THE NEARCTIC SPECIES OF *IDRIS* FOERSTER. PART I: THE *MELLEUS*-GROUP (HYMENOPTERA: SCELIONIDAE)

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Abstract

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The state of taxonomy of *Idris*, egg parasitoids of spiders, in Nearctic North America is reviewed. The concept of *Idris* is discussed and *Ceratobaeus* Ashmead is considered a junior synonym (**new synonymy**). The *melleus*-group of *Idris* is defined and 11 Nearctic species are keyed and described: *I. castaneus* sp.nov. (south and southeastern USA), *I. chrysion* sp.nov. (southeastern USA), *I. costatus* sp.nov. (eastern USA), *I. lacunatus* (Baja California, Mexico), *I. leedsi* sp.nov. (midsouthern USA), *I. melleus* (Ashmead) (south and southeastern USA and southern Canada), *I. onychion* sp.nov. (southeastern USA), *I. ornatus* sp.nov. (eastern USA), *I. pulvinus* sp.nov. (south and southeastern USA), *I. spartinae* sp.nov. (southeastern USA), and *I. triticola* sp.nov. (midwestern USA). Extra-limital Nearctic members of the *melleus*-group are briefly discussed.

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Résumé

On trouvera ici une révision taxonomique des espèces d'*Idris*, parasitoïdes des oeufs d'araignées dans la zone néarctique de l'Amérique du Nord. Le concept d'*Idris* fait l'objet d'une discussion et le genre *Ceratobaeus* Ashmead en devient un synonyme récent (**nouvelle synonymie**). Le groupe *melleus* d'*Idris* est défini, 11 espèces néarctiques sont décrites et une clé d'identification permettra de les distinguer: *I. castaneus* sp.nov. (sud et sud-est des É.-U.), *I. chrysion* sp.nov. (sud-est des É.-U.), *I. costatus* sp.nov. (est des É.-U.), *I. lacunatus* (Basse-Californie, Mexique), *I. leedsi* sp.nov. (centre sud des É.-U.), *I. melleus* (Ashmead) (sud et sud-est des É.-U. et sud du Canada), *I. onychion* sp.nov. (sud-est des É.-U.), *I. ornatus* sp.nov. (est des É.-U.), *I. pulvinus* sp.nov. (sud et sud-est des É.-U.), *I. spartinae* sp.nov. (sud-est des É.-U.) et *I. triticola* sp.nov. (centre-ouest des É.-U.). Les espèces de groupe *melleus* de l'extérieur de la zone néarctique sont examinées brièvement.

[Traduit par la Rédaction]

INTRODUCTION

The genus *Idris* is worldwide in distribution (Masner 1976) and comprises 159 described species (Johnson 1992). The members are solitary primary parasitoids of eggs of various spiders (Eason et al. 1967; Bradoo 1972; Fitton et al. 1987). The adults may be collected by various methods but most successfully by trapping with pan traps, interception traps, or Malaise traps rather than by sweep net. Rearing from cocoons of spider eggs is the only method of obtaining host data. The habitus and size of individual species are determined by the dimensions and shape of the host egg. Interestingly, eggs of extremely small as well as large spiders are not parasitized. This tendency results in the predominantly uniform size of *Idris* members varying most frequently between 1 and 2 mm. It is perhaps the small size of these parasitoids that discourages many entomologists from paying more attention to their natural history. And yet the first focus on this genus in North America reveals one of the most fascinating challenges in the study of biodiversity. Indeed, once completed, the revision of Nearctic *Idris* might serve as a primary example of neglected or underestimated biodiversity in the temperate zone. We also hoped that this study will call attention to the much needed faunal exploration of the North American continent.

The history of taxonomic research on *Idris* in Nearctic North America is rather brief. The first few species were described by Ashmead (1893) under *Acoloides* Howard and

Ceratobaeus Ashmead and one species by Howard (1890) under *Acoloides*. Fouts (1927) added one more species under *Acoloides*. Masner (1964) treated *Acoloides* as junior synonym of *Idris* and Muesebeck and Masner (1967) transferred all Nearctic species described under *Acoloides* to *Idris*. Huggert (1979) synonymized two Nearctic species. As a result only 10 valid names are presently available in the Nearctic *Idris* (including *Ceratobaeus*) (Johnson 1992). In 1982, Michael Kaulbars of Ottawa began preparing a revision of *Idris*. Using a large number of freshly collected specimens (CNCI), he rapidly increased the number of Nearctic species from 10 to 86. The above study was not completed and we took over in 1992. More material was added (1982–1994), especially from an extensive collecting trip to the eastern United States in 1987. To date we recognize over 130 new species of *Idris* in North America, the data of which were entered in the DELTA Computer Program (Dallwitz and Paine 1986).

However, more new species are being added almost routinely with every major sample, especially from the Austral zone of the United States from Florida to California, i.e. vast area of presumed *Idris* diversity. The latter area is almost unexplored in terms of *Idris* species. Coddington et al. (1990) estimate around 4000 species of Araneae in North America, most of these being potential hosts to *Idris* parasitoids. This rich base of hosts together with paucity of field data leads us to believe that the figure of 130 new species of *Idris* in North America is not a final one.

This study treats *Idris* and *Ceratobaeus* as one genus; the respective generic diagnoses were given by Masner (1976, 1980), who attempted to keep the two genera separate. Huggert (1979) classified *Ceratobaeus* as a subgenus of *Idris* primarily because of some transitional species. Austin (1980, 1982, 1984a, 1984b, 1984c) and Galloway and Austin (1984) also treated *Ceratobaeus* distinct from *Idris*. Our present concept of *Idris* (including *Ceratobaeus*) is based on the study of extensive material of world Baeini involving all genera of the tribe known to this date. Traditionally, *Idris* and *Ceratobaeus* were distinguished by the presence or absence of a horn or hump on female tergum 1. We concluded that the presence of a hump or horn on female tergum 1 and the corresponding more elongate habitus of the metasoma are states occurring in all genera of the Baeini [*Baeus* Haliday, *Cyphacolus* Priesner, *Odontacolus* Kieffer, *Pseudobaeus* Perkins (Masner 1976)]. Similarly, several Nearctic *Idris* with a projection of various shapes on tergum 1 do not constitute a monophyletic unit but are related to various species without this character state. Indeed, males of traditional *Ceratobaeus* sometimes show a slight protuberance on the dorsal side of tergum 1 and the median propodeal keels are more-or-less divergent. However, in other species formerly classified as *Ceratobaeus*, the males do not exhibit the above states and cannot be distinguished from typical males of *Idris*. We believe that full merger of *Ceratobaeus* and *Idris* is the only logical conclusion to take (**new synonymy**).

Considering the surprisingly large number of Nearctic *Idris* species, we prefer to present its taxonomy in parts. The logical unit is the species-group, a cluster of closely related taxa based on one or more synapomorphies (see diagnosis of *melleus*-group below). The treatment of the *melleus*-group is the first part of a planned series.

MATERIALS AND METHODS

Specimens of *Idris* were borrowed from the following North American institutions [in alphabetical order, by acronyms following Arnett et al. (1993)]. The present curator's name is given in parentheses.

- AEIC American Entomological Institute, Gainesville, FL (D. Wahl).
- AMNH American Museum of Natural History, New York, NY (D. Grimaldi).
- CDAE California Department of Food and Agriculture, Sacramento, CA (J. Sorensen).
- CNCI Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa, ON (J.T. Huber).

DENH	University of New Hampshire, Durham, NH (D. Chandler).
FSCA	Florida State Collection of Arthropods, Gainesville, FL (L. Stange).
MCZC	Museum of Comparative Zoology, Cambridge, MA (E.O. Wilson).
MSUC	Montana State University, Bozeman, MT (M. Ivie).
TAMU	Texas A&M University, College Station, TX (R. Wharton).
USNM	United States Museum of Natural History, Washington, DC (D.R. Smith).

Holotypes of all new species except *I. triticola* are deposited in the CNCI; paratypes are distributed to the following institutions, viz. AEIC, AMNH, FSCA, TAMU, and USNM.

The greatest source of material for this project is from the CNCI, with over 10 000 specimens on hand and growing progressively, with the great majority of the material collected in the past 2 decades. Therefore, the study is based on fresh, clean, properly mounted material, supplemented in many cases by field observations and biological data such as the host spider. Specimens in the CNCI were collected by various techniques, including Malaise trap (MT), flight intercept trap (FIT, treated with pyrethroid), yellow pan trap (PT), emergence trap (ET), screen sweeping (SS), car net (CN), Berlese extractors (BE), as well as by rearing of spider cocoons in the laboratory. Prior to mounting, specimens were cleaned in strong detergent (e.g. Cascade).

Keeping track of each species proved to be a challenge because of the large number of species in the genus. This was overcome with the use of the computer program DELTA which enabled us to describe taxa from a data base consisting of a matrix of characters and their states. The choice of characters proved to be crucial in accurate differentiation of species and species-groups. Each species was then represented as a series of binomials which defined it. From this matrix, we were able to compare newly acquired material with the encoded species using an interactive program called INTKEY. By using INTKEY, we quickly learned if the accessioned specimen belonged to a known species or if it was new to the program.

MORPHOLOGY AND MEASUREMENTS

Morphological terms follow Masner (1979, 1980, 1983); those requiring detailed or amended definitions are listed below. Several new terms are being used and they are marked with an asterisk (*). Details on measurements and instructions follow the definition and character states of each term (where applicable).

* BODY STREAMLINE

Course of imaginary lines connecting widest points of head with points of maximal width of metasoma: (a) lines divergent anteriorly (Fig. 20), (b) lines parallel or subparallel, (c) lines convergent anteriorly; seen in dorsal view.

