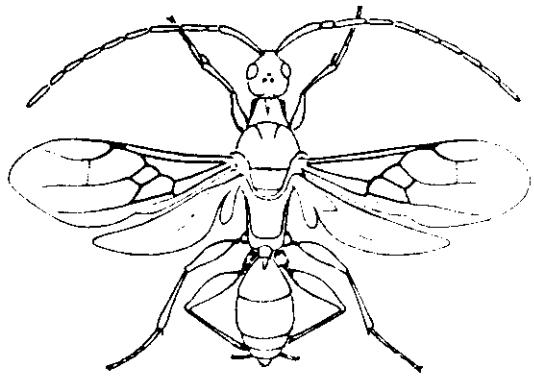
SPHECOS

A FORUM FOR ACULEATE WASP RESEARCHERS



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Editorial Stuff

Sphecos 15 wraps up our double issue. Included here are some lengthy scientific notes, collecting reports and recent literature. I'd like once more to thank Rebecca Friedman Stanger and Ludmila Kassianoff for making some translations (French and Russian respectively).

The figure that I used on the masthead is from an interesting paper by H. Bürgis (see recent literature). The wasp is the embolemid Ampulicomorpha confusa Ashmead. If any of you would like to submit drawings for use on the masthead of future issues of Sphecos send them to me. Keep in mind that they should be simple, clear line drawings, and it would be very helpful if they were in the appropriate size to fit although I can reduce large figures.

Scientific Notes

ZETA ARGILLACEUM ON THE MOVE

by

Lionel Stange
(Florida State Dept. of Agriculture, Gainesville, Fla. 32601)

Menke & Stange (1986, Fla. Ent. 69:697) give the first records of Zeta argillaceum (Linnaeus) for Florida (Dade Co.). The earliest record was from Miami, July, 1975. A recent collecting trip to the Florida Keys made by Charles Porter and I turned up three new records. One male Zeta was taken at Tavernier, Key Largo, on January 8, 1987. Another male was taken in the Lower Keys at the Botanical Garden on Stock Island. Four males and three females were taken on Key West behind the airport. All of these localities were highly disturbed ones. Most of the collecting time was spent in a climax subtropical hammock on Big Pine Key, but no specimens were obtained there. Perhaps newly introduced species such as Zeta can colonize disturbed areas more easily than stable, climax habitats.

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DE LA VARIATION DES COULEURS DE BASE CHEZ LES POMPILIDAE EUROPÉENS

by
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Dans les 2 derniers numéros de Sphecos (12:3 et 13:12), sous les titres "Color Patterns in Wasps" et "Geographic Color Forms in Palearctic Pompilidae", Peter Van Ooijen (Utrecht, Nederland) parle do phénomène de la variation des couleurs (noir et touge) chez les Pompilides européens.

Il postule qu'au sud d'une ligne traversant le sud de la France, toutes les guêpes sont noires alors qu'au nord de cette même ligne, elles sont rouges. Je crois bien connaître les Pompilidae que je récolte et étudie depuis plus de 40 années, aussi me suis-je senti particuliérement concerné par ces propos. Traduire, comme le fait van Ooijen, un probléme aussi complexe que celui de la variabilité des couleurs chez les Pompolides d'Europe me semble á tout le moins léger, excessif et irréaliste.

Beaucoup d'espéces noires se rencontrent indifféremment au nord et au sud de la ligne citée par van Ooijen et il en est de même pour les espéces où le rouge domine. Dans la plupart des cas, aucun phénomène de vicariance n'est détectable dans la coloration.

Chez d'autres, cependant, plus on se dirige vers le sud (midi de la France, Corse, Péninsule ibérique), plus la fréquence des individus mélanisants est élevée. La variation des couleurs se manifeste de différentes façons; parfois au niveau des pattes: Cryptocheilus fabricii V. Linden et sa forme meridionalis Junco; versicolor Scopoli er versicolor nigripes Haupt, variabilis Rossius er sa forme non nommée: nigripes auct. nec Costa; Aporinellus sexmaculatus Spinola er la forme asiaticus Gussakowskij; Episyron gallicum Tournier et tertius Blüthgen, etc.

Le plus souvent, une mélanisation partielle ou totale se marque au niveau de l'abdomen; des espéces en partie rouge produisant des formes structurellement identiques nais á abdomen fortement ou totalement obscurci; plus rarement au niveau do thorax, voire do la tête.

Citons pour exemples: Cryptocheilus egregius Lepeletier (bisdecoratus Costa, nigricans Junco), notatus Rossius (melanius Lepeletier); Priocnemis bellieri Sichel (addita Junco et leucocoelius Costa), rugosus Sustera (capciosus Junco), minuta V. Linden (nigritulus Wolf), coriacea Dahlbom (medoca Wolf), susterai Haupt (gasconia Wolf); Auplopus albifrons Dahlman (obscurus Priesner), rectus Haupt (atra Haupt, nigra Priesner); Agenoiodeus nubecula Costa (tristis Priesner), usurarius Tournier (ô entiérement noirforme non nommée), dichrous Brullé (nigriculus Wahis); Arachnospila fumipennis Zettestedt (septimana Wolf), rufa Haupt (melanota Wolf), pseudabnormis Wolf (perraudini Wolf), alpivaqua Kohl (difficilis Haupt), nuda Tournier (consociatus ater Haupt), minutula Dahlbom (apenninusurata Wolf); Anospilus orbitalis Costa (luctigerus Costa); Evagetes dubius V. Linden (obscurodubius Wolf, theodori Wolf), elongatus Lepeletier (infernalis Wolf), pectinipes Linnaeus (minotaurus Wolf), siculus Lepeletier (aterrimus Wolf); Episron rufipes Linnaeus (argyrolepis Costa), albonotatum V. Linden (sardonius Priesner); Tachyagetes filicornis Tournier (graecus Priesner); Anoplius infuscatus V. Linden (meticulosus Costa, petulans Haupt, lusitanicus Wolf & Diniz, fortunatus Wolf, simii Wolf), viaticus Linnaeus (immixtus Tournier), samariensis Pallas (przewalskii Radoszkowski); Eoferreola manticata Pallas (lichtensteini Tournier, iberoturanica Wolf); Entomobora crassitarsis Costa (damryi Tournier, iberus Wolf) etc. Cette liste n'est pas limitative.

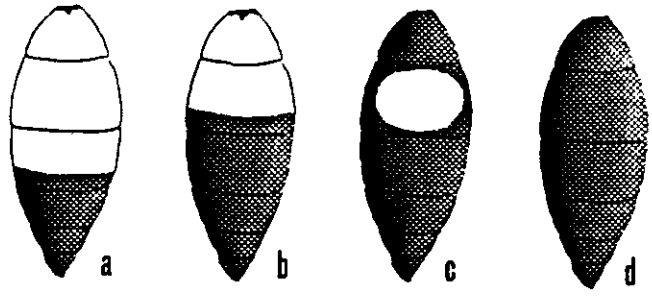
Dans de nombreux cas, il n'est pas possible d'assigner aux formes différemment colorées des aires de répartition particulières. Tous les stades de coloration apparaissent dans une même région, voire dans les mêmes stations (dans un même piége ou sur une même plante).

Parfois, les individus sombres apparaissent sporadiquement çà et là sur toute l'étendue de l'aire de distribution de l'espèce, par exemple la forme gyllenhali Dahlbom chez Caliadurgus fasciatellus Spinola.

Plus rarement, les formes rufinisantes et mélanisantes sont géographiquement isolées, soit d'Ouest en Est (ex: Anospilus orbitalis orbitalis et orbitalis luctigerus Costa), du nord au sud

(ex: Cryptocheilus fabricii fabricii V. Linden er fabricii meridionalis Junco), soit par insularité (ex: Anoplius viaticus viaticas L. et viaticus immixtus Tournier). Dans ces cas seulement, on peut admettre qu'il s'agit de bonnes sous-espèces.

Un bon exemple nous est fourni par le Cryptocheilus notatus Rossius décrit d'Italie avec un abdomen noir à tache rouge sur le 2ème tergite (fig. 1c). Sustera (1924) suggère son identité avec le Pompilus affinis Vander Linden, décrit de Belgique (abdomen rouge sur les 2 premiers tergites et les ⅔ antétieurs du 3ème - fig. 1a) que Berland (1925) identifie avec le Calicurgus apricus Lepeletier (abdomen rouge seulement sur le les tergite et les ⅔ antérieurs du second - fig. 1b) et le Calicurgus melanius Lepeletier (abdomen complètement noir - fig. 1d).



1

Si affinis et melanius sont faciles à charactériser, il en va tout autrement avec apricus et notatus s. stricto chez lesquels on trouve de nombreux intermédiaires (2ème tergite plus ou noins rouge ou les 2 premiers tergites plus ou moins assombris).

L'examen de la distribution des différentes formes en Europe occidentale (Benelux et France continentale) montre que notatus et melanius n'apparaissent que dans la moitié sud du territoire. L'analyse quantitative des données prouve cependant que ces formes ne sont dominantes que dans la partie occidentale (Charente-Maritime, Landes; Aude-Pyrénées orientales et Ardêche-Tarn), leur densité diminuant sensiblement vers l'Est (Alpes de Haute-Provence, Var) où apricus et affinis dominent.

Par contre, dans le Nord et le Centre, affinis est largement dominant, suivi par apricus, les formes mélanisantes n'y existant pas. En Belgique et au Grand-duché de Luxembourg, on ne trouve qu' affinis.

Sur base de ces résultats et tenant compte des proportions relatives des différentes formes (tableau), on peut admettre la validité d'une sous-espèce mélanisante qui porterait le nom de notatus notatus Rossius (formes: notatus s.str. et melanius); les formes claires affinis s.str. et apricus doivent être rassemblées en un seule sous-espèce notatus affinis V. Lindon.

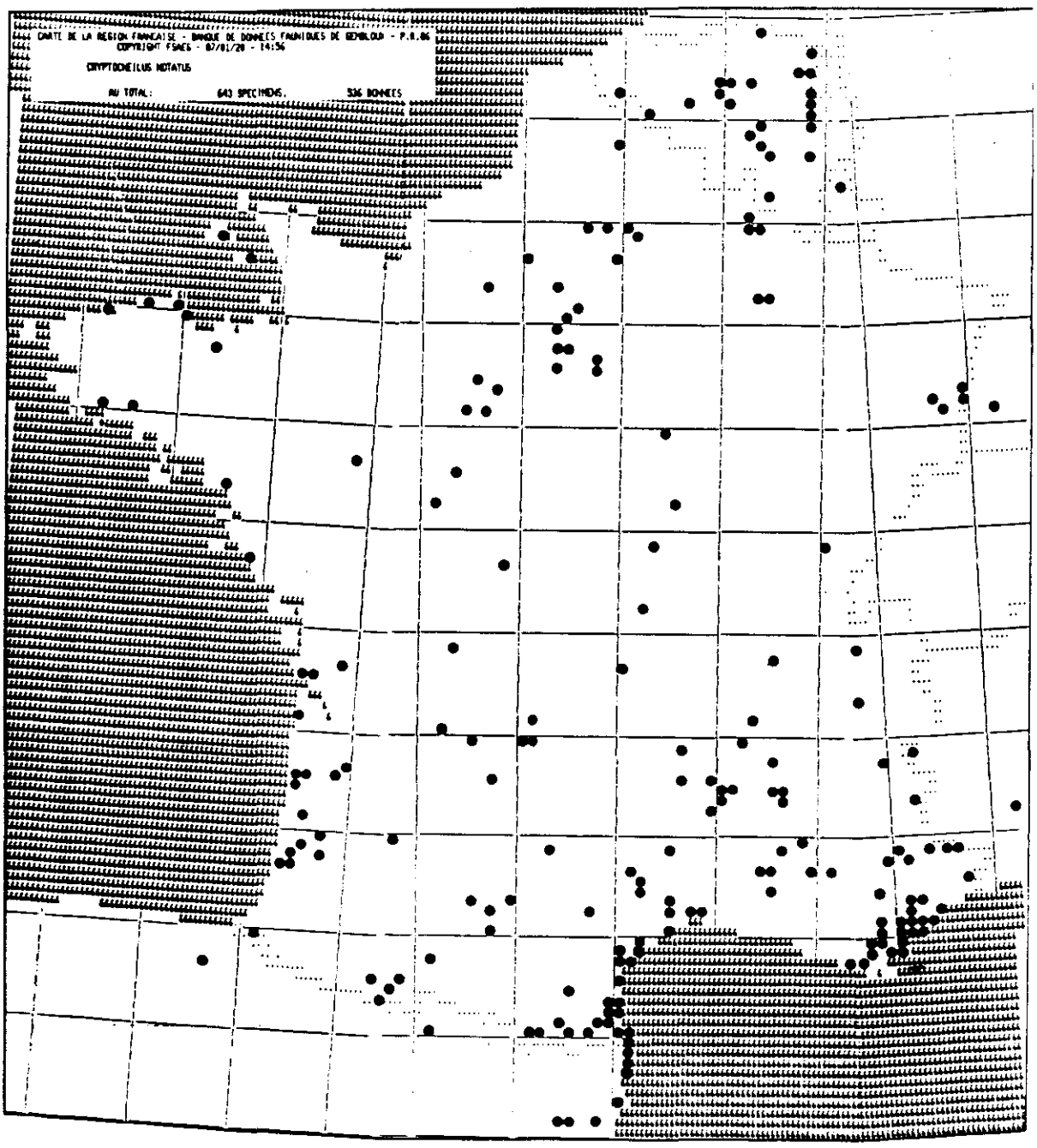
Tableau
Somme des captures

	SPEC.	OCC.	% SPEC.	% OCC.
Cryptocheilus notatus notatus	12	12	1.98	2.36
Cryptocheilus notatus affinis	252	217	41.65	42.72
Cryptocheilus notatus apricus	125	105	20.66	20.67
Cryptocheilus notatus melanius	216	174	35.70	34.25
Nombre total de données	605	508	100.00	100.00

(SPEC.=nombre de spécimens capturés; OCC.=nombre d'occurences).

