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REVISION OF *GANSIA* SHARP OF MÉXICO AND CENTRAL AMERICA (COLEOPTERA: STAPHYLINIDAE; ALEOCHARINAE)[1]

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Abstract.—Mexican and Central American species of the staphylinid genus *Gansia* are revised, and descriptions, keys and illustrations are provided for their identification. Lectotypes and paralectotypes are designated for the previously described species *G. bicolor* Sharp, 1883 and *G. tibialis* Sharp, 1883. The following species are described as new: *Gansia andersoni* Ashe and Lingafelter (type locality: México, Chiapas, Volcán Tacaná, 4 km N Union Juarez); *Gansia bipictanota* Ashe and Lingafelter (type locality: Panamá, Chiriquí Prov., 20.4 km N San Felix); *Gansia flavata* Ashe and Lingafelter (type locality: México, Guerrero, 63.2 km NE Atoyac de Alvarez); *Gansia fortemaculata* Ashe and Lingafelter (type locality: Honduras, Olancho Prov., La Muralla, 14 km N La Union); *Gansia obscura* Ashe and Lingafelter (type locality: Costa Rica: Guanacaste Prov., Cacao Biol. Sta.); *Gansia tachynota* Ashe and Lingafelter (type locality: Panamá, Chiriquí Prov., 20.4 km N San Felix); *Gansia taeniata* Ashe and Lingafelter (type locality: Panamá, Panamá Prov., 6.9 km S. Gamboa, Old Plantation Rd.); *Gansia tergopunctata* Ashe and Lingafelter (type locality: Panamá, Chiriquí Prov., La Fortuna, "Cont. Div. Trail"); *Gansia unizonata* Ashe and Lingafelter (type locality: Panamá, Chiriquí Prov., 20.4 km N San Felix). Evidence is provided that members of *Gansia* primarily occur in the rotting and fermenting leaves of treefalls and similar habitats where they feed on fungal hyphae and molds.

Members of the neotropical genus *Gansia* are among the most distinctive and striking of the smaller Aleocharinae. Sharp (1883:282) described them as "among the most elegant of the Staphylinidae." Their slender, falagrioid form, with very long, slender legs and antennae, their dramatic and contrasting color patterns, and their distinctive antennae with white or yellowish apical articles (see Figs. 1, 11–18, and description below) make them among the most easily recognized of the neotropical aleocharines.

Sharp (1883) first described the genus *Gansia* based on two species, *G. bicolor* and *G. tibialis* from Guatemala. In addition, Sharp also pointed out that *Falagria varicornis* Sharp that he had previously described from the Amazon region of South America (1876) should also be assigned to this genus. Later, Fenyes (1918) designated the type species to be *G. bicolor* Sharp. Since then the genus has received very little attention. Bernhauer (1921) described one additional species, *G. antennaria* from Bolivia, bringing the total described species in the genus to four.

Sharp (1883) originally classified *Gansia* as a member of the "Group Bolitocharina" because of their 4, 4, 5 tarsal formula, but he pointed out that members of the

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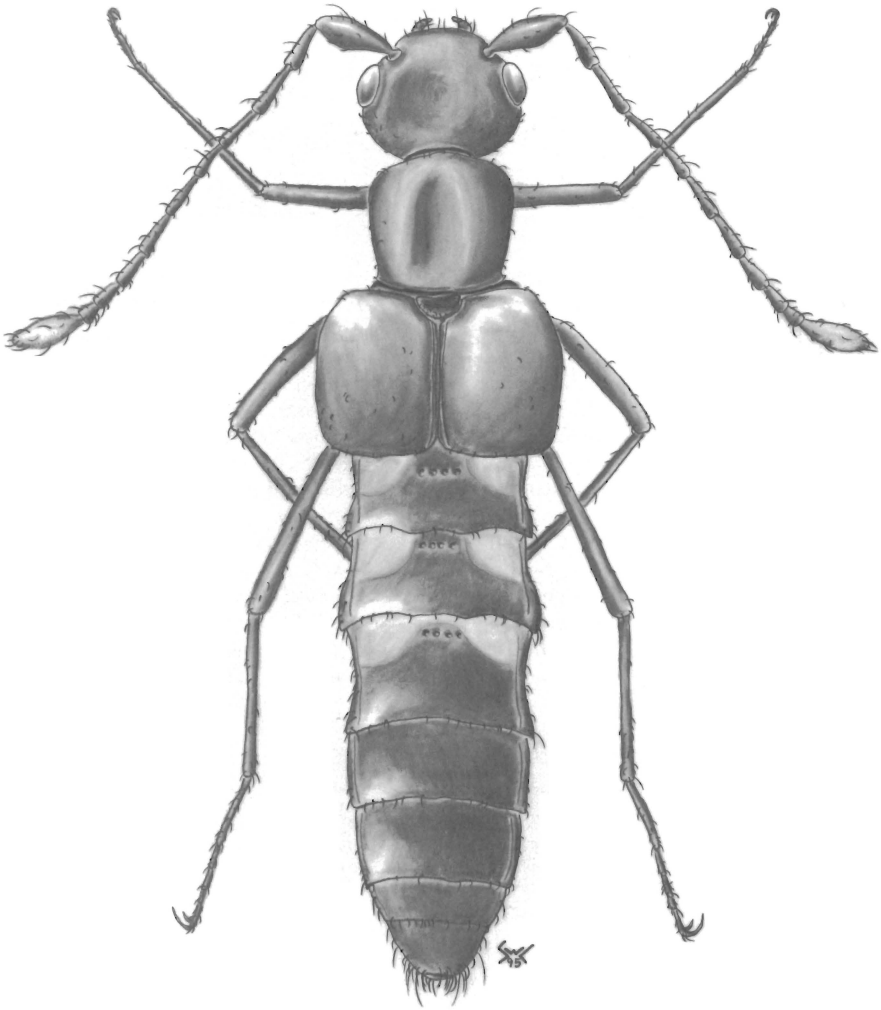


Fig. 1. *Gansia fortemaculata* n. sp., dorsal habitus.

genus were quite isolated within the bolitocharines and noted that they were similar to members of the genera *Autalia* and *Euvira.* Subsequently, Fenyes (1918) placed the genus in his "Group Autaliae" of the tribe Bolitocharini (more correctly called the tribe Homalotini, see Newton and Thayer, 1992) in which he placed the three previous genera as well as *Eudera.* This placement was followed by Bernhauer and Scheerpeltz (1926) and Blackwelder (1944) who added additional genera to the group. Ashe (1991) removed *Euvira* from the Autaliina and placed it in a separate tribe with *Placusa,* and Ashe and Leschen (1995) noted that several of the remaining genera in the Autaliina, including *Gansia,* probably form a monophyletic group.

However, this latter proposition requires confirmation by rigorous phylogenetic analysis.

Recent collecting has shown that the members of *Gansia* are abundant in some habitats in Central and South America, and that the genus is represented by numerous undescribed species throughout tropical America. In this paper we revise the species of México and Central America. Herein we redescribe *G. bicolor* and *G. tibialis* and designate lectotypes for each, describe nine new species, discuss the distribution, habitats and feeding habits of members of *Gansia,* and provide keys and illustrations for identification of the species of México and Central America. In addition to the species treated here we have examined at least 20 undescribed species of *Gansia* from South America. However, most of the South American taxa are represented by very few specimens and we have elected to revise these in a separate paper when more material is available.

MATERIALS AND METHODS

We found that few museums have identified specimens of *Gansia* in their collections. The following museums and curators contributed specimens used in this revision. The four letter acronym indicates the designation used for that museum in the descriptive sections.

American Museum of Natural History, New York (Lee Herman) (AMNH)
Instituto Nacional de Biodiversidad Collection, Costa Rica (Angel Solis) (INBI)
Field Museum of Natural History, Chicago (Alfred F. Newton, Jr.) (FMNH)
Natural History Museum, London (Emma de Boise) (BMNH)
Snow Entomological Museum, University of Kansas, Lawrence (KSEM)

Throughout this revision we have referred to the abdominal segments by their morphologically comparable names (as in Blackwelder, 1936). Thus the first fully visible segment is segment III, the second fully visible is segment IV, and so forth. Note that tergum II is narrowly visible under the edge of the elytra in most *Gansia* specimens.

We examined the mouthparts of *G. bicolor, G. fortemaculata, G. andersoni, G. flavata* and 2 undescribed species of *Gansia* from South America on microscope slides. No significant variation in characters described for the genus *Gansia* were noted. Only mouthparts of *G. fortemaculata* are illustrated, and these are consistent with those of *G. bicolor* (the type species of *Gansia*).

A few collection localities for several species could not be located and are not shown on the distribution maps.

Gansia Sharp, 1883

Diagnosis: Members of *Gansia* can be easily recognized by the combination of: 4-4-5 tarsal formula; distinctive slender body form (Figs. 1, 11–18) with head, pronotum and abdomen narrower than elytra; contrasting color patten (Figs. 1, 11–18); head with distinct neck; very long and slender antenna with apical segment white or pale yellow; long and slender legs; pronotum longitudinally impressed medially; mesosternum with apical margin recurved to form a distinct "neck"; mesocoxae moderately broadly separated; mesosternal process extended 0.4–0.5 times length of

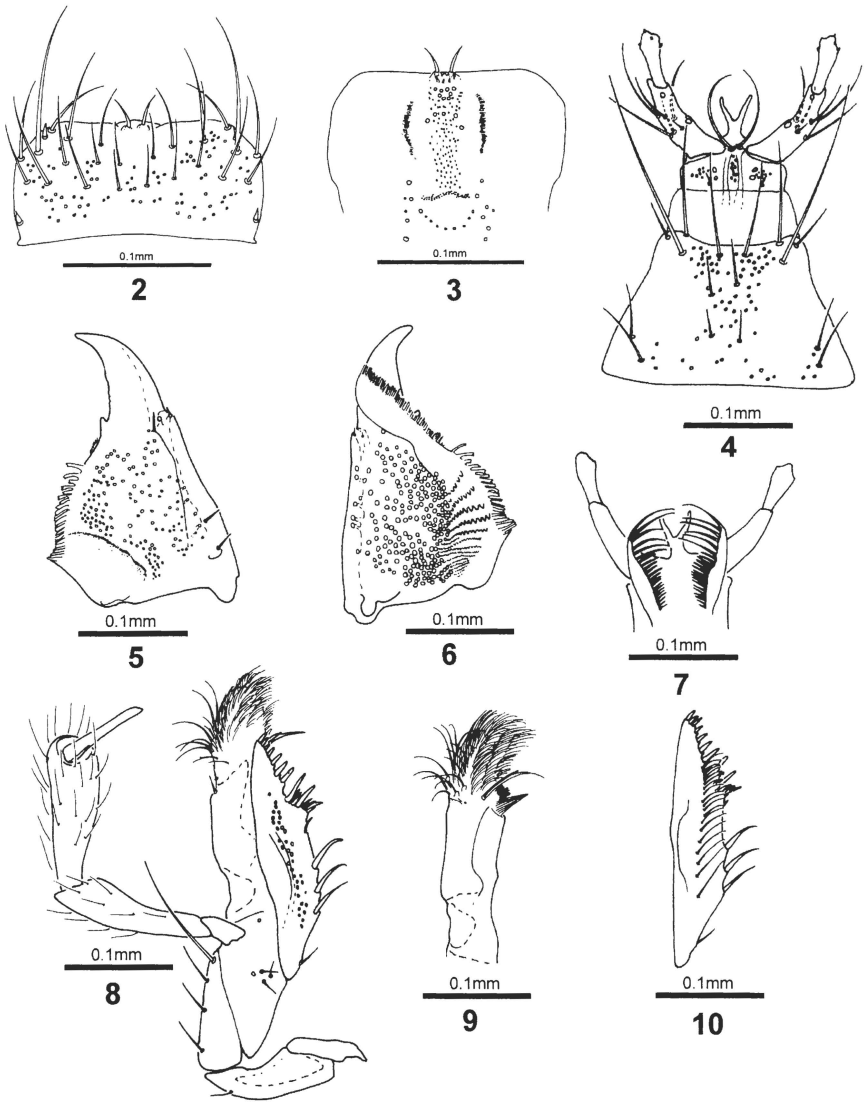
coxae and overlapping metasternal process, isthmus absent; and, deep transverse impressions on terga and sterna of abdominal segments III–V with moderate to large punctures.

