

## TAXONOMIC NOTES AND NEW SYNONYMIES OF SOME NORTH AMERICAN ACMAEODERA (COLEOPTERA: BUPRESTIDAE)<sup>1</sup>

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### ABSTRACT

The following new synonymy is proposed: *A. papagonis* Duncan, 1933 = *A. convicta* Fall, 1899; *A. durangana* Obenberger, 1928 = *A. decipiens* LeConte, 1866; *A. mariposa bernardino* Van Dyke, 1937 = *A. dohrni* Horn, 1878; *A. lucia eburna* Van Dyke, 1949 = *A. immaculata* Horn, 1878; *A. pulchella* var. *arizonae* Horn, 1878 and *A. obesa* Kerremans, 1910 = *A. mixta* LeConte, 1860; *A. anthobia* Obenberger, 1924 = *A. obtusa* Horn, 1878; *A. sparsa* Horn, 1878 = *A. rubronotata* Laporte and Gory, 1835; *A. faceta* Fall, 1907 = *A. stigmata* Horn, 1894; *A. robusta* var. *rubrosuffusa* Fall, 1907 and *A. moronga* Van Dyke, 1943 = *A. tuta* Horn, 1878; and *A. lucia* Fall, 1901 and *A. distincta* Kerremans, 1902 = *A. variegata* LeConte, 1852.

The following previously established synonymy is supported: *A. biedermanni* Skinner, 1903 = *A. lanata* Horn, 1880; *A. pallidula* Kerremans, 1910 = *A. latiflava* Fall, 1907; and *A. robusta duboisi* Cazier, 1938 = *A. tuta* Horn, 1878.

The following are removed from synonymy and given specific status: *A. haemorrhoea* LeConte, *A. mima* Gory and *A. mixta* LeConte. *A. dolorosa liberta* Fall is recognized as a subspecies for the first time.

The taxonomic status of the following is discussed: *A. laticollis* Kerremans, *A. montezuma* Obenberger, *A. opacula* LeConte, and *A. quatuordecimspilota* Obenberger.

In a recent paper (Barr, 1972) a number of new species of North American *Acmaeodera* were described following study of type-material in U. S. collections. Since submittal of that paper for publication I have examined type-material of other North American *Acmaeodera* species located in several European museums and reexamined some of the type-specimens previously studied in the United States. As a consequence of these most recent studies 19 species of North American *Acmaeodera* are now treated in order to clarify their taxonomic status, correct name usage or establish new synonymy.

For the opportunity of studying specimens in their care I am indebted to A. Descarpentries, Museum National d'Histoire Naturelle in Paris; L. H. Herman, American Museum of Natural History in New York; J. Jelinek, National Biological Museum in Prague; J. F. Lawrence, Museum of Comparative Zoology at Harvard Univ.; H. B. Leech, California Academy of Sciences in San Francisco; R. D. Pope, British Museum (Nat. Hist.) in London; and D. C. Rentz, Academy of Natural Sciences of Philadelphia. G. H. Nelson, Kansas City Col-

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*Acmaeodera convicta* Fall

*Acmaeodera convicta* Fall, 1899, J. N. Y. Entomol. Soc., 7:11.

*Acmaeodera papagonis* Duncan, 1934, Bull. Brooklyn Entomol. Soc., 28:231. New synonym.

Although this synonymy has been recognized by most North American buprestid workers, it has not to my knowledge been reported on in the literature. Duncan's type-specimen of *A. papagonis* is at the American Museum of Natural History (type no. 967).

*Acmaeodera decipiens* LeConte

*Acmaeodera decipiens* LeConte, 1866, Proc. Acad. Nat. Sci. Philadelphia, p. 383.

*Acmaeodera durangana* Obenberger, 1928, Arch. für Naturgesche., vol. 92, Abt. A, Heft 10, p. 120. New synonym.