HEAD

Cheek and lower frons—(a) Striae absent or rudimentary, (b) striae short, not reaching lower orbit, (c) striae long, reaching lower orbit or even continuing above along inner orbit; seen in frontal view.

Eye height—Maximal distance between upper and lower orbit of eye; measured in frontal view.

Eye pilosity—(a) Eye glabrous or with rudimentary pilosity, if hairs absent or shorter than 1 OD (see below), (b) hairy if hairs subequal to 1 OD, (c) strongly hairy if hairs longer than 1 OD.

Frontal keel—Longitudinal median keel on frons running from interantennal process toward anterior ocellus: (a) keel absent or rudimentary, (b) keel incomplete, fine or strong but not reaching anterior ocellus, (c) keel complete if reaching anterior ocellus; seen in frontal view.

Occipital carina—Carina bordering posterior margin of gena: (a) joining hyperoccipital carina, (b) separated from hyperoccipital carina; posterior view, preferably with head severed.

Head height—Maximal distance between lower margin of clypeus and top of vertex; measured in frontal view.

Head length—Maximal distance between frons and postgena; measured in lateral view.

Head width—Maximal distance between outer margins of eyes; measured in dorsal view.

Hyperoccipital carina—Transverse carina on vertex of head: (a) joining occipital carina, (b) separated from occipital carina, (c) merging into eye orbit, (d) carina absent; seen in posterior view, preferably with head severed.

Hypostomal carina—Carina on hypostoma of back of head; seen in posterior view, only with head severed.

Interantennal process—Raised process between antennal toruli; seen in frontal and lateral view, preferably with antenna and radicle removed.

Interorbital space—Shortest distance on frons between inner orbits; measured in frontal view.

Malar space—Distance between lower orbit of eye and mandibular condyle; measured in frontal view.

* OD—Diameter of lateral ocellus: (a) as scale to measure length of temple behind eye (view diagonally from behind, e.g. Fig. 7), (b) as scale to measure length of hairs on eye, (c) as scale to measure distance of lateral ocellus from eye margin (OOL).

* Speculum—Smooth, shining area on lower frons right above interantennal process: (a) speculum not defined if entire frons sculptured, or frons entirely smooth, (b) speculum not abrupt with irregular margin, (c) speculum abrupt with sharp margin; seen in frontal view.

ANTENNA

Clava (A7) in female—Maximal length in relation to maximal width; measured in lateral view.

Female A2–A6/A7—Relative lengths; measured in lateral view.

Female A2/A3/A4—Relative lengths; measured in lateral view.

Male A3–A10—Relative lengths; measured in lateral view.

MESOSOMA

* Axillar crenulae—Several crenulae in anterolateral corner of scutellum; seen in dorsal view.

Crenulae—Series of pits arranged in chain; if pits distinctly transverse (Fig. 18, pronotum) crenulae termed lacunae.

Epomium—Vertical carina along anterior margin of pronotal side; seen in lateral view, epomium best visible if head severed.

Humeral sulcus—Sulcus in posterolateral corner of mesoscutum medial to tegula: (a) sulcus absent, (b) sulcus non-crenulate, (c) sulcus crenulate; seen in dorsal view.

Lacunae—See crenulae.

Mesosoma height—Maximal distance between top of mesoscutum and lowermost point of mesopleuron; measured in lateral view.

Mesosoma length—Maximal distance between anterior margin of pronotum and posterior margin of nucha; measured in dorsal view.

Mesosoma width—Maximal distance between posterolateral corners of pronotum in front of tegulae; measured in dorsal view.

Notauli—Pair of longitudinal grooves on mesoscutum: (a) notaulus absent, (b) notaulus rudimentary, indicated only in front of transscutal articulation; seen in dorsal view.

Nucha—Posteromedian projection of propodeum housing articulation with condyle on T1 and S1 of metasoma; crenulae on nucha and posterior wall of propodeum visible only if metasoma severed.

Pronotal crenulae—Chain of crenulae in lower corner of pronotum (above fore coxa, cf. Fig. 10) in area homologous to netrion; seen in lateral view.

Propodeal keels—Paired longitudinal median keels on propodeum; seen in dorsal view.

Propodeal sculpture—(a) Canaliculate if with longitudinal costae, (b) reticulate if costae rudimentary or costae absent; diagonal view from behind at 45° angle.

Scutellar rim—Posterior rim of scutellum: (a) rim rudimentary, (b) rim projecting over dorsellum (Figs. 2, 4, 6), (c) rim not projecting over dorsellum (Figs. 9, 10); seen in lateral view.

Suprahumeral sulcus—Sulcus along anterolateral arc of mesoscutum: (a) sulcus absent, (b) sulcus non-crenulate, (c) sulcus crenulate; seen in dorsal view.

FORE WING

* **Bristles on submarginal vein**—Series of semierect to erect bristles between tegula and marginal vein: (a) bristles absent or rudimentary, not exceeding fore margin of wing, (b) bristles long, distinctly exceeding fore margin of wing; views from different angles needed if bristles pale in colour.

Wing length/width ratio—Maximal length and width; measured in dorsal view, with best results on slide mounts.

METASOMA

Metasoma length—Maximal distance between anterior margin of T1 and apex of metasoma; measured in dorsal view.

Metasoma width—Maximal distance usually across T3; measured in dorsal view.

T1 length/width ratio—Measured in dorsal view.

T1 plus T2 combined length vs. T3 length—Measured in dorsal view.

T3 length/width ratio—Measured in dorsal view.

Microsculpture, body pilosity, and the general habitus of the body (including body streamline) appear particularly valuable as characters in species recognition. The above characters display the least amount of intraspecific variation and are therefore of primary importance in *Idris* taxonomy. For proper evaluation of both the microsculpture and the pilosity, the use of a light disperser (Mylar* tracing paper) is indispensable, especially in yellow species. Needless to say, the specimens must be clean, free of body oil, and mounted on points to permit different angles of observation. For some character states it is necessary to detach the head and metasoma and tagmount them separately on the point. Fine differences in general habitus (such as convexity of mesosoma in profile) can be accentuated by the superimposition of line drawings of two or several closely related species.

Body colour as well as the extent and configuration of colour patterns appear to be surprisingly constant character states in *Idris*. Similarly, infuscation of wings and their patterns are quite constant in all species examined.

IDRIS FOERSTER

(*Acoloides* Howard, *Acolus* auct., *Ceratobaeus* Ashmead **syn.nov.**, *Megacolus* Priesner)

Short, plump, squat individuals, 0.5–2.0 mm long, with rich microsculpture, body colour mostly brownish, often bright yellow or orange, rarely black or whitish.

Head in dorsal view moderately to strongly transverse; lateral ocellus contiguous or very close to inner eye orbit; eye glabrous, with minute hairs or strongly hairy; head in lateral view distinctly higher than long; malar sulcus present; head in frontal view mostly

subcircular, usually slightly wider than high; frons often with median longitudinal keel running from between toruli toward anterior ocellus; cheek striate or not; clypeus with anterolateral corners moderately acute; mandible strong, short, highly convex, tridentate, teeth usually subequal; palpi short, palpal formula 2-1; antennal formula 7-11, rarely 7-12; scape short, when flexed to frons with apex not exceeding level of anterior ocellus; female antenna with A4–A6 very short, almost bead-like, A2 usually larger than A3, A7 forming massive one-segmented clava, clava usually compact, rarely with rudimentary sutures, sensillar formula 1-1-1-1; male antenna usually 11-segmented, with A11 and A12 fused or strongly approximated, rarely distinctly 12-segmented, A3–A10 usually short, almost bead-like, A5 modified, with short keel.

Mesosoma short, moderately to highly convex dorsally, rarely flattened; pronotum in dorsal view usually very short medially, pronotal shoulders rarely prominent; side of pronotum often with arc of crenulae in netrion area, sometimes with irregular sculpture or smooth; epomium developed or not; mesoscutum semicircular; skaphion not developed; notaulus at most indicated posteriorly; humeral and suprahumeral sulci often well developed, rarely crenulate; scutellum semicircular, usually with strong posterior rim crenulate inwardly; mesopleuron slightly concave medially, often with rows of crenulae in front of mesepimeron; dorsellum unarmed; propodeum often longitudinally canaliculate or with fine irregular sculpture, rarely almost smooth; median keels of propodeum usually low, rarely projecting in sharp spikes or transformed into flattened lamellae flanking apex of horn on T1; wings relatively short and broad, not exceeding much tip of metasoma (♀ ♀), or longer (♂ ♂), rarely wings shortened or reduced to stumps (♀ ♀); submarginal vein in fore wing distinctly remote from fore margin of wing, often with long erect bristles, vein reaching almost to middle of wing length; marginal vein short, almost point-like, rarely slightly enlarged; stigmal vein moderately to distinctly long, slanted subdiagonally, moderately knobbed apically; postmarginal vein at most rudimentary, not tracheate apically, shorter than stigmal vein; basal vein at most nebulous, no other veins present; hind wing usually with submarginal vein tracheate; legs relatively short, tarsal formula 5-5-5.

Metasoma usually short, subcircular, less frequently broadly spindle-like, rarely elongate, with seven visible tergites in female, tergite 7 fully external, strongly sclerotized, usually sharply triangular, not extruded with ovipositor; metasoma with eight visible tergites in male; T1 in female often humped medially, or with short or long horn, horn circular in cross section, not compressed from sides; T1 and T2 often longitudinally costate; T3 almost always largest and widest of all tergites, rarely subequal to T2; laterotergites narrow, sharply flexed and deeply incised in corresponding sternites; laterosternites well developed (seen only in dissection).

The following brief key will distinguish members of *Idris* from other genera of Baeini in America north of Mexico.