Description: Length of adults 2.3–3.5 mm. Body elongate, slender, with very elongate legs and antennae; pronotum and head narrower than elytra and base of pronotum much narrower than base of elytra; base of abdomen narrower than apex of elytra (Figs. 1, 11–18). Body color varied, most distinctly bicolored, with light flavate or rufo-flavate markings contrasting with reddish-brown, piceus or black ground color, or with blackish markings contrasting with flavate or rufo-flavate ground color (Figs. 1, 11–18); apical article of antenna white or pale yellow. Microsculpture faint to absent, integument shining. Microsetae very sparse and short; macrosetae moderate-sized to prominent on abdomen, absent from remainder of body.

Head: More or less oval, narrowed behind the eyes to form conspicuous neck 0.5–0.6 times width of head. Eyes moderate-sized, length of eyes about equal to, or slightly shorter than, length of temples. Dorsal surface of head evenly rounded (in most) (Figs. 11, 13) or broadly depressed medially (in some) (Figs. 1, 12). Infraorbital carina complete but faint, absent anteriorly, or totally absent. Microsculpture absent, integument shiny; microsetae very short and sparse; punctures very small and inconspicuous to moderate in size. Antennae very elongate and slender, articles decreasing in length from 1 to 10; articles 1–8 or 1–9 very elongate; articles 9–10 or 10 slightly elongate to subquadrate; article 11 elongate and connate, as long or longer than 9–10 together, color white to pale yellow (Fig. 1).

Mouthparts: Labrum (Fig. 2) transverse, slightly lobed medially, a-sensilla absent; epipharyngeal area (Fig. 3) with patch of large pores anteriorly in medial area, a medial longitudinal field of numerous minute pores, an irregular transverse, double row of minute pores near posterior border, a semicircular row of 8–10 larger pores behind this double row of minute pores and field of 5–6 large pores on each side lateral to these. Mandibles (Figs. 5, 6) with ventral molar patch of denticles present, in more or less distinct transverse rows; both mandibles with numerous, large and closely arranged sensory pores, especially on ventral side; right mandible with small medial tooth, absent from left mandible. Maxilla (Figs. 8, 9, 10) with lacinia with apical row of about 6 more or less distant teeth, a small lobe below these with numerous large and small spines, and 3–4 large apically curved spines more basally; ventral surface of lacinia with longitudinal row of large sensory pores (Fig. 8); dorsal surface or lacinia (Fig. 10) with longitudinal row of setae; galea longer than lacinia, with membranous apex, apex with rows or relatively long setae, several very long setae on apico-lateral surface (Figs. 8, 9), two large spinose setae on internal edge and mesal setae not extended along mesal surface. Labium (Fig. 4) with ligula slightly more than half as long as apparent first segment of labial palpus, deeply divided to near base into two divergent lobes, without sensory spines or pores; two medial setae present, bases close; medial pseudopore field narrow, with pseudopores; lateral pseudopore fields with setose pore, 2 real pores and pseudopores; labial palpi 2-articled (articles 1 and 2 fused), apparent article 1 about 2 times as long as article 2. Mentum with apex broadly emarginate and with characteristic pores and setae (Fig. 4). Hypopharyngeal lobes elongate, with large setae anteriorly and smaller setae posteriorly (Fig. 7).

Thorax: Prothorax more or less quadrate to slightly elongate (slightly transverse in



Figs. 2–10. *Gansia fortemaculata* n. sp., mouthparts. 2, labrum, dorsal aspect; 3, epipharynx (ventral aspect of labrum); 4, labium, ventral aspect; 5, mandible, dorsal aspect; 6, mandible, ventral aspect; 7, hypopharyngeal region of labium; 8, maxilla, ventral aspect; 9, galea, detail of dorsal aspect; 10, lacinia, detail of dorsal aspect.

a few species), broadest in apical ¼ and narrowed to near base (Figs. 1, 11–18); dorsal surface impressed medially to various degrees (Figs. 1, 11–18); anterior angles broadly rounded and very deeply depressed laterally; posterior angles strongly angulate, more or less flared laterally to produce slight sharp angles in most; posterior border broadly rounded and beaded. Microsculpture absent, integument strongly shining. Hypomeron fully visible in lateral aspect; hypomeron fully delimited by lateral bead or lateral bead absent anteriorly or totally absent. Prosternum extended posterior to tarsal insertions, with strong blade-like medial carina. Elytra somewhat inflated, dorsal surface of each elytron slightly convex in cross section (Figs. 1, 11–18); microsetae small and sparsely distributed; macrosetae absent; microsculpture absent, integument strongly shining. Mesosternum with strongly developed recurved anterior border, forming a distinct "neck"; without medial longitudinal carina, but with carina on each side of midline that fades before attaining the coxal cavities (Fig. 39). Mesocoxae moderately broadly separated by meso- and metasternal processes. Mesosternal process extended 0.4–0.5 times length of coxae, attaining and overlapping metasternal process; apex emarginate with apico-lateral angles produced as subspinose processes (Fig. 39), or apex broadly rounded. Metasternal process extended 0.5–0.6 times length of coxal cavities, broadly rounded apically. Isthmus absent because of overlap of metasternal process by mesosternal process. Legs long and slender, without conspicuous macrosetae; hind tarsomere 1 as long as, or longer than, 2 + 3 together. Tarsi 4-4-5 segmented.

Abdomen: More or less parallel-sided or slightly broader at segments VI–VII. Base of abdomen narrower than apex of elytra. Terga III–V deeply transversely impressed, impressions with prominent pores or longitudinal cariniform ridges, or both. Sterna III–V moderately to deeply transversely impressed, impressions with row of prominent pores or longitudinal cariniform ridges. Integument without microsculpture, strongly shining. Microsetae sparse and short; punctures (except for those in transverse impressions) minute to very small. Macrosetae large and prominent.

Secondary Sexual Characteristics: Absent in most. Males of some species with apex of abdominal sternum VIII modified to broad lobe, spiniform point or emarginate, with patches of variously modified setae and/or spines (Figs. 27, 49). Males of some species with scape and pedicel of antenna enlarged, and macrosetae of antennae much larger than those of females.

Aedeagus: Parameres distinctive (Figs. 21, 25, 34, 52), of two dramatically different forms: apical lobe variously elongated and some setae thickened and darkened (Figs. 21, 25, 34); or, apical lobe more or less quadrate or rectangular with a different setal arrangement (Fig. 52).

Spermatheca: Very elongate and doubly coiled (Figs. 22, 26, 31, 35, 40, 44) with small and elongate basal bulb.

Distribution: Previously described species are recorded from Guatemala, Brazil and Bolivia. We have seen specimens from throughout the Neotropics from Guerrero and Chiapas in southern México to Bolivia, including the countries of México, Guatemala, Honduras, Costa Rica, Panamá, Venezuela, Colómbia, Ecuador, Peru, Brazil and Bolivia.

Habitat, Feeding Habits and other Biological Information: Specimens have been collected from lowland tropical rainforests, montane tropical evergreen forests and cloud forests from 80–2,000 meters elevation. Specimens are occasionally collected

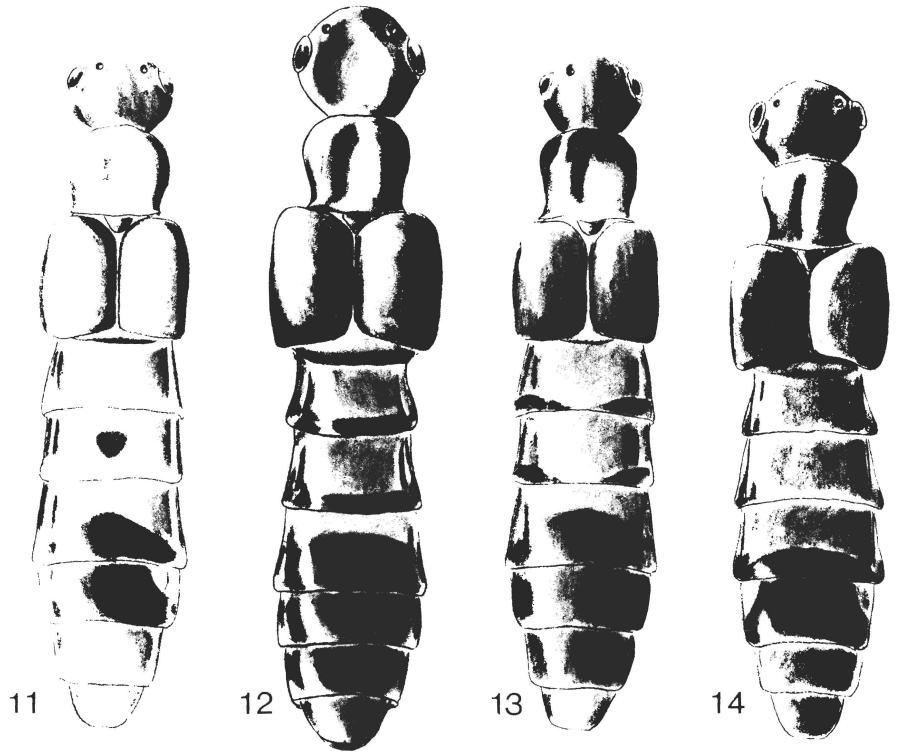
in leaf litter. However, one of the authors (Ashe) has consistently found adults associated with the rotting or fermenting leaves of treefalls or small branches that have fallen. These beetles are found so consistently and in such abundance in treefalls of the correct age that we are convinced that this is the primary habitat of members of *Gansia.* However, larvae that could be associated with adults of *Gansia* have not been identified in such habitats.

While dissecting specimens for examination of aedeagal characteristics, we discovered 20 adults representing numerous species, from throughout the range of the genus, with significant amounts of material in their guts. All such specimens had their guts filled with fungal hyphae and fungal spores including numerous diverse conidia and conidiospores. We were not able to find a single fragment of arthropod cuticle or other material that could be of animal origin among these gut contents. This surprising and consistent body of data provides strong evidence that members of *Gansia* are primarily fungivorus, apparently feeding on the fungi and molds that grow on rotting leaves and stems in treefalls and fallen branches.

KEY TO THE SPECIES OF *GANSIA* IN MÉXICO AND CENTRAL AMERICA

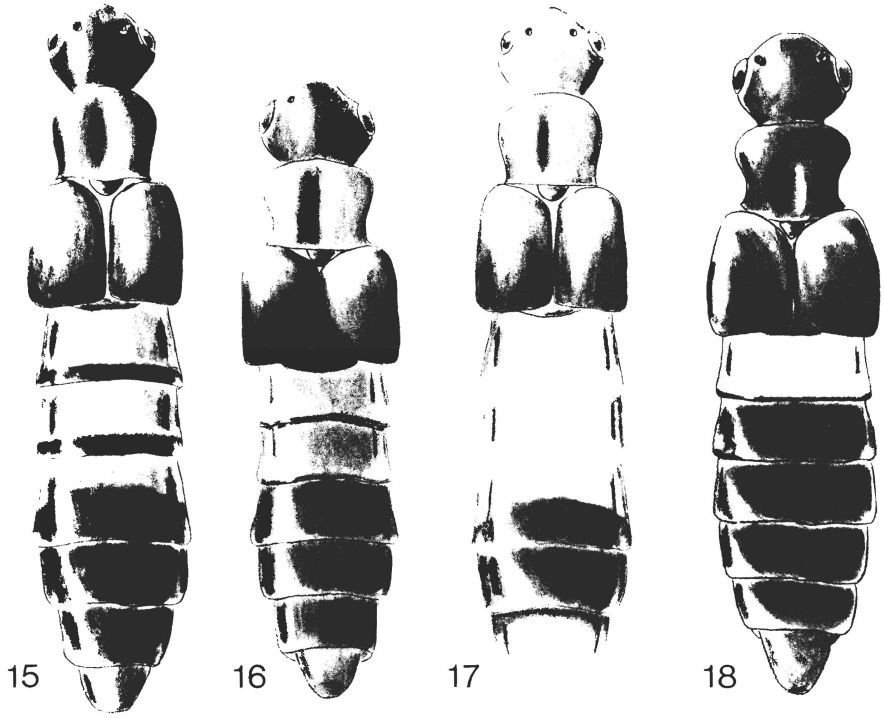
This key relies heavily on color pattern. *Gansia* is unusual among aleocharines in that color pattern is an excellent and consistent feature for recognizing species of this genus from México and Central America (see Figs. 1, 11–18). The color features used in this key will consistently allow identification of all *Gansia* specimens to which we had access. Other structural features and aedeagal characteristics are also used as required.