The type-specimen of *A. durangana*, from Durango, is in the Obenberger collection at Prague. It is larger, more robust and more darkly marked than the type of *A. decipiens*. However, *A. durangana* falls within the range of variation that has been noted for specimens of LeConte's species from Arizona and New Mexico. This new synonymy results in the first recorded occurrence of *A. decipiens* in Mexico.

*Acmaeodera dohrni* Horn

*Acmaeodera dohrni* Horn, 1878, Trans. Amer. Entomol. Soc., 7:15.

*Acmaeodera mariposa bernardino* Van Dyke, 1937, Bull. Brooklyn Entomol. Soc., 32:109. New synonym.

When Van Dyke described the subspecies *A. m. bernardino*, he compared it with a species that had been misidentified as *A. dohrni*. Actually his holotype and that of *A. dohrni* show no appreciable differences in form, structure or coloration. They must therefore be considered synonymous. The species Van Dyke referred to as *A. dohrni* has been described as *A. nelsoni* Barr (1972).

*Acmaeodera dolorosa liberta* Fall, new status

*Acmaeodera liberta* Fall, 1922, Bull. Brooklyn Entomol. Soc., 17:89.

I am unable to find any taxonomic characters that can be used to justify the retention of *A. liberta* as a distinct species. In fact, even its recognition as a subspecies of *A. dolorosa* Fall may be questionable. The very distinctive sinuation and reflection of the base of the lateral margin of the last abdominal sternite is the same in both types. However, it does appear that specimens assignable to *A. d. liberta*

occurring in the western areas of the Mojave Desert and in the Owen's Valley of California have the elytral markings slightly larger, the elytral pubescence slightly longer and the pronotum more shining black than specimens of *A. d. dolorosa*. The nominate subspecies is known from chaparral areas of northern Baja California, west of the Sierra Nevada Mts. in California and locally in south-central Oregon.

When Fall described *A. liberta* he recorded it from Arizona as well as California. The occurrence of this subspecies in Arizona has yet to be verified.

*Acmaeodera haemorrhoea* LeConte, new status

*Acmaeodera rubronotata*, *Auctorum* (*nec* Laporte and Gory, 1837).

*Acmaeodera stellaris* Spinola, 1838 (*nec* Chevrolat, 1835), Ann. Entomol. Soc. France, 7:364.

*Acmaeodera haemorrhoea* LeConte, 1858, Proc. Acad. Nat. Sci. Philadelphia, 10:69.

This species is best known as *A. rubronotata*, but the name *A. haemorrhoea* must now be used for it because *A. rubronotata* applies to another species. Examination of LeConte's type-specimen at the Museum of Comparative Zoology indicates that it is representative of the species that has been known as *A. rubronotata* in the United States.

In Mexico, however, the status of the names applied to the *stellaris* group of species has yet to be established. The type-specimen of *A. stellaris* Spinola has not been seen and thus its relationships with *A. haemorrhoea* and *A. stellaris* Chev. are not known. I have followed the literature in referring it to *A. haemorrhoea*. With regard to *A. stellaris* Chev., the type-specimen of this species is distinct from *A. haemorrhoea* on the basis of an entirely black pronotum, smaller and less numerous elytral spots and an absence of subapical red markings on the elytra.

*Acmaeodera immaculata* Horn

*Acmaeodera pulchella* var. *immaculata* Horn, 1878, Trans. Amer. Entomol. Soc., 7:19.

*Acmaeodera lucia eburna* Van Dyke, 1949, Pan-Pac. Entomol., 25:53. New synonym.

Specific status already has been accorded Horn's variety *immaculata* which is known from the Mojave and Great Basin Deserts of the western United States and from the Owen's Valley of California. In the southwestern portions of its range, specimens are mostly immaculate, whereas more northerly occurring individuals are usually marked. The subspecies described by Van Dyke from the southern Mojave Desert closely matches Horn's type-specimen from the Owen's Valley.

This species is closely related to the species which formerly was known as *A. lucia* Fall, but now as *A. variegata* LeConte.

*Acmaeodera lanata* Horn

*Acmaeodera lanata* Horn, 1880, Trans. Amer. Entomol. Soc., 8:148.

