

**NOTE*****Chaetocnema* flea beetles (Coleoptera: Chrysomelidae, Alticini) of the Maritime Provinces of Canada**

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Chaetocnema Stephens, 1831 is a cosmopolitan and species rich genus of flea beetles (Chrysomelidae, Galerucinae, Alticini). They are an economically important group with several species [*Chaetocnema confinis* Crotch (sweetpotato flea beetle), *Chaetocnema denticulata* (Illiger) (toothed flea beetle), *Chaetocnema ectypa* Horn (desert corn flea beetle), and *Chaetocnema pulicaria* Melsheimer (corn flea beetle)] sometimes causing significant damage to a variety of economically important crops (White 1996). There are approximately 440 species known worldwide, 59 of which have been recorded in North America (White 1996). Eighteen species have been recorded in Canada, four of which have been recorded in Atlantic Canada (Riley et al. 2003). The present paper adds two species, *Chaetocnema borealis* White and *Chaetocnema protensa* LeConte, to the region's fauna.

In the course of biodiversity studies on the Coleoptera of the Maritime Provinces of Canada (New Brunswick, Nova Scotia, and Prince Edward Island), 467 specimens of *Chaetocnema* were examined in a variety of regional collections as well as the Canadian National Collection. These consisted of five species, two of which are newly recorded in the region (Table 1). Information on their distribution and host plants is provided. Abbreviations of collections referred to in this study are:

ACPE	Agriculture and Agri-Food Canada, Charlottetown, Prince Edward Island, Canada
CBU	Cape Breton University, Sydney, Nova Scotia, Canada
CGMC	Christopher G. Majka Collection, Halifax, Nova Scotia, Canada
NSAC	Nova Scotia Agricultural College Collection, Bible Hill, Nova Scotia, Canada
NSMC	Nova Scotia Museum Collection, Halifax, Nova Scotia, Canada
UMNB	Université de Moncton, Moncton, New Brunswick, Canada
UPEI	University of Prince Edward Island, Charlottetown, Prince Edward Island, Canada.

Table 1. *Chaetocnema* species in the Maritime Provinces of Canada.

	NB	NS	PE
<i>Chaetocnema borealis</i> White	1	1	1
<i>Chaetocnema concinna</i> (Marsham) †	1	1	1
<i>Chaetocnema confinis</i> Crotch	1	1	
<i>Chaetocnema minuta</i> Melsheimer	1	1	
<i>Chaetocnema protensa</i> LeConte	1	1	

Notes: NB = New Brunswick; NS, Nova Scotia; PE = Prince Edward Island; † = adventive species.

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KEY TO IDENTIFICATION

The following key to the identification of species of *Chaetocnema* known to occur in the Maritime Provinces is adapted from White (1996). This work, including illustrations of the aedeagi of these species, should be consulted for a more exhaustive treatment of the species of this genus.

1. Elytral punctures forming well-aligned striae throughout, rarely with slight irregularities2
 – Elytral punctures near base partly to largely irregular*Chaetocnema borealis* White
- 2(1). Vertex of head with a few punctures near each eye, usually weak, not more than 8 on each side3
 – Vertex of head with punctures over most to all of interocular area, minute to large, usually deep and distinct4
- 3(2) Pronotal lateral margin behind anterior angle with a distinct irregularity
 *Chaetocnema confinis* Crotch
 – Pronotal lateral margin behind anterior angle lacking an irregularity
 *Chaetocnema concinna* (Marsham) [in part]
- 4(2) Punctures of head near eyes and not over 8 on each side
 *Chaetocnema concinna* (Marsham) [in part]
 – Punctures of head greater in number, above each eye or distributed throughout5
- 5(4). Body elongate, 2.0–2.3 times as long as wide*Chaetocnema protensa* LeConte
 – Body less elongate, 1.55–1.90 times as long as wide *Chaetocnema minuta* Melsheimer

Chaetocnema borealis White, 1996

NEW BRUNSWICK: **Albert County:** Mary's Point, 9.VIII.2002, C.G. Majka, coastal vegetation (2, CGMC); Hillsborough, 3.X.2010, C.G. Majka, freshwater marsh (2, CGMC); **Westmorland County:** Moncton, 2008, no collector recorded (1, UMN). **NOVA SCOTIA:** 255 specimens examined from 10 counties in the province on both Cape Breton Island and the mainland of Nova Scotia (Fig 1.). The earliest record is from 1948 [**Kings County:** Kentville, 14.VI.1948, D.C. Eidt (1, NSAC)]. **PRINCE EDWARD ISLAND:** locality data lost, 1974-83, (1, UPEI); **Kings County:** Launching, 26.VIII.2003, C.G. Majka, salt marsh (1, CGMC); Townshend Forest, Souris Line Rd, 14.VIII.2010, C.G. Majka, edge of forest road (1, CGMC); Woodville Mills, 6.IX.2001, C.G. Majka, old field (1, CGMC); **Prince County:** Summerside, 4.IX.2001, C.G. Majka, wet meadow (1, CGMC); St. Nicholas, 31.VII.2003, D.B. McCorquodale, (1, CBU); **Queens County:** Cavendish