1. Sternum VI uniformly dark, piceus or black 4
   Sternum VI light, flavate or rufo-flavate with distinctly darker piceus band of variable width at apex 2
2. Metasternum and tergum II light, testaceus or rufo-flavate 3
   Metasternum and tergum II dark, piceus or dark reddish-brown (Fig. 11). Parameres as in Figure 21. Aedeagus as in Figures 19, 20 . . . . . *G. andersoni*
3. Smaller, body length 2.3–2.5 mm. Transverse impression of abdominal tergum V with 4 large punctures, punctures distant, separated by smooth areas. Parameres as in Figure 43. Aedeagus as in Figures 32, 33 . . . . . *G. flavata*
   Larger, body length 3.5 mm. Transverse impression of abdominal tergum V with 8 punctures, punctures close, separated by faintly developed longitudinal ridges *G. tibialis*
4. Tergum V bicolored, with light and dark areas (Figs. 1, 12, 13, 15, 17 6
   Tergum V uniformly piceus (Figs. 16, 18) 5
5. Pronotal impression deep and extended to, or nearly to, anterior margin of pronotum (Fig. 16). Terga III and IV pale flavate with narrow piceus area on anterior margin (Fig. 16). Head and pronotum brown, contrasting with piceus elytra. Metatibia piceus with lighter flavate apex. Tergum VIII reddish-brown, contrasting with piceus tergum VII (Fig. 16). Parameres as in Fig. 52. Aedeagus as in Figures 50, 51 . . . . . *G. taeniata*
   Pronotal impression shallow, restricted to basal half (Fig. 18). Tergum III uniformly pale flavate and tergum IV uniformly piceus (tergum IV of some specimens with extreme basal margin paler) (Fig. 18). Head, pronotum and elytra piceus. Metatibia uniformly pale rufo-flavate. Tergum VIII piceus, similar in color to tergum VII (Fig. 18). Parameres as in Figure 58. Aedeagus as in Figures 57, 59 . . . . . *G. unizonata*
6. Head distinctly impressed medially (Figs. 1, 12). Males with enlarged macrosetae on antennal articles 1 and 2 7
   Head not at all impressed medially. Male antennae without enlarged macrosetae 8



Figs. 11–14. Dorsal habitus of selected *Gansia* species. 11, *Gansia andersoni* n. sp.; 12, *G. bicolor* Sharp; 13, *G. bipictanota* n. sp.; 14, *G. flavata* n. sp.

7. Terga III–V flavate with piceus or black basal band in posterior half to ⅔ and medial region of basal dark band strongly extended in an arc anteriorly nearly to basal margin (Fig. 1). Parameres as in Figure 38. Aedeagus as in Figures 36, 37 . . . *G. fortemaculata*
   Terga III–V flavate with piceus or black band in posterior half to ⅔ of uniform width throughout, medial area not arcuately extended anteriorly (band on tergum V slightly and broadly arcuate medially in some specimens) (Fig. 12). Parameres as in Figure 25. Aedeagus as in Figures 23, 24 . . . . . *G. bicolor*
8. Abdominal segments VII–VIII light, rufo-flavate to flavate (some specimens with basal half of tergum VII darker), contrasting with piceus to black segment VI (Fig. 17). Hind femur flavate with piceus apical ¼–⅓. Parameres as in Figure 56. Aedeagus as in Figures 53, 54 . . . . . *G. tergopunctata*
   Abdominal segments VII–VIII dark, piceus to black, similar in color to segment VI (segment VIII slightly lighter brownish in some teneral specimens) (Figs. 13, 15). Hind femur piceus with flavate basal ⅓–¼ 9
9. Pronotum coarsely punctate, punctures clearly visible at 25× magnification; distance between punctures about 1.5–2.0 times width of punctures. Parameres as in Figure 47. Aedeagus as in Figures 45, 46 . . . . . *G. tachynota*
   Pronotum very minutely punctate, punctures not apparent and pronotum appearing



Figs. 15–18. Dorsal habitus of selected *Gansia* species. 15, *G. tachynota* n. sp.; 16, *G. taeniata* n. sp.; 17, *G. tergopunctata* n. sp.; 18, *G. unizonata* n. sp.

smooth at 25× magnification; distance between punctures more than 4× width of punctures 10

10. Punctures in transverse impressions of abdominal terga III–V relatively small and numerous (14–16 punctures on tergum IV), arranged in 2 irregular rows. Most specimens with bicolored pronota, apical half piceus to dark reddish-brown and basal half brown to rufo-flavate (Fig. 13). Parameres as in Figure 30. Aedeagus as in Figures 28, 29 . . . . . *G. bipictanota*

Punctures in transverse impressions of abdominal terga III–V larger and fewer (4, rarely 6, punctures on tergum IV), arranged in a single row of large, more distant punctures. Pronotum uniformly piceus, brown or reddish brown (some specimens with narrow and diffuse band of lighter color at base). Parameres as in Figure 41. Aedeagus as in Figures 42, 43 . . . . . *G. obscura*

SPECIES DESCRIPTIONS

Gansia andersoni, n. sp.

(Figs. 11, 19–22; Map 1)

Description: (Fig. 11) Length of elytra 0.51–0.56 mm. Width of head including eyes, 0.47–0.49 mm. Ratio of length to width of pronotum 0.88–0.92.

Head without medial impression. Pronotum with medial impression distinct to anterior margin. Surface of pronotum finely punctured, somewhat shiny. Head and pronotum pale rufo-flavate. Elytral color piceus to reddish brown. Prosternum and mesosternum rufo-flavate; metasternum piceus.

Tergum II piceus. Abdominal terga III–IV rufoflavate except for slight piceus postero-lateral corners. Tergum IV with a centrally located piceus spot. Tergum V with basal half rufo-flavate and posterior half piceus; piceus band strongly arcuate anteriorly in middle. Tergum VI piceus except for rufo-flavate antero-lateral corners. Terga VII–VIII rufo-flavate or light reddish-brown. Sterna III–IV rufo-flavate except for piceus postero-lateral corners. Sterna V–VI pale except for extreme posterior margin which is piceus. Sterna VII–VIII completely rufo-flavate.

Protibia piceus in at least the proximal half. Mesotibia and metatibia piceus except for lighter apex. Profemur, mesofemur, and metafemur pale orange to reddish-brown; apices piceus in some. Metatrochanter pale orange.

Transverse impressions of abdominal terga III–V each with 2 irregular rows of moderate sized, closely arranged punctures; about 12 punctures on tergum III, 14 on tergum IV, 16 on tergum V.

Secondary Sexual Characteristics: Absent.

Male: Parameres as in Figure 1; median lobe as in Figures 19, 20.

Female: Spermatheca as in Figure 22.

Type Material: HOLOTYPE, male, here designated, with labels as follows: "MÉXICO: Chiapas, Volcán Tacaná, lower slopes, 4 km N Union Juarez, 1,800 m, 18 September 1992, R. S. Anderson 92-109, ex. cloud forest litter," "HOLOTYPE, *Gansia andersoni* Ashe and Lingafelter, Desig. J. Ashe and S. Lingafelter, 1996." Holotype in the collection of the Snow Entomological Museum, University of Kansas, Lawrence, Kansas.

PARATYPES: 8. Same locality, collector, and habitat, 1,800 m, 1,950 m, 2,000 m, 18–19 September 1992 (6 KSEM); same locality, 1,600 m, Barranca Providencia, 24 December 1975. H. Frania #209-75, ex. vegetation overhanging road cut, montane tropical forest (2 AMNH).

Distribution: Known only from Volcán Tacaná in southern México (Chiapas) (Map 1).

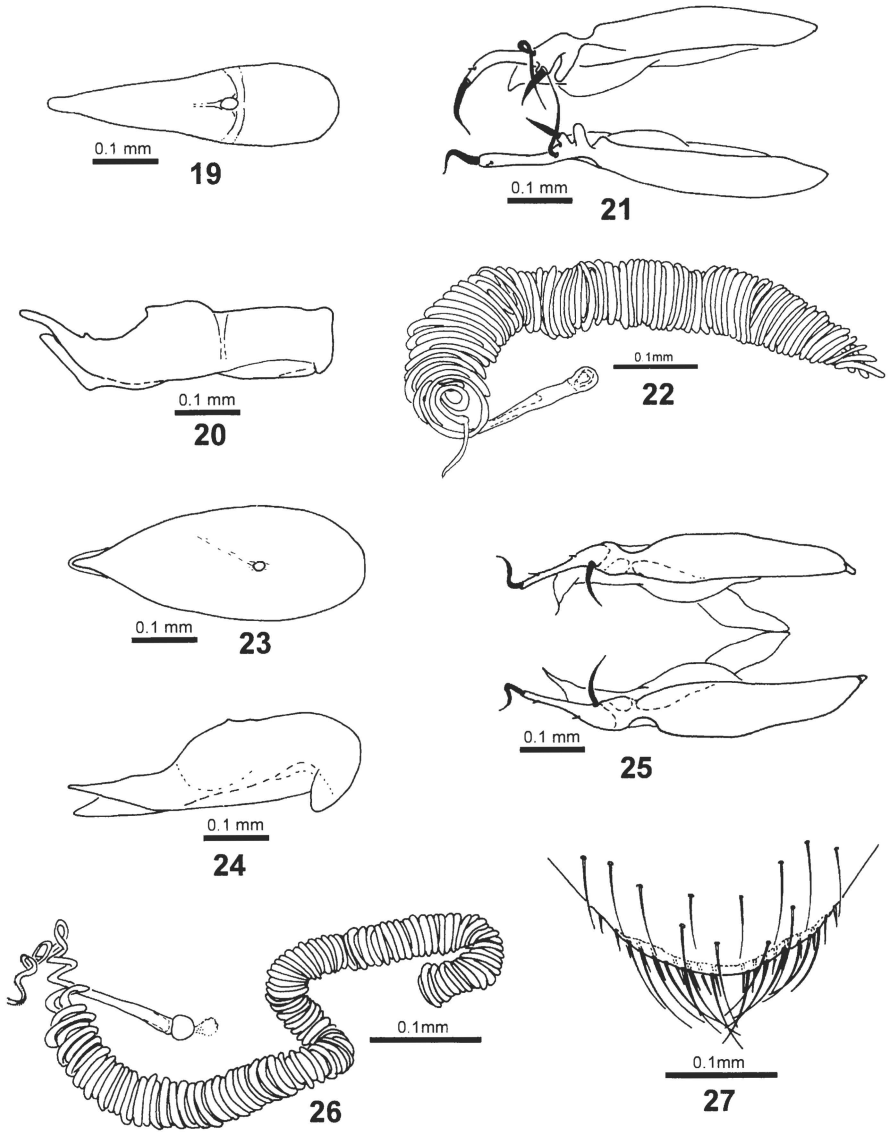
Bionomics: Collected from 1,600–2,000 m in cloud forest litter and vegetation overhanging road cut.

Etymology: This elegant and beautiful staphylinid is named in honor of Dr. Robert S. Anderson, Canadian Museum of Nature, Ottawa, Canada, who collected most of the known specimens of this species while searching for leaf-litter weevils in cloud forests on Volcán Tacaná.

Comments: *G. andersoni* is similar in color pattern to *G. tibialis* and *G. flavata.* However, it can be easily distinguished from these latter species by the presence of a dark spot on abdominal tergum VII, and a piceus metasternum and abdominal tergum II (Fig. 11), as well as by the distinctive aedeagus (Figs. 19, 20) and parameres (Fig. 21).

