

REVIEW OF THE NEARCTIC GALLWASP SPECIES OF THE  
GENUS *BASSETTIA* ASHMEAD, 1887, WITH DESCRIPTION OF  
NEW SPECIES (HYMENOPTERA: CYNIPIDAE: CYNIPINI)

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We provide a redescription, diagnostic characters, and taxonomic comments for the nearctic genus *Bassettia* ASHMEAD as well as a key to all eight species including descriptions of three new species, *B. archboldi*, *B. virginiana* and *B. weldi*. Lecto- and paralectotypes of *Bassettia gemmae* ASHMEAD, *Callirhytis ceropteroides* BASSETT, and *Dryophanta corrugis* BASSETT are designated.

Key words: Cynipidae, gall wasps, *Bassettia*, taxonomy, morphology, distribution, biology

## INTRODUCTION

Identification of the cynipid gall wasps of the North American genus *Bassettia* ASHMEAD (Hymenoptera, Cynipidae, Cynipini) is difficult because the existing keys (e.g. WELD 1921) do not include all known species and use a number of unsatisfactory and inadequate diagnostic characters. We provide a redescription of *Bassettia* and offer appropriate diagnostic characters to delimit the genus *Bassettia*.

WELD (1952a) listed 10 species for the genus *Bassettia* ASHMEAD, 1887, later BURKS (1979) cited only nine species, *B. corrugis* (BASSETT, 1890) was synonymized to *B. floridana* ASHMEAD, 1887 (WELD 1952b). Four species, *Bassettia aquatica* (ASHMEAD, 1887), *B. ceropteroides* (BASSETT, 1900), *B. herberti* (WELD, 1926), and *B. quercuscatsebaei* (ASHMEAD, 1881) were transferred to the genus *Callirhytis* by MELIKA and ABRAHAMSON (2002). This paper reports three new species, *Bassettia archboldi* MELIKA et ABRAHAMSON, *B. virginiana* MELIKA et ABRAHAMSON, and *B. weldi* MELIKA et ABRAHAMSON, and provide a key to all eight *Bassettia* species.

We follow the current terminology of morphological structures (GIBSON 1985, RONQUIST & NORDLANDER 1989, MENKE 1993, FERGUSSON 1995). Abbreviations for fore-wing venation follow RONQUIST and NORDLANDER (1989). Measurements and abbreviations used here include: F1–F12, 1st and subsequent flagellomeres; POD (post-ocellar distance) is the distance between the inner margins of the posterior ocelli; OOD (ocellar-ocular distance) is the distance from the outer edge of a lat-

eral ocellus to the inner margin of the compound eye; LOD, the distance between lateral and median ocellus. Width of radial cell measured along 2r. Photographs of some structures of adult wasps were taken with a digital camera, from which linear drawings were made and manipulated in Adobe Photoshop 6.0.

Material was examined from the follow institutions: National Museum of Natural History, Smithsonian Institution (USNM), Washington, DC, USA; Canadian National Insect Collection, Ottawa, Canada (CNCI); American Museum of Natural History, New York, NY, USA (AMNH); and from the Systematic Parasitoid Laboratory, Plant Protection and Soil Conservation Service of County Vas, Kőszeg, Hungary (SPL).

### *Bassettia* ASHMEAD, 1887

*Bassettia* ASHMEAD 1887: 146; ASHMEAD 1903: 155. Type species: *Bassettia floridana* ASHMEAD. Designated by ASHMEAD 1903: 155; WELD 1921: 232 (key to species).

Diagnosis – Closely resembles *Plagiotrochus* MAYR, 1881, however, in *Bassettia* the malar space lacks radiating striae (Fig. 2); the female fore wing margin without cilia (Fig. 5); the median propodeal area is narrow, delimited by nearly straight or slightly outward curved lateral propodeal carina, without or with fragmented median longitudinal carina (Fig. 6); 2nd metasomal tergite with a ring of dense white setae at the base, interrupted dorsally. In *Plagiotrochus* the malar space with radiating striae; the female fore wing margin with cilia; the central propodeal area is broad, limited by a strongly outward curved lateral propodeal carina, with complete or partially complete median longitudinal carina (Fig. 7); 2nd metasomal tergite without a ring of dense white setae at the base. The asexual females of two *Bassettia* species (*B. ligni* KINSEY and *B. pallida* ASHMEAD) and two *Plagiotrochus* species (*P. australis* (MAYR) and *P. marianii* (KIEFFER)) share a unique character within the Cynipini: the vertex has a deep longitudinal depression from the median ocellus to the antennal sockets, with or without a carina at the bottom (MELIKA *et al.* 2001).

Another closely related genus is *Loxaulus* MAYR, 1881 which can be easily distinguished from *Bassettia* by the structure of the propodeum being similar to *Plagiotrochus* and the mesoscutum is coriaceous (MELIKA & ABRAHAMSON 2000).

*Bassettia* also resembles some *Callirhytis* FOERSTER, 1869 species, however, the head is higher or equal to its width; malar space without malar sulcus (Fig. 2); the mesosoma is compressed dorso-laterally, usually 1.3–1.5 times as long as high in lateral view; the mesoscutum 1.5–2.0 times as long as broad (Figs 11–13), while in *Callirhytis* the head is transverse, broader than high; malar space with strong malar sulcus (Fig. 14); the mesosoma is arched, if slightly compressed dorso-laterally,

then less than 1.2–1.3 times as long as high in lateral view; the mesoscutum is equal or only slightly longer than broad.

