



FIELD KEY TO ADULT CALIFORNIA DRAGONFLIES (ODONATA)



- version 4-07

Please help by using this key whenever possible and emailing me [[Kathy Biggs](mailto:azalea@sonic.net)] and letting me know what works and where improvements are needed. THANKS! (azalea@sonic.net)

Last updates: Feb. '07 - added Plateau Dragonlet; June '07 - added Baja Bluet

Originally (2000) based on [Dennis Paulson's Key to WA Dragonflies](#) (with permission);

Key made by Kathy Biggs 2000-2007

[Skip introduction](#)

INTRODUCTION:

This key provides identification of live adult dragonflies, members of the order Odonata, that occur in California. It should be helpful in identifying good quality photos of dragonflies also. A 10x (or higher) **hand lens** or camera macro lens is essential to see a few of the key characteristics, although a pair of binoculars can be effective if you reverse them for hand held specimens. A small millimeter **ruler** may also necessary, as some species are distinguished by size (The pocket guide series and UCPress series of guides have a ruler inside the front cover).

An **insect net** may also be needed, as some species will have to be learned by keying them out *in the hand*. Many details, although clearly visible at close range, cannot be seen at a distance, and they must be noted to proceed through the key. Once the species are learned in the hand, many of them can then be easily recognized in the field.

Each number in the key contains a pair of statements, each of which describes distinguishing characteristics. Read *each statement* before deciding whether to accept or reject either one, and be aware that some of the statements list more than one characteristic. Each statement will lead either to a species name or to another number.

Measurements listed refer to *total length including the appendages* unless otherwise indicated. When two or more species are listed together, they are very difficult to distinguish in the field but differ in structural characteristics that are explained and illustrated in such books as *Dragonflies of California and Common Dragonflies of the Southwest* by Kathy Biggs; *Dragonflies and Damselflies of California* by Tim Manolis; *Dragonflies of North America*, by Needham, Westfall and May; *The Odonata of Canada and Alaska*, by Edmund Walker; *Damselflies of North America*, by Minter Westfall and Mike May; and also *Dragonflies through Binoculars*, by Sid Dunkle.

Male and female dragonflies and damselflies can be told apart this way: males have a bump containing their accessory genitalia under the second abdominal segment which females lack. Females typically have a broader abdomen than males, and female damselflies and females of the Darner dragonfly family have a prominent ovipositor under the last segments. Male dragonflies have 3 appendages at the abdomen tip while male damselflies have 4; both female dragonflies and damselflies have only 2 appendages. Females are typically less colorful than males and are more often found away from water. Some key couplets refer to only one sex.

The key works for some *teneral* (newly emerged) dragonflies, but at this stage in their development coloration is usually not sufficiently developed to be diagnostic. Even with adult dragonflies, color pattern rather than color hue is usually more important. The definitive coloration of adults is acquired slowly with maturation, and dragonflies that are not yet mature may not have obtained their full coloration. Teneral dragonflies often have very shiny wings and are still 'soft' and should not be handled. Some adults become *pruinose*, with a blue or whitish powdery bloom that covers parts of the body. Such dragonflies may become sexually mature before this bloom completely covers the body.

It is helpful to familiarize yourself with basic dragonfly anatomy: as is true of all insects they have 3 main body parts - first the head, then the thorax and lastly the abdomen which has 10 segments (#10 is at the terminal end where the appendages attach). All dragonflies and damselflies have a rectangular (ptero)stigma near the tip of each wing. The stigma is ignored when wing coloration is mentioned in the key unless directly referred to.

Photographs and drawings from [Common Dragonflies of California](#) by **Kathy Biggs** and its companion website, [Dragonflies and Damselflies of California](#), and/or the book [Dragonflies and Damselflies of California](#) by **Tim Manolis** will be helpful in making many final determinations to species. Also useful is the book [Dragonflies Through Binoculars](#) by **Sid Dunkle** which covers all the dragonflies (but none of the damselflies) of the continental USA.

All dragonflies emerge with barely any color. Many young males are colored much the same as females at first until they 'color-up' at maturity; therefore they progress through a series of color changes as they age. This should be kept in mind while attempting identifications. Because of this, patterns can be more helpful than coloring. Learning the dragonflies is a wonderful challenge. I will be willing to help if I can.

Begin by keying the dragonfly in the KEY TO SUBORDER, from Sub-Order go to Key for Families and then to the appropriate family page and key it to species.

KEY TO SUBORDER



1a). Small, slender match-stick sized bodies; eyes farther apart than their own diameter (hammer-headed appearance); wings held together tightly either over or alongside abdomen (mostly open but not flat in one family); weak fliers.....**ZYGOPTERA (Damselflies).....2**



1b). Larger, bodies heavier; eyes close together (touching in all species except those with clubtail shaped abdomens and one black and yellow species); wings held wide open, flat, or sometimes slightly downward and forward; strong fliers.....**ANISOPTERA (Dragonflies).....4**

ZYGOPTERA - Damselflies

Key to families:

2a). Wings held open when perched (closed in hand, may be closed in teneral); stigma long, equal to eye diameter..... [LESTIDAE \(Spreadwing Damselflies\)](#)

2b). Wings held closed over or tightly alongside abdomen (partially open in some individuals or in hand); length of stigma less than diameter of eye.....**3**

3a). Large (≥ 38 mm); body metallic green with wide black wing tips, or body dark with red at wing base [CALOPTERYGIDAE \(Broad-winged Damselflies\)](#)

3b). Smaller (< 38 mm except for two large species); variously colored; with clear wings (except for the small rectangular stigma near the end).....[COENAGRIONIDAE \(Pond Damselfs\)](#)

ANISOPTERA - Dragonflies

Key to families:



4a). Eyes completely separated.....**5**

4b). Eyes just touching or broadly contiguous.....**6**

5a). Thorax black with numerous yellow spots, not stripes..... [PETALURIDAE \(Peltail\)](#)

5b). Thorax colored otherwise..... [GOMPHIDAE \(Clubtails\)](#)

6a). Large (> 70 mm); eyes barely touching; thorax black with two yellow stripes; yellow spots on abdomen - largest spot not the last one..... [CORDULEGASTRIDAE \(Spiketails\)](#)

6b). Not that combination of characters; if large and with pale stripes on thorax, then eyes broadly contiguous.....**7**

