
36	*Stylurus amnicola*	Riverine Clubtail	3 July 1902	Wake	Raleigh	Brimley CS	NC State University Insect Museum NCSU 67078

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Appendix 1. (continued)

	Scientific Name	Common Name	First Recorded	County	Locality	Collector	Source
37	*Libellula incesta*	Slaty Skimmer	3 July 1902	Wake	Raleigh	Brimley CS	Brimley 1903
38	*Somatochlora tenebrosa*	Clamp-tipped Emerald	10 July 1902	Wake	Crabtree Creek, Raleigh	Sherman F	Brimley 1903
39	*Argia sedula*	Blue-ringed Dancer	10 July 1902	Wake	Raleigh	Sherman F	Brimley 1903
40	*Nannothemis bella*	Elfin Skimmer	26 July 1902	Moore	Southern Pines	Brimley CS	NC State University Insect Museum NCSU 56180
41	*Celithemis amanda*	Amanda's Pennant	29 July 1902	Johnston	Four Oaks	Sherman F	NC State University Insect Museum NCSU 55220
42	*Celithemis ornata*	Ornate Pennant	29 July 1902	Johnston	Four Oaks	Sherman F	Brimley 1903
43	*Macromia taeniolata*	Royal River Cruiser	31 July 1902	Wake	Raleigh	Brimley CS	Brimley 1903
44	*Ischnura posita*	Fragile Forktail	August 1902	Wake	Raleigh	Brimley CS	Brimley 1903
45	*Libellula luctuosa*	Widow Skimmer	1 August 1902	Wake	Raleigh, Green's Quarry	Brimley CS	Brimley 1903
46	*Libellula axilena*	Bar-winged Skimmer	11 August 1902	Carteret	Beaufort	Sherman F	Brimley 1903
47	*Libellula vibrans*	Great Blue Skimmer	11 August 1902	Carteret	Beaufort	Sherman F	Brimley 1903
48	*Ischnura ramburii*	Rambur's Forktail	11 August 1902	Carteret	Beaufort	Sherman F	Brimley 1903
49	*Sympetrum ambiguum*	Blue-faced Meadowhawk	20 August 1902	Wake	Raleigh	Brimley CS	NC State University Insect Museum NCSU 55564
50	*Sympetrum vicinum*	Autumn Meadowhawk	21 August 1902	Wake	Raleigh	Brimley CS	Brimley 1903
51	*Libellula pulchella*	Twelve-spotted Skimmer	29 August 1902	Watauga	Blowing Rock	Sherman F	Brimley 1903
52	*Somatochlora filosa*	Fine-lined Emerald	6 September 1902	Robeson	Lumberton	Sherman F	Brimley 1903
53	*Erythemis simplicicollis*	Eastern Pondhawk	6 September 1902	Robeson	Lumberton	Sherman F	Brimley 1903
54	*Lestes vigilax*	Swamp Spreadwing	6 September 1902	Robeson	Lumberton	Sherman F	Brimley 1903
55	*Argia fumipennis*	Variable Dancer	6 September 1902	Mecklenburg	Charlotte	Sherman F	NC State University Insect Museum NCSU 40628
56	*Basiaeschna janata*	Springtime Darner	28 March 1903	Moore	Southern Pines	Brimley CS, Sherman F	Brimley and Sherman 1904
57	*Helocordulia selysii*	Selys's Sundragon	28 March 1903	Wake	Southern Pines	Brimley CS	Brimley and Sherman 1904
58	*Ischnura hastata*	Citrine Forktail	31 March 1903	Wake	Raleigh	Brimley CS	NC State University Insect Museum NCSU 64531
59	*Ischnura verticalis*	Eastern Forktail	3 April 1903	Wake	Raleigh	Brimley CS	Brimley and Sherman 1904
60	*Epiaeschna heros*	Swamp Darner	6 April 1903	Dare	Cape Hatteras	Brimley HH	Brimley and Sherman 1904
61	*Calopteryx dimidiata*	Sparkling Jewelwing	7 April 1903	Robeson	Lumberton	Sherman F	Brimley and Sherman 1904
62	*Enallagma divagans*	Turquoise Bluet	7 April 1903	Robeson	Lumberton	Brimley CS, Sherman F	Brimley and Sherman 1904
63	*Hylogomphus apomyius*	Banner Clubtail	7 April 1903	Robeson	Lumberton	Brimley CS, Sherman F	Brimley and Sherman 1904, Brimley 1906b, Cuyler 1984
64	*Chromagrion conditum*	Aurora Damsel	16 April 1903	Wake	Raleigh	Brimley CS	NC State University Insect Museum NCSU 40671
65	*Enallagma signatum*	Orange Bluet	19 May 1903	Wake	Raleigh	Brimley CS	NC State University Insect Museum NCSU 64992
66	*Enallagma civile*	Familiar Bluet	21 May 1903	Wake	Raleigh	Brimley CS	Brimley and Sherman 1904
67	*Lestes rectangularis*	Slender Spreadwing	27 May 1903	Wake	Raleigh	Brimley CS	NC State University Insect Museum NCSU 46991
68	*Enallagma aspersum*	Azure Bluet	27 May 1903	Wake	Raleigh	Brimley CS	NC State University Insect Museum NCSU 40697

