

A Synopsis of the Heteroptera of Hungary and the Neighbouring Areas. I. 1. Brachyplatidae; 2. Cydnidae

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On this occasion, I deal with the families *Brachyplatidae* and *Cydnidae* of the superfamily *Pentatomoidea*. I give the characterization of the species based on the rich material of the Museum, a critical selection of scattered literature and my own field observations.

Key to Families, Subfamilies, and Tribes of Pentatomoidea of Hungary and the Neighbouring Areas

1. Scutellum covers abdomen & wings. Body almost hemispheroid..... 1. fam.: *Brachyplatidae*
- Scutellum wholly or almost covers abdomen. Body convex, oval..... 2
2. Scutellum reaches to end of abdomen leaving free only a narrow part of wings 3. fam.: *Scutelleridae*
 - A. Scutellum broader than base of sexangular pronotum (bordered by posterior angles) subfam.: *Scutellerinae*
 - Scutellum as broad as base of pronotum subfam.: *Graphosominae*
- Scutellum extends over (sometimes till) middle of abdomen, leaving wings free 3
3. Tibia with dense spines, fossorial 2. fam.: *Cydnidae*
- Tibia scarcely haired, cursorial 4. fam.: *Pentatomidae*
 - A. Tarsus bisegmented subfam.: *Acanthosominae*
 - Tarsus trisegmented B
 - B. Rostrum strong and thick; base of basal segment in canal reaching to middle of head subfam.: *Asopinae*
 - Rostrum very slender, basal segment wholly in canal subfam.: *Pentatominae*
 - a. External margin of body compressed, edges sharp, body oval .. tribus: *Sciocorini*
 - External margin not compressed, not sharp..... b
 - b. Body long and convex; in middle of mesosternum a longitudinal groove never with a crest tribus: *Aelini*
 - Crest in middle of mesosternum, sometimes in groove c
 - c. Opening of stink glands definitely visible, coloration never metallic tribus: *Pentatomini*
 - Opening not so; coloration metallic blue or green; basic color sometimes with black, yellow or red pattern . tribus: *Eurydemini*

1. Fam. **Brachyplatidae** Leston
(*Plataspidae* Dall., *Coptosominae* Kirk.)

1. **Coptosoma** Lap.

Head scutiform flat, sharp, edges slightly recurving. Eyes big, hemispheroidal, exserted. Rostrum extending over socketing of third pair of legs. Wings twice as long as abdomen. Sternum not shiny, blackish grey. Legs finely, tibiae towards the tip densely, haired.

Coptosoma scutellata Geoffr.

A pale yellow streak around external ventral margin of abdomen. Yellow oval spots around stigmas. End of scutellum of males with semicircular emargination but not emarginated in females; viewed from above end of scutellum in a straight line in males, bulging in female (figs. 5—6). Some misunderstandings might have arisen concerning the figures in literature of this species, because, disregarding its sexual dimorphism, illustrations were published without noting sexes. Its odor is repulsive. 3.5—4.5 mm. — Larvae light colored, convex but not round, longish. Body covered by fine long hairs. — A characteristic insect of dry soils, though Villiers (37, p. 39) collected it chiefly in wet ground. Prefers lime soil. According to Gulde (8, p. 336) its occurrence on lime soils is local, but may turn up here in great numbers. Frequent also in wheat fields. Mulsant and Rey (29, p. 11) found it on oak twigs near the ground. On various plants, lime-claiming Papilionaceae (33, p. 11) and chiefly *Coronilla varia* stems where larvae and moulted specimens sit. Frequent also on *Lathyrus* and *Lupinus*. From April to September, on plain, hilly, and mountainous areas. Mancini caught it in 527 meters (28, p. 48). Widely spread, in and around Hungary but not yet published from Rumania.

2. fam. **Cydnidae** Billberg

Slowly moving, ground dwelling insects. Found singly or more together in soil, under stones, in anthills, or around plants. Possibly they live on roots. Of their food habits very little is known. Frequent at end of summer, very rare in spring. In plain and mountainous areas. Nine genera occur in and around Hungary.