*Acmaeodera biedermanni* Skinner, 1903, Entomol. News, 14:239.

In several relatively recent listings of species (Blackwelder, 1939; Barr, 1941) *A. biedermanni* has been given specific status. After studying the type-specimen at the Academy of Natural Sciences of Philadelphia, however, and examining large series of specimens of the variable, *A. lanata*, I concur with Van Dyke (1919) who first recognized the synonymous nature of *A. biedermanni* and what he referred to as *A. pubiventris lanata*. My colleague, R. L. Westcott who has conducted intensive studies on the *lanata* complex of species is in agreement with me regarding this synonymy.

*Acmaeodera laticollis* Kerremans

*Acmaeodera laticollis* Kerremans, 1902, Gen. Ins., fasc. 12a, Coleop., Buprestidae, 1:28.

This is an unknown species as far as the North American fauna is concerned. Kerremans' type-specimen in the British Museum (Nat. Hist.) bears the labels "Etats Unis, Clavareau" and "laticollis Kerr. (type)." This specimen is denuded as well as somewhat battered since the antennae are broken at the third segment, the legs are missing on the right side and only the femora and a part of the tibiae present on the left. Furthermore, incrustations are present which prevent assessment of some of the surface sculpturing.

The type-specimen is large, robust and black with numerous small irregular reddish (originally yellow?) markings scattered over the surface of the elytra. The pronotum is broadest at the base, reflexed at the sides with the lateral margins visible from above throughout and it has a small sublateral spot at about the basal third. The disk of the pronotum is convex except basally where it is sub-depressed and on the anterior half where a narrow longitudinal depression is present. The elytra are convex; the interstrial spaces are not elevated although the sublateral spaces behind the middle are slightly mucronate and the spaces near the suture and behind the middle are broadened and subflattened. The front angles of the elytra are subquadrate and the lateral margins coarsely serrate behind the middle. The front margin of the prosternum is broadly, shallowly emarginate, slightly reflexed at the sides, and distinctly retracted from the front angles of the pronotum. The last abdominal sternite is somewhat elongate with the lateral margin slightly reflexed, with the hind margin subtruncate but broadly rounded and with a very small subapical elevation that is slightly undercut.

I am unable to relate the type specimen of this species with other

North American *Acmaeodera* with any satisfaction. Based on the nature of the prosternum and last abdominal sternite, the general body form and color and color pattern, it resembles some specimens of *A. knowltoni* Barr. However, the structure of its pronotum and convexity of the elytra precludes a relationship with that species or with others in the *vandykei* complex, to which *A. knowltoni* belongs. Based on the nature of the lateral margin of the pronotum and convexity of the elytra, *A. laticollis* shows similarity to *A. flavopicta* Waterhouse. Although the form of the prosternum and last abdominal sternites of the two species differ, I prefer to ally it with *A. flavopicta* for the present.

*Acmaeodera latiflava* Fall

*Acmaeodera hepburnii* var. *latiflava* Fall, 1907, *Canad. Entomol.*, 39: 240.

*Acmaeodera pallidula* Kerremans, 1910, *Monogr. Buprestidae*, 4:269.

*Acmaeodera latiflava* represents another species originally described as a variety but later accorded specific status. Because this species is readily recognizable by its distinctive form, coloration and markings, it is somewhat surprising that Kerremans described what has proved to be a synonym. Perhaps Fall's abbreviated description or the fact that he described this species as a variety of *A. hepburnii* LeConte caused misunderstanding. Kerremans' type-specimen of *A. pallidula* is at the Museum National d'Histoire Naturelle.

Théry (1926) synonymized *A. pallidula* with *A. h. latiflava*. His paper appears to have been overlooked by North American workers and catalogers.

*Acmaeodera mima* Gory, new status

*Acmaeodera mima* Gory, 1841, *Hist. nat. insectes Coleop.*, 4:29.

