

Six Click Beetles New to the Virginia Fauna (Coleoptera: Elateridae)

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ABSTRACT

Six click beetles, *Agriotes collaris* (LeConte), *Melanotus castanipes* (Paykull), *M. leonardi* (LeConte), *Denticollis denticornis* (Kirby), *Athous productus* (Randall), and *Paradonus jerseyensis* Stibick, are reported from Virginia for the first time. The last is a minute, poorly known, and potentially rare species that is currently documented by less than a dozen specimens rangewide.

Key words: beetle, Elateridae, Coleoptera, Virginia.

The Family Elateridae, commonly known as click beetles because of their ability to produce an audible “snap” and propel themselves upward (i.e., jump), contains almost 1,000 described species in North America north of Mexico (Johnson, 2002). The most recent taxonomic revision of this entire fauna is LeConte (1853), but regional treatments exist for some areas in the East (e.g., Dietrich, 1945 for New York; Downie & Arnett, 1996 for the Northeast). Documentation of the Virginia elaterid fauna is still in its infancy, but it likely exceeds 150 species. By comparison, Ulke (1902) recorded 131 species for the District of Columbia and vicinity, Brimley (1938) listed 125 species for North Carolina (current total is 160 species; P. J. Johnson, unpub. data), and Majka et al. (2011) provided documentation for 160 species from Maine. Downie & Arnett (1996) listed only 63 species for Virginia as well as seven others from the District of Columbia that purportedly had not yet been recorded from the state. However, Stibick (1990) had reported three of those seven species from Virginia and also described two widespread, minute elaterids (*Negastrius*

arnetti and *Paradonus oliverea*) that inhabit the state. Neither of these species was included in the compilation by Downie & Arnett (1996).

Recent additions to Virginia’s elaterid fauna include *Aeolus scutellatus* (Schaeffer) and *Neopristilophus aethiops* (Herbst), both collected during the Potomac Gorge Bioblitz (Evans, 2008), and *Conoderus scissus* (Schaeffer), a southern species that had not been recorded previously north of South Carolina (Hoffman, 2007). Dozens of additional species have been recorded from states both to the north and south of Virginia, but they have not yet been reported in the literature as occurring in the state, although many, especially those that are common and widespread, undoubtedly inhabit the Commonwealth. Much remains to be learned about the composition, distribution, and status of the click beetle fauna of Virginia.

During the past quarter century, large numbers of elaterids have been amassed at the Virginia Museum of Natural History (all specimens cited below are deposited there unless otherwise noted) primarily through the statewide sampling efforts of personnel of our respective agencies (VDNH and VMNH hereafter). In recent years, RLH had begun the laborious process

*Deceased

of sorting and attempting to identify this material, but many specimens proved to be difficult to readily assign to species using existing keys. Although these curatorial efforts are far from complete, we take this opportunity to report on the occurrence of six selected species, including one that is poorly known and potentially rare, which have not been previously recorded from Virginia.

Elaterinae

Agriotes collaris (LeConte)

NEW STATE RECORD

The last revision of the North American representatives of this widespread genus (found on all continents except Australia and Antarctica) was prepared by Becker (1956), who reported that most Nearctic species inhabit the northern and/or western portions of the continent. He recorded only four of the 32 native Nearctic species from Virginia: *A. insanus* Candèze, *A. isabellinus* (Melsheimer), *A. oblongicollis* (Melsheimer), and *A. pubescens* Melsheimer, the latter based only on several old specimens labeled "Va." Three boreal congeners, *A. collaris* (LeConte), *A. limosus* (LeConte), and *A. mancus* (Say), were reported to occur south as far as Pennsylvania, New York (Adirondacks), and Maryland (state record only), respectively, and they may thus be considered as "potential species" for Virginia.

Pitfall trapping conducted in conjunction with an ecological study (Buhlmann et al., 1988) of the Cow Knob Salamander (*Plethodon punctatus* Highton) has confirmed the occurrence of *A. collaris* in the mountains of northwestern Virginia (Fig. 1): *Rockingham Co.*, Shenandoah Mountain, jct. Co. Rt. 924 and Forest Service 85 [= Briery Branch Gap], 23 May 1987, K. A. Buhlmann (2); Tomahawk Mountain, ca. 7 mi NNW Rawley Springs, DF in virgin stand off Forest Service 72, 28 May 1988 (4), 17 June 1988 (2), all K. A. Buhlmann. Both collection sites are within the Shenandoah Mountain Crest Special Biological Area of the George Washington National Forest, which was established in 1994 to protect habitat of the Cow Knob Salamander. Elevations of these sites are 3600 and 3700 feet, respectively (1097 and 1127 m).

