canopy tower Family

Dragonflies & Damselflies of the Canopy Tower and Canopy Lodge

The following has been generously provided by Dennis Paulson and Dave Smallshire. The Canopy Tower Family wishes to thank Dennis and Dave for their efforts toward furthering the study of Odonata in Panama and for providing this wealth of information to share with our visitors!

PANAMA ODONATA

Panama is rich in dragonflies and damselflies. There are records for 214 described species, and the list should be higher, as numerous species occur in Colombia and Costa Rica but have not yet been reported from Panama. Adding those species brings the total to 236, and there are at least a few undescribed species. Furthermore, many regions of the country have been scarcely explored for Odonata.

CHECKLIST OF SPECIES

BANNERWINGS	**POLYTHORIDAE**
Blue Cora	*Cora marina*
Golden-backed Cora	*C. notoxantha*
Obscure Cora	*C. obscura*
Sparkling Cora	*C. semiopaca*
Peralta Cora	*Miocora peraltica*
JEWELWINGS	**CALOPTERYGIDAE**
River Rubyspot	*Hetaerina caja*
Bronze Rubyspot	*H. capitalis*
Highland Rubyspot	*H. cruentata*
Dot-winged Rubyspot	*H. fuscoguttata*
Redstripe Rubyspot	*H. miniata*
Racket-tipped Rubyspot	*H. occisa*
Forest Rubyspot	*H. sempronia*
SPREADWINGS	**LESTIDAE**
Great Spreadwing	*Archilestes grandis*
Rainpool Spreadwing	*Lestes forficula*
Barro Colorado Spreadwing	*L. secula*
Blue-striped Spreadwing	*L. tenuatus*
Tikal Spreadwing	*L. tikalus*
TWIGTAILS	**PERILESTIDAE**
Magdalena Twigtail	*Perissolestes magdalenae*
Remote Twigtail	*P. remotus*
FLATWINGS	**MEGAPODAGRIONIDAE**
Lined Flatwing	*Heteragrion atrolineatum*
Red-and-black Flatwing	*H. erythrogastrum*
Mountain Flatwing	*H. majus*
Black-tipped Flatwing	*H. mitratum*
Cinnamon Flatwing	*H. rubrifulvum*
Flatwing	*H. valgum*

Black-and-yellow	*Heteropodagrion superbum*
August's Flatwing	*Philogenia augusti*
Golfo Dulce Flatwing	*P. championi*
Leonora's Flatwing	*P. leonora*
Zetek's Flatwing	*P. zeteki*
Cascade Damsel	*Thaumatoneura inopinata*
SHADOWDAMSELS	**PLATYSTICTIDAE**
Spot-backed Shadowdamsel	*Palaemnema bilobulata*
Blue-collared Shadowdamsel	*P. collaris*
Pipeline Shadowdamsel	*P. cyclohamulata*
Dentate Shadowdamsel	*P. dentata*
Rio Indio Shadowdamsel	*P. joanetta*
Black-tailed Shadowdamsel	*P. melanura*
Black-backed Shadowdamsel	*P. mutans*
Nathalia Shadowdamsel	*P. nathalia*
Campana Shadowdamsel	*P. spinulata*
HELICOPTERS	**PSEUDOSTIGMATIDAE**
Amazonian Helicopter	*Mecistogaster linearis*
Bromeliad Helicopter	*M. modesta*
Ornate Helicopter	*M. ornata*
Blue-winged Helicopter	*Megaloprepus caerulatus*
Broad-winged Helicopter	*Pseudostigma aberrans*
Wide-winged Helicopter	*P. accedens*
POND DAMSELS	**COENAGRIONIDAE**
Narrow-tipped Wedgetail	*Acanthagrion inexpectum*
Kennedy's Wedgetail	*A. kennedii*
Pacific Wedgetail	*A. trilobatum*
Common Pearlwing*	*Anisagrion allopterum*
Kennedy's Pearlwing	*A. kennedyi*
Amber-winged Dancer	*Argia adamsi*
Big Blue Dancer	*A. chelata*
Ruby Dancer	*A. cupraurea*
Coppery Dancer	*A. cuprea*
Spine-tipped Dancer	*A. extranea*
Azure Dancer	*A. fissa*
Mimic Dancer	*A. frequentula*
Swamp Dancer	*A. indicatrix*
Insipid Dancer*	*A. insipida*
Skyblue Dancer*	*A. medullaris*
Bluepoint Dancer	*A. oculata*
Black-and-purple Dancer	*A. cf oculata purple*
Fiery-eyed Dancer	*A. oenea*

Stream-swamp Dancer	*A. popoluca*
Pocomana Dancer*	*A. pocomana*
Purple Dancer	*A. pulla*
Black-fronted Dancer	*A. rogersi*
Talamanca Dancer	*A. talamanca*
Dusky Dancer	*A. translata*
Olmec Dancer	*A. ulmeca*
Familiar Bluet*	*Enallagm civile*
Neotropical Bluet	*E. novaehispaniae*
Tiny Forktail	*Ischnura capreolus*
Citrine Forktail	*I. hastata*
Rambur's Forktail	*I. ramburii*
Red-tipped Swampdamsel	*Leptobasis vacillans*
Panama Spinyneck	*Metaleptobasis westfalli*
Tropical Sprite	*Nehalennia minuta*
Caribbean Yellowface	*Neoerythromma cultellatum*
Golden Firetail	*Telebasis aurea*
Coralline Firetail*	*T. corallina*
Marsh Firetail	*T. digiticollis*
Striped Firetail	*T. filiola*
Montane Firetail*	*T. garleppi*
Isthmian Firetail	*T. isthmica*
Hyacinth Firetail	*T. levis*
Desert Firetail	*T. salva*
THREADTAILS	**PROTONEURIDAE**
Letitia Threadtail	*Drepanoneura letitia*
Amelia's Threadtail	*Neoneura amelia*
Esther's Threadtail	*N. esthera*
Crimson Threadtail	*Protoneura amatoria*
Golden Threadtail	*P. aurantiaca*
Shadowy Threadtail	*Psaironeura remissa*
DARNERS	**AESHNIDAE**
Williamson's Darner	*Aeshna williamsoniana*
Amazon Darner	*Anax amazili*
Blue-spotted Comet Darner	*A. concolor*
Blue-faced Darner	*Coryphaeschna adnexa*
Amazon Red Darner	*C. amazonica*
Northern Red Darner	*C. diapyra*
Mangrove Darner	*C. viriditas*
Auricled Darner*	*Gynacantha auricularis*
Yellow-legged Darner*	*G. caudata*
Pale-banded Darner	*G. gracilis*

