LASIUS PLATYTHORAX SEIFERT 1991 (HYM., FORMICIDAE) ON THE SOMERSET LEVELS, WITH NOTES ON DISTINGUISHING THE MALE FROM THAT OF *LASIUS NIGER* (L.)

BY A.J. PRINCE

ABSTRACT

The habitat of *Lasius platythorax* Seifert is described and comparison with the closely related *L. niger* (L.) is commented upon, using the two female castes and males. An analysis of differences between males of both species is presented.

INTRODUCTION

L. platythorax and *L. niger* are very closely homomorphic, with *L. niger* being one of Britain's commonest of ants. Dr Bernhard Seifert (1991) first separated them and his later paper (Seifert, 1992), inclusive of both species, discussed the classification of *Lasius* sensu stricto from the entire Palaearctic subregion. In both papers determination was between the worker and queen castes only, omitting males.

The male determination in this paper is simply a provisional reference for other myrmecologists. Seifert (pers. com.) has advised that at least 40 males from 6–8 different localities are needed for a more definitive work, and he also predicted a greater overlap of data for PHCL (Seifert's PDCL for the castes) and for SL/HL with an increase in samples.

DESCRIPTION OF SITES

The two sites on the Somerset Levels where I have located *platythorax* are both Somerset Wildlife Trust reserves, and are situated not far from Glastonbury on Westhay Moor and Street Heath. These sites are 4.25 km apart and both are surrounded by commercial peat excavation. Both sites consist of high carr canopy (mostly *Betula pendula*) surrounding clearings dominated by Purple Moor Grass (*Molinia caerulea*); heathers including Cross Leaved Heath (*Erica tetralix*) and other wet heath herbs growing on a pure peat substrate. There were no rocks or stones to be found.

These sites are notable for having a recorded history for other Insecta. The Bog Bush Cricket (*Metrioptera brachyptera* (L.)), which was still present in August 1991 (recorded by A.J.P.), has been known from Westhay reserve since 1954 and from Street Heath since 1945 (Burton, 1981). This establishes a reasonable period of habitat stability and management for the clearings. There are only a few similar sites throughout the peat moors and they are now mostly reserves, and all are remnant examples of floral habitats with interesting insect communities.

I first visited the two sites in May 1989 and noticed an abundance of what I then took to be *L. niger* throughout the grasslands, nesting in dead Birch stumps, in peat and under a rusty corrugated iron sheet. Other species recorded were *Myrmica ruginodis* Nyl. and *Myrmica rubra* (L.) which were occasionally swept, and one *Lasius flavus* (F.) nest at Westhay

reserve, showing a paucity in these ant species and their numbers.

Upon examination of worker specimens taken in April 1994, I determined the black *Lasius* as *platythorax* and not *L. niger*. They fitted Seifert's morphometrical systematics and the habitat (bog and woodland clearings nesting in dead wood and substrate) was a complete match.

DETERMINATION METHODS

The determining lengths have to be measured and worked out using Seifert's indices system and then compared with his data contained in the aforementioned papers. I used ×120 and ×80 magnification and a wide ocular graticule which gave an estimated accuracy of ±3 μm and ±5 μm respectively. For greater lengths such as gyne and male alitrunks ×40 was used. In alignment with Seifert's papers I have adopted his morphometrical indices system, but with a few necessary minor changes and additions due to the slight differences in the male morphology.

HL: maximum head length along median line from occiput to anterior clypeus. Given in microns.

HW: maximum width of head at or near to the posterior margin of the eyes.

SL: maximum straight line scape length excluding condylar bulb and constriction.

AH: alitrunk height measured from highest scutellum outline to lower margin of mesopleura (male: fig. 1).

AL: queen: maximum alitrunk length from the hind extension of the median propodeum to the most anterior tangent of the pronotum.
male: maximum alitrunk length from hind extention of median propodeum to the most anterior tangent of the mesoscutum (fig. 1).

PDCL: females: average pubescence interstice on clypeus; the number (n) of pubescence hairs crossing or touching a straight line of length (l) is counted. PDCL is then l/n and given in microns. (The measuring line is analogous to the male fig. 2).