This species should be removed as a synonym of *A. scalaris* Mann. Examination of the type at the Museum National d'Histoire Naturelle indicates that its relationships are with two other Mexican species, *A. croceonotata* Gory and *A. lesnei* Kerremans. The type-specimen of each of the three is robust in form, blackish in coloration, with the basal half of the elytra having an irregularly narrow yellowish stripe on the lateral margin and several pairs of elongate, linearly arranged yellowish spots on the disk and with the apical half of the elytra showing four pairs of transverse yellowish spots that are broken or irregular and interrupted at the suture. Determination of the status of each of these names is dependent upon an adequate series of study specimens. For the present it should be noted that *A. mima* appears distinctive from *A. croceonotata* and *A. lesnei* because of its smaller size and larger discal markings of the elytra.

*Acmaeodera mixta* LeConte, new status

*Acmaeodera mixta* LeConte, 1860, Trans. Amer. Philos. Soc. (n.s.), 11:227.

*Acmaeodera pulchella* var. *arizonae* Horn, 1878, Trans. Amer. Entomol. Soc., 7:19. New synonym.

*Acmaeodera obesa* Kerremans, 1910, Monogr. Buprestidae, 4:271. New synonym.

*Acmaeodera mixta* has long been regarded as a synonym of *A. pulchella* (Hbst.). However, I believe it is distinct from that species on the basis of elytral markings, body form and distributional occurrence. LeConte's type-specimen in the Museum of Comparative Zoology is labeled with a green disk. One other specimen in the type-series is labeled with a red disk and probably is the one he originally included in the type-series of *A. variegata* when it was described.

The proposed change of synonymy of *A. p.* var. *arizonae* is open to question because the type-specimen is lost or because one never was designated by Horn. In any event, because the name was tied to a *pulchella*-like individual from Arizona, it must be associated with *A. mixta*. As *A. pulchella* is now known, it does not range into the southwestern U. S. Incidentally, the specimens from Florida referred to *A. p.* var. *arizonae* by Horn probably are representatives of a geographical variation of *A. pulchella*.

The type-specimen of *A. obesa* from "Texas," located in the Museum National d'Histoire Naturelle, closely matches the specimen described by LeConte as *A. mixta*. Although the two differ somewhat in coloration, with the pronotum and elytra blackish-bronze in *A. obesa* and black in *A. mixta*, I believe they are synonymous.

*Acmaeodera montezuma* Obenberger

*Acmaeodera montezuma* Obenberger, 1924, Arch. Naturg., vol. 90, Abt. A, Heft 3, p. 35.

This represents another of the Obenberger species that has remained unknown since its original description. Examination of the type-specimen, from "Mexico," in the Obenberger collection at Prague indicates that it and *A. perforata* Cazier are very closely related. Similarities include: a prominent median dorsal carina on the head; the unique thoracic markings, especially at the front angles and at the middle near the anterior margin; the arcuate lateral margin of the pronotum widest at the basal third, reflexed and visible from above throughout; the very irregular and broken, dark transverse bands of the elytra; and the deeply punctured elytral striae.

This species can be separated from *A. perforata* by the front margin of the prosternum being weakly trisinate rather than transverse, by the last abdominal sternite having a small but distinct subapical plate rather than a thick subapical carina and by having three depressed

areas on the front of the head rather than a single median depression. The two type specimens also show differences in the thoracic markings, however I believe these differences to be indicative of variability of the markings rather than a specific character.

*Acmaeodera obtusa* Horn

*Acmaeodera obtusa* Horn, 1878, Trans. Amer. Entomol. Soc., 7:19.

*Acmaeodera anthobia* Obenberger, 1924, Arch. Naturg., vol. 90, Abt. A, Heft 3, p. 33. New synonym.

The type-specimen of *A. anthobia* is in the Obenberger collection at Prague. This specimen, described from Texas, clearly is a synonym of *A. obtusa*.

*Acmaeodera opacula* LeConte

*Acmaeodera opacula* LeConte, 1858, Proc. Acad. Nat. Sci. Philadelphia, 10:69.