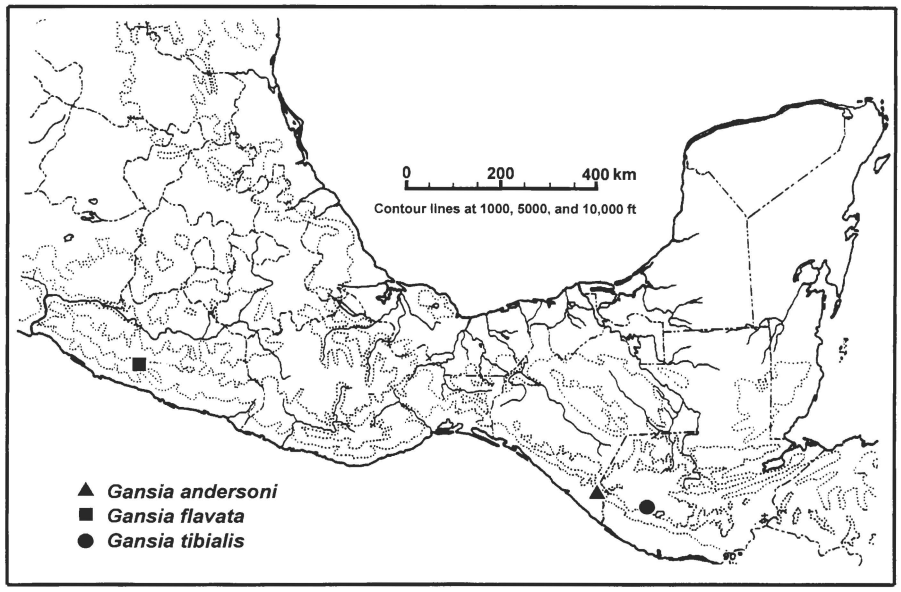
Gansia bicolor Sharp
(Figs. 12, 23–27; Map 2)

Description: (Fig. 12) Length of elytra 0.52–0.55 mm. Width of head including eyes, 0.47–0.49 mm. Ratio of length to width of pronotum 0.94–0.99.



Figs. 19–22. *Gansia andersoni* n. sp. 19, median lobe of aedeagus, dorsal aspect; 20, medial lobe of aedeagus, lateral aspect; 21, parameres of aedeagus, ventral aspect; 22, spermatheca.

Figs. 23–27. *Gansia bicolor* Sharp. 23, median lobe of aedeagus, dorsal aspect; 24, medial lobe of aedeagus, lateral aspect; 25, parameres of aedeagus, ventral aspect; 26, spermatheca; 27, apical margin of male abdominal sternum VIII, secondary sexual characteristics.



Map 1. Collection localities for *Gansia andersoni* n. sp., *G. flavata* n. sp., and *G. tibialis* Sharp.

Head with deep and broad impression. Pronotum with deep impression to anterior margin. Surface of pronotum finely punctured, somewhat shiny. Head and pronotum piceus. Elytra piceus (lighter at base in some). Prosternum, mesosternum and metasternum piceus.

Tergum II piceus. Terga III–IV flavate except for piceus posterior margin, piceus band not medially arcuate. Tergum V with basal half flavate and posterior half piceus, piceus band not medially arcuate to slightly and broadly arcuate in some specimens. Terga VI–VIII completely piceus.

Sterna III–IV flavate except for piceus postero-lateral corners. Sterna V piceus except for flavate extreme basal margin. Sterna VI–VII completely piceus to dark reddish brown. Sterna VIII piceus (lighter at apex in some).

Protibia piceus in at least the proximal half. Mesotibia and metatibia mostly piceus except for lighter apex. Profemur pale orange to reddish-brown. Mesofemur piceus to dark reddish-brown. Metafemur piceus. Metatrochanter white.

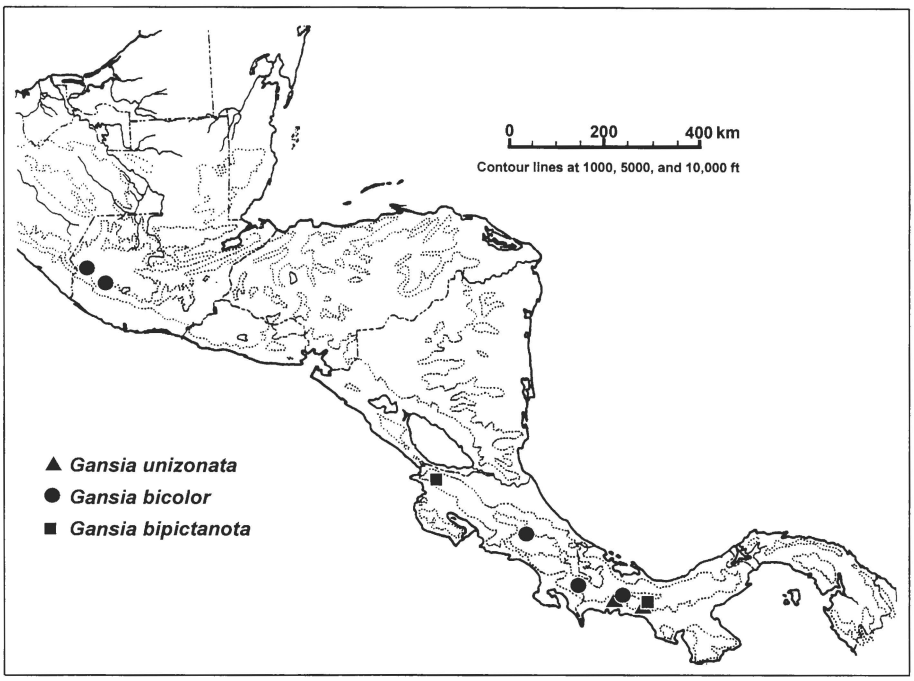
Transverse impressions of terga III–IV with 4 large punctures arranged in a single row.

Secondary Sexual Characteristics: Antennal scape of male strongly clavate; macrosetae of antennal articles 1–4 greatly enlarged. Abdominal sternum VIII with apical lobe covered with modified setae and a row of small spines internally (Fig. 27).

Male: Parameres as in Figure 25; median lobe as in Figures 23, 24.

Female: Spermatheca as in Figure 26.

Type Material: LECTOTYPE, male, here designated, with labels as follows: *Gansia*



Map 2. Collection localities for *Gansia unizonata* n. sp., *G. bicolor* Sharp, and *G. bipictanota* n. sp.

bicolor, Type, D. S., El Zumbador, 2,500', Champion," small red "Type" label, "El Tumbador, Guatemala," "Sharp Coll. 1905-313," "B.C.A. Col. 1.2., *Gansia bicolor* Sharp," "LECTOTYPE, male, *Gansia bicolor* Sharp, desig, J. Ashe and S. Lingafelter, 1996." PARALECTOTYPES, 9, here designated; same data as type, 6; Guatemala, Cerro Zunil, Champion, 3. Lectotype and 8 paralectotypes in Natural History Museum, London, and Paralectotype in the Field Museum of Natural History, Chicago. The specimen labeled "Lectotype" is on a card with 2 specimens, a male and a female; the male is designated as the lectotype and the female is designated as the paralectotype.

Other Material Examined: 27 specimens. GUATEMALA: Quetzaltenango, 14.4 km W Zunil, 1340 m, 21 June 1993, J. Ashe, R. Brooks #076, ex rotting elephant ear leaves (1 KSEM). COSTA RICA: Puntarenas, Las Alturas (Stanford Biol. Sta.), ca 25 km NE San Vito, 1,500 m, 25 May 1993, J. & A. Ashe, ex treefall litter (2 KSEM), same locality, October 1991, P. Hanson (1 KSEM); Tapantí, 9-IX-1939, no collector (Bierig Collection), (3 FMNH); same locality, 22-VII-1939, no collector (Bierig Collection), (1 FMNH). PANAMÁ: Chiriquí, 20 km N Gualaca, Finca La Suiza, 08°39′N, 82°12′W, 1,350 m, 22 May 1994, J. & A. Ashe, ex treefall litter (14, KSEM), same locality, 10 June 1994, J. Ashe and R. Brooks, ex tree slash (5 KSEM).

Distribution: Occurring widely from Guatemala, Costa Rica (Puntarenas Prov.) and Panamá (Chiriquí Prov.) (Map 2).
Bionomics: Occurring at altitudes of 1,340–1,500 m. Collected from slash, treefall litter, and rotting elephant ear leaves.
Comments: *G. bicolor* is similar to *G. fortemaculata*; these are the only known species in México and Central America that have a medially impressed head and in which males have greatly enlarged setae on the basal antennal articles. *G. bicolor* can be easily distinguished from *G. fortemaculata* by the presence of dark piceus band on the basal abdominal segments (terga III–V) that are not arcuately expanded anteriorly (Fig. 12). In contrast, the piceus bands are strongly and arcuately expanded anteriorly in *G. fortemaculata* (Fig. 1).

Gansia bipictanota, n. sp.
(Figs. 13, 28–31; Map 2)

Description: (Fig. 13) Length of elytra 0.49–0.53 mm. Width of head including eyes, 0.44–0.45 mm. Ratio of length to width of pronotum 0.89–0.93.

Head without distinct medial impression. Pronotum with distinct medial impression to anterior margin. Surface of pronotum finely punctured, shining.

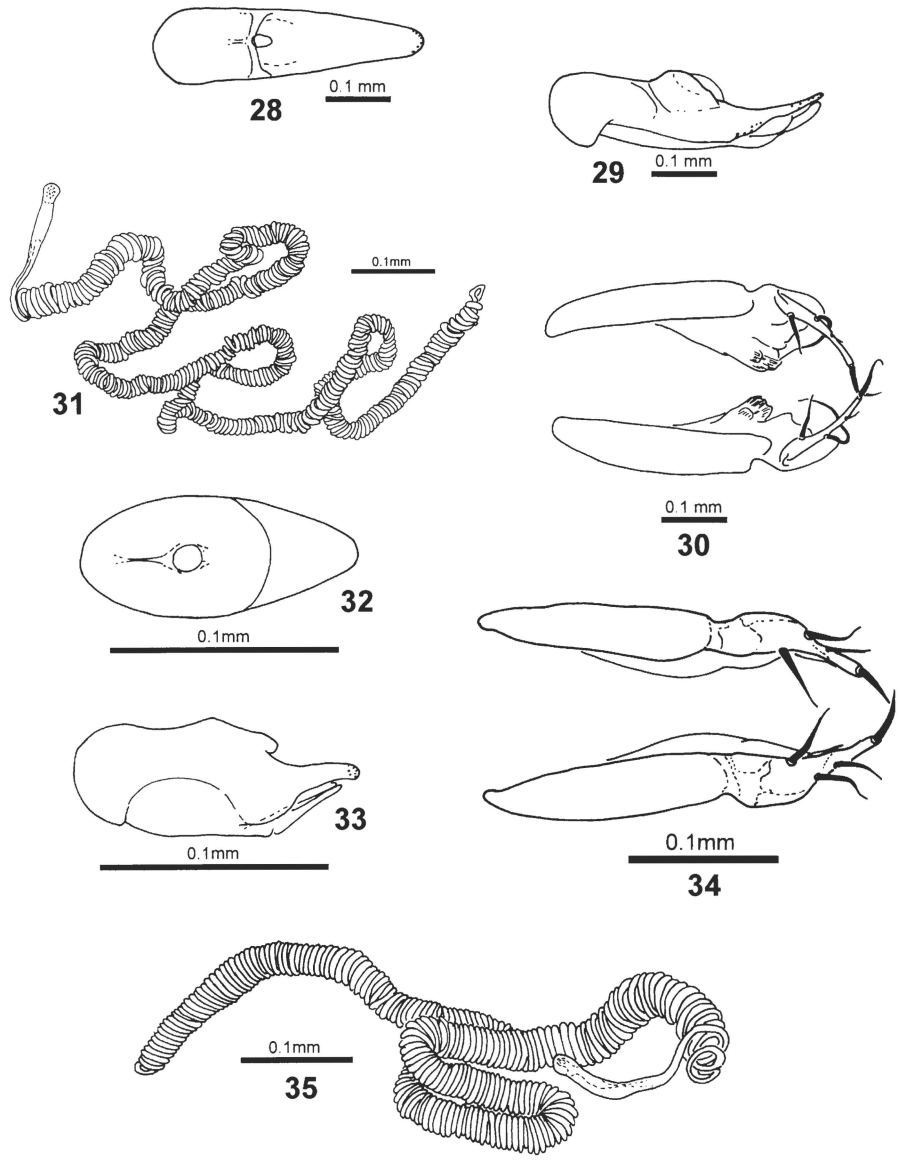
Head dark reddish brown. Pronotum piceus to dark reddish brown in anterior half and brown to rufo-flavate in posterior half. Elytral color black to piceus (lighter at base in some). Prosternum and mesosternum dark reddish-brown; metasternum black to piceus.

