

## Fourteen Ground Beetles New to the Virginia Fauna (Coleoptera: Carabidae)

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### INTRODUCTION

Ongoing inventory activities conducted by our respective agencies in various parts of Virginia continue to disclose numerous species of insects not previously recorded for the state. The present contribution documents Virginia records for a number of ground beetles (Carabidae), which constitute the most diverse beetle family in the state.

The comprehensive list of Nearctic carabids compiled by Bousquet & Laroche (1993; hereinafter "B&L") accounted a total of 446 species for Virginia, some of them from collections made by André Laroche in 1980, but many others representing new, undocumented additions made by RLH to a preliminary state list sent by Dr. Bousquet for revision. Subsequently, Davidson (1995) cited previously unpublished collection data for three species listed for Virginia by B&L, and added seven other species not previously recorded in the state, for a total of 453. Anderson et al. (1995) increased that number by five more, to 458. Two recent papers by Hoffman (1997, 1998) added a lebiine and documented four pterostichines listed in B&L, giving the current state list of 459 species.

The present addition of fourteen more carabids extends the new total to 473 and opens the prospect that a total of 500 species or more may be achieved. Previously unpublished collection data for two other species listed for Virginia in B&L are also presented herein. All material cited is in the Virginia Museum of Natural History (VMNH). The abbreviation "UV" refers to specimens captured at ultraviolet lights (= blacklights).

### BEMBIDIINI

#### *Bembidion aenulum* Hayward

This very distinctive species has been recorded (B&L 1993: 125) from a number of states chiefly in the Gulf and midcontinent regions, but disjunctly for New Hampshire and Virginia. The latter entry was based on a record provided by RLH, a single specimen taken in *Louisa Co.*: South Anna River about 100 m upstream of the Co. Rte. 635 bridge (5.2 mi/8.5 km E of Oilville), on 17 March 1989, RLH (VMNH, presently misplaced). Fortunately, we are now able to add a second Virginia locality: *Brunswick Co.*: Fort Pickett Military Reservation, south side of Nottoway River, 1.2 km upstream of Shack's Hole Road bridge, on sand bar, 14 September 1999, SMR (1♀).

The specimen at hand is nearly uniform black dorsally, but head and elytra with a faint purplish infusion, and pronotum distinctly more purple. The elytral striations are marked by fine bright green punctations.

#### *Micratopus aenescens* (LeConte) New State Record

States of record listed by B&L (1993: 152) define what appears to be a lowland range extending from Connecticut to Florida and Texas, northward in the interior to Indiana and Michigan. Within this continuum, nearly all states except Virginia were cited.

*Greensville Co.*: Meherrin River ca. 3 mi/5 km NE of Claresville, UV, 19 August 1994, RLH (2); Fontaine

Swamp at Co. Rte. 624, UV, 14 June 1994, RLH (1). *Northampton Co.*: Savage Neck Dunes Natural Area Preserve, ca. 6 km SW of Eastville, holly forest, UV, 27 July 1999, A. C. Chazal & A. K. Foster (1). *York Co.*: ponds near Grafton, from pitfall, 27 May 1991, K. A. Buhlmann (1).

Superficially resembling species of the tachyine genus *Paratachys*, this species is distinguished readily by the complete set of elytra intervals and striae, as well as the investiture of setae on the dorsal surface of the pronotum and elytra. These setae are very short, very fine, and very pale, and are best seen in lateral profile over a white background.

#### AMARINI

##### *Pseudamara arenaria* (LeConte)

New State Record; New Southernmost Locality

*Grayson Co.*: Whitetop Mountain, pitfall site beside FS 89 at 5000 ft., 11-25 June 1993, VMNH survey (1, det. R. L. Davidson).

