

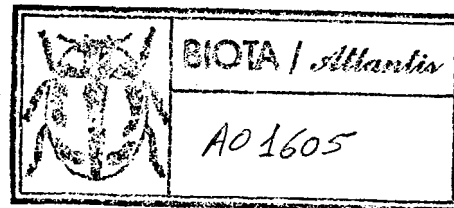
New host data of *M. rufilabris* Haliday detailed after the original material and deposited in the Museum of Budapest and in Haeselbarth's Collection (München):

1. 1 ♂: France, Digne, ex *Stigmella glutinosas* (Stainton) 10 April 1968.
2. 2 ♂: Italy, Pagnera, ex *Parafomoria liguricella* Klimesch 3 February 1968.
3. 16 ♂: Italy, Pagnera, ex *Trifurcula anthyllidella* Klimesch 4 March-24 April 1968
4. 39 ♀: Italy, Palmanova, ex *Acalyptis minimella* (Rebel) 18 April-3 May 1968 - 18 ♀ representing the light form and 21 ♀ the dark form.
5. 1 ♂: Italy, Palmanova, ex *Trifurcula anthyllidella* Klimesch 29 April 1969
6. 8 ♀ + 2 ♂: Italy, Taormina, ex *Ectoedemia euphorbiae* (Stainton) (not new) January 1949 (In laboratory?) educ. J. Klimesch.
7. 5 ♂: Italy, Trento, Vela Lungo d'Adige, ex *Ectoedemia iuridella* (Zeller) April 1946 educ. J. Klimesch.
8. 1 ♀ + 2 ♂: Italy, Trento, Ischia Podetti, ex *Stigmella obliquella* (Stainton) April 1946 educ. J. Klimesch.
9. 2 ♂: Italy, Trieste, ex *Ectoedemia turgatula* (Klimesch) (not new) 10 April 1969.
10. 21 ♀ + 2 ♂: Spain, Canary Islands, Gulmar, ex *Stigmella* sp. n. 15-28 June 1965 (food-plant of host *Rhamnus* sp.) educ. J. Klimesch. - All specimens representing the light form.
11. 1 ♀: Spain, Is. Mallorca, Calobra, ex *Stigmella suberlyora* (Stainton) 13 April 1968.
12. 2 ♀: Spain, Port Bou, ex *Ectoedemia suberis* (Stainton) - 1 ♀: 10 September 1967 and 1 ♀: 21 March 1968.
13. 1 ♀: Spain, Port Bou, ex *Stigmella suberlyora* (Stainton) 30 March 1968.

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*Mirax heinrichi* sp. n. from the U. S. A. and taxonomic  
bionomic data of two European *Mirax* species  
(Hymenoptera: Braconidae, Adeliinae)

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Abstract: *Mirax heinrichi* sp. n. from the U. S. A. and taxonomic/bionomic data of two European *Mirax* species (Hymenoptera: Braconidae, Adeliinae) - Description of the new species *Mirax heinrichi* from the U. S. A. (Maine) as well as a taxonomic/systematic comparison of its two related species. Taxonomic and bionomic data are given for the European species *Mirax dryochares* Marshall and *M. rufilabris* Haliday. With 11 original figures.