Jesse’s Darner	*G. jessei*
Little Brown Darner*	*G. laticeps*
Dark-saddled Darner	*G. membranalis*
Bar-sided Darner	*G. mexicana*
Twilight Darner	*G. nervosa*
Gold-tipped Darner	*G. tibiata*
Mayan Evening Darner*	*Neuraeschna maya*
Malachite Darner	*Remartinia luteipennis*
Highland Darner	*Rhionaeschna cornigera*
Jalapa Darner	*R. jalapensis*
Turquoise-tipped Darner	*R. psilus*
Magnificent Megadarner	*Staurophlebia reticulata*
Caribbean Darner	*Triacanthagyna caribbea*
Forest Darner	*T. dentata*
Ditzler's Darner	*T. ditzleri*
Dark-winged Darner	*T. obscuripennis*
Satyr Darner	*T. satyrus*
Pale-green Darner	*T. septima*
CLUBTAILS	**GOMPHIDAE**
Northern Selva Clubtail	*Agriogomphus tumens*
Narrow-striped Forceptail	*Aphylla protracta*
Obscure Forceptail	*A. tenuis*
Ancient Clubtail*	*Archaeogomphus furcatus*
Pincertail	*Desmogomphus paucinervis*
Compact Knobtail	*Epigomphus compactus*
Janny’s Knobtail	*E. jannyae*
Panama Knobtail	*E. quadracies*
Campana Knobtail	*E. subquadrices*
Colombian Ringtail	*Erpetogomphus sabaleticus*
Tristan's Ringtail	*E. tristani*
Pegtail	*Perigomphus pallidistylus*
Tiny Forceptail	*Phyllocycla volsella*
Panama Leaftail	*Phyllogomphoides appendiculatus*
Gamboa Leaftail	*P. insignatus*
Side-spotted Leaftail	*P. litoralis*
Anomalous Sanddragon	*Progomphus anomalus*
Zebra-striped Sanddragon	*P. clendoni*
Pygmy Sanddragon*	*P. pygmaeus*
EMERALDS	**CORDULIIDAE**
Bates's Emerald	*Neocordulia batesi*
Brown-faced Emerald	*N. campana*

SKIMMERS	**LIBELLULIDAE**
Common Blue-eye	*Anatya guttata*
Red-tailed Pennant	*Brachymesia furcata*
Tawny Pennant	*B. herbida*
Little Clubskimmer	*Brechmorhoga nubecula*
Masked Clubskimmer	*B. pertinax*
Slender Clubskimmer	*B. praecox*
Rapacious Clubskimmer	*B. rapax*
Vivacious Clubskimmer	*B. vivax*
Gray-waisted Skimmer	*Cannaphila insularis*
Morton's Skimmer	*C. mortoni*
Many-striped Skimmer	*C. vibex*
Blue-eyed Setwing	*Dythemis nigra*
Brown Setwing	*D. sterilis*
Golden Streamskimmer	*Elasmothemis cannacrioides*
Fairy Skimmer	*Elga leptostyla*
Black Pondhawk	*Erythemis attala*
Carmelita Pondhawk	*E. carmelita*
Little Pondhawk	*E. credula*
Red Pondhawk	*E. haematogastra*
Claret Pondhawk	*E. mithroides*
Flame-tailed Pondhawk	*E. peruviana*
Pin-tailed Pondhawk	*E. plebeja*
Great Pondhawk	*E. vesiculosa*
Montane Dragonlet*	*Erythrodiplax abjecta*
Andagoya Dragonlet*	*E. andagoya*
Seaside Dragonlet	*E. berenice*
Scarlet Dragonlet*	*E. castanea*
Reddish Dragonlet*	*E. famula*
Red-mantled Dragonlet	*E. fervida*
Black-winged Dragonlet	*E. funerea*
Red-faced Dragonlet	*E. fusca*
Chalk-marked Dragonlet	*E. kimminsi*
Side-striped Dragonlet	*E. lativittata*
Band-winged Dragonlet	*E. umbrata*
White-tailed Dragonlet	*E. unimaculata*
Amazon Pennant	*Idiataphe amazonica*
Metallic Pennant*	*I. cubensis*
Highland Skimmer	*Libellula foliata*
Silver-sided Skimmer	*L. herculea*
Delia Sylph*	*Macrothemis delia*
Attenuate Sylph*	*M. extensa*

Confusing Sylph	*M. fallax*
Three-striped Sylph	*M. hemichlora*
Ivory-striped Sylph	*M. imitans*
Straw-colored Sylph	*M. inacuta*
Jade-striped Sylph	*M. inequiunguis*
Delicate Sylph	*M. musiva*
Noble Sylph	*M. nobilis*
White-tailed Sylph	*M. pseudimitans*
Hyacinth Glider	*Miathyria marcella*
Dwarf Glider	*M. simplex*
Spot-tailed Dasher	*Micrathyria aequalis*
Black Dasher	*M. atra*
Blue-tipped Dasher	*M. caerulistyla*
Black-tailed Dasher*	*M. catenata*
Even-striped Dasher	*M. dictynna*
Three-striped Dasher	*M. didyma*
Thornbush Dasher	*M. hagenii*
Swamp Dasher	*M. laevigata*
Fork-tipped Dasher	*M. mengeri*
Square-spotted Dasher	*M. ocellata*
Little Swamp Dasher	*M. pseudeximia*
Dusky Dasher	*M. schumanni*
Pale-legged Dasher	*M. tibialis*
Stripe-fronted Dryad	*Nephepeltia leonardina*
Spine-bellied Dryad	*N. phryne*
Sunshine Leafsitter	*Oligoclada heliophila*
Shadowy Leafsitter*	*O. umbricola*
Side-striped Skimmer	*Orthemis aequilibris*
Black Skimmer	*O. anthracina*
Yellow-lined Skimmer	*O. biolleyi*
Swamp Skimmer	*O. cultriformis*
Carmine Skimmer	*O. discolor*
Black-and-yellow Skimmer	*O. flavopicta*
Slender Skimmer	*O. levis*
Red-tailed Skimmer*	*O. schmidti*
Wandering Glider	*Pantala flavescens*
Spot-winged Glider	*P. hymenaea*
Slough Amberwing	*Perithemis domitia*
Swamp Amberwing	*P. electra*
Pond Amberwing	*P. mooma*
Northern Redskimmer	*Rhodopygia hinei*
Cardinal Meadowhawk	*Sympetrum illotum*

Arch-tipped Glider	*Tauriphila argo*
Garnet Glider	*T. australis*
Evening Skimmer	*Tholymis citrina*
Vermilion Saddlebags	*Tramea abdominalis*
Sooty Saddlebags	*T. binotata*
Striped Saddlebags	*T. calverti*
Red Saddlebags	*T. onusta*
Large Woodskimmer	*Uracis fastigiata*
Common Woodskimmer	*U. imbuta*
Common Bluewing*	*Zenithoptera fasciata*

*not recorded but must occur because of known distribution

BIODIVERSITY

In general, it is safe to say that within just about any group of plants and animals, there are more species in the tropics. This is dramatically true for some groups, less so for others. Odonates represent a group in which species diversity increases with lower latitudes, but not so dramatically. The list of 214 species known from Panama (29,000 sq mi) is only a bit larger than the 203 species from New York (50,000 sq mi), while the Panama butterfly list is many times that of New York. Birds are also much more diverse than dragonflies, the list of almost 1,000 species larger than that of the US and Canada.

