Second Edition

Dragonflies of Alaska

John Hudson
Robert H. Armstrong

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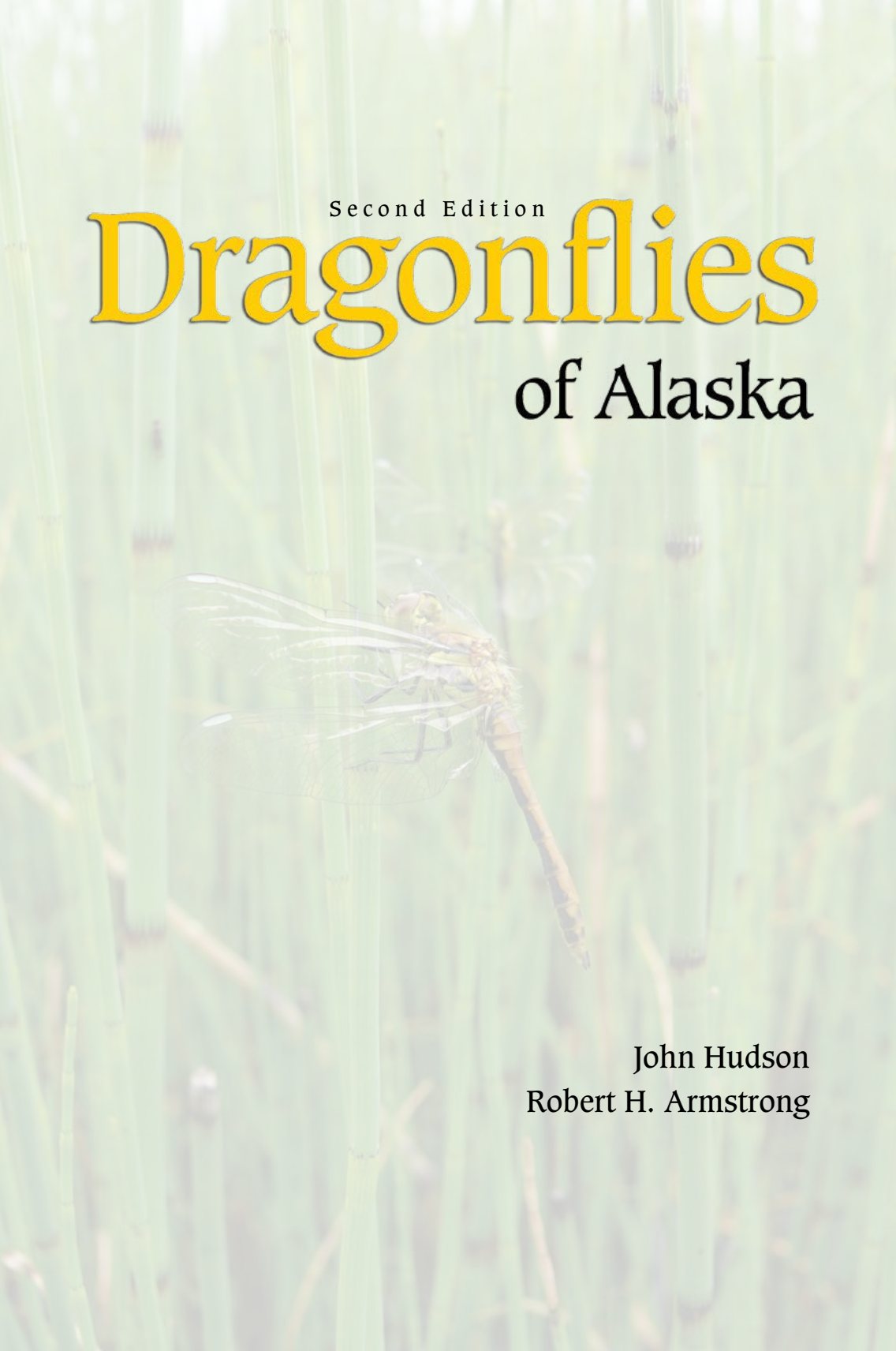

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Robert H. Armstrong

Cover: Alaska's State Insect, the Four-spotted Skimmer dragonfly

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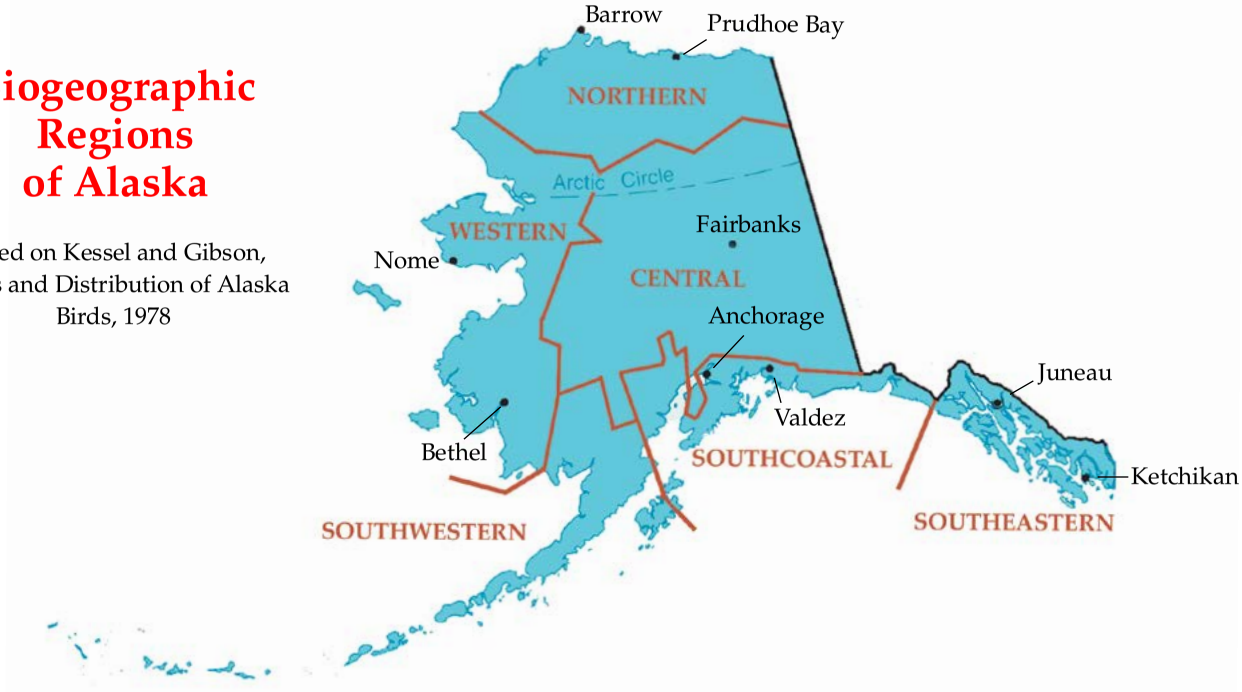
Biogeographic Regions of Alaska

