

## The Virginia Species of *Banasa*, Three Decades Later (Heteroptera: Pentatomidae)

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### ABSTRACT

The five species of the pentatomid genus *Banasa* known to occur in Virginia are reviewed in light of knowledge accrued during the past three decades, with emphasis on in-state distribution and improved criteria for species recognition. A key for their identification is provided, as well as a distribution map for *Banasa dimidiata*. The occurrence of two allopatric color morphs of this species is noted and related to distribution of the phenomenon elsewhere in the species' range.

*Key words:* Heteroptera, Pentatomidae, *Banasa*, Virginia.

The pentatomoid bugs of Virginia were the subject of a faunistic synopsis published several decades ago (Hoffman, 1971), a survey replete with all of the shortcomings of most initial treatments. During the 35 following years of in-state field work a number of species were added to the known Virginia fauna, numerous refinements of distribution accomplished, and enough material accumulated to enable taxonomic corrections and improvements. Some of this upgrading has already been published in earlier numbers of *Banisteria* (Hoffman, 1994, 2002).

Among the weak spots in my 1971 account was the treatment of the genus *Banasa*, uncritically extracted from the manual by W. S. Blatchley (1926), the contemporaneous authoritative source. Because Blatchley's account of the eastern species of *Banasa* was itself compiled from faulty antecedents, my 1971 key perpetuated the problems. In the first formal "revision" of the Nearctic species of this genus, Thomas & Yonke (1981a) established that the pioneer work on these bugs was flawed by its reliance on color and other external parameters now known to be highly variable and largely unreliable for species recognition. Although the text of their paper was notably condensed, it established structure of the male pygophore as the basis for reliable identification of species. With this improved insight I now review the status of several Virginia species to partially atone for the misinformation proffered as genuine in 1971.

### Key to Virginia species of *Banasa* (Adapted from Thomas & Yonke, 1981a)

1. Dorsum green, with prominent white spots at basal angles of scutellum ..... *euchlora*  
– Dorsum variable in color, scutellum without white spots at basal angles.....2
2. Pronotum, scutellum, and corium of hemelytra concolorous, usually gray or light grayish-brown, with apex of the scutellum white; abdomen pale with four irregular rows of dark markings.....*sordida*  
– Pronotum bicolored, anterior half lighter than posterior; abdomen concolorous with dorsum, without four series of black marks ..... 3
3. Rostrum extending as far as posterior edge of first visible abdominal segment.....*packardi*  
– Rostrum not exceeding posterior side of rear coxae.....4
4. Inner edge of pygophore produced into a slender acuminate projection (Fig. 2); metapleura with black spot at the stigma .....*dimidiata*  
– Inner edge of pygophore forming a broad inward flange with denticulate distal edge (Fig. 1); metapleura without black spot at stigma ..... *calva*

### ***Banasa calva* (Say) (Fig. 1)**

My account of this species (1971: 50) was very superficial, and reported it only from the cities of Norfolk and Newport News, without the examination of

specimens. *Banasa calva* is now known to be the most widespread and frequently collected member of the genus in Virginia.

As determined on the basis of the preceding key characters, *B. calva* is represented in the VMNH collection from Accomack, Augusta, Bath, Brunswick, Charles City, Charlotte, Dinwiddie, Essex, Floyd, Franklin, Greensville, Halifax, Hanover, Henry, Isle of Wight, King & Queen, Mecklenburg, Northampton, Patrick, Pittsylvania, Prince William, Richmond, Southampton, Stafford, Surry, Sussex, and Tazewell counties, and the cities of Chesapeake, Richmond, Suffolk, and Virginia Beach. The majority of the collection sites lie east of the Blue Ridge, but the species occurs sporadically in western Virginia, as high as 3800 feet (1152 m) on Warm Springs Mountain in Bath County.

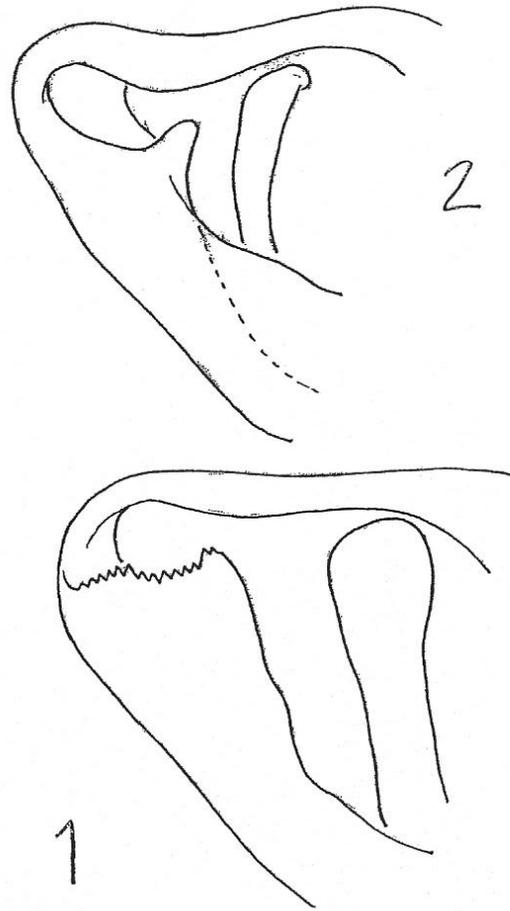
***Banasa dimidiata* (Say) (Figs. 2, 3)**