Redescription – Female. Head 2.0–2.5 times as long as broad from above, nearly as high as broad or slightly higher than broad in front view, rounded, never trapezoid; gena broadened behind eye, equal or slightly broader than cross diameter of eye (Figs 1–2); eyes slightly or not converging inward. POD longer or equal to OOD. Occiput, vertex, frons, and gena behind eye finely alutaceous; vertex with or without median longitudinal depression running from median ocellus to antennal sockets and with or without longitudinal carina on its bottom. Lower face with uniform dense short white setae which partially hide coriaceous sculpture. Malar space without sulcus, with a similar sculpture as the lower face, without radiating striae, rarely with faint striae. Anterior tentorial pits deep; clypeus small, rounded, with white short setae. Distance between antennal sockets smaller than distance to eye. Antenna 14-segmented, usually as long as head and mesosoma together. Scape and pedicel strongly flattened, scape nearly as long as broad; F1 longest, nearly as long or longer than scape and pedicel together. F1–F4 filiform, much longer than broad; F5–F10 much shorter, subequal, broader than the previous flagellomeres (Fig. 15). Mesosoma flattened dorso-ventrally (Fig. 11), elongated; notauli complete or incomplete, present at least in posterior 2/3 of mesoscutum, absent in some specimens; parapsidal lines distinct, anterior parallel lines present, indistinct or absent (Figs 12–13). Mesoscutum transversely rugose or finely coriaceous, at least inward of parapsidal lines; transverse sculpture always traceable. Mesoscutellum usually uniformly coriaceous, very slightly overhanging metascutellum, usually with shallow smooth, shiny foveae separated or not by median carina; sometimes foveae are in the form of narrow shiny smooth stripe without median carina. Propodeum with a narrow central shiny area, delimited by two straight nearly parallel or slightly outward curved lateral propodeal carinae; median longitudinal carina very fragmented, indistinct or absent, sides of propodeum outward of central area densely pubescent (Fig. 6). Nucha with longitudinal striae. Fore wing nearly as long as the body, margin without cilia, veins brown or pale, areolet present or absent (Fig. 5). Tarsal claws simple, without basal lobe. First prothoracic tarsomere elongated, nearly equal to subsequent three tarsomeres together. Metasoma elongated, 2nd abdominal tergite occupies half the length of metasoma, with a ring of dense white setae at base, interrupted dorsally (Fig. 16). Prominent part of ventral spine of hypopygium always longer than broad, with few sparse white setae reaching beyond apex of metasoma (Fig. 16). Length is 3.0–5.5 mm.

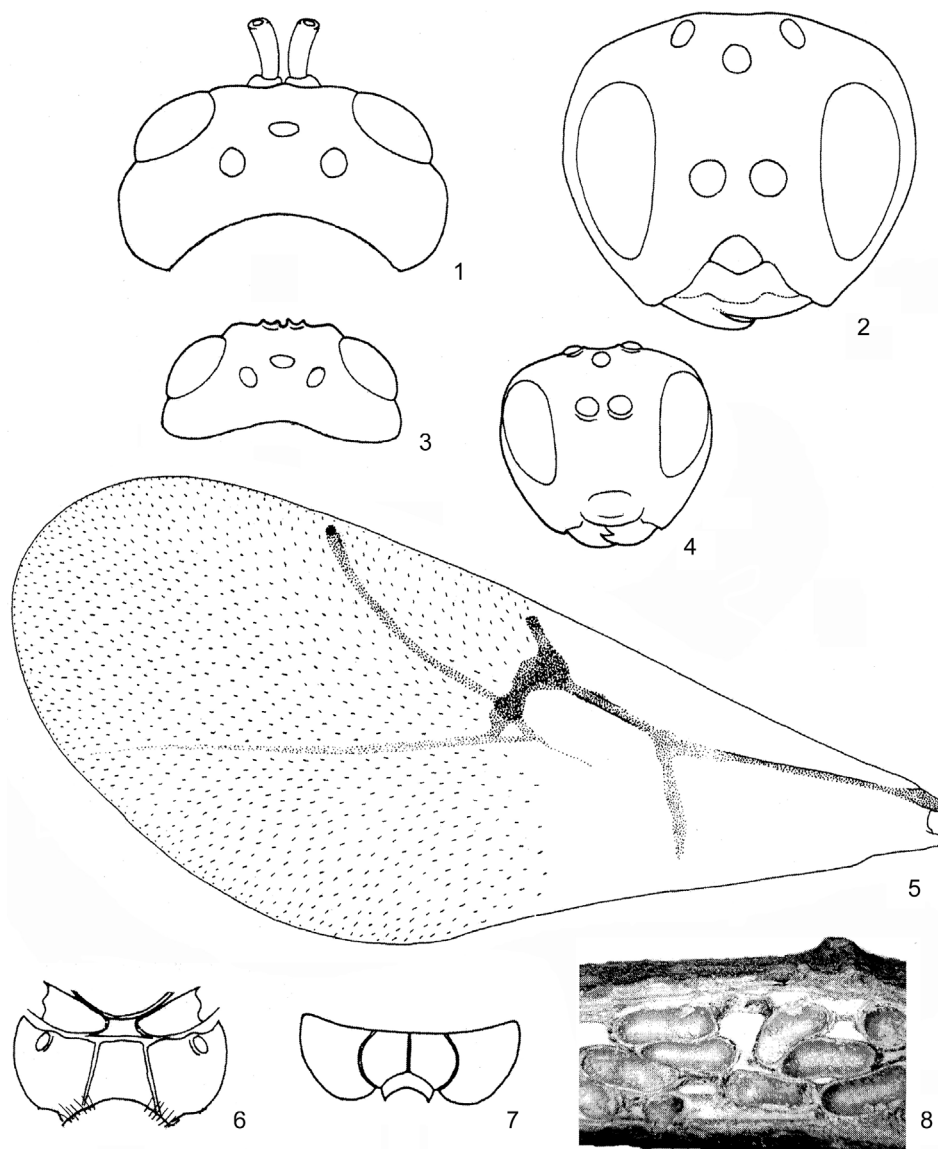
Male. Antenna 16-segmented, F1 straight or only very slightly curved, not or slightly incised and broadened apically (Fig. 9). Mesosoma longer than metasoma (Fig. 18). Fore wing margin with cilia, veins pale, indistinct (Fig. 17). 2nd metasomal tergite with few sparse white hairs at base. Otherwise, similar to the female.

Gall. The asexual generation induces stem galls which develop in twigs, hidden under the bark, in the form of elongated larval cells which usually do not cause swellings (Fig. 8). Thus, the only evidence of galling is typically the adults' emergence holes. The sexual generation induces small oval swellings on leaves, which protrude from both leaf surfaces.