1. Metasoma widest at T3; T3 moderately to distinctly largest of all tergites. 2
- Metasoma widest at apparent T1 or T2; T3 distinctly shorter than preceding tergite (females apterous, male fore wing narrow, basal vein nebulous) *Baeus* Haliday
- 2(1) Female T1 with massive horn distinctly compressed laterally; propodal keels strongly developed (♀ ♂) flanking horn on T1 in female; male antenna eight-segmented . . . *Odontacolus* Kieffer
- Female T1 usually without horn or hump, rarely with little hump or cylindrical horn; propodeal keels (♀ ♂) at most slightly projecting; male antenna 11- rarely 12-segmented *Idris* Foerster

THE *MELLEUS* SPECIES-GROUP

Diagnosis. Head in dorsal and lateral views moderately to remarkably large relative to mesosoma and metasoma, head in dorsal view broadly transverse, always wider than mesosoma and especially metasoma, thereby creating streamline of body diverging forward

(Fig. 20); female head in lateral view moderately to markedly higher than mesosoma; eye relatively small, with dense fine to long hairs; eye height subequal to malar space; temple behind eye usually wide, ranging from slightly less than 1 OD (*I. onychion*) to 3.5 OD (*I. spartinae*); female head in frontal view subcircular, as high as wide [in *I. ornatus* and *I. sparinae* slightly higher than wide (Fig. 12), in *I. lacunatus* slightly wider than high (Fig. 16)], male head wider than high; interorbital space distinctly larger than eye height (except in *I. ornatus*); vertex usually distinctly arched in females, less distinctly in males; cheek and lower frons with fan of long strong striae, striae reaching at least to lower orbit of eye, usually higher; speculum not defined, sculpture of frons laterad frontal keel usually finer (entirely smooth in *I. leedsi*) than on upper frons and entire area glabrous; frontal keel strongly developed, reaching to anterior ocellus (except in *I. onychion* and *I. ornatus*); head in posterior view with hyperoccipital carina smoothly continuous with occipital carina (junction slightly sinuate in *I. lacunatus*); hypostomal carina absent (weakly developed in *I. lacunatus*); radicle usually distinctly elongate, about one-third of A1 length (shorter in *I. lacunatus*); female clava relatively long and slender, spindle-shaped, usually shorter than A2–A6 (except in *I. chrysion*); male antenna with A3–A11 bead-like, A11–A12 fused in one segment.

Mesosoma in dorsal view with notaulus not developed (rudimentary in *I. ornatus*); humeral sulcus shallow (except in *I. onychion* and *I. leedsi*), not crenulate; suprahumeral sulcus not developed; scutellum semicircular (subtriangular in *I. onychion* and *I. pulvinus*), with axillar crenulae developed, with rim present, entirely crenulate (only partly crenulate in *I. onychion* and *I. pulvinus*); propodeum canaliculate (except in *I. pulvinus*), with median keels only moderately developed, and posterior margin usually with moderate rim, posterolateral corners of rim usually not projecting (except in *I. lacunatus*); mesosoma in lateral view relatively high, with pronotum anteromedially relatively long relative to cervical opening (except in *I. pulvinus*); side of pronotum usually with row of crenulae in lower part, crenulae reduced in some species; mesopleuron with deep crenulae (lacunae) in upper part, often evenly granular in lower part; mesopleural carina not developed (except in *I. ornatus*); mesopleural depression usually granular (except in *I. lacunatus*, *I. onychion*, and *I. triticola*); metapleuron predominantly to entirely granular (except in *I. leedsi*), with crenulae along margins; fore wing relatively narrow, length/width ratio approximately 3:1, rounded apically, surpassing tip of metasoma; submarginal vein with row of long semierect bristles distinctly surpassing fore margin of wing.

Metasoma in dorsal view relatively small and narrow compared with rest of body; T1 in female without hump, subtrapezoidal to broadly transverse with strong longitudinal costae (costae incomplete in *I. pulvinus*); T2 trapezoidal, with longitudinal costae anteriorly, rest of tergite predominantly granular (except in *I. leedsi*); T1 and T2 combined longer than or subequal in length to T3 (T3 slightly longer in *I. chrysion*); T3 transverse, with even granular sculpture (in *I. ornatus* with weak longitudinal rugulae anteromedially, in *I. leedsi* smooth medially); metasoma in lateral view with depression along anterior margin of T2.

Discussion. Because no species-group has been formally defined among the Nearctic *Idris* (and for that matter anywhere in the world) it is difficult to compare the *melleus*-group with its nearest relatives. Members of the *melleus*-group could be characterized best by the following cephalic synapomorphies. The head is remarkably large in relation to the rest of the body, especially the diminutive metasoma, therefore if viewed from above the body streamline is diverging forward (Fig. 20). The hyperoccipital carina joins the occipital carina in a gentle arc, the eye is relatively small, with its height subequal to the interorbital space and the radicle is distinctly elongate. Some of the cephalic characters mentioned above occur also in members of two small undescribed species-groups of *Idris* intended for Part II of our project. However, the shared character states of these two groups do not exist in the unique combination that is diagnostic for members of the *melleus*-group.

At present the *melleus*-group seems to be confined to the New World, with 10 species recognized in the Nearctic region (including *I. lacunatus* from Baja California). We also examined (CNCI) an additional 10 new species from Central America [Panama, Costa Rica, Guatemala, Mexico (Chiapas)] that appear related to our Nearctic members. Several undescribed Ethiopian species (CNCI) of *Idris* may also be related to the *melleus*-group but lack some of the crucial characters. The biology and behaviour of members of the *melleus*-group are not known. Specimens of the *melleus*-group are rare in collections; out of some 10 000 Nearctic *Idris* examined, we encountered only 135 individuals, viz. *I. onychion* (52), *I. castaneus* (23), *I. pulvinus* (19), *I. spartinae* (13), *I. chysion* (8), *I. melleus* (6), *I. ornatus* (5), *I. lacunatus* (4), *I. costatus* (2), *I. triticolus* (2), *I. leedsii* (1).

***Idris castaneus* sp. nov.**

(Figs. 15, 21)

Diagnosis. Body chestnut brown; temple wide, 2.5 OD; head in frontal view as high as wide, interorbital space distinctly larger than eye height; side of pronotum with only weak crenulae in lower corner; propodeum at meson shorter than half length of T1; T2 with longitudinal sculpture exceeding basal half of tergite as in *I. melleus*.

Description. HOLOTYPE ♀. Length 1.10 mm, body colour chestnut brown, except antenna, mandible, and legs including coxae light yellow; wings clear.

Head in dorsal view pentagonal, transverse, wider than long (45:27), wider than mesosoma (45:37); vertex with scattered semidecumbent hairs, with strong granular sculpture; head in lateral view higher than long (45:27), higher than mesosoma (45:37); eye height:malar space (19:18); postgena with granular sculpture; temple wide, 2.5 OD; head in frontal view subcircular (45:45); eye with dense short hairs; frons with scattered decumbent hairs, with granular sculpturing; eye height:interorbital space (19:28); head in posterior view with hypostomal bridge; occiput below hyperoccipital carina evenly granular; antennal segments in relative proportions (19:4), (8:3.5), (5:2.5), (2:2.5), (2:2.5), (2:3), (17:7); clava shorter than A2–A6 (17:21).

Mesosoma in dorsal view longer than wide (43:37); mesoscutum transverse (35:25), with scattered semidecumbent hairs, and strong granular sculpturing; scutellum semicircular, wider than long (30:15), with same pilosity and sculpturing as mesoscutum; propodeum evenly canalicate, at meson shorter than half length of T1, posterior margin slightly raised, posterolateral corner only slightly projecting, median keels not projecting; mesosoma in lateral view longer than high (43:37), evenly convex; scutellar rim projecting moderately over dorsellum; pronotum anteromedially shorter than cervical opening; side of pronotum predominantly granular, with weak transverse crenulae in lower third; epomium sharp, well developed; posterolateral corners of propodeum projecting slightly, blade-like.

Metasoma in dorsal view longer than wide (60:36); T1 subrectangular with anterolateral corners not prominent, wider than long (23:11), with longitudinal costae; T2 trapezoidal, wider than long (36:18), with strong costae along anterior margin, costae continuing in finer longitudinal rugulae distinctly exceeding half of tergite, rest of tergite with granular sculpturing; T1 and T2 combined longer than T3 (30:23); T3 wider than long (36:23); metasoma in lateral view moderately convex; depression between T1 and T2 moderate; S1 and S2 with costae similar to corresponding tergites.

ALLOTYPE ♂. Differs from female as follows; generally darker; head in frontal view slightly wider than high (44:37); frons and vertex with pilosity denser; ocellus relatively large, temple behind eye 1.5 OD; antennal segments in relative proportions (17:4), (8:4), (7:4), (4:4), (4:4), (4:4), (4:4), (3.5:4), (3.5:4), (3.5:4), (10:4); propodeum in lateral view rugulose, costae not as regular.

Material Examined. 21 ♀, 2 ♂.