This species was recorded from 13 counties and two cities in my 1971 account, but some of those records were based on misidentified specimens of *B. calva*, and only the following localities (based on VMNH specimens) are reliable:

Alleghany, Dickenson, Dinwiddie, Fauquier, Floyd, Franklin, Grayson, Halifax, Isle of Wight, Montgomery, Northampton, Patrick, Russell, Smyth, Stafford, Sussex, and Tazewell counties, and the cities of Richmond, Suffolk, and Virginia Beach. While less often collected than *B. calva*, this species is dispersed over the state, and extends from sea level up to about 5000 feet (1515 m) on Mount Rogers.

There is evident in-state geographic variation in color pattern, which closely reflects that noted by Thomas & Yonke (1981a) for the overall range of the species: "Specimens from northern and western U.S. have dorsal surface of head red or trimmed with red and strongly darkly punctate; specimens from southeastern U.S. have head greenish or yellowish, punctations concolorous with surface." As indicated by solid dots on the map (Fig. 3), specimens from the Piedmont and Coastal Plain areas of Virginia represent the latter condition, being generally pallid with the head and anterior half of the pronotum concolorous, often nearly white.

At elevations above 3000 feet (909 m) in the mountains, the head is distinctly reddish, with the large, coarse, punctures black, exactly as described in the preceding paragraph. Such specimens are at hand from Buffalo Mountain, Floyd Co.; Warm Springs Mountain, Alleghany Co.; Garden Mountain, Tazewell Co.; Clinch Mountain, Russell Co.; White Top Mountain and Mount Rogers, Grayson Co., as indicated by square symbols on Fig. 3.



Figs. 1, 2. Male pygophore of two species of *Banasa*, oblique caudomesal aspect, showing modification of inner edge. The difference in shape of the parameres is illusory, owing to different aspects of these appendages (more edgewise in Fig. 2). Fig. 1. *Banasa calva* (Say). Fig. 2. *Banasa dimidiata* (Say).

This apparently boreal form extends southward into the mountains of North Carolina, as shown by specimens in the North Carolina State University insect collection from Highlands, Grandfather Mountain, Linville Falls, Mount Mitchell, and Banner Elk, all localities above 4000 feet (1212 m) in elevation. Almost certainly it will be found in Georgia and Tennessee.

That the gene for this variation can express itself occasionally in lowland populations is evident from single specimens with reddish heads from Halifax County and False Cape State Park, City of Virginia Beach. Essential allopatry of the two color forms suggests the classical geographic subspecific relationship, although I am unable to see any differences in pygophore structure. Details of cytogenetics in this species were discussed fully in a later