Key to Genera of the Cydnidae*

- | | |
|--|----------------------------|
| 1. Color light brown | 2 |
| — Color never light brown | 3 |
| 2. 7.5—8 mm. Posterior femur and tibia strongly swollen (fig. 7.), convex | 1. <i>Stibaropus</i> Dall. |
| — These never swollen (fig. 8.), flat | 2. <i>Byrsinus</i> M. & R. |
| 3. Cheeks extend far over clypeus, enclosing it; scutellum barely as long as broad at base | 5. <i>Cydnus</i> F. |
| — Cheeks not or barely extending over clypeus; scutellum longer than broad at base | 4 |
| 4. Anterior tibia shovel-like, its end flat and broad | 5 |
| — Anterior tibia three-edged and not flat | 6 |
| 5. Anterior margin of head spinose with long hairs | 3. <i>Aethus</i> Dall. |
| — Head anteriorly without spines and hairs .. | 4. <i>Geotomus</i> M. & R. |

* Contrary to other authors, and in accordance with Villiers (38, p. 42) I relagate the genus *Thyreocoris* to *Scutelleridae*.

6. Broad mesosternum simple with deep longitudinal groove in middle, unicolored brown or black; head anteriorly round (fig. 4.)..... 9. *Ochetostethus* Fieb.
 — In mesosternal medium groove a fine crest, margin of corium with light pattern, if unicolored, of 6 mm length; head not round anteriorly..... 7
 7. 3,5—4,5 mm. Eyes exerted 6. *Legnotus* Schiödte
 — 6 mm or larger, eyes not so much exerted..... 8
 8. Pronotal margin without pattern, unspotted..... 7. *Sehirus* A. & S.
 — Pattern or spots on pronotal margin or elsewhere..... 8. *Canthophorus* M. & R.

1. *Stibaropus* Dall.

Last segment of perlate antenna swollen. Anterior tibia gradually tapering (almost to a point). Segments of anterior tarsus commence well before external terminal part of tibia (fig. 7.). Posterior tibia terminally broadened. These superiorly obliquely cut, curving a little downwards.

Stibaropus henkei Jak.

Oval. Head longer than broad (Fig. 3.), according to Vidal (37, p. 20) as long as broad, marginally spinose. Directly before end of clypeus 2 conspicuous spines. Posterior margin of pronotum barely three times as broad as anteriorly. Pronotum posteriorly with weak, scutellum strong, rugulosity. Membrane curving strongly downward. 7,5—8 mm. — Larvae easily distinguished even in first stage by characteristic legs and very convex body. Color light brown, abdomen creamy. — Very rare. Known in Europe from Bulgaria, southern Russia and from sandy areas in Hungary only.

2. *Byrsinus* Fieb.

Whole body (especially on margins) covered by dense fine long hairs. Similarly to *Stibaropus*, second segment of perlate antenna thinner.

Byrsinus fossor M. & R.

Corium conspicuously, scutellum and pronotum slightly, impunctate. End of scutellum bulging, ending semicircularly. Anterior tarsus commences at end of tibia. 4,5 mm. — Larvae pale yellow, also very hairy, resembling adults and therefore easily recognizable. — Very rare. Known in Europe from Bulgaria, southern Russia, southern France and from sandy areas in Hungary.

3. *Aethus* Dall.

(*Cydnus* F., *Microporus* Uhl., *Cydnus* Sign.)

Head, margins of pronotum, corium, and femur with hairs from deep pores. In sandy areas, under grass.]

1. Hairs of sternites long *A. flavicornis* F.
 — Sternites hairless *A. nigrinus* F.

Aethus flavicornis F.

Yellowish brown to black. Head anteriorly narrow, margins recurved. Pronotum strongly impunctate, medianly smooth. Margin not light, contrary to *nigrinus*. Sculpture of scutellum less deep. No bristles on base of external margin of corium. Numerous fine hairs ventrally.