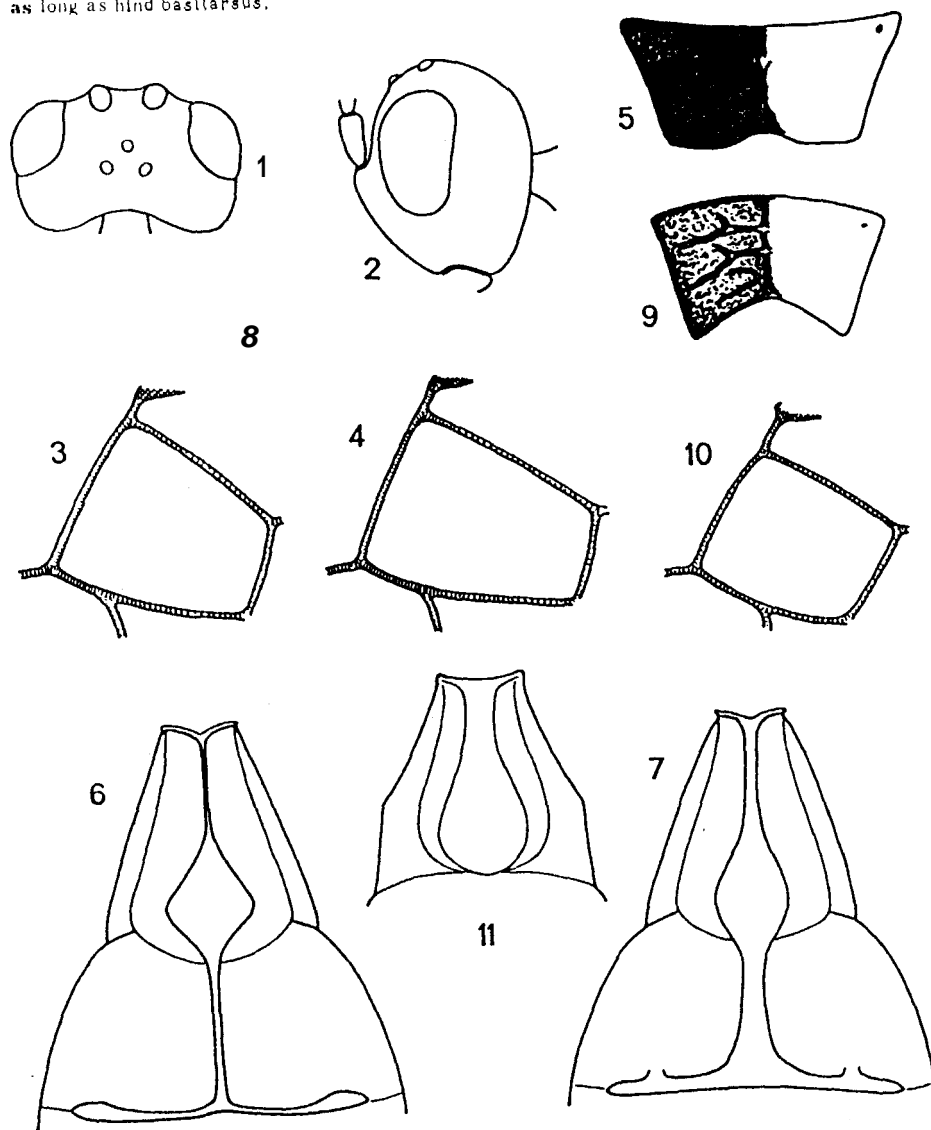
DESCRIPTION OF THE NEW SPECIES

*Mirax heinrichi* sp. n. ♀ (Figs 1-7)

Description of the holotype: Body 2.2 mm long. Head in dorsal view (Fig. 1) transverse. 1.8 times as broad as long, eye about one-third longer than temple. latter gradually ind. occiput excavated. Eye in lateral view (Fig. 2) 1.7 times higher than wide, temple just minutely wider than eye. Ocelli forming an equilateral triangle, distance between and a hind ocelli somewhat longer than diameter of hind ocellus; OOL twice as long as (Fig. 1). Face one-third wider than high. Inner margin of eyes weakly converging ventrally. Clypeus one-third wider below than high medially; labrum four times wider than high. In space somewhat shorter than basal width of mandible. Maxillary palp as long as height of head. Head coriaceous and dull. Clypeus and cheek almost smooth and shiny, temple rugose except along hind margin of eye (here coriaceous). Antenna somewhat longer than body, with 14 joints. First flagellar joint somewhat longer than second joint and six times as broad. further joints gradually shortening so that penultimate joint 2.6-2.7 times as broad. last joint pointed.

Mesosoma in lateral view one-fifth longer than high. Mesonotum somewhat wider than tegulae but long. Notaulix distinct anteriorly. Prescutellar furrow present, uncrenate. Mesonotum and scutellum coriaceous, dull. Propodeum rugose with a few and rather diverse rugae, and with a medio-longitudinal carina (Fig. 5). Meso- and metapleuron polished, sternaulix indistinct. - Legs usual in form. Hind femur 3.4-3.5 times as long as tibia, hind tibia and tarsus equal in length. Hind basitarsus as long as tarsal joints 2-4. Fore wing somewhat longer than body. Pterostigma 2.3 times as long as wide and radial vein from its middle, metacarp somewhat shorter than pterostigma. 1-SR-M 11 slightly longer than 1-M (= n. bas.), m-cu (= n. rec.) nearly half as long as 1-M (thus discal cell not quadratic); cu-a (= nervulus) issuing from proximal third of CU1 (= d) 2-CU1 = d2 twice as long as 1-CU1 (= d1) (Fig. 3).