Carte 1.: Distribution de Cryptocheilus notatus Rossius s.lat.

(643 spécimens-536 données)



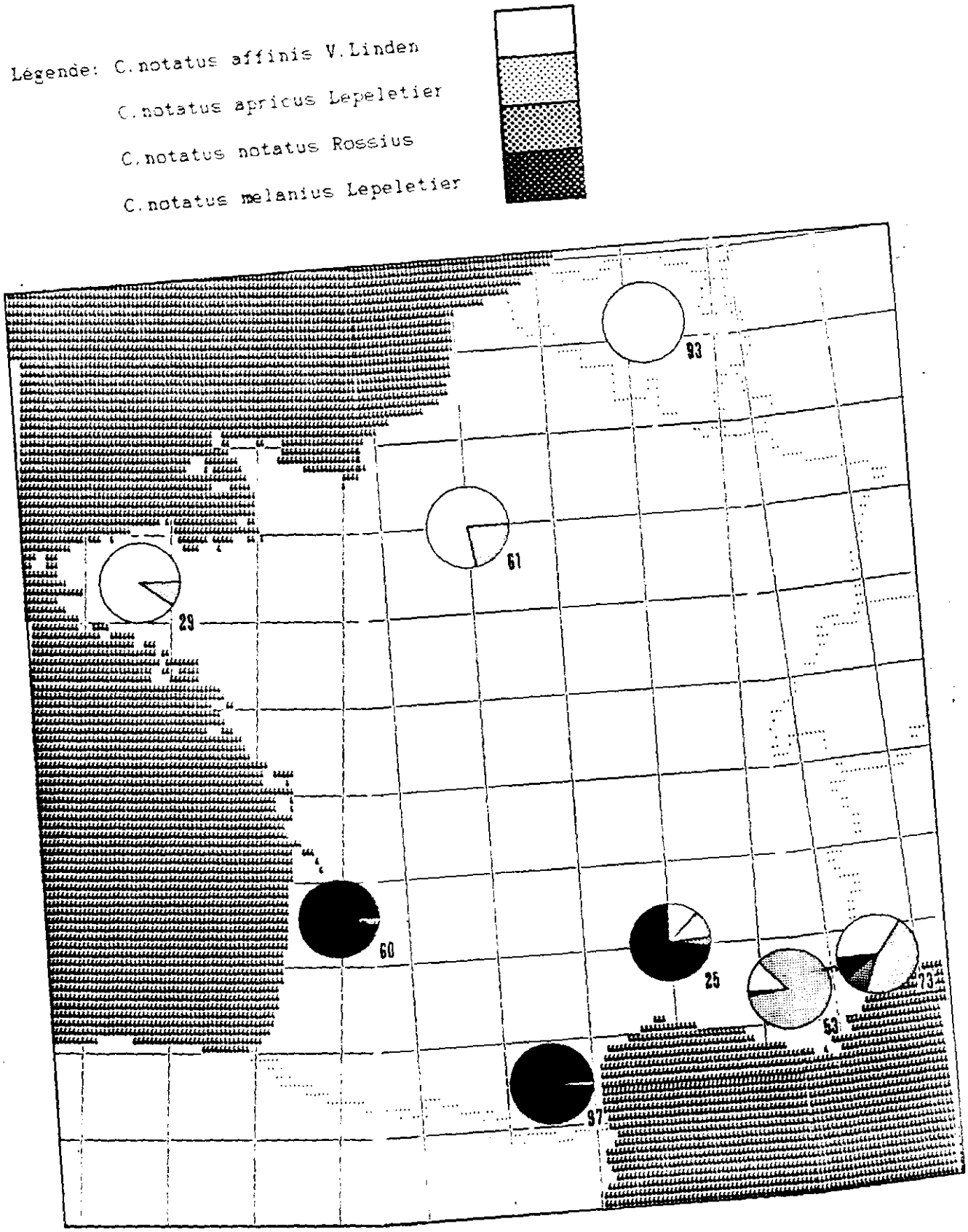
Carte 2.: Analyse quantitative de la répartition des différentes formes pour divers secteurs; les nombres accompagnant les graphiques indiquent le nombre de spécimens examinés.

Légende: C. notatus affinis V. Linden

C. notatus apricus Lepeletier

C. notatus notatus Rossius

C. notatus melanius Lepeletier



La corse et la Sardaigne sont caractérisées par l'abdondance des formes sombres, alors que le phénomène inverse se produit dans l'île de Chypre où la plupart des espéces sont représentées par des formes rufinisantes.

En Afrique du nord, d'après van Ooijen toutes, les espèces seraient noires. Ma connaissance des espèces de cette région ne me permet pas de souscrire, une fois de plus, à cette affirmation. Ce serait même plutôt le contraire, pursque on y rencontre des formes rufinisantes e'espèces méditerranéennes habituellement sombres (ex: Priocnemis corax Gussakowskij er corax grünwaldti Wolf; Arachnospila easu Kohl et esau vaucheri Tournier), etc.

Ma conclusion sera que, dans ce domaine, il est bien riskué de simplifier á l'extrême l'interprétation des variations pigmentaires observables chez les guêpes de cette famille. Toute tentative de ce genre ne peut être envisagée gu'après l'étude approfondie d'un matérial abondant et varié, tent sur un plan local qu'à une échelle beaucoup plus large. Dans cette optique, les piégeages qie permettent la capture d'une grand nombre d'individus et l'estimation de la variavilité d'une population donnée sont très certainement appelés à nous fournir les éléments nécessaires à ine interprétation plus réaliste de ces phénoménes.

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Les cartes ont été réalisées grâce à un programme COBOL de Mr. Pierre Rasmont (Bangue de données Fauniques de Gembloux). Les informations proviennent des sources suivantes:

Littérature: Benoist (1928), Bernard (1935), Bouillon (1851), Cavro (1850), Crevecoeur (1927), Crevcoeur & Maréchal (1928, 1933), Deleurance (1943), Erlandsson (1974), Gros (1982), Hémon (1920) Junco y Reyes (1942), Lefeber (1967, 1969), Maneval (1936), Maréchal (1923), Marion (1978), Meunier (1896), Nouvel & Ribaut (1956, 1956, 1958), Pagliano (1978), Petit (1971), Richards (1978), Simon-Thomas (1976), Vander Linden (1827), Wahis (1955, 1962, 1969, 1971, 1986), Wesmael (1851).

Collections examinées: André, Arlé, Barbier, Benoist, Berland, Clau, David du Sacy, de Galle, Doublet, Dourbs, du Butsson, Ferton, Farlin, Hamon, Marion, Peres, Picard, Pigeot, Roth, Vachal (MNHNP); Nouvel (Toulouse); Delmas (Montpellier); Gros (Paris); Gauss (Wittertal); Lefebar (Maastricht); Petit (Wonck); Janssens (Antwerpen); Adamski (Châteaudun); Verhoeff (RNHLeiden); de Moffarts, Pasteels, Tosquinet (RSNB); Bartlet, Maréchal (IZVB Liège); RSNB, Bruxelles; INRA, Versailles; BMNH, London; RHN, Leiden; FSAE, Gembloux; MNH, Dijon; R. Wahis (Chaudfontaine).

POMPILIDES DE LA CORSE

by

Raymond Wahis

La faune des Pompilides de la Corse se caractérise par une pauvreté relative par repport à celle du continent (68 espèces corses pour 68 espèces belges et 150 en France continentale) mais aussi par un haut degré d'endémisme tant au ;oint de vue spécifique (7 espèces soit 10,5%) que subspécifique (9 sous-espèces soit 13,5%), conséquences directes de son insularité. Elle possède, en commun, 50 espèces (soit 73,5%) avec la faune sarde, dont certaines n'atteignent que l'extrême sud de l'île (environs de Bonifacio).

Les éléments fournis par la littérature sont peu nombreux. Citons: Ferton (1891 à 1912), Berland (1925), Kusdas (1974), Wolf (1978) et moi-même (1972, 1974). L'île, dans une large mesure, reste inexplorée à l'exception do littoral plus accessible ainsi que des zônes touristiques à prozimité des villes importantes.

De 1982 à 1985, nous y avons séjourné à 4 reprises ce qui nous a permis de parcourir et d'explorer des régions pour lesquelles les informations restaient rares, voires nulles. Par exemples: la Balagne (à proximité de la station de STARESO, propriété de l'Université de Liège) mais surtout la Haute-Corse et la Castagnicia. L'état actuel de l'exploration (61 carrés UTM sur 119) est présenté sur la carte n°1. Beaucoup de ces carrés représentent seulement des captures isolées et ceux pour lesquels un échantillonnage suggestif a pu être obtenu restent l'exception. C'est dire s'il reste beaucoup à faire et du matériel additionnel de toute provenance est vivement souhaité.

L'utilisation de techniques de piègeage (Malaise trap, bac à eau) a permis de so rendre compte que la densité des populations dans certains milieux peu accessibles est beaucoup plus forte que ne le laisse supposer la vue directe sur le terrain. En 2 semaines, 3 pièges Malaise placés en maquis dégradé à la pointe de la Revellata fournissent 253 spécimens (13 espèces soit 19% du total). Certaines, considérées comme rares, sont en fait abondantes mais l'essentiel de leur activité à lieu sous le couvert de la végétation et elles échappent ainsi à la vue et à la récolte classique au filet. Pour exemple: le "rare" Priocnemis vachali Ferton, espèce endémique, dont 26 spécimens seulement sont recensés dans les collections (collection Ferton; Mus. nat. Hist. nat. Paris; INRA, Versailles; BMNH, London; collection Wolf, etc.); du 18 au 27 septembre 1983, 3 pièges Malaise nous donnent 110 spécimens des deux sexes, sur quelques m2 de maquis dégradé à la Revellata.

Les espéces recensées se répartissent en un certain nombre de groupes faunistiques qui donnent un premier aperçu de la composition de la faune.

Un premier groupe est formé d'espèces ubiquistes ou sububiquistes, largement distribuées en Europe (+- 29%). En font partie: Cryptocheilus notatus V. Lind.; Caliadurgus fasciatellus Spinola; Dipogon bifasciatus Geoffroy, subintermedius Magretti et variegatus Linnaeus; Auplopus carbonarius Scopoli; Agenioideus apicalis V. Linden, cinctellus Spinola, nubecula Costa, sericeus, V. Linden et usurarius Tournier; Pompilus cinereus Fabricius; Anoplius concinnus Dahlbom et nigerrimus Scopoli; Aporinellus sexmaculatus Spinola; Evagetes gibbulus Lepeletier et siculus Lepeletier; Homonotus sanquinolentus Fabricius et Ceropales maculata Fabricius.