7a). Larger (> 55 mm); abdomen spotted or otherwise marked with paler color.....**8**

7b). Smaller (< 55 mm), abdomen entirely black in species longer than 50 mm.....**9**

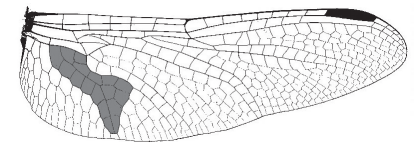
8a). Each abdominal segment with a single central yellow spot, with the last spot the largest; conspicuous single stripe on each side of thorax..... [MACROMIIDAE \(Cruisers\)](#)

8b). Each abdominal segment with multiple spots or none; thorax with two side stripes or solid green[AESHNIDAE \(Darners\)](#)

9a). Abdomen almost entirely black and eyes bright green or turquoise.... [CORDULIIDAE \(Emeralds\)](#)

9b). Abdomen variously colored; if entirely black, then eyes not green; if eyes green, then body not black.....**10**

10a). Prevailing color brown; thorax densely covered with long, whitish hairs; wings with small spot at base and no markings at mid-length; anal loop of hind wing short and rounded[CORDULIIDAE \(Emeralds\)](#)



CORDULIIDAE anal loop (area darkened in sketch)

10b). Colored otherwise; thorax with no more than sparse, short hairs; anal loop of hind wing longer and pointed at tip.....[LIBELLULIDAE \(Skimmers\)](#)

LIBELLULIDAE anal loop
(area darkened in sketch)



DAMSELFLIES



CALOPTERYGIDAE (Broad-winged Damselflies):

1a). Wing with red or orange at base..... 2

1b). Wing with at least outer 1/3 black; body metallic blue/green.....3

2a).Wing with red at base; bump under segment 2...

[*Hetaerina americana* \(American Rubyspot\), male](#)

2b). Wings orangish-red at base; no bump under segment 2; end of abdomen enlarged due to ovipositor.....

[*Hetaerina americana* \(American Rubyspot\), female](#)

3a). Wing with outer 1/3 black; bump under segment 2.....

[*Calopteryx aequabilis* \(River Jewelwing\), male](#)

3b). Wing with outer 1/3 black; no bump under segment 2; pale stigma; abdomen tip pale.....

[*Calopteryx aequabilis* \(River Jewelwing\), female](#)

LESTIDAE (Spreadwings) - males only unless indicated

[note: even seasoned experts need to have *Lestes* species in hand to be certain of identification]:

1a). Larger (>45mm); contrasting white or yellow stripe on side of thorax.....2

1b). Smaller (<45mm); no contrasting yellow or white stripe on side of thorax.....3

2a). Contrasting broken white stripe on side of thorax; pale stigma; parallel lower abdominal appendages.....[*Archilestes californica* \(California Spreadwing\), male & female](#)

2b). Conspicuous continuous pale yellow stripe on side of thorax; dark stigma; divergent lower abdominal appendages..... [*Archilestes grandis* \(Great Spreadwing\), male & female](#)

3a). Body stocky; males lower appendages expanded at end & ~80% length of upper appendages; female's ovipositor longer than segment 74

3b). Not so marked.....5

4a). Thorax metallic green above, without longitudinal stripes; abdomen less than 30mm

[*Lestes dryas* \(Emerald Spreadwing, male; some females](#)

4b). Thorax black or bronzy on top (can show pale green longitudinal striping); four black spots (2 on either side) in the pale undersurface of the thorax; abdomen at least 30mm.....

[*Lestes stultus* \(Black Spreadwing\), male & female](#)

5b).Male's lower appendages short, only 50% length of uppers; four black spots (2 on either side) in the pale undersurface of the thorax..... [*Lestes congener* \(Spotted Spreadwing\), male & female](#)

5b). Not so.....6

6a). Male's lower appendages curved outward toward tips (lyre-shaped); rear of head partly pale, stigma light to medium brown, pale at ends; male superior appendages pale at base.....

[*Lestes unguiculatus* \(Lyre-tipped Spreadwing\)](#)

6b). Male's lower appendages straight throughout; rear of head entirely dark, stigma usually uniformly dark..... [*Lestes disjunctus* \(Northern \[aka Common\] Spreadwing\)](#)

COENAGRIONIDAE (Pond Damselflies):

1a). Mostly red colored, including mid-abdominal segments.....**2**

1b). Not red or reddish, or if so black on mid-abdominal segments.....**3**

2a). Abdomen all red/orange with no black; thorax all red/orange (male & female can show a small amount of black on top of thorax).....[*Telebasis salva* \(Desert Firetail\)](#)

2b). Abdomen dark red colored with black tip and the black thorax (male) or pinkish reddish to brown where male is red or with no pattern (female); thorax somewhat hairy.....[*Amphiagrion abbreviatum* \(Western Red Damselfly\)](#)

3a). Males - genitalia visible under 2nd abdominal segment, 4 appendages at tip of abdomen, & some male-colored females.....**4**

3b). Females - no genitalia under 2nd abdominal segment, 2 appendages and ovipositor at tip of abdomen; mostly brown, gray and/or black **but may be almost as blue as males* & immature males.....**33** [this section may be incomplete and may not work for desert species - use with caution]

**if as blue as males, follow key for males*

4a). Abdomen and thorax with clearly delineated black and blue colored markings.....**5**

4b). Thorax &/or abdomen with a powdery bluish coloring (can be pale or sooty blue); fairly large size (>37mm)**16**

5a). Abdomen mostly dark on top of segments 3-7 with blue on 8 &/or 9 not continuous top to bottom.....**6**

5b). Most of abdomen patterned, alternately dark with 1-2 colors; blue 'tail tip' surrounds end segments.....**13**

6a). Top of thorax entirely metallic green.....[*Nehalennia irene* \(Sedge Sprite\)](#) **RARE, report & document**

6b). Top of thorax otherwise.....**7**

7a). Top of thorax dark with 2 blue !! marks (the dot and stem can sometimes be merged); larger (>30mm).....[*Zoniagrion exclamatoris* \(Exclamation Damselfly\)](#)

7b). Top of thorax solid black or with dots or stripes.....**8**

8a). Top of thorax solid.....**9**

8b). Top of thorax with dots or stripes.....**10**

9a). Appendages bent down.....[*Ischnura denticollis* \(Black-fronted Forktail\)](#)