Metasoma somewhat shorter than mesosoma. Sclerotized part of first tergite linear-form anteriorly, posteriorly broadening round (i.e. some kind of spatuliform appearance); sclerotized part of second tergite reversed T-form (Fig. 6); otherwise tergites 1-2 and median two-thirds of tergite 3 desclerotized. Further tergites sclerotized. Ovipositor sheath as long as hind basitarsus.



Figs. 1-7. *Mirax heinrichi* sp. n.: 1 = head in dorsal view, 2 = head in lateral view, 3-4 = discal cell of fore wing: holotype (3) and paratype (4), 5 = propodeum, 6-7 = tergites 1-2: holotype (6) and paratype (7). - Figs. 8-10. *M. lexana* Muesebeck: 8 = head in dorsal view, 9 = propodeum, 10 = discal cell. - Fig. 11. *M. coptodiscae* Walley: first tergite

Body tricoloured with brownish yellow, blackish brown and straw yellow pattern. Head brownish yellow; frons medially, ocellar field, occiput and temple blackish brown (latter along hind margin of eye brownish yellow). Cheek and oral parts (palps, maxillae) straw yellow, mandible yellow. Antenna darkening distally; scape, pedicel and first joint brownish yellow, flagellum faintly darkening brown. Mesosoma blackish brown; pronotum, prosternum, anterior margin of mesopleuron and metanotum brownish yellow. Tegulae yellow. Legs yellow, coxae and first trochanters straw yellow. Metasoma yellow; anterior part of first tergite, entire second tergite and last three tergites dark brown. Basal third of ovipositor sheath yellow, otherwise dark brown. Wings subhyaline, pterostigma brown. veins opaque brown to yellowish.

The single female paratype deviates from the holotype in the following features: head in dorsal view 1.77 times as broad as long. Ocelli forming rather an isosceles triangle, distance between fore and a hind ocelli slightly greater than that between hind two ocelli; OOL more than twice as long as POL. Pterostigma wide, 1.7 times as long as wide, melacarp distinctly shorter than pterostigma; 1-SR-M one-quarter longer than 1-M (Fig. 4). Sclerotized part of first tergite anteriorly somewhat less linear-form and posteriorly broadening gradually, sclerotized part of second tergite somewhat wider (Fig. 7). - Dark colour of body more extended. Antenna blackish brown. Pronotum and prosternum with rusty suffusion, otherwise mesosoma blackish brown. Metasoma dark brown, only sternites 1-2 yellow. Pterostigma basally and apically whitish, otherwise brown (fading?).

♂ and host unknown.

Type material: Holotype ♀ + 1 ♀ paratype: U.S.A. - Malne, Franklin Co. Strong, Y August 1976, leg. Heinrich. Holotype and 1 paratype are deposited in the Hungarian Natural History Museum, Budapest; Hym. Typ. No. 7151 (holotype) and 7152 (paratype).

The new species is dedicated to its collector, the late Dr. Cerd Heinrich, the well-known specialist of Ichneumonidae.

With the help of Muesebeck's key (1922) the new species, *Mirax heinrichi* sp. n., runs to *M. texana* Muesebeck, 1922 (U.S.A.). their common features are as follows: (1) vertex without a polished groove between median ocellus and occiput, (2) first flagellar joint somewhat though distinctly longer than second joint, (3) propodeum sculptured entirely. The two species are distinguished with the following key:

1 (2) Temple in dorsal view only about one-third shorter than eye, gradually rounded; OOL twice as long as POL (Fig. 1). Propodeum rugose with a few and rather transverse rugae (Fig. 5), 1-SR-M slightly to one-quarter longer than 1-M and m-cu nearly half as long as 1-M (i.e. first discal cell not quadratic), cu-a issuing from proximal third of CU1 (i.e. 2-CU1 twice as long as 1-CU1) (Figs 3-4). Hind femur somewhat less thick, 3.4-3.5 times as long as broad. Head brownish yellow; ocellar field, occiput and temple blackish brown. p: 2.2 mm. - U. S. A. : Malne

*M. heinrichi* sp. n.