Un 2éem groupe se compose d'espèces du même type représentées dans l'île par des sous-espèces mélanisantes (+- 13,5%), soit: Arachnospila anceps cyrna Wolf et pseudabnormis perraudini Wolf; Anoplius infuscatus simii Wolf et viaticus immixtus Tournier; Episyron rufipes argyolepis Costa et albonotatum sardonium Priesner; Evagetes dubius theodori Wolf.

Le 3ème groupe compte des espèces méditerranéennes ou subméditerranéennes que l'on recontre également, pour la plupart, en Afrique du nord et même en Méditerranée orientalie (+- 47%). Citons: Crytocheilus egregius Lepeletier, octomaculatus Rossius, rubellus Eversmann et variabilis Rossius; Priocnemis pseudunicolor Wolf et rufozonata Costa; Auplopus albifrons Dahlmann et rectus Haupt; Agenioideus ciliatus Lepeletier et dichrous Brullé; Arachnospila conjungens Kohl, arrogans Smith; Batozonellus lacerticida Pallas; Dicyrtomellus argenteus Wahis; Microphadnus pumilus Costa; Entomobora crassitarsis damryi Tournier; Tachyagetes filicornis Tournier, maculatus Nouvel & Ribaut et immaculatus Wolf; Evagetes elongatus Lepeletier et trispinosus Kohl; Ferreola diffinis Lepeletier; Eoferreola rhombica Christ et manticata iberoturanica Wolf; Aporus bicolor Spinola; Ceropales albicincta Rossius er helvetica Tournier.

Enfin, un dernier groupe d'espèces strictement endémiques (+- 10,5%), la plupart occupant la complexe insulaire curno-sarde: Priocnemis abdominalis Dahlbom, perraudini Wolf et vachali Ferton; Auplopus ichnusus Wolf; Arachnospila tyrrhena Wahis; Episyron capiticrassum Ferton et Entomobora plicata Costa (cette derinère aussi présente dans l'extrème sud de la France).

Deus espèces: Cryptocheilus fabricii meridionalis Junco; Priocnemis parvula Dahlbom et Ceropales helvetica Tournier sont nouvelles pour la faune de Corse.

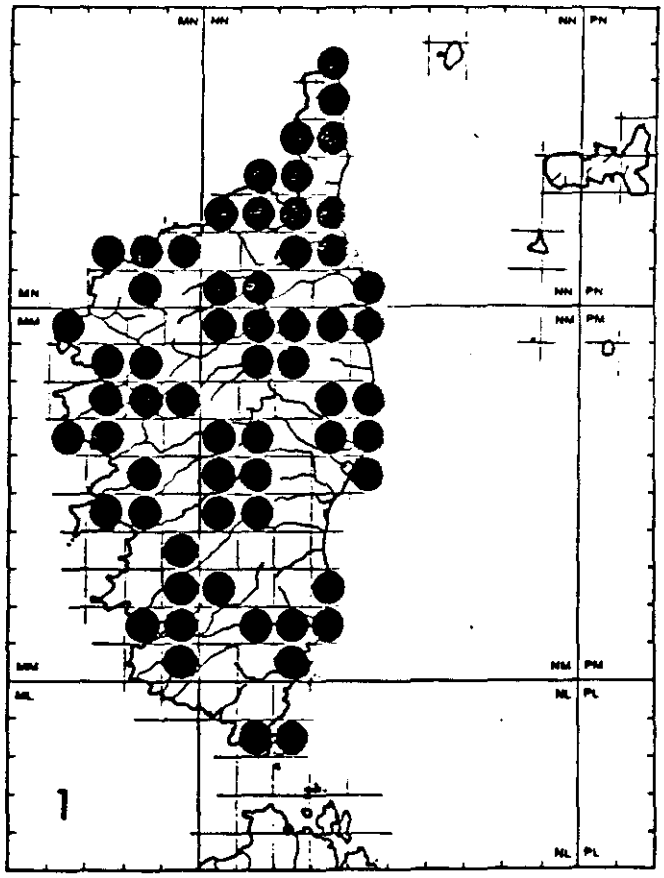
Légendes des cartes:

1. Sommation des informations acquises fin 1985.

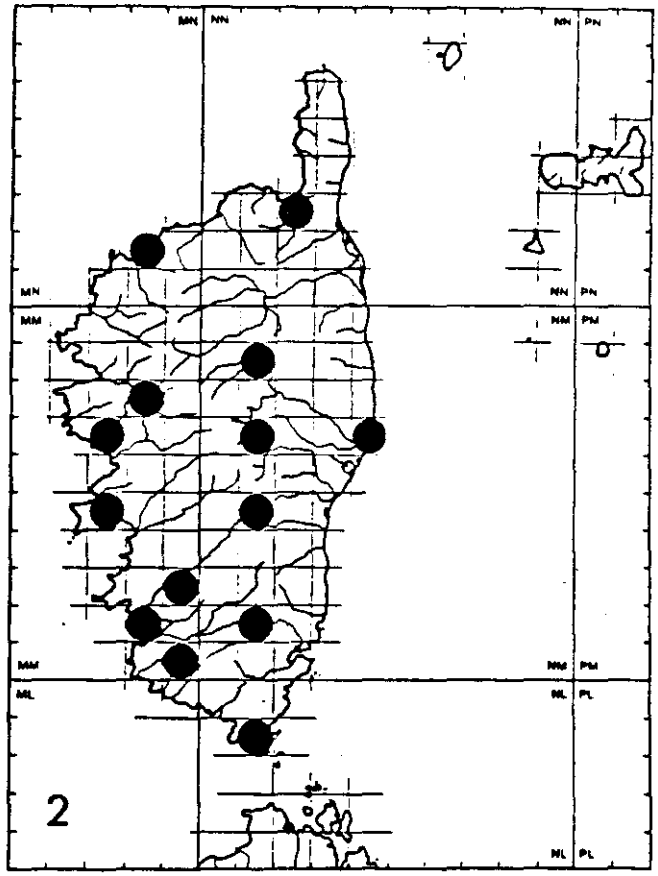
2. Etat actuel des connaissances sur la distribution d'Anoplius viaticus Linnaeus, espèce ubiquiste en Europe, représentée en Corse par la sous-espèce mélanisante immixtus Tournier (largement répandue des plaines côtières jusqu'à l'étage subalpin).

3. Etat actuel des connaissances sur la distribution de Batozonellus lacerticida Pallas, espèce méditerranéenne dont la répartition en Corse semble strictement littorale (dunes côtières, marais à Salicornes, maquis dégénéré sur granit).

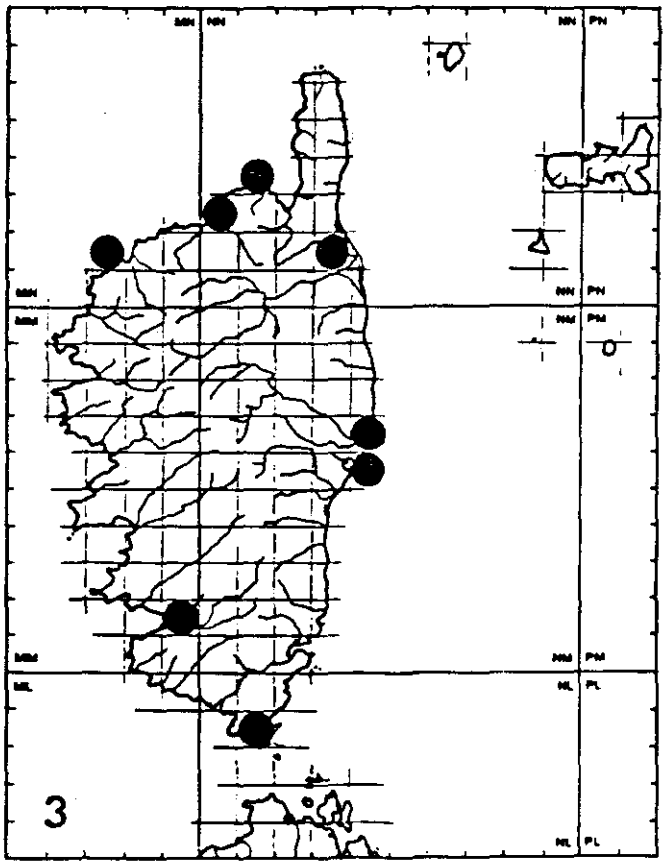
4. Etat actuel des connaissances sur la distribution de Arachnospila pseudabnormis Wolf, représentée en Corse pare la sous-espèce mélanisante perraudini Wolf (espèce d'altitude, étage subalpin).



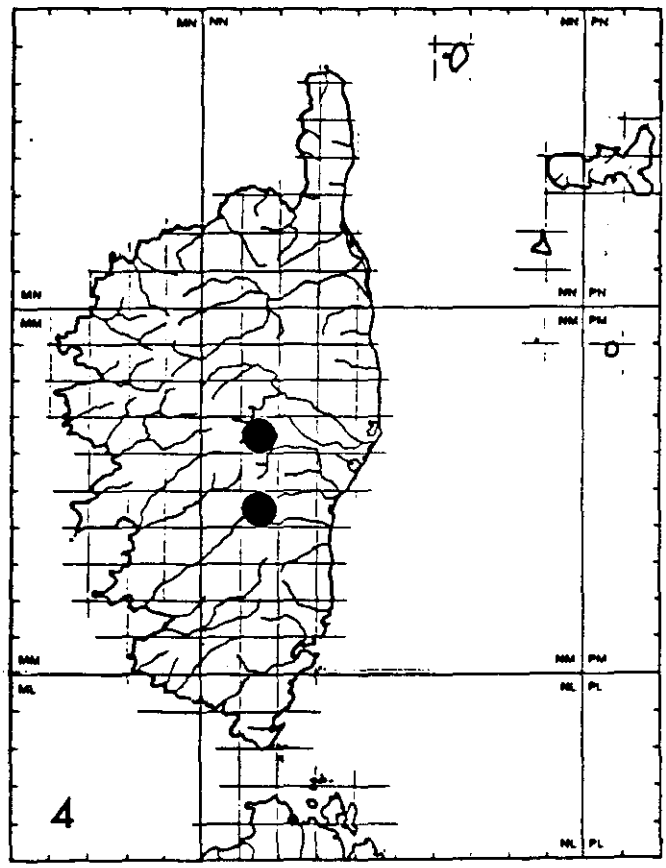
Informations acquises en 1985



40. Amplius vaticus (Linnaeus), 1758 subsp. immixtus (Tournier), 1890



44. Astatomellus lacerticida (Pallas), 1771



33. Arachnospila pseudabnormis (Wolf), 1965 subsp. perrosdini Wolf, 1978

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A HISTORY OF CHRYSIDID WORK IN POLAND

by
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The literature concerning the cuckoo wasps of Poland covers over 70 titles. The first work to touch this subject was completed by Krzysztof Kluk and published (in Polish) in 1780. Kluk mentioned seven Linnean species as quoted below (parentheses are my additions):

1. Chrysis ignita
2. C. bidentata (= C. viridula Linnaeus, 1761)
3. C. succincta
4. C. aurata (= Omalus auratus (Linnaeus), 1761)
5. C. cyanea
6. C. viridula
7. C. fulgida

Later investigations carried out by other researchers confirmed the occurrence of six of these species in Poland. Kluk's work also included other species of insects, among them Hymenoptera of the Linnean genera Crabro, Tenthredo, Cynips, Ichneumon, Sirex, Sphex, Vespa and Apis.

Krzysztof Kluk (1739-1796) is among the most representative figures of the Polish Enlightenment. He played a considerable role as a pioneer of natural history and a propagator of the so-called new agriculture. Owing to his sound judgement, to the vast knowledge coming from foreign works and to his own observational talent, he became the leading scholar in natural sciences, and although over 200 years have passed since his first book "Domestic and Wild Animals ..." was published, his progressive ideas are not far away from our contemporary way of thinking. Kluk compiled the first Polish synthesis of the national fauna, and the first Polish encyclopedia of natural and agricultural information. He was the first one to introduce the Linnean system to Polish science, pointing out at the same time its positive (clarity) and negative (artificial) sides. He refuted many misconceptions and wrong theories, among them the naive medieval theory of autogeny.