Based on Kessel and Gibson, Status and Distribution of Alaska Birds, 1978



Key to distribution of dragonflies in this text: Southeastern = SE; Southcoastal = SC; Southwestern = SW; Central = C; Western = W; Northern = N. These designations represent what is currently known about the distribution of dragonflies in Alaska. As more is learned, the information presented on distribution in the species accounts will likely change.

Dragonflies in Alaska

Alaska may be best known for its salmon, bears, and whales, but the 49th State is also home to more than 30 species of dragonflies. Dragonflies cruise Alaska's summer skies from Ketchikan to north of the Brooks Range and from the Alaska Peninsula to the Yukon border. While our small number of species pales in comparison to that of every other state (Florida, for example, has 170 species), anyone interested in these beautiful and fascinating insects can use this guide to identify our species.

Northern Spreadwing

Many dragonflies found in Alaska have common or scientific names related to the state's geographic location. Alaska is "northern," and much of the state is boreal or subarctic, so one should not be surprised it is home to the Northern Bluet, Northern Spreadwing, Boreal Bluet, Boreal Whiteface, Subarctic Darner, Subarctic Bluet and Taiga Bluet. Alaska is also home to the most northerly distributed species of dragonfly, the Treeline Emerald. The species name for Azure Darner is *septentrionalis,* meaning "of the north," and *sitchensis*, the species name for the Zigzag Darner, means Sitka in honor of the Alaska city where the original specimen was collected and described for science.

Since publication of the first edition of this guide in 2005, three more dragonfly species have been discovered within our borders —Prairie Bluet, Kennedy's Emerald, and Ocellated Emerald. This edition includes these species as well as new drawings and improved descriptions to help the beginner identify the growing number of dragonflies found in Alaska. Considering the vast size and remote nature of the state, there are likely other species awaiting discovery. We hope this guide will stimulate an interest in documenting the diversity and distribution of these important insects in the Last Frontier.

Watching Alaska's Dragonflies

Watching Alaska's dragonflies can be fun and educational. Their large size and habit of concentrating along the shores of ponds, lakes and marshes make them easy to observe. Armed with a pair of close-focusing binoculars, a little patience, and a dry place to sit, you can see many fascinating aspects of their behavior. Watch their incredible flight patterns and how easily they outmaneuver and capture other insects. Think about their ability to capture around 300 insects, including mosquitoes, a day.

Many of their mating habits can also be observed—males chasing and capturing females, pairs flying in tandem, and the actual mating process when they are in the "wheel position." Watch females lay their eggs and think about the habitats that the different species choose.

One of the most exciting facets of dragonfly life history is their emergence from the larval exoskeleton. The whole process from larva to winged adult can be observed at close range.

In the following pages we illustrate and discuss most of the common aspects of dragonfly behavior that you can easily observe.

John Hudson shows Nicia and Lesae Pfeffer a Taiga Bluet during a dragonfly walk at Moon Lake near Tok, Alaska.

Children and adults try their hand at collecting dragonflies during Dragonfly Day in Fairbanks, Alaska, June 21, 2008.

The popularity of dragonflies in Alaska was evident during the first annual Dragonfly Day held in Fairbanks in 2008. The event attracted about 300 people. The day featured craft-making for children, vendors selling dragonfly-related art, displays about dragonflies and wetlands, and fish tanks with live dragonfly larvae and other aquatic invertebrates. During dragonfly walks people of all ages were able to net dragonflies, hold them up-close, and release them unharmed. More than 450 people attended the 2009 event.

FLIGHT—When it comes to catching prey, it would appear the adult dragonfly has no limitations. Two large eyes comprised of thousands of facets detect prey in nearly every direction, and four independently controlled wings allow dragonflies to hover, glide, and move in any direction. Some species are able to fly 35 mph. The six spine covered legs, each tipped with two claws, can extend to form a basket to catch prey. The prey is then transferred to the mouth where sharp-toothed mandibles reduce it to bits.


Paddle-tailed Darner

MATING—Before mating the male seizes the female on or behind the head with clamp-like terminal appendages at the tip of his abdomen. He then flies off with her in tow, much like a truck pulling a trailer. This is the **tandem position** that many people get excited about observing.

While in tandem with the female or just before, the male transfers a sperm packet from the tip of his abdomen to secondary genitalia behind the thorax. Next, the female bends her abdomen down and forward to engage and lock into the male's hamules. Joined in this way, the pair are said to be in the **wheel position.**

EGG LAYING—Females lay eggs either in tandem with the male or when they are alone. Female Skimmer and Emerald dragonflies release eggs from the tip of the abdomen through a trap door-like structure called the **vulvar lamina**.

The **Four-spotted Skimmer** lays eggs by dipping her abdomen into the water. This species may hold the record for the number of eggs laid at once — over 3300 eggs in a single clutch. Other species flick eggs into water or wet moss while hovering, or tap the abdomen onto wet moss or mud.

Damselflies and Darners, such as this **Subarctic Darner,** insert eggs inside the tissues of aquatic plants or dead wood using a structure near the tip of the abdomen called an ovipositor. The cryptic coloration of this female helps her blend into vegetation to avoid detection.

Northern Spreadwings and other damselflies often lay eggs while in tandem with the male. The keen-eyed and patient observer can find ovipositing females grasping vegetation, the abdomen arched and probing in search of the perfect spot, above or below the water, to deposit her eggs.

LARVAE–Like all insects, dragonflies have both an adult and larval form; however, the casual observer rarely sees the underwater world where larval dragonflies lurk. Larvae possess a hinged lower lip, or **labium**, that folds under the head. When prey are within striking distance, the larvae extends the labium at lightning speed, grasping the target with hooks or teeth. True dragonfly larvae also use a form of jet propulsion to escape predators and to approach swimming prey such as fish. They accomplish this by squirting water from the end of their abdomen.