9b). Appendages upward pointing; coastal SF Bay region [*Ischnura gemina* \(San Francisco Forktail\)](#)

10a). 4 colored dots on top of thorax; top & bottom blue on 'tail' tip touch each other on sides of segments 8 & 9.....[*Ischnura cervula* \(Pacific Forktail\)](#)

10b). Stripes on top of thorax; blue on top of segments 8 & 9**11**

11a). Underside of abdominal segments 3-7 not yellow or pale yellow.....**12**

11b). Underside of abdominal segments 3-7 very yellow.....**14**

12a). Larger (>30mm); blue on 'tail' floats on top of segments; stigma bi-colored; rings at each abdominal segment yellowish; lower appendages noticeably longer..... [*Ischnura erratica* \(Swift Forktail\)](#)

12b). Smaller (<=30mm); pale rings at each abdominal segment; blue on 'tail' interrupted on sides by thick black dashes on segments 8&9; forked lower appendages..... [*Ischnura perparva* \(Western Forktail\)](#)

- 13a).** Abdomen patterned alternately dark and red &/or yellow.....**14**
- 13b).** Abdomen patterned alternately dark with mostly blue or violet.....**17**
- 14a).** Abdomen patterned yellow and dark with no blue on top; smaller (≤ 27 mm); thorax dark and green; pale stigma..... [*Ischnura hastata* \(Citrine Forktail\)](#)
- 14b).** Abdomen patterned: greenish-blue on segments 1-3, yellow-orange on underside of segments 3-7, with blue 'tail'; larger (≥ 27 mm).....**15**
- 15a).** Teardrop shaped spots back of eyes connected by thin line; side stripe wide and not parallel sided; faint patterning shows top of abdomen; middle abdominal segment with spoon-shaped black area; lower appendages upward bending..... [*Ischnura barberi* \(Desert Forktail\)](#)
- 15b).** Tiny round spots back of eyes not connected; side stripe very thin and parallel sided; middle abdominal segment with even sided black area; lower appendages not upturned..... [*Ischnura ramburii* \(Rambur's Forktail\)](#)
- 16a).** Larger (> 45 mm); thorax and/or abdomen sooty blue colored; no blue or contrasting pale area at abd. 'tip'.....[*Argia lugens* \(Sooty Dancer\)](#)
- 16b).** Smaller (< 43 mm); abdomen tip and thorax all light powdery blue (can be more pervasive); you are in southern CA[*Argia moesta* \(Powdered Dancer\)](#)
- 17a).** Thorax side stripe pinched or divided into a sideways Y (the Y can be broken).....**18**
- 17b).** Not as above.....**24**
- 18a).** Thorax side stripe pinched but not divided.....**19**
- 18b).** Thorax side stripe divided into a sideways Y (the Y can be broken).....**20**
- 19a).** Pale color mostly blue (when cold violet); top of thorax with urn shaped black stripe.....
[*Argia vivida* \(Vivid Dancer\)](#)
- 19b).** Pale color mostly violet (immatures bluish); black line on top of thorax very narrow.....
[*Argia emma* \(Emma's Dancer\)](#)
- 20a).** No lavender coloring.....**21**
- 20b).** Some lavender coloring; found in southern California.....**23**
- 21a).** Side stripe forming the sideways Y thick..... [*Argia alberta* \(Paiute Dancer\)](#)
- 21b).** Side stripe forming the sideways Y thin.....**22**
- 22a).** Distance between lower appendages when seen from above greater than the width of each individual appendage.....[*Argia agrioides* \(California Dancer\)](#) [must be held in hand and examined with 10X hand lens]
- 22b).** Distance between lower appendages when seen from above less than the width of each individual appendage.....[*Argia nahuana* \(Aztec Dancer\)](#) [must be held in hand and examined with 10X hand lens]
- 23a).** Blue/lavender rings on abdomen segments 3-5(6) extensive.....[*Argia hinei* \(Lavender Dancer\)](#)
- 23b).** Blue/lavender color on abdomen very narrow rings.....[*Argia immunda* \(Kiowa Dancer\)](#)
- 24a).** Abdomen mostly black with thin blue rings.....[*Argia sedula* \(Blue-ringed Dancer\)](#)
- 24b).** Not so.....**25**
- 25a).** Middle abdominal segments at least 50% black from above..... **26**
- 25b).** Middle abdominal segments mostly blue from above.....**31**
- 26a).** Segments 6 & 7 entirely black above; black marking on second abdominal segment U-shaped; thorax green tinged.....[*Coenagrion resolutum* \(Taiga Bluet\)](#)
- 26b).** Not so..... **27**

27a). Upper appendages just a little bit longer than lower ones, found east of Sierras or Cascades; at an alkali lake..... [*Enallagma clausum* \(Alkali Bluet\)](#)

27b). Not found as above.....**28**

28a). Male with more black than blue on middle abdominal segments; black points pointing towards appendages.....[*Baja Bluet Enallagma eiseni*](#) **RARE, report & document**

[next two must be held in hand and examined with 10X hand lens from side]

28b). Male with more black than blue on middle abdominal segments; male's upper appendages with a pale 'button' on end.....**29**

28c). Male with more black than blue on middle abdominal segments; male's upper appendages forked and without a 'button' on end**30**

[must be held in hand and examined with 10X hand lens from side]

29a). Male's 3rd abdominal segment =or>50% black; 'button' on end of upper appendages.....
[*Enallagma carunculatum* \(Tule Bluet\)](#)

29b). Male's 3rd abdominal segment <50% black; 'button' on underside of tip of upper appendages.....[*Enallagma civile* \(Familiar Bluet\)](#) [must be held in hand and examined with 10X hand lens from side]

30a). Male's upper and lower appendages about the same length; upper appendages forked with lower fork pointed rearward.....[*Enallagma praevarum* \(Arroyo Bluet\)](#)*

30b). Male's upper appendages slightly forked with the top fork extending well beyond lower appendages and angled downward.....[*Enallagma anna* \(River Bluet\)](#)* [*only the Arroyo Bluet occurs in the valley and coastal areas and south of Inyo Co, while both occur in the Sierra Nevada and Great Basin] [must be held in hand and examined with 10X hand lens from side]

31a). Lower appendages longer, projecting well beyond superiors [*Enallagma annexum* formerly *cyathigerum* \(Northern Bluet\)](#) or.