We still have much to learn about this biodiversity. New species are regularly being discovered in Panama and elsewhere in the tropics. Many species have been described from single specimens and not found again until another is reported from a different country, hundreds of miles away. They presumably occur in between but have not been found, indicating how incomplete our sampling has been.

AQUATIC HABITATS AND LARVAL ECOLOGY

All but a very few odonate larvae live in the water. Any sort of water body at all will usually have odonates living in it. In tropical areas, many species are confined to forested streams or ponds (forested ponds are called swamps), and it is these species that are most imperiled by logging and the conversion of forests to pastures and croplands. We still know little about it, but species are often restricted to very special habitats. Streams vary in size, current speed, bottom composition, and forest cover, and all of these attributes apparently make a difference. About half of the Panamanian species are stream species, indicating a great amount of specialization as well as the importance of flowing water.

Ponds and marshes also have their specialists, although they average more wide-ranging than the stream species. Species of open country are also more wide-ranging. Some of the common open-pond dragonflies of Panama are common from the southern United States to Argentina and throughout the West Indies.

A special tropical habitat is furnished by phytotelmata, small amounts of water contained in leaf axils, bromeliads, and tree holes. Helicopter damselflies are confined to these, and a few darners and skimmers also use them. These species thus won't be found at wetlands as we usually expect, but instead are scattered through the forest looking for their special containers. Many of them are rarely seen, just because they don’t concentrate at wetlands, and they may remain high in the trees.

RAIN FOREST DRAGONFLIES

Rain forests are hotbeds of dragonfly diversity. Many species breed in forested swamps, both permanent and seasonal, and they can be found only within the forest. There are also many forest-based stream species, never seen in open country. Many species from the surrounding open country retire to forests as immature adults during the dry season, waiting until the next rainy season to develop sexual maturity and mature coloration, then leave the forest to breed in open wetlands.

Forest trails can be great places to find odonates, as they forage in the bright, warm sunny spots, even if those are very limited. Others are adapted to shade, even deep shade. Dusk-feeding darners are often flushed from their daytime roost, and eventually you get to know how to look for them so you can see them before they flush. Spotting dragonflies and especially damselflies in the forest can be a real challenge.

SEASONALITY

Those of us who live in the Temperate zone are used to seasonality, and it is a simple picture: cold in the winter, hot in the summer. Adult dragonflies fly around during the summer but are under water as larvae or eggs in the winter. As you move to lower and lower latitudes, that picture changes. In the tropical lowlands, it is warm all year, and there are at least some odonates flying around all year. As far north as southern Texas and southern Florida, there are a surprising number of species to be found in midwinter.

But temperature isn't the significant variable when you're in the tropics; it is rainfall. Seasonality in Panama is pronounced, especially in some parts of the country, and it is a direct consequence of wet and dry seasons. In the drier part of the country, it can go months without raining, usually the period December through April. Rains may come in May or wait until June. Water levels decrease, and many water bodies dry up completely.

At Panama City, rainfall totals average 1.7 inches in the dry months (Dec-Apr) and 9.4 inches in the wet months (May-Nov). The total of 74.5 inches is more than any city in continental US or Europe (Seattle 37.5 inches, London 23.7 inches). During the rainy season, the skies are usually clear in the morning but clouds build up in the afternoon, when it rains. Typically the rain is finished by sunset.

In wetter parts of the country, the Caribbean side and up in the mountains, it can rain in any month (at Portobelo on the Caribbean, no month averages less than 6 inches, and the total is a very wet 131.3 inches), but there still may be a wetter and a drier season. Even in the wettest regions, odonates reach their greatest diversity and abundance in the rainy season. Many species appear as adults only in the rainy season, and the difference in abundance of some common species may be up to an order of magnitude or more. This is pronounced in some stream-dwelling families, for example clubtails and shadowdamsels, which may be entirely absent for parts of the year, then appear in abundance at the beginning of the rainy season. We have no idea how their annual cycles are regulated. Perhaps emergence is stimulated by rising water levels or faster currents.

RARITY

Just as is the case with many other organisms, there seem to be more rare odonates in the tropics. Many species are known from only the original description of one or a few specimens from a single locality. It is extremely unlikely that they are so limited, yet it seems difficult to find them again, sometimes even at the original locality. The species may be widely distributed but its habitat preferences so narrow that it thrives in relatively few places. I lived in Costa Rica for 14 months, and one of my main goals was to survey the dragonflies and damselflies of the country. In that time and during five subsequent brief visits, I was unable to find 46 (almost 1/5) of the total species known from the country. I am sure Panama would present the same challenge.

ODONATE FAMILIES

The great majority of odonates in the temperate zone are dragonflies of the suborder Anisoptera, but that is not the case in the tropics, where damselflies (Zygoptera) are especially diverse. In Panama, there are 9 damselfly families with 87 species and 4 dragonfly families with 125 species. These brief accounts attempt to describe each of those families and some of the characteristic groups within them.

POLYTHORIDAE - BANNERWINGS

5 species. Fairly broad unmarked wings with longish stigmas and many antenodal crossveins typical of family. Males with forceps-like superior appendages. Coloration very variable, thorax largely black with fine stripes or largely blue (yellow in one species). Wings clear, heavily washed with dusky, or with black wingtips. Wings of

several species flash iridescent blue in sun. Restricted to forest streams, often perching in shade. Larvae have gills under abdomen, unique amongvliving odonates.

CALOPTERYGIDAE - JEWELWINGS

7 species. Average a bit larger than bannerwings, wings also with many antenodal crossveins. All Panama species are rubyspots (*Hetaerina*). *Male rubyspots all have red at base of at least hindwing,* rest of wing mostly clear but some with tip spots. Stigmas shorter than in bannerwings, lacking in a few species. Thorax varies from black to red to green, usually with some markings, often stripes. Male appendages usually distinctive, along with wingtip markings, extent of red at wing bases, and thorax color. Females are distinctly shorter than males, wings much duller or with no color, and often difficult to distinguish. Both sexes are often common along streams.

LESTIDAE - SPREADWINGS

5 species. The members of this family are fairly large damselflies, most with blue eyes and pruinose whitish abdomen tip, that perch with their wings spread. Stream-dwelling Great Spreadwing very large, could be mistaken for dragonfly in flight. *Lestes (pond* spreadwings) are at least locally common at ponds and marshes from lowlands to well up in elevation.

PERILESTIDAE - TWIGTAILS

2 species. Members of this neotropical family all look the same, with wings held open and very long, banded abdomen hanging down over some small forest stream. Both Panama species in lowlands, poorly known and uncommon. Female abdomen shorter, with bulbous end to accommodate ovipositor.