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Appendix 1. (continued)

	Scientific Name	Common Name	First Recorded	County	Locality	Collector	Source
69	*Lestes inaequalis*	Elegant Spreadwing	28 May 1903	Wake	Raleigh	Brimley CS	Brimley and Sherman 1904
70	*Lestes australis*	Southern Spreadwing	6 June 1903	Wake	Raleigh	Brimley CS	NC State University Insect Museum NCSU 46945
71	*Enallagma doubledayi*	Atlantic Bluet	8 June 1903	Wake	Raleigh	Brimley CS	Brimley and Sherman 1904
72	*Enallagma traviatum*	Slender Bluet	8 June 1903	Wake	Raleigh, Green's Quarry	Brimley CS	Brimley and Sherman 1904
73	*Libellula auripennis*	Golden-winged Skimmer	9 June 1903	Carteret	Beaufort	Sherman F	Brimley and Sherman 1904
74	*Enallagma daeckii*	Attenuated Bluet	10 June 1903	Wake	Raleigh	Brimley CS	U.S. Nat. Museum of Natural History USNMENT375362
75	*Libellula needhami*	Needham's Skimmer	11 June 1903	Carteret	Beaufort	Sherman F	Wray 1950
76	*Erythrodiplax minuscula*	Little Blue Dragonlet	18 June 1903	Carteret	Beaufort	Sherman F	NC State University Insect Museum NCSU 54193
77	*Erythrodiplax berenice*	Seaside Dragonlet	20 June 1903	Carteret	Beaufort	Sherman F	NC State University Insect Museum NCSU 55462
78	*Pantala flavescens*	Wandering Glider	12 July 1903	Wake	Raleigh	Brimley CS	Brimley and Sherman 1904
79	*Enallagma exsulans*	Stream Bluet	23 July 1903	Wake	Raleigh, Neuse River at Poole's Bridge	Brimley CS	Brimley and Sherman 1904
80	*Calopteryx amata*	Superb Jewelwing	prior to 1903	Mitchell	Buladean (Magnetic City)	Wetherby WC	Brimley and Sherman 1904
81	*Neurocordulia obsoleta*	Umber Shadowdragon	5 April 1905	New Hanover	Wilmington	Bentley GM	Brimley 1906b
82	*Coryphaeschna ingens*	Regal Darner	19 June 1905	Craven	Lake Ellis	Sherman F	Brimley 1906a
83	*Celithemis fasciata*	Banded Pennant	22 June 1905	Craven	Near Havelock	Brimley CS	Brimley 1906a
84	*Enallagma durum*	Big Bluet	28 June 1905	Craven	Lake Ellis	Brimley CS	Brimley 1906a
85	*Tramea lacerata*	Black Saddlebags	21 July 1905	New Hanover	Wilmington	Spoon JW	Brimley 1906b