Abdominal tergum II piceus. Terga III–IV flavate except for piceus posterior margin. Tergum V with basal half flavate and posterior half piceus; piceus band strongly arcuate medially. Terga VI–VII completely piceus. Tergum VIII variable in color, completely piceus to brown.

Sterna III–IV flavate except for piceus postero-lateral corners. Sternum V with basal half flavate and posterior half piceus. Sterna VI–VII completely piceus to dark reddish brown. Sternum VIII piceus (lighter at apex in some).

Protibia piceus in the basal half to two-thirds, flavate apically. Mesotibia and metatibia piceus except for lighter flavate at extreme apex. Profemur light brown throughout. Mesofemur piceus except for lighter extreme base. Metafemur piceus in apical two-thirds and flavate in basal third. Metatrochanter white.

Transverse impressions of abdominal terga III–V each with 2 irregular rows of 12–14 small, closely arranged punctures.
Secondary Sexual Characteristics: Males with sternum VIII similar to those of *G. tachynota* (see Fig. 49).
Male: Parameres as in Figure 30; median lobe as in Figures 28, 29.
Female: Spermatheca as in Figure 31.
Type Material: HOLOTYPE, male, here designated, with labels as follows: "PANAMÁ, Chiriquí Prov., 20.4 km N San Felix, 08°22′N, 81°46′W, 950 m, 8 June 1995, J. Ashe & R. Brooks #146, ex banana leaf slash," "HOLOTYPE, *Gansia bipictanota* Ashe and Lingafelter, Desig. J. Ashe and S. Lingafelter, 1996." Holotype in the collection of the Snow Entomological Museum, University of Kansas, Lawrence, Kansas.
PARATYPES: 23. Same data as holotype (1 KSEM); same locality, date and col-



Figs. 28–31. *Gansia bipictanota* n. sp. 28, median lobe of aedeagus, dorsal aspect; 29, median lobe of aedeagus, lateral aspect; 30, parameres of aedeagus, ventral aspect; 31, spermatheca.

Figs. 32–35. *Gansia flavata* n. sp. 32, median lobe of aedeagus, dorsal aspect; 33, median lobe of aedeagus, lateral aspect; 34, parameres of aedeagus, ventral aspect; 35, spermatheca.

lectors, #144, 145, ex treefall litter, roadside slash (2 KSEM). COSTA RICA: Chitarla, 17–20 February 1943, no collector (Bierig collection) (1 FMNH); Alenas, 750 m, 1 March 1839, no collector (Bierig collection) (2 FMNH); Guanacaste Prov., Patilla Biol. Sta. 10°58′N, 85°26′W, 650 m, 2 May 1995, J. Ashe, ex treefall litter (5 KSEM); same locality, 700 m, 1988, Malaise trap (4 INBI).

Distribution: Known from Costa Rica (Guanacaste Prov.) and Panamá (Chiriquí Prov.) (Map 2).

Bionomics: Collected from treefall litter, roadside slash and banana leaf slash from 650–950 m.

Etymology: From "pictum" (L. painted, colored), "notum" (referring to the pronotum) and the prefix "bi-" (two), referring to the distinctly bicolored pronotum of most specimens of this species.

Comments: Most specimens of *G. bipictanota* can be easily distinguished from all other Central American *Gansia* by the combination of: 12–14 punctures in the transverse impression of terga III-V, bicolored pronotum, and the dark apex of the abdomen (Fig. 12). However, some lighter specimens of *G. bipictanota* are difficult to distinguish from dark specimens of *G. tergopunctata* (see comments under *G. tergopunctata*).

Gansia flavata, n. sp.

(Figs. 14, 32–35; Map 1)

Description: (Fig. 14) Length of elytra 0.44–0.49 mm. Width of head including eyes, 0.39–0.41 mm. Ratio of length to width of pronotum 0.89–0.90.

Head without distinct medial impression. Pronotum with shallow impression not attaining anterior margin. Surface of pronotum coarsely punctured, somewhat opaque.

Head and pronotal color pale rufo-flavate. Elytral color pale rufo-flavate. Prosternum, mesosternum and metasternum rufo-flavate.

Abdominal tergum II rufo-flavate. Terga III-IV uniformly rufo-flavate. Tergum V rufo-flavate except for piceus posterior margin which is slightly arcuate in some. Tergum VI piceus except for rufo-flavate antero-lateral corners. Terga VII–VIII rufo-flavate or light reddish-brown.

Sterna III–IV rufo-flavate except for minute area of piceus color at postero-lateral corners. Sterna V–VI rufo-flavate except for extreme posterior margin which is piceus. Sterna VII–VIII completely rufo-flavate.

Protibia, mesotibia, and metatibia pale rufo-flavate. Profemur, mesofemur, and metafemur pale rufo-flavate to reddish-brown. Metatrochanter pale rufo-flavate.

Transverse impressions of terga III–IV with four large punctures arranged in a single row, punctures separated by broad smooth areas.

Secondary Sexual Characteristics: Absent.

Male: Parameres as in Figure 34; median lobe as in Figures 32, 33.

Female: Spermatheca as in Figure 35.

Type Material: HOLOTYPE, male, here designated, with labels as follows: "MÉXICO: Guerrero, 63.2 km NE Atoyac de Alvarez, 1,300 m, 28 July 1992, J. Ashe #136, ex treefall litter," "HOLOTYPE, *Gansia flavata* Ashe and Lingafelter, Desig.

J. Ashe and S. Lingafelter, 1996." Holotype in the collection of the Snow Entomological Museum, University of Kansas, Lawrence, Kansas.
PARATYPES: 4, same data as holotype (KSEM).
Distribution: Known only from the Sierra Madre del Sur in southern México (Guerrero) (Map 1).
Bionomics: Collected at 1,300 m in treefall litter.
Etymology: From "flavus" (L., yellow), referring to the light reddish-yellow color of specimens of this species.
Comments: *G. flavata* is very similar to *G. tibialis* in color pattern, but it may be distinguished from this latter species by its smaller size and the presence of only four well-separated punctures in the transverse impressions of terga III–V (6–8 in *G. tibialis*).

Gansia fortemaculata, n. sp.
(Figs. 1, 36–40; Map 3)

Description: (Fig. 1) Length of elytra 0.52–0.57 mm. Width of head including eyes, 0.49–0.52 mm. Ratio of length to width of pronotum 0.90–0.98.

Head with deep and broad medial impression. Pronotum with deep medial impression to anterior margin. Surface of pronotum finely punctured, somewhat shiny.

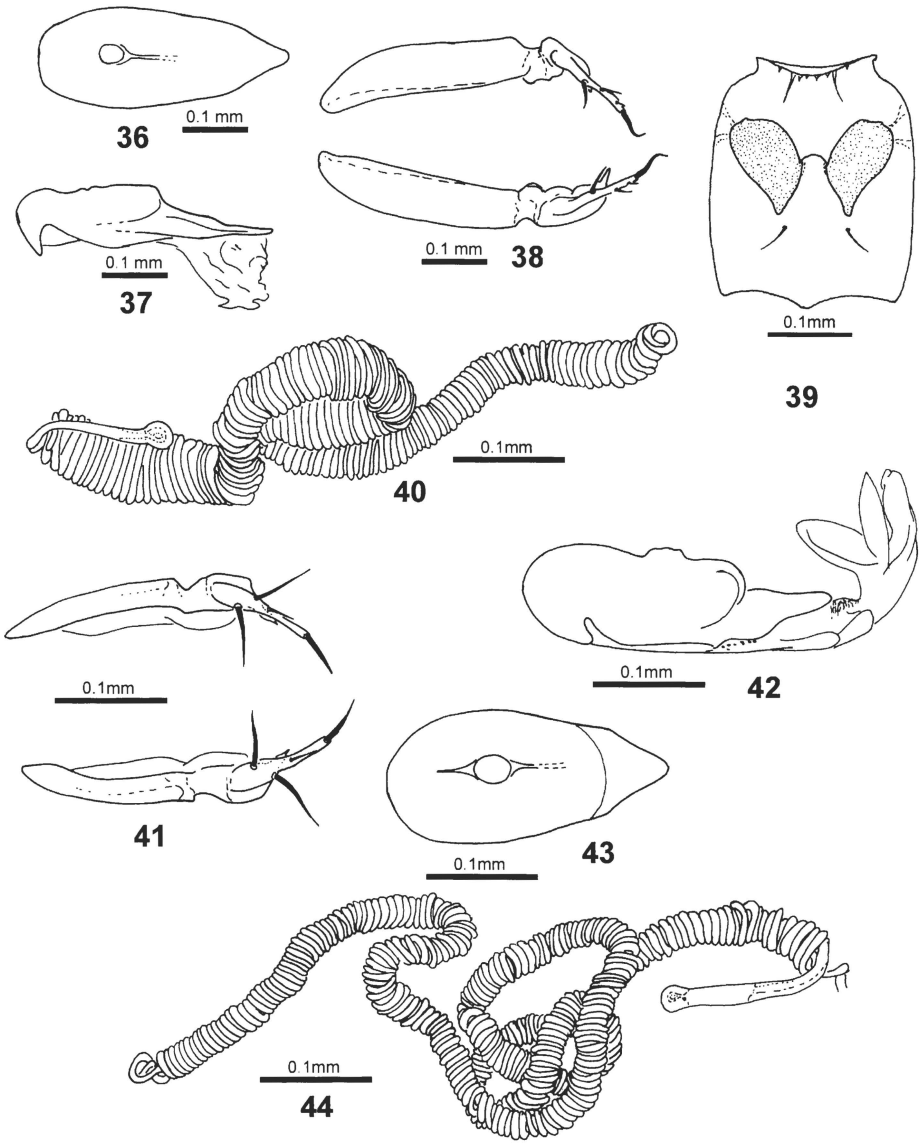
Head color piceus. Pronotal color dark reddish brown. Elytral color piceus (lighter at base in some). Prosternum reddish brown; mesosternum dark reddish brown; metasternum piceus.

Terga III–V flavate on basal half with piceus band on posterior half which is arcuately lobed medially to attain, or nearly attain, anterior margin (piceus band on tergum V less strongly arcuate in some specimens). Terga VI–VIII completely piceus.

Sterna III-IV flavate except for piceus postero-lateral corners. Sternum V piceus except for extreme basal margin. Sterna VI–VII completely piceus to dark reddish brown. Sterna VIII piceus (sometimes lighter at apex).

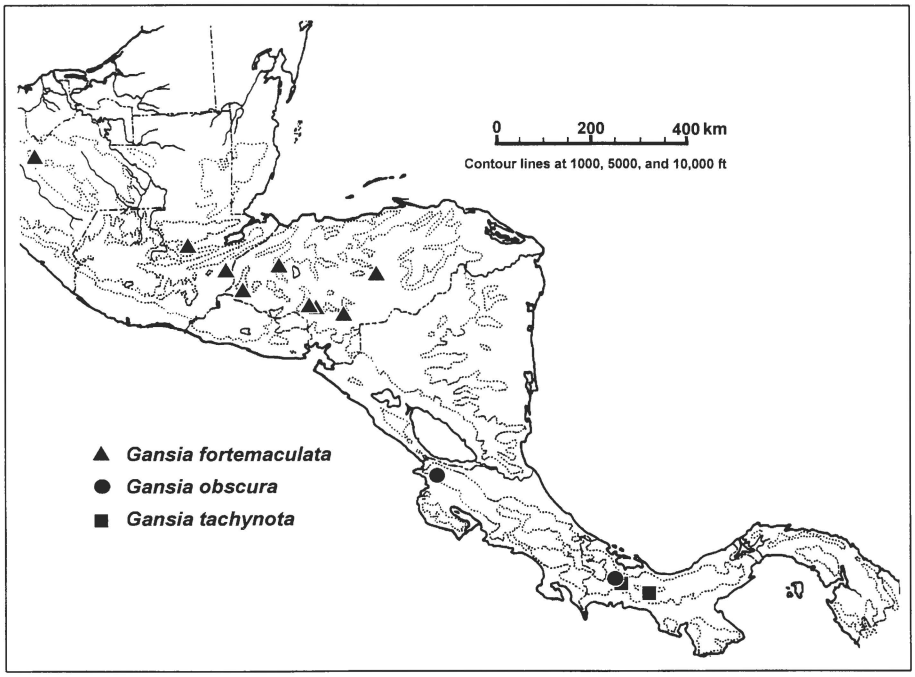
Protibia piceus in at least the proximal one-half. Mesotibia and metatibia piceus except for lighter apex. Profemur pale orange to reddish-brown. Mesofemur piceus to dark reddish-brown. Metafemur piceus. Metatrochanter white.