MEGAPODAGRIONIDAE - FLATWINGS

12 species. As their name implies, most of the members of this family perch with wings opened even farther than those of spreadwings. They all live on forest streams, although females often found well away from water in forest undergrowth. Male *Heteragrion colorful,* either mostly red or black and yellow; females shades of brown with patterned abdomen considerably shorter than that of males. *Philogenia heavier-bodied, males usually with pruinose abdomen tip,* but easily distinguished from spreadwings by brown eyes. Most are dull, don't stand out in shady undergrowth. Redleg perches with wings closed, bright red legs and long, dark abdomen. Cascade Damsel (*Thaumatoneura) very large waterfall dwellers, with wings* broadened in the middle, also hangs with them closed. Males polymorphic, with either black or clear wings (females with black-tipped wings).

PLATYSTICTIDAE - SHADOWDAMSELS

9 species. Averaging a bit larger than pond damsels, all are in a single genus, *Palaemnema*. *Most have blue or green on the thorax, some have* blue abdomen tips, and a few show no blue color. A few have black wingtips. Females have a bulging abdomen tip and are very difficult to distinguish from one another. Shadowdamsels perch in the shade of forest streams from lowlands well up into the mountains, sometimes in dense vegetation at tiny trickles where they are more easily captured by hand than with a net. Mating pairs may stay together for hours. The larvae live on and under rocks in the stream and look rather like termites.

PSEUDOSTIGMATIDAE - HELICOPTERS

6 species. They don't fly anything like helicopters, but they certainly bring them to mind. With four wings beating independently, the tip spots seem to whirl around these large, very slender species. The smallest species (Bromeliad) is still longer than almost all other damsels in Panama. *Megaloprepus (Blue-winged) is the most* spectacular, with its blue-black wingtips, bordered inside by white in males (in some populations). All species breed in phytotelmata, the smallest in bromeliads and the others in tree holes, so they are found only in forests with sufficient rainfall to furnish these larval habitats at least during the wet season. Ornate Helicopter only one found in drier forests. Adults stay alive between wet seasons (six months or more). Probably all specialized foragers, plucking spiders from their webs in flight. Recent molecular studies show that the group belongs in the pond damsel family.

COENAGRIONIDAE - POND DAMSELS

42 species. This large family includes the damselflies most familiar to north-temperate naturalists. They are common in all aquatic habitats from lowland marshes and streams to montane boggy ponds. The largest genus is *Argia, the dancers, with 18 described species in* Panama and a few undescribed ones. They are almost all streamdwellers, a few species At marshy seeps and ponds. Three species (Ruby, Coppery, Fiery-eyed) stand out with their red eyes and coppery thorax. Others are mostly bright blue, mostly black with blue markings, or almost entirely dark. Those with more blue are usually in more open areas and in highlands. Their flight is dancing, bouncing up and down rather than straight, and they hold their wings above their abdomen when perched. This is correlated with their feeding habits; all are flycatchers. Most other pond damsels hold their wings alongside the abdomen and feed by gleaning perched insects from leaves.

A number of common US pond damsels occur all the way down to Panama, including Familiar and Neotropical Bluets, Citrine and Rambur's Forktails, and Desert Firetail, as well as Dusky Dancer, Caribbean Yellowface and a number of other species that just make it into the US along the southern border. But the majority of species are more exotic than that. Wedgetails (*Acanthagrion) have a blue thorax* and blue-tipped abdomen, and most species have the abdomen tip a bit raised because of the vertical expansion of the

appendages. Pearlwings (*Anisagrion*) *have pale forewing stigmas and are common* at mid-elevation wetlands. Swampdamsels (*Leptobasis*) *are slender,* colorful damselflies of wooded swamps. Firetails (*Telebasis*) *are* mostly bright red and are typical of beds of floating plants. Spinynecks (*Metaleptobasis*) *are locally common rather large and* slender damsels in lowland forests, but no one knows where they breed!

PROTONEURIDAE - THREADTAILS

6 species. Most threadtails are small, very slender damselflies that hover or perch over slow-moving lowland streams, usually forested but with sunny patches where they fly. *Protoneura* *are colorful, with* red to orange on thorax and black abdomen. Females are duller and shorter, with abdomen tip bulging. *Neoneura* *are thicker-bodied and* occur on the same streams. The two Panama species have much red on them. *Psaironeura* *and Drepanoneura* *are very inconspicuous, dark* (may show dull orange on thorax) with a pale spot of pruinosity at the tip of the male abdomen that may be the most obvious thing about them.

AESHNIDAE - DARNERS

28 species. Darners are usually the largest dragonflies around, with big eyes and long abdomens. They are the only dragonflies in Panama that oviposit by putting their eggs in plant tissues (all others drop them in the water directly). They fly around incessantly, even above the canopy, while foraging or looking for a mate. Like other flier dragonflies, when inactive they perch by hanging from a twig or vine. Most breed in ponds. Some genera (*Gynacantha, Neuraeschna, Triacanthagyna*) *are crepuscular feeders, roosting within the forest* where they are sometimes flushed and coming out to feed at forest edge at dusk.

The big pilot darners (*Coryphaeschna*) *are most often seen flying* around clearings or forest edge during the day; they vary from green and black to mostly red. At higher-elevation marshes, the greenstriped Malachite Darner (*Remartinia*) can be common And one or more species of *Rhionaeschna* sometimes so. The huge megadarner *Staurophlebia* has been known to carry off dragonfly collectors.

GOMPHIDAE - CLUBTAILS

19 species. For all the species in this family, they are not very often seen. Almost all breed in streams and rivers, where they may be uncommon even in optimal habitat. One of the reasons for their apparent rarity may be that some species don't come to the waterside except when breeding. However, some are territorial at the water, much like skimmers. They can be easily recognized by their relatively small and well-separated eyes, usually blue or green. Males of most but not all have some indication of a "club," a widened subterminal part of the abdomen.

Those most often seen on open streams are the forceptails (*Aphylla*, also on lakes) and leaftails (*Phyllogomphoides*), both quite large with striped thorax and dark abdomen. The smaller black and white sanddragons (*Progomphus*) are much less common but typically at sandy streams. Male sanddragons usually have flattened, whitetipped cerci (superior appendages) visible at a distance. Ringtails (*Erpetogomphus*) are unique, with a bright green thorax.

Knobtails (*Epigomphus*) are characteristic of smaller forest streams. They show no club, but instead the end of the abdomen is enlarged in males to enclose the rather substantial terminal appendages. All look about the same but differ by the structure of those appendages. Like many other clubtails, they show a conspicuous yellow ring on segment 7. Some clubtails are tiny, no more than 35 mm in length. The small *Agriogomphus, Archaeogomphus, Desmogomphus* and *Perigomphus* are scarcely ever seen.