EMERGENCE—The larval dragonfly lives for months or even years before leaving the water to emerge as the winged insect most people are familiar with.


American Emerald

A dragonfly emerging from its larval exoskeleton is exciting to watch. The entire process from start to finish may take less than an hour. Emergence begins as pressure within splits open the larval skin. After hanging upside-down for a bit, the insect bends forward and grasps the old skin or the perch and pulls its abdomen free.

Next it pumps blood into the veins of its wings, causing them to expand until they are shiny and taut. Then, the blood drains to the abdomen, causing it to elongate. Within a couple of hours the body hardens and the dragonfly flies away.


American Emerald


Hudsonian Whiteface

After emergence, young dragonflies need some time to dry their newly inflated wings. Even after their wings are dry they are very weak flyers for at least most of that day. These newly transformed youngsters are easily recognized by their bright and shiny wings. At this stage they are called **tenerals.**

Damselflies typically crawl out of their larval exoskeleton in a forward position. They may do this on top of lily pads, where several may gather at once. To observe this, try visiting ponds early in the morning, as the juveniles quickly disperse and the larval skins are scavenged.

PREDATORS— During or shortly after emergence, dragonflies are quite vulnerable to capture by birds such as this American Robin. Adult dragonflies appear to be important food for American Kestrels, Merlins and Bohemian Waxwings.

This **water strider** is using tube-shaped mouthparts to suck the fluids from a Northern Spreadwing that has drowned in a pond.

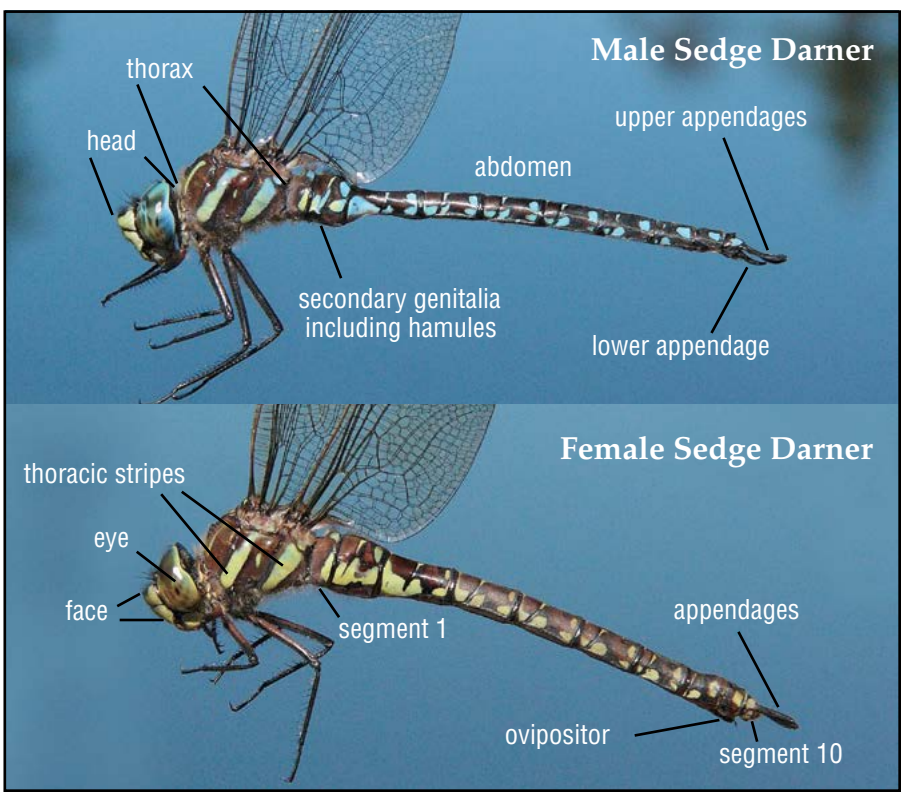
Dragonflies sometimes get stuck to the leaves of carnivorous **sundew** plants, which grow near bog ponds. The sound of vibrating wings near a sundew patch often signals the presence of a trapped dragonfly.

Identifying Alaska's Dragonflies

Dragonflies belong to the insect order Odonata. The **true dragonflies,** suborder Anisoptera, hold their wings spread horizontally when at rest, and in species found in Alaska, the eyes are connected at the top of the head.

Damselflies, suborder Zygoptera**,** have widely spaced eyes, and hold their wings together above the body, or partly open as in the Spreadwings, when at rest.

Parts of a Dragonfly



The Damselflies (Suborder Zygoptera)

Spreadwings, Sprites, and Bluets

True to their name, damselflies are delicate insects. Compared to the true dragonflies, their flight is slow and weak and they rarely venture far from shoreline vegetation. Prey are captured either in mid-air on short flights from perches or gleaned from vegetation while flying. Damselflies hold their wings closed over the body or partly open (as in the Spreadwings) when at rest, and the eyes do not touch in the middle of the head as in true dragonflies. Females deposit eggs inside plant tissues.

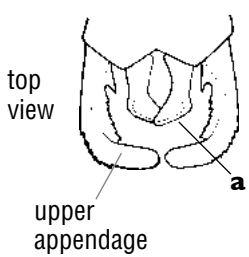
Eight damselfly species are currently known from Alaska. The smallest, the tiny metallic-green Sedge Sprite (Family Coenagrionidae), can be difficult to find but not easily confused with our other damsels. The larger Northern and Emerald Spreadwings (Family Lestidae) are also metallic green. They can be distinguished from each other by color patterns and by the shape of the male terminal appendages and length of the female ovipositor.

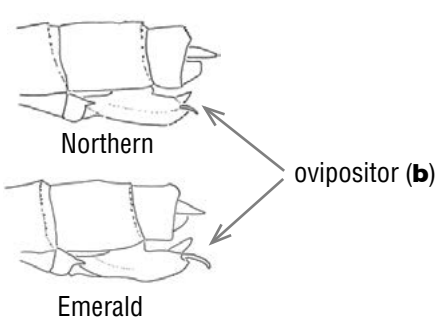
Our five bluets (Family Coenagrionidae) are similar in size and color. Female American Bluets (*Enallagma*) have a spine on the underside of abdominal segment 8 that is absent in Eurasian Bluets (*Coenagrion*). Male bluets (males lack an ovipositor) are distinguished by the shape of their four (two upper and two lower) terminal appendages: examine appendages from the side with a hand lens and the sky or other bright object in the background.