Comments – Previous limits of the genus *Bassettia* were imprecise as *Bassettia* included four *Callirhytis* species that shared some morphological characters thought to be diagnostic for the *Bassettia* genus. Four species from *Bassettia* were transferred to *Callirhytis*: *C. aquatica* (ASHMEAD), *C. ceropteroides* (BASSETT), *C. herberti* (WELD), and *C. quercuscatésbaei* (ASHMEAD) (MELIKA & ABRAHAMSON 2002).

Distribution – Currently five *Bassettia* species are known, all from North America north of Mexico.

Biology – Alternate asexual and sexual generations are present. ROSENTHAL and KOEHLER (1971) and EVANS (1972) described the sexual generation of *B. ligni* KINSEY. The present authors also found sexual *Bassettia* in Florida.



**Figs 1–8.** 1–2 = *Bassettia pallida*, head: 1 = from above, 2 = front view. 3–4 = *Plagiotrochus quercusilicis*, head: 3 = from above, 4 = front view. 5 = *Bassettia tenuana*, fore wing. 6–7 = propodeum: 6 = *B. pallida*, 7 = *Plagiotrochus quercusilicis*. 8 = *Bassettia ligni*, galls

WELD (1921) published a key to four *Bassettia* species. And, WELD also produced a manuscript key to *Bassettia* that included all the known species as well as a number of undescribed species (this manuscript key is on file at the USNM). We credit WELD's useful notes and manuscript keys to Cynipoidea. Below, we offer a key to the eight valid *Bassettia* species, including the new ones.

#### Key to the Nearctic species of *Bassettia*

- |   |   |                                      |
|---|---|--------------------------------------|
| 1 | Male  | 2                                    |
| – | Female  | 3                                    |
| 2 | Mesoscutum nearly as long as broad in dorsal view; scutellar foveae broad, separated by distinct median carina                            | <i>B. ligni</i>                      |
| – | Mesoscutum longer than broad in dorsal view, scutellar foveae very narrow, median carina indistinct (Fig. 19)                             | <b>B. archboldi</b> sp. n.           |
| 3 | Vertex with longitudinal depression from median ocellus to antennal sockets, with more or less distinct longitudinal carina on the bottom | 4                                    |
| – | Vertex without longitudinal depression and longitudinal carina  | 5                                    |
| 4 | Mesosoma at least 2.0 times as long as high in lateral view, entire body reddish brown  | <i>B. pallida</i>                    |
| – | Mesosoma nearly 1.5 times as long as high in lateral view; entire body black or dark brown to black                                       | <i>B. ligni</i> , asexual generation |
| 5 | Radial cell of fore wing narrow and long, 3.0–5.0 times as long as broad  | 6                                    |
| – | Radial cell of fore wing short, 2.0–2.3 times as long as broad  | 10                                   |
| 6 | Metasoma as long as high in lateral view  | 7                                    |
| – | Metasoma 1.5–2.0 times as long as high in lateral view  | 8                                    |
| 7 | Mesoscutum transversely dull rugose, head and body black  | <i>B. gemmae</i>                     |
| – | Mesoscutum delicately transversely rugo-reticulate; head brown, mesosoma dark-brown to blackish brown                                     | <i>B. ligni</i> , sexual generation  |
| 8 | Mesosoma reddish brown; scutellar foveae deep, rounded; dorso-axillar surface triangular (Fig. 13)  | <i>B. floridana</i>                  |

- Mesosoma dark brown to black; scutellar foveae narrow and shallow; dorso-axillar surface narrow, elongated (Fig. 12) 9
- 9 Notauli complete, reaching pronotum (Fig. 22); mesosoma and head brown  
*B. pallida*\*
- Notauli very weak, present in posterior 1/2- 1/3 only (Fig. 23), mesosoma and head black **B. virginiana** sp. n.
- 10 Malar space distinctly longer than eye height; 2nd abscissa of Rs straight  
**B. weldi** sp. n.
- Malar space as long as eye height; 2nd abscissa of Rs curved *B. tenuana*

**Bassetia archboldi** sp. n.

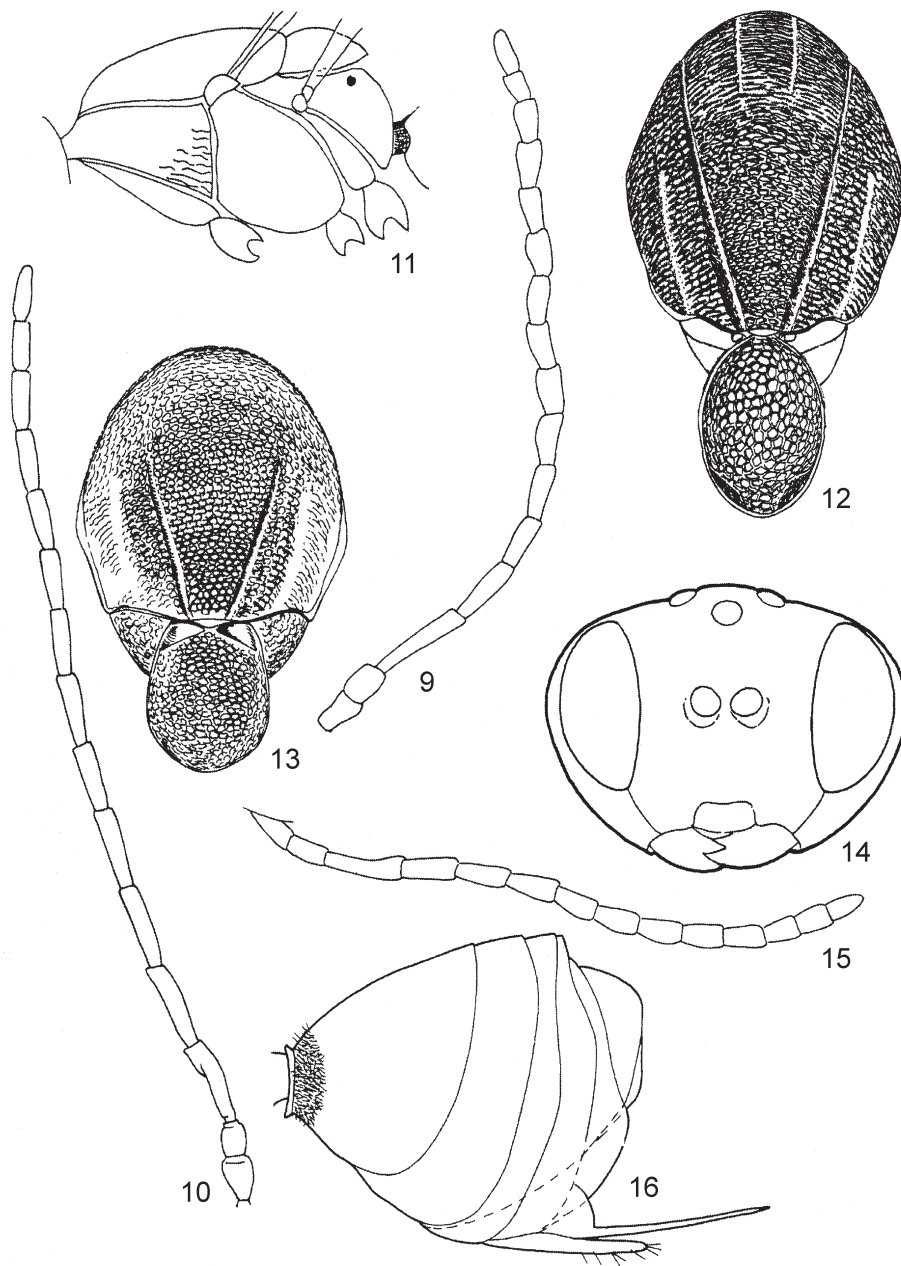
(Figs 9, 17–19)