HOLOTYPE: ♀ (CNCI No. 21894), **USA: FL**, Liberty Co., Torreya State Park, October 8, 1980, Bowen and Masner. **ALLOTYPE:** **USA: FL**, Liberty Co., Torreya State Park, October 8, 1980, Bowen and Masner. **PARATYPES:** 4 ♀, **USA: FL**, Torreya State Park, October 8, 1980, Bowen and Masner; 1 ♀, Jackson Co., 16 km S Chattahoochee, October 8, 1980, Masner and Bowen; 1 ♀, **GA**, Clarke Co., 33°54'N, 83°16'W, October 7–14, 1992, J. Pickering; 1 ♀, Jones Co., 39°3'N, 83°43'W, October 1–7, 1993, J. Pickering; 1 ♀, Luisville, 40 mi. S Augusta, November 9, 1979, D. Williams; 1 ♀, **MS**, Oktibbeha Co., Dorman Lake, September 23, 1990, G.T. Baker, PT; 1 ♀, **NC**, Northampton Co., 7 km S Jackson, September–November, 1987, BRC Hym. Team, bald cypress swamp, FIT; 1 ♀, **OK**, Latimer Co., Red Oak, env. November 1993, K. Stephan, FIT; 1 ♂, 6 ♀, **SC**, Pickens Co., Clemson Cherrys Crossing, August 23 – November 6, 1987, J. Johnson, near lakeshore, FIT; 2 ♀, Barnwell Co., Edisto Experimental Station, March 4, 1976, W.A. Jones, Berlese accumulated needles in Loblolly pine canopy; 1 ♀, **TX**, Gonzales Co., Palmetto State Park, April 1, 1985, J.B. Woolley.

Distribution (Fig. 21). The southeastern United States (Florida, Georgia, Mississippi, North Carolina, Oklahoma, South Carolina, Texas).

Biology. Unknown.

Variation. No appreciable variation in material examined.

Etymology. *Castaneus* (Latin) referring to the chestnut brown colour of the body.

Remarks. *Idris castaneus* is probably the most widely distributed Nearctic species of the group, but rarely collected.

***Idris chryson* sp.nov.**

(Figs. 5, 6, 7, 22)

Diagnosis. Body golden yellow; temple narrow, 1.5 OD; female A7 longer than A2–A6 combined; epomium rudimentary or not developed; scutellar rim in lateral view projecting over dorsellum; T1 and T2 combined equal to length of T3; T2 with short costae along anterior margin and no longitudinal elements posterad.

Description. **HOLOTYPE** ♀. Length 0.90 mm, body colour golden yellow, except eye and ocelli darker; wings clear.

Head in dorsal view strongly transverse, wider than long (44:22), wider than mesosoma (44:35); vertex with dense fine decumbent hairs, with fine granular sculpture; head in lateral view higher than long (42:22), higher than mesosoma (42:35); eye height:malar space (17:15); postgena with fine granular sculpturing; temple behind eye 1.5 OD; head in frontal view subcircular, wider than high (44:42); eye with dense small hairs; frons with dense semidecumbent whitish hairs, with fine granular sculpturing; eye height:interorbital space (17:26); head in posterior view with hypostomal bridge with upper part smooth, lower half finely granular; occiput below hyperoccipital carina finely granular; antennal segments in relative proportions (15:3.5), (7:3), (3.5:2), (2:2), (1.5:2), (1.5:2.5), (16:7.5); clava as long as A2–A6 (16:16).

Mesosoma in dorsal view slightly longer than wide (37:35); mesoscutum wider than long (35:21), with dense decumbent hairs, and fine granular sculpture; scutellum semicircular, wider than long (25:13), with dense decumbent whitish pilosity, with fine granular sculpture; propodeum evenly canaliculate, with posterolateral corners projecting, blade-like, median keels moderately developed; mesosoma in lateral view longer than high (37:35), moderately convex; scutellar rim projecting over dorsellum; pronotum anteromedially shorter than cervical opening, with fine granular sculpturing, with chain of fine small

crenulae along posterior margin; epomium not developed; posterolateral corners of propodeum sharply pointed, projecting blade-like, posterior margin of propodeum projecting blade-like.

Metasoma in dorsal view longer than wide (50:36); T1 subrectangular, broadly transverse, wider than long (23:8), with longitudinal costae and with anterolateral corners angular, not prominent; T2 trapezoidal, wider than long (34:15), with short costae (one-fifth of T2) along anterior margin, costae only slightly longer than wide, rest of tergite (including sides) with strong granular sculpture; T1 and T2 combined equal in length to T3 (22:22); T3 wider than long (36:24); metasoma in lateral view convex, with strong depression between T1 and T2; S1 and S2 with costae similar to corresponding tergites.

Male. Unknown.

Material Examined. 8 ♀ ♀.

HOLOTYPE: ♀ (CNCI No. 21895), **USA: FL**, Archbold Biological Station, Lake Placid, November, 1979, D. and V. Hardwick. **PARATYPES:** **USA: FL**, 1 ♀, Alachua Co., Gainesville, July 19–25, 1975, E.E. Grissell; 1 ♀, Alachua Co., Gainesville, Doyle Conner Building, September 20–24, 1976, E.E. Grissell; 3 ♀ ♀, Dade Co., Everglades National Park, Long Pine Key, pinelands, June 8 – December 10, 1986, S. and J. Peck, **MT, FIT**; 1 ♀, **GA**, Liberty Co., St. Catherine's Island, August 7–12, 1991, A.V. Sharkov; 1 ♀, **NC**, Northampton Co., 7 km S Jackson, August–September, 1987, bald cypress swamp, BRC Hym. Team, **FIT**.

Distribution (Fig. 22). The southeastern United States (Florida, Georgia, North Carolina).

Biology. Unknown.

Variation. The specimen from North Carolina is larger (length 1.10 mm), and slightly darker. The epomium is usually not developed but is rudimentary in one specimen.

Etymology. Chryson (Greek) meaning gold (diminutive) and referring to the yellow body colour; here as a noun in apposition.

***Idris costatus* sp.nov.**

(Figs. 4, 26)

Diagnosis. Body robust, large, light brown; temple slightly less than 2 OD; T2 with strong short costae reaching only to basal third of tergite; related to *I. leedsi*.

Description. **HOLOTYPE** ♀. Length 1.40 mm, body colour light brown, legs including coxae, mandible except for darker tips, clypeus, radicle, A1, and tegula yellowish, T1 and base of T2 light chestnut brown, posterior two-thirds of T2, T3–T7 dark brown; wing slightly infusate with darker spot below marginal vein.

Head in dorsal view transverse, wider than long (56:35), wider than mesosoma (56:47); vertex with scattered semidecumbent yellowish hairs, with fine granular sculpturing; head in lateral view higher than long (56:35), higher than mesosoma (56:45); eye height:malar space (22:22); postgena with sculpturing similar to vertex; gena behind malar sulcus longitudinally striate; temple slightly less than 2 OD; head in frontal view subcircular, as wide as high (56:56); eye with dense short hairs; frons with scattered semidecumbent hairs, with fine granular sculpturing; eye height:interorbital space (22:32); antennal segments in relative proportions (23:4), (9:4), (5:3), (2:3.5), (2:3.5), (2:4), (21:8.5); clava shorter than A2–A6, (21:22).

Mesosoma in dorsal view slightly longer than wide (48:47); mesoscutum transverse, wider than long (45:30), with dense semidecumbent yellowish hairs, and dense granular sculpturing; scutellum semicircular, wider than long (35:16), with same pilosity and sculpturing as on mesoscutum; propodeum canaliculate, posterolateral corners not projecting,

posterior margin of propodeum weakly raised, median keels weakly developed, not raised; mesosoma in lateral view longer than high (48:45), moderately convex; scutellar rim projecting distinctly, overlapping dorsellum; side of pronotum predominantly with granular sculpturing, with distinct crenulae in lower two-thirds of posterior margin, and with some horizontal rugulae extending from crenulae; epomium distinct, especially in lower half; side of propodeum hairy, with posterolateral corners not projecting.

Metasoma in dorsal view longer than wide (70:48); T1 broadly transverse (30:12), with strong longitudinal costae, anterolateral corners not angular; T2 trapezoidal, wider than long (45:20), with strong longitudinal costae in anterior third, costae ending abruptly, entire remaining surface of T2 evenly granular; T1 and T2 combined longer than T3 (32:25); T3 wider than long (48:25); metasoma in lateral view only moderately convex, depression between T1 and T2 shallow; S1 and S2 with costae similar to corresponding tergites.

Male. Unknown.

Material Examined. 2 ♀ ♀.

HOLOTYPE: ♀ (CNCI No. 21896), **USA:** NC, McDowell Co., 37°00'N, 81°30'W, July–September, 1987, BRC Hym. Team, MT, oak–rhododendron. **PARATYPE:** 1 ♀, **USA:** VA, Montgomery Co., 8 km NW Blacksburg, August 1–17, 1987, BRC Hym. Team, MT, disturbed forest edge.

Distribution (Fig. 26). The southeastern United States (North Carolina, Virginia).

Biology. Unknown.

Variation. The single female paratype is slightly lighter than the holotype.

Etymology. Costatus (Latin) in reference to the strong, short costae on T2.

***Idris lacunatus* sp.nov.**

(Figs. 16, 17, 18, 23)

Diagnosis. Body orange yellow; head slightly wider than high; temples narrow, 1 OD; radicle relatively short; side of pronotum with large crenulae (lacunae) along entire posterior margin; T1 with anterior margin raised, blade-like; T1 and T2 combined equal in length to T3.

Description. **HOLOTYPE** ♀. Length 1.05 mm; body orange yellow, except eye, ocelli, A3–A7 darker, tip of mandible, tibiae, and scutellum darker.

Head in dorsal view subpentagonal, wider than long (48:25), wider than mesosoma (48:38); vertex with scattered, short semiappressed hairs, with fine granular sculpturing; head in lateral view higher than long (45:25), higher than mesosoma (45:40); eye height:malar space (19:19); postgena with sculpturing similar to that on vertex; temple narrow, 1 OD; head in frontal view subcircular, slightly wider than high (48:45); eye with dense long hairs; frons with scattered semiappressed pilosity, except glabrous medially in lower half, with fine granular sculpturing; eye height:interorbital space (19:29); head in posterior view with junction of hyperoccipital-occipital carina slightly sinuate; hypostomal carina weakly developed; hypostomal bridge predominantly smooth; occiput below hyperoccipital carina with fine granular sculpturing; antennal segments in relative proportions (21:4), (9:3), (5:2), (2:2), (2:2), (2:2.5), (17:8); clava shorter than A2–A6 (21:17).