[*Enallagma boreale* \(Boreal Bluet\)](#) [must use hand lens on upper appendages to determine, see link at CA Web site]

31b). Upper appendages longer or about same length.....**32**

32a). Dark side stripe with a thin blue line thru center[*Enallagma basidens* \(Double-striped Bluet\)](#)

32b). Not so.....[*Enallagma civile* \(Familiar Bluet\)](#)

FEMALES: [Many females are extremely difficult to ID - even in hand- use with caution!]

33a). All light or dark pruinose.....**34**

33b). Not so marked.....**35**

34a). All dark pruinose; pale stigma..... [*Ischnura cervula* \(Pacific Forktail\)](#)

34b). All light pruinose; dark stigma.....[*Ischnura perparva* \(Western Forktail\)](#)

35a). Top of abdomen solid colored (or with color only near tip and very beginning near thorax)..... **36**

35b). Abdomen patterned alternately with dark and pale markings.....**46**

36a). Thorax sides solidly colored with tan/orange/red; thorax top with thick dark stripe.....**37**

36b). Noticeable thoracic side stripes.....**38**

37a). Medium sized, (>27mm)..... [*Ischnura ramburii* \(Rambur's Forktail\)](#)

37b). Small (<25 mm)..... [*Ischnura hastata* \(Citrine Forktail\)](#)

- 38a). Green thoracic stripes; large (>30 mm)..... 39
38b). Stripes otherwise.....40
- 39a). Found in northern CA [*Ischnura erratica* \(Swift Forktail\)](#)
39b). Found in southern CA [*Ischnura barberi* \(Desert Forktail\)](#) or
[*Ischnura ramburii* \(Rambur's Forktail\)](#)
- 40a). Pale stigma.....41
40b). Stigma dark.....42
- 41a). Orange color only behind eyesimmature [*Ischnura cervula* \(Pacific Forktail\)](#)
41b). No orange color behind eyes43
- 42a). You are in SF Bay region or mid-coastal area..... [*Ischnura denticollis* \(Black-fronted Forktail\)](#) or
[*Ischnura gemina* \(San Francisco Forktail\)](#)
42b). You are in interior of state [*Ischnura denticollis* \(Black-fronted Forktail\)](#) or
[*Ischnura barberi* \(Desert Forktail\)](#) or
[*Ischnura ramburii* \(Rambur's Forktail\)](#)
- 43a). Blue tops of segments 7 and 8; !! marks on top of thorax (which may have dot merged with stem; >=30 mm).....[*Zoniagrion exclamationis* \(Exclamation Damselfly\)](#)
43b). Not so.....44
- 44a). (</=40 mm)45
44b). (>40 mm)..... 53
- 45a). Ground color of thorax orange to pinkish.....37
45b). Not so.....48
- 46a). Orange on base of abdomen extending to segment 3..... immature [*Ischnura perparva* \(Western Forktail\)](#)
46b). Not so.....47
- 47a). 'Day glow' orange color of thorax top with thick black top stripe; legs and tip of abdomen orange..... immature [*Ischnura ramburii* \(Rambur's Forktail\)](#)
47b). Not so.....50
- 48a). Segment 8 of abdomen black above..... immature [*Ischnura erratica* \(Swift Forktail\)](#)
48b). Segment 8 of abdomen pale above.....immature [*Ischnura cervula* \(Pacific Forktail\)](#)
- 49a). Side stripe on thorax pinched in middle or side stripe forms a sideways Y.....50
49b). Side stripe on thorax not pinched in middle, does not form a sideways Y.....53
- 50a). Side stripe on thorax pinched in middle.....51
50b). Side stripe on thorax not pinched in middle, or it forms a sideways Y.....53
- 51a). Black stripe on top of thorax narrow, no wider than side stripes; straight sided.....[*Argia emma* \(Emma's Dancer\)](#)
51b). Black stripe on top of thorax much wider than side stripes; urn shaped..... [*Argia vivida* \(Vivid Dancer\)](#)
- 52a). Stripe on side of thorax is forked, forming a sideways Y.....52c
52b). Stripe on side of thorax is NOT forked; does not form a sideways Y.....53
- 52c). Spot not stripe on segment 2..... [*Argia nahuana* \(Aztec Dancer\)](#)
52d). Not so marked.....52e

52e). Stripe not spot on segment 2..... [*Argia agrioides* \(California Dancer\)](#),

52f). Not so marked.....52g

52g). Stripe on side of thorax is forked and wide

[*Argia alberta* \(Paiute Dancer\)](#), or

[*Argia hinei* \(Lavender Dancer\)](#), or

[*Argia immunda* \(Kiowa Dancer\)](#) RARE, report & document

52h). Abdomen in mostly black with thin blue rings and blue 'tail'.....[*Argia sedula* \(Blue-ringed Dancer\)](#)

53a). Larger (≥ 40 mm).....54

53b). Smaller (≤ 40 mm).....55

54a). Larger (≥ 40)mm; intricately marked thorax [*Argia lugens* \(Sooty Dancer\)](#)

54b). Smaller (≤ 40 mm); thin dark line across top of thorax [*Argia moesta* \(Powdered Dancer\)](#)

55a). Segments 7 and 8 of abdomen with conspicuous pale ring at end.....[*Coenagrion resolutum* \(Taiga Bluet\)](#)

55b). Not so.....56

56a). Segment 8 of abdomen entirely black above.....

[*Enallagma carunculatum* \(Tule Bluet\)](#), or

[*Enallagma basidens* \(Double-striped Bluet\)](#), or

[*Enallagma civile* \(Familiar Bluet\)](#), or

[*Enallagma anna* \(River Bluet\)](#)

56b). Segment 8 of abdomen entirely or partially pale above.....

[*Enallagma boreale* \(Boreal Bluet\)](#), or

[*Enallagma clausum* \(Alkali Bluet\)](#), or

[*Enallagma cyathigerum* \(Northern Bluet\)](#), or

[*Enallagma praevarum* \(Arroyo Bluet\)](#)

DRAGONFLIES:



PETALURIDAE (Petaltails):

One species; thorax black with numerous yellow spots, not stripes; eyes widely separated.....

