

# On species of Platygastriinae (Hymenoptera, Platygastriidae) reared from *Xylodiplosis praecox* (Winnertz, 1853) (Diptera, Cecidomyiidae)

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Buhl, P. N.: On species of Platygastriinae (Hymenoptera, Platygastriidae) reared from *Xylodiplosis praecox* (Winnertz, 1853) (Diptera, Cecidomyiidae). Ent. Meddr 65: 45-47. Copenhagen, Denmark 1997. ISSN 0013-8851.

Females of the platygastriines *Metanopedias lasiopterae* (Kieff.), *Leptacis nydia* (Walk.), *Synopeas jasius* (Walk.), and *Amblyaspis ?scelionoides* (Hal.) have been reared from the cecidomyiid *Xylodiplosis praecox* (Winnertz) in Germany.

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In the spring of 1996 Dr. Lubomir Masner (Ottawa) received from Rottenburg am Neckar, Germany a small collection of platygastriids (145 specimens) reared from the lignicolous cecidomyiid *Xylodiplosis praecox* (Winnertz, 1853) attracted to freshly cut *Quercus robur* L. stumps. Dr. Masner kindly sent the material to me for examination. Four species of Platygastriinae are present in the material: *Metanopedias lasiopterae* (Kieffer, 1916), *Leptacis nydia* (Walker, 1835), *Synopeas jasius* (Walker, 1835), and *Amblyaspis ?scelionoides* (Haliday, 1835).

The larval biology of *Xylodiplosis praecox* is remarkable. The larvae, which develop during spring in the pores in woody trunks left after felling in autumn, combine a body length of 4.5 mm with a diameter of no more than 0.5 mm, and are well adapted to life in narrow spaces (Mamaev & Krivosheina, 1993). The only platygastriid hitherto reared from *Xylodiplosis praecox* is *Gastrotrypes spatulatus* Brues, 1922 (Vlug, 1995).

## Material examined

*Metanopedias lasiopterae* (Kieffer, 1916)

16 ♀ labelled 'Germany, Rottenburg/Neckar, Prof. Dengler. On cutting area of *Quercus robur*'; 2 ♀ 21.vii.1995, 5 ♀ 30.vii.1995, 4 ♀ 2.viii.1995, and 5 ♀ 12.ix.1995.

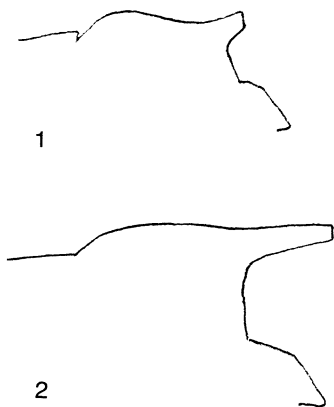
Reared by Kieffer from *Lasioptera gramini-cola* Kieffer on *Calamagrostis lanceolata* Roth (Vlug, 1995); collected by Huggert (1980) on the ends of oak logs at a sawmill in Sweden. The body length of the females from Rottenburg varies from 1.1 to 1.5 mm.

*Leptacis nydia* (Walker, 1835)

56 ♀ labelled 'Germany, Rottenburg/Neckar, Prof. Dengler. On cutting area of *Quercus robur*'; 1 ♀ 29.v.1995, 10 ♀ 21.vii.1995, 41 ♀ 30.vii.1995, 2 ♀ 2.viii.1995, and 2 ♀ 11.x.1995.

The host of *L. nydia* was hitherto unknown, but according to Vlug (1985) this species is found commonly on the freshly cut ends of oak-logs and other hardwoods.

Length of females examined 1.2 – 1.5 mm. Six specimens (four from 30.vii. and both from 11.x.) answer to the description of *L. torispinula* Huggert, 1980 in having scutellar spine thick, dark and blunt at apex, and in having mesopleura strongly striated below tegulae. The rest of the specimens are as described by Vlug (1985) who synonymized *torispinula* with *nydia*, i.e. they have scutellar spine more sharply pointed and yellowish (and mesopleurae weaker striated).



Figs 1-2. *Synopeas jasius* (Walk.), scutellum of female in lateral view. 1, small specimen; 2, large specimen.

### *Synopeas jasius* (Walker, 1835)

72 ♀ labelled 'Germany, Rottenburg/Neckar, Prof. Dengler. On cutting area of *Quercus robur*'; 20 ♀ 26.vi.1995, 21 ♀ 8.vii.1995, 14 ♀ 21.vii.1995, 14 ♀ 30.vii.1995, 2 ♀ 2.viii.1995, and 1 ♀ 28.ix.1995.

Host hitherto unknown, but *S. jasius* was often collected by L. Huggert and H.J. Vlug on freshly cut stumps of *Quercus robur* L., *Quercus* sp., *Fraxinus* and *Acer* in Sweden, The Netherlands and Yugoslavia (Vlug, 1985).

