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Dennis Paulson: Dragonflies and Damselflies of the West

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Damselflies *Zygoptera*

Broad-winged Damsel Family *Calopterygidae*

Large, showy damselflies of this family often display metallic bodies and/or colored wings. They are distinguished from other North American damselflies by broad wings with dense venation and no hint of the narrow petiole or “stalk” at the base that characterizes the other families. The nodus lies well out on the wing with numerous crossveins basal to it. Colored wings in this family are heavily involved in displays between males and of males to females. This is the only damselfly family in which individuals point abdomen toward the sun (obelisking) at high temperatures. Closed wings are held either on one side of the abdomen or above it, which may relate to temperature regulation. Leg spines are very long, appropriate to fly-catching habits. Worldwide it is tropical, with a few species in temperate North America and Eurasia. World 176, NA 8, West 6.

Jewelwings *Calopteryx*

These are the most spectacular damselflies of temperate North America and Eurasia, all large with metallic green to blue-green bodies. Different species have wings that are clear, with black tips of different extent, or entirely black. Wing pattern is important for identification. Females are similar to males but usually duller and easily distinguished by white stigmas. All live on clear streams and rivers. This is the group to watch if you wish to see odonate courtship behavior. Watch for wing clapping, wings suddenly opened and shut, which may be communication between individuals or for cooling. World 29, NA 5, West 3.

1 Sparkling Jewelwing *Calopteryx dimidiata*

TL 37–50, HW 23–31

Description Slender metallic green damselfly with black wingtips.

Noteworthy that this showy species is one of the smallest in its family. *Male*: Eyes dark brown. Entire body metallic green, looks blue when backlit. Wings with terminal one-fifth black. *Female*: Colored as male or somewhat more bronzy-green, usually with white pseudostigma and with black wingtips less crisply defined. Some have only hindwing tips black; others have clear or entirely dusky wings. Immature with reddish eyes, duller body color.



Identification No similar species in its range in the West. Often occurs with **Ebony Jewelwing**, which is larger, with broad black wings. Some female **Sparkling** have darkish wings, never as dark as **Ebony**, and distinctly narrower. Shaped more like RUBYSPOD, but all-green body and black wingtips furnish easy distinction. In flight, looks like glowing green toothpick with flashing black wingtips dancing around, whereas black fluttering wings dominate appearance of **Ebony**.

Natural History Both sexes often together at the breeding habitat, at least at some times of day. Males defend small territories with potential oviposition sites, flutter around and around each other in spiral flight over water, and chase one another along up to 40 feet of stream; spectacular to see, with brilliant green abdomen and flashing black wingtips. Also display to females that approach oviposition site in “floating cross display” by dropping to water and floating for a short distance with wings partially spread and abdomen curled up. This is repeated until female flips wings, showing receptiveness, or leaves the stream. Receptive female then courted with rapidly whirring wings, followed in some cases by copulation, which lasts about 2 min. Female oviposits by walking down leaf until submerged, often quite far, then laying several hundred eggs for about 15–20 min underwater. She then rises to surface, usually unresponsive to further male attention but remaining near water.

1.1
Sparkling
Jewelwing
male—Leon Co., FL,
April 2005



1.2
Sparkling
Jewelwing
female—Marion
Co., FL, April 2005



Habitat Small, sandy forest streams with abundant vegetation and usually swift current; less tied to woodland than Ebony and more often in quite open areas.

Flight Season TX Apr–May.

Distribution Widespread in the Southeast, south to central Florida, and north along the Atlantic coast to New Hampshire.

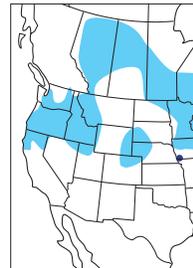
2 River Jewelwing *Calopteryx aequabilis*

TL 43–54, HW 27–37

Description Large green damselfly with black wingtips. *Male*: Eyes dark brown. Body glossy metallic green, looks blue in some lights. Wings with more than terminal third black, that on hindwing more extensive than on forewing, younger individuals with paler wingtips. *Female*: Slightly duller or more bronzy; white pseudostigma allows easy distinction from male. Dark of wingtips can be more obscured, inner wing darker, so contrast less evident.

Identification This species unlike any other in its range in the West. Some female **River Jewelwings** have wings dusky enough that wingtips do not contrast much, and a closer look is necessary to distinguish them from female **Ebony Jewelwing** where they occur together on Great Plains. Also, some female **Ebony** have darker wingtips. With experience, **River** are seen to be somewhat narrower-winged. No other *Calopteryx* jewelwings west of Great Plains.

Natural History Rarely seen very far from water. Both sexes at times common on streamside vegetation in optimal habitat. Males often seen in lengthy flights along shores of large rivers



but typically perch over water and defend small territories, interacting constantly with somewhat irregular horizontal circling flights, some of them lengthy. Male stationary display to female spectacular, forewings fluttering and hindwings briefly halted so black tips prominent. Male flutters in front of female with abdomen tip raised, then lands and raises it further, exposing white under tip. Male also dives to water surface briefly with wings outspread. Male and female wing-clap to one another. Copulations lasts a few minutes, oviposition up to 24 min but usually much briefer (average 9 min). Females oviposit on floating, sometimes emergent, vegetation or back down stem and submerge for up to 50 min, usually with male in attendance at surface. Longevity of reproductive adults up to 28 days.

Habitat Clear streams of all sizes and rivers with moderate current, usually with beds of submergent aquatic vegetation. Typically more open and larger streams than those used by Ebony Jewelwing. However, the two often occur together, and River Jewelwings can be common on rather tiny wooded streams as long as there is some sun penetration. Also seen at rocky shores of large lakes in some areas.

Flight Season BC Jun–Jul, AB Jun–Aug, WA Jun–Sep, OR May–Sep, CA May–Jul, MT Jun–Aug, NE May–Sep.

Distribution Widespread in the Northeast, east to Newfoundland and south to Indiana and West Virginia.

Comments Several subspecies described from West not presently considered distinct but indicative of variation in wing pattern.

2.1
River Jewelwing
male—King Co.,
WA, June 2004



2.2
River Jewelwing
female—Malheur
Co., OR, June 2000,
Netta Smith



Description No other North American damselfly is metallic green with black wings. Large size alone is distinctive. *Male*: Eyes dark brown. Brilliant metallic green (blue in some lights) all over, with black wings. *Female*: Slightly duller, with conspicuous white pseudostigma and wings somewhat paler at base than in male.

Identification Females with somewhat paler wing bases could be mistaken for female **River Jewelwing**, but contrast between base and tip usually much greater in the latter. Broader wings should also distinguish **Ebony**. Only other black-winged damselflies in range are some **Smoky Rubyspots**, with much narrower wings and black body.

Natural History Both sexes at and near water much of day, tend to be more at rapids when that habitat is present. Much wing clapping, opening wings slowly and closing them suddenly. Males may have “flights of attrition,” bouncing around one another while moving laterally, sometimes surprisingly long distances away from start. Flights persist for many minutes, presumably until one cannot maintain interaction and flies away or lands. Males defend territories for up to 8 days around patches of submergent and floating vegetation in stream, bigger patches being more attractive. Females arrive at water well after males. Courtship display in front of female includes much wing fluttering and often showing of the white under the abdomen tip, then landing on prominent white stigma of female and walking down wings to achieve tandem position. Females return to male’s territory, oviposit in rootlets and submergent vegetation of many types, even wet logs, at water surface; also may submerge entirely. Eggs laid at 7–10/min, may total 1800 in a lifetime. Males guard females with which they have mated and often guard additional females that oviposit in their territory, especially when females are at high density (likely because these are attracted to one another). Males that have lost territories may resort to “sneaking,” attempting to mate with females on other males’ territories. Night roosts may be communal, deep in tall grass. Often seen flying between night roosts in woodland and waterside, even across roads, where fluttery flight is very distinctive. Average longevity 2–3 weeks (including 11 days while immature), maximum 47 days.