3,5 mm. — In sandy areas. According to Mancini (28, p. 48) in plain terrains. Lives dug in sand. G u l d e observed it (8, p. 338—9) frequently together with *A. nigritus* but in smaller numbers. In hot weather it runs about on sand: the wind blows it together in depressions. Prefers roots of *Polygonum convolvulus* and *Centaurea*. In April—May. Literature data: from March to June (in greatest numbers), and from August to October. Rare. In plains and hills

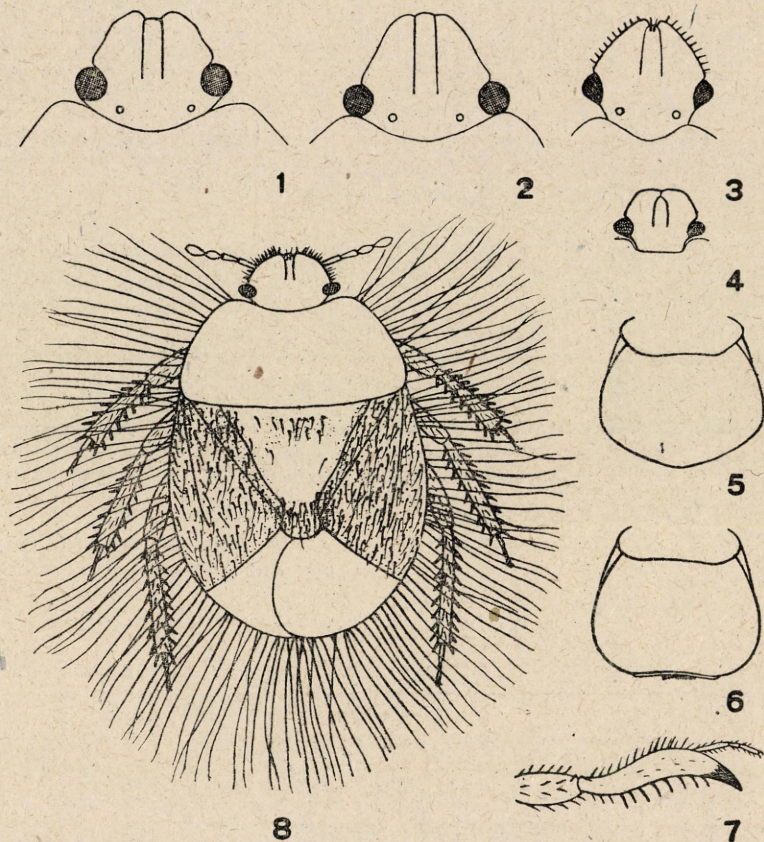


Fig. 1. Head of *Canthophorus bicolor* L. — Fig. 2. Head of *Canthophorus sexmaculatus* Ramb. — Fig. 3. Head of *Stibaropus henkei* Jak. — Fig. 4. Head of *Ochetosthetus nanus* H. Sch. — Fig. 5. Abdomen of female *Coptosoma scutellata* Geoffr. — Fig. 6. Abdomen of male *Coptosoma scutellata* Geoffr. — Fig. 7. Anterior tibia of *Stibaropus henkei* Jak. — Fig. 8. *Byrsinus fossor* M. & R. — Drawings by Mrs. E. K a k a s s.

Aethus nigritus F.

Shiny brown to black. Margins of yellowish-red head recurving. On margins of pronotum light flat narrow margin. Scutellum darker than elytrae. Clavus and legs yellowish-red. Hairy pores on both sides of body. 4—5 mm. — Freshly moulted specimens yellowish brown and unshiny, later dark and finally black and shiny. — Color of larvae pale brown, abdomen creamy. Transverse light brown streaks dorsally, light brown spots at ends of segments. — Adults run about on barren grounds, in sandy places, fields, and paths. Abundant in sandy ditches, digging under fallen leaves or under plants hanging down from sandy ledges. Also under grasses and, most frequently, on roots of *Artemisia campestris*. To be found also on *Calluna* and *Achillea*. According to G u l d e (8, p. 338), from April to June, then in autumn. In our area in July and August, too. Hibernating. Frequent, widely spread; in plain and hilly areas.

4. *Geotomus* M. & R.

Oval, black, shining. A narrow margin of body color around head and pronotum. Opening of stink gland with unshining ostiolar peritreme. Ground-dwelling.

1. On external margin of corium base 2—4 points with bristles. Sternites laterally barely impunctate *G. punctulatus* Costa.
- Only one point with bristles. Sternites laterally strongly impunctate....
..... *G. elongatus* H. Sch.

