THE *ATAENIUS* OF OHIO$^1$ $^2$

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**Abstract.** The species of *Ataenius* Harold (Coleoptera: Scarabaeidae: Aphodiinae) native to Ohio, *Ataenius spretulus* (Haldeman) (the black turfgrass ataenius), *A. punctifrons* Cartwright, *A. abditus* (Hald.), *A. gracilis* (Melsheimer), *A. erratus* Fall, *A. imbricatus* (Mels.), *A. strigatus* (Say), and *A. apicalis* Hinton are distinguished with an illustrated key. Individual taxonomic description, Ohio distribution, biological information and economic importance of *A. spretulus* and *A. strigatus* as turf grassfeeders are provided.

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The genus *Ataenius* Harold (Coleoptera: Scarabaeidae: Aphodiinae) contains over 300 described species worldwide, 63 of which are found in the continental United States, 8 being native to Ohio. Except for the fact that in temperate climates adults overwinter, little is known of the biology of these small scarabs (Cartwright 1974), as larvae and adults of some species feed entirely, or in part, on animal dung (Jerath 1960, Ritcher 1966). Other species feed on plant roots and soil constituents as larvae and on humus as adults (Hoffman 1935, Kawanishi et al. 1974, Niemczyk and Dunbar 1976). This latter group contains one recognized and one potential pest of cultured turfgrass. We have identified the larva of *Ataenius spretulus*, the black turfgrass ataenius, as a major pest of cultured turfgrass at golf courses and in residential lawns throughout the state. Larvae of *A. strigatus* have been found with those of *A. spretulus* and, therefore, may be responsible for some damage to turf. The adults of a number of *Ataenius* species are attracted to both incandescent and ultraviolet light. Attempts at laboratory rearing of some species have met with some success (Hoffman 1935, Ritcher 1966, and Cartwright as cited by Jerath 1960).

**KEY TO THE ADULT *ATAENIUS* SPECIES OF OHIO**

1. Elytra having the color and texture of clay................. *A. imbricatus* (Melsheimer)
   1. Elytra shining................................................. 2
   2. Clypeal margin strongly angulate on each side of median emargination (fig. 2)........ 3
   2. Clypeal margin broadly rounded each side of median emargination (fig. 3)........... 4
   3. Dorsal surface smooth, shining.................. *A. punctifrons* Cartwright
   3. Dorsal surface sculptured with a network of minute, shallow, contiguous depressions or fissures (fig. 4)........ *A. abditus* (Haldeman)
   4. Punctures of head arranged in short longitudinal lines; small, slender, elongate species; elytral intervals strongly convex (fig. 5).................. *A. gracilis* (Melsheimer)

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$^2$Approved by the Associate Director of the Ohio Agricultural Research and Development Center as Journal Article No. 163-78.
4. Punctures of head simple.......... 5
5. Accessory spine of meso- and metatibiae closely adjacent to the short spur, without intervening setae of the terminal fringe (fig. 6)................. A. erratus Fall.
5. Accessory spine more removed from the spurs, one of the setae of the terminal fringe intervening (fig. 7)................. 6
6. Posterior face of profemur sparsely set with fine punctures and relatively smooth, rarely three or four shallow, coarse punctures (fig. 8)................. A. spreitulus (Haldeman)
6. Posterior face of profemur set with coarse, deep punctures (fig. 9).......... 7

7. Clypeus with noticeable small transverse wrinkles; metatibiae with terminal fringe of 5 setae together and another between accessory spines and spurs; usually at least a few coarse punctures coalescing in anterior angles of pronotum (figs. 10 and 11)................. A. apicalis (Say)
7. Clypeus with fine punctures and little or no transverse wrinkling; metatibial terminal fringe of 6 or 7 setae together and another between accessory spines and spurs; apical declivity of elytra with intervals eroded each side; metatibiae with row of 3 or 4 noticeable, coarse setigerous punctures distally (figs. 12 and 13)................. A. apicalis Hinton

FIGURES 2-9

**FIGURE 2.** Head and pronotum of *A. punctifrons*; arrow indicates strongly angulate clypeal margin.

**FIGURE 3.** Head and pronotum of *A. spretulus*; arrow indicates broadly rounded clypeal margin.

**FIGURE 4.** Head and pronotum of *A. abditus*; arrow indicates minute fissure on magnified inset of pronotum.

**FIGURE 5.** Head and pronotum of *A. gracilis*; arrow indicates rows of punctures on head.

**FIGURE 6.** Generalized *Ataenius* metatibia+1st tarsal segment; accessory spine (a) closely adjacent to short spur (b).