86	*Ladona deplanata*	Blue Corporal	April 1906	Moore	Southern Pines	Woglum RS	NC State University Insect Museum NCSU 40322
87	*Enallagma vesperum*	Vesper Bluet	15 May 1906	Craven	Lake Ellis	Brimley CS	NC State University Insect Museum NCSU 64520
88	*Zoraena obliqua*	Arrowhead Spiketail	August 1906	Avery	Linville	Woglum RS	Brimley 1938
89	*Aeshna umbrosa*	Shadow Darner	1 August 1906	Avery	Linville	Woglum RS	NC State University Insect Museum NCSU 67332
90	*Hylogomphus parvidens*	Piedmont Clubtail	29 April 1908	Moore	Southern Pines	Brimley CS	Brimley 1920
91	*Lanthus vernalis*	Southern Pygmy Clubtail	May 1908	Cherokee	Andrews	Brimley CS	Brimley 1918
92	*Amphiagrion saucium*	Eastern Red Damsel	18 May 1909	Wake	Raleigh	Brimley CS	Brimley 1918
93	*Neurocordulia alabamensis*	Alabama Shadowdragon	5 June 1909	Moore	Southern Pines	Manee AH	Cuyler 1984
94	*Aphylla williamsoni*	Two-striped Forceptail	1 August 1909	New Hanover	Wilmington, Greenfield Pond	Pollard CL	Pollard 1911
95	*Phanogomphus cavillaris*	Sandhill Clubtail	April 1910	Bladen	White Lake	Sherman F	Muttkowski 1911
96	*Gomphurus vastus*	Cobra Clubtail	May 1910	Buncombe	Black Mountain	Sherman F	Brimley 1918
97	*Enallagma geminatum*	Skimming Bluet	June 1914	Moore	Pine Bluff	Ives JD	Brimley 1918
98	*Ischnura prognata*	Furtive Forktail	8 August 1914	Wake	Raleigh	Brimley CS	Brimley 1918
99	*Hagenius brevistylus*	Dragonhunter	22 August 1914	Wake	Raleigh	Brimley CS	Brimley 1918
100	*Celithemis bertha*	Red-veined Pennant	June 1915	Bladen	White Lake	Sherman F	NC State University Insect Museum NCSU 55224
101	*Pantala hymenaea*	Spot-winged Glider	11 August 1915	Wake	Raleigh	Brimley CS	Brimley 1918
102	*Stylurus plagiatus*	Russet-tipped Clubtail	20 September 1915	Columbus	Lake Waccamaw	Leiby RW	Brimley 1918
103	*Tachopteryx thoreyi*	Gray Petaltail	14 May 1916	Wake	Raleigh	Spencer H	Brimley 1938
104	*Ophiogomphus edmundo*	Edmund's Snaketail	3 June 1917	not given	North Carolina	not given	Needham 1951

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Appendix 1. (continued)