Geotomus punctulatus Costa

Oval. Some long silky hairs on recurving edge of head. Corium barely but visibly impunctate 3,5—4,5 mm. — Prefers sandy, dry places. Villiers (38, p. 40) mentions it also from seashores. Our scarce data have it from May—June, October. In our area not found yet in Czechoslovakia. Rare, on plains, hills.

Geotomus elongatus H.-Sch.

Elongated oval. Corium strongly impunctate. 4,5—5 mm. Generally in dry sandy places but also from the shores of the Tisza. March—June. According to literature, more frequent in summer, rare in spring. Under stones, among roots of *Sinapis* species. Infrequent, in plains and hills.

5. *Cydnus* F. (*Brachypelta* A. S.)

Dorsally black to brown, slightly shining, oval. Ventrally variously brownish with strong shine but never metallic. Hairless margins of head strongly recurving. Strong transverse depression on pronotum. Scutellum convex, terminally pointed, abruptly flattening. Membrane milky white.

Cydnus aterrimus Forst.*

Transverse depression of pronotum furrowy in male, flat in female. Prosternum pointed. Ground color of membrane black, 9—11 mm. — In barren and sandy places, on lime soil, under stones. Mancini (28, p. 48) found it in plain areas. Mainly on *Euphorbia* species (*cyparissias* and *segueriana*). G u l d e (8, p. 339) found two generations, April—June, and August—October, in masses. Also in July in our area. Incomplete data exclude possibility to prove two generations. Widely spread, not rare, from the plains to high mountains.

6. *Legnotus* Schiödte

Eyes protruded, as high as broad. Membrane hyaline, no veins visible, 3,5—4 mm.

1. Corium with white broad margin, clypeus shorter than cheeks, head anteriorly emarginate *L. albomarginatus* Gz.
- Corium at the base edged narrowly with yellow to red, clypeus not or barely shorter than cheeks. Head not or barely emarginate.....
..... *L. picipes* Fall.
- a. Corium with black margin at base ... *L. picipes* v. *fumigatus* Costa

* I found a specimen resembling *C. aterrimus*, differing only in the orange color of its corium. I describe it as ab. *orangeus* ab. nov. Holotype female from Nagyrábé, leg. H o r v á t h, 8. July 1934; in the Collection of the Museum of Natural History, Budapest.

Legnotus albomarginatus Gz.

Black, more or less bronze shining. 3,5—4,5 mm. — On barren, sandy soils, in woods, meadows, grasses, and shrubs. Mainly from stems of *Stachys silvatica* but also from *Artemisia campestris*, *Teucrium montanum*, *Clematis recta*, *Galium* and *Sinapis* species (33, p. 10). Appears early in spring. Literature data: from April to August. In our area till middle of October; not rare. Found in plains and hills.

Legnotus picipes Fall.

Black. 3,5—4,5 mm. — In dry, sandy, sloping meadows, on grass. Mainly on *Galium mollugo*, *Artemisia campestris*, and *Juniperus* species. From plains to mountains: March—August. Rarer than *L. albomarginatus*.

Legnotus picipes v. *fumigatus* Costa

Middle of white membrane smoke gray. — July, according to literature. Rare.

7. *Sehirus* Am. Serv.

Oval, generally unshining black, in contrary with blackish violet or bluish metallic *Canthophorus* species. 6—11 mm.

- | | |
|--|-----------------------------|
| 1. Only membrane yellowish, never white or black, body uniform black... | 2 |
| — Membrane white or black | 3 |
| 2. 8—11 mm. Black without bronze lustre.. | <i>S. morio</i> L. |
| — 6—7 mm. Black, with slight metallic shine.. | <i>S. luctuosus</i> M. & R. |
| 3. No emargination anteriorly to head. Membrane black, broadly oval... | <i>S. ovatus</i> H.-Sch. |
| — Head anteriorly with crescent emargination, membrane white. Elongated oval | <i>S. parens</i> M. & R. |

Sehirus morio L.