**FIGURE 7.** Generalized *Ataenius* metatibia+1st tarsal segment; one seta (a) of terminal fringe between accessory spine (b) and short spur (c).

**FIGURE 8.** Prothoracic leg of *A. spretulus*; arrow indicates sparse, fine punctures on posterior face of profemur.

**FIGURE 9.** Prothoracic leg of *A. apicalis*; arrow indicates coarse, deep punctures on posterior face of profemur.
FIGURE 10. Head and pronotum of *A. strigatus*; note wrinkles on clypeus (a) and dense arrangement of coarse punctures at sides and base of pronotum (b).

FIGURE 11. Metafemur+tibia+1st tarsal segment of *A. strigatus*; note tibial terminal fringe (a) of 5 setae together and another (b) between accessory spine and short spur.

FIGURE 12. Head and pronotum of *A. apicalis*; note smooth clypeal surface (a) and even distribution of coarse punctures on sides and base of pronotum (b).

FIGURE 13. Metafemur+tibia+1st tarsal segment of *A. apicalis*; note tibial terminal fringe (a) of 6 setae together and another (b) between accessory spine and short spur; also note row of coarse, setigerous punctures at distal portion of femur.
Description of Species (condensed with permission from Cartwright 1974).

*Ataenius imbricatus* (Melsheimer). DESCRIPTION: Length 3.3 to 4.3 mm; width 1.6 to 2.0 mm. Dull, grayish brown to grayish black, legs dark brown; oblong, moderately convex; surface finely sculptured with minute contiguous pits and covered with short, stout setae, suggesting a clay-like appearance; setae of the elytral intervals are closely spaced in longitudinal rows. Metatibiae with five minute setae in terminal fringe, accessory spine lacking. First tarsal segment longer than long spur and longer than following 3 segments combined. The larva was described by Jerath (1900). SEX DIFFERENTIATION: Pygidium longer in male than in female. OHIO COUNTY DISTRIBUTION: Clermont (Terrace Park), Hamilton (Cincinnati), Henry (Holgate), Washington (Maricota). BIOLOGICAL NOTES: We collected adults in black light traps on warm evenings in May and August at the border of Hamilton and Clermont counties.

*Ataenius punctifrons* Cartwright. DESCRIPTION: Length 3.6 to 3.8 mm; width 1.5 mm. Elongate, parallel, dark reddish brown, legs and clypeal margin slightly lighter in color. Clypeal margin finely, sharply dentate each side of median emargination. Punctures of upper clypeus and frontal area dense; same size as those of anterior pronotum. Metatibial terminal fringe with 7 setae and no accessory spine; first tarsal segment equal to following 3 segments combined and slightly shorter than long spur. SEX DIFFERENTIATION: Male pygidium longer and narrower than female’s. OHIO DISTRIBUTION: The specific and sole Ohio collection site of this species was not recorded.

*Ataenius gracilis* (Melsheimer). DESCRIPTION: Length 2.8 to 3.5 mm; width 1.0 to 1.3 mm. Elongate, parallel, only weakly convex, moderately shining, piceus; legs, anterior margin of clypeus, and pronotum frequently reddish. Head with close, fine, punctures arranged in short longitudinal or diagonal lines. Pronotum densely punctate. Metatibiae without accessory spine; apical fringe of 7 short, close, uniform setae and 3 longer setae on outer angle. First tarsal segment longer than long spur, and longer than following 3 segments combined. SEX DIFFERENTIATION: Pygidium longer in male than in female. OHIO COUNTY (CITY) DISTRIBUTION: Adams, Clermont (Terrace Park), Cuyahoga (Cleveland), Hamilton (Cincinnati), and Washington. BIOLOGICAL NOTES: We collected adults in June and July in black light traps located on Losantiville Golf Course and Hyde Park Golf Course in Hamilton County and on Terrace Park Golf Course in Clermont County. Overwintering adults were found in and beneath leaf litter at the tree line of wooded areas adjacent to golf courses in the same 2 counties.

