



Fig. 1: The reference surface on ventrolateral propodeum and lateral metapleuron where the data of METHL and nMET are taken (hatched area). The margins of the metapleuron gland orifice and the ventrolateral edge of metapleuron are excluded.

- CL – maximum head (caput) length in median line; the head must be carefully tilted to the position with real maximum.
- CW – maximum head (caput) width, which may be across or behind the eyes.
- CS – head (caput) size; the arithmetic mean of HL and HW, used as a less variable indicator of body size.
- METHL – length of longest standing hair on lateral metapleuron and ventrolateral propodeum below the level of propodeal spiracle (hatched area in Fig. 1).
- mPNHL – mean pronotal hair length in the worker. Applied measuring schedule: select one of the longest hairs on dorsal pronotum and calculate the arithmetic mean length of this hair and of its 6 nearest neighbours.
- nMES – number of standing setae on lateral mesopleuron excluding those hairs standing on the ventrolateral edge of mesopleuron.
- nMET – number of standing setae on lateral metapleuron and ventrolateral propodeum – i.e. the area below the level of propodeal spiracle but excluding those hairs fringing the metathoracal gland and those standing on the ventrolateral edge of metapleuron (hatched area in Fig. 1).
- nOCC – number of standing setae on the occipital margin of head including the postocular head sides. The number refers to one half of the head and counting is performed in the position where CL is measured.
- nPE – number of standing setae on the edge of petiolar scale above the opening of the spiracle. The number refers to one half of the petiole.
- nSC – number of standing setae on dorsal plane of scape.
- PNHL – length of longest standing hair on pronotum in the queens.
- SCL – maximum straight line scape length excluding the articular condyle.

In order to obtain a better discrimination of certain morphometric characters, the variation produced by allometries was removed by calculating size-corrected indices. This procedure was necessary to enable a discrimination of the most similar workers of *lugubris* and *paralugubris*.

In the first step, indices of the numeric characters were calculated: CL/CW, SCL/CL, nMET/CS, METHL/CS, nOCC/CS, nPE/CS, nSC/CS, mPNHL/CS. In the second step, linear regression functions of these indices against CS were calculated for each species separately. This two-step procedure empirically results in a good approximation of allometries by linear functions in all ant groups showing no extreme worker polymorphism (SEIFERT, 1992a; 1992b; own unpublished results).

In discriminant functions this size relation can be considered most effectively if only two species are compared in one calculation. A good fit to the empirical data of the two species under comparison is then provided by a cumulative regression which slope and ordinate intersection are the arithmetic means of the species-specific regressions.

The size-corrected indices CL/CW, nMET_{cor}, METHL_{cor}, nOCC_{cor}, nPE_{cor}, nSC_{cor}, mPNHL_{cor} were then computed by division with the values of these cumulative regression functions. This division means a centering and equal weighting of the corrected indices around the value 1. Compared to the unprocessed primary data, the coefficients of variation are reduced in the size-corrected indices to 65% if there is a strong dependency from body size as given in nMET.

In the last step, the size-corrected indices were incorporated in a multiple linear discriminant function.