

THE *ATAENIUS* OF OHIO<sup>1, 2</sup>

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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* (Melsh.), *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.

OHIO J. SCI. 79(6): 249, 1979

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).

**Taxonomy of Adult *Ataenius*.** Adult *Ataenius* (fig. 1) are typically elongate-

oblong in shape, ranging in length from 2.5 to 6.5 mm. Most members of this genus are black when fully sclerotized; however, some individuals may be reddish brown, gray, or clay-colored. The majority are shining and smooth textured while only a small number are dull or pubescent in appearance. All *Ataenius* have a distinctly punctate head with very distinct genae usually bent downward, head narrower than pronotum, anterior clypeus visible from above, pronotum usually sparsely to moderately ciliate laterally, elytra often with basal margination, protibiae with 3 teeth and anterior spur, protibiae with slanted anterior margin, meso- and metatibiae uniformly wider from base, with fringe of terminal setae, tarsi shorter than tibiae, and meso- and metatarsi with first segment often as long as the following 3 segments combined.

KEY TO THE ADULT *ATAENIUS* SPECIES OF OHIO

1. Elytra having the color and texture of clay..... *A. imbricatus* (Melsheimer)
- 1.<sup>1</sup> Elytra shining..... 2
2. Clypeal margin strongly angulate on each side of median emargination (fig. 2)..... 3
- 2.<sup>1</sup> Clypeal margin broadly rounded each side of median emargination (fig. 3)..... 4
3. Dorsal surface smooth, shining.....
- ..... *A. punctifrons* Cartwright
- 3.<sup>1</sup> 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)

<sup>1</sup>Manuscript received 20 October 1978 and in revised form 29 Nov. 1978 (#78-63).

<sup>2</sup>Approved by the Associate Director of the Ohio Agricultural Research and Development Center as Journal Article No. 163-78.

- 4.<sup>1</sup> 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.<sup>1</sup> 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. spretulus* (Haldeman)
- 6.<sup>1</sup> 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. strigatus* (Say)
- 7.<sup>1</sup> 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; metafemora with row of 3 or 4 noticeable, coarse setigerous punctures distally (figs. 12 and 13)..... *A. apicalis* Hinton

