

The Subgenera of
Nanularia and *Hippomelas*
(Coleoptera: Buprestidae)¹

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The beetles assigned to the genus *Hippomelas* constitute a conspicuous and important element of the coleopterous fauna of the southwestern deserts and surrounding areas, yet their taxonomy is in poor condition. A foundation for a classification based on anatomical or other features has not been developed; consequently the status of each of the 51 species-group names and the six genus-group names that have been proposed has not been established and a means of satisfactorily identifying these beetles is not available. Many species-group names, particularly those of Casey, have been arbitrarily relegated to synonymy and there have been many markedly inconsistent changes made in the status of the genus-group names by workers and catalogers over the years (Table 1). In nearly every instance these changes have been made without an accompanying explanation or justification.

As an outgrowth of another study I have critically examined the majority of the species currently recognized as belonging to *Hippomelas* in order to establish their subgeneric placement. Several anatomical characters³ have come to light which have not been previously employed in this group and which appear to have taxonomic value at the generic and subgeneric levels. It now seems appropriate to bring this and previously published information together and present a classification of the group. This classification, which breaks up the group into two genera, each with several subgenera, must be regarded as preliminary because all the recognized species and all the type specimens could not be studied. However, emphasis also has been placed on recognition of the genera and subgenera based on a comparative presentation of anatomical characters considered to be of importance. It is hoped that the results of this study will in part provide a stimulus for a much needed taxonomic revision of this interesting group of beetles.

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TABLE I

Historical usage of the generic and subgeneric names in the *Hippomelas* group.

	Hippomelas	Gyascutus	Prasinalia	Stictocera	Nanularia	Ampheremus
Laporte & Gory, 1837	described as subgenus of Buprestis					
LeConte, 1860	not recognized	genus described				
Horn, 1868	not recognized	valid genus				
Horn, 1883	valid genus	valid genus				
Kerremans, 1892	valid genus	valid genus				
Kerremans, 1903 & 1908	valid genus	synonym of Hippomelas				
Casey, 1909	valid genus	valid genus	described as subgenus of Hippomelas	genus described	genus described	
Fall, 1917	not considered	not considered	not considered	not considered	not considered	genus described
Leng, 1920	valid genus	synonym of Hippomelas	synonym of Hippomelas	synonym of Hippomelas	valid genus	valid genus
Chamberlin, 1926	valid genus	valid genus	synonym of Gyascutus	synonym of Hippomelas	synonym of Hippomelas	valid genus
Obenberger, 1926 & 1930	valid genus	valid genus	subgenus of Hippomelas	valid genus	subgenus of Gyascutus	valid genus
Van Dyke, 1942	valid genus	synonym of Hippomelas	not considered	synonym of Hippomelas	subgenus of Hippomelas	not considered
Blackwelder, 1944	valid genus	valid genus	not considered	valid genus	subgenus of Hippomelas	not considered
Nelson & Barr, 1960	valid genus	not considered	not considered	not considered	subgenus of Hippomelas	synonym of Nanularia
Arnett, 1962	valid genus	synonym of Hippomelas	subgenus of Hippomelas	subgenus of Hippomelas	subgenus of Hippomelas	synonym of Nanularia
Barr, in press	valid genus	subgenus of Hippomelas	not considered	not considered	subgenus of Hippomelas	not considered

genus NANULARIA Casey

In recent years *Nanularia* has been regarded as a subgenus of *Hippomelas* by most workers. Now, on the basis of the following distinctive features it must be elevated to a full generic status:

1. Inner margin of eyes parallel
2. Antennal segments 4-10 compact, triangularly serrate and not flattened
3. Elytral apices rounded to slightly emarginate, not bidentate, but usually with a sutural tooth
4. Prosternal process uniformly, coarsely densely punctured
5. Metacoxa with hind margin rather deeply emarginate

Ampheremus appears to be sufficiently distinct from *Nanularia* to warrant a generic ranking. The lack of a distinct sutural tooth at the elytral apices, the sculpturing of the pronotum and elytra and more important, the absence of a marginal carina on the prothorax and a submarginal carina on the epipleuron are of significance. However, the relationship with *Nanularia* is better indicated by recognizing *Ampheremus* as a subgenus at this time.

genus HIPPOMELAS Laporte and Gory

The removal of *Nanularia* from *Hippomelas* will allow this genus to be defined in a more restricted and perhaps a more realistic sense. *Hippomelas* is distinguished from *Nanularia* by the following collective features:

1. Inner margin of eyes gradually converging dorsally
2. Antennal segments 4-10 elongate, subserrate or in part, parallel sided, strongly flattened
3. Elytral apices normally deeply emarginate and bidentate
4. Prosternal process with a few punctures scattered over the surface or concentrated along the midline
5. Metacoxa with hind margin sinuate, subtruncate or feebly emarginate
6. Hind margin of abdominal sternites 2-4 toothed or interrupted near sides
7. Males with secondary sexual modifications usually present on one or more pairs of legs

In addition to the eight taxonomic characters listed for each subgenus the presence or absence of rather long erect hairs at the outer apical angle of the third antennal segment, the ratio of the lengths of the third and fourth antennal segments and the presence and location of bands or concentrations of tiny sensory punctures on the antennal segments show variation between some of the subgenera. Perhaps these features will eventually prove to be of taxonomic value at either the species or the subgeneric level.

