

## FOUR SPECIES OF ODONATA NEW TO BRITISH COLUMBIA, CANADA

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**Abstract** – Between 1998 and 2000, 5 odon. spp. were added to the list of British Columbia. The collection data for one of these, *Somatochlora kennedyi*, have been previously published by R.D. Kenner (2000, *J. ent. Soc. Br. Columb.* 97: 47-49). The present known distribution, status and habitat of *Calopteryx aquabilis* Say, *Lestes forcipatus* Ramb., *Somatochlora brevicincta* Robert and *S. forcipata* (Scudder) are discussed. *C. aquabilis* is recorded from only one locality in the extreme S of the province; it is a red-listed sp. of management concern. *L. forcipatus* is common in certain types of rich fens across the province; it had been overlooked previously because of its close similarity to the widespread and abundant *L. disjunctus* Sel.. *S. brevicincta* and *S. forcipata* are known mainly from eastern North America; in British Colum-

bia each is recorded from a handful of localities in mountain and northern peatlands.

### Introduction

Between 1996 and 2003, the Royal British Columbia Museum (RBCM) and the British Columbia Conservation Data Centre (BCCDC) collaborated in surveys of the Odonata of several regions of British Columbia (BC), Canada – the Georgia Depression of the southwest coast (1996), the Okanagan drainage (1997), the Peace River-Fort Nelson region (1997), the Columbia-Kootenay region (1998-99) and central and northwestern BC (2000-2003). The surveys were designed to improve understanding of the distribution, status and habitat requirements of species and to foster public education about dragonflies. Our improved knowledge of all

species encountered has resulted in more realistic conservation priorities than was possible before the inventories (CANNINGS et al., 1998; CANNINGS et al., 2000; RAMSAY & CANNINGS, 2004).

One of the five species, *Somatochlora kennedyi* Walker, had been collected at Loon Lake in the Yukon Territory within 3 km of the BC border (CANNINGS et al., 1991) and from the southern Northwest Territories (WALKER & CORBET, 1975) and thus, was a target species during the 1997 surveys in northeastern BC. Only one was recorded that year at a sedge fen near Andy Bailly Provincial Park, SE of Fort Nelson (25-VI-1997, RDK [1 ♀, University of BC]). As this first provincial record has already been published (KENNER, 2000), *S. kennedyi* will not be further treated here, although it should be noted that between 2001 and 2003 it was collected at seven more localities, from Fort St James (54°10'N) in the South to Blue Lake (59°49'N) in the North.

In 1998, three species new to BC – *Calopteryx aequabilis* Say, *Lestes forcipatus* Rambur and *Somatochlora forcipata* (Scudder) – were recorded in the Columbia River Basin (exclusive of the Okanagan River drainage). In BC this area occupies much of the southeastern part of the province and is commonly called the Columbia-Kootenay Region after the Columbia River and its main Canadian tributary, the Kootenay River. In 2000, continuing inventory focused on the Upper Fraser River Basin, centred on Prince George in the middle of the province. The first specimens of *Somatochlora brevicincta* Robert in BC were collected during this work.

Collectors listed by initials in collection data below: APH – A.P. Harcombe; CS – C. Shank; CSG – C.S. Guppy; GAA – G.A. Archard; GEH – G.E. Hutchings; HK – H. Knight; IH – I. Hatter; JH – J. Heron; JT – J. Tuck; JV – J. Vinnedge; KMN – K.M. Needham; LRR – L.R. Ramsay; LW – L. Westereng; RAC – R.A. Cannings; RDK – R.D. Kenner; SEC – S. E. Coates; SGC – S.G. Cannings; SWD – S.W. Dunkle; TV – T. Vogt. Except those otherwise indicated, all specimens noted are housed in the Royal British Columbia Museum, Victoria, BC.

### Species new to British Columbia

#### – *Calopteryx aequabilis* Say

*Calopteryx* represents a new family of Odonata for BC, the Calopterygidae. *C. aequabilis* is primarily an eastern North American species ranging west in the southern boreal forest to central Alberta and with a few outlying populations in the western United States. It had been recorded as close to BC as Stevens County, Washington (PAULSON, 1997) and for several decades we had suspected that it lived in streams near the town of Grand Forks just north of the US boundary. However, we had not managed to find it there until VII-1999, when one of us (LRR) discovered it along Christina Creek, the outlet of Christina Lake (49°02'30"N, 118°12'17"W).