Emerald Spreadwing

Lestes dryas

In both sexes, top of thorax and abdomen metallic green. In older males, bottom of thorax and abdominal segments 1-2 and 8-10 turn a powdery blue-grey (as in photo). Male lower appendages bent inward at tips (a). The female's ovipositor (b) reaches the tip of the abdomen. Wings typically held partly spread when perching.



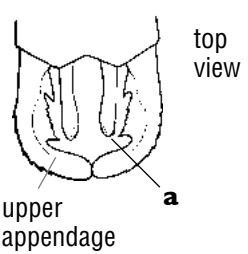


Distribution: C

Northern Spreadwing

Lestes disjunctus

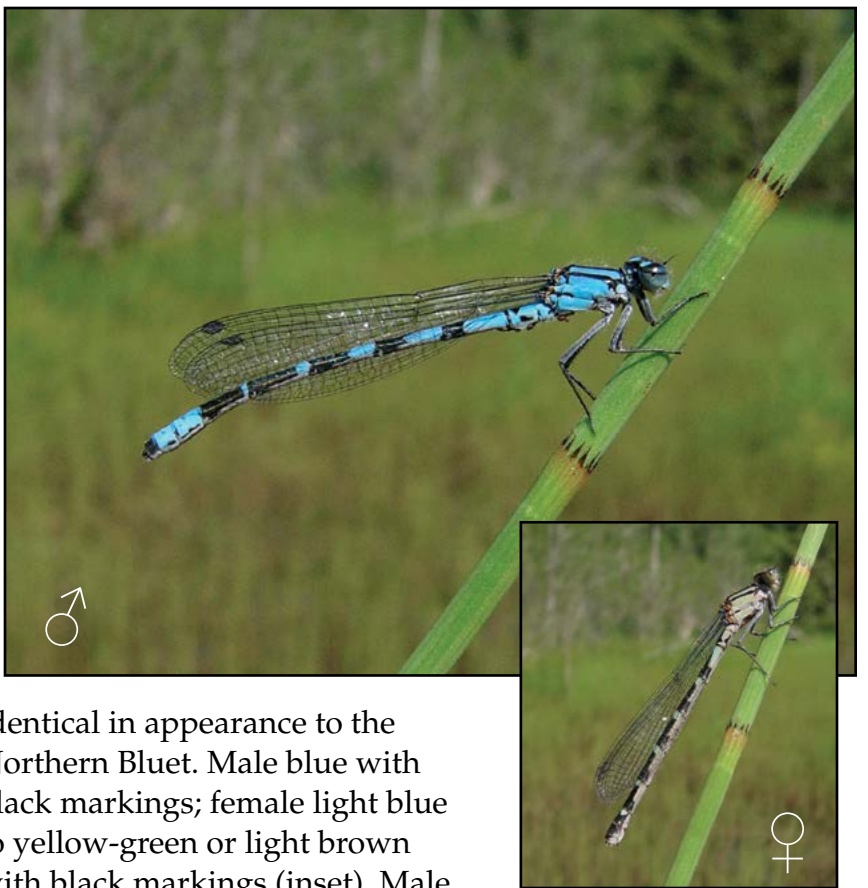
Male and female with top of thorax black with pale stripes and a faint bronze luster. Top of abdomen dark with a metallic green luster which is brighter in males. Male lower appendages long and straight (a). In older males, the back of head, sides of thorax, and abdominal segments 1-2 and 8-10 turn a powdery blue-grey (as in photo). Female usually not turning blue-grey with age; the ovipositor (b, on facing page) does not reach the tip of the abdomen.



Distribution: SE, SC, SW, C

Boreal Bluet

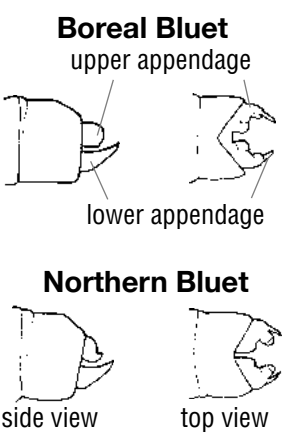
Enallagma boreale



Identical in appearance to the Northern Bluet. Male blue with black markings; female light blue to yellow-green or light brown with black markings (inset). Male Boreal and Northern Bluets are distinguished by the shape of their terminal appendages. Try examining the upper appendages in side view with a hand lens.

Female Boreal and Northern Bluets cannot be reliably distinguished in the field unless captured when in tandem with a male.

Distribution: SE, SC, SW, C



Northern Bluet

Enallagma annexum

Male and female coloration identical to that of Boreal Bluet. Males of the two species distinguished by the upper appendages (See illustration on facing page).

To avoid male harrassment, females will descend underwater up to one meter deep to lay their eggs and we have seen them remain submerged for up to 45 minutes.

Distribution: SE, SC, SW, W, C

Taiga Bluet

Coenagrion resolutum

In male, abdominal segment 2 with a black U-shaped mark on top and the blue on tip of abdomen barely extends onto segment 7. Blue stripes on top of thorax usually unbroken and the underside of thorax pale. Male terminal appendages page 22.

Female coloration similar to male or with pale areas yellowish-green to brownish, tops of abdominal segments 8-10 mostly black, and underside of thorax pale.

Within their range Taiga Bluets inhabit almost any small permanent or temporary body of standing water.

Distribution: SC, C

Prairie Bluet

Coenagrion angulatum

In male, no U-shaped mark on abdominal segment 2 and blue stripes on top of thorax unbroken; underside of thorax pale and blue on tip of abdomen barely extends onto segment 7; lower appendages viewed from above conspicuously white. Male terminal appendages page 22.

Females with pale areas yellow-green, blue, or tan. Tops of abdominal segments 9 and 10 mostly black; two light spots at base of segment 8. Underside of thorax pale.

Larvae can spend the winter embedded in solid ice, an adaptation that may provide protection from predators.