The type-specimen (no. 2720) of this species in the LeConte collection at the Museum of Comparative Zoology bears a green disk rather than the label "N.M." as indicated by Cazier (1940a). LeConte, in his original description gave the type-locality as El Paso, Texas.

*Acmaeodera opacula* has remained an enigma since the time of its original description. Several workers have referred specimens to this species in the past, but in each instance I believe these specimens were incorrectly identified. To my knowledge no specimen of *A. opacula* other than the type has been collected. This in itself is not particularly unusual since several other species of North American *Acmaeodera*, e.g. *A. horni* Fall, *A. constricticollis* Knull, *A. perforata* Cazier, *A. consors* Horn and *A. bryanti* Van Dyke are known only from single specimens which probably is indicative of low population densities or unusual or restricted habitat. With regard to *A. opacula*, however, another set of circumstances may be involved. Examination of the type-specimen has disclosed that it shares, in part, several features with two closely related, allotopic, but more recently described species. The possibility of its being a hybrid specimen cannot be overlooked. In body form, punctuation of the lateral and apical areas of the elytra, nature of the apical interstitial spaces of the elytra and in the shape of the pronotum it bears resemblance to *A. amabilis* Horn. On the other hand, in the nature of the markings of the pronotum and elytra, in the reflected lateral margins of the pronotum, in the basal punctuation of the elytra and in the form of the front margin of the prosternum it is similar to *A. disjuncta* Fall. Obviously, on the basis of such preliminary information no conclusion other than to regard *A. opacula* as a species can be reached at this time. As Fall (1900) so aptly put it when discussing this species, "We must wait for more specimens."

*Acmaeodera quatuordecimspilota* Obenberger

*Acmaeodera* 14-*spilota* Obenberger, 1917, Neue Beitr. Syst. Insektend., 1:55.

This species cannot be placed with any assurance because the type-specimen is badly rubbed and, because it is mounted on a card, I was unable to accurately determine the nature of the features on its ventral surface. It does appear, however, to be a distinctly maculate specimen of one of the early spring-appearing Arizona species, perhaps *A. depressa* Barr. This specimen, in the Obenberger collection, is from "North America."

The head appears to have been uniformly and densely clothed with long, erect blackish hairs. The front of the head is subflattened. The pronotum is coarsely, densely punctured, broadest in front of the base and the disk is subflattened with a broad shallow basal depression at the middle. Each sublateral pit has a distinct oblique depression extending anteriorly from it towards the side of the pronotum. The lateral margins are slightly reflexed and visible from above throughout. The elytra are subflattened discally and without elevated interstrial spaces and coarse stria punctures. The front angles in lateral view are subacute, nearly rectangular. The lateral margins when viewed from the side are feebly bisinuate on the basal fourth, then broadly, arcuately rounded to the apices; the apical half is coarsely, sparsely serrate. The elytra are marked with seven pairs of small yellowish spots. Near the suture the spots are rounded and located at the base, slightly in front of the middle and at about the apical third; on the lateral margins they are more irregular in form, and at about the basal fourth and the middle are directed posteriorly whereas at about the apical fourth and in front of the apices they are transversely oriented. In addition there is a single tiny spot on the left sutural margin just behind the base and another on the left lateral margin behind the subapical transverse spot. As can best be seen ventrally the front margin of the prosternum appears to be broadly, shallowly arcuately emarginate with a slight lobing on either side of the middle and distinctly retracted from the front angles of the pronotum. The last abdominal sternite seems to have a subapical plate, the nature of which cannot be established.

*Acmaeodera rubronotata* Laporte and Gory

*Acmaeodera rubronotata* Laporte and Gory, 1835, Hist. nat. icon. insectes Coleop., 1:5.

*Acmaeodera sparsa* Horn, 1878, Trans. Amer. Entomol. Soc. 7:11. New synonym.