PHCL: males: average pubescence and standing hair interstice on clypeus; the number (n) of pubescence + standing hairs crossing or touching a straight line of length (l) is counted. PHCL is then l/n and given in microns. Fig. 2 shows the straight line measured.
N.B. Standing hairs are included here, unlike Seifert's worker/gyne indices, as male *platythorax* have sometimes too few pubescent hairs, which would raise the indices beyond a meaningful comparison between species.

nHS: number of standing hairs projecting >20 μm from dorsal profile of scape; i.e. the number of hairs visible when looking at the small diameter of the scape under transmitted-light condition. The always present hairs on distal apex are not counted and the number refers to one scape.

nHHT: number of standing hairs projecting >20 μm from the extensor profile of one hind tibia seen in transmitted-light. The always present hairs on distal apex are not counted and the number refers to one tibia.

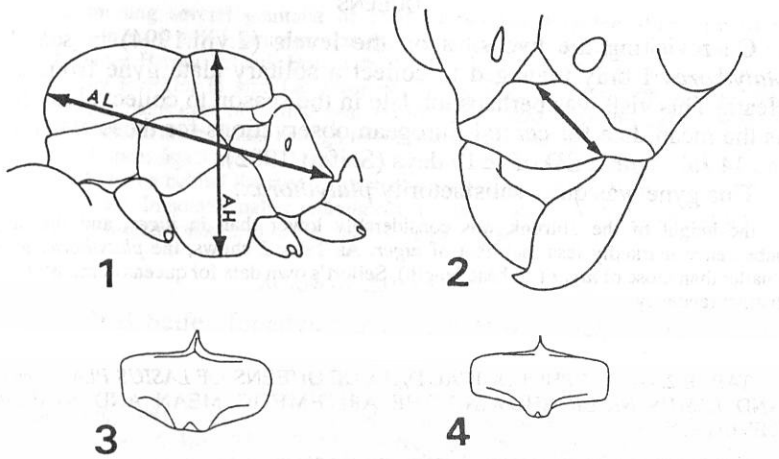
UHL: length of longest standing hair on underside of head.

PNHL: length of longest standing hair on pronotum.

MATERIAL

Lasius platythorax: samples of 19 workers, 1 alate gyne and 12 males were taken from 3 nests at Westhay and 2 nests at Street Heath, Somerset (viii.1994).

Lasius niger: samples of 15 workers, 6 alate gynes and 10 males were taken from 4 nests at Langford and Milverton in Somerset (viii.1994) and from 2 nests at Totland Bay, Isle of Wight (viii.1985).



Figs 1–4. — Male *Lasius*. 1, alitrunk profile showing measuring lines for height AH and length AL; 2, head showing clypeal measuring line for PHCL; 3, subgenital plate of *L. niger*; 4, subgenital plate of *L. platythorax*. Pilosity omitted.

WORKERS

The data in Table 1 are uncorrected for allometrical considerations (see Seifert 1992: 5). The differences between my samples are obvious when simply comparing one species against the other (corrected or uncorrected), as the interspecific head length means are virtually identical. One can assume size is not a differentiating factor between workers, which adds emphasis to the tendency of interspecific size difference between the sexuals in my samples and Seifert's own data for queens (see under queens and males).

The noticeable differences in habitus when comparing *niger* and *platythorax* workers side by side on a cursory basis are:

(i) the clypeal pubescence: more in *niger*; less in *platythorax*, and
(ii) the erect hairs on the pronotum and the ventral surface of the head: these being noticeably longer in *platythorax*.

TABLE 1. — MORPHOLOGICAL DATA OF WORKERS OF *LASIUS PLATYTHORAX* AND *LASIUS NIGER* SHOWING THE ARITHMETIC MEAN AND STANDARD DEVIATION.

Number of specimens measured under species name.

	Lasius platythorax n=19		*Lasius niger* n=15	
HL μm	1012	±25	1011	±32
HL/HW	1.037	±0.010	1.049	±0.013
SL/HL	0.943	±0.008	0.918	±0.019
PDCL μm	27	±3.7	16.3	±1.2
nHS	21.7	±1.3	17.7	±1.6
nHHT	25.4	±1.6	19	±2
UHL/HL	0.114	±0.007	0.084	±0.012
PNHL/HL	0.153	±0.007	0.116	±0.006

QUEENS

On revisiting the two sites on the levels (2.viii.1994) in search of *platythorax* I only managed to collect a solitary alate gyne from Street Heath. This visit was perhaps too late in the season to collect alate gynes, as the mean date for central European observations for these alates is on the 14 July with a SD of ±19 days (Seifert 1992).