One of the more impressive range extensions represented in our material is afforded by the capture of this "northern" species in a pitfall array set in mixed beech-spruce woods on Whitetop Mountain. The range of *P. arenaria* extends from Nova Scotia west to Wisconsin, south to Ohio and West Virginia, so its occurrence southward at higher elevations in the Appalachians is not unexpected. Lindroth (1968: 654) described the habitat in Vermont as "forested parts of the mountains", thus similar to the collection site in Virginia, and contrary to the more agrarian biotopes favored by species of *Amara*. However, that only one specimen was taken during a 13-month trapping period suggests that the preferred local niche was not being sampled.

As Whitetop Mountain is only 4 km north of both North Carolina and Tennessee, the discovery of *P. arenaria* at Roan Mountain and/or Grandfather Mountain seems likely.

#### MORIONINI

##### *Morion monilicornis* (Latreille) New State Record

B&L (1993: 160) recorded this species from a basically lowland range, Maryland to Florida, west to Texas, north to South Dakota, but it has previously evaded capture in Virginia. We have only three specimens of *M. monilicornis*, two of them from a single, intensively collected site. The species is obviously not common in eastern Virginia.

*Henrico Co.*: Chickahominy River floodplain, 2.2 mi/3.5 km upstream from Bottoms Bridge (U.S. Rte. 60),

UV, 4 July 1999, I. T. Wilson (1). *Isle of Wight Co.*: Antioch Pines Natural Area Preserve, 5 km S of Zuni, along Blackwater River, UV, 21 May 1996, SMR & RLH (2).

#### HARPALINI

##### *Harpalus katiae* Battoni

New State Record; New Northeasternmost Locality

*Dinwiddie Co.*: Fort Pickett Military Reservation, 2 km E of Birchin Lake, 6 July 2000, A. C. Chazal & S. White (1♀). *Mecklenburg Co.*: Elm Hill Wildlife Management Area (WMA), 7.5 mi/12 km SE of Boydton, 17 June-10 July 1995, VMNH survey (1♂ and 2♀♀, one of them teneral).

This widespread but uncommon sibling species of the well-known *H. caliginosus* was only recently distinguished (Battoni, 1985). A more detailed comparison of the two, including drawings, photographs, and distribution maps, was published three years ago (Will, 1997); that source readily enabled identification of several Virginia specimens as *H. katiae*.

Will's (1997) shaded map for *H. katiae* even anticipated its occurrence in southside Virginia although his northernmost locality for the species was "Hog Hill" [ca. 8.4 mi W of Maiden] in Catawba County, North Carolina. The capture at Fort Pickett, Virginia, thus extends the verified range some 220 mi/352 km to the east-northeast.

Two specimens of *H. caliginosus* were taken at nearby localities in Fort Pickett during the period 7-9 July 2000; further collecting may indicate syntopy with *H. katiae* in that area.

VMNH staff operated two adjacent pitfall lines in the Elm Hill WMA during 1994 and 1995, placed in the sandy floodplain of the Roanoke River at the head of Lake Gaston, and only a mile north of the North Carolina state line. In addition to the three specimens of *H. katiae*, a single female of *H. caliginosus* was trapped there during 10 July-

1 August 1995, showing local syntopy. Other specimens were probably captured but discarded in the belief that, prior to Will's (1997) paper, only the common *H. caliginosus* occurred in Virginia. Still, even that species is rarely trapped in any numbers; usually, we would capture two or three specimens, at most, in a month-long period.

All of the 88 other specimens of the subgenus *Megapangus* in the VMNH collection, carefully re-examined with *H. katiae* in mind, proved to be typical *H. caliginosus*.

##### *Harpalus gravis* LeConte New State Record

The range of this very distinctive little harpaline was shown by Noonan (1991: map 270) as confined to

southeastern United States from Texas and Oklahoma to Florida and South Carolina, almost entirely in the Coastal Plain, but with two disjunct records for Long Island and New Jersey. We can now document the occurrence of *H. gravis* in eastern Virginia, near the center of the former lacuna.