2 (1) Temple in dorsal view half as long as eye, constricted; OOL about one-third longer than POL (Fig. 8). Propodeum with rather transverse carinae and a few transverse rugae. Interspaces shiny (Fig. 9), 1-SR-M slightly longer than 1-M and m-cu only one-sixth shorter than 1-M (i.e. first discal cell nearly quadratic, cu-a issuing from middle of CU1 (i.e. 1- and 2-CU1 equal in length) (Fig. 10). Hind femur somewhat thicker, thrice as long as broad. Head straw yellow. ♂: 1.5 mm. - U.S.A. : Florida, Michigan, Texas

*M. lexana* Muesebeck, 1922

Since the comprehensive work of the *Mirax* species of the Nearctic Region by C.F.W. Muesebeck (1922) only one species have been described from North America under the name *Mirax coptodiscae* Walley, 1941. The two species may be separated by the following key:

1 (2) In dorsal view temple receded and half as long as eye (cf. Fig. 8). Ocelli very small, distance between two ocelli twice as long as diameter of an ocellus. Sclerotized plate of first tergite narrow at base, broadening in distal half (Fig. 11). Propodeum smooth and shiny, along rather weak medio-longitudinal carina rugulose to uneven. Head and mesosoma black, ♂: 1.5-1.6 mm. - Canada (British Columbia), U.S.A. (Washington, California)

*M. coptodiscae* Walley, 1941

2 (1) In dorsal view temple rounded and one-third shorter than eye (Fig. 1). Ocelli less small, distance between two ocelli somewhat longer than diameter of hind ocellus. Sclerotized plate of first tergite linearform anteriorly and broadening to rounded posteriorly (Figs 6-71). Propodeum rugose. Head and mesosoma blackish brown. face brownish yellow, pronotum and prosternum with brownish yellow to rusty pattern. Y: 2.2 mm. - U.S.A. (Malne)

M. heinrichi sp. n.

Checklist of the Mirax Haliday, 11133 species of America, 8 species are distributed in the Nearctic and 3 species in the Neotropical Region:

aspidiacae Ashmead, 1893: Canada, USA  
 brasiliensis Brues, 1912: Brazil  
 coptodactylae Walley, 1941: Canada, USA  
 ectoedemiae (Rohwer, 1914): USA  
 heinrichi sp. n.: USA  
 insularis Muesebeck, 1937: Cuadeloupe, Dominica. Porto Rico (introduced), St. Lucia (introduced)  
 lithocolletidae Ashmead, 1893: Canada, USA  
 malcolmi Marsh, 1979: Colombia  
 minuta Ashmead, 1893: USA  
 pallida Ashmead, 1893: USA  
 texana Muesebeck, 1922: USA

#### TAXONOMIC AND BIONOMIC DATA OF TWO EUROPEAN MIRAX SPECIES

Dr. E. Haeselbarth (München) was kind enough to put at my disposal his Mirax collection amounting 132 specimens and originating from a few countries of Europe (Federal Republic of Germany, northern Italy, Spain; Canary Islands). Elaborating this material parallel with 26 Mirax specimens in the collection of the Hungarian Natural History Museum (Budapest) it seems reasonable to contribute the taxonomic and bionomic data obtained which may be considered as a completion to my previous paper of the Palearctic Mirax species (Papp 1984).

al Taxonomic remarks of Mirax dryochaes Marshall and M. rufilabris Haliday

Colour of body of both species is usually dark: head, mesosoma and metasoma blackish brown to pitch-black (excepting yellow or pale first and sometimes second tergites) and at most with brownish to rusty suffusion on head (face) and pronotum/prosternum; legs always light coloured: yellow to straw yellow, at most (hind) coxae brownish to blackish. This pattern of colour is characteristic to the specimens taken in Europe. Contrary to this colouration a sample (2 ♀ + 2 ♂) of Mirax rufilabris bred from a "Stigmella sp. n." (Lep. Nepticulidae) taken in Canary Islands (Spain) and an another sample (1 ♀) of the same species bred from Acalyptis minimella Rebel (Lep. Nepticulidae) taken in northern Italy (Palmanova) are representing a light coloured form: head, meso- and metasoma reddish yellow to light brownish at most with brownish tint on mesosoma (pronotum, mesopleuron, metanotum, propodeum) sutures. The sample of northern Italy consists totally of 3 ♀ specimens of which 21 belong to the dark coloured form and the rest (18 ♀) is but light coloured. A similar colour deviation was observed in a little sample (7 ♀ + 2 ♂) of Mirax dryochaes bred from Trifurcula anthyllidella Klimesch (Lep. Nepticulidae) taken in northern Italy (Pagnera), of which 2 ♀ are light coloured (head, meso- and metasoma reddish yellow, mesonotum and hind tergites brownish), further specimens (5 ♀ + 1 ♂) representing the nominate dark coloured form.