The investigations of the chrysidid fauna in Poland were started in the middle of the 19th century. Radoszkowski (1865) reported 9 species living in the Congress Kingdom of Poland[1] whereas Wierzejski (1868) mentioned 23 species occurring in Galicia[2]. Earlier, in 1844, Siebold found 10 various species in the area of Gdansk (Danzig), and Dahlbom (1854) reported several species occupying the Glogow region in the south-west of Poland. Towards the end of the 19th century Brischke (1887 etc.) wrote a number of papers on the fauna of West and East Prussia (nowdays the north-eastern part of Poland). Though he mentioned a significant number of Chrysididae, he did not state in detail their collecting sites.

Our main knowledge about the cuckoo wasps in this country comes mainly from the works of researchers at the beginning of the 20th century, such as Niezabitowski (1901), Torka (1910, 1917), Dittrich (1911), Szulczewski (1917), Noskiewicz (1920), Fudakowski (1920a & b) and Bischoff (1925).

After the Second World War, the Chrysididae were investigated by Szulczewski (1950) and mainly Banaszak (1975, 1980). These investigations are being continued now mostly in the western part of Poland. The study of chrysidid taxonomy based on the structure of the retracted abdominal segments carried out by Lorencowa (1962) and Noskiewicz (1963a & b) is of particular interest. At the same time Noskiewicz and Pulawski (1958) produced an excellant key for identifying the Chrysididae.

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1. The Kingdom was established in 1815 after the Vienna Congress and occupied an area of 127,000 km^2. In 1915, it was conquered by the German and Austro-Hungarian armies. Poland regained its independence in 1918.
2. Now the south-eastern part of Poland and part of the Ukraine.

Fig. 1. Krzysztof Kluk (1739–1796).

ZWIERZĄT

DOMOWYCH I DZIKICH,

OSOBLIWIE KRAIOWYCH;

HISTORYI NATURALNEY

POCZĄTKI, I GOSPODARSTWO.

POTRZEBNYCH I POZYTECZNYCH DOMOWYCH CHOWANIE, ROZMNOZENIE, CHOROB LECZENIE, DZIKICH ŁOWIENIE, OSWOIENIE,

ZAŻYCIE;

SZKODLIWYCH ZAS WYGUBIENIE.

TOM zdKlorów

Z FIGURAMI L. I. FOLKOWSKIEGO

O

OWADZIE I ROBAKACH.

PRZEZ

X. KRZYSZTOFA KLUKA,

KANONIKA KRUSWICKIEGO, DZIEKANA DROHICKIEGO, PROBOSZCZA CIECHANOWIECKIEGO.

W WARSZAWIE 1780.

w Drukarni J. K. Mości i Rzeczypospolitey u XX. Scholarum Piarum.

Fig. 2. Title page of zoological work by K. Kluk, "Domestic and Wild Animals..." (vol. IV, 1780).

A total of 62 species and 6 subspecies of Chrysididae have been reported in Poland so far. They all have been listed (together with their synonymy and distributions) by Banaszak (1980) in "Catalogus faunae Poloniae". Because current investigations have covered only certain regions of the country, the list is certainly not complete. It is also assumed that further study will reveal a number of new species in neighboring countries. For example 74 species of Chrysididae are known in Czechoslovakia (Balthasar 1954) and according to Linsenmaier (1951) there are 166 species in Europe.

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HYMENOPTERA ACULEATA FROM CENTRAL LARA DEPRESSION

by
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The Central Lara Depression is surrounded by the northernmost spurs of the Andean Mountains and the Sierras of Ziruma and Baragua, Bobare and Aroa. This area is geologically recent and the topography varies although flat-land physiography is predominant. To the south of Sierra de Baragua and extending to the base of the Andes lie the depressions of Quibor, Carora and Barquisimeto and other minor valleys of low relief forming the great Central Lara Depression (certainly a tectonic depression of pliopleistocenic origin). This area is generally dry and bare with a poor and stony soil which supports an abundance of cacti and spiny mimosacea. In this region the climatic conditions vary considerably but some general trends are noted. The annual maximum rainfall varies from 300 to 600mm, with six rainy months, but the dry periods usually last six months or longer. The mean annual temperature is above 24°C.

Hymenoptera of the arid and semi-arid zones of Lara State encounter a wide range of environments that appear in the form of swift gradients. In some places vegetation provides continuous shade, but there are some drier areas where it is sparse.

Three types of habitats can be recognized based on the criteria of Ewell-Madriz (1968) and Sarmiento (1976): Tropical Thorn Woodland, Premontane Thorn Woodland, and Very Dry Tropical Forest. The plant communities are generally formed of Curatella, Bowdichia, Panicum, Bromelia, Fourcrouia, Capparis, Prosopis, Acacia, Jacquimia, Cerdidium, Pithecolobium, Mamillaria, Melocactus, Opuntia, Leimaireocereus, Cephaloceres, Cassia, Lippia, Heliotropium, Sida, etc. The same conditions exist throughout the plains and plateaus of the region, but in the northern, southwestern and eastern slopes of the mountain ranges, the arid conditions turn into semi-arid, and higher up into the typical cloud forest of the subtropical zone, which characterizes the Mountanous Noroccidental System of Venezuela. Two types of habitats are recognized: Pre-montane Wet Forest and Lower Montane Wet Forest. Collecting aculeate Hymenoptera exclusively in these areas has produced a lot of interesting wasps and some impressive records. Standard nets and Malaise traps were used. Nearly one hundred taxa representing ten families and more than 50 genera were determined (some of them with Dr. Menke's help). Vespids are dominant, mainly Polybiini like Polybia (5 species), Epipona guerini, Brachygastra lecheguana, Synoeca septentrionalis, Metapolybia cingulata, Parachartergus colobopterus, P. weyreuchi, Stelopolybia areata, S. flavipennis, Apoica pallida, A. pallens, A. thoracica, Mischocyttarus labiatus, M. alfkeni trinitatis, etc. Polistini are not common except for Polistes versicolor and the large species (P. lanio weberi ??) which has become a real pest in urban buildings in Barquisimeto city. Among eumenids, Zeta argillaceum, Zethus sp. and Monobia sp. are pretty common. In the early rainy months of April, May and June when the flowers

bloom, many beautiful sphecids abound around the "matorrales" and forested areas. Ampulex compressa, an adventive species, was always active searching for cockroaches. Sphecinae and Larrinae are dominant. Dynatus nigripes, Penepodium sp., Podium rufipes, Trigonopsis sp., Sphex sp., Isodontia sp., Prionyx fervens, P. thomae, Sceliphron asiaticum (formerly figulus), Ammophila gracilis (and other species), Larra sp., Tachytes and Trypoxylini (Pison, Trypoxylon, Trypargilum, Aulacophilus), Trypoxylon (the figulus, carinatum, fabricator, clavatum and marginatum groups) and Trypargilum (the albitarse - politum , nitidum, and the superbum groups) have practically invaded every surface in sheltered situations in urban building and were Malaise-trapped in large numbers at the suburban village of Cabudare. In smaller quantities we took bembicin genera, Bicyrtes, Rubrica, Strictiella and Microbembex (anilis ??), and other genera like Solierella, Nitela, Rhopalum, Lestica, Hoplisoides, Trachypus, Cerceris and Dolichurus. In more xeric habitats, we found Oxybelus and Zanysson. Two chrysidid species were invariably found in Trypoxylini nests. Pompilids were represented by Pepsis equestris and many other undetermined genera and species. Scoliids (Campsomeris and Scolia) and Tiphiidae (Myzinum and Anthobosca) were especially conspicuous. Finally, Apoidea is widely represented mainly by the omnipresent Apis mellifera, the halictid genera Agapostemon and Halictus, and the anthophorid genera Hexaerete, Eulaema and Xylocopa.

Thirty three genera are sphecids and some of the most important species are part of the genuine neotropical, xerophilous biota (Prionyx thomae, Zanysson, Oxybelus and the Bembicini).

More than the 50% of the total determined taxa represent new regional records, some of them are new records for the country and one species represents the first New World record. Twenty three are cosmopolitan species, fifteen are restricted to a continent, eight are neotropical and the rest are tropicopolitan taxa. Certainly, the aculeate Hymenoptera fauna of Lara State (Venezuela) is surprisingly heterogenous.

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CLAVES PARA LA IDENTIFICACION DE LAS AVISPAS SOCIALES DEL PARQUE NACIONAL SANTA ROSA, GUANACASTE, COSTA RICA

KEYS FOR THE IDENTIFICATION OF THE SOCIAL WASPS OF SANTA ROSA NATIONAL PARK, GUANACASTE, COSTA RICA

by
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The following keys include all species of social wasps (Hymenoptera: Vespidae) known to me from the Santa Rosa National Park of Costa Rica. The occasional presence of Mischocyttarus melanarius is inferred from a nest. Daniel H. Janzen reported to me the presence to Polistes erythrocephalus. All others I have collected personally in the park. Preparation of this key fulfills an obligation to the National Parks Service of Costa Rica, arising out of a project while I was a graduate student at the University of Georgia. The National Parks Service has always been good to me and I especially thank Jorge Morales, director of Santa Rosa during my stay there. Thanks also to A. Eduardo Salgado for help with the Spanish. The intention of making these keys is that they can be used in the field by non-experts, using only a hand lens. A more detailed key to all of the known species of Costa Rica (adults only) is now in preparation for formal publication.

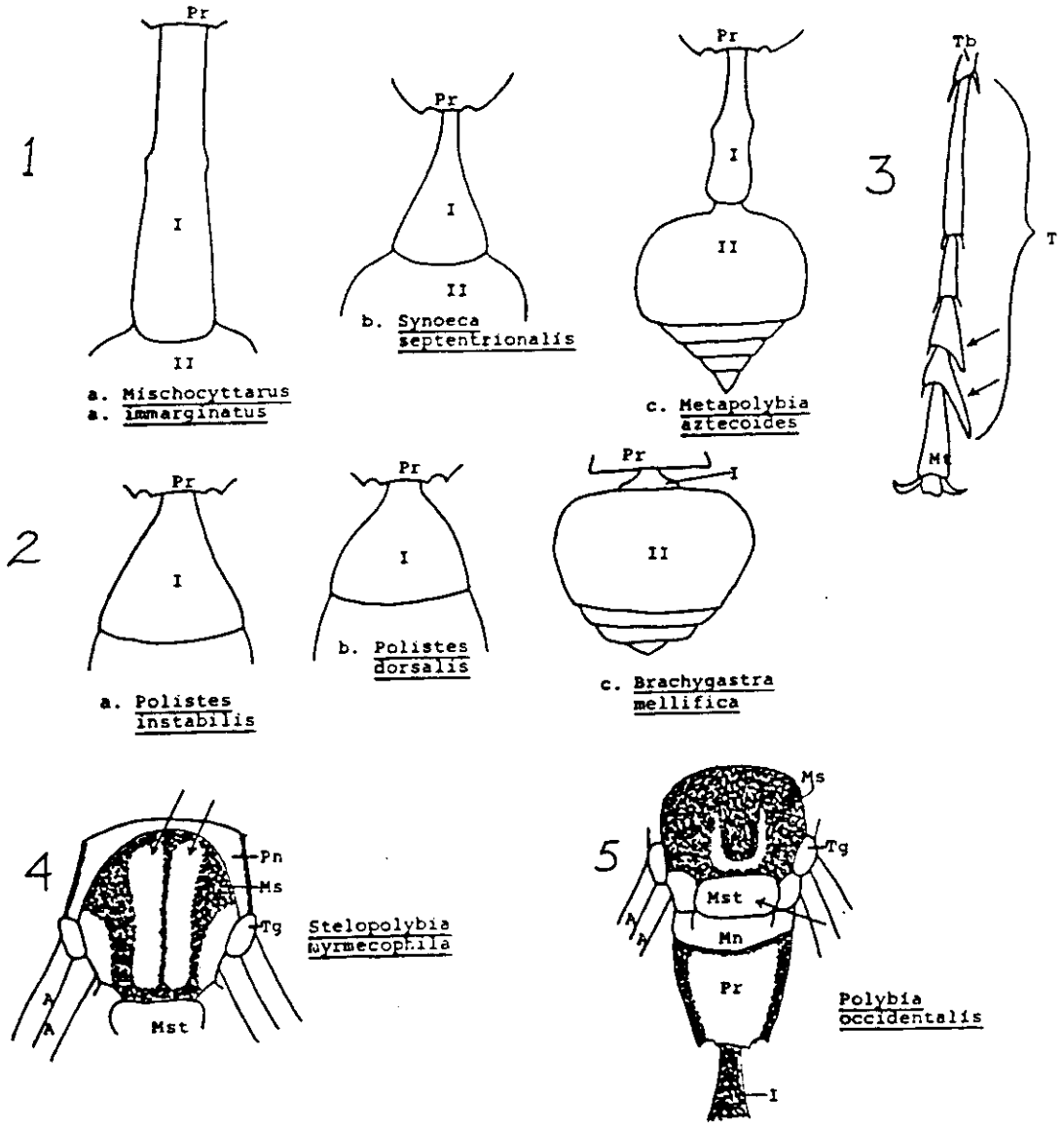


Fig. 1-5. Carácteres de los adultos

A = ala
I = primer segmento del abdomen detrás del propódeo
II = segundo segmento del abdomen detrás del propódeo
Mn = metanoto
Ms = mesoescuto
Mst = mesoescútelo
Mt = metatarso
Pn = pronoto
Pr = propódeo
T = tarso, o pata
Tb = tibia
Tg = tégula