*City of Hampton*: Langley Air Force Base, 19 August 1970, W. A. Allen (1♂). *City of Virginia Beach*: Oceana Naval Air Station, 26 August 1975, W. A. Allen (1♂); False Cape State Park, dunes north of cemetery, 18 August 1998, SMR et al. (2♂♂, 2♀♀).

All of the cited material was taken at blacklight traps. The activity peak in mid- to late August corresponds to Noonan's phenograph (1991: fig. 224) based on material from the southern part of the range. It is noteworthy that no specimens of *H. gravis* were taken at either of two localities (Assateague Island and Savage Neck Dunes Natural Area Preserve) on the Eastern Shore of Virginia during extensive sampling by VDNH staff, despite the use of UV light traps in dune habitats during August.

***Harpalus providens* Casey**

New State Record; New Southernmost Locality

*Augusta Co.*: ca. 5 mi/8 km W of Stokesville, pitfalls in mature red oak forest, 8 July 1989, B. Flamm (2♂♂); same locality, but in plot two years following clear-cutting, 8 August 1989, B. Flamm (1♀). *Highland Co.*: Sapling Ridge trail to Bear Camp Knob, 6 mi/9.6 km N of Hightown, 3 June 1990, C.A. Pague (1♂). *Rockingham Co.*: crest of Shenandoah Mountain at jct. Co. Rte. 924 and FS 85, 17 June 1988, K. A. Buhlmann (1♂, 1♀). *Warren Co.*: 4 mi/6.4 km SE of Front Royal, Smithsonian Conservation and Research Center, in mature mesic woods, 7-22 July 1993, VMNH survey (2♀♀). *Wythe Co.*: crest of Lick Mountain, ca. 3000 ft., 2 mi/3 km SE of Wytheville on Co. Rte. 640, 27 April 1974, RLH (1♀).

According to Noonan's treatment (1991: 49, 281, under the name *H. viduus*), this species ranges from Quebec and Maine southwestward to Wisconsin and Missouri; the southernmost locality cited being the "Cheat Mountains" [probably SE of Huttonsville, Pocahontas Co.], West Virginia. Our material from the first four counties listed above does not extend the range southward, but the site on Lick Mountain in Wythe County is about 140 mi/210 km south of the Cheat Mountains and notably disjunct from the other Virginia sites.

***Amblygnathus iripennis* (Say)** New State Record

The vast majority of specimens of this species seen by Ball & Maddison (1987) in their revision of *Amblygnathus*

originated in Florida; only one extralimital sample from New Jersey was cited. In view of the apparent abundance of *A. iripennis* in Florida as far north as Jacksonville, it is the more remarkable that neither this species nor *A. mexicanus* (LeConte) was mentioned in Fattig's (1949) account on Georgia carabids - even in his super-inclusive list of "probable" species. Neither was entered in the comprehensive roster of South Carolina carabids compiled by Kirk (1969, 1970), although a locality, apparently Florence, is shown in Ball & Maddison's (1987) range map for *A. mexicanus*. Only this year was Ciegler (2000) able to cite South Carolina records for *A. iripennis*.

We can now provide three localities for *A. iripennis* in Virginia. While these are better than no records, it must be recalled that during the past decades UV trapping conducted for hundreds of hours all over eastern Virginia obtained only these few. Perhaps UV light is not the best technique for collecting species of *Amblygnathus*.

*Accomack Co.*: Assateague Island, White Hills, along jeep trail north of the Chincoteague National Wildlife Refuge toll booths, UV, 24 July 1998, A. C. Chazal (1). *Isle of Wight Co.*: 3.0 km ESE of Windsor, UV, 11 September 1978, R. Zimmerman (1). *Sussex Co.*: swamp on Co. Rte. 608, 4 mi/6.4 km SE of Sussex Court House, UV, 15 September 1998, RLH (1).

***Acupalpus alternans* (LeConte)**

This species, unusual for the supernumerary setae on the elytra (and, in this specimen, also the pronotal disk), was included in the B&L (1993) list for Virginia on the basis of the following capture: *Rockingham Co.*: small stream beside Va. Rte. 259, ca. 3 mi/5 km NW of Fulks Run, 18 August 1978, RLH (1).