Description – Male. Head black, except dark brown lower face, clypeus, mandibles and mouthparts; as broad as high in front view; 2.0 times as broad as long from above; vertex, frons, and gena finely coriaceous; lower face much rougher, with dense short white setae; clypeus small rounded, gena only very slightly broadened behind eye; eyes gradually converging inward anteriorly; POD nearly 2.0 times as long as OOD; malar space 4.0–5.0 times as short as eye height. Antenna 16-segmented, filiform, pedicel and scape flattened and broadened, both nearly equal in length and as broad as long; F1 longer than pedicel and scape together, subsequent flagellomeres gradually shortened (Fig. 9). Mesosoma flattened dorso-ventrally, 1.4 times as long as high (Fig. 18), black or anterior half of mesoscutum, mesepisternum, and propodeum dark brown to brown. Mesoscutum and mesoscutellum elongated, longer than broad, transversely finely coriaceous; mesoscutellum not overhanging metascutellum. Notauli very weak, hardly traceable in posterior 1/2 to 1/3, in some specimens absent; parapsidal lines distinct (Fig. 19); scutellar foveae narrow and shallow, with smooth shiny bottom, separated by indistinct narrow carina, which in some specimens is hardly traceable; mesopleuron finely coriaceous, with slightly traceable transverse sculpturing on lower half. Fore wing slightly longer than body, margin with cilia; veins pale brown, areolet present, small, triangular, radial cell elongated, 3.0 times as long as broad (Fig. 17). Legs uniformly yellowish brown. Central area of propodeum smooth, bare, delimited by two lateral carinae, slightly curved outward in the middle, without or with fragmented and indistinct median longitudinal carina, with or without indistinct striae; width of central area nearly equal to distance between lateral carina and side of propodeum; sides of propodeum with short dense white setae. In some specimens, lateral carina is indistinct, hardly traceable. Nucha long, shiny, smooth, without striae. Metasoma shorter than mesosoma, nearly as high as long, with sparse white setae laterally at the base of 2nd tergite, which occupies slightly more than half length of metasoma (Fig. 18). Length 2.0–3.3 mm.

Females unknown.

Gall. Unknown.

- \* In some examined specimens of the asexual females of *B. pallida* the longitudinal depression and longitudinal carina on the vertex indistinct, hardly traceable and, thus to avoid misidentification, this species is keyed out twice.



**Figs 9–16.** 9–10 = male antenna: 9 = *Bassettia archboldi*, 10 = *Plagiotrochus australis*. 11 = *Bassettia floridana*, mesosoma, lateral view. 12–13 = scutum and scutellum, dorsal view: 12 = *B. pallida*, 13 = *B. floridana*. 14 = *Callirhytis glandium*, head, front view. 15–16 = *Bassettia floridana*: 15 = female antenna, 16 = metasoma, lateral view

Etymology – Named in honor of Mr. RICHARD ARCHBOLD, founder of the Archbold Biological Station.

Type material – Holotype male and 3 paratype males “USA, FL, Highlands Co., Lake Placid, Archbold Bio Sta, 1995.10.11. MT. leg. G. Melika”. Holotype and one paratype deposited in the USNM, two paratypes in the collection of the Systematic Parasitoid Laboratory, Tanakajd, Hungary.

Diagnosis – Similar to *B. ligni*, however, the mesoscutum is longer than broad in dorsal view; the scutellar foveae very narrow, the median carina narrow, indistinct or absent (Fig. 19). In *B. ligni*, the mesoscutum is rounded, nearly as long as broad; the scutellar foveae rounded, separated by broad distinct carina.

Biology – Only the male is known. Adults were caught in Malaise trap in November.

Distribution – USA: Florida (Archbold Biological Station, Lake Placid, Highlands Co.).

*Bassettia floridana* ASHMEAD, 1887  
(Figs 11, 13, 15–16)

*Bassettia floridana* ASHMEAD 1887: 147. Female.

*Dryophanta corrugis* BASSETT 1890: 71. Female. WELD 1952: 336 (synonymy).

Type material examined – *Bassettia floridana*. Holotype female for *B. floridana* “Type No. 22844 USNM”, handwritten “*Bassettia floridana* Ashm”. *Dryophanta corrugis*. Lectotype female (here designated) “Waterbury, Ct. H. F. Bassett Coll.”, red “Paratype”, handwritten “*Dryophanta corrugis*”, red “Paratype No. 60102, USNM”, two paralectotype females (here designated) “Waterbury, Ct.”, “Collection Ashmead”, handwritten “*Bassettia* (*Andricus*) *corrugis*, female, Bass.”