Distribution: C

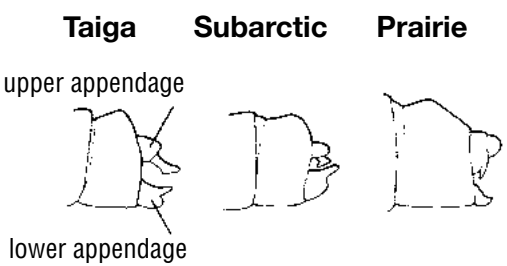
Subarctic Bluet

Coenagrion interrogatum

Both sexes with conspicuous black markings under thorax. Male sometimes with a black U-shaped mark on abdominal segment 2 and the blue at tip of abdomen extends onto segment 7. Blue stripes on top of thorax divided resembling an exclamation mark.

Female with pale areas blue or green; abdominal segments 9-10 mostly blue, a black spot on top of segment 9.

Terminal appendages of male Eurasian Bluets, side view.



Distribution: C

Sedge Sprite

Nehalennia irene

Our smallest damselfly at less than 28 mm long. Top of thorax and abdomen metallic green; tip of abdomen light blue.

A weak flyer. Rarely ventures over open water, preferring to fly among the stems of emergent plants and shoreline vegetation.

Distribution: C

The Emeralds (Family: Corduliidae)

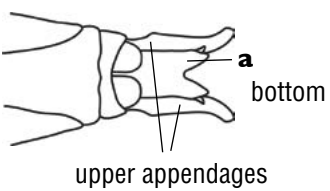
Striking emerald-green eyes and a metallic green body give these dragonflies their common name. Indeed, *Somatochlora*, the genus to which most of our Emerald species belong, translates to "green-bodied." The body may also be touched with bronze, and the eyes of juveniles are red. These medium-sized dragonflies (45 to 55 mm in length) are secretive and sometimes rare inhabitants of fens, bogs, and lakes. Adults spend most of their time on the wing in search of prey.

Identification to species is challenging, requiring examination of the male terminal appendages and female vulvar lamina (see top of page 9) with a hand lens. However, it's easy to narrow one's choice down to two or three species by looking for white rings on the abdomen or brown spots on the hind wings where they attach to the body. (Do not confuse these spots with the membranule, a white and brown part of the wing in this area. See Whitehouse's Emerald on page 27).

If you catch an emerald that doesn't quite fit the descriptions in this guide, it may be one of two species that likely occur in Alaska, but have yet to be collected here: Brush-tipped Emerald (*Somatochlora walshii*) and Muskeg Emerald (*Somatochlora septentrionalis*). Check out the Royal British Columbia Museum guide *Introducing the Dragonflies of British Columbia and the Yukon* by Robert Cannings for photographs and descriptions of these species.

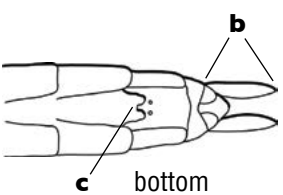
American Emerald

Cordulia shurtleffii



The only male emerald with a forked lower appendage (a).

Female appendages short (≤ 2.5 mm long) (b), vulvar lamina deeply bilobed (c).

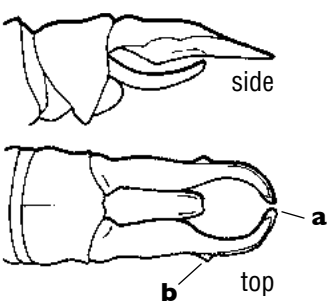


Males chase other dragonflies while patrolling defended areas. Egg laying involves dipping the tip of the abdomen in water while hovering among the stems of emergent vegetation.

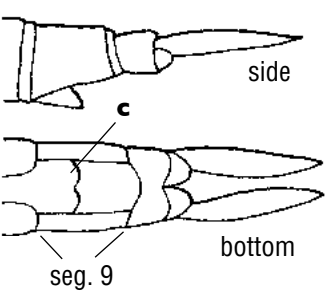
Distribution: SE, SC, SW, W, C

Mountain Emerald

Somatochlora semicircularis



Male upper appendages viewed from above smoothly curved inward, the tips nearly touching (a); lateral tubercles conspicuously visible (b).



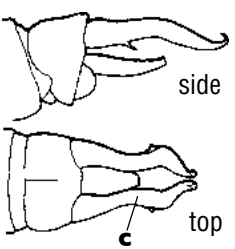
Female vulvar lamina notched (c), about half as long as the underside of segment 9.

Distribution: SE

Whitehouse's Emerald

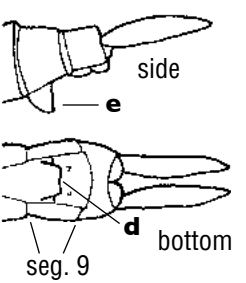
Somatochlora whitehousei

A brown spot (a) at the base of each hind wing, not to be confused with the membranule (b).



Male upper appendages viewed from above curve inward and then outward before converging at the tips (c).

Female vulvar lamina without a notch or slightly notched (d), one-half to two-thirds as long as the underside of segment 9, and projecting downward in side view (e).

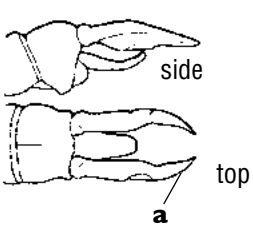


Distribution: SE

Kennedy's Emerald

Somatochlora kennedyi

Similar to Delicate Emerald, but lacks a brown spot at the base of each hind wing (this area may be suffused with yellow); abdomen widest at segment 6.



Male upper appendages bend slightly inward at tips (a).

Female vulvar lamina similar to Delicate Emerald.

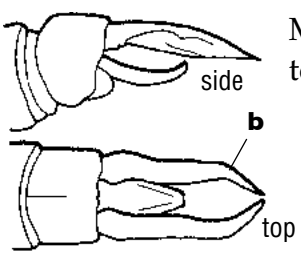
This emerald prefers fens and is named for the American odonatologist Clarence Kennedy.

Distribution: C

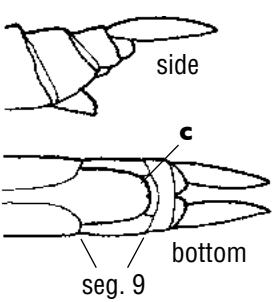
Delicate Emerald

Somatochlora franklini

A brown spot (a) at the base of each hind wing and abdomen widest at segment 9.



Male upper appendages bend inward towards tips (b).



Female vulvar lamina at least as long as underside of segment 9, scoop-shaped and with a rounded tip (c).