[*Tanypteryx hageni* \(Black Petaltail\)](#)

CORDULEGASTRIDAE (Spiketails) One species; 2 thoracic yellow stripes.....

[*Cordulegaster dorsalis* \(Pacific Spiketail\)](#)

MACROMIIDAE (River Cruisers) One species; one thoracic yellow stripe.....

[*Macromia magnifica* \(Western River Cruiser\)](#)

GOMPHIDAE (Clubtails) - mature males only unless indicated

1a). Abdomen almost entirely black and quite thin; appendages deeply forked..... [*Octogomphus specularis* \(Grappletail\)](#)

1b). Abdomen with conspicuous pale markings.....2

2a). Thorax distinctly green or gray; male's lower appendages pointed;.....3

2b). Thorax yellowish to gray-greenish; male's lower appendages forked.....

3a). Pale rings on abdomen; sides & top of thorax intricately striped with black.....4

3b). Sides of thorax almost entirely green or gray.....5

4a). Whitish between one pair of stripes side of thorax; abdominal pale rings yellowish.....

[*Erpetogomphus compositus* \(White-belted Ringtail\)](#)

4b). No white between pairs of stripes on side of thorax; abdominal pale rings whitish; found in so. CA
..... [*Erpetogomphus lampropeltis* \(Serpent Ringtail\)](#)

5a). Sides gray..... [*Progomphus borealis* \(Gray Sanddragon\)](#)

5b). Sides not gray.....6

6a). No, or almost no dark line separating top and side of thorax; coloring very pale through-out.....

[*Ophiogomphus severus* \(Pale Snaketail\)](#)

6b). 1-2 dark stripes where front and sides of thorax meet, with or without internal thin green line.....7

7a). One wide black line where top & side of thorax meet (can show a partial, thin line in middle); line not wavy; thorax bright green; yellow abdominal top spots arrow-head shaped & occur on all segments..... [*Ophiogomphus bison* \(Bison Snaketail\)](#)

7b). Two black lines line where top & side of thorax meet8

8a). Black line where top & side of thorax meet is wavy with thin green internal line.....

[*Ophiogomphus occidentis* \(Sinuous Snaketail\)](#)

8b). Two black lines where top & side of thorax meet are separated by green color which is continuous with top thoracic stripe [*Ophiogomphus morrisoni* \(Great Basin Snaketail\)](#)

- 9a).** Gray-green thorax with wide stripe where top & side of thorax meet; green triangular marks down top of abdomen (green markings can be yellow in immature & female); no spots top of segments 9 & 10; legs & appendages all black..... [*Gomphus kurilis* \(Pacific Clubtail\)](#), male
- 9b).** Marks on abdomen not green..... **10**
- 10a).** Abdomen not as above; sides of thorax appear solid gray-green colored; without conspicuous stripes behind front edge of fore wing..... [*Stylurus olivaceus* \(Olive Clubtail\)](#)
- 10b).** End of abdomen yellow/rust/reddish colored **11**
- 11a).** Smaller (<56 mm); sides of thorax nearly all pale yellow-green..... [*Stylurus intricatus* \(Brimstone Clubtail\)](#)
- 11b).** Larger (>=56 mm); sides of thorax gray-green with dark thin stripes..... [*Stylurus plagiatus* \(Russet-tipped Clubtail\)](#)
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AESHNIDAE (Darners)

[Even seasoned experts cannot 100% identify most Aeshna without having them in hand. It is necessary to net them and examine them. With experience you can get a 'feel' for which species you are seeing, but in hand is required for any identifications that are county or flight season records]

- 0a).** Three terminal appendages -male.....**1**
- 0b).** Two terminal appendages - female.....**see female section next page**
- 1a).** Thorax entirely green.....**2**
- 1b).** Thorax dark with pale stripes on sides.....**3**
- 2a).** Smaller (<80 mm)..... [*Anax junius* \(Common Green Darner\)](#)
- 2b).** Larger (>=90 mm); abdomen droops slightly in flight..... [*Anax walsinghmi* \(Giant Darner\)](#)
- 3a).** Males (3 appendages at tip).....**4**
- 3b).** Females (2 appendages at tip)..... **11**
- 4a).** Upper appendages forked in side view; bright blue face, eyes and stripes..... [*Rhionaeschna multicolor* \(Blue-eyed Darner\)](#)
- 4b).** Upper appendages simple or paddle-shaped (not forked) and with or without a spine at tip **6**
- 5a).** Upper appendages simple, paddle shaped without a spine.....**6**
- 5b).** Upper appendages simple, paddle shaped with a distinct spine at tip.....**9**
- 6a).** Small for family, smaller (<61 mm), blue and dark patterned..... [*Rhionaeschna californica* \(California Darner\)](#)
- 6b).** Small for family, smaller (<61 mm), green and dark patterned..... [*Rhionaeschna psilus* \(Turquoise-tipped Darner\)](#) RARE, report & document
- 6c).** Size normal, larger (>=61 mm).....**7**
- 7a).** Front side thoracic stripe wide and indented in middle..... **8**
- 7b).** Both side thoracic stripes quite narrow and straight or reduced to pairs of dashes..... [*Aeshna interrupta* \(Variable Darner\)](#)
- 8a).** Pale spots underside of abdomen..... [*Aeshna canadensis* \(Canada Darner\)](#) RARE, report & document
- 8b).** No pale spots on underside of abdomen..... [*Oplonaeschna armata* \(Rifle Darner\)](#) RARE, " " "
- 9a).** Paired blue spots on underside of abdomen; no blue spots on 10th abdominal segment; spots on other segments small (15-20% length of each segment)..... [*Aeshna umbrosa* \(Shadow Darner\)](#)
- 9b).** No pale spots on underside of abdomen..... **10**

10a). Greenish face and stripes; stigma dark brown; paired blue spots top of segment 10; spots seg. 9 fused; typically found at lakes and ponds..... [*Aeshna palmata* \(Paddle-tailed Darner\)](#)

10b). Very pale face with white side stripes; jet black stigma; no spots on top of segment 10 (or VERY tiny spots at extreme rear of segment); typically found along streams and rivers..... [*Aeshna walkeri* \(Walker's Darner\)](#)

FEMALES:

11a). Small but obvious tubercle (bump) under the first abdominal segment shows in close examination of side view.....**12**

11b). No tubercle under the first abdominal segment**13**

12a). Size normal, larger (≥ 61 mm); horizontal facial stripe between the eyes light brown.....

