

ENALLAGMA BASIDENS CALVERT, A DRAGONFLY NEW TO CANADA, WITH NOTES ON THE EXPANSION OF ITS RANGE IN NORTH AMERICA (ZYGOPTERA: COENAGRIONIDAE)

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Abstract — The first specimens of *E. basidens* are recorded from Canada. In 1985 six pairs were collected from man-modified habitats in southwestern Ontario, and in 1987 and 1988 further collections were made in the same region. The remarkable expansion of the species' range in the past 80 years is outlined.

Introduction

Enallagma basidens Calvert is a versatile little damselfly that has expanded its range dramatically since the early 1900s. Originally, it evidently was a species of northeastern Mexico and southern Texas; it was described from Texas by CALVERT in 1902. Since then it has spread rather rapidly north, east, and west. This note describes the first collections from Canada.

Habitat requirements

E. basidens lives in a wide variety of habitats, from the sheltered coves and edges of large lakes and the banks of slow streams to small ponds (Drs M. May and K.J. Tennessen, in litt., March 1989). Frequently it is collected in man-modified habitats such as impoundments and quarry ponds, which may be merely semipermanent and have only sparse emergent vegetation (Drs T. Donnelly and M. May, in litt., March 1989). In Cortland Co., New York, one of the most northerly localities recorded (see below) it was collected at a "bog pond at an elevation of 1200 feet [370 m]... by far its most "boreal" occurrence to date" (T. Donnelly, in litt., July 1989). In southeastern states, at least, it has a long flight season, from early April (10 April 1981, larva collected, emerged 13 April; Alabama, Colbert Co., Tuscumbia: K.J. Tennessen, in litt., March 1989) to early October (9 October 1964, North Carolina, Orange Co.: Dr D.R. Paulson, in litt., March 1989).

The proliferation of suitable man-made habitats in this century is almost certainly the primary cause of the species' expansion out of

its traditional range. The remarkable spread of another damselfly, *Archilestes grandis* (Rambur), and the conditions promoting it are similar (MONTGOMERY, 1966; T. Donnelly, in litt., March 1989). *E. basidens* can quickly take advantage of modified habitats, where it is "evidently more competitive or at least tolerant of environmental difficulties than other zygopterans" (T. Donnelly, in litt., March 1989). In such places the diversity of Odonata often is limited. This fact is emphasized in the lists of species found with *E. basidens* at the Canadian localities described below; the number of species is low, and all of them are known to be tolerant of modified habitats.

Canadian records

On 28 June 1985 I collected five pairs of *E. basidens* in tandem at a limestone quarry pond in the village of Scudder, Pelee Island (Essex Co.), Ontario. Scudder is one of the most southerly places in Canada (41°41'N, 82°39'W). The insects were captured flying among sparse emergent vegetation growing in a narrow strip at the edge of the limestone shore, which shelved abruptly into deep water. Other dragonflies flying at the pond were *Lestes dryas* Kirby, *Ischnura verticalis* (Say), *Celithemis elisa* (Hagen), *Libellula luctuosa* Burmeister, and *Sympetrum rubicundulum* (Say). Further north at Ojibway Park, Windsor (Essex Co.), Ontario, on 2 July 1985, I collected another pair of *E. basidens*. These were also at a man-made pond, and were flying with *Enallagma ebrium* (Hagen) and *Libellula luctuosa* Burmeister.

P. Pratt (in litt., August 1989) has provided information on several more recent Canadian records. On 24 June 1987 he collected a single male at a shallow, man-made pond at Ojibway Park, Windsor, Ontario (42°16'N, 83°04'30"W). This pond is near the one where I collected *E. basidens* in 1985. Along the North Sydenham River south of Wilkesport, Lambton Co.,

Ontario (42°43'N, 82°23'W) he collected three of four males seen on 1 August 1987, and at the same place on 30 August he saw about 35 males and one pair in tandem. At this location the river is turbid, and slowly flows through old pastures. On 26 May 1988 he observed a pair in tandem at the Ojibway Park pond, Windsor, where he had recorded the single male in 1987, and the next day he collected two males there. On 11 June 1988 he captured a pair in tandem at another man-made pond on Titcombe Road, Windsor.

Range expansion

The range extension of *E. basidens* can be roughly documented by an examination of records and statements made by observers during the past 70 years. MONTGOMERY (1942) noted: "Many of the localities where it is now found in abundance had been visited by experienced collectors of Odonata for many years before it was discovered, and it seems unlikely that it would have been missed had it been present previously". RAFF et al. (1969) outline the early northeasterly spread of *E. basidens*. The first record outside Texas was from Kansas in 1917 (KENNEDY, 1917). By 1929 it had been found in Indiana (MONTGOMERY, 1942) and was well established as a breeding species there in the 1930s (MONTGOMERY, 1966). WILLIAMSON (1932) reported *E. basidens* from Missouri in 1929 and by 1942 MONTGOMERY recorded it in Ohio and as far east as New York and North and South Carolina. The earliest record from the Carolinas in the Florida State Collection of Arthropods (FSCA) is from Transylvania Co., North Carolina, 12 June 1940. DONNELLY (1961) discovered specimens in three counties in the Washington, D.C. area in 1950. By 1959 the species was collected in western Pennsylvania (RAFF, 1960), where it apparently entered via the Ohio River Valley; subsequently it evidently entered the state from the south via the Potomac and Delaware River drainages (RAFF et al., 1969). The only Delaware records appear to be those of Dr H. White (in litt., March 1989); the earliest of these is from New Castle Co. in 1974. C. Cook (in litt., March 1989) notes that *E. basidens* now is "very common in West Virginia and northern Ohio where it did not occur

twenty years ago". The most northeasterly U.S. records to date are from New Jersey and New York. The New Jersey records include specimens collected at a Morris County locality in 1982 (M. May, in litt., April 1989). The New York record is that of a single male taken by T. Donnelly (in litt., July 1989) on 8 July 1989 in Cortland Co. (43°35'N).

From the extreme southeastern U.S. the earliest dates from specimens in the FSCA include Alabama (1936), Georgia (1954), and Florida (1957) (Dr M. Westfall, in litt., March 1989). Given the 1940 record from North Carolina (see above), the Georgia record, at least, is certainly not indicative of the species' first arrival in that state.

E. basidens has reached as far west as the Colorado River valley of California (Imperial Dam), where it was first collected in 1974 (PAULSON & GARRISON, 1977). It was found in Colorado in 1973 (BICK & HORNUFF, 1974) and is known from Nebraska (PREUSS, 1968). The first record from Arizona was in 1956 (JOHNSON, 1972); the earliest record I can locate from New Mexico is in 1961 (D. Paulson and M. Westfall, in litt., March 1989).

The now very extensive northern edge of *E. basidens*' range is transcontinental — from southern California to southern Ontario and New Jersey. This range will likely continue to move northward at varying rates in different regions. Odonatologists should look carefully for *E. basidens* in peripheral areas, especially around irrigation ditches, reservoirs, quarry ponds, gravel pits and similar disturbed sites.

E. basidens is well known in the U.S., but Canadian observers who have no experience with it (it is not mentioned in WALKER [1953]) should be aware of its distinguishing features. The species is well described in GARRISON (1984).

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