Mesosoma in dorsal view longer than wide (48:38); mesoscutum wider than long (24:33), with scattered, semidecumbent, fine whitish pilosity, and fine granular sculpture; scutellum semicircular, wider than long (16:28), with scattered, fine whitish, semiappressed pilosity, with fine granular sculpturing in anterior half, smooth in posterior third; propodeum canaliculate, with widely spaced costae, with median keels projecting posteriorly, posterior margin of propodeum with blade-like rim; mesosoma in lateral view longer than high

(48:40), moderately convex; scutellar rim not projecting over dorsellum; pronotum antero-medially short, about one-half cervical opening; side of pronotum with larger crenulae (lacunae) on lower half, with finer crenulae on upper half; epomium short but strongly developed; mesopleural depression almost smooth, mesopleuron in lower half with coriaceous sculpturing; metapleuron centrally smooth; propodeum with posterolateral corners projecting blade-like.

Metasoma in dorsal view longer than wide (54:36); T1 subtrapezoidal (21:8), with anterior margin raised, blade-like, entire tergite longitudinally costate; T2 wider than long (32:14), with strong longitudinal costae anteriorly, costae continuing in fine longitudinal elements surpassing basal half of tergite, posterior margin and sides of T2 entirely smooth; T1 and T2 as long as T3 (22:22); T3 wider than long (36:22); metasoma in lateral view moderately convex, with moderate depression between T1 and T2; S1 with row of longitudinal costae; S2 with short longitudinal costae continuing in longitudinal element in anterior three-quarters.

Male. Unknown.

Material Examined. 4 ♀ ♀.

HOLOTYPE: ♀ (CNCI No. 21897), **Mexico:** Baja California Sur, Los Barriles, 5–6 May, 1979, M. Wasbauer, MT. **PARATYPES:** 2 ♀ ♀, **Mexico:** Baja California Sur, Los Barriles, April 29 – May 6, 1979, M. Wasbauer, MT; 1 ♀, Baja California Sur, Las Barracas, 30 km E Santiago, May 8, 1984, P. DeBach, pan trap.

Distribution (Fig. 24). Mexico (Baja California).

Biology. Unknown.

Variation. Scutellum in one paratype (Las Barracas) with smooth part on posterior third.

Etymology. *Lacunatus* (Latin) referring to the large transverse crenulae (lacunae) on the side of the pronotum and mesopleuron that give the structure a 'washboard' effect.

Remarks. Although zoogeographically from the Neotropical region (Baja California), this species is more closely related to the Nearctic species of the *melleus*-group (principally in cephalic characters) than to 10 undescribed Neotropical species of this group examined in CNCI.

***Idris leedsii* sp.nov.**

(Fig. 24)

Diagnosis. Body light brown; temples wide, 2.5 OD; T2 with strong short costae reaching on to basal third of tergite; metapleuron without microsculpture, smooth and highly shining; posterior two-thirds of T1 and median part of T3 almost smooth, shining, with extremely delicate coriaceous microsculpture; posterior side of propodeum (below posterior margin) smooth and shining; frons laterad keel smooth; closely related to *I. costatus*, especially in the shape of T1.

Description. **HOLOTYPE** ♀. Length 1.30 mm; body light brown, legs including coxae, mandibles except for darker tips, clypeus, radicle, and A1 yellowish, T1 and base of T2 light chestnut brown, A2–A6 dark brown and clava blackish, hyperoccipital and genal carinae distinctly darkened; fore wing generally infusate, marginal vein very dark, spot around marginal-stigmal veins distinctly darkened.

Head in dorsal view transverse, wider than long (61:35), wider than mesosoma (61:56); vertex with scattered semidecumbent yellowish hairs, with very fine granular sculpturing; head in lateral view higher than long (61:35), distinctly higher than mesosoma (61:48); eye height:malar space (23:26); postgena with sculpturing similar to vertex; gena between malar sulcus longitudinally striate; temple 2.5 OD; head in frontal view subcircular, as high as wide

(61:61); eye with dense short hairs; frons with scattered semidecumbent hairs, with very fine granular sculpturing above anterior ocellus, smooth and highly polished laterad keel; eye height:interorbital space (23:36); antennal segments in relative proportions (24:4), (10:4), (7:3), (3:3.5), (3:3.5), (3:4), (23:9); clava shorter than A2–A6 (23:27).

Mesosoma in dorsal view slightly wider than long (56:52); mesoscutum strongly transverse, much wider than long (56:30), with scattered decumbent yellowish hairs, fine granular sculpturing; humeral sulcus well developed; scutellum semicircular, wider than long (44:20), with same pilosity and sculpturing as mesoscutum; propodeum canaliculate; posterolateral corners not projecting, posterior margin of propodeum weakly raised, median keels weakly developed, not raised, part of propodeum below posterior margin smooth and shining, apical margin of nucha crenulate; mesosoma in lateral view longer than high (52:48), moderately convex; scutellar rim projecting slightly, overlapping dorsellum; side of pronotum with fine granular sculpture in upper part, with short crenulae and fine transverse ridges and no microsculpture in lower part; epomium sharply developed; mesopleuron generally with microsculpture in upper two-thirds, with five strong transverse ridges below tegula, middle part of mesopleural depression smooth and shining, lower part of mesopleuron with very fine granular microsculpture; mesopleural carina indicated in anterior part as sulcus; metapleuron without microsculpture, smooth and highly shining; side of propodeum sparsely hairy, posterolateral corners not projecting.

Metasoma in dorsal view longer than wide (75:50); T1 broadly transverse subtrapezoidal, with anterior margin slightly upcurved (33:15), with strong longitudinal costae, anterolateral corners not angular; T2 trapezoidal, wider than long (48:24), with strong longitudinal costae in anterior third, costae ending abruptly, entire remaining surface of tergite almost smooth and highly shining with inconspicuous delicate coriaceous microsculpture and with few weak longitudinal elements medially visible only under high magnification; T1 and T2 combined distinctly longer than T3 (38:27); T3 wider than long (50:27), surface generally smooth and highly shining with delicate granular microsculpture especially at sides, median part almost smooth; metasoma in lateral view distinctly convex, depression between T1 and T2 deep; S1 and S2 with costae similar to corresponding tergites.

Male. Unknown.

Material Examined. 1 ♀.

HOLOTYPE: ♀ (CNCI No. 21902), USA: AR, Johnson Co., Baker spring, 22 mi. NW Clarksville (35°45'23"N, 93°31'40"W), August 11 – September 6, 1994, Gene Leeds, YPT.

Distribution (Fig. 24). The midsouthern United States (Arkansas).

Biology. Unknown.

Etymology. Named in honour of Gene Leeds, US Forestry Service, Arkansas, who collected the type specimen.

***Idris melleus* (Ashmead)**

(Figs. 19, 20, 26)

Acoloides melleus Ashmead, 1893: 170–172. Female, type in USNM, examined.

Psilacolus melleus: Kieffer, 1926: 152. Description, generic transfer, keyed.

Acoloides melleus: Muesebeck and Walkley, 1951: 696. Generic transfer.

Idris melleus: Masner and Muesebeck, 1968: 38. Type information.

Diagnosis. Body orange, eye with short hairs; temple behind eye wide, approximately 2.5 OD, pronotum with weak crenulae in lower corner, head in frontal view as high as wide; scutellar rim projecting sharply, T2 medially with longitudinal sculpture exceeding half of tergite; related to both *I. castaneus* and perhaps even closer to *I. costatus* because of the shape of T1.

Description. HOMOTYPE ♀. Length 1.35 mm; body orange, except eye and ocelli, antenna, tip of mandible, mid and hind tibiae, dorsal parts of metasoma darker; forewing with distinct infuscation.

Head in dorsal view subpentagonal, wider than long (53:33), wider than mesosoma (53:46); vertex with short semiappressed pilosity, with fine granular sculpture; head in lateral view higher than long (53:33); head height:mesosoma height (53:48); eye height:malar space (18:22); postgena with sculpture similar to that on vertex; temple broad, 2.5 OD; head in frontal view subcircular, as wide as high (53:53); eye with scattered short hairs; frons with scattered semiappressed pilosity; eye height:interorbital space (18:31); head in posterior view with hypostomal bridge not visible; occiput below hyperoccipital carina with granular sculpture; antennal segments in relative proportions (24:4), (8:3.5), (7:3), (2.5:2.5), (2.5:2.5), (3:4), (21:8); clava shorter than A2–A6 (21:23).

Mesosoma in dorsal view longer than wide (51:46); mesoscutum wider than long (41:27), with scattered, semidecumbent, fine whitish pilosity, with fine granular sculpture; scutellum semicircular, wider than long (31:17), with scattered, fine whitish, semidecumbent pilosity laterally only, with fine granular sculpture; propodeum with widely spaced costae, with median keels only slightly raised, posterolateral corners not pointed, posterior margin only moderately raised; mesosoma in lateral view longer than high (51:48), distinctly convex; scutellum blade-like, sharp, projecting over dorsellum; side of pronotum predominantly granular, on lower half with weak horizontal crenulae; epomium strongly developed; propodeum canaliculate, widely spaced, costae becoming irregular near lateral corners of propodeum, median keels low, not projecting.

Metasoma in dorsal view longer than wide (70:45); T1 subrectangular, wider than long (25:15), with strong longitudinal costae, anterolateral corners not distinctly angular; T2 longer than wide (20:45), with strong longitudinal costae in anterior quarter, costae continuing in longitudinal irregular sculpture clearly exceeding basal half of tergite; T1 and T2 combined longer than length of T3 (31:26); T3 wider than long (26:45); metasoma in lateral view distinctly convex, depression between T1 and T2 deep; S1 and S2 with costae similar to corresponding tergites.