[*Rhionaeschna multicolor* \(Blue-eyed Darner\)](#)

12b). Small for family, smaller (< 61 mm); horizontal facial stripe between the eyes black.....

[*Rhionaeschna californica* \(California Darner\)](#)

13a). Front side thoracic stripe wide and indented in middle..... **14**

13b). Side thoracic stripe not so..... **15**

14a). Pale spots underside of abdomen..... [*Aeshna canadensis* \(Canada Darner\)](#)

14b). No pale spots on underside of abdomen side thoracic stripe deeply indented

[*Oplonaeschna armata* \(Riffle Darner\)](#)

15a). Stigma black (or very dark brown); cerci widest at $2/3 - 3/4$ their length; only large sized spots (no smaller ones) on segments 8 - 10 on top of abdomen..... [*Aeshna walkeri* \(Walker's Darner\)](#)

15b). Stigma brown, cerci widest at mid-point; colored spots on top of abdomen variously sized.....**16**

16a). Side stripes reduced to broken lines or very thin; ovipositor valves 2-2.5 mm..... [*Aeshna interrupta* \(Variable Darner\)](#) (See drawings #46-49 at Darner key at Royal British Museum, British Colombia for illustration of this couplet)

16b). Side stripes not broken nor very thin; ovipositor valves 3-3.5mm [*Aeshna palmata* \(Paddle-tailed Darner\)](#)

CORDULIIDAE (Emeralds):

1a). Abdomen with yellowish sides; thorax brown with pale hairs.....**2**

1b). Abdomen entirely black; thorax largely or partly metallic dark green, with or without yellow spots.....**3** [must be examined in hand]

2a). Face from above mostly pale; male superior appendages sharply angled near end; female appendages about 2mm long..... [*Epitheca canis* \(Beaverpond Baskettail\)](#)

2b). Face from above mostly dark; male superior appendages not angled; female appendages about 3mm long..... [*Epitheca spinigera* \(Spiny Baskettail\)](#)

3a). A very fine white ring at base of each abdominal segment..... [*Somatochlora albicincta* \(Ringed Emerald\)](#)

3b). No white rings on middle abdominal segments (may be white ring on basal segment).....**4**

4a). Male appendages slightly flared; smaller (≤ 49 mm); thorax with no indication of yellow on sides; female appendages ≤ 2 mm long..... [*Cordulia shurtleffii* \(American Emerald\)](#)

4b). Male superior appendages inward curved forming a semicircle(); larger (≥ 50 mm); female with vulvar lamina smaller, shorter than abdominal segment 9..... [*Somatochlora semicircularis* \(Mountain Emerald\)](#)

LIBELLULIDAE (Skimmers) warning: may not work for all female Meadowhawks

- 1a).** Wings entirely orange..... [*Perithemis intensa \(Mexican Amberwing\)*](#), **male** (female has orangeish bands on wings)
- 1b).** Wings otherwise.....**2**
- 2a).** At least one pair of wings conspicuously patterned with fairly large areas of black, white, brown, yellow, orange or red.....**3**
- 2b).** Wings clear, or with reddish or yellowish tinged areas, or small dark spots which are either poorly defined, fairly inconspicuous and/or only near the base of wings.....**9**
- 3a).** Wings with one large patch of color extending from basal area.....**4**
- 3b).** Wings more patterned, with color spot at &/or beyond midlength as well.....**7**
- 4a).** Top & bottom of abdomen, thorax, face and eyes solid red or red- orange.....**5**
- 4b).** Body otherwise.....**7**
- 5a).** Red color approximately the same amount on both sets of wings.....**6**
- 5b).** Red color on hind wings only..... **14**
- 6a).** Red on wings extends to nodus; body orange-red..... [*Libellula saturata \(Flame Skimmer\)*](#), **male**
[Pictorial comparison on website & website key](#)
- 6b).** Red on wings only close to thorax, not extending to nodus; body bright red..... [*Libellula croceipennis \(Neon Skimmer\)*](#), **male**
- 7a).** Color on wings reddish, yellowish or light brown..... **8**
- 7b).** Color on wings (not veins) black or dark brown.....**12**
- 8a).** Abdomen top intricately patterned with black on red background; face and eyes red; larger (>45 mm) [*Paltothermis lineatipes \(Red Rock Skimmer\)*](#), **male**
- 8b).** Abdomen yellow to red on top, black below; face and thorax brownish; smaller (<=40mm).....
[*Sympetrum occidentale \(Western Meadowhawk\)*](#), **male or female**
- 9a).** Wings with small black area/spot at base and nodus only..... **10**
- 9b).** Not so marked.....**25**
- 10a).** Nodal spot smaller than stigma; body tapered somewhat to a point; thorax hairy; amber streaks in wing..... [*Libellula quadrimaculata \(Four-spotted Skimmer\)*](#), **male or female**
- 10b).** Body fairly parallel sided.....**11**
- 11a).** Nodal spot larger than stigma; dark face; dark front wing vein..... [*Libellula nodisticta \(Hoary Skimmer\)*](#), **male or female**
- 11b).** Nodal spot smaller than stigma (sometimes missing); pale face; pale costa (leading vein of wing) [*Libellula composita \(Bleached Skimmer\)*](#), **male or female**
- 12a).** Both wings with extensive basal spot extending as far as nodus (female can also have a dark spot at wing tip)..... [*Libellula luctuosa \(Widow Skimmer\)*](#), **male or female**
- 12b).** Marked otherwise.....**13**
- 13a).** Only hind wings with extensive band of coloration on basal area.....**14**
- 13b).** Dark marking on all wings.....**16**