CORDULIIDAE - EMERALDS

2 species. A prominent feature at temperate latitudes, emeralds disappear into the background in the tropics. The two species of *Neocordulia* known from Panama are rarely seen. They are dark, with metallic green thorax and iridescent green eyes, and presumably breed in forest streams. They are "fliers," foraging in flight and then hanging up like a darner. Finding one would be a red-letter day!

LIBELLULIDAE - SKIMMERS

93 species. These are the familiar and usually brightly colored dragonflies that we see around ponds everywhere in the world. They perch prominently and fly out after passing insects like a flycatcher. Sexual dimorphism is great, with bright males and dull females in most species. As in other odonates, females stay away from the water except for breeding.

It's not easy to describe the 26 genera that live in Panama, but here are a few distinctive ones, starting with pond species. Male amberwings (*Perithemis*) are the smallest, with yellow-orange wings. Dashers (*Micrathyria*) are diverse, from tiny to midsize; all have green eyes, usually a striped thorax, and a black abdomen with prominent pale patches on segment 7.

Dragonlets (*Erythrodiplax*) are much more varied. Most are small, red to blue to black, but there are two large black species with much black in the wings. They are among the most common dragonflies in open ponds everywhere. Pondhawks (*Erythemis*) are larger, with large spines on the hind legs to capture their relatively large prey, often other odonates. Males are either red or black, with one very large green species.

Common large red dragonflies are usually tropical king skimmers (Orthemis), with several similar species. Other good-sized red lowland pond species are Red and Claret Pondhawks, Red-tailed Pennant, and Northern Redskimmer.

Some skimmers of ponds are fliers; the most common are gliders (*Pantala*) and saddlebags (*Tramea*), all of them also occurring in the US. Wherever the water surface is covered by floating vegetation, they will be replaced by pasture gliders (*Tauriphila*) and hyacinth gliders (*Miathyria*) at mating territories. All of these genera fly in feeding swarms over open country. Clubskimmers (*Brechmorhoga*) and sylphs (*Macrothemis*) are the common stream skimmers and are also fliers, flying up and down stream and hovering at intervals. They hang up when perching but also land on rocks. In addition, they may cruise over clearings in feeding aggregations, sometimes in numbers. Most species have the same dark abdomen with pale markings on segment 7 as the clubtails that sometimes fly with them. Clubskimmers are bigger than sylphs, but both typically have blue eyes.

Inside forests, watch for woodskimmers (*Uracis*), with their blacktipped wings. They Are the most common dragonflies seen on forest trails. Gray-waisted Skimmers (*Cannaphila*) and Common Blue-eyes (*Anatya*) are often seen in the same habitat, and Individuals of almost any member of this family, especially immatures and females, might be in a forest clearing.

This guide contains 222 photos of 171 species of Panamanian odonates. This is almost three-fourths of the 236 thought to occur. It includes 64 of the 74 genera, and most of the 10 lacking are not very likely to be seen. Thus it is a reasonably adequate guide to the diversity present. **The photos are not to scale, but they will provide** good visual cues to shape and color pattern and should be especially useful once you have seen the species in the field.

All photos were taken by Dennis Paulson and Netta Smith except for those contributed by the following photographers, who I thank: John Abbott (1), Bob Behrstock (4), Allan Brandon (1), Hank Brodkin (1), Julie Craves (1), Doug Danforth (1), Marion Dobbs (2), Paul Donahue (2), Jeremy Gatten (1), Molly Hukari (2), Eric Isley (1), Wulf Kappes (13), Greg Lasley (3), Steve Mlodinow (1), Gil Quintanilla (1), Ruy Penalva (1), Steve Rovell (1), Dave Smallshire (4), Brian Steger (1), Dirk Stevenson (1), David & Kay Wade (7), Rob Williams (1) and Jay Withgott (1).

BANNERWINGS (Polythoridae)

Golden-backed Cora (*Cora notoxantha*)

Blue Cora (*Cora marina*)

Sparkling Cora (*Cora semiopaca*)

Obscure Cora (*Cora obscura*)

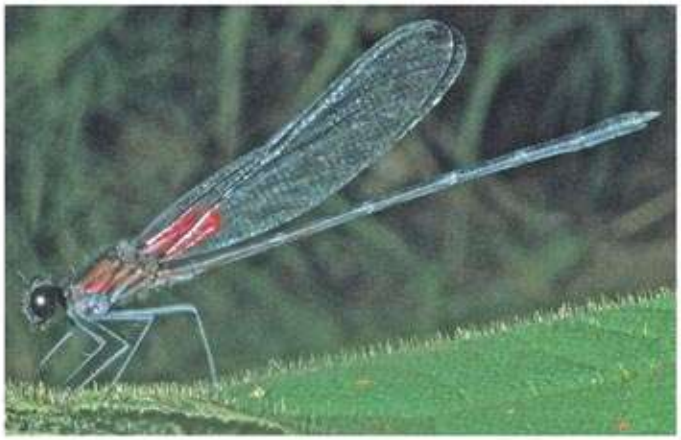
River Rubyspot (*Hetaerina caja*)

JEWELWINGS (Calopterygidae)

Highland Rubyspot (*Hetaerina cruentata*)

Dot-winged Rubyspot (*Hetaerina fuscoguttatata*)

Racket-tipped Rubyspot (*Hetaerina occisa*)



Bronze Rubyspot
(*Hetaerina capitalis*)

Redstripe Rubyspot (*Hetaerina miniata*)

SPREADWINGS (Lestidae)

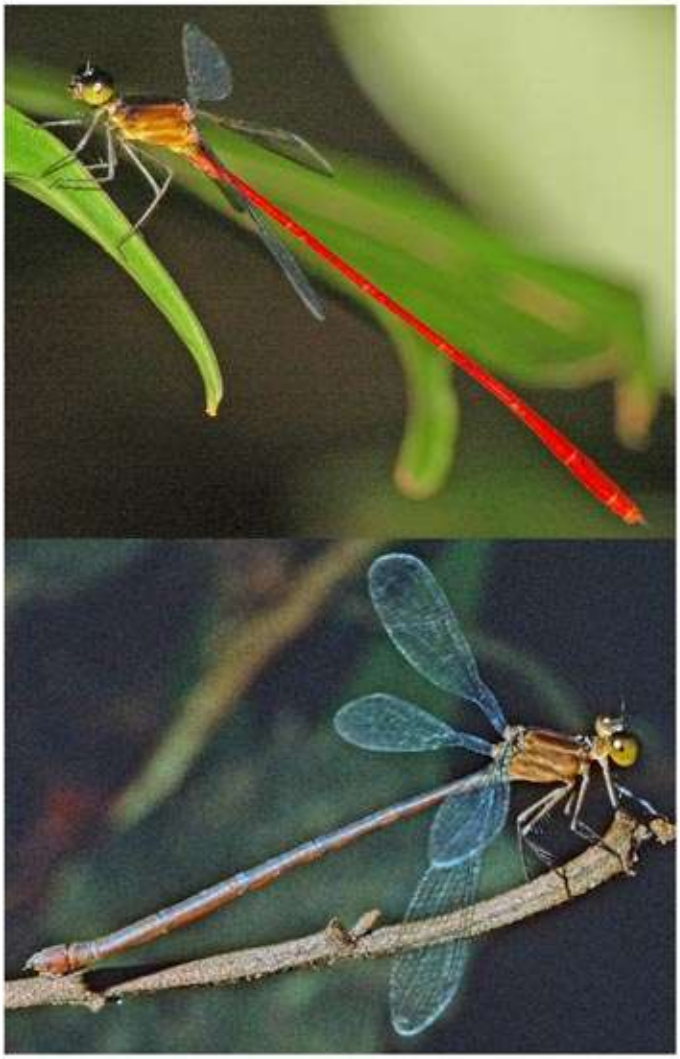
Great Spreadwing (*Archilestes grandis*)