*Ataenius erralus* Fall. DESCRIPTION: Length 4.4 to 5.9 mm; width 1.9 to 2.5 mm. Elongate, oblong, piceus, shining, more convex posteriorly. Clypeal surface finely, evenly punctate. Pronotum surface with mixed moderately coarse and very fine punctures throughout; lateral and basal margins of pronotum with fringe of moderately long
setae. Meso- and metafemora with 3 setae distally. Meso- and metatibiae with terminal fringe of 8 to 10 close, moderately long setae; accessory spine very short, close to spurs without intervening setae. Meso- and metatarsi longer than tibiae; first tarsal segment longer than long spur, about equal to following 3 segments combined. The larva was described by Jerath (1960). SEX DIFFERENTIATION: Male protibial spur curved, female spur straight; male abdominal sternae flattened medially, female sternae convex; male pygidium longer than female’s. OHIO COUNTY DISTRIBUTION: Champaign.

*Ataenius spretulus* (Haldeman) (black turfgrass ataenius). DESCRIPTION: Length 3.6 to 5.5 mm; width 1.7 to 2.4 mm. Elongate-oblong, moderately convex, shining black, legs and margin of clypeus reddish. Head convex; clypeus feebly, transversely wrinkled anteriorly, finely, closely punctate above middle. Pronotum with evenly spaced, minute to fine punctures throughout and very irregularly placed; scattered, coarse punctures intermixed. Profemora smooth and shining, with scattered, minute punctures. Meso- and metafemora smooth, shining with scattered, very fine punctures. Metatibiae with terminal fringe of 5 setae, a strong accessory spine of equal length, and an intervening seta between the spine and spurs. First segment of metatarsus longer than long spur, and longer than following 3 tarsal segments combined. The larva was described by Hoffman (1935) and Jerath (1960); however, Hoffman’s specimens were incorrectly determined to be *Ataenius cognatus*. SEX DIFFERENTIATION: Males have a group of setigerous punctures on the metasternal disc; the corresponding area is smooth in females. OHIO COUNTY DISTRIBUTION: Adams, Ashland (Ashland), Athens, Champaign, Clermont (Terrace Park), Cuyahoga (Cleveland), Darke (Greenville), Erie, Franklin (Columbus), Hamilton (Cincinnati), Hardin (Ada), Henry (Holgate), Lake (Painesville), Lorain, Ottawa, Preble (West Alexandria), Stark, Summit (Hudson), Washington, and Wayne (Wooster). BIOLOGICAL NOTES: We have captured adults in the spring and fall on sticky traps placed along the perimeters of golf courses, around incandescent lamps and in black light traps on warm spring and summer evenings. We found overwintering adults beneath leaf litter and soil at the perimeter of golf courses.
described by Jerath (1960) as either "Ataenius sp. #1 or #3". The root-feeding larvae of A. strigatus were occasionally found with those of A. spreitus (i.e., in the greens and fairways of golf courses); therefore, they may be associated with some damage to cultivated turfgrass. Adults have been collected in May and June in black light traps placed on golf courses; overwintering adults have been found beneath leaf litter at the wooded perimeter of golf courses.

Ataenius apicalis Hinton. DESCRIPTION: Length 4.1 to 4.9 mm; width 1.7 to 2.4 mm. Oblong, moderately convex, shining black. Clypeus weakly transversely wrinkled over anterior third, middle finely punctate. Pronotum with close, mixed punctures throughout, the larger punctures closer laterally. Elytral intervals noticeably eroded apically on each side. Abdominal sterna with rather close, fine to moderate punctures from side to side, deeper at sides. Profemur with large elongate punctures at extreme edge below the tibial insertion. Metatibiae with strong accessory spine and a terminal fringe of 6 or 7 setae together and another between the accessory spine and spurs. First segment of meso- and metatarsi about one-fourth longer than long spur, about the same length longer than the following 3 segments combined. SEX DIFFERENTIATION: No external distinction. OHIO COUNTY (CITY) DISTRIBUTION: Athens (Athens), Clermont (Terrace Park), Franklin and Scioto. BIOLOGICAL NOTES: Adults have been collected in May and June in black light traps located on Terrace Park Golf Course near the Little Miami River (Clermont County).

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LITERATURE CITED
Niemczyk, H. D. and D. M. Dunbar 1976 Field observations, chemical control and contact toxicity experiments on Ataenius spreitus (Haldeman), a grub pest of turfgrass. J. Econ. Entomol. 69: 345-8.
Say, T. 1823 Descriptions of coleopterous insects collected in the late expedition to the Rocky Mountains, performed by order of Mr. Calhoun, Secretary of War, under the command of Major Long. J. Acad. Nat. Sci. Phila. 3: 139-216.