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NEW EPHEMERELLA SPECIES (EPHEMEROPTERA).*

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In anticipation of a more extended paper on this difficult genus I offer the following descriptions of four new Canadian species. These are all small, blackish-looking species, varying somewhat in size but in general quite similar in appearance; they show, however, good distinguishing characters in the male genitalia.

***Ephemerella simplex* n. sp.**

Male. Eyes deep brown (dried); head, thorax and dorsum of abdomen deep black-brown; the lateral edge of the mesonotum and the dorsal transverse suture pale brown; the central portion of the mesosternum black-brown, the lateral projections, between the first and second pairs of legs, largely light brown; dorsum of abdomen almost unicolorous black-brown, slightly paler laterally, especially on segments 8 and 9 which show considerable paler brown shading; ventrally the abdomen is dull ochre-brown with the 9th segment and the forceps shaded with black-brown; setae dull smoky. Forelegs blackish, other legs dull ochre-brown, the same shade as abdomen ventrally; relative length of foreleg joints, femur 30, tibia 48, tarsi 2, 25, 25, 15, 6; hind leg with femur and tibia subequal and tarsi about $2/3$ of tibia. The male penes are quite characteristic, viewed laterally they curve upward, but are not sharply angled at base, ending in two broad lobes, proximad to which is a slight ventral heart-shaped depression; the apices of the lobes are furnished with a number of minute papillae, showing on a slide with higher magnification as small hyaline dots. Wings hyaline, the longitudinal veins tinged with brown, the crossveins only well-defined in the apical section of primaries. Length of body 6 mm.; of forewing 6 mm.

Female. Very similar to male but slightly paler in color; head entirely brown with slight black spotting in the central area between the eyes; subanal plate moderate in length, shovel-shaped, rounded apically.

*—Contribution from the Div. of Syst. Ent. Entomological Branch, Department of Agriculture, Ottawa.

Holotype—♂, Laprairie, Que., July 8, (G. S. Walley); No. 1276 in the Canadian National Collection.

Allotype—♀, same data.

Paratype—1 ♂, same data.

***Ephemerella attenuata* n. sp.**

Male. Eyes deep brown; head and thorax deep black-brown; abdomen dorsally dark brown shading into paler brown on the posterior three segments, ventrally paler with eighth segment quite pale creamy brown; forceps whitish, shaded with light brown at base, setae white. Legs pale yellowish white, the forelegs darker, with the tibia and tarsi largely smoky; in some specimens the mid- and hind femora show a brownish spot apically; fore tibia about one and one half times as long as the femur and about the same length as the whole tarsus (femur, 30, tibia, 45, tarsi, 2, 15, 11, 7, 4); hind tibia about equal in length to femur and twice the length of tarsus. Wings and veins hyaline, crossveins faint except at apex of primaries where they are strongly anastomosed. Length of body 6 mm.; of forewing 6 mm.

Female. Rather ruddier brown than in the male; head lighter brown, shaded slightly with black in central area; behind the ocelli on each side of the median line is a small tubercle and another similar pair, wider apart, on the posterior margin; the subanal plate is very long and narrowed apically, the truncate apical margin showing at times a slight excavation.

Holotype—♂, Ottawa Golf Club (near Hull), Que., July 30, (J. McDunnough); No. 1277 in the Canadian National Collection, Ottawa.

Allotype—♀, same locality, June 31, (G. S. Walley).

Paratypes—9 ♂, 16 ♀, taken at same locality on various dates between July 21 and Aug. 19 by J. McDunnough, G. S. Walley and F. Ide.

The species is readily recognized in the male sex by the long third joint of the forceps (about one half the length of the second) and the comparatively short fore tarsus. The subimago has unicolorous deep blackish wings.

***Ephemerella sordida* n. sp.**

Male. Eyes (dried) deep black-brown; head and thorax black-brown, the pleura shaded with lighter brown and the lateral extensions of the mesosternum between first and second pairs of legs shaded with paler color; abdomen dorsally dull blackish, shading into brown on the three posterior segments, ventrally paler, smoky, the last segments opaque, pale gray; forceps, penes and setae whitish, the latter without dark rings. Legs pale yellowish, forelegs more or less tinged with smoky, two hind pairs of femora with traces of brown apical spots; fore tibia twice the length of femur and slightly longer than entire tarsus (femur, 25, tibia, 50, tarsi, 2, 15, 15, 10, 5); hind tibia equal in length to femur and about one and one half times as long as tarsus. Wings hyaline with pale venation, the crossveins, as usual, only well defined in apical area of primaries, where they are strongly anastomosed. Length of body 5 mm., of forewing 6 mm.

Holotype—♂, Lachine, Que., Aug. 6, (G. S. Walley); No. 1280 in the Canadian National Collection, Ottawa.

Paratypes—1 ♂, same data; 3 ♂, Ottawa Golf Club, Que., Aug. 13, 14 (F. Ide).

The species is apparently allied to *serrata* Morg. but is much darker in coloration; the lateral margins of the penes near the apices are prolonged into two short teeth, projecting dorsally and best seen when viewed from the side. The plain white setae are also quite characteristic.

***Ephemerella atrescens* n. sp.**

Subimago with deep blackish wings.

Male. (living) Eyes brown, blackish at base. Head and thorax entirely deep blackish, laterally the sutures of thorax slightly tinged with brown. Abdomen dorsally deep black-brown with faint traces of two subdorsal paler streaks, ventrally paler, the eighth and ninth segments being largely suffused with dirty whitish; forceps whitish, penes black; setae white, very faintly and narrowly ringed with brown. Legs pale whitish yellow, the fore tibiae and tarsi tinged with smoky, the two hind pairs of legs with prominent brown spot at apex of femora; fore tibia twice the length of femur and slightly longer than tarsus; relative lengths—femur, 25, tibia, 50, tarsi, 2, 17, 15, 9, 4. Wings hyaline with brown tinge at base, veins colorless, costal crossveins only present at apex of wing.

Female. Very similar to male, head between eyes shaded with pale-brown; abdomen ventrally with anterior segments edged posteriorly with whitish.

Holotype—♂, Ottawa (Rideau River) Ont., June 16, 1924, (J. McDunnough); No. 1272 in the Canadian National Collection, Ottawa.

Allotype—♀, same date.

Paratypes—Numerous ♂ and ♀ from same locality and from Ottawa Golf Club (Ottawa River) Que., collected at various times in June and August in 1922-24 by J. McDunnough, R. Ozburn, F. P. Ide and G. S. Walley.

The species resembles in size and color *Choroterpes basalis*; I had at first identified it as *deficiens* Morgan but it lacks the broad yellow band on the sternum mentioned in the original description; the male penes (dried) are two simple prongs with an apical U-shaped excavation between, extending about one third of the distance to the base. There seem to be two generations in the year.