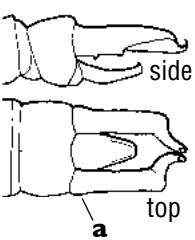
Relatively short wings and a long slender abdomen give this emerald a delicate appearance.

Distribution: SE, C

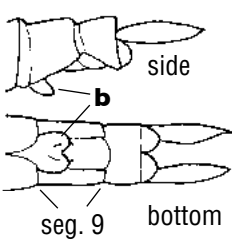
Ringed Emerald

Somatochlora albicincta

Similar to the Hudsonian Emerald. A white ring on each abdominal segment.



Male upper appendages viewed from above as wide as segment 10; each with a rounded knob at the base (a). This knob is pointed in Hudsonian Emeralds.



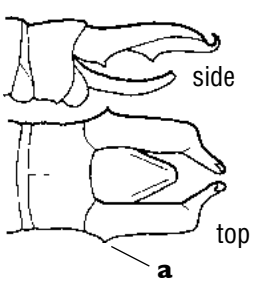
Female vulvar lamina deeply bilobed (b) and nearly half as long as segment 9; projects downward in dead specimens.

Distribution: SE, SC, SW, W, C

Hudsonian Emerald

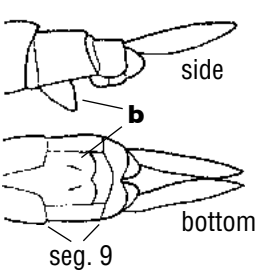
Somatochlora hudsonica

Similar to the Ringed Emerald. A white ring on most abdominal segments.



Male upper appendages viewed from above wider than segment 10; each with a pointed knob at the base (a).

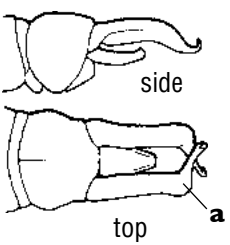
Female vulvar lamina slightly notched (b), more than half as long as underside of segment 9 and projecting downward in side view.



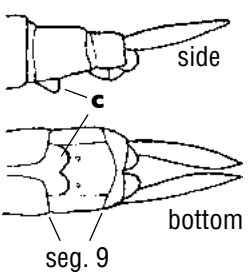
Distribution: C

Treeline Emerald

Somatochlora sahlbergi



Male upper appendages viewed from above are parallel before bending sharply inward toward tips (a).



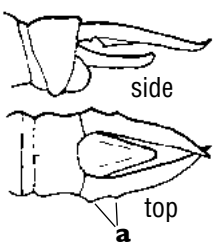
Female vulvar lamina is notched or bilobed (c); less than half as long as underside of segment 9.

The most boreal of all dragonflies, this species prefers deep, cold ponds dominated by aquatic moss.

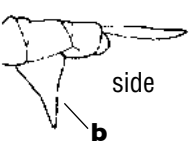
Distribution: W, C, N

Ocellated Emerald

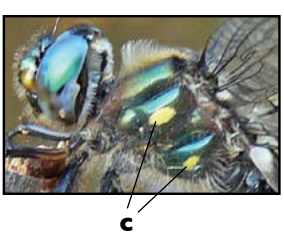
Somatochlora minor



Male upper appendages converge towards tips; two pointed lateral projections at the base of each appendage (a).



Female vulvar lamina spout-like and pointed; projects downward from abdomen at a right angle (b).



Male and female with two conspicuous pale yellow spots on sides of thorax (c). Whitehouse's and Mountain Emeralds have similar spots that fade with age.

Distribution: SE, C

The Mosaic Darners (Family Aeshnidae)

Darners, with their long, slender abdomens, were probably named for their resemblance to darning needles. Some folks believed these insects were "the Devil's darning needles," slipping into the rooms of naughty children at night to sew their lips shut. In reality, darners are harmless insects found throughout Alaska in a variety of habitats. They are strong fliers, venturing far from larval habitats to feed in backyards, parking lots, and roadways, where countless die in collisions with vehicles. We've even seen adventurous darners flying over the ocean between islands miles apart.

Darners are the largest dragonflies in Alaska (>55 mm long). They have spots on the abdomen which are blue in males and blue, green, or yellow in females. Two stripes on each side of the thorax can be blue, green, or yellow, and their shape is important in identifying species.

Male darners patrol territories and defend them from other dragonflies. After mating, females go alone to lay their eggs in vegetation or in dead wood.

Adults will prey on other dragonflies their own size. The larvae, which can be up to 40 mm long, are known to capture amphibians and even small fish. In cold, prey-limited habitats, larvae may require up to five years to transform into adults. Adults live for eight to 10 weeks.

Variable Darner

Aeshna interrupta

As the common name implies, the lateral thoracic stripes can be variably shaped, either narrow and straight (a), or divided (*i.e.*, interrupted) into pairs of spots.

A very common darner. Larvae can inhabit brackish waters. Will engage in feeding swarms.

Distribution: SE, SC, C, N

Zigzag Darner

Aeshna sitchensis

Similar to the Azure Darner. Front thoracic stripe bent twice, resembling a zigzag (a). Base of T-spot, a black marking on top of the head, with lobes (see facing page).

One of our smallest darners (≤ 60 mm long). Its habit of flying low and often perching on the ground is unusual for Mosaic Darners.

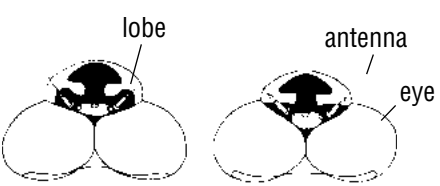
Distribution: SE, SC, C, N

Azure Darner

Aeshna septentrionalis

Similar to the Zigzag Darner, but with more blue on abdomen. The front thoracic stripe is bent twice (a), resembling a zigzag. T-spot, a black marking on top of the head, without lobes.

One of our smallest darners (≤ 63 mm long). Ranges north of the arctic treeline.



Distribution: SW, C, N

Lake Darner

Aeshna eremita

Our largest darner (> 72 mm long). Front thoracic stripe with a deep, rounded indentation (a).

Will fly at 50 degrees F in light rain, but colors turn dark when cool. Often the only dragonfly flying late in the evening and even all night long during the arctic summer.

Distribution: SE, SC, SW, W, C

Subarctic Darner

Aeshna subarctica

Thoracic stripes constricted in middle giving them a bent appearance (a).