Habitat Slow-flowing woodland streams, usually associated with herbaceous vegetation. Occurs on open banks when trees are nearby (trees are essential for roosting at night). May be abundant at small streams in woods where very few other species are present.

Flight Season NE May–Sep, TX Mar–Oct.

Distribution Also throughout eastern United States and southeastern Canada.



3.1

Ebony Jewelwing male—
Price Co., WI, June 2007



3.2

Ebony Jewelwing female—
Fayette Co., IA, July 2004



Rubyspots *Hetaerina*

Wings are narrower than in *Calopteryx* jewelwings, usually with small stigma in both sexes. Males are unmistakable with red wing bases; wings vary from clear to black otherwise. Females appear much duller, may lack any hint of red in wings, but are still large, usually metallic damselflies with heavily veined wings. Species of this genus are among the most obvious stream damselflies of the New World tropics. World 37, NA 3, West 3.

4 American Rubyspot *Hetaerina americana*

TL 38–46, HW 26–30

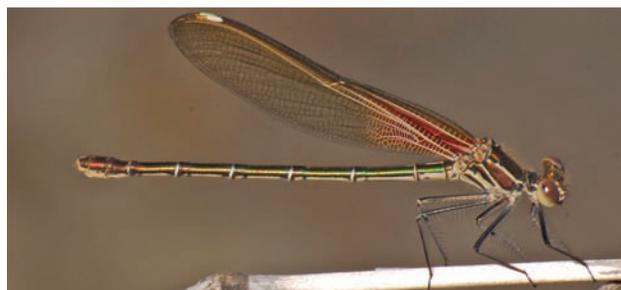
Description Large metallic damselfly with conspicuous red wing bases. *Male*: Eyes dark reddish-brown, paler below and behind. Mostly metallic red head and thorax, shiny black abdomen. Bright red patches at wing base marked by white veins. Red varies in extent, at greatest almost to nodus; most in Texas, least in southwestern mountains. *Female*: Quite variable. Eyes brown over tan, paler than in male. Duller than male, dark colors of body vary from matte black to metallic green to metallic red (head and thorax only). Wings vary from almost uncolored to diffuse orange wash at base to dark orange filling same area as red in male. Pale stigma obvious in East, including Texas, smaller but still present (rarely lacking) from west Texas to southeastern California, absent in Pacific coast populations. Stigma typically paler and more contrasty in female than in male.



Identification Larger than other closedwing damselflies. Only rubyspot in most of West. Male unique in much of range. Female distinguished from pond damsels by large size, densely veined wings, and metallic greenish to orange body with conspicuously striped thorax, usually (but not always) orange suffusion in wings. See **Canyon** and **Smoky Rubyspots**.

Natural History Both sexes rest on stems and leaves over water, sexes mixed more than in most damselflies. Commonly perches on small plants in midcurrent, also on rocks. May go into obelisk position in hot sun. Females probably territorial at water as are males. Has been seen to concentrate in large numbers at dusk emergence of mayflies. Flight low and fast over water. Resident males aggressive to intruders, performing horizontal circling flights

4.1
American Rubyspot
male—Catron Co.,
NM, July 2007;
female—Starr Co.,
TX, November 2005



4.2
American Rubyspot
pair—Llano Co., TX,
July 2004



until one leaves; display flights may last for minutes. Red wing spots in males increase in size to about 14 days. Larger spots in more successful territory holders but may reduce hunting success. No courtship, males merely seizing approaching females. Perched females reject inappropriate males by opening wings and curving abdomen upward. Copulation brief, averaging 3 min in one study. Males mate infrequently, averaging less than once per day. Females oviposit on surface vegetation or by submerging entirely down to 3–5 inches, remain in a fairly small area, then emerge after up to an hour. Males remain on alert above their mate, apparently guarding against other males, but relatively seldom remate with her, although she may mate with a second male. Typically roost communally at night because of attraction to other roosting rubyspots; males often near their daytime territories. Some may remain on rocks over water for night roost. Maturation period about 6–10 days, average life expectancy about 10–15 days.

Habitat Clear, swift-running, sometimes rocky streams and rivers of all sizes with shore vegetation for perching and submerged vegetation for oviposition. Common on open streams, also on wooded streams with plenty of sun. Also on flowing irrigation canals in desert areas.

Flight Season OR May–Oct, CA Apr–Dec, MT Jun–Aug, AZ Feb–Dec, NM all year, NE May–Oct, TX Mar–Jan.

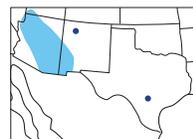
Distribution Across eastern United States and southern edge of Canada south to northwest Florida; also south in uplands to Nicaragua.

5 Canyon Rubyspot *Hetaerina vulnerata*

TL 36–46, HW 28–32

Description Large dark damselfly with red or orange wing bases.

Male: Eyes dark brown over light brown. Thorax dark metallic red in front, in duller individuals looking black; narrow antehumeral stripe; and sides dull reddish. Abdomen mostly black, reddish-brown low on sides. Base of wings red, with darker streak in hindwings and contrasting white veins. Extreme wingtips usually brownish, lacks stigma. *Female:* Eyes dark brown over tan. Thorax metallic green in front, striped with brown; sides brown. Abdomen black to metallic green above, light brown below. Wing base not red but often suffused with orange.



Identification A bit larger than **American Rubyspot**, with which it often occurs. Extreme wing tips usually brown in male **Canyon**, not marked in **American** (but sometimes not evident in **Canyon**). **Canyon** always lacks stigma, **American** has it in most populations, including where it overlaps with **Canyon**. However, it may be very small and inconspicuous or even lacking in some of those populations. Amount of red in wings comparable in overlap area, although **American** has more in most parts of range. Top of abdomen in male **American** sometimes with green iridescence, not in **Canyon**, which usually has abdomen base paler than in **American**. Appendages may have to be checked for definite identification. Inner side of cerci in **American** bumpy, in **Canyon** smoothly curved; paraprocts diverge more in **American** than **Canyon**. Females differ a bit more: front of thorax metallic in both but greenish in **Canyon**, often reddish in **American**. Some **American** appear green, however, and distinction might have to be based on presence or absence of stigma. Perhaps best identification feature in side view is that female **Canyon** typically has wider antehumeral stripe and no complete stripe below (posterior to) hindwings, whereas **American** has one or more distinct stripes there.

Natural History Males come to water within a few hours of sunrise to rest on rocks or twigs at riffles in sun or shade; tend to return to same spot or at least immediate area every day for up to 2 weeks. Males engage in brief (average 21 sec) horizontal circling flights over water in defense of territories; sometimes these flights prolonged. Females arrive at water about 2 hr after males. Males mate only every few days, then guard females as they oviposit underwater for a few minutes or up to an hour. Also may take female in tandem again after she emerges from one egg-laying bout, then search for another oviposition site, unusual behavior for damselfly. Then returns to territory and reclaims it. Both sexes sally after aerial insect prey from branches and leaves well above stream in early morning sun and again late in afternoon.