The specimen was collected during "splashing" for *Bembidion* species, a technique which has never yielded another Virginia specimen of *A. alternans* in nearly 40 years of assiduous application, yet the species is said to be abundant along stream edges in Kentucky (Lindroth, 1968: 929). Northwestern Virginia appears to be at or very near the southern limits of distribution for this inhabitant of northeastern United States.

***Acupalpus longulus* Dejean**

New State Record; Probable New Northernmost Locality

Credited by B&L (1993) to the Coastal Plain from North Carolina to Texas, this species occurs in eastern Virginia although not abundantly: *Isle of Wight Co.*: 3.5 km ESE of Windsor on Co. Rte. 636, UV, 17 July 1978, R. Zimmerman (1, det. G. E. Ball).

This slight range extension northward from North

Carolina lends some credence to the record for Delaware if not that for Rhode Island (both disallowed by B&L, 1993). Until the former is verified, our Virginia locality appears to be the northernmost for this species.

***Acupalpus rectangulus*** Chaudoir New State Record

With a range that encompasses most of eastern North America, it is only fortuitous that Virginia could not be cited by B&L (1993). We have material from several counties in the Piedmont and Coastal Plain regions (probably many more are to be found in the unsorted backlog of small harpalines at VMNH):

*Accomack Co.*: Assateague Island, beside pond west of Ragged Point trail, UV, 11 August 1998, SMR (1); Assateague Island, White Hills, along jeep trail 0.1 km N of the Chincoteague National Wildlife Refuge toll booths, UV, 1 September 1998, A. C. Chazal (1). *Chesterfield Co.*: Scotford Road, 1 mi/1.6 km W jct. Co. Rte. 653 and US Rte. 360, 8 June 1996, SMR (1). *Cumberland Co.*: 7 km S of Columbia, berleseat in mixed hardwoods by stream, 20 April 1996, RLH (1). *Dinwiddie Co.*: Namozine Swamp, ca. 3.5 mi/5.6 km N of Ford, UV, 7 June 1992, RLH (2). *Greenville Co.*: pine woods, 1 mi/1.6 km E of Claesville, UV, 9 May 1993, RLH (1). *Halifax Co.*: Dan River floodplain 3 mi/5 km NW of Turbeville on Co. Rte. 658, UV, 16 August 1992, RLH (1). *Isle of Wight Co.*: Antioch Pines Natural Area Preserve, 5 km S of Zuni, along Blackwater River, UV, 21 May 1996, SMR & RLH (1).

In addition to the key characters used by Lindroth (1968) and others, it may be noted that in our material of *A. rectangulus* the 3rd elytral interval is provided with 4-6 setae, against only 3 in the single specimen of *A. longulus* (a useful difference if shown to be constant in the latter species).

PENTAGONICINI

***Pentagonica picticornis*** Bates New State Record

Existing state and provincial records in B&L (1993) outline a curious distribution for this nicely colored beetle: Quebec and New Hampshire south to Maryland, thence west and south as far as Texas and New Mexico; it also inhabits Mexico and Guatemala (Reichardt, 1968). *A priori*, one might have suspected *P. picticornis* to enter Virginia, if at all, in one of the northern counties rather than in the southeastern Coastal Plain. Our single specimen bears the following data: *Isle of Wight Co.*: Blackwater Ecologic Preserve, 7 km S of Zuni, UV, 28 June 1995, SMR (1). The bright orange pronotum and bicolored antennae render this carabid unmistakable.