Other material examined – Three females “Ocala, Fla.”, “*Bassettia floridana* Ash. det. Weld”; two females “Jacksonville, Fla”, “*Q. chapmanii*”, “*Bassettia floridana* det. Weld 1920” (from the USNM), 6 females collected at the Archbold Biological Station, Highlands Co., Florida (from CNCI and G. Melika collection). For *Dryophanta corrugis* BASSETT – 3 females from A. Kinsey collection (deposited in the AMNH): “Wtby, Conn.” (probably Bassett’s original handwriting, material collected in Waterbury, Connecticut) and red handwritten label “*Dry. corrugis*. Paratype”. It is not clear why A. Kinsey designated these three specimens as paratypes.

Diagnosis – Similar to *B. pallida*, however, in *B. floridana* the mesosoma is reddish brown, scutellar foveae distinct, separated by a median carina, and the dorso-axillar surface is triangular. In *B. pallida*, the mesosoma is dark brown to black, scutellar foveae are indistinct, not separated by a median carina, and the dorso-axillar surface is narrow, prolonged.

The galls are similar to those of *Loxaulus vaccinii* (ASHMEAD) (WELD 1951) but the larval cells are nested, not scattered just under the bark and they are ellipsoid, larger, 3.2 mm long by 1.2 mm in diameter, while in *L. vaccinii* they are less than 2.0 mm long.



Biology – Only the asexual generation is known which induces galls at the base of the current year's growth on *Q. chapmanii* SARG. Also observed to oviposit into the buds of *Q. prinoides* WILLD. (BASSETT 1890). Galls mature in October and adults emerge in March–April.

Distribution – USA: Connecticut (Waterbury) (BASSETT 1890), Florida (Ocala – WELD 1921; Archbold Biological Station, Lake Placid, Highlands Co.).

### *Bassettia gemmae* ASHMEAD, 1896

*Bassettia gemmae* ASHMEAD 1896: 128. Female.

Type material examined – Three syntype females “J. G. Barlow, Cadef. Mo. Apr. 27.83”, handwritten label “*Bassettia gemmae* Ashm.”, and red “Type No 3082 USNM” in the USNM. 1 lectotype female and 2 paralectotype females bearing the above labels are here designated with a red label “LECTOTYPE. *Bassettia gemmae* Ashmead. Design. G. Melika 1998”.

Diagnosis – Similar to the sexual female of *B. ligni* in that the metasoma is nearly as high as long in lateral view; however, in *B. gemmae* the mesoscutum is transversely dull rugose and the body is black while in the sexual female of *B. ligni*, the mesoscutum is delicately transversely rugo-reticulate, the head is brown and the mesosoma is dark brown to blackish brown.

Biology – Only the asexual female is known. Adults emerge in April. WELD (1926) captured adults ovipositing in buds of *Q. alba* L.

Distribution – USA: Missouri (Ashmead 1896), Illinois, District of Columbia (WELD 1926).

### *Bassettia ligni* KINSEY, 1922 (Fig. 8)

*Bassettia ligni* KINSEY 1922: 291. Female, gall. ROSENTHAL & KOEHLER 1971, EVANS 1972 – description of the sexual generation, biology.

Type material examined – Holotype female “Galt Calif. 3-29-20”, “*Q. Douglasii*, Kinsey Coll.”, red “*Bassettia ligni*, Holo-Cotype” (Holo- is handwritten), 3 paratype females “Galt Calif. 3-29-20”, “*Q. Douglasii*, Kinsey Coll.”, red “*Bassettia ligni*, Paratype”.

Other material examined – 3 females on 2 pins with “Corvallis Or. April 1930”, handwritten “*Bassettia ligni* det. Weld 32”. In the USNM.

Diagnosis – The asexual female of this species is similar to the asexual female of *B. pallida*, however, in *B. ligni* the mesosoma is nearly 1.5 times as long as high in lateral view while in *B. pallida* the mesosoma is at least 2.0 times as long as high in lateral view. The sexual female similar to *B. gemmae* (see Diagnosis for *B.*

*gemmae*). The males of *B. ligni* have a mesoscutum nearly as long as broad from above, scutellar foveae large, separated by a distinct carina, while in *B. archboldi*, the mesoscutum is longer than broad, scutellar foveae are very narrow, the median carina absent or indistinct.

Biology – Alternate asexual and sexual generations are known. The asexual generation induces integral leaf galls while the sexual generation stimulates stem galls on *Q. douglasii* HOOK. et ARN., *Q. dumosa* NUTT., and *Q. lobata* NEE (Fig. 8). The adults of the sexual generation emerge from leaf galls during June to mid-July; the adults of the asexual generation emerge from the bark during mid-April (EVANS 1972).

Distribution – USA: California, Oregon.

*Bassettia pallida* ASHMEAD, 1896  
(Figs 1–2, 6, 21–22)

*Bassettia pallida* ASHMEAD 1896: 128. Female.

Type material examined – Holotype female “Savannah, Ga, Apr. 15.84”, red “Type No 3083, USNM”, handwritten “*Bassettia pallida* Ashm”.

Other material examined – 26 females: 16 with “*Q. virginiana*”, “Mahogany, Fl.”, 10 with “Florida, Broward Co., Fl. Lauderdale 2.II.1983, *Q. virginiana*. Collected by F. M. Howard” (in the USNM); 26 females collected at the Archbold Biological Station, Highlands Co., Florida (from CNCI and SPL).

Diagnosis – Similar to *B. virginiana*, however, the notauli complete, mesosoma and head are brown. In *B. virginiana*, notauli are incomplete, very weak, present in the posterior 1/3 of the mesoscutum only; mesosoma and head are black. Also similar to *B. floridana* (see Diagnosis for *B. floridana*).

Biology – Only the asexual generation is known which induces stem galls with cells hidden under the bark of *Q. geminata* SMALL and *Q. virginiana* MILL. Adults emerge in April in Georgia (WELD 1959) and in March in Florida.