Habitat Wooded canyon streams with rocky riffles; more attracted to shaded streams than American Rubyspot and averaging higher elevation. Disappears from smaller streams that dry up during drought years.

Flight Season AZ Mar–Nov, NM Jul–Oct.

Distribution Ranges south in uplands to Honduras.

5
Canyon Rubyspot
male—Sonora,
Mexico, September
2005; female—
Sonora, Mexico,
July 2006, Doug
Danforth



Description Large black damselfly with variably colored wings.

Male: Eyes very dark brown, almost black. Body entirely black with slight greenish gloss, fine tan stripes on thorax. Usually with red patch in forewing obscured by dark patch in hindwing, most visible in flight. *Female:* Eyes brown over tan, many with conspicuous striped or spotted pattern. Thorax with metallic green markings on pale brown; abdomen mostly black. Wings vary from dusky to black, with no red and contrasty white stigmas. Only rubyspot with greatly varied wing coloration in both sexes, ranging from entirely black to mostly clear, with all in-between types. Extreme wingtips dark, more extensive in individuals with more black at base and tip and base coming together to produce entirely black wings. At least in Texas, individuals later in flight season tend to have more extensively dark wings, but all extremes can be seen throughout season.



Identification Individuals with mostly dark wings easily distinguished from other rubyspots and all other damselflies. Males with most lightly marked wings distinguishable from other rubyspots by black body, from other damselflies by large size, dense venation. Good mark for males that are silhouetted is that line of demarcation between dark base and clear tip of wing usually strongly slanted, almost perpendicular to wing in other male rubyspots. Females differ from female **American Rubyspot** in having less conspicuously striped thorax, markings green and brown, and almost always darker wings.

Natural History Tend to perch higher than American Rubyspot, usually on shaded pools rather than low on open riffles. Females not at water unless mating. Males engage in display flights, circling one another for at least brief periods and moving up- and downstream. Tandem pairs often seen flying about, presumably looking for good oviposition site. Females oviposit underwater for long periods (up to 2 hr) with males perched above driving other males away from spot.

Habitat Slower streams in woodland, tends to be in more heavily shaded areas than American Rubyspot, also less likely to be at rocky riffles. Aquatic vegetation or rootlets from stream-bank trees essential for oviposition.

Flight Season TX Mar–Dec.

Distribution Widespread in East from Wisconsin and Pennsylvania south to southern Florida; also ranges south in lowlands to Costa Rica.

Rubyspots - male appendages



6.1
Smoky Rubyspot
male—Hidalgo Co.,
TX, June 2005



6.2
Smoky Rubyspot
male—Bexar Co.,
TX, July 2004



6.3
Smoky Rubyspot
female—Starr Co.,
TX, November 2005



Spreadwing Family *Lestidae*

These are medium to large damselflies of worldwide distribution that usually hold their wings open, but several genera in the Old World keep them closed. All spreadwings close their wings at night, in bad weather, and when threatened by other odonates (as predators or males harassing females). Those in North America perch with long abdomen inclined downward, even vertically. Most are dark, with top of abdomen metallic and thorax metallic or with metallic stripes or spots, often also with pale stripes. Overall, they are not brightly colored, but males of our genera have blue eyes and face, and some Australian species are colored like bluets. Females of only a few species show blue colors. All have clear wings with stigma longer than in pond damsels, a definitive mark, and long legs with very long leg spines, as befits a predator of flying insects. Most are distinctly larger than pond damsels. World 151, NA 19, West 16.

Stream Spreadwings *Archilestes*

These are large damselflies with outspread wings, both species being larger than any pond spreadwing and much larger than any North American pond damsel. Unlike pond spreadwings, they show conspicuous pale stripes on sides of thorax. Males have blue eyes, females brown or blue (perhaps age variation). Mature males develop pruinosity on abdomen tip. They are found typically on streams but stray to ponds regularly, especially those associated with streams, and sometimes breed in them; they prefer fishless waters, where larvae swim in the open like little minnows. Natural history is much like that of pond spreadwings. Males perch on branches and leaves over water, and pairs oviposit in woody stems, sometimes well above water. Other species occur from Mexico to Argentina. World 8, NA 2, West 2.

7 Great Spreadwing *Archilestes grandis*

TL 50–62, HW 31–40

Description Very large spreadwing (largest North American damselfly) with yellow stripe on either side of thorax. Underside of thorax pale, becoming lightly pruinose. Abdomen dark brown to dark metallic green above. *Male*: Eyes and labrum blue. Thorax brown in front with full-length metallic green stripe on either side of midline, half-length stripe at rear edge of brown; sides yellow with another lighter brown stripe along lower sides, whole area developing pruinosity at maturity. Abdomen brown to black above with black apical rings on S3–7; S9–10 pruinose. *Female*: Eyes blue to brown, colored as male but distinguished by bulbous abdomen tip lacking pruinosity.



Identification Great Spreadwing looks twice the size of POND SPREADWINGS, in steady flight over open water easily mistaken for dragonfly, but wings and body much more slender. See California Spreadwing, rather similar but smaller and paler, with white side stripe and pale stigmas. Paraprocts diverge under cerci, so barely visible from above (in California Spreadwing, paraprocts short and parallel, their rounded tips visible from above).

Natural History Males perch over water, defend small territories. Females seized when they arrive. Pairs oviposit in tandem (or female released during oviposition) in leaf petioles or stems of herbaceous or woody plants, sometimes well above water (perhaps highest known odonate oviposition at 44 feet above water). Oviposition lasts 15–180 min, with up to 230 eggs laid.

Habitat Slow streams, usually with wooded banks; larvae may be seen swimming in open in pools. Less likely to be at ponds than California Spreadwing.

Flight Season CA Mar–Jan, AZ Apr–Dec, NM May–Oct, NE Aug–Oct, TX Mar–Dec.

Distribution Also east to southern New England and north Georgia; ranges south in uplands to Venezuela.



7.1
Great Spreadwing
male—Sonora, Mexico,
August 2006,
Netta Smith

7.2
Great Spreadwing
female—Chihuahua,
Mexico,
September 2005

8 California Spreadwing *Archilestes californicus*

TL 42–60, HW 26–35

Description Very large brown spreadwing with white-striped thorax. *Male*: Eyes and labrum blue, thorax brown in front, white on sides, with metallic brown stripe on either side of midline and similar short stripe occupying middle third at rear edge of brown. Abdomen brown above, darker areas slightly metallic dark brown with faint indication of green; S₉–10 pruinose. *Female*: Eyes dull blue to brown; colored as male but no pruinosity, abdomen with bulbous tip.



Identification Overall impression one of dullness, with dark areas brown rather than bright metallic. Only **Great Spreadwing** exceeds this species in size, and it is quite similar, but darker overall and more metallic green. Pale side stripe on **Great** usually yellow rather than white as in **California**. Dark metallic stripe before pale stripe extends up almost to wing base (but not always) in **Great**, long oval in midsegment in **California**. Stigmas darker in **Great**, blackish versus tan. Immature **Great** may have white side stripe, must be distinguished by other characters. See **Great Spreadwing** for difference in male appendages.

Natural History Males perch over water, often conspicuously in open on dead twigs, and defend small territories. Wings occasionally twitched closed about 30°, then reopened in two steps; stigmas prominent, perhaps a display. Copulation lasts many minutes. Pairs oviposit in woody tissue, often in willow or alder branches, up to 10 feet above water. With 6 eggs neatly laid, the pair moves slightly downward and repeats process, laying 70–180 eggs at a session. More common at water after midday. Sometimes encountered far from water, even out in open sagebrush.