Adult characters

A = wing
I = first gastral segment
II = second gastral segment
Mn = metanotum
Ms = mesoscutum
Mst = mesoscutellum
Mt = metatarsus
Pn = pronotum
Pr = propodeum
T = tarsus
Tb = tibia
Tg = tegula

A. ADULTOS

1. Abdomen distintamente peciolado (Fig. 1) 2
- Abdomen no o muy poco peciolado (Fig. 2) 10

2. Lóbulos tarsales distintamente más largos de un lado que del otro (Fig. 3) 3
- Lóbulos tarsales más o menos simétricos 5

3. Especie grande parda. Longitud del ala delantera unos 17mm ..... Mischocyttarus melanarius (Cameron)
- Especie más pequeña, marcada de amarillo. Longitud del ala delantera unos 10mm .. 4

4. Abdomen naranjo-amarillo. Mesoescuto con dos rayas longitudinales amarillas..... (Fig. 4) ..... Mischocyttarus angulatus Richards
- Abdomen en su mayor parte negro. Mesoescuto sin rayas ..... Mischocyttarus immarginatus Richards

5. Especie grande. Alas negras, cuerpo azul-negro metálico en su totalidad. Longitud del ala delantera unos 18mm ..... Synoeca septentrionalis Richards
- Especies más pequeña. Alas en su mayor parte transparentes, cuerpo no marcado de azul. Longitud del ala delantera no más de 11mm 6

6. Abdomen naranjo-amarillo. Mesoescuto con dos rayas longitudinales amarillas (Fig. 4) ..... Stelopolybia myrmecophila (Ducke)
- Abdomen en su mayor parte pardo o negro. Mesoescuto sin rayas o con dos rayas estrechas que no alcanzan al extremo anterior (Fig. 5) 7

7. Escútelo y propódeo fuertemente marcados de amarillo 8
- Escútelo y propódeo negros 9

8. Metanoto amarillo (Fig. 5) ..... Polybia occidentalis (Olivier)
- Metanoto negro ..... Polybia diquetana Buysson

9. Longitud del ala delantera unos 8mm, approximadamente los 2/3 de la base naranjo-amarillo, el 1/3 apical oscuro ..... Polybia rejecta (F.)
- Especie mucho más pequeña. Alas delanteras claras, su longitud unos 6mm. Segundo segmento abdominal súbitamente ensanchado en la base (Fig. 1c) ..... Metapolybia aztecoides Richards

10. Especie más pequeña. Longitud del ala delantera no más de 10mm, longitud de la cabeza y el tórax juntos no más de 5mm 11
- Especie grande. Longitud del ala delantera por lo menos 10mm, longitud de la cabeza y el tórax juntos por lo menos 6mm 13

11. Cuerpo totalmente negro-pardo. Alas negras, con puntas blanquizas ..... Parachartergus fraternus (Gribodo)
- Cuerpo marcado de amarillo. Abdomen muy corto, aproximadamente tan ancho como largo (Fig. 2c) 12

12. Abdomen en su mayor parte amarillo. Mesoescuto con dos rayas longitudinales amarillas (Fig. 4) ..... Brachygastra smithii (Sauss.)
- Abdomen en su mayor parte negro-pardo. Mesoescuto sin rayas amarillas ..... Brachygastra mellifica (Say)

13. Cuerpos sin marcas amarillas o con no más que rayas estrechas 14
- Cuerpo con grandes marcas amarillas 16

14. Cuerpo en su mayor parte negro. La Polistes más pequeña de Santa Rosa, longitud del ala delantera no más de 13mm ..... Polistes pacificus F.
- A menos la cabeza roja. Especie grande, longitud del ala delantera por lo menos 16mm 15

15. Cuerpo totalmente rojizo ..... Polistes canadensis (L.)
- Cabeza roja, tórax y abdomen negros ..... Polistes erythrocephalus Latr.

16. Abdomen en su mayor parte rojo arriba (dorsalmente) y más oscuro abajo 17
- Abdomen en su mayor parte amarillo arriba cono abajo 18

17. Primer segmento abdominal, visto de arriba, distintamento más largo que ancho (Fig. 2a) ..... Polistes instabilis Sauss.
- Primer segmento abdominal, visto de arriba, aproximadamente tan ancho como largo (Fig. 2b) ..... Polistes dorsalis (F.)

18. Especie muy grande, longitud del ala delantera por lo menos 22mm ..... Polistes carnifex (F.)
- Especie más pequeña, longitud del ala delantera no más de 21mm ..... Polistes major P. de Beauvois

B. NIDOS

1. Panales abiertos, sin cubierta (Fig. 6-8) 2
- Panales cubiertos (Fig. 9-11) 6

2. Un grupo de panales, colgados en paralelo en un palo jueco u otra cavidad semejante (Fig. 6) ..... Stelopolybia myrmecophila (Ducke)
- Un solo panal, fijado por un peciolo (Fig. 7-8) 3

3. Células pequeñas, no más de 3.5mm diametro ..... Mischocyttarus angulatus Richards
- Células más grandes, al menos 4.5mm de diametro 4

4. Peciolo largo, muy estrecho, lustroso ..... Mischocyttarus melanarius (Cameron)
- Peciolo corto y más ancho (Fig. 8) 5

5. Peciolo excentrico, fijado al borde del panal (Fig. 8) . Polistes instabilis Sauss., Polistes canadensis (L.) y Polistes erythrocehalus Latr.
- Peciolo céntrico, fijado más o menos al centro del panal arriba ..... Polistes dorsalis (F.). Polistes major P. de Beauvois, Polistes carnifex (F.) y Polistes pacificus F.

6. Panal directamente fijado al substrato, sin peciolo. Cubierta poco profunda (Fig. 9-10) 7
- Panales no directamente fijados al substrato. Cubierta mucho más profunda, más o menos esférico o cilíndrico 8

7. Parte principal de la cubierta plana, con pared distinta (Fig. 9) ..... Metapolybia aztecoides Richards
- Cubierta encorvada de un borde al otro, sin pared distinta, con fuertes crestas (Fig. 10) ..... Synoeca septentrionalis Richards

8. Nido muy grande, con muchos litros do volumen. Más o menos esférico. De cartón moreno, áspero ..... Brachygastra mellifica (Say)
- Con no más de 2 litros de volumen 9

9. Cubierta cilíndrica, de fino cartón gris. Entrada al fondo, abriendo hacia abajo ..... Parachartegus fraternus (Gribodo)
- Cubierta más esférica que cilíndrica. Entrada no al fondo 10

10. Cubierta lisa y blanca ..... Brachygastra smithii (Sauss.)
- Cubierta castaño o pardo, más o menos áspero ..... Polybia occidentalis (Olivier), Polybia diquetana Buysson y Polybia rejecta (F.)

A. ADULTS

1. Gaster with petiole (Fig. 1) 2
- Gaster without petiole (Fig. 2) 10

2. Lobes of tarsi 2 and 3 elongate on one side (Fig. 3) 3
- Lobes of tarsi 2 and 3 symmetrical or nearly so 5

3. Large, brown species. Forewing length about 17mm ..... Mischocyttarus melanarius (Cameron)
- Smaller species with at least some yellow markings. Forewing length about 10mm .. 4

4. Gaster orange-yellow. Scutum with two yellow longitudinal stripes (Fig. 4) ..... Mischocyttarus angulatus Richards
- Gaster mostly black. Scutum without stripes . Mischocyttarus immariginatus Richards

5. Large wasps, forewing length about 18mm. Wings black, entire body metallic blue-black ..... Synoeca septentrionalis Richards
- Smaller wasps, forewing length not greater than 11mm. Wings largely transparent, body without blue markings 6

6. Gaster orange-yellow. Scutum with two yellow longitudinal stripes (Fig. 4) .....Stelopolybia myrmecophila (Ducke)
- Gaster mostly black or brown. Scutum with at most two thin stripes that do not reach the anterior end (Fig. 5.) 7

7. Scutellum and propodeum with substantial yellow markings 8
- Scutellum and propodeum black 9

8. Metanotum yellow (Fig. 5) ..... Polybia occidentalis (Olivier)
- Metanotum black ..... Polybia diquetana Buysson

9. Forewing length about 8mm, orange-yellow for about 2/3 of length, distal 1/3 darkened ..... Polybia rejecta (F.)
- Forewing length about 6mm, colorless. Second segment of gaster flares abruptly at base (Fig. 1c) ..... Metapolybia aztecoides Richards

10. Smaller, forwing length at most 10mm, of head and thorax at most 5mm 11
- Large wasps, forewing length at least 10mm, length of head + thorax at least 6mm 13

11. Wings black, with pale tips. Body entirely black-brown ..... Parachartergus fraternus (Gribodo)
- With some yellow markings. Gaster very short, about as broad as long (Fig.2c) .. 12

12. Gaster mostly yellow. Scutum with two yellow stripes (Fig. 4) ..... Brachygastra smithii (Sauss.)
- Gaster mostly black-brown. Scutum without yellow stripes ..... Brachygastra mellifica (Say)

13. Yellow markings absent or restricted to narrow stripes 14
- With substantial yellow markings 16

14. Mostly black. Smallest Polistes in Santa Rosa, forewing length not more than 13mm ..... Polistes pacificus F.
- At least head red. Large wasps, forewing length at least 16mm 15

15. Body entirely reddish ..... Polistes canadensis (L.)
- Head red, rest of the body black ..... Polistes erythrocephalus Latr.

16. Gaster mostly red above, darker below 17
- Gaster mostly yellow above and below 18

17. First gastral segment, viewed from above, clearly longer than broad (Fig. 2a) ..... Polistes instabilis Sauss.
- First gastral segment, viewed from above, about as broad as long (Fig. 2b) ..... Polistes dorsalis (F.)

18. Very large, forewing length at least 22mm ..... Polistes carnifex (F.)
- Smaller, forewing length not more than 21mm ..... Polistes major P. de Beauvois

B. NESTS

1. Comb(s) naked, not covered by an envelope (Fig. 6-8) 2
- Comb(s) covered with an envelope (Fig. 9-11) 6

2. With more than one comb, hanging parallel in a hollow tree or similar cavity (Fig. 6) ..... Stelopolybia myrmecophila (Ducke)
- With a single comb, suspended from a petiole (Fig. 7-8) 3

3. Small cells, diameter not more than 3.5mm at mouth ..... Mischocyttarus angulatus Richards
- Larger cells, diameter at least 4.5mm at mouth 4

4. Petiole long, thread-like and shiny (Fig. 7) ... Mischocyttarus melanarius (Cameron)
- Petiole stout and shorter (Fig. 8) 5