	Scientific Name	Common Name	First Recorded	County	Locality	Collector	Source
105	*Celithemis verna*	Double-ringed Pennant	1 June 1922	Scotland	Laurel Hill	Brimley CS	NC State University Insect Museum NCSU 55288
106	*Enallagma pallidum*	Pale Bluet	1 June 1922	Scotland	Laurel Hill	Brimley CS	NC State University Insect Museum NCSU 64973
107	*Enallagma weewa*	Blackwater Bluet	1 June 1922	Scotland	Laurel Hill	Brimley CS	NC State University Insect Museum NCSU 64523
108	*Epitheca princeps*	Prince Baskettail	30 June 1923	New Hanover	Wilmington	Brimley CS	Brimley 1938
109	*Celithemis eponina*	Halloween Pennant	30 June 1923	New Hanover	Wilmington	Brimley CS	Brimley 1923
110	*Brachymesia gravida*	Four-spotted Pennant	July 1925	Pamlico	Oriental	Cunningham B	Brimley 1938
111	*Phanogomphus diminutus*	Diminutive Clubtail	14 April 1927	Moore	Aberdeen	Brimley CS	Needham 1950
112	*Nehalennia integricollis*	Southern Sprite	18 May 1927	Wake	Raleigh	Brimley CS	NC State University Insect Museum NCSU 40678
113	*Stylurus scudderi*	Zebra Clubtail	8 July 1930	Swain	Bryson City	Byers CF	Byers 1931
114	*Stylurus spiniceps*	Arrow Clubtail	8 July 1930	Swain	Bryson City	Byers CF	Byers 1931
115	*Anax longipes*	Comet Darner	10 July 1930	Macon	Highlands	Byers CF	U. of Michigan Museum of Zoology UMMZI-00231937
116	*Enallagma hageni*	Hagen's Bluet	10 July 1930	Macon	Highlands	Byers CF	U. of Michigan Museum of Zoology UMMZI-00270093
117	*Somatochlora elongata*	Ski-tipped Emerald	10 July 1930	Macon	Highlands	Byers CF	U. of Michigan Museum of Zoology UMMZI-00247452
118	*Argia translata*	Dusky Dancer	27 July 1930	Cherokee	Murphy	Byers CF	Byers 1931
119	*Macromia alleghaniensis*	Allegheny River Cruiser	30 July 1930	Swain	Bryson City	Spieth H	U. of Michigan Museum of Zoology UMMZI-00247691
120	*Boyeria grafiana*	Ocellated Darner	23 September 1931	Swain	Queen's Creek near Nantahala	Williamson EB	Williamson 1934
121	*Helocordulia uhleri*	Uhler's Sundragon	4 April 1932	Wake	Raleigh	Brimley CS	Brimley 1918
122	*Sympetrum semicinctum*	Band-winged Meadowhawk	2 August 1933	Buncombe	Candler	Wray DL	Brimley 1938
123	*Nehalennia gracilis*	Sphagnum Sprite	11 June 1934	Macon	Highlands	Byers CF	Brimley 1938
124	*Phanogomphus descriptus*	Harpoon Clubtail	15 June 1934	Avery	Pineola	Wray DL	Brimley 1938
125	*Somatochlora linearis*	Mocha Emerald	12 July 1934	Carteret	Beaufort	Pearse AS	Brimley 1938
126	*Stenogomphurus rogersi*	Sable Clubtail	prior to 1936	Buncombe	N. Fork Swannanoa River, Black Mountain	Banks N	Gloyd 1936
127	*Epitheca spinosa*	Robust Baskettail	prior to 1938	Wake	Raleigh	LaRivers	Brimley 1938
128	*Enallagma sulcatum*	Golden Bluet	prior to 1938	New Hanover	Wilmington	Hess A	Brimley 1938
129	*Stylogomphus albistylus*	Eastern Least Clubtail	20 June 1939	Transylvania	Davidson River	Westfall MJ	Westfall 1942
130	*Calopteryx angustipennis*	Appalachian Jewelwing	20 June 1939	Transylvania	Davidson River	Westfall MJ	Westfall 1942
131	*Stylurus laurae*	Laura's Clubtail	16 July 1939	Transylvania	Lake at Camp Carolina, Brevard	Westfall MJ	Westfall 1942
132	*Macrodiplax balteata*	Marl Pennant	17 August 1939	Dare	Bodie Island	Walker SA	Brimley 1942
133	*Aeshna verticalis*	Green-striped Darner	22 August 1939	Henderson	Green River	Montgomery BE	U.S. Nat. Museum of Natural History USNMENT00332929
134	*Ischnura kellicotti*	Lilypad Forktail	September 1939	Henderson	Hendersonville, Lake Osceola	Westfall MJ	Westfall 1942
135	*Arigomphus villosipes*	Unicorn Clubtail	June 1940	Transylvania	Lake at Camp Carolina, Brevard	Westfall MJ	Westfall 1942
136	*Epitheca costalis*	Slender Baskettail	12 June 1940	Transylvania	Brevard	Westfall MJ	Westfall 1942
137	*Enallagma basidens*	Double-striped Bluet	12 June 1940	Transylvania	Brevard	Westfall MJ	Westfall 1942
138	*Macromia margarita*	Mountain River Cruiser	20 June 1941	Transylvania	Little River, Brevard	Westfall MJ	Westfall 1947

Appendix 1 continued next page . . .