Sandspit, 2.VIII.2003, D.B. McCorquodale, (2, CBU); Harrington, 8.IX.2005, M.E.M. Smith, barley & hedgerows (1, CGMC); Harrington, 16.IX.2004, C. Noronha, barley field, pitfall trap (1, ACPE); Harrington, 2.IX.2005, M.E.M. Smith, weeds & barley (1, CGMC); Millvale, 15.VIII.2004, C.G. Majka, along river (1, CGMC); St. Patricks, 18.VIII.2002, C.G. Majka, old field (1, CGMC); Toronto, 19.VIII.2002, C.G. Majka, old field (1, CGMC); Wood Islands, 29.VIII.2003, C.G. Majka, seashore (1, CGMC).

Chaetocnema borealis (Fig. 1) is newly recorded in New Brunswick, Nova Scotia, and Prince Edward Island (Fig 2). The species was described by White (1996) from specimens collected in Québec and Ontario. Until the present collections it was known only from these two provinces. The habitat information from records given in White (1996) indicated that it favours wet environments, i.e., bog, floating mat in bog, sedge meadow hollow, hussock,

Figure 1. Dorsal habitus photograph of *Chaetocnema borealis*. Photo credit: Klaus Bolte (Biolmaging).



along river); however there are a considerable number of records from other open habitats, i.e., old field, hedgerow, blueberry plantation, field, open area, agricultural field, and pasture. Host plant information has not been recorded.

Chaetocnema concinna (Marsham, 1802)

The biology and distribution of *Chaetocnema concinna* (Fig. 3), an adventive Palearctic species, in the Maritime Provinces were reviewed by LeSage and Majka (2010), and the reader should consult that work for records from the region. It is widely distributed in Nova Scotia and Prince Edward Island and known from a few localities in New Brunswick (Fig. 4). It has been present in the Maritimes since at least 1985. The earliest North American records are from 1979 in Massachusetts, USA (Hoebeke and Wheeler 1983). Clark et al. (2004) listed a large number of host plants for this species in the Amaranthaceae, Asteraceae, Brassicaceae, Cannabaceae, Chenopodiaceae, Fabaceae, Poaceae, Polygonaceae, Rosaceae, and Salicaceae, concluding that polygonaceous plants were the preferred hosts.

Figure 2. Distribution of *Chaetocnema borealis*, *Chaetocnema minuta*, *Chaetocnema protensa*, and *Chaetocnema confinis* in the Maritime Provinces of Canada.

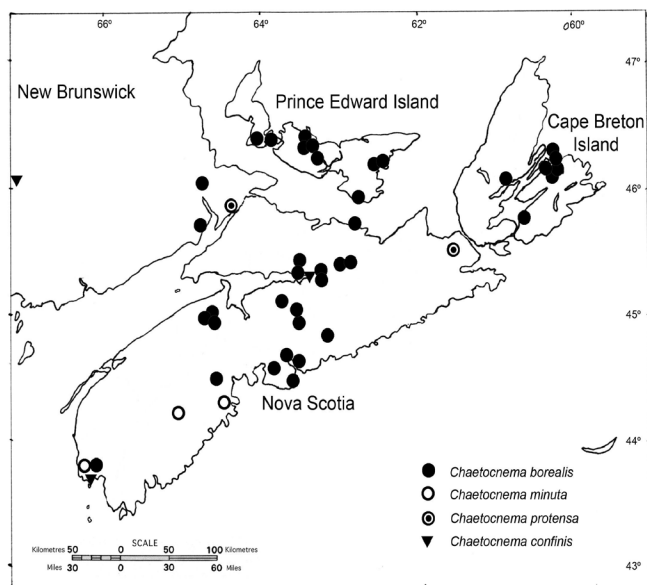
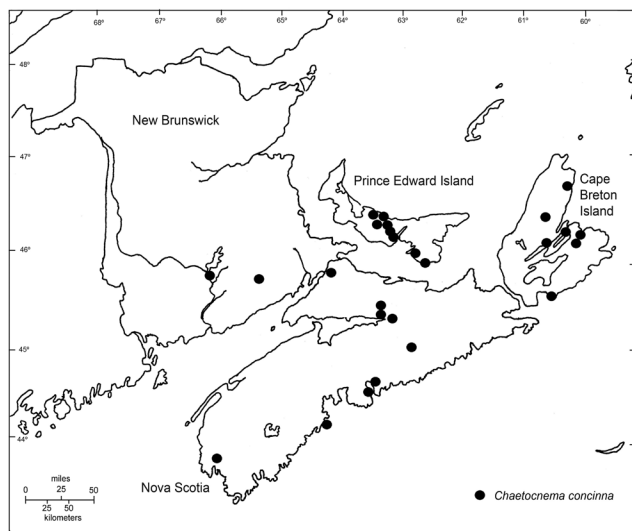


Figure 3. Dorsal habitus photograph of *Chaetocnema concinna*. Photo credit: Klaus Bolte (Biolmaging).



and larch forest. In the Maritime Provinces there are many records from moist environments (marshy swamp, alder swale, barrier beach, lakeshore, coastal barrens, along stream, boggy area, marsh, seashore, sphagnum bog, wet meadow, bog-swamp, salt marsh, wet meadow, and

Figure 4. Distribution of *Chaetocnema concinna* in the Maritime Provinces of Canada (adapted from Lesage and Majka 2010).