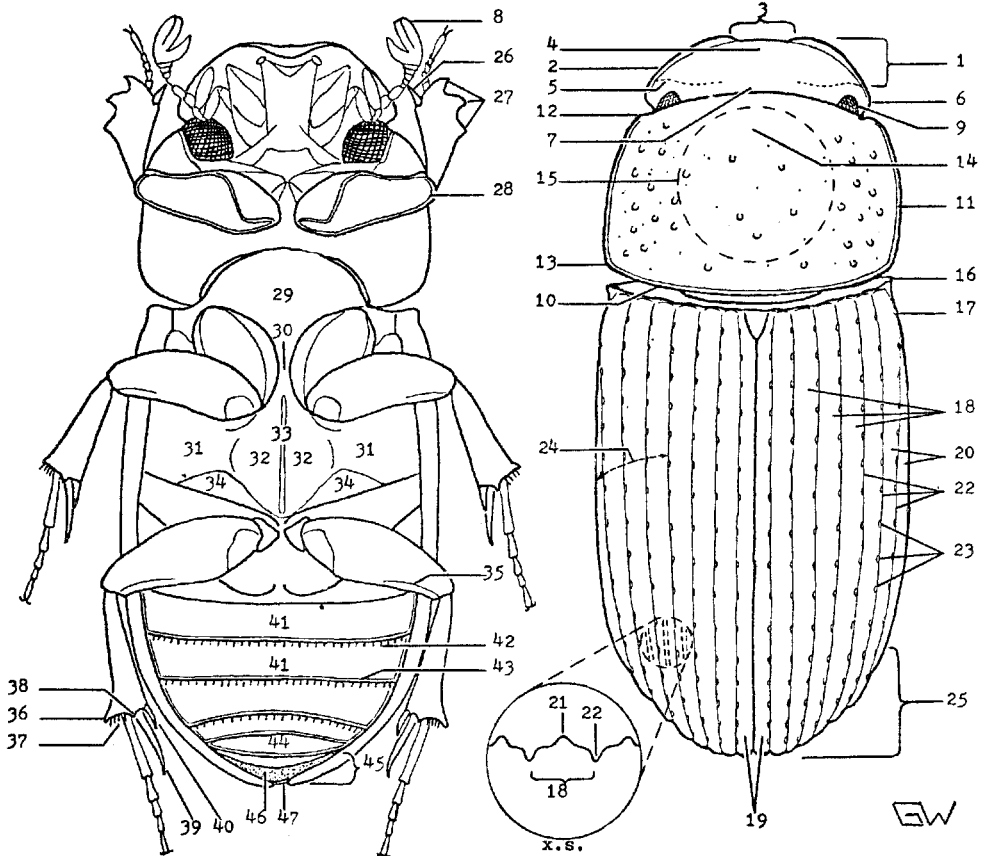
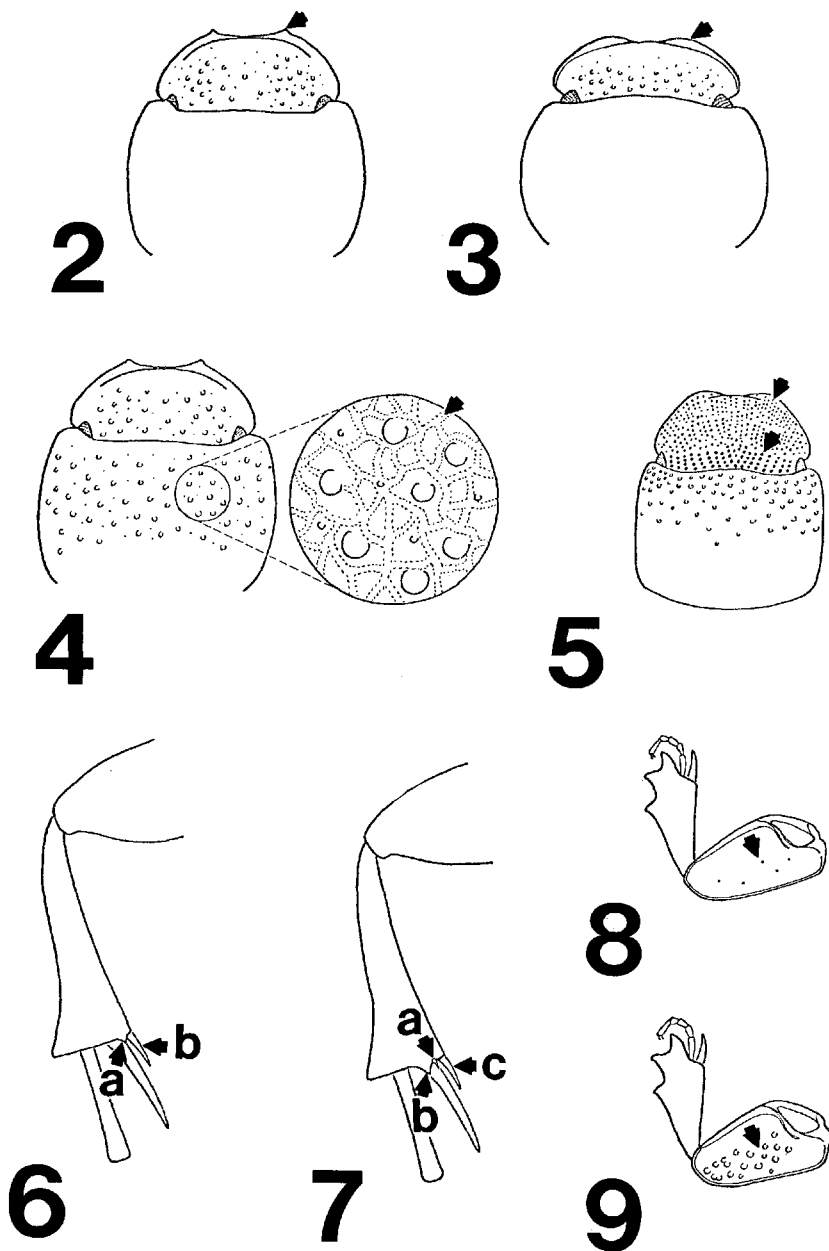
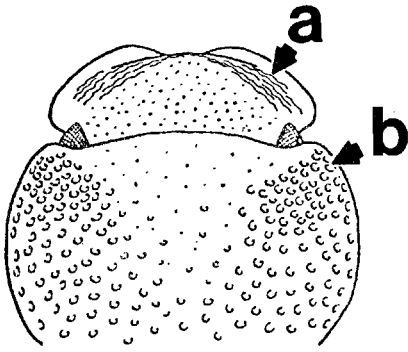