Appendix 1. (continued)

	Scientific Name	Common Name	First Recorded	County	Locality	Collector	Source
139	*Sympetrum rubicundulum*	Ruby Meadowhawk	25 July 1942	Henderson	Hendersonville	Westfall MJ	Wray 1950
140	*Enallagma dubium*	Burgundy Bluet	19 July 1946	Gates	Merchant's Millpond	Beatty GH	Univ. de Montréal Biodiversity Centre QMOR00005880.001
141	*Telebasis byersi*	Duckweed Firetail	19 July 1946	Gates	Merchant's Millpond	Beatty GH	Westfall 1957
142	*Dromogomphus armatus*	Southeastern Spinyleg	29 July 1948	Moore	Lakeview (Crystal Lake)	Cuyler RD	Cuyler 1968
143	*Phanogomphus australis*	Clearlake Clubtail	15 April 1951	New Hanover	Greenfield Lake, Wilmington	Cuyler RD	Cuyler 1968
144	*Archilestes grandis*	Great Spreadwing	7 October 1951	Yancey	Windom	Wray DL	Wray 1952
145	*Erpetogomphus designatus*	Eastern Ringtail	30 August 1956	Chatham	Haw River at Bynum	Cuyler RD	Florida State Collection of Arthropods
146	*Stylurus ivae*	Shining Clubtail	16 October 1956	Pender	NE Cape Fear River, Holly Shelter	Cuyler RD	Florida State Collection of Arthropods
147	*Gomphurus septima*	Septima's Clubtail	29 April 1957	Orange	Eno River at Efland	Cuyler RD	Florida State Collection of Arthropods
148	*Hylogomphus abbreviatus*	Spine-crowned Clubtail	8 May 1957	Chatham	Haw River at Bynum	Cuyler RD	Florida State Collection of Arthropods
149	*Hylogomphus adelphus*	Mustached Clubtail	26 June 1957	Yancey	Cane Creek	Cuyler RD	Cuyler 1968
150	*Enallagma davisi*	Sandhill Bluet	9 May 1958	Richmond	Rockingham	Cuyler RD	Florida State Collection of Arthropods
151	*Ophiogomphus aspersus*	Brook Snaketail	9 June 1958	Haywood	E. Fork of the Pigeon River near Cruso	Donnelly TW	LeGrand et al. 2023
152	*Ophiogomphus mainensis*	Maine Snaketail	12 June 1958	Yancey	Toe River, 1.7 mi. downstream of Busick	Donnelly TW	U.S. Nat. Museum of Nat. History USNMENT00339709
153	*Somatochlora georgiana*	Coppery Emerald	5 July 1958	Durham	SW Durham	Cuyler RD	Daigle 1994
154	*Enallagma concisum*	Cherry Bluet	9 July 1960	Sampson	Garland	Cuyler RD	Florida State Collection of Arthropods
155	*Somatochlora provocans*	Treetop Emerald	21 July 1961	Moore	Pinehurst, airport area	Cuyler RD	Florida State Collection of Arthropods
156	*Stylurus townesi*	Townes's Clubtail	17 September 1961	Robeson	Lumber River, Lumberton	Cuyler RD	LeGrand et al. 2023
157	*Gomphurus dilatatus*	Blackwater Clubtail	9 May 1962	Chatham	Haw River	Cuyler RD	Cuyler 1968
158	*Neurocordulia virginiensis*	Cinnamon Shadowdragon	22 May 1962	Durham	Eno River at Guess Rd., Durham	Cuyler RD	Florida State Collection of Arthropods
159	*Enallagma minusculum*	Little Bluet	15 May 1964	Bladen	White Lake	Cuyler RD	Florida State Collection of Arthropods