Tikal Spreadwing (*Lestes tikalus*)

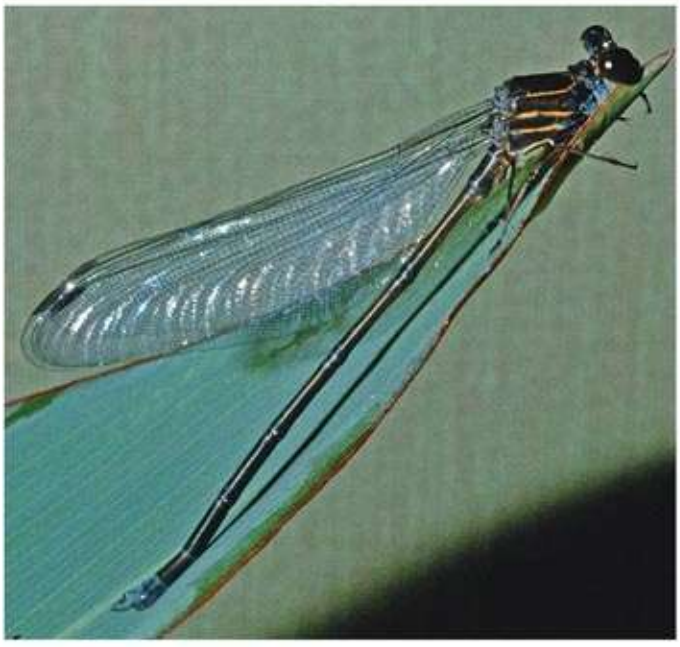
Rainpool Spreadwing
(*Lestes forficula*)

Blue-striped Spreadwing
(*Lestes tenuatus*)

FLATWINGS (Megapodagrionidae)



Red-and-black Flatwing
(*Heteragrion erythrogastrum*)



Cascade Damsel
(*Thaumatoneura inopinata*)

Golfo Dulce Flatwing
(*Philogenia championi*)

Mountain Flatwing
(*Heteragrion majus*)

Redleg (*Heteropodagrion superbum*)

SHADOWDAMSELS (Platystictidae)

Nathalia Shadowdamsel
(*Palaemnema nathalia*)

shadowdamsel (*Palaemnema*)

THREADTAILS (Protoneuridae)

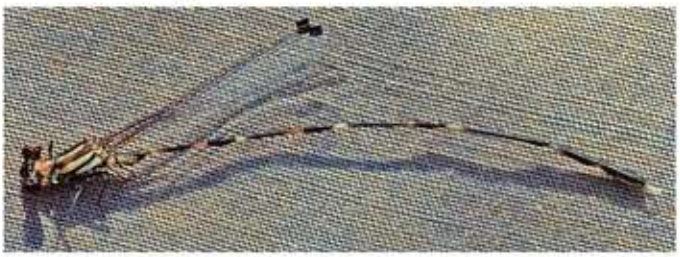
Crimson Threadtail
(*Protoneura amatoria*)

Shadowy Threadtail
(*Psaironeura remissa*)

Amelia's Threadtail
(*Neoneura amelia*)

Esther's Threadtail
(*Neoneura esthera*)

TWIGTAILS (Perilestidae)

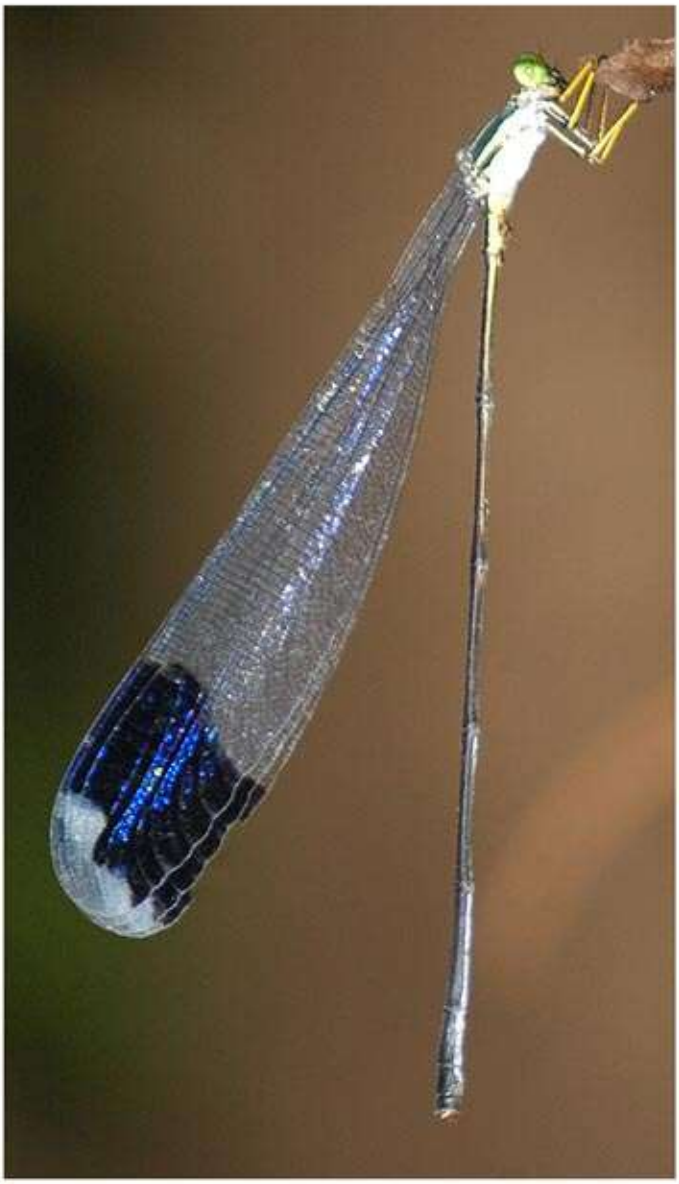


Remote Twigtail
(*Perissolestes remotus*)

(belongs with jewelwings, Calopterygidae)

Forest Rubyspot
(*Hetaerina sempronia*)