Becker's (1956) distribution map for *A. collaris* showed the range extending from New Brunswick to southwestern Pennsylvania. Bousquet (1991) recorded it from five provinces in Canada (Ontario, Quebec, New Brunswick, Nova Scotia, and Prince Edward Island) and Downie & Arnett (1996) listed it for four of these provinces and all New England states except for Rhode Island, as well as New York and Pennsylvania. Majka et al. (2011) listed it for all of the New England states. The Virginia sites are apparently the southernmost known, representing a range extension of some 250 miles/400 km from Jeanette (Westmoreland Co.), Pennsylvania.

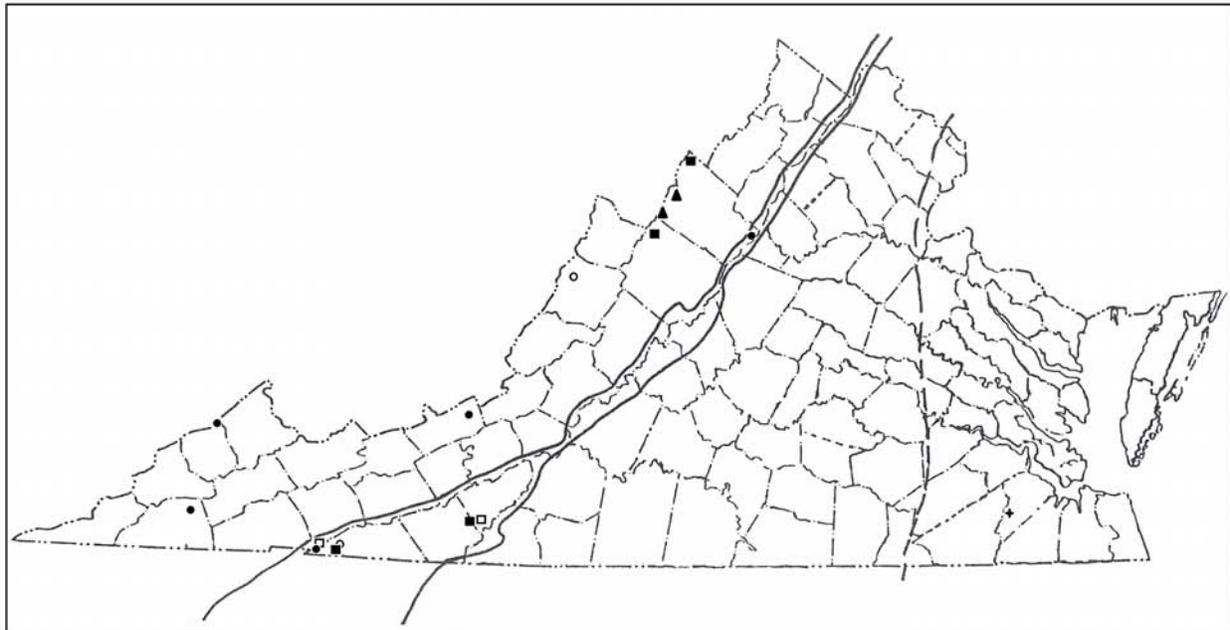


Fig. 1. Known distribution in Virginia of *Agriotes collaris* (▲), *Athous productus* (○), *Denticollis denticornis* (●), *Melanotus castanipes* (■), *M. leonardi* (□), and *Paradonus jerseiensis* (+). Solid lines indicate the limits of the Blue Ridge physiographic province and the dashed line marks the location of the Fall Line separating the Coastal Plain and Piedmont regions.