Distribution – USA: Georgia (ASHMEAD 1896), Florida (WELD 1951, 1959; Archbold Biological Station, Lake Placid, Highlands Co.).

*Bassettia tenuana* WELD, 1921  
(Fig. 5)

*Bassettia tenuana* WELD 1921: 232. Female and gall.

Type material examined – Holotype female “Las Vegas N. M.”, red “22581 USNM” and 1 paratype female with the same labels. Two other females “*Bassettia tenuana*, Weld”, red “Paratype

No. 22581, USNM”, “15601d”, “710”, “Flagstaff, Ariz. Apr.” designated by L. WELD as paratypes of *B. tenuana*, belong to a new species, *B. weldi*.

Other material examined – 48 females: 37 with “L. H. Weld, Collector”, “Hillasboro, N. M.”, “Reared May, 8.22.”, “Hopk. US, 15638a.”; 1 with “Beut. Coll. rec’d 1935”, “710”, “*Q. fendleri*”, “Cut out, Nov. 11”, “Shoemaker N. M.”; 2 with “Beut. Coll. rec’d 1935”, “Oat. 1921.”, “Las Vegas Hot, Spr. N. M.” (in the USNM); and 8 females from the AMNH collection, collected also in New Mexico.

**Diagnosis** – Closely related to *B. weldi* (see Diagnosis for *B. weldi*).

**Biology** – Only the asexual generation is known which induces stem galls mainly at the base of young sprouts, with larval cells hidden under the bark on *Q. fendleri* (= *Q. × pauciloba* RYDB. (pro sp.) [*gambelii* × *turbinella*]). Adults emerge in April (WELD 1921).

**Distribution** – USA: New Mexico (Las Vegas).

### ***Bassettia virginiana* sp. n.**

(Figs 20, 23)

**Description** – Asexual (parthenogenetic) female. Head and mesosoma black; clypeus, antenna, legs and metasoma dark brown. Head rounded, nearly as broad as high in front view; 1.8–1.9 times as broad as long from above; vertex, frons, and gena finely coriaceous; lower face much rougher, with dense short white setae; clypeus small rounded, gena broadened behind eye, broader than cross diameter of eye; inner margins of eyes parallel; POD nearly equal OOD; malar space 2.5 times as short as eye height. Antenna brown, 14-segmented, pedicel and scape flattened and broadened, both nearly equal in length; F1–F5 filiform, subsequent flagellomeres shorter and broader than F1–F5; F6–F10 nearly equal in length (Fig. 20). Mesosoma flattened dorso-ventrally, longer than high; mesoscutum and mesoscutellum elongated, longer than broad; mesoscutum transversely finely coriaceous; mesoscutellum finely coriaceous, not overhanging metascutellum. Notauli weak, shallow, reach to 1/2–1/3 of mesoscutum (in paratype female slightly longer); parapsidal and anterior parallel lines distinct, median mesoscutal line absent; mesopleuron transversely finely striate; scutellar foveae in the form of narrow stripe, without carina separating them (Fig. 23). Fore wing slightly longer than body; veins pale yellow, Cu1 and M traceable only, areolet absent, radial cell elongated, 3.3 times as long as broad. Legs uniformly dark brown, except black coxae. Central portion of propodeum smooth, shiny, and bare, trapezoid (lower part broader than upper), delimited by straight lateral carinae, without median longitudinal carina; width of central area nearly equal to distance between lateral carina and side of propodeum; sides of propodeum with short dense white setae. Nucha very short, smooth. Metasoma reddish brown, nearly as long as head+mesosoma, laterally compressed, longer than high in lateral view; terga smooth, shiny, without punctures; prominent part of ventral spine of hypopygium slender, more than 3.0 times as long as broad, with few very short setae. Length 3.5–3.7 mm.

Gall. Unknown.

**Type material** – Holotype female and 1 paratype female. “USA, VA, Page Co., Shenandoah N.P., 8000 m a.s.l. 17.04–05.1987. BRC HYM.T”. Holotype deposited in CNCI, paratype in the collection of SPL.

**Etymology** – Named after the state where collected.

Diagnosis – Similar to *B. pallida*, however, in *B. virginiana* sp. n. distal flagellomeres are broader (Fig. 20); notauli are very weak, indistinct, present in posterior 1/3 of the mesoscutum only, anterior parallel lines distinct, with shiny bottom (Fig. 23); mesosoma and head are black, the prominent part of the ventral spine of the hypopygium is 4.0–5.0 times as long as broad. In *B. pallida*, distal flagellomeres are filiform (Fig. 21); notauli are broad, deep, complete, reaching the pronotum, anterior parallel line only hardly traceable, very indistinct and narrow (Fig. 22); mesosoma and head are brown; the prominent part of the ventral spine of the hypopygium is only 2.0–2.5 times as long as broad.

Biology – Only the female is known. Adults were caught in a Malaise trap in April–May.