This gyne was quite satisfactorily *platythorax*:

the height of the alitrunk was considerably lower than in *niger*, and the clypeal pubescence markedly less than that of *niger*. As Table 2 shows, the *platythorax* gyne is smaller than those of *niger* (cf. head length); Seifert's own data for queens demonstrates this distinct tendency.

TABLE 2. — MORPHOLOGICAL DATA OF QUEENS OF *LASIUS PLATYTHORAX* AND *LASIUS NIGER* SHOWING THE ARITHMETIC MEAN AND STANDARD DEVIATION.

Number of specimens measured under species name.

	Lasius platythorax n=1	*Lasius niger* n=6	
HL μm	1381.7	1448.3	±27.4
AH/AL	0.548	0.620	±0.014
PDCL μm	26.4	14.5	±1.3

MALES

Table 3 displays the morphological data. Allometrical consideration was redundant with such small samples.

To a lesser degree a size difference tendency appeared between the males I measured i.e. *niger* tended to be slightly larger than *platythorax*. In head length there was little difference between the two ranges but enough bias to establish contrasting arithmetic means. However, the alitrunk lengths were quite different. It is unknown if this size difference is a constant genetic factor or caused by abiotic/biotic influences. Seifert's extensive data on gynes would suggest it could be genetic and characteristic.

TABLE 3. — MORPHOLOGICAL DATA OF MALES OF *LASIUS PLATYTHORAX* AND *LASIUS NIGER* SHOWING THE ARITHMETIC MEAN AND STANDARD DEVIATION.

Number of specimens measured under species name.

	Lasius platythorax n=12		*Lasius niger* n=10	
HL μm	784.1	±18.6	797.5	±23.4
HL/HW	0.877	±0.020	0.907	±0.027
SL/HL	0.784	±0.043	0.830	±0.037
AL μm	1614	±44	1790	±87
AH/AL	0.658	±0.025	0.686	±0.022
PHCL μm	45.2	±8	26.2	±6.4

After examining several genitalia of each species the only real difference worth describing from such small samples was the subgenital plate (= sternite of abdominal segment IX) (see Baroni Urbani, Bolton & Ward, 1992). The other genital components seemed mainly to differ in size i.e. *niger* specimens tended to be slightly larger than *platythorax* specimens even of similar head length. More samples are needed to see if this and other tendencies are constant enough to warrant further inclusion.

Subgenital plate: figs 3 and 4. This sternite showed a very weak tendency of thickened laminate bilobulation behind the median posterior margin, which was far more apparent in the *niger* samples. In some smaller *platythorax* it was not apparent. The posteror median projection was more pronounced in the *platythorax* samples.

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6 Northgate, Wiveliscombe, Taunton, Somerset, TA4 2LE
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REVIEW

'ZENTRAL- UND WESTPALÄARKTISCHE BORKEN- UND KERNKÄFER (COLEOPTERA: SCOLYTIDAE, PLATYPODIDAE)'. By A. PFEFFER. Pro Entomologia, c/o Naturhistorisches Museum Basel, 310 pp., 45 plates. 1995. ISBN 3 9520840 6 9. Price: SwFr 45.

In 1923, before the age of twenty, Antonin Pfeffer published his first papers on bark beetles. Just over seventy years later, at the age of ninety, he has published the latest in a series of over 200 publications, the majority devoted to the economically important family Scolytidae in the Palaearctic region. Previous major works have included an important volume in the *Fauna of Czechoslovakia* series (1955), and a revised and updated version of this published in 1989. Both of these had relevance far beyond the boundaries of his native country, but both were written in Czech, and hence have been less used than they merited. In the present volume, the fruit of a lifetime of experience, Prof. Pfeffer has extended his geographic range to include the whole of the West and Central Palaearctic (including North Africa, the Mediterranean region, and Central Asia to Mongolia, and excluding only the Canary Is. and the Far East). Moreover, he has written in German, making his work more widely accessible. The work was first published in the journal *Entomologia Basiliensia* **17** (1994), and is now reissued in hardback as a separate volume.

The book starts with a brief introduction (11 pp.) to scolytid biology, with special reference to feeding habits, host ranges, association with fungi, and gallery systems. This is followed by a section (7 pp.) listing species characteristic of particular subregions and provinces within the Palaearctic region. The main part of the book consists of keys down to species (occasionally subspecies) level for over 300 species of scolytid, and 3 species of platypodid beetle.