Male. Unknown.

Material Examined. 6 ♀ ♀ including female holotype.

HOMOTYPE: ♀, CANADA: ON, Aylmer, September 8, 1978, sweeping in forest, L. Masner; USA: 1 ♀, IL, Volo Bog, September 30, 1953, Mills and Evans; 1 ♀, MS, Issaquena Co., October 2, 1980, Masner and Bowen; 1 ♀, MO, Wayne Co., Williamsville, October 1988, J.T. Becker, MT; 1 ♀, VA, Louisa Co., 4 mi. S Cuckoo, August 23 – September 11, 1981, D.R. Smith, MT.

Distribution (Fig. 25). Canada (Ontario) and the United States (Illinois, Mississippi, Missouri, Virginia).

Biology. Host and habits unknown. Adults occur in a variety of habitats in late summer and fall (August–October).

Variation. Minimum variation encountered.

***Idris onychion* sp.nov.**

(Figs. 2, 3, 24)

Diagnosis. Body golden yellow; temple narrow, slightly less than 1 OD; frontal keel not reaching anterior ocellus; scutellum subtriangular, non-convex, with posterior rim projecting strongly, crenulae along rim diminishing toward apex of rim and medially absent; apex of scutellar rim in lateral view slightly upcurved, projecting over dorsellum; related to *I. pulvinus*.

Description. HOLOTYPE ♀. Length 1.20 mm, body golden yellow, except eye and ocelli darker, mandible darker red; wings clear.

Head in dorsal view subpentagonal, wider than long (49:23), wider than mesosoma (49:47); vertex with short semiappressed pilosity, with fine granular sculpturing; head in lateral view higher than long (50:23), much higher than mesosoma (50:37); eye height:malar space (21:22); postgena with sculpturing similar to vertex; temple narrow, slightly less than 1 OD; head in frontal view subcircular, as wide as high (50:49); eye with scattered minute hairs; frons with scattered semidecumbent whitish hairs, upper half with granular sculpture, frontal keel weakly developed, not reaching median ocellus; eye height:interorbital space (19:28); head in posterior view with hypostomal bridge smooth; occiput below hyperoccipital carina with fine coriaceous sculpture; antennal segments in relative proportions (21:3.5), (7:3), (5:2.5), (2:2.5), (2:2.5), (2.5:3), (17:6.5); clava shorter than A2–A6 (17:20).

Mesosoma in dorsal view slightly wider than long (47:45); mesoscutum broadly transverse, wider than long (43:28), with scattered appressed whitish hairs, and fine granular sculpture; humeral sulcus distinctly developed; scutellum subtriangular, wider than long (35:15), with scattered semidecumbent whitish hairs, and fine granular sculpture; scutellar rim strongly produced posteromedially into semitransparent finger-nail-like blade, with crenulae gradually diminishing toward apex of rim, extreme apex without crenulae; scutellum in lateral view non-convex, gradually sloping with apex of rim slightly uplifted (Fig. 2); propodeum glabrous dorsally, canaliculate, with strong costae, median keels of propodeum projecting slightly, posterior margin of propodeum projecting only moderately; mesosoma in lateral view slightly longer than high (45:33), mesoscutum and scutellum relatively flattened, scutellar rim projecting distinctly over dorsellum, slightly upcurved at apex; pronotum anteromedially about as high as diameter of cervical opening; side of pronotum with only three minute crenulae in extreme ventral corner, otherwise pronotum predominantly coriaceous; epomium long and strongly developed; mesopleural depression not well defined, partly smooth, partly coriaceous, rest of mesopleuron strongly coriaceous.

Metasoma in dorsal view longer than wide (58:36); T1 subtrapezoidal, wider than long (20:13), with longitudinal costae, and with anterolateral corners acute; T2 wider than long (33:17), with short strong costae anteriorly, and no longitudinal elements beyond; T1 and T2 combined longer than length of T3 (30:23); T3 wider than long (36:23); metasoma in lateral view only slightly convex with moderate cleft between T1 and T2; S1 with longitudinal keels; S2 with extremely short longitudinal keels.

ALLOTYPE ♂. Differs from female as follows: head in frontal view wider than high (46:39); lateral ocellus distinctly larger than in female; temple less than 1 OD; eye height:malar space (18:16); antennal segments in relative proportions (18:4), (6:4), (7:4), (5:4), (5:4), (4:4), (4:4), (4:4), (4:4), (4:4), (11:3.5); fore wing slightly infusate, generally wider and longer than in female.

Material Examined. 38 ♀ ♀, 14 ♂ ♂.

HOLOTYPE: ♀ (CNCI No. 21898), USA: FL, Dade Co., Everglades National Park, Long Pine Key, pinelands, September 5 – December 10, 1986, S. and J. Peck, MT, FIT. ALLOTYPE: ♂, USA: FL, Dade Co., Everglades National Park, Long Pine Key, pinelands, June 8 – August 26, 1986. PARATYPES: 13 ♀ ♀, 10 ♂ ♂, USA: FL, Dade Co., Everglades National Park, Long Pine Key, pinelands, June 8 – December 10, 1986, S. and J. Peck, MT, FIT; 2 ♀ ♀, Monroe Co., Everglades National Park, 1.5 km NW Royal Palm, November 1, 1984 – April 28, 1985, hardwood hammock forest, S. and J. Peck, MT, FIT; 2 ♀ ♀, 1 ♂, Alachua Co., Gainesville, October 1983, June 1984, J.R. Wiley, PT; 1 ♀, same locality, August 9–15, 1975, E.E. Grissell; 1 ♂, Gainesville, AEIC grounds, July 10–14, 1987, BRC Hym. Team; 4 ♀ ♀, Alachua Co., Gainesville, Doyle Conner Building, September 14 – November 3, 1976, E.E. Grissell; 3 ♀ ♀, 1 ♂, same locality, July 14 – October 15, 1978,

L. Stange, PT; 1 ♀, Duval Co., 2 mi. W Maxville, May 20, 1976, Barracenia; 1 ♀, Manatee Co., Bradenton, October 10–26, 1989, C.M. Yoshimoto, PT; 6 ♀ ♀, GA, McIntosh Co., Sapelo Island, June–July, 1987, live oak forest, BRC Hym. Team, MT, FIT; 3 ♀ ♀, Tift Co., 13 km NW Tifton, August–October 17, 1985, M. Keller, MT, PT; 2 ♀ ♀, Liberty Co., St. Catherines Island, September 24 – October 2, 1992, A.V. Sharkov.

Distribution (Fig. 26). The United States (Florida, Georgia).

Biology. Unknown.

Variation. The middle tooth of the mandible in some specimens can be smaller than the upper and lower teeth.

Etymology. Onychion (Greek) meaning a finger nail (diminutive), referring to the protruded apex of the scutellar rim; here as a noun in apposition.

***Idris ornatus* sp.nov.**
(Figs. 14, 26)

Diagnosis. Body dark chestnut brown; temple narrow, 1 OD; head in frontal view slightly higher than wide, frontal keel not reaching anterior ocellus; interorbital space equal to eye height; pronotal shoulders strongly developed; notaulus present, abbreviated rudimentary; propodeum medially longer than half length of T1; mesopleural carina sulciform; T3 with fine irregular longitudinal sculpture anteromedially.

Description. HOLOTYPE ♀. Length 1.60 mm, body colour dark chestnut brown, except legs, mandible, and antenna light brown; wings slightly infusate.

Head in dorsal view transverse (52:28), wider than mesosoma (52:46); vertex with scattered semidecumbent hairs, with strong granular sculpturing; head in lateral view higher than long (55:28), higher than mesosoma (55:45); eye height:malar space (25:23); postgena with strong granular sculpturing; temple narrow, 1 OD; head in frontal view subrhomboidal, slightly higher than wide (55:52) with cheeks strongly converging below; eye with dense pilosity; frons with dense semidecumbent hairs, upper frons with strong granular sculpture, frontal keel well developed but reaching only two-thirds to anterior ocellus; eye height:interorbital space (25:25); head in posterior view with occiput below hyperoccipital carina with granular sculpturing; antennal segments in relative proportions (22:3), (9:3), (5:2.5), (2.5:2.5), (2:2.5), (2:2.5), (20.5:8); clava shorter than A2–A6 (20.5:22).

Mesosoma in dorsal view distinctly elongate (60:46), pronotal shoulders strongly developed, rounded; mesoscutum only slightly wider than long (45:38), with dense semidecumbent hairs, with strong granular sculpture; notaulus abbreviated, indicated at extreme base as minute indentation; scutellum subtriangular, wider than long (33:20), with pilosity and sculpturing similar to mesoscutum; propodeum longer at meson than half of T1 (10:16), canaliculate, with strong costae, posterior margin of propodeum strongly projecting blade-like, median keels developed, but not projecting; mesosoma in lateral view longer than high (60:45), dorsally moderately convex; scutellar rim broad, semitransparent, projecting slightly over dorsellum; side of pronotum in lower half with deep transverse crenulae, upper half (pronotal shoulders) with granular sculpturing; epomium weakly developed; mesopleural carina weakly developed, sulciform (impressed); posterolateral corners of propodeum projecting, blade-like.