Habitat Slow streams, sometimes ponds or lakes associated with them.



8.1
California Spreadwing
male—Benton Co., WA,
August 2005



8.2
California Spreadwing
female—Kittitas Co., WA,
August 2002, Dan Bárta

Flight Season WA Jul–Nov, OR Jun–Nov, CA Jun–Dec, AZ Jul–Nov.

Distribution Ranges south in Mexico to Baja California Sur and Sonora.

Pond Spreadwings *Lestes*

Mature males have entirely bright blue eyes (more purplish with age, at least in some species), paler blue to whitish below, and pale blue labrum; male eye color is not included in description unless different. Females usually have brown eyes and light brown to yellow labrum, but in at least some species females occur with blue eyes and labrum; it is not yet known whether this is a function of age or perhaps genetic polymorphism, with brown and blue females as in some pond damselflies. Teneral are brown, then develop darker rings on middle abdominal segments, then become dark metallic above (green in most species), then develop definitive coloration. Males become increasingly pruinose gray (or blue-gray) with age with pruinosity between wing bases and along sides of thorax, and in some species, the thorax becoming entirely pruinose gray. In mature males part or all of S₁ and S₂ become pruinose; also S₉ and usually S₁₀ are pruinose, sometimes extending onto S₈. The pattern of pruinosity may be distinctive of the species but also increases with age. Northern species and populations have more pruinosity on the abdomen, typically S₈–10 pruinose, whereas southern species and populations often have S₉ or S₉–10 pruinose. The pattern on S₂ is quite distinctive for some species. Females develop less pruinosity, typically with age, on the thorax and sometimes abdomen tip, at its most extreme about as pruinose as males of their species. Mature color pattern is sufficiently variable that many will have to be captured to be sure of identification. Species distinction often must be based on appendage structure, less often on color pattern of the thorax; ovipositor size and shape are important in females. Sex is readily distinguished by shape, with females exhibiting shorter, thicker abdomen with expanded tip.

Pond spreadwings are found on every continent (although barely into Australia); they are diverse in both temperate and tropical latitudes and often are among the most common damselflies at marshy ponds and lakes. Male arrival at water averages later in the day than pond damselflies. Individuals are found away from water, often in woodland, where they forage in sunny spots and may take as much as several months to mature. Because of this, immature in-

Table 1 Pond Spreadwing (*Lestes*) Identification

	A	B	C	D
Chalky	3	1	2	2
Plateau	2	1	2	2
Rainpool	5	1	2	2
Spotted	2	2	2	1
Northern	23	1	2	1
Southern	2	1	2	1
Sweetflag	32	1	1	1
Lyre-tipped	2	1	2	1
Slender	2	1	2	1
Emerald	1	1	1	1
Black	2	1	2	3
Swamp	4	1	2	1
Elegant	1	3	2	1
Amber-winged	1	2	2	1

A, Mature male front of thorax: 1, solid green; 2, black or brown with pale stripes; 3, pruinose; 4, green with brown stripes; 5, narrow green stripes.

B, Male appendages: 1, paraprocts half length of cerci or more; 2, half or less; 3, longer than cerci.

C, Female ovipositor: 1, projects beyond abdomen tip; 2, does not.

D, Range: 1, widespread; 2, southern borderlands; 3, California only.

dividuals will often present an identification challenge. Pond spreadwings tend to perch higher than pond damselfly and forage by flycatching. They also tend to stay in vegetation, but at times and places males may move out over open water in some numbers, flying low over the surface like pond damselfly but never hovering. Oviposition usually is in tandem, and females less often oviposit alone. Eggs are laid in vertical sedge or rush stems above water with the female either staying at one level on the stem or moving up or down. World 84, NA 17, West 14.

9 Chalky Spreadwing *Lestes sigma* TL 39–43, HW 20–23

Description Most highly pruinose of trio of tropical spreadwings of southern border areas. Stigmas somewhat bicolored, conspicuously paler at outer end. *Male*: Mature male with entire thorax pruinose. Abdomen metallic brown above, with S₁, two-thirds of S₂, and S₈–₉, often S₁₀, pruinose at maturity. *Female*: Also becomes



9.1
Chalky Spreadwing male—Hidalgo Co., TX, June 2005

9.2
Chalky Spreadwing female—Hidalgo Co., TX, May 2002, Robert A. Behrstock

9-3
Chalky Spreadwing
immature female—
Hidalgo Co., TX, June 2005



heavily pruinose at maturity, with blue eyes. Immatures of both sexes with pale thorax, only dark markings a pair of spots in front near wing bases, a wavy and incomplete stripe corresponding to rear edge of dark area of other species, and small spots on lower sides barely visible from side. S8–10 distinctly pale. Dark spots on front and dark stripe on side of thorax often visible through pruinosity on both sexes, especially when front still darker than sides.

Identification Mature males with entirely pruinose thorax unmistakable, not coexisting with any other species showing such heavy pruinosity. Immatures easily distinguished because of largely pale thorax with sparse patterning. Immatures of both sexes with distinctive sharply bicolored stigmas, outer third yellow to orange, but become dark when mature. Occurs with **Plateau, Rainpool,** and **Southern Spreadwings.**

Natural History Males perch in low sedges and grasses at water's edge or in dense vegetation beds; pairs oviposit in same places. Present in nearby woodland when not at water.

Habitat Shallow ponds and marshes with much emergent vegetation, typically at wetlands that fill only during rainy season.

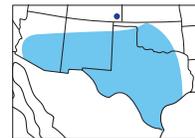
Flight Season TX May–Nov.

Distribution Ranges south in lowlands to Costa Rica.

10 Plateau Spreadwing *Lestes alacer*

TL 34–45, HW 19–25

Description Distinctively marked species of southern Great Plains and Southwest. *Male:* Thorax with wide median black stripe, relatively wide tan or blue (with maturity) antehumeral stripe with straight edges, and narrow black humeral stripe. Sides pale brown, becoming pruinose in older individuals; pruinosity creeping onto humeral stripe and, in some, mostly obscuring it. From above, S9–10 pruinose, S8 becoming so in older individuals. *Female:* Thoracic pattern similar to male. As in males, oldest females develop blue eyes and blue antehumeral stripes, wide humeral stripe more prominent than in male because no pruinosity on sides. Immature with wide black stripe on front of thorax contrasting with entirely pale sides in both sexes.



Identification Thoracic pattern of rather wide and straight-edged median stripe, conspicuously pale antehumeral stripe, narrow black humeral stripe, and lighter sides best combination of marks to distinguish **Plateau** from other spreadwings in its range. **Southern** also has pale antehumeral stripes, but they are more irregular, inner and/or outer margin somewhat jagged.

Natural History Males and tandem pairs in marsh vegetation. Males may be common at breeding habitats, immatures common in open woodland. Pairs oviposit in herbaceous vegetation, typically upright sedge and spikerush stems. Mature adults roost, at times communally, in woody vegetation as much as a half mile from water. May spend winter/dry season in woodland away from water.

Habitat Permanent or temporary ponds and seep springs with emergent vegetation, from lowlands well up into mountains. Tolerant of saline conditions.

Flight Season AZ Mar–Nov, NM Jan–Oct, TX all year.

Distribution Ranges south in uplands to Costa Rica.