- 14a).** Large basal hind wing spot brownish red; body red, no thoracic stripes..... [*Tramea onusta*](#)
(Red Saddlebags), male or female (female brown- red)
- 14b).** If pale thoracic stripes and narrow basal hind wing band, [*Tramea calverti*](#) **(Striped Saddlebags), male (female brown, striped)** RARE, report & document
- 14c).** Basal hind wing spot black/dark brown; body black.....15
- 15a).** Large (>=50mm); hind wing covered with saddle-like shaped mark [*Tramea lacerata*](#)
(Black Saddlebags), male or female (female browner)
- 15b).** Smaller (<=50mm); hind wing with basal spot not saddle shaped and covering only half of area; some dark on base of front wing..... [*Macrodiplax balteata*](#) **(Marl Pennant), male or female**
- 16a).** Each wing with 1 conspicuous wide band or 2 narrow zigzag black bands beginning beyond the midlength and each extending from leading to trailing edge of wing.....19
- 16b).** Not so marked.....17
- 17a).** Wings with lacey pattern; body with brown chevrons; eyes striped..... [*Pseudoleon superbus*](#)
(Filigree Skimmer)
- 17b).** Not so marked.....18
- 18a).** Each wing with a spot or narrow band at midlength, extending no more than 1/4 length of wing.....21
- 18b).** Not so marked.....19
- 19a).** Two narrow zigzag black bands in middle third of wing (can show some dark coloring between the bands)..... [*Libellula subornata*](#) **(Desert Whitetail), female** (if male, also showing white pruinosity on wings)
- 19b).** Middle 1/3 of wing a wide black band.....20
- 20a).** White pruinosity on wing confined to close to base..... [*Libellula lydia*](#) **(Common Whitetail), male**
- 20b).** White pruinosity on wing extensive, clear out to the black band; you are in a desert areas
[*Libellula subornata*](#) **(Desert Whitetail), male**
- 21a).** Wings with only a small spot of color at nodus; amber wash at base..... [*Libellula composita*](#) **(Bleached Skimmer), male or female**
- 21b).** Wings not so.....22
- 22a).** Two black spots on each wing; outer mark resembles a #8 and extends from leading to trailing edge of wing..... [*Libellula forensis*](#) **(Eight-spotted Skimmer), male or female**
- 22b).** Three black spots on each wing; outer spot does not extend from front to back of wing edge.....23
- 23a).** White spots between each black wing spot..... [*Libellula pulchella*](#) **(Twelve-spotted Skimmer), male**
- 23b).** No white spots on wings.....24
- 24a).** Abdomen dark in center with yellow dashes on side that appear continuous, not broken; larger (>=45 mm);..... [*Libellula pulchella*](#) **(Twelve-spotted Skimmer), female**
- 24b).** Abdomen dark in center with row of slightly slanted yellow (or whitish) dashes on side of abdomen that is interrupted, not continuous; smaller (<=42 mm)..... [*Libellula lydia*](#) **(Common Whitetail), female**
- 25a).** Body entirely or partially blue or white (with powdery pruinose bloom).....26
- 25b).** Body with no blue.....30

- 26a). Face green; perched on floating vegetation or the ground..... [*Erythemis simplicollis collocata*](#) (**Western Pondhawk**), male
- 26b). Face not green.....27
- 27a). Eyes and face brown; white pruinosity restricted to front of thorax and base of abdomen.....
[*Libellula julia*](#) (**Chalk-fronted Corporal**), male
- 27b). body blue.....28
- 28a). Bi-colored stigma..... [*Libellula comanche*](#) (**Comanche Skimmer**), male
- 28b). Stigma solid (dark) colored.....29
- 29a). Face white with a black 'nose'-like spot; pink/buff colored area under abdominal segments 1-2
..... [*Pachydiplax longipennis*](#) (**Blue Dasher**), male
- 29b). Pale face; body a bleached blue; pale costal vein (front edge of wing)..... [*Libellula composita*](#) (**Bleached Skimmer**), male
- 29c). Blue only on mid abdominal segments; head, thorax, abdomen segs 3-10 dark.....
[*Erythriduolax basifusca*](#) (**Plateau Dragonlet**), male RARE, report & document
- 30a). Body bright green..... [*Erythemis collocata*](#) (**Western Pondhawk**), female or immature male
- 30b). Body not green or if green then olive green/brownish green.....31
- 31a). Body with 2 paired pale spots near end of club shaped abdomen..... [*Brechmorhoga mendax*](#) (**Pale-faced Clubskimmer**), male or female
- 31b). Not so marked.....32
- 32a). Body entirely brown; hind wing with conspicuous dark spot at base.....33
- 32b). Not so marked.....36
- 33a). Dark area at base of wing triangular.....34
- 33b). Dark area at base of wing semicircular, not triangular.....35
- 34a). Brown spot at nodus (midlength) on wing..... [*Libellula quadrimaculata*](#) (**Four-spotted Skimmer**), male or female
- 34b). No brown spot at wing midlength (nodus) [*Libellula julia*](#) (**Chalk-fronted Coporal**), female
- 35a). Dark area at base of wing semicircular, no spot at wing nodus (middle of wing)..... [*Pantala hymenaea*](#) (**Spot-winged Glider**), male or female
- 35b). Not so marked36
- 36a). Abdomen top with rectangular buff marks on dark background; face white..... [*Pachydiplax longipennis*](#) (**Blue Dasher**), female or young male
- 36b). Abdomen not as above.....37
- 37a). Body mostly black, dark brown or patterned earth-tones (can be marked with yellow, white or red).....38
- 37b). Body mostly pale, yellow, red or rose/purple.....52
- 38a). Front of thorax paler than sides, separated from them by darker line..... [*Libellula julia*](#) (**Chalk-fronted Corporal**), female
- 38b). Thorax not as described.....39
- 39a). Face entirely or partially dark; no orange coloring [*Sympetrum danae*](#) (**Black Meadowhawk**), male or female
- 39b). Not so.....40