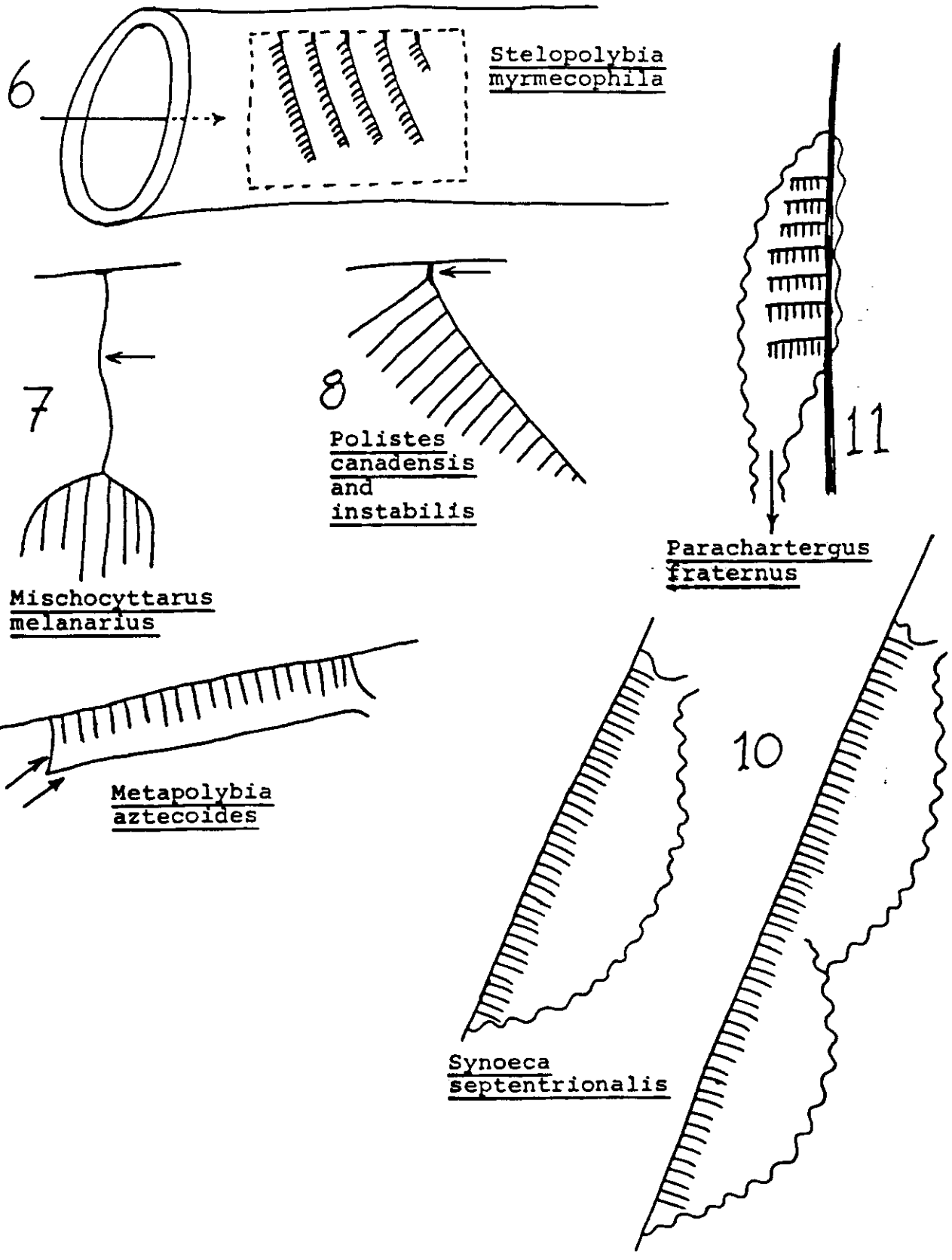
5. Petiole eccentric, attached to comb at one side (Fig. 8) ..... Polistes instabilis Sauss., Polistes canadensis (L.) and Polistes erythrocephala Latr.
- Petiole centric, attached to comb more or less in the center ..... Polistes dorsalis (F.), Polistes major P. de Beauvois, Polistes carnifex (F.) and Polistes pacificus F.

6. Comb lying flat against substrate. Envelope shallow (Fig. 9-10) 7
- Combs suspended from substrate. Envelope approximately spherical or cylindrical . 8

7. Envelope with a flat main surface and distinct wall ..... Metapolybia aztecoides Richards
- Envelope curving smoothly over comb(s). Surface ridged (fig. 10) ..... Synoeca septentrionalis Richards

8. Nest very large, with volume of many liters. Spherical with rough, brown paper ..... Brachygastra mellifica (Say)
- Nest volume less than 2 liters 9

Fig. 6-11. Cortes transversales diagramáticos de nidos
Diagrammatic cross-sections of nests.



9. Cylindrical, ridged envelope of fine gray paper. Entrance hole opens vertically below (Fig. 11) ..... Parachartergus fraternus (Gribodo)
- Envelope more nearly spherical. Entrance hole not opening below 10

10. Smooth, white envelope ..... Brachygastra smithii (Sauss.)
- Brown or gray, somewhat rough envelope ..... Polybia occidentalis (Olivier), Polybia diguetana Buysson and Polybia rejecta (F.)

A TECHNIQUE FOR MAKING BOXES AND DRAWERS AIRTIGHT

by
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Many collectors are plagued with storage cases that won't hold fumigant very long or will even allow pests like dermestids to get inside. I recently found that silicone adhesive sealant can make cases airtight. This waterproof sealant remains pliant for up to 40 years (depending on the manufacturer) and adheres to many materials except polyethylene, which is commonly used to wrap food in the home. A narrow line of sealant is applied just inside the edge of the case and immediately covered with strips of thin polyethylene sheeting to prevent it from touching the lid. Avoid wrinkles or overlapping of the polyethylene or else the resultant seal may not be perfect. The surface must also be free of any dirt or oily residue in order for the sealant to stick. The lid is placed on top and pressed down until the sealant sets (the time required varies according to the manufacturer). Boxes with latches should only be closed and latched. Although these sealants are advertised as being able to adhere to paint or any kind of wood, it might be advisable to roughen up the surface of painted or dense wood with coarse sandpaper to increase the holding power of the sealant. After the sealant dries, it can be trimmed with a sharp knife where it protrudes beyond the edge of the box. The sealant inside the outer corners of the box should be rounded off with a knife to avoid it catching on something and tearing the sealant loose.

Collecting Reports

THAILAND 1986

by
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Driven by a tameless desire to explore personally the aculeate wealth of the Oriental Region, I headed for Thailand last summer. Thailand is apparently the most favourable country for a private collecting trip, since it is cheap to get there, the cost of living is low, transportation is fairly good, and it is easy to obtain a visa (which is difficult for Burma and virtually impossible for Vietnam and Cambodia).

I went for about five weeks, in the month of July, which is the beginning of the rainy season. This is supposed to be the best period for collecting. This may be true, but the heavy tropical showers shortened the time you can spend collecting, and they have the nasty habit of starting just when you have found a nice spot with many wasps around. In total I caught about 1,750 Hymenoptera, which is certainly not much for five weeks.

Thailand has acquired much of the prosperity of the Western world, like Coca Cola and disco's, but since it was never colonized, it is still a completely Buddhist nation, and few people speak foreign languages. The Thai use their own peculiar script, and their tone-language is very difficult for Westerners to comprehend. A tourist frequently has to cope with grave communication problems. However, the

accessibility of all parts of the country more than compensates for this. The roads are generally in good condition, there are fast trains and long distance buses from Bangkok to all major towns, and all sorts of local buses.

The Thai themselves are a friendly people, and very modest: you will rarely be disturbed when you are hunting for wasps. Not the least of Thailand's virtues is the excellent food. Some foreigners seem to go there just for eating.

My first aim in Thailand was the North, the area around Chiangmai. These parts are comparatively cool and mountainous. I spent about a week exploring Doi Suthep and Doi Inthanon. On these mountains some monsoon-forests are left and relatively undisturbed. The forests themselves were too dark and rainy to harbour many Aculeates, except Pompilidae. The lower areas, however, yielded a good sample of Oriental exquisities, like Sphex sericeus, S. subtruncatus, S. argentatus, Chalybion bengalense, and many Delta, Eumenes and Ropalidia.

After Chiangmai I made a trip through the famous Golden Triangle, world's largest producer of opium, but to my disappointment, I saw no opium fields at all, and it rained practically continuously. This made me decide to depart to the drier northeastern part of the country. I spent ten days in Loej, a small town near the Mekong river. It was pretty hot here, with just a few showers each day. Sphecids were plentiful in these parts, including Chlorion lobatum, many Sphex, enormous Cerceris, Dasyproctus, and numerous species of Liris.

Next on the program was a visit to Khoa Yai National Park, 200 km NE of Bangkok, which harbours much wildlife, including tigers and elephants. What I remember most, whoever, are the torrential rains and the multitudes of bloodsuckers. Maybe an elephant can survive under those circumstances, but I couldn't stand it more than a day.

A very comfortable night train brought me to Hat Yai, in the extreme south of Thailand, near the Malaisian border. These parts harbour tropical rainforests, for whereas the north has a pronounced dry season, the south is rainy all year round. I visited the national parks of Thaleban and Khao Chong. Wasp-hunting in rainforests is always fascinating. You do not catch very much, but every now and then you find new and surprising things. Sphecids included Ammatomus, Bembecinus, Carinostigmus, Dasyproctus, Polemistus and many more Liris. Vespidae were represented by Polistes, Ropalidia, and by the amazing creatures called Stenogastrinae. Parischnogaster mellyi was fairly common; I often saw the males of this species hovering around protruding twigs and leaves in the midst of the forest, and I found the nests beneath the roof of a rain shelter.

The last week I spent on the island of Phuket, a tropical tourist paradise, with splendid beaches bordered by palm trees, coral reefs, delicious sea-food, beautiful Thai girls, etc. etc., and even some interesting wasps for the unsatisfiable Hymenopterist.

A luxury night coach took me back to Bangkok. The homeward flight was interrupted for two days a Amman. Alia Airways runs a gigantic hotel in the middle of the desert near the airport. It costs $120 per night, but fortunately the flight company pays for transit passengers because otherwise I would have been obliged to sleep in the sand.

COLLECTING MUTILLIDAE IN KENYA AND SOMALIA (SEPTEMBER 1986)

by
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Last summer I spent more than one month in Africa, and visited it from the Indian Ocean to the Gulf of Guinea - Somalia, Kenya and Cameroon. It was a very fatigueing trip, first of all psychologically, because I tried during my relatively short stay in each of these countries to realise the full scope of my plans - a purpose not so easy to attain, and not only in African countries. I think that my experience could be of some interest for potential visitors.

I planned to attend the International Conference on Tropical Entomology (Nairobi, 31 August - 5 September 1986) and to present there a contribution on "Area types in Africa South of the Sahara based on the study of the Mutillidae (Hymenoptera)". It presented an opportunity to spend some additional days in that part of the continent which is extremely interesting for its insect fauna. I hoped to be able to add some specimens of Kenyan mutillids to my collection because they are poorly represented in museums.

In September 1985 I wrote to the President of the Conference, explaining my plans to him and asking for the necessary information as well as suggestions for the best way to complete my project. Subsequently, many letters were exchanged between Nusiceva 2a and Nairobi. The main victim of all I wanted to know and to obtain to facilitate my planned visit was the extremely kind Dr. J. Mark Ritchie, head of the Department of Entomology of the National Museum of Kenya and Chairman of the Scientific Programme Committee of the International Conference, who was very busy during the period of preparation as well as during the conference. I was informed that there would not be problems concerning travel facilities and accomodations in Kenya, a paradise for all kinds of safaries, which I had visited twice in the past. But in May I was surprised to learn that it was necessary to submit to The Office of the President of the Republic an application (six copies, three photos, a curriculum vitae, the affiliation with the Kenya Museums, a covering letter, a brief project proposal, signatures of two senior entomologists and a letter of the institution sponsoring the planned research in Kenya) in order to obtain an "Authority to conduct research in Kenya", and that permission (details will be omitted here) would be delivered after a delay of six months! But as soon as I arrived in Nairobi, at the end of August, thanks to the interventions of Dr. Ritchie, efficaciously assisted by Mr. Michael Mungai, a Kenyan entomologist in the Museum in Nairobi, I could obtain in the Office of the Permanent Secretary of the President, after payment of Ksh 1.000 (about $60 US), the "Research Clearance Permit" (with photo) to conduct research in ... (locations, District and Province, until completed).