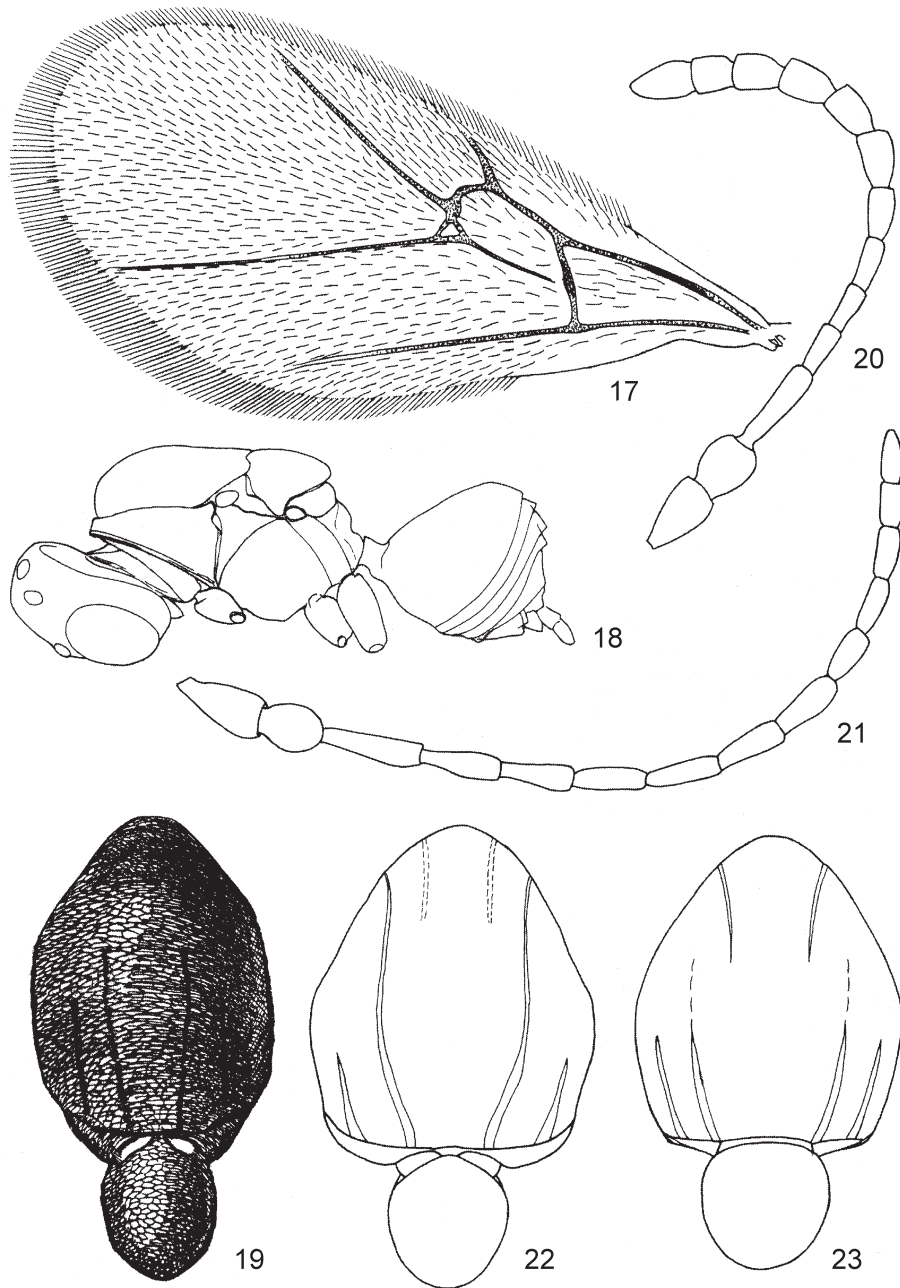
Distribution – USA: Virginia (Page Co., Shenandoah National Park).

### ***Bassettia weldi* sp. n.**

Description – Asexual (parthenogenetic) female. Head and mesosoma dark brown, metasoma lighter, legs and antennae light brown. Head rounded, nearly as broad as high in front view; 1.7–1.8 times as broad as long from above; vertex, frons, lower face and gena uniformly finely coriaceous; clypeus small rounded, gena broadened behind eye, as broad as cross diameter of eye; inner margins of eyes parallel; POD shorter than OOD; malar space longer than height of eye. Antenna 13-segmented, pedicel and scape flattened and broadened, both nearly equal in length; F1 2.0 times as long as the pedicel, F1–F5 filiform, subsequent flagellomeres shorter and broader than F1–F5; F6–F19 nearly equal in length, F10 shorter than preceding flagellomeres, F11 nearly 2.0 times as long as F10. Mesosoma flattened dorso-ventrally, longer than high; mesoscutum longer than broad, transversely finely coriaceous; mesoscutellum rounded, nearly as long as broad in dorsal view, finely coriaceous, not overhanging metascutellum, scutellar foveae distinct, transverse, wider than long, with distinct median carina separating them. Notauli distinct, complete, reaching pronotum; parapsidal and anterior parallel lines distinct, median mesoscutal line absent; mesopleuron transversely very delicately striate. Central propodeal area smooth, shiny, with some delicate wrinkles, without setae, delimited by lateral carinae which slightly curved outwards in the posterior 1/3 of propodeum; width of central propodeal area nearly equal to distance between lateral propodeal carina and side of propodeum; sides of propodeum with short dense white setae. Nucha smooth, without longitudinal carinae. Fore wing slightly longer than body, margin without cilia, veins light brown, areolet absent, radial cell short, 2.0–2.3 times as long as broad, 2nd abscissa of Rs straight. Legs uniformly light brown, except dark brown to black coxae. Metasoma reddish brown, slightly longer than high in lateral view, laterally compressed; terga smooth, shiny, without punctures; prominent part of ventral spine of hypopygium short, slightly longer than broad in lateral view, with few very short setae. Length 2.8–3.1 mm.

Type material – Holotype female and 1 paratype female “Flagstaff, Ariz. Apr. 16’18”, Hopkin’s “US No. 1560d”, red “Paratype No. 22581 USNM”, and a red label was added “HOLOTYPE. *Bassettia weldi* Melika & Abrahamson 998”. Holotype and paratype deposited in the USNM.

Etymology – Named in honor of Dr. LEWIS H. WELD.



**Figs 17–23.** 17–19 = *Bassettia archboldi*: 17 = fore wing, 18 = body, lateral view, 19 = scutum and scutellum, dorsal view. 20–21 = female antenna: 20 = *B. virginiana*, 21 = *B. pallida*. 22–23 = scutum and scutellum, dorsal view: 22 = *B. pallida*, 23 = *B. virginiana*

Diagnosis – Similar to *B. tenuana*, however, in *B. weldi* sp. n. the malar space is longer than the height of the eye; F1 2.0 times as long as the pedicel; the mesosoma is longer and narrower in dorsal view; the radial cell is more narrow and longer, Rs is nearly straight, and the metasoma is longer than high in lateral view while in *B. tenuana*, the malar space is equal to the height of eye; F1 1.4–1.6 as long as the pedicel; the radial cell is shorter and broader, the 2nd abscissa of Rs is strongly curved, and the metasoma as long as high in lateral view.

Biology – Only the asexual generation is known which induces stem galls hidden under the bark of twigs on *Q. gambelii* (WELD 1921).

