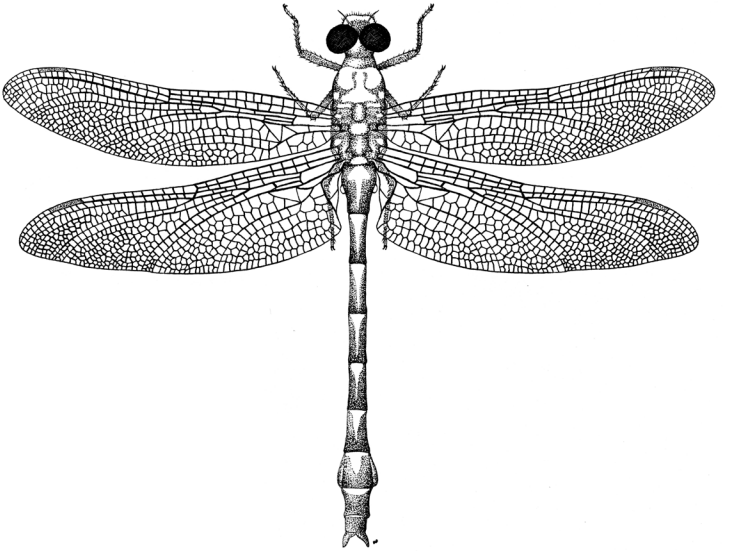
18 Hanging from a Leaf

Rob Cannings



I grew up along the Okanagan River in Penticton, British Columbia, and, when I return to my hometown, I walk its dikes, watching the mergansers on the river and listening to the catbirds and orioles in the dogwoods and cottonwood trees. I'm an entomologist, though, with a special interest in dragonflies, and I love to keep track of these bold, beautiful insects along the river. The rarest of the rare here is the olive clubtail, *Stylurus olivaceus*. In the late 1920s, decades before the river was straightened, dredged, and dammed to control flooding, my father used to paddle his homemade kayak on the river at Penticton. When I was a kid, he'd tell me of his adventures there. "Birches hung over the gravelly riffles and willows lined the sandbars along the slower flowing, meandering reaches," he'd say. "We'd explore all day in the woods along the shore, in the cattail marshes and wet meadows that lined the old oxbows." I'd listen raptly to his boyhood stories of a landscape now almost completely gone.

The Okanagan River empties out of the eighty-mile-long Okanagan Lake at Penticton in southern British Columbia and winds south to join the Columbia River in Washington State. Now, much of the land along the river is rich farmland or urban development, but the river used to flow through riparian woods in sage and antelope-brush grasslands. In the Canadian part of its journey, most of the river has been channeled since the 1950s; these days it runs between dikes used as walking and bicycle paths.

The first record of olive clubtails on the Okanagan is found in the writings of Frank Whitehouse, an avid dragonfly collector, who found the insect scarce in July 1938. The males he saw "pursued a zigzag course in the middle of the river—carefully avoiding my boat." He continued in frustration:

> Then I came equipped with a bathing suit and tried standing mid-stream on silt bars. No *S. olivaceus* would then appear! Once, in the boat, I was within six feet of a fine male. They do not appear to take up any limited reach; but approach, go by, and continue going!

If Frank had searched in late August or early September, he probably would have see many more; July is usually too early for clubtails to appear in the Okanagan Valley.

Today, seeing an olive clubtail along the Okanagan River anywhere in Canada is cause for celebration because they are now uncommon. The channel bottom has been lined with rocks and boulders, making the sand and silt that clubtail larvae need for burrowing scarce and patchy. For evidence of larvae, I often look for an exuvia, the cast skin of the last larval stage, which remains clinging to shoreline debris after an adult insect has emerged and flown away. I've never found exuviae on this river. And the trees and shrubs beside the water, where the adult dragonflies love to perch, are mostly gone, now replaced by grasses and weeds.

In all my Okanagan River dike walking, I've found only three olive clubtail adults. The first one I'd ever seen was camouflaged like a grey-green and black twig, perched flat on the dusty trail at Osoyoos Lake, almost at the U.S.–Canada border. What

excitement! On another walk much later, I saw one flying over the river, back and forth. After a while it flew towards a lone tree on the dike. "Aha!" I thought, "It's landed there!" *Stylurus* dragonflies are referred to as "hanging clubtails" because they normally perch on leaves of trees or shrubs beside the river, bending the leaves until they are hanging almost vertically. Sneaking up quietly, I searched the lower branches for five minutes before I saw the dragonfly hanging from a leaf, just as it was supposed to do! My third sighting was of a male flying up the river, fast and straight as an arrow, not stopping for anyone.