Later I decided to extend my research to Somalia ("l'appétit vient en mangeant"), whose insect fauna, and particularly the Mutillidae of the "Horn of Africa" were still more interesting than that of the other parts of East Africa and less known, if possible. As a result, there is a regrettable lack of data in my Revision of the Mutillidae of Africa. A list of mutillids recorded in Somalia (Bischoff, 1920, and Invrea, several contributions between 1934 and 1941) shows only about 100 species, 50% of which are endemic. During a few days visit in Somalia in 1973 I was able to collect some fine specimens, including some new ones and even a new genus. Since that time I have never completely given up the idea of another visit, which was very difficult to achieve in the past mainly due to war. But even now tremendous efforts had to be made to have a minimum of perspective to realise such a project. Actually, the main difficulty for such a project - collecting insects - is due to the fact that Somalia is a land which ignores tourism (= difficulties in obtaining a visa), and in particular is not used to seeing foreign people walking in the field (and running through the bush with a net). Safaries are also unknown, as well as car-hire companies, and there were actually restrictions in the distribution of petrol. Therefore, before arriving in Mogadiscio, I tried to obtain from the official Somalian institutions the following: a permit to collect insects, a car with a driver and petrol, and a colleague to assist me in field trips. During World War II, I learned that even the strongest fortress could be conquered - in this case all imaginable difficulties could be surmounted - by putting into activity a concentration of superior forces, i.e. a number of different inititatives, but it was not so easy for me to submit my requests to the Yugoslave government institutions as I'd been a retired professor for more than ten years. Nevertheless, I first found out that a "Convention of technical and scientific cooperation" was signed in 1972 between Yugoslavia and Somalia, including, (point 2/a) the possibility of sending experts there. This particular detail permitted me to obtain from the Somalia Embassy within 24 hours a gratis visa (for me and Nada, my wife) on a request submitted by the "Office for International technical, cultural and scientific cooperation" in Belgrade. Based on the above mentioned Convention and suggested by the Belgrade Office, instructions were sent by the Yugoslave Foreign Office to the Embassy in Mogadiscio to try to obtain from Somalian government institutions the necessary facilities for my visit. As a former FAO field officer (entomology), I sent a copy of these instructions to the Resident Representative of the United Nations in Mogadiscio asking him to be kind enough to support this request. A colleague of mine, a friend of the Deputy Resident Representative in Mogadiscio, wrote a letter asking him to give me the same assistance. Of course I contacted personally, not without difficulties, some of the persons involved, trying to explain the scientific importance of my project. Finally, in Nairobi during the Conference, I met a

USA entomologist, an officer of a USAID Agricultural research project in Somalia, who helped facilitate the achievement of my plans. In a word, when I arrived at the Mogadiscio airport, on the 14th of September, the secretary of the Yugoslave Embassy was waiting for me with the excellant information that thanks to all the concerted interventions, the necessary decisions had been made by the government institutions concerned. The Ministry of Agriculture received the instructions to put a car with a driver at my disposal as well as two officers of the Plant Protection Service to assist me in field trips. This happy ending of all my efforts - may I remind you that they had been decided and initiated only a month before I left Belgrade for Nairobi - were explained to me in the office of the Vice-Minister of Agriculture in the presence of the Head of the Plant Protection Service and the Head of a German Plant Protection Assistance Program. During this first meeting in the Ministry of Agriculture both parties were surprised to discover that we had met before, in 1973, during my first visit, in the Afgoi Agricultural Research Station, near Mogadiscio, where they were in charge of the station, respectively acting as entomologists.

Before leaving Nairobi for Somalia after the closing session of the International Conference, I went with Nada for a 4 day visit to the "Kamburu Camp", situated not far from the River Tana, in the Eastern Province, near Embu, where the senior staff of a Yugoslavian engineering and contracting company, the "Energoproject", lived. They had been constructing a dam on the Tana River at Kiambere for two years, and we got accomodation and hospitality there. Twice a day I went on foot out of the camp, sometimes with Nada, in the morning between nine and half past ten and in the afternoon between four and half past five, trying to find Mutillidae - unfortunately without much result. In that area it was extremely hot during this first week of September, and very dry as we were at the end of the dry season. We didn't see many live insects; only a few locusts, a couple of bees or wasps flying around dried plants and some tenebrionid beetles running on the soil. I collected less than 10 mutillids - a great disappointment for me. We returned to Nairobi and hired a safari company for a lot of money (we planned a three-day trip, 1,000kms), and a car with a driver (I had not the courage to drive on the left side of the road or street). We crossed nearly half of the country westwards, and went north of Lake Victoria with the purpose of visiting the Kakamego Forest, a west African-like rainforest situated on about 2,000m over sea level. My intention was to verify whether there were forest mutillids in that part of East Africa, which had so far not been recorded from there. After several hours of intense searching on the 12th of September - in the morning there was a heavy fog, and only near midday the temperature became appropriate for mutillid activity - I could find only two females wandering over the soil on footpaths not far from the forest border. They belonged to the grasslands (red thorax!) and not to the black-colored forest fauna which I had hoped to find, and were of two different genera. Both species were new ones, closely related to mutillids that I had collected in the mountains of western Cameroon during my stay in that country (1962-1975) and which also had been new species.

On the way back to Nairobi we stopped for a short time at Lake Nakuru and found on the sandy beach of the lake an interesting place where a great deal of fossorial Hymenoptera were nesting. We had the opportunity to collect there, on a few square meters and during one or two hours, about 200 mutillids, the majority of them belonging to two species of two different genera. Not only females of these two species were running on the soil, but also there were two males of the same genera, and therefore belonging to the same species, which were flying over the ground at that place looking for females with which to mate. The two sexes of these species had not been known before - an interesting find. It was a situation quite different from that at the Kamburu Camp, maybe due to the more humid biotope situated near the lake.

In Somalia we also had to suffer from the consequences of the dry season on insect life. Several people, sometimes six, looked for mutillids: I, Nada, Miriam Ali Mohamed and Ahmed Ghele Omar (the two Plant Protection officers, entomologists, who joined us on our trips) and even the driver, who proved himself to be an attentive and successful observer of insect activities and who collected for me some interesting specimens. Two or three times a phytopathologist, a friend of our two Somalian colleagues, joined us, being interested to see what we were doing and succeeded in catching some mutillids. Every morning and afternoon we went out of Mogadiscio and looked for appropriate biotopes - nesting places of fossorial Hymenoptera - stopping the car several times

before it seemed to me that the location was favorable for our purpose. In spite of the large number of devoted assistants who very quickly gained experience in collecting mutillids, the results were generally poor and disheartening: 7 specimens during a morning, and 18 or 36 in an afternoon, or sometimes 50 or so. Only during the last afternoon, before leaving the country on September 23rd (two days before it had rained for the first time in the season), we managed to assemble 95 mutillids. But at last the total was not so bad: about 400 specimens belonging to 30 genera and to nearly 45 different species, some of which are to be described. They will be useful toward completing the data on the mutillid fauna of Somalia which has so far been assembled for may revision of the Afrotropical Mutillidae. I was able to abtain this relatively satisfactory result from my 9 day visit to Somalia only because of the multiple assistance given to me by the staff of the Ministry of Agriculture, to whom I give all thanks, and who declared before my departure that they were interested in organizing a longer visit, perhaps during the next rainy (=vegetative) season. Of course they principally have in mind my experience in pest problems of tropical crops (and me: mutillids).

The purpose of my very short visit to Cameroon (27 - 29 September) was only to meet colleagues, as well as former students of the National Advanced School of Agriculture (now in Dschang) of the University of Yaoundé where I had been teaching economic entomology for 13 years, and to look at the collection I established there.

NORTHERN LUZON

by
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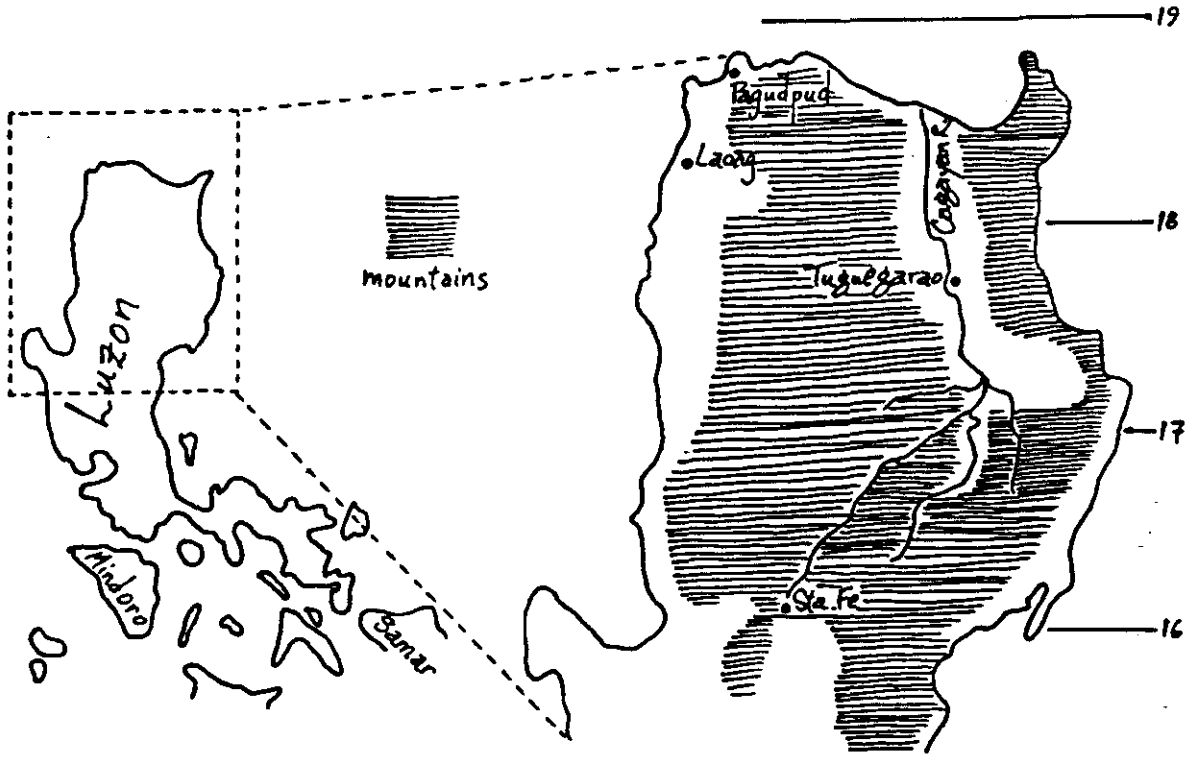
This year I've been able to move around a fair amount within the Philippines, starting with two field trips to the Visayas islands and one to Palawan. With time and money for just one more large trip before leaving the Philippines, I came to a decision between the two areas I know least: southern Mindanao and northern Luzon. Coincidently, these are also culturally the most interesting and both relatively dangerous. Mainly from biogeographic considerations, I chose the latter. Almost certainly, southern Mindanao would have yielded a great number and variety of material but it would be largely a transition or duplication of what I've seen in the Visayas and Borneo. Northern Luzon, on the other hand, is the large land mass at the limits of biotic immigration, and our emerging concept of Philippine biogeography has it as a center of radiation and endemism.

In addition to my usual field trip goals of collecting and observing aculeates and jumping spiders, making extracts of defensive chemicals from ants, and adding to my lists of local Philippine names for land arthropods, I had two particular goals for this region: to estimate more closely the northern range limits of the Stenogasterinae within the Philippines, and to collect a goodly amount of pachyrrhynchine weevils. Previous collecting records show no Stenogastrinae north of $14^{0}4'$N, and my working hypothesis was that the group as a whole fades out in central Luzon. Of the three genera extending that far, Liostenogaster never shows up in quantity, but a search for Parischnogaster and Eustenogaster in suitable habitats should reveal them if they are there in at least moderate numbers. The Pachyrrhynchinae are just about the only sizable animal taxon which is largely Philippine, and we might characterize it as a central-northern Luzon group with both oriental and papuan extensions. Besides, they are wonderful gem-like objects of the sort which can make beetles so very collectable. I am eager to see the subfamily revised and so take every opportunity to make new specimens available.

The biotic reality of northern Luzon begins with the massive cordillera covering the middle and much of the western wide, a smaller mountain range along the eastern side, and the Cagayan River valley in between. Over the last two weeks of May 1987, I collected in the area around Laoag, at two localities east of Pagudpud, in the Callao Caves National Park near Tuguegarao, and around the village of Imugan (about 900m) above Sta. Fe.



My efforts around Laoag turned up almost nothing. This area has a very long, hard dry season, and there had been no rain for seven months. I hoped to go up to a ranch in the interior, my only chance to collect at medium altitude to the west of the cordillera, but the relationship of forces thwarted me. The area below the ranch just then became a shooting gallery between two armies, and no one could get from here to there.

I had very little advance information on the northern coast, so I just rode the bus along the coastal road until I saw a promising collecting area, then got down for a day or two. This gave me the forested hills above the villages of Subec and Balaoi, of which the latter was especially fruitful. I am writing to the government that the locality merits special habitat protection and is eminently protectable.