Melanotus castanipes (Paykull, 1800)

NEW STATE RECORD

This relatively large (15-20 mm), reddish brown Holarctic species is widely distributed in eastern Canada (ranges west to Manitoba), the United States, and Mexico (Quate & Thompson, 1967; Bousquet, 1991; Hallan, 2011). Downie & Arnett (1996) recorded *M. castanipes* from 17 states (PA and NC being nearest to VA) and three eastern provinces (it occurs in a total of seven provinces *vide* Bousquet, 1991), whereas Hallan's (2011) on-line list includes 23 states (Maine to Utah, south to Georgia and California), with only North Carolina and Georgia being south of Virginia. Fattig's (1951) records for Georgia require confirmation (P. J. Johnson, pers. comm.). Ulke (1902) reported this species from the District of Columbia vicinity, but there are no confirmed records for adjoining areas of northern Virginia. Quate & Thompson (1967) recorded *M. castanipes* from Wake County, North Carolina (Raleigh area), which is quite distant from the documented Virginia localities (confined to the Blue Ridge and Ridge and Valley physiographic provinces; Fig. 1), perhaps suggesting a mislabeled or adventive specimen.

Augusta Co.: Little Bald Mountain [= Little Bald Knob], 7 mi WNW of Stokesville, 1989 [no month or day specified on label], C. A. Pague, VDNH survey (1). *Carroll Co.*: Co. Rt. 629, ca. 0.5 km S Carroll-Floyd county line, 12 June 2007, uv, A. C. Chazal and S. M. Roble, VDNH survey (3). *Floyd Co.*: Buffalo Branch at Co. Rt. 727, 24 May 2007, uv, S. M. Roble and M. E. Dougherty, VDNH survey (2); same but 12 June 2007, uv, A. C. Chazal and S. M. Roble, VDNH survey (1). *Grayson Co.*: Grayson Highlands State Park, *Picea rubens* stand ca. 100 m NE of Massie Gap parking area, 1 June 2011, uv (3); same but Cox Visitor Center, Haw Orchard Mountain, 2 June 2011, uv (2); same but Cox Visitor Center bus parking lot picnic area, yellow birch-red spruce woods, Haw Orchard Mountain, 2 June 2011, uv (4); same but Massie Gap roadside parking area, 2 June 2011, uv (1); all S. M. Roble, VDNH survey. *Rockingham Co.*: Smith Mountain, FR 177, 1.2 km off Co. Rt. 823, 5 mi NW Bergton, N 38.8° W 79.0°, 29 April 2009, uv, S. M. Roble and A. C. Chazal, VDNH survey (1).

Melanotus leonardi (LeConte, 1853)

NEW STATE RECORD

Quate & Thompson (1967) cited the range of this smaller (9-11 mm) but very distinctive (bright red pronotum and black elytra) congener as "Quebec to North Carolina, west to Texas" and provided records for nine, mostly northern states and two provinces in

eastern Canada. However, Fattig (1951) had previously listed five Georgia localities for *M. leonardi*, with the southernmost one being Fort Valley (Peach Co.). Quate & Thompson (1967) cited a record from Buncombe County, North Carolina without further data, which was likely from the Black Mountains. Bousquet (1991) was aware of records for only three Canadian provinces (Ontario, Quebec, and Manitoba). The vast majority of the range of *M. leonardi* is well to the north of Virginia, suggesting that this species may be limited to the higher mountains of the state (Fig. 1).

Floyd Co.: Buffalo Mountain [Buffalo Mountain Natural Area Preserve], 22 June 2005, C. L. Staines and S. L. Staines (2); *Grayson Co.*: Elk Garden, Co. Rt. 600, [Mount Rogers National Recreation Area], 14 July 1995, R. L. Hoffman, VMNH survey (1). Both of these sites exceed 3900 feet (1200 meters) in elevation.

Prosterninae

Denticollis denticornis (Kirby, 1837)

NEW STATE RECORD

Becker (1952) reviewed the four Nearctic species placed in the genus *Denticollis* at that time, but he later (Becker, 1974) synonymized his new species *D. quadrosa* Becker with *Athous appalachius* Van Dyke and also transferred *D. productus* (Randall) to *Athous*. *Denticollis denticornis* (9-13 mm), the lone remaining eastern representative of the genus, ranges from Nova Scotia to Alberta, south to Illinois, Ohio, Pennsylvania, North Carolina, and Tennessee (Becker, 1952). Bousquet (1991) listed this species from 10 Canadian provinces (Newfoundland to British Columbia) and Majka & Johnson (2008) recently added Prince Edward Island to the known distribution. Majka et al. (2011) listed it from Connecticut, perhaps for the first time. Curiously, Downie & Arnett (1996) included only four states and two provinces in their range statement, noting that this species is "Frequently beaten from roadside herbage in NY" and resembles a firefly (Lampyridae) more than it does a typical click beetle (RLH believes it looks very much like a cantharid at first glance). Adults have yellow margins on the prothorax. Thomas (1941) found it "on weeds in wet ground" in Pennsylvania.