Chaetocnema confinis Crotch, 1873

NEW BRUNSWICK: York County: Millville, 9.VII.1942, G.M. Stirrett, wild morning glory (4, CNC). **NOVA SCOTIA: Yarmouth County:** Tusket, 27.VI.1947, W.J. Brown (4, CNC).

Chaetocnema confinis was reported from New Brunswick and Nova Scotia by LeSage (1991), White (1996), and Riley et al. (2003) on the basis of the above specimens (Fig 2.). It is known by the common name of “sweetpotato flea beetle.” The primary host plants are *Calystegia sepium* (L.) R. Br. (hedge bindweed), *Convolvulus arvensis* L. (field bindweed), *Ipomoea aquatica* Forssk. (water spinach), *Ipomoea batatas* (L.) Lam. (sweetpotato), *Ipomoea indica* (Burm.) Merr. (oceanblue morning glory), *Ipomoea palmata* Forssk. (morning glory), *Ipomoea pandurata* (L.) G.F.W.Mey. (wild potato vine), and *Ipomoea purpurea* (L.) Roth (tall morning glory), all in the Convolvulaceae (Clark et al. 2004). There are secondary associations with a large number of other plants (White 1996; Clark et al. 2004).

Chaetocnema cribrata LeConte, 1878

Chaetocnema cribrata was reported from New Brunswick and Nova Scotia by LeSage (1991), however, this was before the description of *Chaetocnema borealis* by White (1996). It appears probable that previous reports of this species in the region are ascribable to *Chaetocnema borealis* instead. The reader should consult that work for records from the

region. *Chaetocnema cribrata* was not reported from the Maritime Provinces by White (1996) and Riley et al. (2003), and all the specimens of irregularly punctate *Chaetocnema* that we have examined are *Chaetocnema borealis*.

Chaetocnema minuta Melsheimer, 1847

NOVA SCOTIA: Queens County: Pleasantfield, 18.VIII.1994, J. Ogden (2, NSNR, CNC); Pleasantfield, 19.VIII.1994, J. Ogden (1, NSNR); **Yarmouth County:** Wellington, 23-29.VIII.1992, J. Cook, mixed forest (1, CGMC).

Chaetocnema minuta was reported from New Brunswick and Nova Scotia by LeSage (1991) and Riley et al. (2003) and from Nova Scotia by White (1996). In Nova Scotia, records to date are confined to the southern portion of the province (Fig. 2). We have not located the source specimen on which the New Brunswick record is based. Clark et al. (2004) reported associations with *Apium graveolens* L. (celery) (Apiaceae), *Solidago* sp. (goldenrod) (Asteraceae), *Brassica oleracea* L. (wild cabbage) (Brassicaceae), *Beta vulgaris* L. (sugar beet) (Chenopodiaceae), *Dirca palustris* L. (leatherwood) (Thymelaeaceae), *Aesculus octandra* Marsh. (yellow buckeye) (Hippocastanaceae); and, *Agrotis* sp. (bent grass), *Dactylis glomerata* L. (orchard grass), *Poa* sp. (bluegrass), *Zea mays* L. (corn) all in the Poaceae.

Chaetocnema protensa LeConte, 1878

NEW BRUNSWICK: Westmorland County: Sackville, 12.VIII.1982, no collector noted, pitfall trap (1, UMN); Sackville, 27.VIII.1982, no collector noted, pitfall trap (1, UMN). **NOVA SCOTIA: Guysborough County:** 10 km south of Monastery, B. Wright (1, NSMC).

Chaetocnema protensa (Fig. 5) is newly recorded in New Brunswick, Nova Scotia and in the Maritimes Provinces overall (Fig 2). Clark et al. (2004) reported that it had been reared from *Festuca rubra* L. (red fescue), *Spartina* sp. (cordgrass), and *Zea mays* (corn), all in the Poaceae. Records associated with other plants may be incidental or based on misidentifications (White 1996; Clark et al. 2004).

Although the present account adds two new species to the regional fauna, and considerable detail about the distribution of the *Chaetocnema* species in the Maritime Provinces, it is likely that more remains to be discovered, particularly in New Brunswick where collecting effort to date has been very slight.

Figure 5. Dorsal habitus photograph of *Chaetocnema protensa*.
Photo credit: Klaus Bolte (Biolmaging)



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