10.1
Plateau Spreadwing
male—Sonora,
Mexico, September
2005



10.2
Plateau Spreadwing
female—Sonora,
Mexico, September
2005



10.3
Plateau Spreadwing
immature female—
Hidalgo Co., TX,
June 2005



Description Distinctively marked spreadwing, only in Texas. *Male:*

Thorax with median stripe consisting of narrow metallic green stripe on either side of midline, then wide bright blue antehumeral stripe (darkens with age), another narrow metallic green humeral stripe, and whitish below. Abdomen mostly dark, variably pruinose (always S9 but may extend to S8 and/or S10). *Female:* Eyes brown, becoming dull bluish or greenish on top. Looks paler than male, thorax pale olive with blue tinge, both dark stripes very thin; lower sides and underside white, becoming faintly pruinose. From side, S8–10 prominently pale and becoming pruinose.



Identification Only spreadwing in range with narrow metallic stripes on either side of midline of thorax, visible at any age. Thus, no prominent dark median stripe, as in overlapping **Plateau** and **Southern Spreadwings**. Median ridge of thorax pale, unlike other species in range, and humeral stripe very narrow, not evident at a distance. Overall effect blue- and green-striped thorax in mature males. Contrasting pale sides of abdominal tip characteristic of mature females.

Natural History Tropical-based species that spends dry season away from water, then returns to rain pools to breed in wet season. All-year flight season in Texas may indicate same life cycle with dormancy in winter. Males and ovipositing pairs can be common in vegetation at shallow ponds, especially ephemeral ones. Pairs oviposit in upright plant stems at water level and up to a foot above it, sometimes female submerging her abdomen.

Habitat Shallow ponds and marshes with much emergent vegetation. Often common at seasonal pools but may occur in permanent waters, both swamps and marshes.

Flight Season TX all year.

Distribution Ranges south in lowlands to Argentina.



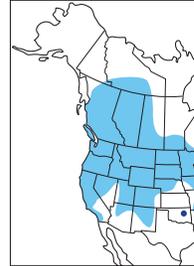
11.1
Rainpool Spreadwing
male—Hidalgo Co., TX,
November 2005



11.2
Rainpool Spreadwing
female—Hidalgo Co.,
TX, November 2005

Description Rather dull brown spreadwing with bicolored thorax showing prominent spots on underside. *Male*: Thorax brown, somewhat metallic in front, with very narrow tan antehumeral stripe and pruinose lower sides. Black humeral stripe wider above, usually widening abruptly in two steps to reach rear of hindwing base. Pair of black spots on each side of underside of thorax, just visible from side. Abdomen metallic dark brown above, S1–2 and S8–10 pruinose with maturity. *Female*: Eyes brown, paler below. Patterned as male but with pruinosity only on sides of thorax.

Identification In hand, and perhaps in side view when close, two dark spots on either side of thorax distinctive; other species may show one spot on each side, regularly in superficially similar **Northern**, **Southern**, and **Sweetflag** in same range. Very narrow antehumeral stripes, so front of thorax looks dark brown or even black and contrasts strongly with whitish sides in mature individuals of both sexes. Characteristic stepped line of demarcation between black front and pale rear of thorax distinctive but shared by **Black Spreadwing** in its limited range and quite different-looking **Swamp Spreadwing**. **Black** very similar to but somewhat stockier than **Spotted** and less likely to be spotted under thorax; male paraprocts longer and female ovipositor larger. **Black** also has much earlier flight season, teneral **Spotted** appearing in July



12.1
Spotted Spreadwing
male—Grant Co.,
WA, August 2007



12.2
Spotted Spreadwing
female—Grant Co.,
WA, August 2007



when **Black** season finishing. **Spotted** appears to be only species in range with lower surface of eyes brown in mature males. Pruinosity at abdomen tip not quite as pale and conspicuous in **Spotted** as in **Emerald, Lyre-tipped,** and **Northern** at same times and places.

Natural History Roosts mostly in woodland to 10 feet or more above ground, even well up in canopy of tall forests; in open country, in tall grass and shrubs. Most likely of northwestern pond spreadwings to be in woods. Males can be abundant in tall emergent vegetation, pairs also reach high density. Many pairs mate away from water, then fly to oviposition site in tandem. Pairs oviposit from water surface to several feet above it, usually in slender stems and commonly over land at dried-up lake edges. Although some variation in substrates used for egg deposition, dead stems of bulrushes chosen in many areas. Pairs usually move downward on stem while ovipositing, single eggs deposited every few millimeters. Females often continue laying eggs after being released by male, especially in late afternoon.

Habitat Ponds and lakes of all sizes with at least some emergent vegetation. In West, usually only spreadwing at large lakes with cattails and bulrushes. Can live in quite saline lakes as long as vegetation present.

Flight Season YT Jul, BC Jun–Oct, AB Jul–Oct, WA Jun–Nov, OR May–Nov, CA May–Dec, MT Jul–Oct, AZ Jun–Sep, NM Apr–Oct, NE Jun–Oct.

Distribution Ranges across northeastern North America south to northern Alabama and Virginia.

13 Northern Spreadwing *Lestes disjunctus*

TL 33–42, HW 18–23

Description Common pond spreadwing all across northern North America. *Male:* Thorax in mature individuals varies from dark in front, pruinose on sides, with narrow blue antehumeral stripe and sometimes very narrow blue median stripe, to entirely pruinose (much less common). These differences seem characteristic of populations or at least at one time and place. Abdomen metallic dark green above, S1–2 and S8–10 becoming completely pruinose with maturity. Pruinosity may vary with locality, age, or individual; not known. *Female:* Polymorphic, eyes brown or blue. Thorax with wide dark median stripe, wide dark humeral stripe widest at upper end, greenish or tan (blue in andromorph) antehumeral stripe narrowing at upper end, white lower sides and underside. Abdomen entirely blackish above. Some females become almost as pruinose as males, in same areas of thorax and abdomen, perhaps limited to andromorphs.

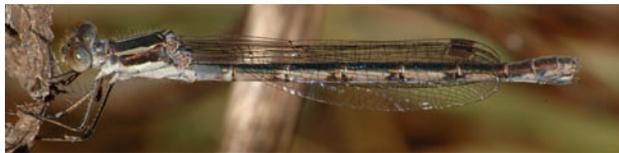


Identification Looks superficially exactly like several other pond spreadwings, especially **Southern** and **Sweetflag** (see those species). Also much like **Lyre-tipped**, but both sexes differ in color of rear of head and stigmas (see that species) as well as differently shaped paraprocts that can be seen in hand and, with good view, in field. Remaining species in range all have differently colored thorax.

Natural History Mostly in herbaceous vegetation, may be some distance from water. Males frequent beds of dense emergent vegetation, perching from just above water to waist height, and can be very common there. Also present in more scattered vegetation and flying back and forth over open water. Sometimes breeds in shallow vegetated ponds that dry up each summer, more typical habitat of Emerald and Lyre-tipped Spreadwings. Females and tandem pairs arrive at water at midday, ovipositing pairs common through afternoon. Copulation lasts about 15 min. Pairs oviposit on live stems of bulrushes and sedges or dead stems of rushes and up to several feet above water, placing up to 6 eggs in one incision. Pairs also seen ovipositing entirely under water, coming up for air at intervals and then submerging again; unusual behavior in spreadwing. Sexual maturation in 16–18 days.

Habitat Well-vegetated ponds and lakes of all kinds; common in boggy situations.