Metasoma in dorsal view distinctly elongate (78:49); T1 trapezoidal, wider than long (31:16), with strong longitudinal costae; T2 transverse, wider than long (47:20), with extreme anterior margin smooth, following space with long strong costae reaching medially near posterior margin, posterior margin with narrow smooth band, tergite laterally with strong granular sculpturing; T1 and T2 combined longer than length of T3 (35:30); T3 wider than long (49:30), with narrow smooth band along anterior margin followed by irregular

longitudinal sculpture anteromedially, otherwise entirely with strong granular sculpture, except for narrow smooth posterior band; metasoma in lateral view only moderately convex, with moderate depression between T1 and T2; S1 and S2 with costae similar to corresponding tergites.

Male. Unknown.

Material Examined. 5 ♀ ♀.

HOLOTYPE: ♀ (CNCI No. 21899), **USA: MD**, Prince George Co., Beltsville, forest, June 4, 1992, L. Masner, SS. **PARATYPES:** 4 ♀ ♀, **USA: MD**, Prince George Co., Patuxent Wildlife Research Station, June 9, 1983, L. Masner, SS, and June 6, 1981, J.M. Heraty.

Distribution (Fig. 27). The United States (Maryland).

Biology. Unknown.

Variation. No variation in the limited material.

Etymology. *Ornatus* (Latin) in reference to the rich decorative sculpture on both the mesosoma and metasoma.

Remarks. *Idris ornatus* is not closely related to any of the Nearctic members of the group, but is related to one undescribed species from Mesoamerica (Mexico, Costa Rica).

***Idris pulvinus* sp.nov.**

(Figs. 1, 25)

Diagnosis. Body orange yellow; mandible with lower tooth distinctly longest; scutellum subtriangular with apex of rim non-crenulate; propodeum not distinctly canaliculate; side of pronotum without crenulae; T1 in lateral view strongly convex, pillow-shaped, anterior half smooth, without costae; related to *I. onychion*.

Description. **HOLOTYPE** ♀. Length 1.10 mm, body colour orange yellow, except eye, ocelli, clava, tip of mandible, T4–T7, and apical tarsomere of legs darker; fore wing infusate in posterior half, with distinct darker spot under marginal and stigmal veins.

Head in dorsal view transverse, much wider than high (48:27), distinctly wider than mesosoma (48:41); vertex with scattered minute decumbent hairs, with fine granular sculpturing; head in lateral view higher than long (50:27), distinctly higher than mesosoma (50:35); eye height:malar space (17:20); postgena with sculpturing finer than on vertex; temple broad, 2 OD; head in frontal view subcircular, slightly higher than wide (50:48); eye with scattered minute hairs; frons with scattered semidecumbent hairs, with fine granular sculpturing, in lower half between facial striae and antennal keel almost smooth and glabrous; eye height:interorbital space (17:29); mandible with lower tooth distinctly longest; head in posterior view with hypostomal bridge and occiput below occipital carina evenly granular; antennal segments in relative proportions (18:3), (7:3), (5:2), (2.5:2), (2:2), (2:2.5), (17:7); clava shorter than A2–A6 (17:20).

Mesosoma in dorsal view as long as wide (37:37); mesoscutum transverse, wider than long (35:21), with scattered short appressed hairs, with fine granular sculpture over entire surface; scutellum subtriangular, wider than long (28:11), with few scattered semidecumbent hairs, with fine granular sculpturing as on mesoscutum; scutellar rim crenulate, crenulae gradually diminishing toward apex, apical part of rim non-crenulate; propodeum not distinctly canaliculate, with irregular longitudinal rugulosity, median keels present but not projecting; mesosoma in lateral view longer than high (37:33), mesoscutum and scutellum moderately convex; scutellar rim moderately projecting over dorsellum; pronotum anteromedially only slightly shorter than cervical opening; side of pronotum with granular sculpture on entire surface, with no distinct crenulae; epomium sharp; posterolateral corners of propodeum almost rounded and posterior margin almost ecarinate.

Metasoma in dorsal view distinctly longer than wide (50:32); T1 subrectangular with anterolateral corners distinctly rounded, wider than long (26:10), with anterior two-thirds of tergite almost smooth, posterior one-third with short longitudinal costae; T2 trapezoidal, wider than long (32:12), with fine granular sculpturing with only extremely short punctiform longitudinal costae anteriorly; T1 and T2 combined longer than length of T3 (22:19); T3 wider than long (32:19); metasoma in lateral view strongly convex; T1 distinctly pillow-like convex; depression between T1 and T2 very pronounced; S1 strongly convex, smooth at sides, granular medially, with minute crenulae along posterior margin.

Male. Unknown. We examined two males from St. Catherines Island (GA) caught along with several females of *I. pulvinus* that might represent the opposite sex. However, structural differences other than sexual dimorphism (e.g. shape and sculpture of the scutellum) between these males and the known females of *I. pulvinus* compel us not to make the formal sex association.

Material Examined. 19 ♀ ♀.

HOLOTYPE: ♀ (CNCI No. 21900), **USA: FL**, Dade Co., Everglades N.P., Long Pine Key, pinelands, June 8 – August 26, 1986, S. and J. Peck, MT, FIT. **PARATYPES:** **USA:** 1 ♀, **AR**, Lonoke Co., 3 mi. S of Cabot, July 22, 1968, J.W. Stewart, vacuum on sweet potatoes; 3 ♀ ♀, **FL**, Dade Co., Everglades National Park, Long Pine Key, pinelands, June 8 – December 9, 1986, S. and J. Peck, MT, FIT; 1 ♀, Archer Co., April 6–10, 1984, M. Sanborne, pan trap; 1 ♀, Marion Co., Ocala State Forest, Juniper Springs, April 22, 1989, J.S. Noyes; 1 ♀, Putnam Co., Welake Experimental Station, May 5, 1983, C.E. Reeves, sweep; 3 ♀ ♀, **GA**, Liberty Co., St. Catherines Island, August 7–12, 1991, A.V. Sharkov; 4 ♀ ♀, same, September 24 – October 2, 1992; 2 ♀ ♀, **OK**, Latimer Co., Red Oak, July 1993, K. Stephan, FIT; 2 ♀ ♀, **TX**, Brazos Co., Lick Creek Park, College Station, August 4–26, 1987, J. Woolley, FIT.

Distribution (Fig. 28). The United States (Arkansas, Florida, Georgia, Oklahoma, Texas).

Biology. Unknown.

Variation. Microsculpture of the propodeum varies from partly smooth to entirely rugulose; anterior half of T1 with predominantly fine granular sculpturing; metapleuron with varying sculpture, from partly smooth to distinctly granular.

Etymology. Pulvinus (Latin) meaning a pillow or cushion in reference to the shape of segment 1 of the metasoma; here as a noun in apposition.

***Idris spartinae* sp.nov.**

(Figs. 10, 11, 12, 13, 26)

Diagnosis. Body chestnut brown; female temple very broad, 3.5 OD; mandible with lower tooth longest; T1 three times wider than long; T2 anteriorly with extremely short (almost point-like) costae; closely related to *I. triticola*.

Description. **HOLOTYPE** ♀. Length 1.10 mm, body colour chestnut brown except antenna and coxae light brown, rest of legs lighter yellow; fore wing with dark spot below marginal-stigmal vein, and generally infuscate in posterior half.

Head in dorsal view transverse, wider than long (50:32), wider than mesosoma (50:41); vertex with scattered semidecumbent hairs, with fine granular sculpturing; head in lateral view higher than long (52:32), much higher than mesosoma (52:38); eye height:malar space (20:21); postgena sculpture similar to vertex; temple very broad, 3.5 OD; head in frontal view oval, slightly higher than wide (52:50), eye small relative to upper part of head; eye with scattered minute hairs; frons with fine granular sculpturing, and scattered semidecumbent hairs; frons along frontal keel almost smooth and glabrous; eye height:interorbital space

(20:30); mandible with lower tooth longest; head in posterior view with hypostomal carina not visible; occiput below hyperoccipital carina granular; antennal segments in relative proportions (20:4), (8:3.5), (5:3), (2:2.5), (2:3), (2:3.5), (16:7.5); clava shorter than A2–A6 (16:19).

Mesosoma in dorsal view slightly longer than wide (45:41); mesoscutum much wider than long (39:25), with dense short appressed pilosity, and fine granular sculpture; scutellum semicircular, wider than long (32:15), with pilosity in anterior part similar to mesoscutum, in posterior part hairs semidecumbent, with sculpturing as in mesoscutum; propodeum canaliculate, median keels flat, not projecting over dorsellum, weakly developed, posterior margin of propodeum only weakly raised; mesosoma in lateral view longer than high (45:38), moderately convex; scutellar rim not projecting; side of pronotum with granular sculpturing, with row of crenulae along two-thirds of posterior margin, with irregular coriaceous sculpture anterad crenulae; epomium sharp, strongly developed; propodeum with postero-lateral corners hairy, not projecting.

Metasoma in dorsal view longer than wide (65:41); T1 broadly transverse (30:10), with anterolateral corners not angular, and with strong longitudinal costae; T2 trapezoidal, wider than long (42:20), with extremely short, almost point-like longitudinal keels along anterior margin, and no longitudinal sculpture posterad, tergite entirely evenly granular; T1 and T2 as long as T3 (31:31); T3 transverse (41:31); metasoma in lateral view strongly convex dorsally; depression between T1 and T2 deep; S1 and S2 with costae similar to corresponding tergites.

ALLOTYPE ♂. Differs from female as follows: head in frontal view wider than high (47:42); temple broad, only 2 OD; metapleuron mostly smooth; fore wing slightly wider, and brown spot below marginal vein distinctly paler; antennal segments in relative proportions (20:5), (7:5), (7:5), (5:5), (4:5), (4:5), (4:5), (4:5), (4:5), (4:5), (12:5).

Material Examined. 8 ♀♀, 5 ♂♂.