FIGURE 1. *Ataenius* external anatomy: 1. clypeus, 2. clypeal margin, 3. median emargination, 4. greatest (middle) convexity of clypeus, 5. clypeal-frontal suture, 6. gena, 7. front (frons), 8. antenna, 9. eye, 10. basal margin of pronotum, 11. lateral margin of pronotum, 12. anterior angle of pronotum, 13. posterior angle of pronotum, 14. anterior disc of pronotum, 15. discal area of pronotum, 16. humerus, 17. shoulder of elytron, 18. elytral intervals, 19. sutural intervals of elytra, 20. lateral elytral intervals, 21. median convex carina of elytral interval, 22. elytral striae, 23. stria punctures, 24. outside slope of elytron, 25. apical declivity of elytra, 26. anterior spur of protibia, 27. teeth of protibia, 28. perimarginal groove of protibia, 29. mesosternum, 30. mesosternal intercoxal carina, 31. metasternum, 32. metasternal disc, 33. median metasternal line, 34. metasternal triangle, 35. posterior marginal line of femur, 36. outer angle of tibia, 37. terminal (apical) tibial fringe, 38. accessory spine, 39. long spur, 40. short spur, 41. abdominal sternae, 42. fluting, 43. marginal line of abdominal sternum, 44. terminal sternum, 45. pygidium, 46. eroded area of pygidium, 47. apical lip of pygidium.

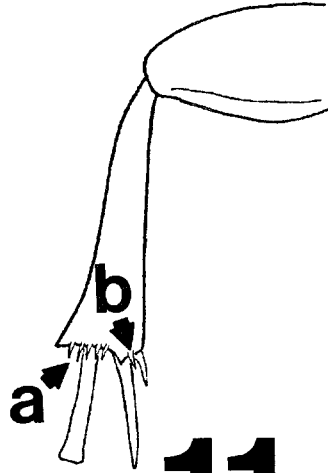


FIGURES 2-9

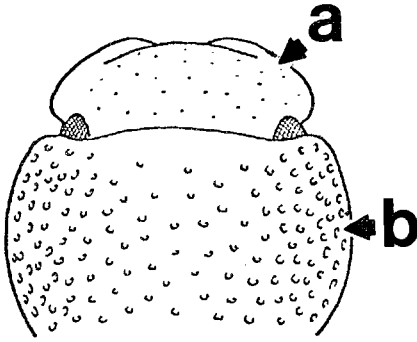
FIGURE 2. Head and pronotum of *A. punctifrons*; arrow indicates strongly angulate clypeal margin. FIGURE 3. Head and pronotum of *A. spretulus*; arrow indicates broadly rounded clypeal margin. FIGURE 4. Head and pronotum of *A. abditus*; arrow indicates minute fissure on magnified inset of pronotum. FIGURE 5. Head and pronotum of *A. gracilis*; arrow indicate 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.



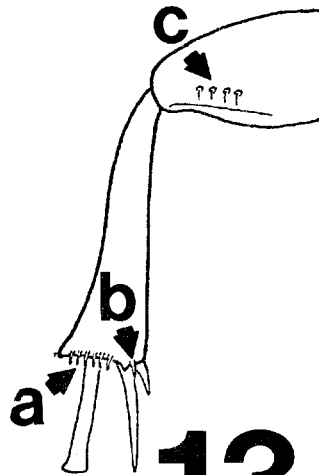
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FIGURES 10-13