I had heard that there were caves near Tuguegarao and decided to head there if nothing promising showed up along the way. I like to explore caves and have found two apparently new Parischnogaster spp. nesting in them, but that is not my main reason for seeking them out. Rather, the area immediately around is very often rugged and forested, so asking about caves is a quick way to seek good habitat. As it happened, I saw no reason to get off the bus between Balaoi and Tuguegarao. You can tell that the Callao Caves are a protected area, as there's a big sign designating it as a national park. There is no other evidence and certainly no way to recognize the limits of the park, if you see what I mean, but the secondary forest justified a two-day stay.

Sta. Fe and Imugan lie very near the Balete Pass, which provides a convenient - and probably biologically meaningful - division between central and northern Luzon along the Cagayan valley. For my purposes, the middle altitudes between about 300-600m are usually the best, as the lowlands are mostly quite disturbed and the highlands are usually poor in my kinds of bugs. Still, we all have to seek the higher ground from time to time, and in the Philippines bumble bees and some other creatures are found nowhere else. It seemed reasonable the expect that at Imugan I would find Bombus bagulonensis imuganensis, one of three Philippine species. Collecting around Imugan was good, but I never reached an area of prime forest which lay near at hand across a very long, deep valley. Any future collecting effort in the area would do well to seek a base somewhere between Sta. Fe and the Balete Pass.

The wasp- and bee-collecting was fair, with occasional highlights. To my great surprise, I found a very few Liostenogaster at both Balaoi and the Callao Caves. I also saw or collected a

single Parischnogaster at each of the two localities. That hypothesis, then, was incorrect. If Eustenogaster gets into northern Luzon I doubt that it is anywhere abundant. Another surprise was Parischnogaster at Imugan. I have never found any stenogasterines at such an altitude in the Philippines (but that's where Holischnogaster gracilipes is found on Mt. Kinabalu in Borneo), but here I got several colonies of each of two or three species.

I did get bumble bees, but again failed to find any nests, so that the nest- and colony-structure remain unexplored for any Philippine species. Series of the honey bee Apis cerana from three localities will contribute to a microtaxonomic treatment of the species.

The ants came up very well, as they should in any low- or middle-level forest. In particular, my beloved Polyrhachis were good to me, and I seem to have gotten either one or two army ant (Aenictus) species for the first time.

To my surprise and chargrin, the search for pachyrrhynchines was a bust. I didn't see even one, though there was no dearth of other weevils.

Among the new arthropod local names was a fair list in the Ikalahan language at Imugan, quite likely the first ethnobiological information recorded from that minor language.

ACULEATE WASPS COLLECTED AT EFFELDER WALDSEE, GERMANY, IN 1986

by
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SPHECIDAE

Alysson fuscata (Panzer)

Ammophila sabulosa (Linné)

Crabro scutellatus (Scheven)
Crabro peltarius (Schreber)

Crossocerus wesmaeli (Vander Linden)
Crossocerus quadrimacualtus (Fabricius)

Cerceris quinquefasciata (Rossi)
Cerceris rybyensis (Linné)
Cerceris arenaria (Linné)

Diodontus tristis (Vander Linden) ♂
Diodontus minutus (Fabricius) ♀

Lestiphorus bicinctus (Rossi)

Lindenius albilabris (Fabricius)

Mellinus arvensis (Linné) ♀

Mimesa lutaria (Fabricius)

Mimumesa atratina (Morawitz)

Miscophus concolor Dahlbom
Miscophus spurius (Dahlbom) ♂

Nysson maculatus (Rossi)

Oxybelus unglumis (Linné)
Oxybelus bipunctatus Olivier ♀ ♂
Oxybelus trispinosus (Fabricius)

Pemphredon lethifer (Shuckard) ♀
Pemphredon lugubris Latreille ♀

VESPIDAE

Ancistrocerus gazella (Panzer) ♂

Dolichovespula media (Retzius)
Dolichovespula norwegica (Fabricius)
Dolichovespula sylvestris (Scopoli)

Eumenes papillaris (Christ)

Symmorphus mutinensis (Baldini)

Vespa crabro Linné

Vespula germanicus (Fabricius)
Vespula rufa (Linné)
Vespula vulgaris (Linné)

POMPILIDAE

Anoplius concinnus (Dahlbom)
Anoplius infuscatus (Vander Linden)
Anoplius nigerrimus (Scopoli)
Anoplius viaticus (Linné)

Pompilus cinereus Fabricius

Priocnemus pertubator (Harris)

I thank Dr. Heinrich Wolf for the determinations of the insects, and above all for how promptly he provided them.

Address Changes

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Robert W. Longair: Dept. of Zoology, Univ. of Toronto, Erindale College, Mississaugua, Ontario, Canada L5L 1C6.

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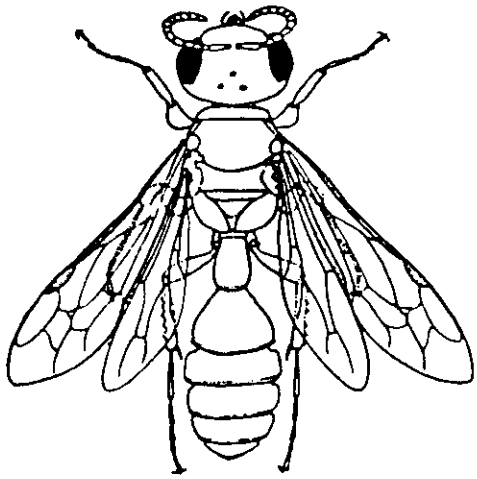

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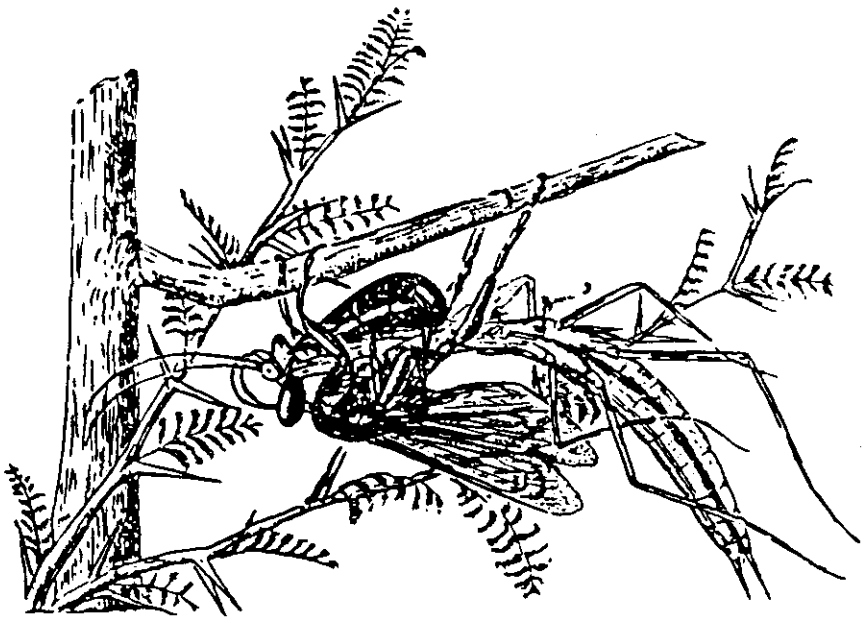

Stangeella cyaniventris
(from Piek, 1986 - see Sphecos 14:34)

Funnies From The Heteropterist's Newsletter, #4, 1985

ON SOME ASPECTS OF THE GREATER EUROPEAN TYPOLOGY

By Urbanus, with an introduction by W.R. Dolling

Walter Horn (1929, Int. Congr. Zool. 10: 1022-1042) published a compendium of the different kinds of types known to him, and this has been updated in a work largely concerned with curatorial outrages by N.T. Baker, R.M. Timm and others (1976, J. N. Y. Ent. Soc. 84: 201-203), which vies with the original in both scientific and entertainment value. My colleague Urbanus (no relation to Rusticus, first editor of the now, alas! defunct "Entomologist") feels that apart from a single reference, and that slighting, to Francis Walker the authors of the latter paper did not do justice to the efforts of european workers in the field of Typology. Partly in order to rectify this state of affairs and partly also with the more serious purpose of providing a guide to the pitfalls that await the unwary user of the collections of european museums, Urbanus has requested me to communicate to the Newsletter the results of his typological researches, based on over 30 years of work in these institutions. Because of the slightly libellous nature of some of his comments he wishes to remain anonymous, or at least pseudonymous. I can vouch for the accuracy of most of his observations, having direct experience of all but two of the categories he lists. (Evidence for nos. 1 and 5 is anecdotal but seems convincing.) For the benefit of those who, having perused the list below, are wondering if the type concept has become so debased as to be almost worthless, I can only refer them to Urbanus's maxim: NEVER TRUST A TYPE LABEL. Always check specimens purporting to be types against the original descriptions to see how many specimens were mentioned, whether any of them was selected as a type and, if so, how it was singled out; check the locality, date, altitude and so forth on the label against the description and date of publication and, lastly, check the description against the specimen itself. If everything fits, you may well have at least a syntype before you.

W. R. D.

1. AEOLOTYPE:
   The type of a new species described from memory after the specimen had blown out of an open window.
2. ANONYMOTYPE:
   The specimen that would have been the holotype had the author who designated it in mentioning "holotype and 300 paratypes with identical data" bothered to distinguish it with a label. Cf pseudoholotype, infra.
3. ATYPE:
   A specimen labelled as the type of a nominal species by a museum curator despite it not being a member of the original author's type series. Frequent in British Museum.
4. CONFISCATOTYPE:
   A type that has been deliberately destroyed in order to facilitate the work of later researchers. E.g. the entire type series of Capsus intaminatus Walker mentioned by W.L. Distant, 1904, Ann. Mag. nat. Hist. (7) 13: 20.
5. DIPSOTYPE:
   Type specimen that fell into a glass of water subsequent to its description and was imbibed by its author.

6. DISLECTOTYPE:
   A specimen wrongly identified by a reviser as the type of an earlier author's nominal species. E.g. the supposed type of Cletus alienus Walker "redescribed" by Distant, 1909, Ann. Mag. nat. Hist. (7) 7: 426.
7. DYSLEXOTYPE:
   A type with its name misspelt on the label.
8. DUPLICITYPE:
   A specimen that is the type of two different species. E.g. the two specimens that form the basis of both Dindymus venustulus Walker and Ectatops venustus Walker.
9. ENIGMATYPE:
   A specimen bearing the label 'Type' but no name.
10. INACCESSOTYPE:
    Type deposited in an institution that does not loan type material or reply to correspondence. Frequent in Latin countries.
11. MUSEOTYPES:
    Specimens labelled 'Holotype', 'Allotype' or 'Paratype' by museum curators for the sake of neatness and regardless of the indications or lack of indications in the original description. In extreme cases (Atypes, above) such specimens are not even syntypic material. Frequent in a Belgian institution but by no means uncommon in almost all major european museums.
12. PSEUDOHOLOTYPE:
    A syntype that is labelled 'Type' or 'Holotype' in the handwriting of the author of the name, who omitted to mention in his paper that he had so singled it out from its fellows. Of frequent occurrence among Distant's syntypes. Cf. anonymotype, supra.
13. PSEUDONYMOTYPE:
    A genuine type specimen which bears only a speronym (vide Sperotype, infra) but was eventually described under another name, the author having changed his mind about what to call it but having omitted to change the label. E.g. the holotype of Cydnus pygmaeus Rambur, which bears the label 'Cydnus sulcicollis' in Rambur's own handwriting.
14. SPEROLECTOTYPE:
    A specimen labelled 'Lectotype' by a worker who intended so to designate it but never got around to publishing.
15. SPEROTYPE:
    A specimen labelled as type of a name (the Speronym) that the author intended to publish but never did. The type of a "manuscript species". The catalogue of types in the "D. E. I." by H. Gaedike, 1971, Beitr. Ent. 21: 79-159 lists a large number of Breddin's sperotypes.
16. SUBSTITUTOTYPE:
    A specimen substituted for the original specimen or specimens upon which a description was based because it was in better condition than the original material, which subsequently acquired the status of confiscatotype (q. v.). Frequsnt in older collections, e g. those of Linnaeus and Fabricius.
17. SUPERNUMERAROTYPE:
    A specimen labelled 'Type' that represents part of a syntypic series acquired by exchange, the remainder of the series being deposited at another institution where another specimen, also labelled 'Type' is to be found. E.g. some of Uhler's material divided between the USNM and the British Museum.