Eggs are inserted into sedges and floating moss in bogs and fens (see photo on page 9).

Distribution: SE, SC, C

Sedge Darner

Aeshna juncea

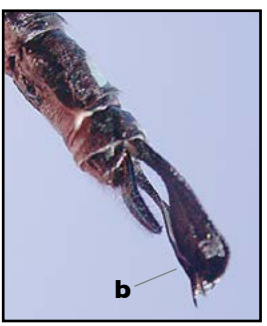
Thoracic stripes straight-sided, broad, and outlined in black (a). A pair of pale spots on the underside of each abdominal segment.

A very common darner. The common name refers to the vegetation often found in their habitat.

Distribution: SE, SC, SW, W, C, N

Paddle-tailed Darner

Aeshna palmata



Male upper appendages paddle-shaped in side view (b).

Thoracic stripes nearly straight (a), not outlined in black as in Sedge Darner.

Females may insert eggs into grass blades up to 1 meter above surface of water. Adults have been known to survive a snowfall.

Distribution: SE, SC, C, SW

Skimmers (Family Libellulidae)

A dragonfly observed sitting still for more than a minute is likely a skimmer. Unlike darners and emeralds that hunt on the wing, our skimmers take a sit-and-wait approach to foraging. Most of their time is spent perched on the ground or on low vegetation between short flights to grab winged prey. Three genera of skimmers occur in Alaska.

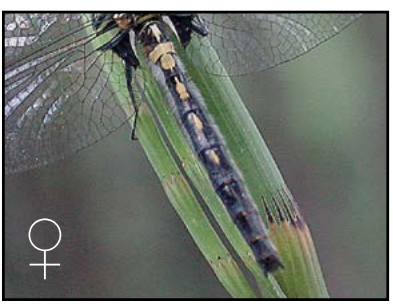
The **Whitefaces** (genus *Leucorrhinia*) are small (25 to 39 mm long) black dragonflies with a white face and yellow or red markings on the thorax and abdomen. The color pattern of certain species can be quite similar. For accurate identification, examine the shape of the male hamules (underside of abdominal segments 2 and 3, page 14) and female vulvar laminae (underside of segment 9, page 9).

The **King Skimmers** (genus *Libellula*) are rather fat bodied, aggressive dragonflies. We have only one species in Alaska — the easily recognized Four-spotted Skimmer.

The **Meadowhawks** (genus *Sympetrum*) are small (31 to 34 mm long) dragonflies that usually appear in mid-summer. One species is nearly all black when mature, the other a striking blood red.

Canada Whiteface

Leucorrhinia patricia



The smallest whiteface dragonfly (< 28 mm long). Face creamy yellow. Male abdominal segments 1-3 red; segments 4-5 sometimes with a fine red streak. Female and juvenile male with tops of abdominal segments 1-3 yellow, segments 4-6 with yellow spots (left); sometimes a fine streak on segment 7.

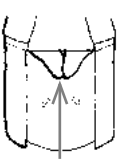
male hamule

vulvar laminae

Distribution: C

Hudsonian Whiteface

Leucorrhinia hudsonica



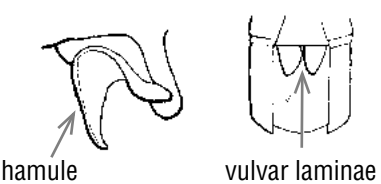
Similar to Boreal Whiteface but smaller (< 32 mm long). In mature individuals, red spots on abdominal segments 1-7, the spot on segment 7 not reaching the end of segment. Sometimes a spot on segment 8. Juvenile males have yellow spots that turn red with maturity (left); spots of female yellow (above) or red. **Note**: color pattern of female Hudsonian, Crimson-ringed, and Belted Whitefaces very similar. Examine the shape of the vulvar laminae for accurate identification.

Distribution: SE, SC, SW, C

Boreal Whiteface

Leucorrhinia borealis

Our largest whiteface dragonfly (> 36 mm long). Male with spots on abdominal segments 1-8. Female with spots on abdominal segments 1-7, the spot on segment 7 reaching end of segment. Juveniles have yellow abdominal spots that turn red with maturity (right).

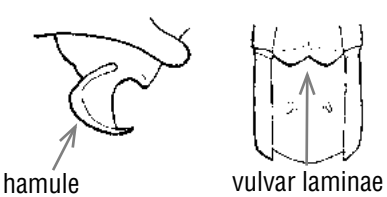


Distribution: C, SC

Belted Whiteface

Leucorrhinia proxima

Nearly identical to Crimson-ringed Whiteface. Male abdominal segments 1-3 red (yellow in juveniles), the remaining segments black or with fine streaks on segments 4-7 (as in photos). Females with yellow marks on segments 1-7 (left) that may turn red with maturity (see note on page 44).

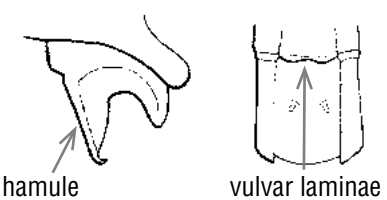


Distribution: SC, C

Crimson-ringed Whiteface

Leucorrhinia glacialis

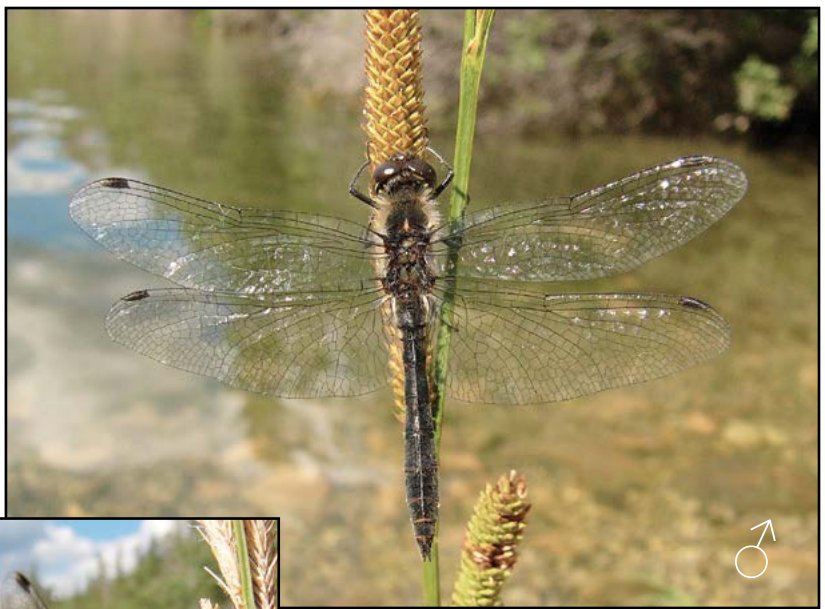
Nearly identical to Belted Whiteface. Male abdominal segments 1-3 red (yellow in juveniles), the remaining segments black or with fine streaks on segments 4-7. Females with yellow marks on segments 1-7 that may turn red with maturity (see note on page 44).