Four subgenera are recognized in this genus.

subgenus *Gyascutus* LeConte

Type species: *Chalcophora planicosta* LeConte

Species examined: *H. (G.) castanea* Helfer (new status)

carolinensis Horn

dianae Helfer

fulgida Barr

granulatus Van Dyke (new combination)

insularis Helfer

lariversi Barr

obliterata (LeConte)

pacifica Chamberlin

planicosta (LeConte)

Collective characteristics:

1. Disk of pronotum usually with conspicuous elevated smooth callosities
2. Lateral margin of prothorax carinate on at least the apical half
3. Epipleuron with sublateral carina evident to basal third
4. Epipleuron not toothed
5. Inner margin of protrochanter with an apical tooth that is usually distinctly elevated
6. Profemur with inner margin somewhat swollen, without an obsolete longitudinal carina
7. Protibia arcuate
8. Metatarsus with first segment subequal in length to two and one-half times longer than fifth segment

Gyascutus contains the largest number of species of any of the *Hippomelas* subgenera. Future workers will have to add to this list by resurrecting several of Casey's species now in synonymy and by naming several undescribed species.

The species of this subgenus show considerable variation in color and in several structural features. Some of these features, especially the sculpturing of the pronotum, elytra, metepisternum and the abdomen and the structure and form of the two types of male genitalia evident in the subgenus may prove useful when the species are classified.

A secondary sexual character consisting of several small teeth on the inner margin of the protibia is evident in both the males and females, but these teeth may be much reduced or absent in the females of some species.

The placement of *H. (G.) granulatus* Van Dyke, which was originally described in the subgenus *Nanularia*, in *Gyascutus* is somewhat tentative because this species has an indistinct tooth on the protrochanter, the front of the head is convex rather than flattened or concave, the tiny sensory punctures apparently are first evident on the fifth rather than the fourth antennal segment of the female and because the eleventh antennal segment of the female lacks a distinct notching. Two other species, viz. *H. (G.) pacifica* Chamberlin and *H. (G.) insularis* Helfer also exhibit several features that are somewhat inconsistent with those of the other species examined. In both these species the profemur is not swollen along the inner margin and in the former the elytral apices are not distinctly bidentate, while the latter has the protrochanter feebly toothed and the protibia indistinctly arcuate. The significance of these departures of taxonomic characters awaits further study.

I am recognizing *H. (G.) castanea* Helfer as a valid species rather than a subspecies of *H. (G.) insularis* Helfer as it was

originally described. An examination of the type specimens and a consideration of the distinguishing features as given by Helfer (1953) convinces me of the distinctness of these species.

subgenus *Stictocera* Casey

Type species: *Chalcophora caelata* LeConte

Species examined: *H. (S.) caelata* (LeConte)

Collective characteristics:

1. Disk of pronotum with numerous conspicuously elevated smooth callosities
2. Lateral margin of prothorax carinate on at least the apical half
3. Epipleuron with sublateral carina evident to basal third
4. Epipleuron not toothed
5. Inner margin of protrochanter without an elevated tooth at apex
6. Profemur with inner margin swollen, without an obsolete longitudinal carina
7. Protibia arcuate
8. Metatarsus with first segment subequal in length to fifth segment

Stictocera, represented by a single colorful species, shows closest relationships with *Gyascutus*. Its pronotal sculpturing, the arcuate protibia and internally swollen profemur, along with the presence of several small teeth on the inner margin of the male protibia, are shared by most species of *Gyascutus*. However, *Stictocera* does present additional secondary sexual modifications of the male that are unique to the genus. The outer antennal segments are bicolored and the metatibia bears a double row of small but conspicuous teeth on the inner margin.

subgenus *Hippomelas* Laporte and Gory

Type species: *Buprestis (Hippomelas) Mexicana* Laporte and Gory

Species examined: *H. (H.) planicauda* Casey
saginata (Mann.)
sphenica (LeConte)

Collective characteristics:

1. Disk of pronotum evenly sculptured, without conspicuous elevated callosities
2. Lateral margin of prothorax carinate on at least the apical half
3. Epipleuron with sublateral carina evident to basal third
4. Epipleuron not toothed
5. Inner margin of protrochanter with an indistinct apical tooth which, at most, is feebly elevated
6. Profemur with inner margin more or less longitudinally level and occasionally with an obsolete

- longitudinal carina
- 7. Protibia straight or nearly so
- 8. Metatarsus with first segment subequal in length or slightly shorter

The subgenus *Hippomelas*, like *Stictocera*, shows a close relationship with *Gyascutus*, but the relationship appears to be along another developmental line inasmuch as a different set of features are involved. With the species of *Hippomelas*, as with some or nearly all species of *Gyascutus*, the disk of the pronotum is nearly smooth, the protochanter is toothed and the antennal segments of the males are unicolorous. On the other hand, *Hippomelas* is distinct from these other subgenera by having the male metatibia thickened and gradually expanded apically and bearing three rows of tiny indistinct teeth on the inner margin, by having the protibia more or less straight and by having the inner margin of the profemur flattened.

subgenus *Prasinalia* Casey

Type species: *Gyascutus cuneatus* Horn (by present designation)

Species examined: *H. (P.) cuneata* (Horn)
imperialis Barr

Collective characteristics:

1. Disk of pronotum more or less evenly sculptured, without conspicuous elevated callosities
2. Lateral margin of prothorax carinate on at least the apical half
3. Epipleuron with sublateral carina evident to basal third
4. Epipleuron with a tiny marginal tooth about in line with front margin of metacoxa
5. Inner margin of protochanter not toothed at apex
6. Profemur with inner margin more or less longitudinally level and with an obsolete longitudinal carina
7. Protibia straight or nearly so
8. Metatarsus with first segment about twice as long as fifth segment

Prasinalia is the most distinctive of the *Hippomelas* subgenera and may be accorded a generic ranking especially on the basis of its characteristic epipleural tooth and the unique secondary sexual modifications of the male consisting of a large recurved spine between the smaller apical spurs of the pro- and meta-tibiae and a small, acute elevated tooth on the inner margin of the metacoxa. However, for the convenience of this paper it is retained as a subgenus.

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