Length of females examined 1.0 – 1.5 mm. This species is most characteristic on account of the distinct notauli and the shape of gaster which is somewhat down-curved and pointed in lateral view, cf. Vlug (1985). Some of the specimens examined have scutellum shaped as figured by Vlug (1985), the smallest specimen examined (fig. 1) and the larger specimens examined (fig. 2) have scutellum shaped in somewhat different ways.

### *Amblyaspis ?scelionoides* (Haliday, 1835)

1 ♀ labelled 'Germany, Rottenburg/Neckar, 12.ix.1995, Prof. Dengler. On cutting area of *Quercus robur*'.

This single specimen is doubtfully referred to *A. scelionoides* as the head is more transverse (2.0 times wider than long) and

more narrowed behind eyes than described by Vlug (1985). Host of *scelionoides* hitherto unknown.

### Discussion

It is noteworthy that all specimens reared are females. The males of all four species are known, but at least of *Leptacis nydia* the females seem to be generally much more common than the males – Huggert (1980) examined 39 females and only one male. Perhaps the sex determination in some species is determined by host species – Kieffer reared only males of *Metanopiedias lasiopterae* from *Lasioptera graminicola*, cf. Kieffer (1926). Many parasitic wasps lay only a few male eggs in each brood; the adult males emerge first and copulate with their sisters before they can disperse, causing a high degree of mating between siblings (Gauld & Bolton, 1988). As no males at all were present in this case, perhaps some of the four species under special circumstances reproduce by thelytokous parthenogenesis, known from e.g. *Platygaster virgo* Day, 1971 (Day, 1971).

*Metanopiedias lasiopterae* and *Leptacis nydia* seem to be univoltine, emerging as adults at the end of July; this is supported by the fact that nearly all the specimens of *M. lasiopterae* mentioned by Huggert (1980) were caught in July or August, and that nearly all specimens of *L. torispinula (nydia)* mentioned by Huggert (1980) were caught in the first half of August. The single generation of *Synopeas jasius* emerges throughout mid summer. Around this time, then, the eggs of *Xylodiplosis praecox* must be laid. Of all three platygastriid species a few specimens emerge during autumn, probably hibernating under natural circumstances. Apart from the six specimens mentioned under *Leptacis nydia*, none of the species could be subdivided into distinct phena.

### Acknowledgements

I am most indebted to Dr. Lubomir Masner (Ottawa) for sending me the reared platygastriids.

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## Anmeldelse

H. C. J. Godfray: *Parasitoids: Behavioral and Evolutionary Ecology*. 473 s. Princeton University Press 1994, pris 65 dollar (indb.), 29.95 dollar (paperback).

I litteraturlisten til denne bog om parasitoiders adfærds- og evolutionsøkologi er der næsten 1500 titler, af hvilke kun 9% er fra før 1950, mens 60% er fra 1980 og senere. Et oversigtsværk som det nærværende må derfor siges at komme i rette tid, inden litteraturen bliver alt for uoverskuelig.

Det er især snyltehvepsen, i mindre grad snyltefluers og andre gruppers, biologi og populationsdynamik, der gennemgås ud fra et evolutionsperspektiv. Ved minimal benyttelse af den nødvendige matematik behandles først de regler, som viser sig i snylternes adfærd, når de søger efter værter og parasiterer dem. Kemiske og andre signaler udsendt af både værten og dennes værtsplante såvel som egenskaber ved mikrohabitat benyttes af snylteren ved opsporingen. Talrige modeller er apriorisk udarbejdet og derefter testet for at fastslå, om snylteren mest effektivt udnytter tiden og sine ressourcer, når den undersøger værter og lægger æg på eller i dem,

men ingen hypotese har hidtil vist sig at holde på tilfredsstillende vis. At effektivisere adfærd må dog med sikkerhed være en vigtig selektionsfaktor i den skarpe konkurrence om værter.

Snylternes evne til at fastslå, om en fundet vært er passende for dens afkom, har været genstand for mange eksperimenter, der gennemgås i bogen. Når værten er accepteret, skal moderen helst være i stand til at fastslå, hvor mange æg hun skal lægge i den givne vært, for at udbyttet kan blive optimalt. Det er også et spørgsmål, om det vil kunne betale sig at lægge æg i en allerede parasiteret vært (superparasitering), eller om ressourcerne benyttes bedre ved at opsøge en anden vært. Her har det vist sig, at snyltehvepse inden for alle hovedgrupper kan lære, idet mere »erfarne« dyr er mindre tilbøjelige til at superparasitere. Om sommeren, hvor der er god mulighed for at finde urørte værter, kan snylterne også være mere kræsne end om efteråret. I et lugt-eksperiment med to valgmuligheder valgte en sulten hveps det kemikalie, den havde lært at forbinde med føde, mens en mæt hveps valgte det kemikalie, den havde lært at forbinde med vært. Som forskerne bemærkede, udviste denne hvepseart reaktioner, der er så sofistikerede, at man normalt ville forbinde dem med rotter!