Oval, antennae brown to dark brown. Loudly stridulating, mainly when disturbed. Sound similar to longicorn beetles'. Its highly developed stridulatory organs hidden under hemelytra. — 8—11 mm, seldom smaller. In barren, sandy areas, fields, meadows, gardens, under grasses. Found principally under dead leaves of *Boraginaceae*, mainly *Borago*, *Anchusa*, *Cynoglossum*, then *Thymus*, *Erica*; in forest borders and also in tree-top strata (34, p. 279—290). — Larvae together with adults. Under grasses or leaves during hibernation. Hibernated adults may be collected from April, seldom from March, to June, larvae from June to August, fresh adults from August till autumn (8, p. 340). Rare; in plain and hilly country. Called »Mohrenwanze« (Moor Bug) in Germany, while in Hungary the species *Eurygaster maura* is called »mór-poloska« (Moor Bug).

Sehirus luctuosus M. & R.

Oval, second segment of antenna yellowish red, otherwise brown. On sandy soil, under dead and decaying leaves; chiefly on roots and under leaves of *Verbascum* and *Artemisia campestris*. Injurious to rye. From March to August, in Hungary and neighbouring areas to October. In singles; on plains and hills (in mountains even over 1700 meters, 28, p. 48).

Sehirus ovatus H.-Sch.

7,5—9,5 mm. From April to June, on dry sandy places. Known also from the Balcans. Rather rare, in plain and hilly areas.

Sehirus parens M. & R.

8—9 mm. From Hungary only, rare.

8. *Canthophorus* M. & R. (*Sehirus* Am. Serv.)

Black, violet or blue metallic colors, light pattern, smaller or larger spots. Clypeus generally longer than cheeks; 6—8 mm.

- 1. Well visible light pattern on pronotum and corium..... 3
- No pattern on corium and pronotum..... 2
- 2. Small white spot in middle of corium, never blue or violaceous.....
..... *C. biguttatus* L.
 - a. No white spot on corium or bluish shine . *C. b. v. concolor* Nick.
- Corium unspotted; metallic bluish or violaceous, membrane whitish, connexivum with white spots *C. dubius* Scop.
 - a. Membrane black, shiny metallic blue-green.....
..... *C. d. v. melanopterus* H.-Sch.
 - b. Membrane white with black shine *C. d. v. impressus* Horv.
- 3. Light pattern on pronotum and corium reaching to posterior angles, those on corium also big, with bluish shine .. *C. sexmaculatus* Ramb.
- Light pronotal spots reaching to middle of sides, round
..... *C. bicolor* L.

Canthophorus biguttatus L.

Black, fifth segment of antenna elongated, fusiform. External edge of connexivum, at least on last segment, with pale yellow streak. Membrane brown or black, 6—8 mm. — In sandy ground and salty areas, from field flowers, especially *Sarothamnus*, *Calluna*, *Erica*, and *Thymus* (33, p. 10). Mostly in singles, from June to August. Known in our area, unpublished still from Rumania and the Balkans. Not frequent; from plains to mountains (even 1800 meters, 28, p. 48).

Canthophorus biguttatus v. concolor Nick.

Uniform black, fifth segment of antenna swollen fusiform. Membrane, excepting external margin, uniform brown or black. 6—7 mm. Found together with nominate form; rare. Known from some localities only in plains and mountains.

Canthophorus dubius Scop.

Dark blue, rarely black. Pronotal transverse depression broad but inconspicuous. Ostiolar depression narrow, archly elongated. 6—8 mm. — Larvae bluish-black, abdomen yellowish-red with three bluish-black transverse streaks, margins with bluish-black tessellation. According to literature it lives from July to autumn in dry pastures, on lime soil, under leaves and grasses but also on bushes and trees. Prefers *Thesium*, *Helichrysum*, *Artemisia campestris*, *Salvia*, and *Echium*. Hibernating (8, p. 341). Rare in Hungary and the neighbouring areas. In plain, hilly, and mountainous regions, up to 1100 meters (28, p. 48).

Canthophorus dubius v. melanopterus H.-Sch.

Pronotal transversal depression barely visible. Ostiolar depression broad, archely elongated, 6—8 mm. — Generally under stones in spring, otherwise with nominate form but in greater numbers and more frequently. From April to July, rather rare. On plains and hills.