In BC, the flight period has not been well-documented, but probably lasts from mid-June until early September (CANNINGS, 2002). None were observed on 15-VI (2002), but on 19-VII (1999), 25 males and 3 females were counted. By 7-VIII (1999) the numbers were waning; only 6 males and 3 females were counted. Oviposition was observed on 17-VIII (1999) (recorded in *Potamogeton illinoensis*, an aquatic plant uncommon in BC), but this was near the end of the flight season – only two males and one female were observed on this date. In Washington State, the recorded flight period is 6-VI to 2-IX (PAULSON, 1999).

Selected specimen records (all Christina Creek): 19-VII-1999, LRR (3♂, 1♀); 7-VIII-1999, SGC (1♂, 1♀); 22-VI-2000, LRR (1♂); 15-VII-2004, KMN, RDK, JH (3♂, 1♀, University of BC)

Populations are not large; 28 adults were recorded on 19-VII-1999. During a survey on 15 and 16-VII-2004, only 13 individuals were counted along the whole 4 km of Christina Creek (J. Heron, pers. comm.). Western populations of the species are quite irregularly distributed, and this population is probably isolated from the nearest ones in Washington State. Because the small, isolated population is restricted to a single locality in BC and because there is potential for damage to this site, *C. aequabilis* is assigned a provincial conservation status rank of S1 and placed on the Red List of species of conservation concern (BCCDC, 2003).

Christina Creek is the only known locality for

*C. aequabilis* in BC. Much of the site is privately owned and none of it is formally protected, although conservation covenants are pending. The protection of the riparian zone and the maintenance of a relatively undisturbed edge along the creek are critical for the damselfly, especially because it uses the vegetation overhanging the stream for roosting and floating mats of vegetation for oviposition. Controlling recreational activities along the stream is also important. Of particular concern is the common use of personal watercraft along the shallow creek – the wakes from these craft collapse the banks and damage streamside vegetation. Significant populations of introduced species are also conservation issues. Fishes such as Largemouth Bass (*Micropterus salmoides*), Smallmouth Bass (*M. dolomieu*), Pumpkinseed (*Lepomis gibbosus*), Yellow Perch (*Perca flavescens*), and Carp (*Cyprinus carpio*) are present. The direct and indirect effects of the aquatic weed, Eurasian Milfoil (*Myriophyllum spicatum*), which is described as being “out of control” at the south end of Christina Lake, are unknown. (CANNINGS, 2003).

– *Lestes forcipatus* Rambur

This is a widespread eastern North American species that was first collected in Washington State in 1997; at the time, this was the only record west of Montana (PAULSON, 1997). In Canada it had not been confirmed west of Saskatchewan (WESTFALL & MAY, 1996) until it was recognized in 1998 at a site north of Golden (Donald, Bluewater Creek, 5-VIII-1998, LRR [2♂, 2♀], GAA [2♂, 2♀]). Since then it has been collected widely across the southern half of the province, from the extreme Southeast (Flathead Valley, Sage Creek, 3-VIII-1999, SGC [4♂, 4♀], LRR [1♂, 1♀]) through the Boundary region (Rock Creek, Taurus Lake, 29-VIII-1999, IH [1♀]) to Vancouver Island (Qualicum Beach, Hamilton Marsh, 28-VII-2000, RAC, SGC [1♀]) and north to Terrace (Lakelse Lake, Williams Creek, 16-VIII-2002, RAC, APH [1♀]), the Fort St. James area (Tezzeron Creek, 11-VIII-2001, RAC, APH, TV, JV [3♂, 1♀]) and Mackenzie region (Gataiga Creek, 29-VII-2001, LRR, LW, JT [2♂, 1♀]). Although it has not been collected in BC's far North, in

2004 it was recorded in the southeastern Yukon (Watson Lake, 8-VIII-04, SGC [1♀]).

*L. forcipatus* is not as rare as records suggest; it has been confused with the much more common and abundant *L. disjunctus*, which it closely resembles. Males are so similar to those of *L. disjunctus* that unless a female (which is more easily identified than the male) is collected, the species may be overlooked. Some of our old museum specimens of *L. disjunctus* have been re-identified as *L. forcipatus* – e.g., Qualicum Beach, Hamilton Marsh, 15-VIII-1986, RAC (1♂, 1♀); Bowser, 16-VIII-1986, RAC (1♂, 1♀); Clearwater River, Shadow Lake, 14-VIII-1988, RAC, SGC, HK (1♂, 3♀); Cobble Hill, Spectacle Lake, 28-VII-1996, GEH (1♂, 1♀). SIMAIKA & CANNINGS (2004) discuss the characters that best separate males of the two species.