Distribution: SE, C

Black Meadowhawk

Sympetrum danae



Mature males almost completely black with a dark face. Females and juvenile males black with a light yellow face, sides of thorax with two large yellow spots and top of abdominal segments with paired yellow spots that sometimes converge to form a stripe in females (see photo at left). Female vulvar lamina spoutlike and projecting downward (left). In both sexes yellow gradually changes to brown and then black with maturity.

A tame little dragonfly that emerges late in the summer. *Sympetrum* means "with (or on) the rocks" and likely refers to this species' habit of frequently landing on the ground.

Distribution: SE, SC, SW, W, C

Cherry-faced Meadowhawk

Sympetrum internum

In mature individuals, face red and body mostly red. Face and body of juveniles yellow-brown. No marks on thorax. Abdomen with a jagged black stripe on sides (left). Female vulvar lamina bilobed, the lobes divergent.

Females drop eggs onto moist ground while hovering in tandem or while male is perched nearby.

Distribution: C

Four-spotted Skimmer

Libellula quadrimaculata

The Four-spotted Skimmer is our most recognizable dragonfly. The common name refers to four spots on the leading edge (middle) of each wing. Also has large triangular spots at the base of each hind wing. Abdomen broad and flattened; front half yellow and rear half black. Length 43 mm.

One of the first dragonflies to emerge in spring. Males hover near ovipositing females, chasing away other dragonflies that get too close.

The Four-spotted Skimmer dragonfly was chosen as Alaska's official state insect from a vote taken by students from every public school in the state during the 1993-94 school year. As the students from Aniak pointed out: "Dragonflies eat mosquitoes, one of the state's most annoying pests."

Distribution: SE, SC, SW, C

Occasional Visitors

Common Green Darner

Anax junius

The forehead has a black spot surrounded by a blue ring, and the thorax is green. A dark stripe runs the length of the abdomen, which is reddish in juveniles, turning blue in mature males and blue, grey-green, or violet in females. Some populations are migratory, and individuals occasionally venture far north of their normal range in southern Canada. Although this darner was collected near Sitka and Eagle in the 1800s, it probably does not breed here. Length: 75 mm.

Spot-winged Glider

Pantala hymenaea

A brown spot at the base of each hind wing and a propensity to soar long distances gives this dragonfly its common name. In August of 2004, Spot-winged Gliders were seen in Juneau, hundreds of miles north of their breeding range. The region's warmest summer on record likely helped these long-distance fliers reach Alaska. Length: 45-50 mm.

Pacific Spiketail

Cordulegaster dorsalis

This large (75-80 mm long) bold-colored dragonfly has aqua-blue eyes and yellow stripes and spots on a black body. Its preferred habitat is slow and warm streams draining lakes or heated by thermal springs. The first and last record of this species in Alaska was reported by Russian Explorers near Sitka in the early 1800s.

Catching and Photographing Dragonflies

More than 43 percent of Alaska's 403 million acres are considered wetlands. This is in contrast to the rest of the continental United States, where remaining wetlands make up little more than five percent of the land surface. Within Alaska's wetlands are innumerable ponds, lakes and freshwater marshes where dragonflies can breed. However, little is known about the habitat requirements, ecology, and geographic distribution of dragonflies in the state.

We hope this guide will stimulate interest in these fascinating insects and provide a starting point to learn more about them in Alaska. Anyone armed with a net, a hand lens, and a means to document what they have caught, such as a camera, can contribute to our knowledge.

Catching and Handling

Catching dragonflies can be a challenge but with practice one can become quite good at it. We like nets with about an 18-inch opening and a six-foot-long handle. The collapsible nets and handles sold by various scientific supply houses are easy to pack around and use. Once you have caught a dragonfly you can gently pinch the wings together with your thumb and forefinger and then bring it out of the net for closer examination.

Photography

Many dragonfly species in Alaska can be identified from photographs. One trick that makes photography easier is to carefully insert the dragonfly into a plastic envelope and put it into a small portable cooler with a freeze pak. Once cooled down the dragonfly can be "posed" on the perch of your choice. Photograph emeralds from the back paying particular attention to the terminal appendages. Photograph darners from the side paying particular attention to their thoracic side stripes. Photograph whitefaces, king skimmers, and meadowhawks from the back paying particular attention to their abdominal segments and wings.

Damselflies are much harder to photograph because they warm up very quickly and fly away, so it is important to have the camera ready and pre-focused before posing a damselfly.

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This revised edition includes three species discovered for the first time in Alaska after "Dragonflies of Alaska" was first published in 2005. These discoveries would not have been made without the support of the U.S. Fish and Wildlife Service, and especially Lisa Saperstein, a wildlife biologist formerly with the Kanuti National Wildlife Refuge.

Alaska has an amazing amount and variety of wetlands that support dragonflies. These include the beautiful bog ponds of Spaulding Meadows in Juneau (above) and the myriad of wetlands within the Kanuti National Wildlife Refuge north of Fairbanks (below). This refuge uses a dragonfly image for its logo.

John Hudson sneaks up on a dragonfly at Deadman Lake in Tetlin National Wildlife Refuge (above) while Bob Armstrong (below) hopes to photograph one flying out of his special insect flight box.

Second Edition

Learn how to identify all 35 species of dragonflies found in Alaska.

Discover many of the fascinating aspects of dragonfly behavior that you can see yourself.

Beautiful close-up color photographs plus detailed line drawings by Robert Cannings will help you learn about Alaska's dragonflies.

John Hudson
is an entomologist and fish biologist who has studied dragonflies in Alaska since 1997.

Robert Armstrong
has authored and illustrated many books and articles on the natural history of Alaska.

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