Transverse impressions of terga III–IV with 4 large, moderately separated, punctures arranged in a single row.
Secondary Sexual Characteristics: Male antennal scape strongly clavate; macrosetae of antennal articles 1–4 greatly enlarged. Male sternum VIII with apical lobe covered with modified setae and a row of small spines internally (similar to that of *G. bicolor,* Fig. 27).
Male: Parameres as in Figure 38; median lobe as in Figures 36, 37.
Female: Spermatheca as in Figure 40.
Type Material: HOLOTYPE, male, here designated, with labels as follows: "HONDURAS: Olancho, La Muralla, 14 km N La Union, 1,450 m, 15°06′N, 86°42′W, 25VI1994, J. Ashe, R. Brooks, #203, ex treefall litter," "HOLOTYPE, *Gansia fortemaculata* Ashe and Lingafelter, Desig. J. Ashe and S. Lingafelter, 1996." Holotype in the collection of the Snow Entomological Museum, University of Kansas, Lawrence, Kansas.



Figs. 36–40. *Gansia fortemaculata* n. sp. 36, median lobe of aedeagus, dorsal aspect; 37, median lobe of aedeagus, lateral aspect; 38, parameres of aedeagus, ventral aspect; 39, meso-metasternum, ventral aspect; 40, spermatheca.

Figs. 41–44. *Gansia obscura* n. sp. 41, parameres of aedeagus, ventral aspect; 42, median lobe of aedeagus, lateral aspect, internal sac everted; 43, median lobe of aedeagus, dorsal aspect; 44, spermatheca.



Map 3. Collection localities for *Gansia fortemaculata* n. sp., *G. obscura* n. sp., and *G. tachynota* n. sp.

PARATYPES: 101. MÉXICO: Chiapas, 10 km W El Bosque, 1,475 m, 15 September 1992, R. S. Anderson 92-103, ex pine/cloud forest litter (2 KSEM); GUATEMALA: Baja Verapaz, 4.8 km E Purulha, 1680 m, 29 June–3 July 1993, J. Ashe and R. Brooks #190, ex flight intercept trap (1 KSEM), 8 km S Purulha, 1,650 m, 29 June 1993, J. Ashe. R. Brooks #149, ex *Cecropia* treefall (1 KSEM); Zacapa, 3.5 km SE La Union, 1,500 m, 4 June 1991, R. S. Anderson 91-50, ex cloud forest litter (4 KSEM); same locality, 1,500 m, 23 June 1993, Anderson and Ashe 93-12D, berlese forest litter (8 KSEM); same locality, 1,500 m, 23 June 1993, J. Ashe, R. Brooks #085, ex treefall litter (15 KSEM); same locality, elevation and collectors #103, 22–23 June 1993, ex flight intercept trap (1 KSEM); HONDURAS: El Paraiso, 6.9 km W Yuscaran, Cerro Monserrat, 1,760 m, 13°55′N, 86°24′W, 7 June 1994, J. Ashe & R. Brooks #020-21, ex treefall litter (23 KSEM); same locality, date and collector, #026, ex in moist leaf packs of fallen tree (1 KSEM); 19.4 km SE Zamarano & 9.4 km SE Galeras, 1,450 m, 13°24′N, 86°55′W, "Los Lavanderos," 11 June 1994, J. Ashe, R. Brooks #075, ex treefall litter (1 KSEM); Francisco Morazan, Yerba Buena, 36.9 km W Tegucigalpa, 1,920 m, 14°05′N, 87°34′W, 28 June 1994, J. Ashe, R. Brooks #232, ex treefall slash (21 KSEM); Ocotepeque, 12.7 km E & 2.4 km S Ocotepeque, 1,450 m, 14°27′N, 89°04′W, 15 June 1994, J. Ashe, R. Brooks #115, ex treefall litter (2 KSEM); Olancho, La Muralla, 14 km N La Union, 1,450 m, 15°06′N, 86°42′W, 25 June 1994, J. Ashe, R. Brooks #203, ex treefall litter (23

KSEM); Santa Barbara, Mt. Santa Barbara, 11.5 km S & 5.6 km W Peña Blanca, 14°57′N, 88°06′W, 1,800 m, 20 June 1994, J. Ashe, R. Brooks #163, ex decaying slash (1 KSEM).

Distribution: México (Chiapas) to Guatemala and Honduras (Map 3).

Bionomics: Collected from 1,450–1,900 m in treefall litter, decaying slash, cloud-forest litter, moist leaf packs of a fallen tree, and in flight intercept traps.

Etymology: From "fortis" (L., strong) and "macula" (L., marked), referring to the very striking light and dark markings on the basal abdominal segments.

Comments: *G. fortemaculata* is most similar to *G. bicolor,* but may be distinguished by the characters noted in the comments section of *G. bicolor* as well as by the distinctive aedeagus (Figs. 36, 37) and parameres (Fig. 38) of *G. fortemaculata.*

Gansia obscura, n. sp.
(Figs. 41–44; Map 3)

Description: Length of elytra 0.48–0.49 mm. Width of head including eyes, 0.47–0.49 mm. Ratio of length to width of pronotum 0.96.

Head without distinct medial impression. Pronotum with distinct medial impression to anterior margin. Surface of pronotum finely punctured, somewhat shiny.

Head and pronotal color dark reddish brown. Elytral color piceus (lighter at base in some). Prosternum and mesosternum dark reddish-brown; metasternum piceus.

Abdominal tergum II piceus. Terga III–V flavate except for piceus posterior margin; piceus band of tergum V slightly to moderately arcuate medially in some. Terga VI–VII completely piceus. Tergum VIII variable in color from completely piceus to brown.

Sterna III–V flavate except for piceus postero-lateral corners. Sterna V with basal half flavate and posterior half piceus. Sterna VI–VII completely piceus or dark reddish brown. Sternum VIII brownish.

Protibia piceus in at least the proximal half. Mesotibia and metatibia piceus except for lighter apex. Profemur and mesofemur pale rufo-flavate to reddish-brown. Metafemur piceus except for flavate basal fourth to third. Metatrochanter white.

Transverse impressions of terga III–IV with four (rarely six) large, moderately separated, punctures arranged in a single row.

Secondary Sexual Characteristics: Males with sternum VIII similar to those of *G. tachynota* (see Fig. 49).

Male: Parameres as in Figure 41; median lobe as in Figures 42, 43.

Female: Spermatheca as in Figure 44.

Type Material: HOLOTYPE, male, here designated, with labels as follows: "COSTA RICA: Guanacaste, Cacao Biol. Sta., 11°55′N; 85°30′W, 5 May 1995, J. Ashe, ex treefall litter," "HOLOTYPE, *Gansia obscura* Ashe and Lingafelter, Desig. J. Ashe and S. Lingafelter, 1996." Holotype in the collection of the Snow Entomological Museum, University of Kansas, Lawrence, Kansas.

PARATYPES: 7. Same data as holotype (4 KSEM); COSTA RICA: Finca Castilla, 6–9-II-1940, no collector (Bierig Collection) (2 FMNH). PANAMÁ: Chiriquí Prov., La Fortuna, "Cont. Divide Trial," 08°46′N, 82°12′W, 1,150 m, 9 June 1995, J. Ashe, R. Brooks #151, ex slash (1 KSEM).

Distribution: Known from Costa Rica (Guanacaste Prov.) and Panamá (Chiriquí Prov.) (Map 3).
Bionomics: Collected in treefall litter and slash from 1,000–1,150 m.
Etymology: From "obscurus" (L., dark, indistinct), referring to the relatively indistinctive external features of this species.
Comments: *G. obscura* is similar to *G. tachynota* in color pattern and number and arrangement of punctures in the transverse impressions of terga III–V. However, they can be easily distinguished from this latter species by the very finely punctate pronota of specimens of *G. obscura* (see comments under *G. tachynota*).

Gansia tachynota, n. sp.
(Figs. 15, 45–49; Map 3)

Description: (Fig. 15) Length of elytra 0.45 mm. Width of head including eyes, 0.44–0.45 mm. Ratio of length to width of pronotum 0.92–0.93.

Head without distinct medial impression. Pronotum with distinct medial impression to anterior margin. Surface of pronotum coarsely punctured, somewhat opaque.

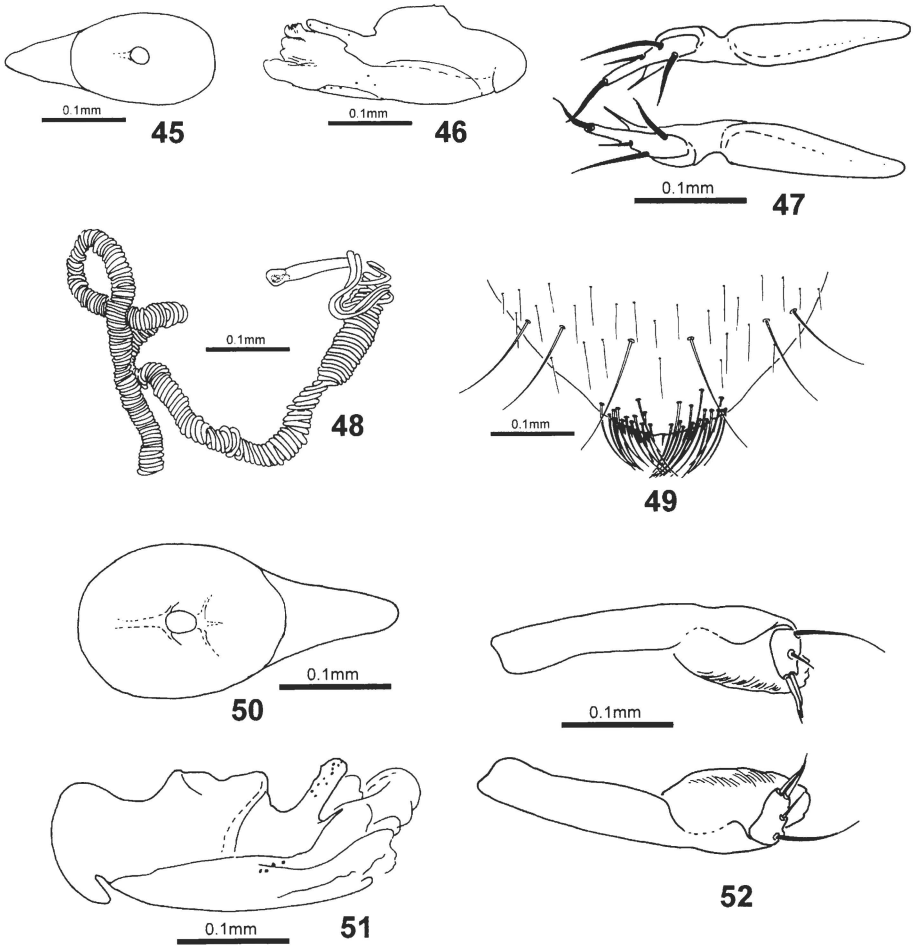
Head and pronotal color light to dark reddish brown. Elytral color piceus (lighter at base in some). Prosternum and mesosternum dark reddish-brown; metasternum piceus.

Abdominal tergum II piceus. Terga III–IV flavate except for piceus posterior margin. Tergum V with basal half flavate and posterior half piceus; piceus band strongly arcuate medially. Terga VI–VII completely piceus. Tergum VIII variable in color, completely piceus to brown.

Sterna III–IV flavate except for piceus posterior-lateral corners. Sternum V with basal half flavate and posterior half piceus. Sterna VI–VII completely piceus to dark reddish brown. Sternum VIII piceus (lighter at apex in some).

Protibia piceus in at least the proximal half. Mesotibia and metatibia piceus except for lighter apex. Profemur pale rufo-flavate to reddish-brown. Mesofemur piceus to dark reddish-brown. Metafemur piceus. Metatrochanter white.