160	*Dythemis velox*	Swift Setwing	7 August 1965	Union	Richardson Creek near Monroe	Cuyler RD	Florida State Collection of Arthropods
161	*Lestes eurinus*	Amber-winged Spreadwing	28 October 1965	Guilford	8 km ENE of Greensboro	Lutz PE	Lutz 1968
162	*Lestes vidua*	Carolina Spreadwing	30 May 1966	Bladen	Pond, 5.8 mi NE of White Lake	Paulson DR	LeGrand et al. 2023
163	*Aeshna tuberculifera*	Black-tipped Darner	17 September 1967	Wilkes	Maple Springs	Cuyler RD	Cuyler 1984
164	*Orthemis ferruginea*	Roseate Skimmer	23 September 1967	Cumberland	Pope Park, Fayetteville	Cuyler RD	Cuyler 1984
165	*Neurocordulia molesta*	Smoky Shadowdragon	4 June 1968	Harnett	Little River south of Bunn Level	Cuyler RD	Florida State Collection of Arthropods
166	*Stylogomphus sigmastylus*	Interior Least Clubtail	2 July 1969	Moore	Mill Creek, Vass	Cuyler RD	LeGrand et al. 2023
167	*Tramea darwini*	Striped Saddlebags	9 August 1969	Currituck	Knotts Island	Cuyler RD	Florida State Collection of Arthropods
168	*Lestes forcipatus*	Sweetflag Spreadwing	27 June 1970	Orange	southeast	Cuyler RD	Florida State Collection of Arthropods
169	*Progomphus bellei*	Belle's Sanddragon	28 June 1970	Bladen	White Lake	Cuyler RD	Florida State Collection of Arthropods
170	*Triacanthagyna trifida*	Phantom Darner	26 October 1971	Pender	Northeast Cape Fear River	Cuyler RD	Florida State Collection of Arthropods
171	*Tramea onusta*	Red Saddlebags	4 August 1972	Ashe	Shatley Springs	Cuyler RD	Florida State Collection of Arthropods
172	*Ophiogomphus howei*	Pygmy Snaketail	May 1977	Alleghany	New River	Kennedy JH	Kennedy and White 1979
173	*Gomphurus ventricosus*	Skillet Clubtail	7 July 1980	Caswell	Country Line Creek at N.C Hwy. 86	Cuyler RD	Cuyler 1984
174	*Gomphurus hybridus*	Cocoa Clubtail	29 April 1982	Bladen	Cape Fear River at Elizabethtown	Cuyler RD	Florida State Collection of Arthropods
175	*Neurocordulia yamaskanensis*	Stygian Shadowdragon	24 June 1982	Macon	Little Tennessee River at Iotla	Dunkle SW	Florida State Collection of Arthropods
176	*Hylogomphus viridifrons*	Green-faced Clubtail	15 June 1983	Macon	Little Tennessee River at Iotla	Daigle JJ	Florida State Collection of Arthropods
177	*Phanogomphus quadricolor*	Rapids Clubtail	12 May 1985	Chatham	Rocky River at US 15-501	Daigle JJ	Florida State Collection of Arthropods
178	*Gomphurus fraternus*	Midland Clubtail	5 May 1987	Stanly	Rocky River at N.C. Hwy 52	Cuyler RD	Florida State Collection of Arthropods
179	*Lestes congener*	Spotted Spreadwing	25 August 1987	Alleghany	Glade Valley	Cuyler RD	Florida State Collection of Arthropods

Appendix 1 continued next page . . .