HELICOPTERS (Pseudostigmatidae)



Blue-winged Helicopter
(*Megaloprepus caerulatus*)

Ornate Helicopter
(*Mecistogaster ornata*)

Bromeliad Helicopter
(*Mecistogaster modesta*)

Amazonian Helicopter
(*Mecistogaster linearis*)

POND DAMSELS (Coenagrionidae)

Fiery-eyed Dancer (*Argia oenea*)

Coppery Dancer (*Argia cuprea*)

Ruby Dancer (*Argia cupraurea*)

Amber-winged Dancer
(*Argia adamsi*)

Azure Dancer (*Argia fissa*)

Skyblue Dancer (*Argia medullaris*)

Spine-tipped Dancer
(*Argia extranea*)

Talamanca Dancer
(*Argia talamanca*)

Bluepoint Dancer (*Argia oculata*)

Olmec Dancer (*Argia ulmeca*)

Swamp Dancer (*Argia indicatrix*)

Dusky Dancer (*Argia translata*)

Black-and-purple Dancer
(*Argia* cf *oculata* purple)

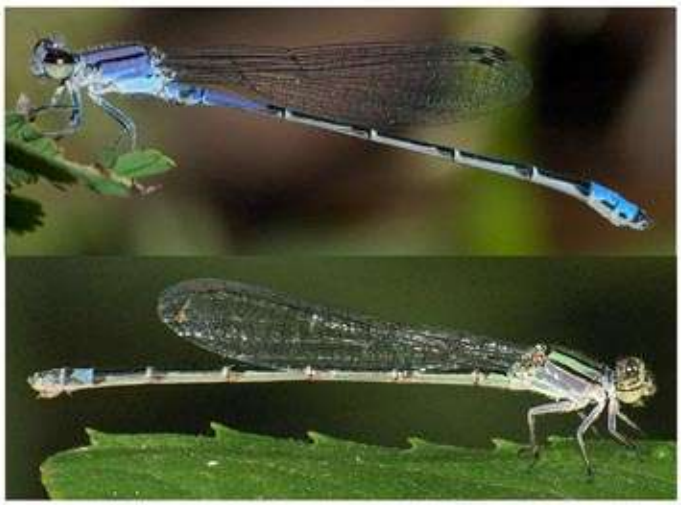
Purple Dancer (*Argia pulla*)

Stream-swamp Dancer
(*Argia* cf *popoluca*)

Narrow-tipped Wedgetail
(*Acanthagrion inexpectum*)

Kennedy's Pearlwing
(*Anisagrion kennedyi*)

Familiar Bluet (*Enallagma civile*)



Neotropical Bluet
(*Enallagma novaehispaniae*)

Pacific Wedgetail
(*Acanthagrion trilobatum*)

Common Pearlwing
(*Anisagrion allopterum*)

Caribbean Yellowface
(*Neoerythromma cultellatum*)

Tropical Sprite
(*Nehalennia minuta*)

Rambur's Forktail
(*Ischnura ramburii*)

Red-tipped Swampdamsel
(*Leptobasis vacillans*)

Tiny Forktail (*Ischnura capreolus*)

Citrine Forktail (*Ischnura hastata*)

Panama Spinyneck
(*Metaleptobasis westfalli*)

Desert Firetail (*Telebasis salva*)

Hyacinth Firetail (*Telebasis levis*)

Striped Firetail (*Telebasis filiola*)

Montane Firetail
(*Telebasis garleppi*)

Golden Firetail (*Telebasis aurea*)

Marsh Firetail (*Telebasis digiticollis*)

Coralline Firetail
(*Telebasis corallina*)

Isthmian Firetail
(*Telebasis isthmica*)

DARNERS (Aeshnidae)

Amazon Darner (*Anax amazili*)

Blue-spotted Comet Darner
(*Anax concolor*)

Magnificent Megadarner
(*Staurophlebia reticulata*)

evening darner (*Neuraeschna*)

Malachite Darner
(*Remartinia luteipennis*)

Blue-faced Darner
(*Coryphaeschna adnexa*)

Mangrove Darner
(*Coryphaeschna viriditas*)

Amazon Red Darner
(*Coryphaeschna amazonica*)

Northern Red Darner
(*Corphaeschna diapyra*)

Jalapa Darner
(*Rhionaeschna jalapensis*)

Turquoise-tipped Darner
(*Rhionaeschna psilus*)

Highland Darner
(*Rhionaeschna cornigera*)

Dark-saddled Darner
(*Gynacantha membranalis*)

Pale-banded Darner
(*Gynacantha gracilis*)

Bar-sided Darner
(*Gynacantha mexicana*)

Auricled Darner
(*Gynacantha auricularis*)

Gold-tipped Darner
(*Gynacantha tibiata*)

Twilight Darner
(*Gynacantha nervosa*)

Pale-green Darner
(*Triacanthagyna septima*)

Ditzler's Darner
(*Triacanthagyna ditzleri*)

Satyr Darner
(*Triacanthagyna satyrus*)

Caribbean Darner
(*Triacanthagyna caribbea*)

CLUBTAILS (Gomphidae)

Narrow-striped Forceptail
(*Aphylla protracta*)

leaftail (*Phyllogomphoides*)

Panama Knobtail
(*Epigomphus quadracies*)

Zebra-striped Sanddragon
(*Progomphus clendoni*)

EMERALDS (Corduliidae)

ringtail (*Erpetogomphus*)

Bates's Emerald
(*Neocordulia batesi*)

SKIMMERS (Libellulidae)

Common Bluewing
(*Zenithoptera fasciata*)

Metallic Pennant
(*Idiataphe cubensis*)

Slough Amberwing
(*Perithemis domitia*)

Swamp Amberwing
(*Perithemis electra*)

Pond Amberwing
(*Perithemis mooma*)

Cardinal Meadowhawk
(*Sympetrum illotum*)

Tawny Pennant
(*Brachymesia herbida*)

Common Blue-eye
(*Anatya guttata*)

leafsitter *(Oligoclada*)

Red-tailed Pennant
(*Brachymesia furcata*)

Golden Streamskimmer
(*Elasmothemis cannacrioides*)

Gray-waisted Skimmer
(*Cannaphila insularis*)

Morton's Skimmer
(*Cannaphila mortoni*)

Many-striped Skimmer
(*Cannaphila vibex*)

Silver-sided Skimmer
(*Libellula herculea*)

Slender Skimmer
(*Orthemis levis*)

Yellow-lined Skimmer
(*Orthemis biolleyi*)

Red-tailed Skimmer
(*Orthemis schmidti*)

Carmine Skimmer
(*Orthemis discolor*)

Side-striped Skimmer
(*Orthemis aequilibris*)

Swamp Skimmer
(*Orthemis cultriformis*)

Black-and-yellow Skimmer
(*Orthemis flavopicta*)

Red Pondhawk
(*Erythemis haematogastra*)