Transverse impressions of terga III–IV with 4 large, moderately separated, punctures arranged in a single row.
Secondary Sexual Characteristics: Male abdominal sternum VIII with apical lobe covered with modified setae and an apical row of small spines (Fig. 49).
Male: Parameres as in Figure 47; median lobe as in Figures 45, 46.
Female: Spermatheca as in Figure 48.
Type Material: HOLOTYPE, male, here designated, with labels as follows: "PANAMÁ, Chiriquí Prov., 20.4 km N. San Felix, 08°22′N, 81°46′W, 950 m, 8 June 1995, J. Ashe & R. Brooks #144, ex treefall litter," "HOLOTYPE, *Gansia tachynota* Ashe and Lingafelter, Desig. J. Ashe and S. Lingafelter, 1996." Holotype in the collection of the Snow Entomological Museum, University of Kansas, Lawrence, Kansas.
PARATYPES: 13. Same data as holotype (7 KSEM): PANAMÁ: Chiriquí Prov., 10.5 km NE Caldera, 08°42′N, 83°19′W, 340 m, 24 May 1995, J. & A. Ashe #058, ex treefall litter (1 KSEM); Cerro Mogla, Qda. Tufino, 1,175 m, 22 January 1981, W. Suter, ferns and mosses, wall nr. cascades (5 FMNH).
Distribution: Known only from Panamá (Chiriquí Prov.) (Map 3).
Bionomics: Collected from 340–1,175 m in treefall litter and ferns and mosses.

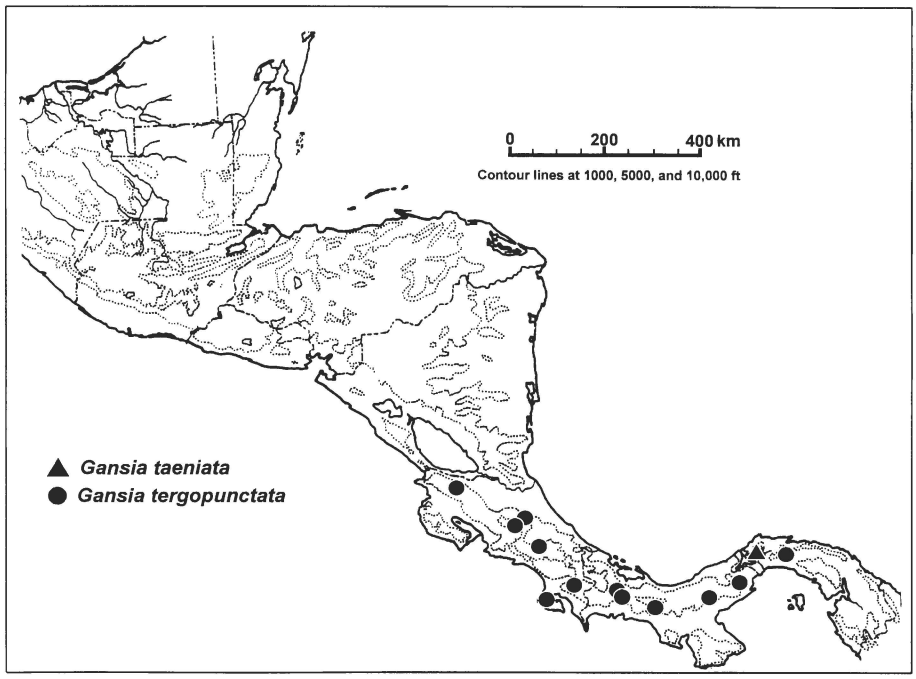


Figs. 45–49. *Gansia tachynota* n. sp. 45, median lobe of aedeagus, dorsal aspect; 46, medial lobe of aedeagus, lateral aspect; 47, parameres of aedeagus, ventral aspect; 48, spermatheca; 49, apex of male abdominal sternum VIII, secondary sexual characteristics.

Figs. 50–52. *Gansia taeniata* n. sp. 50, median lobe of aedeagus, dorsal aspect; 51, median lobe of aedeagus, lateral aspect; 52, parameres of aedeagus, ventral aspect.

Etymology: From "tachys" (Gr. rough) and "notum" (Gr. referring to the pronotum), referring to the relatively coarsely punctate pronotum of members of this species.

Comments: This species is easily distinguished by the combination of its distinctive color patten (Fig. 15) and the relatively large and numerous punctures on the pronotum. It is similar in color pattern, number and distribution of punctures in the transverse impression of terga III–V, and secondary sexual characteristics, to *G.*



Map 4. Collection localities for *Gansia taeniata* n. sp. and *G. tergopunctata* n. sp.

obscura. However, specimens of this latter species have extremely minute punctures on the pronotum.

Gansia taeniata, n. sp.
(Figs. 16, 50–52; Map 4)

Description: (Fig. 16) Length of elytra 0.46–0.49 mm. Width of head including eyes, 0.41–0.45 mm. Ratio of length to width of pronotum 0.79–0.88.

Head without distinct impression. Pronotum with impression distinct to anterior margin. Surface of pronotum finely punctured, somewhat shiny.

Head and pronotal color dark reddish brown. Elytral color piceus (lighter at base in some). Prosternum and mesosternum dark reddish-brown; mesosternum piceus.

Abdominal tergum II piceus. Terga III–IV flavate except for narrow piceus anterior margin. Terga V–VII completely piceus. Tergum VIII brown to reddish brown.

Sternum III completely pale. Sternum IV flavate except for piceus apico-lateral corners. Sternum V black to piceus except for flavate extreme basal margin in some. Sterna VI–VII completely black, piceus or dark reddish brown. Sternum VIII piceus (lighter at apex in some).

Protibia piceus in at least the proximal half. Mesotibia and metatibia piceus except for lighter apex. Profemur pale rufo-flavate to reddish-brown. Mesofemur piceus to dark reddish-brown. Metafemur piceus. Metatrochanter white.

Transverse impressions of terga III–IV with 6–8 moderately large pores arranged in a single row.

Secondary Sexual Characteristics: Absent.

Male: Parameres as in Figure 54; median lobe as in Figures 50, 51.

Female: Spermatheca not examined.

Type material: HOLOTYPE, male, here designated, with labels as follows: "PANAMÁ, Panamá Prov, 6.9 km S Gamboa, Old Plantation Rd., 09°05′N, 79°40′W, 3 June 1995, J. Ashe & R. Brooks #116, ex treefall litter," "HOLOTYPE, *Gansia taeniata* Ashe and Lingafelter, Desig. J. Ashe and S. Lingafelter, 1996." Holotype in the collection of the Snow Entomological Museum, University of Kansas, Lawrence, Kansas.

PARATYPES: 12. Same data as Holotype (3 KSEM); same locality, 27 May 1995, J. & A. Ashe #072 (1 KSEM); PANAMÁ: Galioa, VIII-1938, IX-X-1938, no collector (Bierig Collection), (8 FMNH).

Distribution: Known only from Panamá (Panamá Prov.) (Map 4).

Bionomics: Collected at low elevations (80 m) in treefall litter.

Etymology: From "taenia" (L., ribbon), referring to the ribbon-like band of flavate color at the base of the abdomen (terga III–IV).

Comments: *G. taeniata* is easily recognized by its distinctive color pattern: dark reddish-brown head and pronotum, piceus elytra, and piceus abdomen with the basal two terga (terga III–IV) flavate with a piceus anterior margin; as well as by its distinctive aedeagus (Figs. 50, 51) and parameres (Fig. 52). *Gansia taeniata* is unusual among Central American species because the paramere structure, with its short apical lobe and different arrangement of setae, is unlike that of any other known species in this fauna. However, specimens of *G. taeniata* have the same body form, mouthparts and other external characters as all other species of *Gansia*. We have also seen several species of *Gansia* from South America that have this paramere structure. Which of the paramere structures exhibited by various species of *Gansia* is plesiomorphic and which is apomorphic will require comparative and phylogenetic studies that are outside the bounds of this paper.

Gansia tergopunctata, n. sp.
(Figs. 17, 53–56; Map 4)

Description: (Fig. 17) length of elytra 0.44–0.50 mm. Width of head including eyes, 0.42–0.45 mm. Ratio of length to width of pronotum 0.79–0.92.

Head without distinct impression. Pronotum with variable impression which attains anterior margin in most. Surface of pronotum finely punctured, somewhat shiny.

Head and pronotal color rufo-flavate. Elytral color rufo-flavate to reddish brown. Prosternum and mesosternum rufo-flavate; metasternum dark reddish brown to piceus.

Tergum II reddish-brown. Terga III–IV uniformly rufo-flavate or with extreme posterior margin slightly piceus in some. Tergum V with basal half rufo-flavate and posterior half piceus; piceus band strongly arcuate medially. Tergum VI completely piceus. Terga VII–VIII rufo-flavate or light reddish-brown (tergum VII with brownish base in some).

Sterna III–IV rufo-flavate except for piceus postero-lateral corners. Sternum V

rufo-flavate except for extreme posterior margin which is piceus. Sternum VI completely piceus to dark reddish brown. Sterna VII-VIII completely rufo-flavate.

Protibia, mesotibia, and metatibia mostly pale rufo-flavate or light reddish brown except for darker, sometimes piceus basal fourth to third. Profemur, mesofemur and metafemur mostly rufo-flavate except for darker piceus apical fourth to third. Metatrochanter pale orange.

Transverse impressions of abdominal terga III–V each with 2 irregular rows of 12–14 moderate sized, closely arranged punctures.

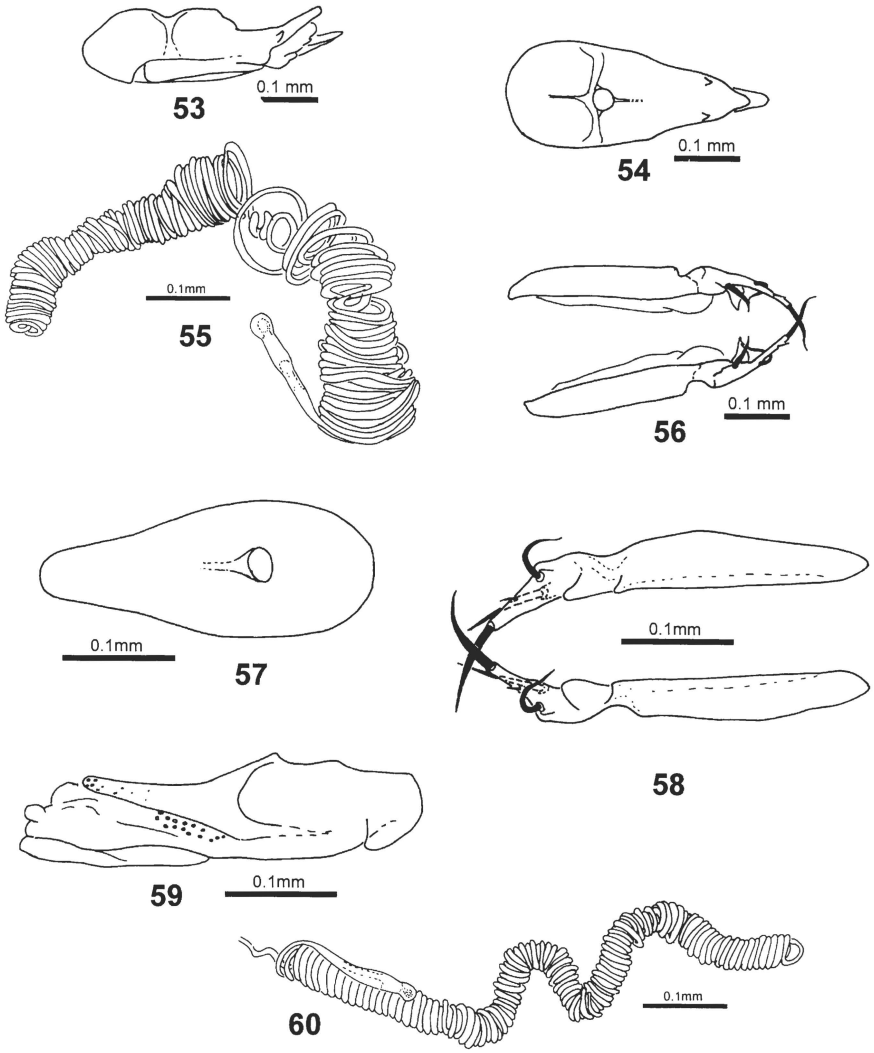
Secondary Sexual Characteristics: Absent.