Light coloured form is also occurring in among the population of the European part of the USSR considering Tobias's remark (1986: 459) on M. rufilabris: "rarely body entirely brownish yellow" (translated from Russian).

Besides the colour deviation indicated for the two Mirax species in Europe no further morphological differences are to be established between the dark or black(ish) and the light or reddish yellow forms. At present it can be stated that there are two colour forms within M. rufilabris and supposedly within M. dryochaes in Europe even in the case of one bred sample. The genetic relations as well as the taxonomical value and the zoogeographical distribution of the two forms are rather obscure and further investigations are needed in this respect.

b) Host list of Mirax dryochaes Marshall

(Up to now only a single host datum was published as "Nepticula sp." (Shenefelt 1973: 677) for this species. Consequently all host data enumerated subsequently are new to science)

Lep. Nepticulidae:

Ectoedemia tergestina (Klimesch)  
 weaveri (Stainton)  
Stigmella myrtillella (Stainton)  
Trifurcula alypella Klimesch  
 anthyllidella Klimesch  
 thymi (Szócs)

o-o-o

New host data of M. dryochaes detailed after the original material and deposited in the Museum of Budapest and in Haeselbarth's Collection (München):

1. 2 ♀ + 3 ♂: Federal Republic of Germany. Guntersberg a. O. 6 March 1929, 2 ♀ ex Ectoedemia weaveri (Stainton) and 3 ♂ ex E. weaveri (Stainton) seu Lithocolletis inopella Zeller
2. 2 ♀: German Democratic Republic, Berlin: Köpenick 7 July 1929, ex Ectoedemia weaveri (Stainton) (its food-plant Vaccinium vitis-idaea), educ. M. Hering.
3. 1 ♀: Italia, Pagnera, ex Stigmella myrtillella (Stainton) 20 April 1968.
4. 3 ♀: Italia, Pagnera, ex Trifurcula alypella Klimesch July 1968.
5. 8 ♀ + 2 ♂: Italia, Pagnera. Trifurcula anthyllidella Klimesch 7 ♀ + 2 ♂: 11-20 April 1968 and 1 ♀: 7 July 1968.
6. 1 ♂: Italia, Trieste, ex Ectoedemia tergestina (Klimesch) 10 April 1969.

c) Revised list of the hosts of Mirax rufilabris Haliday completing with new data indicated by an exclamation mark (!)

The host list of M. rufilabris given by Shenefelt 11173: 678-679 are revised on the basis of van Niekerken's (1986) checklist of Nepticulidae.

Lep. Nepticulidae:	<u>Stigmella atricapitella</u> (Haworth)
! <u>Acalyptis minimella</u> (Rebel)	betulicola (Stainton)
<u>Ectoedemia agrimoniae</u> (Frey)	carpinella (Heinemann)
? <u>angulifasciella</u> (Stainton)	florilactella (Haworth)
<u>euphorbiella</u> (Stainton)	glutinosa (Stainton)
hexapetalae (Szócs)	microtherella (Stainton)
septembrella (Stainton)	obliquella (Heinemann)
Isuberis (Stainton)	prunetorum (Stainton)
tergestina (Klimesch)	Isuberivora (Stainton)
turbidella (Zeller)	sallcis (Stainton)
<u>Parafomia clivora</u> (Peyerimhoff)	thuringiaca (Petty)
<u>hellanemella</u> (Herrich-Schäffer)	illyriella (Stainton)
! <u>liguricella</u> (Klimesch)	! <u>Trifurcula anthyllidella</u> Klimesch

o-o-o