Unfortunately, this widely distributed and well-known species that has been known for many years under the name *A. sparsa* must now be known by another. Examination of the type-specimen of *A. rubro-*

*notata* in the Museum National d'Histoire Naturelle leaves no alternative. It is surprising that this synonymy was not detected earlier because the illustration (Acmaeodera, plate 1, fig. 5) that matches both the description by Laporte and Gory and their type-specimen certainly does not fit the species to which the name *A. rubronotata* usually has been applied. Perhaps one of the difficulties relating to the identification and utilization of a correct name for this species has been the erroneously designated type-locality. It was originally cited as "Chili." The type-specimen of *A. rubronotata*, however, bears the label "Mexique."

*Acmaeodera stigmata* Horn

*Acmaeodera stigmata* Horn, 1894, Proc. Calif. Acad. Sci., (2)4:370.

*Acmaeodera faceta* Fall, 1907, Can. Entomol., 39:241. New synonym.

Horn described this species from two specimens—one, bearing the type-label, from San Jose del Cabo, Baja California and the other from Tucson, Arizona. This second specimen which is not conspecific with the type-specimen has caused difficulties in the identification of *A. stigmata*. Apparently the concept of this species over the years has been based principally on Horn's specimen from Tucson rather than on his type-specimen. The type-specimen of *A. stigmata* represents the same species Fall subsequently described as *A. faceta* from Baja California. The species represented by Horn's Tucson specimen has recently been described as *A. acanthicola* Barr (1972).

*Acmaeodera tuta* Horn

*Acmaeodera tuta* Horn, 1878, Trans. Amer. Entomol. Soc., 7:11.

*Acmaeodera robusta* var. *rubrosuffusa* Fall, 1907, Canad. Entomol., 39:240. New synonym.

*Acmaeodera robusta duboisi* Cazier, 1938, Bull. So. Calif. Acad. Sci., 37:138.

*Acmaeodera moronga* Van Dyke, 1943, Pan-Pac. Entomol., 19:102. New synonym.

When Fall described the variety *rubrosuffusa*, he associated it with *A. robusta* Horn, but indicated a relationship with *A. tuta* as well. I believe the latter to be more accurate. The basally reddish condition of the elytra, which prompted the naming of this variety, frequently is found on specimens in the western and northwestern portions of the distributional range of *A. tuta*.

In the southern and southwestern portions of the range of this species, specimens occur that have the broadly yellowish elytral markings somewhat broken or irregular. Van Dyke based his description of *A. moronga* on such a specimen.

Cazier (1940b) was responsible for the synonymy of *A. r. duboisi* and *A. tuta*. I am in agreement with it.

*Acmaeodera variegata* LeConte

*Acmaeodera variegata* LeConte, 1852, Proc. Acad. Nat. Sci. Philadelphia, 6:67.

*Acmaeodera lucia* Fall, 1901, Trans. Amer. Entomol. Soc., 27:307. New synonym.

*Acmaeodera distincta* Kerremans, 1902, Gen. Ins., fasc. 12a, Coleop., Buprestidae, 1:29. New synonym.

When LeConte described this species, he had two specimens in his series. One was the designated type-specimen and the other a representative of the species he later described as *A. mixta*. Apparently this specimen was removed and incorporated into the *A. mixta* series (the specimen with a red disk) when that species was described. Later, five additional specimens, none of which is conspecific with *A. variegata*, were added to the LeConte collection under this name. It seems that these specimens subsequently influenced several workers and as a consequence the name *A. variegata* over the years was commonly but incorrectly assigned to at least one other species of *Acmaeodera*. In the LeConte collection specimens two to four from "Utah" and specimens five and six from Mt. Shasta district, California are what has recently been described as *A. diffusa* Barr (1969).

When Fall described *A. lucia*, he stated that he had specimens from California, Arizona and Colorado, but did not designate a holotype. The specimen in his collection that bears a type-label designation (no. 24421, Museum of Comparative Zoology) is labeled "Prescott, Ariz. 6 & 7 '94." This specimen is not different from the type-specimen of *A. variegata*.

The type-specimen of *A. distincta*, described from "Colorado" and located at the British Museum (Nat. Hist.) has been examined. It does not appear to differ specifically from *A. variegata*.

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