***Pentagonica flavipes flavipes*** (LeConte)

New State Record; Probable New Northernmost Locality

In contrast to the preceding species, *P. flavipes* is apparently confined to southeastern United States: Arkansas to South Carolina according to B&L (1993), who excluded Brimley's (1938) record (reported as *P. f. bicolor*) from Raleigh, North Carolina. In his review of this genus, Reichardt (1968) noted that although the name *bicolor* had been long considered to represent only a "variety" of *P. flavipes*, he regarded this taxon as a full species occurring from Texas to Guatemala. This restriction of the name should not have militated against acceptance of the Raleigh record as valid for the species *P. flavipes* in the broad sense, the more so since identification of that material as "*bicolor*" could only have been erroneous. It is our opinion that the Georgia, Illinois, Mississippi, and North Carolina records for "*bicolor*" rejected by B&L (1993) are probably valid localities for *P. flavipes*, again the result of early misdeterminations. Reichardt (1968) noted that "... the distribution of North American species given in catalogues (Leng, 1920 and Csiki, 1932) is mostly based on unreliable identifications."

We can now document a Virginia specimen which agrees precisely with Reichardt's (1968) definition of the nominate subspecies *P. f. flavipes*: *Accomack Co.*: Assateague Island, White Hills, along jeep trail 0.6 km N of the Chincoteague National Wildlife Refuge toll booths, UV, 29 September 1998, SMR (1). This record represents a substantial range extension (ca. 330 km) to the northeast from Raleigh, and lends credence to an earlier report for New Jersey that was discounted by B&L (1993).

PLATYNINI

***Tetraleucus picticornis*** (Newman) New State Record

Widely distributed over much of eastern North America, including North Carolina and Maryland (B&L, 1993), this attractive species has been absent from the Virginia list until now only by default. It apparently is not common, and we have material from only one site: *Isle of Wight Co.*: Antioch Pines Natural Area Preserve, 5 km S of Zuni, along Blackwater River, UV, 21 May 1996, SMR & RLH (5).

PERIGONINI

***Perigona nigriceps*** (Dejean) New State Record

An exotic species, widely introduced and naturalized in much of eastern North America as far west as Illinois and Arkansas (B&L, 1993). All of our material was taken at

blacklight traps, with two samples obtained in the Coastal Plain and three in the Piedmont.

*Dinwiddie Co.*: Fort Pickett Military Reservation, jct. Lake and Pelham roads, 2 August 1995, SMR (3). *Isle of Wight Co.*: 3.5 km ESE of Windsor on Co. Rte. 636, 4 September 1978 (5), 11 September 1978 (1), R. Zimmerman. *Nottoway Co.*: Fort Pickett Military Reservation, Reservation (= Wilcox) Road, 7 September 1993, SMR (2). *Pittsylvania Co.*: Cascade Creek at Co. Rte. 860 bridge, 28 August 1989, RLH (1). *Sussex Co.*: swamp on Co. Rte. 608, 4 mi/6.4 km SE of Sussex Court House, 15 September 1998, RLH (2).

It is curious that despite these several captures of *P. nigriceps*, we have still not collected local material of *P. pallipennis* (LeConte), a native species cited for Virginia by B&L (1993).

#### LEBIINI

##### *Calleida decora* (Fabricius)

New State Record; New Northeasternmost Locality

With a known range extending from North Dakota south to Texas, and thence eastward in all coastal states as far north as North Carolina (B&L, 1993: 280), the occurrence of *C. decora* in Virginia was deemed probable and is now verified by the following records:

*City of Norfolk*: (without precise pin label data, but very likely from the Virginia Truck Crops Experiment Station), 5 June 1942, L. D. Anderson & H. G. Walker (1). *City of Virginia Beach*: False Cape State Park, dunes north of cemetery, UV, 18 August 1998, SMR et al. (1).

#### DISCUSSION

The 446 species of carabids attributed to Virginia by B&L (1993) ranked the state fourteenth among the continental states and provinces in terms of diversity. The new total of 473 raises the position of Virginia to no higher than sixth, trailing at least California (671), Texas (621), New York (520), Ontario (510), and British Columbia (485), and possibly other states that were in the 450-470 range at the time of the B&L (1993) checklist. Additional species of carabids have been collected recently in Virginia and will be documented in a future publication, raising the state's total even closer to 500 species.

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