WALKER (1953) described *L. forcipatus* habitat as “ponds, both temporary and permanent, marshy lakes, and slow, weedy streams.” In BC, our recent studies have found it mostly in fens dominated by *Carex* and/or *Menyanthes*, often in the presence of emergent aquatic moss. In BC the recorded flight period is 23-VI to 4-IX.

– *Somatochlora forcipata* (Scudder)

This species is known mostly from eastern Canada and the northeastern United States. In the 1920s Edmund Walker of the Royal Ontario Museum had collected this elusive dragonfly about 3 km from the British Columbia/Alberta boundary in Banff National Park (WALKER & CORBET, 1975). This historical collection had remained the only record west of Manitoba – surely it also lived west of the Continental Divide in BC. Finding it in the province was a goal that had eluded us for years. Finally, in 1998, we came across it near Ross Lake in Kicking Horse Pass, 300 m from the Alberta boundary (51°26'53"N, 116°17'42"W) and subsequently found it at two other similar sites that summer: Yoho National Park; Stephen; fen near Ross Lake, 3-VIII-1998, RAC (1♂, 1♀), GEH (1♂, 1♀), CS (3♂); Yoho National Park; Field; Emerald Lake, 5-VIII-1998, SGC (2♂), SEC (2♂); Kootenay National Park, Vermilion Pass, 12-VIII-1998, SEC (1♀).

This known range was increased to the north and west in 2001: Cinema, 21-VII-2001, CSG (1♂); Mackenzie, Curve Lake, 22-VII-2001, GEH (1♂); Mackenzie, Philip Creek, 10-VIII-2001, TV, RAC, APH (1♂).

In the Rocky Mountains, *S. forcipata* lives in shallow, spring-fed streamlets, often only 20-30 cm wide, trickling through subalpine hillside fens, or in pools associated with flowing groundwater in such situations. The species seems absent from peatlands dissected by small, winding streams. At the Ross Lake site, females laid eggs in moss and *Chara* mats in a shallow seep and in a mud-bottomed streamlet pool. Because these sites are usually small in scale, the patrolling males often flew in more or less shady glades in open spruce forests. At the Emerald Lake road site, they avoided the open, sunny fen below the springs. Little is known of the species' phenology in BC; records in the province range from 21-VII to 12-VIII.

– *Somatochlora brevicincta* Robert

This is a rare species previously known only from a handful of localities in northeastern North America: central Québec, the Atlantic Provinces and Maine. On 2-VIII-2000, SGC collected a female in the huge fens near the headwaters of the Parsnip River in the Rocky Mountain Trench (54°29'56"N, 121°50'11"W). Two days later, more were found by SGC and SWD at terraced fens at the headwaters of McIntosh Creek near timberline in the Cariboo Mountains west of McBride, where the species flew with the much more abundant *S. whitehousei* Walker and *Leucorrhinia patricia* Walker. Other noteworthy records for 2000: Parsnip River, 11.5 km NW Arctic Lake, 6-VIII-2000, SGC (1♂, 1♀); McBride, McIntosh Creek, 9-VIII-2000, RAC, APH (1♂); McBride, Holmes River, 10-VIII-2000, RAC, APH (1♂); Prince George, Herrick Creek, 12-VIII-2000, RAC, APH (1♀).

In 2001 we collected *S. brevicincta* at several more sites farther north on the eastern slopes of the Rockies near Williston Lake: Mackenzie, Tutu Bay, 17-VII-2001, SGC (1♀); Mackenzie, km 88 Finlay FSR, 21-VII-2001, GEH (1♂); Mackenzie, Curve Lake, 22-VII-2001, GEH (2♂); Mackenzie, km 25 Finlay FSR, 29-VII-2001, GEH (1♂); Germansen Landing, Osilin-

ka, 8-VIII-2001, LRR, IH (1♂); 10-VIII-2001, LRR, IH (1♀).

*S. brevicincta* habitats in BC are usually fens supporting shallow pools. Nowhere are these dragonflies common, and we certainly did not find them in most of the fens that seemed appropriate. Their full distribution and habitat requirements remain a mystery, both within British Columbia and across the boreal and sub-boreal regions of North America. In BC the recorded flight period is 17-VII to 12-VIII.

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