Distribution – USA: Arizona (Flagstaff).

#### SPECIES TRANSFERRED TO *CALLIRHYTIS* FOERSTER, 1869

WELD (1951) transferred *Callirhytis aquatica* ASHMEAD, *Andricus catesbaei* ASHMEAD, and *Eumayria herberti* WELD to the genus *Bassetia*. As mentioned in the Diagnosis for the genus *Bassetia*, some species groups of *Callirhytis* are very similar to *Bassetia*. However, in *Bassetia* the head is usually only 2.0–2.5 times as broad as long from above (Fig. 1), higher or equal to the width and rounded in front view (Fig. 2); the mesosoma is compressed dorso-laterally, usually 1.3–1.5 times as long as high in lateral view; the mesoscutum 1.5–2.0 times as long as broad; scutellar foveae usually narrow, shallow, separated by indistinct median carina (Figs 11–13). In *Callirhytis*, the head is more than 2.5 times as broad as long from above, transverse, broader than high in front view, trapezoid (Fig. 14); the mesosoma is arched; if slightly compressed dorso-laterally, then less than 1.2–1.3 times longer than high in lateral view; the mesoscutum equal or only slightly longer than broad; scutellar foveae usually deep and large, separated by a distinct median carina. The species listed below possess the typical *Callirhytis* diagnostic characters mentioned above and, thus were transferred or reverse by authors earlier to the genus *Callirhytis* (MELIKA & ABRAHAMSON 2002). Below we mentioned some data that was omitted in MELIKA and ABRAHAMSON (2002).

#### *Callirhytis aquatica* ASHMEAD, 1887

*Callirhytis aquatica* ASHMEAD 1887: 144. Female, gall.

Type material examined – Holotype female “Type No. 2809 USNM”, “Collection Ashmead” in the USNM. This is the only known specimen of this species.

Biology – The only known female was cut from a “hard knotty swelling” gall on *Q. nigra* L. in March (ASHMEAD 1887). Such stem swelling-like galls are typical for *Callirhytis* species but are not typical of *Bassettia*.

Distribution – USA: Florida (ASHMEAD 1887).

### *Callirhytis ceropteroides* BASSETT, 1900

*Callirhytis ceropteroides* BASSETT 1900: 324. Female, gall.

Type material examined – Lectotype female (here designated) “*Bassettia ceropteroides* (Bass)”, “Beut. Coll., rec’d 1935”, “*Callirhytis ceropteroides* Bass., W. B.”, red “Type”, “Waterbury, Ct., H. F. Bassett, Coll.”, and a red label was added “LECTOTYPE. *Callirhytis ceropteroides* Bassett. Design. G. Melika 998”; one paralectotype female (here designated) “*Callirhytis ceropteroides* B., 1555 I.”, red “Type”, “Ct.”, and a red label was added “PARALECTOTYPE. *Callirhytis ceropteroides* Bassett. Design. G. Melika 998”. In the USNM.

Other material examined – 4 females with “*Eumayria ceropteroides* (Bass) det. Weld, 1924.”, “Collection, C. F. Baker”, “Loan 2553”, “Coll. C. F. Baker”, “Cana 2393”, “Coll. C. F. Baker”, “Cana 2416.”, “Coll. C. F. Baker,” “Louni 2553.”, and “Coll. C. F. Baker”, “Louni 2264.”; and 2 females with “*Bassettia ceropteroides* (Bass), det. Weld, 1943.”, “Collection ASHMEAD”, “Ft. Pendelton. 7.7, W. Va”. In the USNM.

Biology – Only the asexual generation is known which induces stem galls on *Q. velutina* LAM. Adults emerge in July (BASSETT 1900).

Distribution – USA: Connecticut (Crescent Beach, Branford; Waterbury) (BASSETT 1900), West Virginia (Ft. Pendelton).

### *Callirhytis herberti* (WELD, 1926)

*Eumayria herberti* WELD 1926: 108. Female, gall.

*Bassettia herberti*: WELD 1951: 644.

Type material examined – Holotype female and 39 paratype females “*Eumayria herberti* Weld.”, red “Paratype, No. 27223, USNM”, “F. R. Herbert Coll.”, “*Q. kellogii*”, “Placerville Cal., May.27.18.” Holotype female with red “Type No. 27223 USNM”. In the USNM. Four paratype females with the above labels are deposited in the AMNH.

Other material examined – 9 females: 3 with “F. R. Herbert Coll.”, “Placerville, Cal.”, “*Q. californica*”, “Reared, May. 21.18”, “Hopk. US 13687d”; 1 with “H. S. Barber Coll.”, “Bair’s Rch, Redwd Crk”, “Humboldt Coll. 36. Cal.”; 1 with “Los Gatos, Calif.”, “*Q. agrifolia*”, “Reared, May. 24.18”, “Hopk. US 15608a”; 4 with “Sta Cruz, Mts. Ca.” In the USNM.

Biology – Only the asexual generation is known which induces stem galls on *Q. agrifolia* NEE, *Q. kelloggii* NEWB., *Q. wislizeni*. Adults emerge in May–June (WELD 1926).

Distribution – USA: California (Placerville, Los Gatos, Sequoia National Park) (WELD 1926).

*Callirhytis quercuscatesbaei* ASHMEAD, 1881

*Cynips q. catesbaei* ASHMEAD 1881: xv. Female, male, gall.

*Andricus (Andricus) catesbaei* ASHMEAD 1885: 295.

Type material examined – One male with red “Type No. 2807 USNM”, “Jacksonville Fla”, “Collection Ashmead”. The type was probably designated later, not originally by ASHMEAD. In the USNM.

Other material examined – Two females and two males “Jacksonville Fla”, “Collection Ashmead”. In the USNM.

Comments – ASHMEAD (1881) mentioned that the species was described on the basis of three males and two females. However, we found three males and two females in the USNM collection (see above).

Biology – Only the sexual generation is known which induces small stem swelling-like galls on *Q. laevis* WALT. (= *catesbaei* MICHX.). Adults emerge in April (ASHMEAD 1881).

Distribution – USA: Florida (Jacksonville) (ASHMEAD 1881).

\*

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