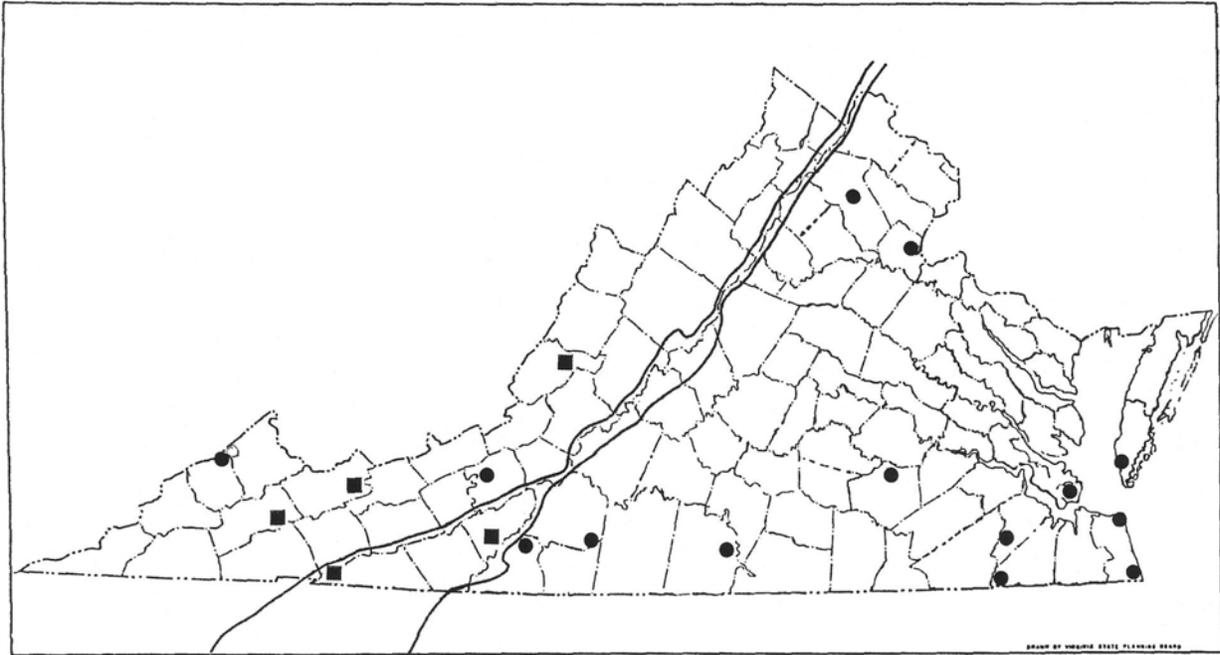


Fig. 3. Distributional records for *Banasa dimidiata* in Virginia. The ■ symbol indicates localities at which the montane color phase with reddish head has been collected, localities for the pale lowland form are indicated by the ●.

paper by Thomas & Yonke (1981b) which suggests that the paler, lowland form has one pair of chromosomes fewer ( $2n = 12$ ) than the widespread northern variety with reddish head ( $2n = 14$ ).

Formalizing this relationship taxonomically would require restriction of the trinomial *Banasa d. dimidiata* to the southeastern subspecies, as Say's *Pentatoma dimidiata* was based on specimens from "Georgia and East Florida".

Froeschner (1988) proposed to revive the spelling *dimiata* used in Say's original description, on the premise that the name *dimidiata* used by LeConte (1859) and almost all subsequent authors was an unjustified emendation. The most recent edition of the International Code of Zoological Nomenclature (1999) treats the subject of original spellings at some length, in general mandating their use (Articles 32 and 33). Aside from the information in the name itself favoring inadvertency in Say's published spelling (*dimiata* means nothing in any classical language, whereas *dimidiatus* denotes "half" or "divided", a possible allusion to the bicolored pronotum of this species), the Code provides exemption from strict observation in cases of long and extensive ("prevailing") usage (Article 33.2 3 1). Whether LeConte's emended spelling was justifiable or not, 130 years of consistent usage of *dimidiata* certainly justifies its preservation.

### ***Banasa sordida* (Uhler)**

This species, described without reference to any locality, was recorded by Van Duzee (1917) from "Virginia" without further specification, and I have not been able to trace the basis for the record. Blatchley (1926) defined a wide distribution across northern United States and Canada, with extensions southward through the Rockies and down the East Coast to the District of Columbia and Virginia. Brimley (1938) cited two localities in the Piedmont of North Carolina. Thomas & Yonke (1981a) stated "Entire U.S., northern Mexico, and southern Canada" for the distribution. Froeschner (1988) listed 14 states and provinces (mostly encompassed by Blatchley's statement of range), thus excluding much of southeastern United States.

My brief treatment of the species in 1971 summarized previous knowledge and predicted that *B. sordida* would eventually be discovered in Virginia, but several decades were to pass before this confidence was vindicated. VMNH now has two specimens of the species: *City of Galax*: at motel lights, intersection of Rts. 58 and 89, 14 June 2004, S. M. Roble. *Prince Edward Co.*: Hampden-Sydney College, 5 October 1992, P. Bangle. Considering the large number of pentatomid bugs collected throughout Virginia during the past several decades, this marginal

representation of *B. sordida* may reflect actual scarcity of the species rather than undercollecting. The NCSU collection contains only a few specimens from two localities in that state: Wake County (1); Morehead City (5), also possibly indicative of scarcity south of Virginia.

#### **Banasa euchlora** (Say)

This beautiful insect is readily distinguished from other members of its genus (and all other Virginia pentatomids) by the uniform jade green color, with basal angles of the scutellum ivory white and claval areas of the hemelytra finely irrorated with white. In 1971 I recorded it from only the counties of Fluvanna, Henrico, and Montgomery, imparting the impression of scarcity in the state. Subsequent collections provide a much better picture of its distribution; VMNH has 33 specimens from Accomack, Appomattox, Dinwiddie, Fluvanna, Franklin, Halifax, Isle of Wight, Montgomery, Northampton, Nottoway, and Pulaski counties, and the cities of Roanoke, Richmond, Suffolk, and Virginia Beach. The paucity of records for western Virginia is noteworthy.

Collection dates range from late May to early October. The species seems to be attracted to UV lights more often than other local pentatomids, sometimes in numbers (not all of the material so trapped was retained for the collection or tabulated).

#### **Banasa packardi** Stål

Originally described from North Carolina, this species is reputed to inhabit the coastal region from New Jersey to Florida. Despite extensive collecting efforts in recent years in southeastern Virginia and the "Eastern Shore", there are still no specimens known to me from Virginia despite the statement by Thomas & Yonke (1981a) "...Virginia south to Mexico City..." The preferred host plant is *Juniperus virginiana*, which thus may be targeted for particular attention during field activities in our coastal areas.

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