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; also note row of coarse, setigerous punctures at distal portion of femur. 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. Meso- and 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 (1960). SEX DIFFERENTIATION: Pygidium longer in male than in female. OHIO COUNTY DISTRIBUTION: Clermont (Terrace Park), Hamilton (Cincinnati), Henry (Hogate), Washington (Marietta). 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 abditus* (Haldeman). DESCRIPTION: Length 3.3 to 4.0 mm; width 1.4 to 1.5 mm. Black or brownish black, elongate-parallel, only moderately convex, weakly shining. Head moderately convex; clypeus broadly, shallowly emarginate with a small, sharp tooth each side of emargination. Lateral and basal margin of pronotum with widely spaced minute setae. Pronotum surface

densely, uniformly punctate everywhere. Elytra finely sculptured with minute, shallow, contiguous fissures. Metatibiae with 8 to 10 terminal fimbriae, without accessory spine. First tarsal segment slightly shorter than long spur and equal to following 3 segments combined. SEX DIFFERENTIATION: No external distinction. OHIO COUNTY (CITY) DISTRIBUTION: Clermont (Terrace Park), Hocking, Lucas (Toledo), Ottawa and Tuscarawas (Schoenbrun). BIOLOGICAL NOTES: We have captured adults in April on sticky traps placed at the tree line of a wooded area bordering Terrace Park Golf Course near the Little Miami River (Clermont County).

*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 erratus* 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 atanius). **DESCRIPTION:** Length 3.6 to 5.5 mm; width 1.7 to 2.4 mm. Elongate-oblong, moderately convex, shining black, legs and clypeal margin 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 patch of close, setigerous punctures each side of metasternal midline on the metasternal disc; the corresponding area is smooth in females. The male fourth abdominal sternum is shorter at the middle and the pygidium longer with much wider apical lip than in females. **OHIO COUNTY (CITY) DISTRIBUTION:** Adams, Ashtabula (Conneaut), Athens (Athens), Champaign, Clermont (Terrace Park), Cuyahoga (Cleveland), Darke (Columbus), Hamilton (Cincinnati), Hardin (Ada), Henry (Holgate), Miami, Ottawa (East Harbor State Park), Preble (West Alexandria), Scioto (Portsmouth), Summit (Hudson), Washington (Marietta), and Wayne (Wooster). **BIOLOGICAL NOTES:** The larva of this species was

(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.

*Ataenius strigatus* (Say). **DESCRIPTION:** Length 3.6 to 5.5 mm; width 1.6 to 2.4 mm. Elongate-oblong, shining black, legs and margin of clypeus reddish-black, moderately convex. Anterior three-fourths of clypeal surface finely transversely wrinkled, very finely punctate above; front with transverse band of moderate punctures separated by their diameters. Pronotum with mixed very fine and coarse punctures, the fine punctures everywhere evenly distributed, the coarse punctures finer over middle anterior disc, larger and denser outward to sides and base where they may be nearly contiguous. Posterior portions of profemora closely, roughly punctate, the punctures tending to form short, irregular transverse lines. Meso- and metafemora shining, smooth, with scattered very fine punctures. Terminal fringe of metatibiae with 5 setae, a strong accessory spine, and an intervening seta between spine and spurs. First metatarsal segment longer than long spur and longer than following 3 segments combined. **SEX DIFFERENTIATION:** Males have a group of setigerous punctures each side of metasternal midline on the metasternal disc; the corresponding area is smooth in females. The male pygidium is longer with the median part of the apical lip wider than the female's. **OHIO COUNTY (CITY) DISTRIBUTION:** Adams, Ashland (Ashland), Athens, Champaign, Clermont (Terrace Park), Cuyahoga (Cleveland), Darke (Greenville), Erie, Franklin (Columbus), Hamilton (Cincinnati), Hardin (Ada), Henry (Holgate), Miami, Ottawa (East Harbor State Park), Preble (West Alexandria), Scioto (Portsmouth), Summit (Hudson), Washington (Marietta), and Wayne (Wooster). **BIOLOGICAL NOTES:** The larva of this species was

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. spreululus* (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. Metafemora with a row of 3 or 4 coarse setigerous punctures at knee. 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).

*Acknowledgments.* We wish to thank Oscar L. Cartwright, National Museum of Natural History, the Smithsonian Institution, Washington, D.C. for allowing us to condense infor-

mation originally contained in his taxonomic keys and descriptions (Cartwright 1974). This study was made possible by financial support from the Musser International Turfgrass Fellowship, the Ohio Turfgrass Foundation, the Golf Course Superintendents' Association of America, and G.C. Superintendents' Associations in Ohio, Wisconsin, and Ontario, Canada.

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