The North Carolina and Tennessee records of *D. denticornis* are from the higher mountains (e.g., Mt. Mitchell, Black Mountains, Great Smoky Mountains National Park) in the southern Appalachians (Becker, 1952; Discover Life in America, 2012; USNM collection). The Virginia records (Fig. 1) partially fill the hiatus between these records and those in Pennsylvania (Thomas, 1941; Becker, 1952).

Dickenson Co.: Breaks Interstate Park, 1-6 June 2008, A. V. Evans, VDNH survey (1). *Giles Co.*: Mountain Lake, no dates, H. Ulke (USNM, 2; specimens identified in 1948 and 1954, respectively). *Grayson Co.*: White Top Mountain, DF site off FS 89, 5000', Mount Rogers National Recreation Area, 23 June 1994, R. L. Hoffman, VMNH survey (1). *Scott Co.*: Co. Rt. 653, 0.2 km W jct. Co. Rt. 902 (= Sulphur Spring), 5 mi W Dungannon, 25 May 2004, uv, A. C. Chazal, VDNH survey (2); same but Co. Rt. 653, 1.3 km W jct. Co. Rt. 902 (3); Co. Rt. 653, 3 mi W jct. VA Rt. 72, W of Dungannon, 25 May 2004, uv, A. C. Chazal, VDNH survey (4). *Rockingham Co.*, Shenandoah National Park, Dean Mountain Ridge, 8 June 2005, A. C. Chazal and C. S. Hobson, VDNH survey (Shenandoah National Park collection, 1).

Athous productus (Randall, 1838)

NEW STATE RECORD

Becker (1974) provided a detailed description of *A. productus* (12-15 mm) and justified the character states he considered when transferring it from *Denticollis*. He saw specimens only from localities well to the north of Virginia: Quebec to Saskatchewan, and south to Maine, New York, and Minnesota. Downie & Arnett (1996) noted that the species is "uncommon" and listed the same states (Maine, Michigan, Minnesota, New Hampshire, New York, Vermont, Wisconsin) and provinces (Ontario, Quebec, Manitoba, Saskatchewan) as Becker (1974). Earlier reports (as *Lepturoides productus*) from North Carolina (Mt. Mitchell and Craggy Mountains; May/June, spruce habitats; Brimley, 1938) and Pennsylvania (Horse Valley, Latrobe, and Jeannette; Thomas, 1941) were apparently overlooked by Becker (1974) and Downie & Arnett (1996). Dietrich (1945) knew of only a few records from New York (Cranberry Lake, Catskills, Oliverea); he also examined a specimen from Mt. Washington, Vermont. This boreal species has been documented from four additional Canadian provinces in recent decades (Alberta: Fuller, 1992; Newfoundland: Bousquet, 1991; New Brunswick and Nova Scotia: Majka et al., 2011). Additional sampling in the higher mountains of Virginia may yield more specimens.

Bath Co.: Warm Springs Mountain, crest road 1 km S of Virginia Route 39, [3100'], rich woods, 2 June 1999, uv, J. C. Ludwig, VDNH survey (1). *Grayson Co.*: Grayson Highlands State Park, Massie Gap [trailhead parking area, 4680'], 1 June 2011, uv, S. M. Roble, VDNH survey (1); same but parking lot by picnic area, [Cox Visitor Center], Haw Orchard Mountain, [4815'], yellow birch-red spruce woods, 2 June 2011, uv, S. M. Roble (2).

Negastriinae

Paradonus jerseiensis Stibick, 1990

NEW STATE RECORD

Stibick (1990) described this minute (2.5-3 mm), blackish brown species on the basis of five specimens from Angelsea and Sattelhurst, New Jersey. We are not aware of any subsequent reports. Thus, the Virginia record, from a remnant longleaf pine (*Pinus palustris* Miller) barren habitat, represents a southwestward range extension of at least 375 miles/600 km.

Isle of Wight Co.: Blackwater Ecological Preserve, 7 km S of Zuni, 12 May 1999, uv, S. M. Roble, VDNH survey (1).

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