13
 Northern
 Spreadwing
 pruinose male—150
 Mile House, BC, July
 2006, Netta Smith;
 striped male—
 Kittitas Co., WA,
 August 2005;
 female—Kittitas Co.,
 WA, September 2007



Flight Season YT Jun–Sep, BC Jun–Oct, AB Jul–Sep, WA Jun–Oct, OR May–Sep, CA Apr–Oct, MT Jun–Nov, AZ Jul–Sep, NM Jul–Sep, NE May–Aug.

Distribution Mountains of Southwest. Ranges of this and **Southern Spreadwing** incompletely known, may overlap on Great Plains. Also from northern Ontario and Labrador south to Indiana and West Virginia.

14 Southern Spreadwing *Lestes australis*

TL 36–46, HW 18–25

Description Common, brightly patterned eastern species. *Male:* Front of thorax metallic brown-black with light brown antehumeral stripe becoming blue with maturity. Light yellowish below, becoming whitish pruinose. From above, S₉ heavily pruinose, S₁₀ becoming lightly so in older individuals; S₈ pruinose only low on sides. *Female:* Eyes usually brown, may be blue-tinged with maturity. Colored much like male but not pruinose, antehumeral stripe usually pale tan.



Identification Overlaps with very similar **Sweetflag Spreadwing** and perhaps with **Northern Spreadwing** at eastern edge of region. Distribution of spreadwings poorly known on plains, but **Southern** might coexist with **Northern** and **Sweetflag** in Nebraska. Probably not distinguishable except in hand from **Northern** by slightly larger size, males by blunt distal spine on cerci (sharper in **Northern**), slightly curved paraprocts (straight in **Northern**). **Southern** even more similar to male **Sweetflag** but differs in slightly narrower apical notch on S₁₀ and slightly curved rather than straight paraprocts. In addition, male **Southern** never seem to develop completely pruinose thorax, as happens in some **Northern** and **Sweetflag**, and typically lack pruinosity on top of S₉ (**Sweetflag** usually has it). **Southern**

14.1
Southern
Spreadwing
male—Dade Co., GA,
May 2006



14.2
Southern
Spreadwing
female—Hidalgo Co.,
TX, June 2005



female easily distinguished from **Sweetflag** by much smaller ovipositor, but extremely similar to female **Northern** and may not be distinguishable.

Natural History Adults spend about 2 weeks away from water in sexual maturation, then another 10 days at water (maximum 50). Males occupy perches in grass and shrubs at water's edge for long periods, but little aggression is shown among individuals. May spend all day at water, visit only in morning, or show both morning and afternoon visits. Females come to water in afternoon, and mating peaks in later afternoon. Copulation takes 6–19 min, and pair spends an hour in tandem. Oviposition in standing reed stems above water. Both sexes average two matings during lifetime.

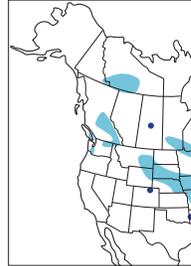
Habitat A wide variety of ponds and lakes with aquatic vegetation.

Flight Season TX Mar–Dec.

Distribution Ranges of this and Northern Spreadwing incompletely known. May overlap on Great Plains. Also throughout much of eastern United States.

Comments This species was long considered a subspecies of *Lestes disjunctus*, under the name Common Spreadwing. With some structural differences and a somewhat different flight season, it probably deserves its rank as a full species, but genetic differences between the two are less than those between most species of spreadwings.

Description Northern spreadwing frustratingly similar to several others, best identified in field by looking for large ovipositor on females in pairs. *Male*: Thorax black in front with narrow blue-green antehumeral stripe, pale below, may be entirely gray pruinose in mature individuals. Abdomen metallic green-black above, becoming pruinose on S₁, basal two-thirds of S₂, and S₈–10. Pruinosity heaviest of any northwestern North American spreadwing, less pruinose on plains and eastward. *Female*: Eyes blue as in male. Thoracic pattern of broad dark median and humeral stripes and fairly broad pale antehumeral stripes as in similar spreadwings but



15-1
Sweetflag Spreadwing
male—Pend Oreille Co.,
WA, August 2004



15-2
Sweetflag Spreadwing
pair with pruinose
female—Pend Oreille Co.,
WA, August 2003

15-3
Sweetflag Spreadwing
nonpruinose female—
Walker Co., GA, July
2006, Marion Dobbs

more likely to become covered by pruinosity; also S8–10 become pruinose. Thus, female colored as male, but shaped very differently.

Identification In northwestern part of range, usually separable from **Northern Spreadwing** by slightly larger size and much heavier pruinosity, occupying all of thorax in mature males and many females. Occasional male or female **Northern** is heavily pruinose, so trait may not be definitive but often indicative where they occur together. Farther east, unfortunately, neither sex of mature **Sweetflag** seems to attain this level of pruinosity. At close range, look at S2 from above; entirely pruinose in **Northern**, apical third not so in **Sweetflag**. This character quite indicative but might not be definitive in all populations. In hand, easiest structural difference to see in male is shape of notch at rear of S10, rounded and wider in **Sweetflag** and pointed and narrower in **Northern**. **Sweetflag** also has longer hamules, 1.7 mm long or more in ventral view, with stalk longer than narrow pointed blade. You may have to compare species to see these microscopic differences. Also overlaps with **Southern** locally in Great Plains; see that species. Females easily distinguished from **Northern** and all other North American spreadwings by ovipositor size, tip of ovipositor valves extending to or usually beyond tip of cerci unique in this species. Keep in mind that male pond spreadwings are well known to achieve tandem with wrong species!

Natural History Males and pairs can be common in appropriate habitat; mating and oviposition occur mostly in afternoon. Pairs usually oviposit in live stems of upright bulrushes, rushes, and cattails in fairly open stands up to several feet above shallow water or mud. Also in low sedges and buckbeans in floating mats. Heavily pruinose females may perch in open at waterside like males.

Habitat Ponds and lakes with emergent vegetation, often associated with bogs or fens. Sometimes in temporary ponds that dry during late summer.

Flight Season YT Jul–Aug, BC Jun–Aug, WA Jul–Sep, NE May–Jul.

Distribution Range doubtless much more extensive in West than shown from verified records, as identification long confused with Northern Spreadwing. Also throughout East from Ontario and Nova Scotia south to Arkansas and Virginia.

16 Lyre-tipped Spreadwing *Lestes unguiculatus*

TL 31–44, HW 17–24

Description Common northern spreadwing of temporary wetlands.

Male: Thorax dark metallic brown in front, with narrow blue-green or tan median line and humeral stripes; sides pale blue or whitish with pruinosity. Abdomen metallic dark green or brown above; S1, sides of S2, sides and sometimes top of S8, and S9–10 pruinose with maturity. Some males at maturity, however, lack pruinosity; pairs of both types seen together. *Female:* Eyes brown or blue. Thorax metallic brown in front with narrow median line and wider antehumeral stripe pale blue-green or yellow, sides pale blue-green or yellow. Abdomen entirely metallic brown to green above.