Carmelita Pondhawk
(*Erythemis carmelita*)

Claret Pondhawk
(*Erythemis mithroides*)

Flame-tailed Pondhawk
(*Erythemis peruviana*)

Black Pondhawk (*Erythemis attala*)

Pin-tailed Pondhawk
(*Erythemis plebeja*)

Great Pondhawk
(*Erythemis vesiculosa*)

Montane Dragonlet
(*Erythrodiplax abjecta*)

Andagoya Dragonlet
(*Erythrodiplax andagoya*)

Chalk-marked Dragonlet
(*Erythrodiplax kimminsi*)

White-tailed Dragonlet
(*Erythrodiplax unimaculata*)

Seaside Dragonlet (*Erythrodiplax berenice*)

Black-winged Dragonlet
(*Erythrodiplax funerea*)

Band-winged Dragonlet
(*Erythrodiplax umbrata*)

Red-mantled Dragonlet
(*Erythrodiplax fervida*)

Red-faced Dragonlet
(*Erythrodiplax fusca*)

Scarlet Dragonlet
(*Erythrodiplax castanea*)

Brown Setwing
(*Dythemis sterilis*)

Spine-bellied Dryad
(*Nephepeltia phryne*)

Northern Redskimmer
(*Rhodopygia hinei*)

Blue-eyed Setwing
(*Dythemis nigra*)

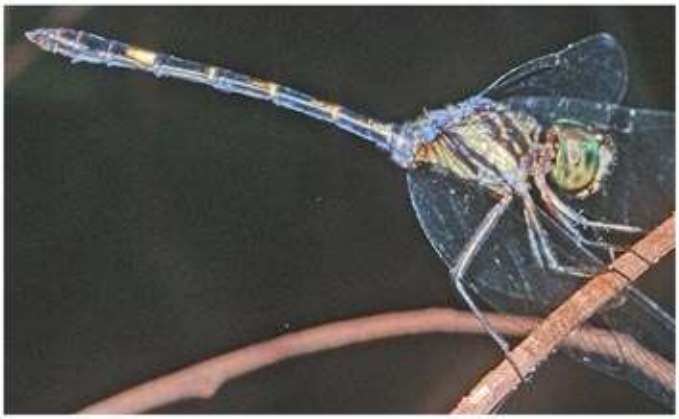
Spot-tailed Dasher
(*Micrathyria aequalis*)

Three-striped Dasher
(*Micrathyria didyma*)

Square-spotted Dasher
(*Micrathyria ocellata*)

Black Dasher
(*Micrathyria atra*)

Thornbush Dasher
(*Micrathyria hagenii*)



Swamp Dasher
(*Micrathyria laevigata*)

Fork-tipped Dasher
(*Micrathyria mengeri*)

Dusky Dasher
(*Micrathyria schumanni*)

Little Swamp Dasher
(*Micrathyria pseudeximia*)

Blue-tipped Dasher
(*Micrathyria caerulistyla*)

Ivory-striped Sylph
(*Macrothemis imitans*)

Pale-legged Dasher
(*Micrathyria tibialis*)

Jade-striped Sylph
(*Macrothemis inequiunguis*)

White-tailed Sylph
(*Macrothemis pseudimitans*)

Slender Clubskimmer
(*Brechmorhoga praecox*)

Masked Clubskimmer
(*Brechmorhoga pertinax*)

Vivacious Clubskimmer
(*Brechmorhoga vivax*)

Rapacious Clubskimmer
(*Brechmorhoga rapax*)

Straw-colored Sylph
(*Macrothemis inacuta*)

Evening Skimmer
(*Tholymis citrina*)

Dwarf Glider
(*Miathyria simplex*)

Arch-tipped Glider
(*Tauriphila argo*)

Hyacinth Glider
(*Miathyria marcella*)

Garnet Glider
(*Tauriphila australis*)

Vermiliion Saddlebags
(*Tramea abdominalis*)

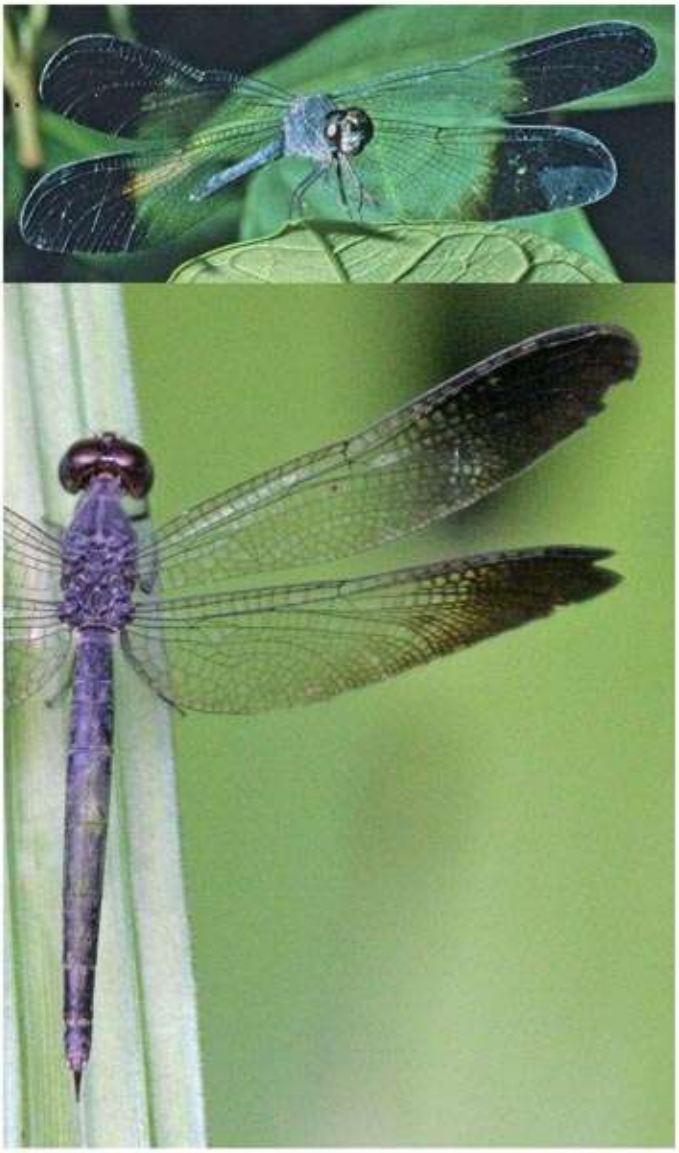
Red Saddlebags
(*Tramea onusta*)

Spot-winged Glider
(*Pantala hymenaea*)

Sooty Saddlebags
(*Tramea binotata*)

Striped Saddlebags
(*Tramea calverti*)

Wandering Glider
(*Pantala flavescens*)



Large Woodskimmer
(*Uracis fastigiata*)

Common Woodskimmer
(*Uracis imbuta*)