HOLOTYPE: ♀ (CNCI No. 21901), USA: FL, Levy Co., Cedar Key, March 6, 1980, L.A. Wood. ALLOTYPE: USA: GA, Sapelo Island, October 9, 1963, E.P. Odum, on *Spartina*. PARATYPES: 1 ♀, USA: FL, Levy Co., Cedar Key, May 8–30, 1976, salt marsh, E.E. Grissell; 2 ♀♀, same locality, March 6, 1980, L.A. Wood; 1 ♂, Duval Co., Mayport, October 20, 1976, Denno and Grissell, on *Spartina alterniflora* Lois, MT; 2 ♀♀, GA, Sapelo Island, June, 1963, H. Kale; 2 ♀♀, 3 ♂♂, same locality, October 9, 1963, E.P. Odum, on *Spartina*.

Distribution (Fig. 29). The United States (Florida, Georgia).

Biology. Unknown. Most individuals were caught in salt marsh dominated by *Spartina*. Two generations are indicated by the March and October collection.

Variation. Sculpture on propodeum laterally in extreme corners becoming rugulose in some individuals.

Etymology. The specific name is derived from *Spartina*, a plant dominating the type locality.

Idris triticola sp.nov.

(Figs. 8, 9, 26)

Diagnosis. Body light yellow; female temple broad, 3 OD; T1 3.8 times wider than long; T2 costae extremely short; closely related to *I. spartinae*.

Description. HOLOTYPE ♀. Length 1.10 mm, body light yellow, except eye, ocelli, clava darker; wings with slight infuscation.

Head in dorsal view subpentagonal, wider than long (50:31), distinctly wider than mesosoma (50:39); vertex with scattered, appressed hairs, with fine granular sculpturing;

head in lateral view higher than long (52:31), as high as mesosoma (52:52); eye height:malar space (18:21); postgena with sculpturing similar to that on vertex; temple very broad, 3 OD; head in frontal view subcircular, almost as wide as high (52:50); eye with scattered minute hairs; frons with scattered semiappressed pilosity, frontal keel strongly developed, extending to anterior ocellus; eye height:interorbital space (18:31); head in posterior view with occiput below hypostomal carina with granular sculpturing; antennal segments in relative proportions (20:4), (7:4), (4:3), (3:3), (2:3), (2:3.5), (16:8); clava shorter than A2–A6 (16:21).

Mesosoma in dorsal view longer than wide (41:39); mesoscutum broadly transverse, width:length (39:26), with scattered, semidecumbent, fine whitish pilosity, and fine granular sculpture; scutellum broadly semicircular, wider than long (30:15) with scattered, fine whitish, semiappressed pilosity, and fine granular sculpture; propodeum with scattered, semiappressed pilosity, canaliculate, with widely spaced costae, with minute median keels; mesosoma in lateral view slightly longer than high (41:39), moderately convex; scutellar rim not projecting over dorsellum; side of pronotum along posterior margin with short crenulae slightly exceeding lower half of pronotum; epomium well developed; mesopleuron with smooth mesopleural depression.

Metasoma in dorsal view longer than wide (58:40); T1 strongly transverse, wider than long (27:7), with strong longitudinal costae, anterolateral corners almost rounded; T2 wider than long (39:19), with extremely short, strong costae along anterior margin, and no longitudinal elements beyond, finely granular entirely; T1 and T2 combined as long as length of T3 (26:26); T3 wider than long (40:26); metasoma in lateral view highly convex with considerable cleft between T1 and T2.

Male. Unknown.

Material Examined. 2 ♀ ♀.

HOLOTYPE: ♀ (USNM), **USA:** KS, Wellington, E.G. Kelly, reared from wheat.
PARATYPE: ♀, same locality and data.

Distribution (Fig. 30). The United States (Kansas).

Biology. Unknown; two females were found in wheat fields.

Variation. None.

Etymology. *Triticola* (Latin) in reference to the presumed association of this species with wheat (*Triticum*).

Remarks. Although the main difference between *I. triticola* and *I. spartinae* is in the body colour, we prefer to treat these as distinct species largely because of disjunct distribution and profound differences in their choice of habitats.

Key to Nearctic Species of the *melleus*-group

1. Segment 1 of metasoma (T1 and S1) in lateral view strongly convex, almost pillow-shaped (Fig. 1); anterior half of T1 smooth, without longitudinal costae; (body orange yellow; scutellar rim postero-medially non-crenulate) (south and southeastern USA) *pulvinus* sp.nov. (Fig. 1) ♀
- Segment 1 of metasoma (T1 and S1) in lateral view not strongly convex; T1 in dorsal view entirely with longitudinal costae. 2
- 2(1) Scutellum in dorsal view broadly subtriangular (Fig. 3); scutellar rim almost lamellate, expanded medially, almost transparent, with crenulae gradually diminishing toward apex; scutellum in lateral view not convex, with posterior rim distinctly projecting medially over dorsellum (Fig. 2); (body dark orange yellow; side of pronotum without crenulae) (southeastern USA) *onychion* sp.nov. (Figs. 2, 3) ♀ ♂
- Scutellum in dorsal view semicircular; scutellar rim expanded or not, less transparent and with crenulae of subequal size along entire margin; scutellum in lateral view convex, scutellar rim projecting or not over dorsellum 3

- 3(2) Metapleuron smooth and highly shining, with no microsculpture; posterior part of T2 and T3 medially almost smooth; frons laterad keel smooth (midsouthern USA). *leedsi* **sp.nov.** ♀
 — Metapleuron at least partly with coriaceous granular microsculpture; posterior part of T2 and T3 medially with distinct granular microsculpture; frons laterad keel with fine coriaceous microsculpture. 4
- 4(3) T2 with strong costae ending abruptly before median half of tergite (Figs. 4, 5, 8, 11). 5
 — T2 with strong costae continuing gradually in weakening longitudinal elements reaching or surpassing median half of tergite (Figs. 14, 15, 17, 21) 8
- 5(4) T2 costae elongate, about one-third length of tergite (Fig. 4); larger individuals 1.4 mm (eastern USA) *costatus* **sp.nov.** (Fig. 4) ♀
 — T2 costae shorter, almost punctiform, much shorter than one-third length of tergite (Figs. 5, 8, 11); smaller individuals 0.9–1.1 mm. 6
- 6(5) Temple narrow, 1.5 OD (Fig. 7); female head in frontal view with low vertex; scutellar rim in lateral view projecting over dorsellum (Fig. 6); epomium rudimentary or not developed (southeastern USA) *chryson* **sp.nov.** (Figs. 5, 6, 7) ♀
 — Temple distinctly wider, approximately 3 OD (Fig. 10); female head in frontal view with high vertex (Fig. 12); scutellar rim in lateral view not projecting over dorsellum (Figs. 9, 10); epomium strongly developed. 7
- 7(6) Body golden yellow; T1 more than three times wider than long (associated with wheat in mid-western USA). *triticola* **sp.nov.** (Figs. 8, 9) ♀
 — Body chestnut brown; T1 three times wider than long (associated with *Spartina* in southeastern USA) *spartinae* **sp.nov.** (Figs. 10, 11, 12, 13) ♀ ♂
- 8(4) Body chestnut brown. 9
 — Body orange or golden yellow. 10
- 9(8) Sides of pronotum with large deep crenulae along entire posterior half; propodeum at meson distinctly longer than half length of T1 (Fig. 14); temple narrow, approximately 1 OD; head in frontal view as wide as high, body length 1.6 mm; interorbital space equal to eye height (eastern USA) *ornatus* **sp.nov.** (Fig. 14) ♀
 — Sides of pronotum with only weak crenulae in lower corner; propodeum at meson shorter than half length of T1 (Fig. 15); temple wide, 2.5 OD; head in frontal view as high as wide; body length 1.1 mm; interorbital space distinctly larger than eye height (south and southeastern USA) *castaneus* **sp.nov.** (Fig. 15) ♀ ♂
- 10(8) Temple narrow, approximately 1 OD; sides of pronotum with large crenulae along entire posterior margin (Fig. 18); head in frontal view slightly wider than high (Fig. 16); T1+T2 equal in length to T3; eye densely hairy (Mexico, Baja California) *lacunatus* **sp.nov.** (Figs. 16, 17, 18) ♀
 — Temple wider, approximately 2.5 OD; sides of pronotum with weak crenulae in lower corner (Fig. 20); head in frontal view as wide as high; T1+T2 longer than T3; eye with rudimentary hairs (south and southeastern USA and southern Canada) *melleus* (Ashmead) (Figs. 19, 20) ♀

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FIGS. 1-4. 1, *Idris pulvinus*, habitus; 2 and 3, *I. onychion*, scutellum; 4, *I. costatus*, mesosoma-metasoma.

FIGS. 5-9. 5-7, *Idris chryson*: 5, metasoma; 6, mesosoma-metasoma; 7, head. 8-9, *I. triticola*: 8, mesosoma-metasoma; 9, mesosoma.

FIGS. 10-14. 10-13, *Idris spartinae*: 10, habitus; 11, metasoma; 12, female head; 13, male head. 14, *I. ornatus*, mesosoma-metasoma.

FIGS. 15–18. 15, *Idris castaneus*, mesosoma-metasoma. 16–18, *I. lacunatus*: 16, head; 17, metasoma; 18, habitus.

19

20

FIGS. 19 and 20. *Idris melleus*, habitus.

FIGS. 21 and 22. 21, distribution of *Idris castaneus*; 22, distribution of *I. chryson*.

FIGS. 23 and 24. 23, distribution of *Idris lacunatus*; 24, distribution of *I. leedsi* and *I. onychion*.

FIGS. 25 and 26. 25, distribution of *Idris pulvinus*; 26, distribution of *I. costatus*, *I. melleus*, *I. ornatus*, *I. triticola*, and *I. spartinae*.