Identification Looks about like **Northern** and **Sweetflag Spreadwings** in field, similarly variable. In hand, lyre-shaped paraprocts provide definitive identification. Note that long, straight paraprocts of **Northern** might be crossed at ends. In both sexes (important to identify females), **Lyre-tipped** has rear of head pale, others dark, and stigmas usually with pale ends in **Lyre-tipped**, entirely dark in others (many spreadwings have just the veins at either end of the stigma white). Note that light pruinosity eventually covers rear of head in mature males of all three. Another distinction of males is that **Northern** and **Sweetflag** typically have upper surface of S2 mostly or entirely pruinose, whereas pruinosity appears only on side of this segment in **Lyre-tipped**. Typically, pattern of pruinosity in **Lyre-tipped** forms dark V in top view of S8, whereas in the other two, this segment is entirely pruinose, but some variation makes this an indicative character. Females and im-

16.1
Lyre-tipped
Spreadwing
male—Winneshiek
Co., IA, July 2004



16.2
Lyre-tipped
Spreadwing
female—Winneshiek
Co., IA, July 2004



mature males may have dark areas quite metallic green, need to be distinguished from **Emerald Spreadwing** by head and stigma color, male paraprocts, and smaller ovipositor.

Natural History Males spend much time at water resting on vertical stalks but do not defend perch sites, more commonly move from perch to perch. Approaching females taken in tandem immediately. Copulation lasts about 25 min but is often broken and resumed, accompanied by short flights in tandem. Pair then explores potential oviposition substrates for about a half-hour, then oviposits for over an hour, usually over relatively dry substrates rather than over water and typically backing down stem as eggs are laid. Pairs more and more common through afternoon. Female sometimes continues by herself. Living sedge, bulrush, bur-reed, and pitcher plant stems common substrates, and few hundred eggs laid at about 2/min, 1–2 per incision.

Habitat Shallow marshes and marshy edges of ponds and lakes, often in completely open areas and typically drying up in midsummer. These are exactly the habitats affected by drought, and this species declines wherever drought prevails in the West. However, also quick to colonize newly flooded areas, including farm ponds and other artificial wetlands, and usually most common spreadwing in prairie potholes. Immatures often abundant in grassy meadows.

Flight Season BC Jun–Aug, AB Jul–Sep, WA Jun–Sep, OR May–Sep, CA Jun–Sep, MT Jun–Aug, NE May–Oct.

Distribution Widespread in Northeast from southern Ontario and Nova Scotia south to Arkansas and Maryland.

Description Long-bodied spreadwing, S₉ less than half as long as S₇; males distinctly longer than females. Vein around extreme wingtips conspicuously pale. *Male*: Thorax black in front with rather wide blue antehumeral stripes, unmarked yellow on sides and underside. Abdomen typically lacking any pruinosity, but sometimes S₉ pruinose, apparently more likely in northwestern part of range. Heavily pruinose between wing bases as all spreadwings. *Female*: Eyes blue or blue over yellow. Pattern on thorax and abdomen as in male, no pruinosity.



Identification Males distinguished from other spreadwings by virtual lack of pruinosity on abdomen as well as looking longer than any other species of similar body bulk. Pale vein at extreme wingtips distinctive of both sexes. Not metallic like larger **Amber-winged**, **Elegant**, and **Swamp Spreadwings**, colored more like **Lyre-tipped**, **Northern**, and **Sweet-flag**, but reduced pruinosity distinctive. Absence of pruinosity always leaves pale blue antehumeral stripes good for identification in both sexes. Abdomen length in female close enough to that of **Lyre-tipped** and **Northern** that separating these three is difficult. **Lyre-tipped** usually has pale-tipped stigmas, but **Northern** and **Slender** are colored about the same. Presence of males might have to be used for identification.

Natural History Males in shrubs and low tree branches in swampy woodland, also dense herbaceous vegetation at lake shores. Can be abundant in woodland during maturation. Maturation in color in about 2 weeks, reproductive activity at 3 weeks. Mating may take place away from water, and females oviposit solo, unusual in spreadwings, and about a foot above water. Eggs commonly laid in cattails, 1 egg per incision. After maturation may live for 6 weeks.



17.1
Slender Spreadwing
male—Wayne Co., OH,
July 2007



17.2
Slender Spreadwing
female—Winneshek
Co., IA, July 2004

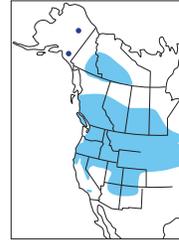
Habitat Lakes and ponds with abundant emergent vegetation, usually associated with forest.
Flight Season NE May–Oct.
Distribution Widespread in the East from Ontario and Nova Scotia south to Louisiana and north Florida.

18 Emerald Spreadwing *Lestes dryas*

TL 32–40, HW 19–25

Description Rather stocky spreadwing with front of thorax emerald-green. *Male*: Thorax metallic green in front with narrow pale antehumeral stripe present or not, pruinose white on sides. Abdomen metallic green above, at maturity becoming pruinose on S1–2 and S9–10, often extending to S8. *Female*: Brown or blue eyes at maturity. Thorax metallic green in front with narrow pale median line and antehumeral stripes. Abdomen entirely metallic green above, without pruinosity.

Identification Emerald green thorax and abdomen diagnostic along with stocky build (other green species such as **Elegant Spreadwing** are larger, longer), but bear in mind that in several



18.1
Emerald Spreadwing
male—150 Mile
House, BC, July 2006,
Netta Smith



18.2
Emerald Spreadwing
green female—
Skamania Co., WA,
August 2005



18.3
Emerald Spreadwing
bronze female—
Chelan Co., WA,
June 2004

Spreadwing Family

species, even those in which adults lack green, dark part of abdomen may be green in immatures, and green highlight may show up on thorax. None is brilliant green like this species. Only species with similar structure is **Black Spreadwing**, so similar that it may be same species. Front of thorax usually dark brown to black in latter species. Thorax and abdomen of **Emerald** sometimes look brownish, especially younger individuals, and oldest males can look quite black above. Note widened tips of paraprocts of male.

Natural History Can be very common in shrublands and forest near breeding ponds. Breeding males and pairs tend to stay over dry rather than flooded parts of habitat. Pairs oviposit in live stems of sedges, grasses, and horsetails and hanging willow leaves, high above ground in the latter. One egg inserted in each incision.

Habitat Shallow ponds, marshes, and fens, often those that dry up in late summer; typically densely vegetated. Also found at edges of permanent wetlands but may not breed successfully where aquatic predators are common. Widely distributed from hot sagebrush steppe to cool boreal forest.

Flight Season YT Jun–Aug, BC May–Aug, AB Jun–Aug, WA Jun–Sep, OR May–Nov, CA Apr–Oct, MT Jun–Aug, AZ May–Jun, NM Jul–Aug, NE May–Jul.

Distribution In mountains in southern part of range. In East from southern Canada south to Iowa, Kentucky, and Maryland, also all across northern Eurasia.

Comments See under Black Spreadwing.

19 Black Spreadwing *Lestes stultus*

TL 35–44, HW 21–26

Description Dark spreadwing of California, much like **Emerald** but blackish instead of green. *Male*: Thorax metallic bronzy-black in front with narrow pale greenish antehumeral stripes. Lower sides and underside whitish. Abdomen dark bronzy-brown to greenish above, pruinose on S1, basal two-thirds of S2, and S8–10 at maturity. *Female*: Eyes brown with bluish tinge above. Color pattern as male but no pruinosity.

Identification Much like **Emerald Spreadwing** in both sexes, but slightly larger and front of thorax dark brown to black, not emerald



19.1
Black Spreadwing male—
Glenn Co., CA, June 2004



19.2
Black Spreadwing female—
Butte Co., CA, June 2004

green. Antehumeral stripe evident in male **Black**, usually not in male **Emerald**; female **Black** usually with that stripe complete, incomplete at upper end in **Emerald**. There is variation in both sexes, however. The two may meet and intergrade in southern Oregon, but in addition, green color may show up on **Black** south of range of **Emerald**. In California, **Black** is early species of lowlands, **Emerald** later flier of mountains; not known to occur together. **Black** distinguished from other species occurring with it by short paraprocts in male and large ovipositor in female. Colored much like **Spotted**, but thorax with no spots on underside and dark side stripe not as wide at upper end (does not extend below base of hindwing); female ovipositor larger.