Male: Parameres as in Figure 56; median lobe as in Figures 53, 54.

Female: Spermatheca as in Figure 55.

Type Material: HOLOTYPE, male, here designated, with labels as follows: "PANAMÁ, Chiriquí Prov., La Fortuna, "Cont. Divide Trail," 08°46′N, 82°12′W, 1,100 m, 23 May 1995, J. & A. Ashe #048, ex decaying slash," "HOLOTYPE, *Gansia tergopunctata* Ashe and Lingafelter, Desig. J. Ashe and S. Lingafelter, 1996." Holotype in the collection of the Snow Entomological Museum, University of Kansas, Lawrence, Kansas.

PARATYPES: 75. Same data as holotype (1 KSEM); PANAMÁ: Bocas del Toro, Fortuna/Chiriquí Grande Rd. 8°47′N 82°12′W, 1050 m, 12–14 July 1987, D. M. Olson #523, premontane rain forest, sifting litter (17 FMNH); same locality and collector, 800 m, 14–16 July 1987 (1 FMNH); same locality, collector and habitat, Sendero Divsa, 1290 m, 9–11 July 1987, (2 FMNH); same locality, collector and habitat, 500 m, 16–18 July 1987 (4 FMNH); Cerro Pata de Macho trail, W of Cerro Horqueta near Boquete, 8°47′N, 82°23′W, 2,020 m, D. M. Olson #751, lower montane rain forest, sifting litter (3 FMNH); Qda. Alicia cloud for., 1,500 m, 4 June 1980, FMHD #80-1, fl. litter on slopes, J. Wagner (1 FMNH). Chiriquí Prov., La Fortuna, "Hydro. Trail", 08°42′N, 82°14′W, 1,150 m, 22 May 1995, J. & A. Ashe #034, ex treefall litter (1 KSEM); La Fortuna, "Cont. Divide Trail," 08°46′N, 82°12′W, 1,150 m, 9 June 1995, J. Ashe, R. Brooks #151, ex slash (5 KSEM); same locality, and collectors, 23 May–9 June 1995, #157, ex flight intercept trap (1 KSEM); same locality and collectors, 9 June 1995; # 159, ex rotting elephant ear leaves (2 KSEM); same locality and collectors, 9–12 June 1995, #185, ex flight intercept trap (1 KSEM); La Fortuna, El Vivero, 14–18 June 1994, A. Gillogly, ex flight intercept trap (1 KSEM); 5.4 km NE Boquete, 08°48′N, 82°26′W, 1,520 m, 19 June 1995, J. Ashe, R. Brooks #249, ex treefall litter (1 KSEM); Cerro Colorado cloud forest, 18 January 1981, FMHD #81-21, W. Suter, litter on bulldozed slope along hwy. 17, under fern (1 FMNH); Cocle Prov., El Cope, 720 m, 19–20 Nov. 1994, D. Windsor, C. Edmonds, ex. flight intercept trap (1 KSEM); El Valle, 2,400–2,600 m, 22 February 1959, H. S. Dybas, ex damp floor litter in ravine (1 FMNH). Panamá Prov., Cerro Jefe, 13 July 1978, Windsor, ex sifting leaf litter elfen cloud forest (1 KSEM). COSTA RICA: La Estrella, 24 October 1941, no collector (Bierig collection) (7 FMNH); Corcovado, 8 June 1940, no collector (Bierig collection) (2 FMNH); Tapantí, 15 March 1940, no collector (Bierig collection) (5 FMNH); Guanacaste Prov., Patilla Biol. Sta. 10°58′N, 85°26′W, 650 m, 2 May 1995, J. Ashe, ex treefall litter (5 KSEM); same locality, March 1991, C. Moraga (4 INBI); OTS sta., 0.5 km SW Las Cruces, 4,700 ft, 15 March 1973, J. Wagner & J. Kethley, FMHD #73-306, 73CRIII-15d, Lafila. leaf litter (2 FMNH); same locality and collectors,



Figs. 53–56. *Gansia tergopunctata* n. sp. 53, median lobe of aedeagus, lateral aspect; 54, median lobe of aedeagus, dorsal aspect; 55, spermatheca; 56, parameres of aedeagus, ventral aspect.

Figs. 57–60. *Gansia unizonata* n. sp. 57, median lobe of aedeagus, dorsal aspect; 58, parameres of aedeagus, ventral aspect; 59, median lobe of aedeagus, lateral aspect; 60, spermatheca.

4,000 ft, 16 March 1973, ex conc. floor litter on slope above stream (1 FMNH); Cartago Prov., 19.3 km NE San Jose, 1,100 m, 17 May 1993, J. & A. Ashe #017, ex treefall litter (1 KSEM); San Jose Prov., La Hondura, Rio Claro, 10°3′N, 83°58′W, 1,150 m, 5 April 1973, J. Wagner & J. Kethley, ex berl. stream bed leaf litter (1 FMNH); Turrialba Prov., Grano de Oro, 1,120 m, Dec. 1993, ex. malaise trap (1 KSEM); Sta. Cruz, 1,300 m, 18 July 1943, no collector (Bierig collection) (1 FMNH).

Distribution: Occurring in Panamá (Chiriquí Prov.) and Costa Rica (Guanacaste, Turrialba, and Cartago Prov.) (Map 4).

Bionomics: Collected from 650–1,520 m in a range of habitats including treefall litter, slash, flight intercept traps, rotting elephant ear leaves, leaf litter and malaise trap.

Etymology: Name refers to the relatively large number of punctures in the transverse impression of abdominal terga III-V on members of this species.

Comments: Most specimens of *G. tergopunctata* are easily recognized by the combination of: large number of punctures in the transverse impression of abdominal terga III-V (12–14 punctures in each), arranged in 2 irregular rows; and, the flavate color of the apical abdominal segments (terga VII–VIII) (Fig. 17). In Central America, only *G. bipictanota* has a similar double row of punctures in the transverse impressions of these terga, and specimens of this species usually have bicolored pronota and dark abdominal apices. However, darker specimens of *G. tergopunctata* may have the base of segment VII darkened, and some light or teneral specimens of *G. bipictanota* have abdominal segment VIII lighter brown. In these instances, these two species are difficult to separate based on external characteristics, and aedeagi must be examined to distinguish between them. Because some specimens of these two species are very similar in external features, it seems possible that they actually represent color forms of the same species; however, the aedeagi of the two species are quite different, and the males of *G. bipictanota* have abdominal sternum VIII modified as noted below while males of *G. tergopunctata* do not have obvious secondary sexual characteristics.

Gansia tibialis Sharp
(Map 1)

Description: Length of elytra 0.51 mm. Width of head including eyes, 0.47 mm. Ratio of length to width of pronotum 0.76.

Head without distinct medial impression. Pronotum with shallow impression not attaining anterior margin. Surface of pronotum coarsely punctured, somewhat opaque.

Head, pronotum and elytra rufo-flavate (Sharp, 1883, refers to this color as "testaceus"). Mesosternum and metasternum rufo-flavate.

Abdominal tergum II rufo-flavate. Terga III–IV uniformly rufo-flavate. Tergum V rufo-flavate except for piceus posterior margin, piceus color moderately arcuate medially. Tergum VI piceus except for rufo-flavate antero-lateral corners. Terga VII-VIII rufo-flavate.

Sterna III–IV rufo-flavate. Sterna V–VI rufo-flavate except for extreme posterior margin which is piceus. Sterna VII–VIII completely rufo-flavate.

Protibia rufo-flavate; mesotibia and metatibia rufo-flavate in apical half and dark reddish-brown in basal half (dark color more extensive on metatibia). Profemur and mesofemur rufo-flavate; metafemur rufo-flavate with slightly darker apex.

Transverse impressions of abdominal tergum III–V with 6–8 punctures in a single row, punctures close, separated by faintly developed longitudinal ridges.

Secondary Sexual Characteristics: Not examined.

Male: Not examined.

Female: Not examined.

Type Material: LECTOTYPE, here designated, with labels as follows: "*Gansia tibialis,* Type, D.S., Cerro Zunil, 4–5,000 ft, Champion," "Cerro Zunil, Guatemala, Champion," "B.C.A. Col. I. 2., *Gansia tibilais* Sharp," "Sharp Coll. 1905–313," "Lectotype, *Gansia tibialis* Sharp, Desig. J. S. Ashe and S. A. Lingafelter, 1996." In the collection of the Natural History Museum, London.

Distribution: Known only from the type specimen collected at 4,000–5,000 ft, Cerro Zunil, in Guatemala.

Bionomics: Not known.

Comments: *G. tibialis* is known only from the type specimen. Because of lack of secondary sexual characters in many *Gansia,* and the fact that sternum IX of males is frequently withdrawn into the apex of the abdomen, we were not able to determine the sex of the type specimen. Because there are no other known specimens of this species, and because *G. tibialis* could be easily distinguished from all other known species of *Gansia* based on external characteristics, we elected not to dissect this specimen. Consequently, some descriptive features are not available for *G. tibialis.* However, *G. tibialis* can be easily distinguished from all other known species by the characters in the key. *G. tibialis* is very similar to *G. flavata* in color pattern (see Fig. 14), but it can be easily distinguished from this latter species by the larger size and greater number of punctures in the transverse impressions of abdominal terga III–V of *G. tibialis.*

Gansia unizonata, n. sp.
(Figs. 18, 57–60; Map 2)

Description: (Fig. 18) Length of elytra 0.43–0.47 mm. Width of head including eyes, 0.45–0.47 mm. Ratio of length to width of pronotum 0.94–1.02.

Head without distinct medial impression. Pronotum with shallow impression restricted to basal half. Surface of pronotum finely punctured, somewhat shiny.

Head and pronotal color piceus to dark reddish brown. Elytral color piceus (lighter at base in some). Prosternum, mesosternum and metasternum black to piceus.

Abdominal tergum II piceus. Tergum III uniformly flavate. Tergum IV black or piceus except for extreme basal margin which is flavate in some. Terga V–VIII completely black or piceus.

Sternum III completely flavate. Sterna IV–V black or piceus except for flavate extreme basal margin. Sterna VI–VII completely black, piceus or dark reddish brown. Sternum VIII variable in color, from piceus to brown.

Protibia, mesotibia, and metatibia pale rufo-flavate. Profemur reddish-brown to piceus. Mesofemur and metafemur piceus. Metatrochanter white.

Transverse impressions of terga III–IV with 6–8 moderately large punctures arranged in a single row, punctures close, separated by faint longitudinal ridges.

Secondary Sexual Characteristics: Absent.

Male: Parameres as in Figure 58; median lobe as in Figures 57, 59.

Female: Spermatheca as in Figure 60.

Type material: HOLOTYPE, male, here designated, with labels as follows: "PANAMÁ, Chiriquí Prov., 20.4 km N San Felix, 08°22′N, 81°46′W, 950 m, 8 June 1995, J. Ashe, R. Brooks #145, ex roadside slash," "HOLOTYPE, *Gansia unizonata* Ashe and Lingafelter, Desig. J. Ashe and S. Lingafelter, 1996." Holotype in the collection of the Snow Entomological Museum, University of Kansas, Lawrence, Kansas.

PARATYPES: 18. Same data as holotype (7 KSEM); same except #144 (2 KSEM); 20 km N Gualaca, Finca La Suiza, 08°39′N, 82°12′W, 1350 m, 10 June 1995, J. Ashe and R. Brooks #170, ex slash (1 KSEM); 10.5 km NE Caldera, 08°42′N, 82°19′W, 340 m, 24 May 1995, J. & A. Ashe #058, ex treefall litter (6 KSEM). COSTA RICA: Hamburg Farm, 2 July 1925, 29 March 1935, Nevermann (2 FMNH).

Distribution: Known only from Panamá (Chiriquí Prov.) and Hamburg Farm in Costa Rica (Map 2).

Bionomics: Collected at elevations of 340–950 m in slash and treefall litter.

Etymology: From "unus" (L., one) and "zona" (L., belt or girdle), referring to the single band of light flavate color around the base of the abdomen on specimens of this species.

Comments: *G. unizonata* is one of the most easily recognized species in Central America. The uniformly black or piceus body with the flavate basal segment of the abdomen (Fig. 18) is unique among known Central American *Gansia.*

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