Most of the olive clubtails I've studied belong to a completely separate population. They live at the most northerly place the species is known: the Thompson River near Kamloops, about eighty air miles northwest of Penticton. For about thirty-five miles east of the city, this big river flows through sagebrush, farms, and riverside suburbs, its water warmed to 21–22°C in summer after its stay in the huge Shuswap Lake to the east. At Kamloops it's joined by the North Thompson River, with its colder waters that drain mountain snowfields. Here the water is about 18°C at the time of dragonfly emergence, and I suspect the water is too cold for olive clubtails at that time of year. I've never seen this species in the North Thompson, even though other conditions such as sediment and stream flow would seem perfect for the clubtail. Downstream from Kamloops, the Thompson River flows faster and the riverbed is filled with boulders which, as I knew from the Okanagan River, is a habitat disliked by these dragonflies.

It's ironic that one of the best places anywhere to find the olive clubtail—a lover of warm climates—is as far north as they can live. But here much of the habitat is still good with a sandy, silty riverbed, stable banks clothed with emergent water plants such as rushes and horsetails, riverside willows, and introduced Russian olive trees hanging over the water. Certainly, there are stretches where livestock have trampled the shore, where irrigation water has eroded the banks, and where rocky fill has been dumped to support the railway line and subdivisions full of houses. But there is still enough good shoreline to support a decent population of dragonflies. In some places upstream of Kamloops, I picked up one exuvium for every yard of sandy

riverbank I walked; they lay among the detritus of high water in the patches of horsetails and rushes, coated in a thin layer of silt, reminders of the larva's burrowing life.

Luckily, the habitat does not need to be pristine: the clubtail can tolerate some disturbance and habitat damage. I found exuviae in the imprints of cow hooves and saw some adults emerging at a busy boat launch. But I imagine carp and other introduced, bottom-feeding fish can hurt the population by disturbing the bottom mud or by actually eating the larvae. Additionally, motorboats speeding by stir up the bottom silt and erode the sandy banks with their wakes.

These disturbances notwithstanding, along this reach of the Thompson, in mid August, the adult dragonflies emerge, pale and vulnerable, easy prey for blackbirds and kingbirds. I suppose the clubtails fly back in the grasslands to hunt and mature for several days, later returning to the river to mate and lay eggs. In late August and September, now and again, I've watched a male patrol over the current, chase down a female, and then link with its partner in the loop position so unique to mating Odonata. Flying back to the shore, the pair disappears into the trees. A couple of times I've been lucky and have found them hanging from a low twig. Later, the female flies fast out over the river, dipping her abdomen into the water and washing off the eggs.

Because these are small and fragmented populations, and the few stretches of rivers where they live are vulnerable, the olive clubtail is considered a threatened species in British Columbia. Its future is of less concern in the western United States, where it is more widespread. In some places, such as in the Lower Columbia River, it is common. Downriver from Portland it even lives in waters affected by the tides where it seems to tolerate some salinity. The olive clubtail is characteristic of the big rivers of the dry West; although in many places it's been hit hard by the upheavals humans have brought to its home and is now rare, it remains common in some localities. To me, as I consider the populations I have studied in British Columbia, the olive clubtail remains a symbol of perseverance in a rapidly changing landscape.

Stylurus olivaceus

Life Cycle: Probably a 2-year life cycle, as is common in other temperate-zone clubtail dragonflies studied. About 12–15 molts from egg to adult.

Larvae: Elongate with the abdomen only a little wider than the head; the abdomen gradually tapers to the pointed tip. Fully grown, they reach almost 1.5 inches long. They burrow in sandy/silty river bottoms.

Pupae: No pupal stage. Larvae crawl from water when mature; adult emerges from larval skin (exuvia), a process that takes about an hour.

Adults: Medium-sized dragonfly, about 2.25 inches long with a wingspan of about 3 inches. Pale areas dull green marked with brown/black; wide shoulder stripes; abdomen mostly black with pale, spear-shaped marks on top; eyes blue in life. This is the only clubtail dragonfly in the region with minimal striping on sides of thorax. Most emerge beginning in June in the southern part of its range (California), July or early August in north (Washington and British Columbia). Adults live 6–8 weeks and fly through September or later.

Feeding: Larvae are predators of insect larvae and other invertebrates in river sediments; adults catch and eat flying insects.

Habitat Indicators: Prevalent in warm, sandy/silty-bottomed, medium-sized to large rivers, typically with sandy banks, and warm lowland habitats, mostly east of coastal mountains. Rivers flow through grassland and sagebrush habitats or through woodland. These habitats now are often modified by humans, but the species can tolerate some habitat disturbance. Needs riverside shrubs and trees for perching. Requires relatively stable riverbanks.