Natural History Males perch on stems and leaves of emergent vegetation over shallow water. Pairs oviposit on live rushes or sedges.

Habitat Ponds, small marshy lakes, and slow streams with abundant emergent vegetation.

Flight Season CA Mar–Sep.

Comments This species is barely separable from the Emerald Spreadwing, and seeming intermediates between the two species have been found in southern Oregon. They probably should be considered of no more than subspecies rank, but no official change of status has been suggested.

20 Swamp Spreadwing *Lestes vigilax*

TL 42–55, HW 23–27

Description Large metallic green spreadwing. *Male*: Eyes dark blue-green with pale blue highlight over yellow-green, looking somewhat bicolored. Thorax entirely metallic green to bronze in front or with narrow reddish-brown antehumeral stripe. Sides and underside pale yellow, becoming whitish pruinose, with pruinosity obscuring border between dark and light parts of thorax, originally a wavy line. Abdomen metallic green to bronze above, becoming pruinose on S1 and S8–10 at maturity; sides of S2 also pruinose. *Female*: Eyes brown over yellowish, blue in some (oldest?) individuals.



20.1
Swamp Spreadwing
male—Murray Co., GA,
June 2005, Marion Dobbs



20.2
Swamp Spreadwing
female—Cumberland
Co., ME, July 2006

20.3
Swamp Spreadwing
immature female—
Rabun Co., GA, July
2004, Giff Beaton



Colored as male, but always with narrow pale reddish-brown antehumeral stripe. Abdomen duller than in male, with no pruinosity in most, but pruinose tip in a small percentage.

Identification Longer-bodied than most other species in range, bulkier than **Slender Spreadwing** and metallic green rather than dark brown above. Most like **Elegant Spreadwing**, which see.

Natural History Males usually perch in sheltered areas in shade, often in tangled vegetation, and are difficult to find. Tandem pairs oviposit in pickerelweed stems and other plants at water surface, even well out from shore. Dull immatures in dense herbaceous and shrubby vegetation near water.

Habitat Wooded ponds and lakes with abundant emergent vegetation, often where shrubs grow in shallow water. Slow streams and bog-margined lakes included in this description.

Flight Season TX May–Nov.

Distribution In East from southern Ontario and Nova Scotia south.

21 Elegant Spreadwing *Lestes inaequalis*

TL 45–58, HW 25–31

Description Large metallic green spreadwing. *Male*: Eyes dark blue-green with bright blue highlight over pale blue-green, strongly bicolored. Thorax metallic green to bronze in front, may show fine reddish-brown midline. Sides and underside pale yellow, rarely becoming whitish pruinose. Abdomen metallic green to bronze above, becoming pruinose on S₉ and then S₁₀ at maturity; sides of S₁–2 also pruinose. *Female*: Eyes dark green over dull yellow to light green, strongly bicolored. Colored as male, but often with narrow pale reddish-brown antehumeral line. Minimal or no pruinosity on most, but underside of thorax and abdomen tip may become pruinose in oldest individuals.



Identification Impressively large size and mostly metallic upper side at maturity distinctive. Eyes more strikingly bicolored (actually tricolored) than in any other species but **Swamp Spreadwing**. Both sexes distinguished from that quite similar species by pale rear of head and pale tibiae (dark in mature **Swamp** but pale in immatures). Pruinosity in male **Elegant** usually not obscuring sharp border between front and sides of thorax as it does in **Swamp**. At close range, look for distinctive long paraprocts in male, extending beyond tips of cerci.



21.1
Elegant Spreadwing
male—Holmes Co., MS,
May 2005, Giff Beaton



21.2
Elegant Spreadwing
female—Fayette Co.,
IA, July 2004

Females distinguished from **Swamp** by slightly larger ovipositor valves, extending beyond lower edge of S10 and dark below (valves in **Swamp** entirely pale). Basal plate of ovipositor pointed in **Swamp**, squared off in **Elegant**. Typically, pale antehumeral stripe in female narrower in **Elegant** than in **Swamp**. Much longer-bodied than **Emerald Spreadwing** with similar green thorax.

Natural History Males conspicuous, perching low in shrubs and other emergent vegetation and flying over open water. Often in shade and more active later in day. Usually not very common. Reported to oviposit in water lily leaves, unusual for a spreadwing.

Habitat Lakes, ponds, and slow streams with abundant vegetation, in or out of woodland. Most likely pond spreadwing at edge of slow streams.

Flight Season TX May–Aug.

Distribution In East from southern Ontario and Quebec south to north Florida.

22 Amber-winged Spreadwing *Lestes eurinus*

TL 42–52, HW 26–30

Description Large green and yellow spreadwing with amber-tinted wings and distinctive markings on sides of thorax. *Male*: Thorax metallic greenish in front without pale stripes; lower sides and underside yellow with irregular dark stripes, becoming whitish pruinose. Abdomen metallic dark green, S1 and S9–10 (more rarely S8) pruinose above. *Female*: Eyes blue above, yellow below. Thorax as in male but does not become pruinose.

Identification No other spreadwing has amber wings, and no other spreadwing has dark stripes across bright yellow sides of thorax. Bulkiest of pond spreadwings, although **Elegant** and **Swamp** are as long. Superficially most like those two species because of large size, green thorax, and sparse pruinosity but differs in wing color and very short paraprocts. Most like **Swamp**, mature male differs in pruinosity usually on S9–10 rather than S8–10, although



probably total overlap. Best mark short paraprocts when they can be seen, as well as wing coloration. Differs further from **Elegant** in having entirely dark tibiae. Bicolored blue and yellow eyes of female also distinctive, although shared with female **Swamp Spreadwing**.

Natural History Males more active flyers along lake shores and out over open water than other spreadwings, impressively large and fast, perhaps while searching for females. Appears more likely to take larger prey such as other damselflies, including teneral spreadwings. Females oviposit in tandem or solo from just above water to several feet up on sedge, cattail, rush, and bur-reed stems, also on top of water lily leaves. Eggs laid in clusters, averaging 6–7 per cluster.

Habitat Variety of permanent lakes and ponds with at least some emergent vegetation; has been found in everything from bog lakes to pasture ponds.

Flight Season MO May–Aug.

Distribution In Northeast from southern Ontario and Newfoundland south to Missouri, northern Georgia, and Virginia.

22.1
Amber-winged
Spreadwing
male—Sussex Co.,
NJ, June 2005, Allen
Barlow



22.2
Amber-winged
Spreadwing
pair—Grafton Co.,
NH, June 2006



Pond Spreadwings—male appendages



Chalky



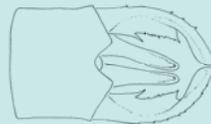
Plateau



Rainpool



Spotted



Northern



Southern



Sweetflag



Lyre-tipped



Slender



Emerald



Black



Swamp



Elegant



Amber-winged

Pond Spreadwings—female abdomen tip



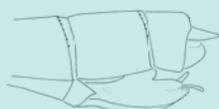
Chalky



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Emerald



Black



Swamp



Elegant



Amber-winged