Appendix 1. (continued)

	Scientific Name	Common Name	First Recorded	County	Locality	Collector	Source
180	*Arigomphus pallidus*	Gray-green Clubtail	30 June 1989	Pender	Northeast Cape Fear River	Cuyler RD	Florida State Collection of Arthropods
181	*Gomphurus lineatifrons*	Splendid Clubtail	29 May 1991	Orange	Eno River upstream from Fews Ford	Hall SP	Florida State Collection of Arthropods
182	*Cordulia shurtleffii*	American Emerald	6 July 1993	Burke	Marsh south of Jonas Ridge	Cuyler RD	Florida State Collection of Arthropods
183	*Ladona julia*	Chalk-fronted Corporal	2001 or 2002	Jackson	Panthertown Valley	Yates E	Yates 2003
184	*Sympetrum internum*	Cherry-faced Meadowhawk	prior to April 2004	Macon	not given	not given	Odonata Central 254353
185	*Ophiogomphus rupinsulensis*	Rusty Snaketail	28 May 2006	Alleghany	New River State Park	Wilcox T	LeGrand et al. 2023
186	*Sympetrum corruptum*	Variegated Meadowhawk	30 October 2007	Carteret	Fort Macon State Park	Newman R	LeGrand et al. 2023
187	*Dromogomphus spoliatus*	Flag-tailed Spinyleg	23 June 2014	Graham	Cheoha River at Joyce Kilmer Rd.	McConnell O	LeGrand et al. 2023
188	*Rhionaeschna multicolor*	Blue-eyed Darner	10 December 2020	Onslow	Stones Creek Game Land	Bockhahn B	LeGrand et al. 2023, Bockhahn 2022
189	*Gynacantha nervosa*	Twilight Darner	31 October 2021	Carteret	Fort Macon State Park	Newman R	LeGrand et al. 2023

Appendix 2. Hypothetical or dubious odonate species reported from North Carolina.

Nehalennia irene (Hagen, 1861) — Sedge Sprite

Listed for North Carolina in Westfall and May (2006), but no records from Cuyler or other collectors are known. This is a northern species, ranging south in the eastern United States to Virginia, West Virginia, and Kentucky. Records for northwestern South Carolina, formerly available on Odonata Central, were removed in 2019 when vetter Chris Hill determined them to be insufficiently documented to confirm the identification. The nearest accepted records to North Carolina are in southwestern and central Virginia.

Lanthus parvulus (Sélys, 1854) — Northern Pygmy Clubtail

The Florida State Collection of Arthropods has several specimens collected in Avery County in the Mountains identified as this species. At our request, Bill Mauffray photographed these specimens and sent the photos to others for review. The conclusion was that most or all appeared to be Southern Pygmy Clubtails (*Lanthus vernalis*), which are known to occur in the area, but one possibly could be a Northern Pygmy Clubtail. The specimens, over 40 years old, had fungus growing on them that made it difficult to see the crucial difference between the two species in the lateral stripe pattern on the thorax. Thus, we are unable to confirm the presence of Northern Pygmy Clubtail in North Carolina, although it may occur and should be looked for in the northern Mountains in May and June. The nearest accepted records on Odonata Central are about 200 km north of the state in Virginia and West Virginia.

Stylurus notatus (Rambur, 1842) — Elusive Clubtail

Needham et al. (2014) list North Carolina in the range but Donnelly's map (2004a) does not show any records for the state, nor are there any specimens from North Carolina in the Florida State Collection of Arthropods. Supposedly there is a sight record for Wake County, but we could find no further information. Thus, we cannot confirm its presence in the state. The southern range of this species approaches North Carolina to the west, reaching central Tennessee and northwestern Georgia. So, it is possible that the species occurs in the state. This clubtail is well-named, as adults are notoriously difficult to observe or capture.

Libellula quadrimaculata Linnaeus, 1758 — Four-spotted Skimmer

Although this species is listed for North Carolina in Needham et al. (2014), Donnelly (2004b) shows no records for the state, nor did Cuyler collect any. The normal range of this species in eastern North America extends southward only to southern Ohio, with one outlier from northern Alabama (iNaturalist 97401940). Older reports might be related to a misattribution of common names; reports of Four-spotted Pennant, a species common along the North Carolina coast, may have been incorrectly transcribed as Four-spotted Skimmer.

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