Canthophorus dubius v. impressus Horv.

Blackish, head and anterior pronotum bluish. Transversal depression well visible. Literature data: from May to end of September. Mainly in mountains, but also in plains; rare.

Canthophorus sexmaculatus Ramb.

Oval, black. Clypeus barely longer than cheeks (Fig. 2.), anterior part of latter not recurving, their swollen ventral anterior part yellowish-white. 6—7 mm. — According to literature, found on Umbelliferae and wheat. Widely spread, from plains to mountains.

Canthophorus bicolor L.

Clypeus shorter than cheeks. (Fig. 1.) Anterior parts of latter broadly recurving; swollen anterior ventral parts concolorous with body, but never white or yellowish-white. 5—8 mm. — On pronotum of larvae three, on corium and scutellum one, big yellowish-white spots. Dorsally on yellow abdomen broad brown, transverse streaks; large brown spots on external sides of segments. In wet valleys, forest borders, woods, on red *Stachys* species, especially on the odoriferous *S. silvatica* and *palustris*. Also on flowering blackthorn and hawthorn. On trees in spring, on Labiatae in summer. Also in gardens. If in masses, injurious to berries and horticultural vegetables (8, p. 341). Hibernating under dead leaves and stones. Adults from March to October, mainly in August. — Larvae from middle of May to end of June together with adults. In our area widely spread, except Rumania. Mancini found it from plains to high altitudes (1100 meters, 28, p. 48).

9. *Ochetostethus* Fieb.

Head, pronotum and scutellum bluish-black, corium reddish. In sandy places; sporadic.

Ochetostethus nanus H.-Sch.

Facial part twice as big as vertex. Deep transversal pronotal depression medianly. Tip of scutellum not reaching external apical angle of corium. Membrane with white, black or brownish veins. 3—4 mm. — On sandy dry soil or on trees. Prefers (33, p. 11) *Verbascum*, *Artemisia campestris*. From April to September. More frequent in summer. Rather rare, unknown from Austria and Czechoslovakia. In plain and hilly, according to literature, even in mountainous areas (28, p. 48).

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Magyarország és a környező területek Heteropteráinak határozója. I.

Írta: Cs. Halászfy Éva, Budapest

A szerző a szóbanforgó csoport morfológiájának rövid ismertetése után közli az alcsaládok, tribusok és fajok határozókulcsait, majd bővebben kitér azok jellemző tulajdonságaira. Vázolja elterjedésüket, közli cönológiai és ökológiai adataikat és saját ezirányú megfigyeléseit.

A munka magában foglalja a Magyarországon és a környező területeken jelenleg ismeretes *Brachyplatidae* és *Cydnidae* családokba tartozó összes Heteropterákat változataival együtt. A szerző e két családon belül 10 nemet, 21 fajt és 4 változatot ismertet. Az egyes fajok határozókulcsait, melyek bizonytalan és pontatlan meghatározásokhoz vezetnek, revideálja, a hiányokat kiegészíti, és az egyes fajok részletesebb jellemzését adja. Kiemeli a közép-európai faunából a csak Magyarországon ismeretes fajokat. Végül a *Cydnus* nemből egy új változat leírását adja.

Е. Халасфи (Будапешт):

Определительная таблица для Венгрии и прилегающих областей. I

(Резюме)

После краткого описания морфологии названной группы автор предлагает определительные таблицы отдельных подсемейств, родов и видов, перечисляя их самые характерные черты. Трактую о распространении важнейших видов он приводит их ценологические и экологические данные, опираясь при этом на собственные наблюдения.

В статье обработаны все Heteroptera со всеми их вариациями, принадлежащие к семействам *Brachyplatidae* и *Cydnidae*, водящимся в Венгрии и прилегающих странах. В названных семействах различаются 10 родов, 21 вид и 4 вариации. Определительные таблицы, опубликованные ранее, проверяются, пробелы в них заполняются, а ошибки исправляются. Видам, водящимся только в Венгрии, уделяется особое внимание. Наконец, описывается новая вариация, принадлежащая к роду *Cydnus*.