- 40a). Face conspicuously white, or at least entirely pale.....41
- 40b). Not so.....42
- 41a). Abdomen with yellow dot only on 7th segment..... [*Leucorrhinia intacta* \(Dot-tailed Whiteface\)](#), male or female
- 41b). Abdomen with patterning or spots.....42
- 42a). Abdomen with intricate batik-like patterning in tan, light brown and dark brown.....
[*Paltothemis lineatipes* \(Red Rock Skimmer\)](#), female
- 42b). Not so.....43
- 43a). Thorax, eyes, abdomen bright red with small white spot on side of thorax (may be partly obscured by red)44
- 43b). Not so.....45
- 44a). Bright white spots of sides of thorax; small dark areas base of wings; reddish legs.....
[*Sympetrum illotum* \(Cardinal Meadowhawk\)](#), immature male or female
- 44b). White stripes side of thorax; leading edge of wing yellow; no dark basally on wing; black legs..... [*Sympetrum madidum* \(Red-veined Meadowhawk\)](#), immature male or female
- 45a). Continuous pale streak along abdomen sides; pale stigma [*Libellula comanche* \(Comanche Skimmer\)](#), immature male or female
- 45b). Not so.....46
- 46a). Dark streak down abdomen top; pale stigma..... [*Pantala flavescens* \(Wandering Glider\)](#), male or female
- 46b). Not so.....47
- 47a). Red or yellow spots on middle abdominal segments.....48
- 47b). Red only on beginning of abdomen (may be very fine line on middle segments).....51
- 48a). Male.....49
- 48b). Female.....50
- 49a). Pale spot on segment 7 as wide as long..... [*Leucorrhinia intacta* \(Dot-tailed Whiteface\)](#)
- 49b). Pale spot on segment 7 longer than wide..... [*Leucorrhinia hudsonica* \(Hudsonian Whiteface\)](#)
- 50a). Pale spot on segment 7 as wide as long..... [*Leucorrhinia intacta* \(Dot-tailed Whiteface\)](#)
- 50b). Pale spot on segment 7 longer than wide..... 50bb
- 50bb). The cells between the radial sector and radial planate show only one row (see plate 27 Tim Manolis's book, *The Dragonflies and Damselflies of California*).....[*Leucorrhinia proxima* \(Belted \[aka Red-waisted\] Whiteface\)](#)
- 50bc). The cells between the radial sector and radial planate show two rows (see plate 27 Tim Manolis's book, *The Dragonflies and Damselflies of California*)..... [*Leucorrhinia glacialis* \(Crimson-ringed Whiteface\)](#), [*L. hudsonica* \(Hudsonian Whiteface\)](#); further structural characters necessary
- 51a). Lower appendages about half length of uppers..... [*Leucorrhinia glacialis* \(Crimson-ringed Whiteface\)](#), male
- 51b). Lower appendage about two-thirds length of uppers..... [*Leucorrhinia proxima* \(Red-waisted Whiteface\)](#), male
- 52a). Body rose/purple..... [*Orthemis ferruginea* \(Roseate Skimmer\)](#), male
- 52b). Not so colored.....53

- 53a).** Entirely pale (brown or red tones) with unmarked abdomen.....**54**
- 53b).** Not so colored.....**56**
- 54a).** Leading edges of wings with streak of orange from base to tip..... [*Libellula saturata* \(Flame Skimmer\)](#), female
- 54b).** Not so.....**55**
- 55a).** Wings with orange stigma and only small orange area on wings, close to base..... [*Libellula croceipennis* \(Neon Skimmer\)](#), female
- 55b).** Wings with no orange or red..... [*Orthemis ferruginea* \(Roseate Skimmer\)](#), female
- 56a).** Bright red (male); white spots on side of thorax; inconspicuous dark markings at base of each wing (visible at close range)..... [*Sympetrum illotum* \(Cardinal Meadowhawk\)](#), male or female
- 56b).** No dark markings at wing base (may be yellow tinged)**57**
- 57a).** Larger (>=45 mm); entirely yellow to orange..... [*Pantala flavescens* \(Wandering Glider\)](#), male
- 57b).** Smaller (<=45 mm); variously colored, often with conspicuous black markings.....**58**
- 58a).** Front edge of wing golden on veins or membrane, contrasts with rest of wing (can have pale costa [leading vein]).....**59**
- 58b).** Front edge of wing same color as remainder.....**61**
- 59a).** Sides of thorax plain (rarely marked with darker markings); black edging to yellow stigma..... [*Sympetrum costiferum* \(Saffron-winged Meadowhawk\)](#), male or female
- 59b).** Sides of thorax with two pale spots (may be almost obscured by red pigment in mature males).....**60**
- 60a).** Stigma all dark; if light spots on abdomen, they are partly obscured by red..... [*Sympetrum madidum* \(Red-veined Meadowhawk\)](#), male
- 60b).** Stigma bicolored; abdomen with light “porthole” shaped spots low on side..... [*Sympetrum corruptum* \(Variegated Meadowhawk\)](#), male or female
- 61a).** Well-defined pale stripes on each side of thorax.....**62**
- 61b).** Sides of thorax plain, or with spots, or with complex pattern of black and yellow.....**63**
- 62a).** Abdomen with conspicuous white “porthole” shaped markings..... [*Sympetrum corruptum* \(Variegated Meadowhawk\)](#), male or female
- 62b).** Abdomen without “porthole” shaped white markings on sides of abdomen..... [*Sympetrum pallipes* \(Striped Meadowhawk\)](#), male or female
- 63a).** Two well-defined yellow spots low on each side of thorax; stigma bicolored..... [*Sympetrum corruptum* \(Variegated Meadowhawk\)](#), male or female
- 63b).** No well-defined yellow spots on thorax; stigma one color.....**64**
- 64a).** Abdomen with no black.....**65**
- 64b).** Abdomen marked low on sides with black.....**66**
- 65a).** Yellow legs..... [*Sympetrum vicinum* \(Autumn \[aka Yellow-legged\] Meadowhawk\)](#), male or female
- 65b).** Black legs..... [*Brachymesia furcata* \(Red-tailed Pennant\)](#), male or female
- 66a).** Sides of thorax with complex pattern of yellow and black..... [*Sympetrum danae* \(Black Meadowhawk\)](#), female
- 66b).** Sides of thorax plain or with faint pattern.....**67**

67a). Face and wing veins reddish..... [*Sympetrum internum* \(Cherry-faced Meadowhawk\)](#), male or female

67b). Face whitish; wing veins dark.....**68**

68a). Pale stripes top and sides of thorax; area on thorax between wing bases with 4 'velvet-like' red dots (yellow in females/immatures)..... [*Sympetrum pallipes* \(Striped Meadowhawk\)](#), male or female

68b). Pale stripes only on sides of thorax; area between wing bases on thorax all red.....
[*Sympetrum obtrusum* \(White-faced Meadowhawk\)](#), male or female

This information is provided by **Kathy Biggs** and was originally based on **Dennis Paulson's *WA Key*** to Dragonflies at [Slater Museum of Natural History](#)

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