

Is *Microrhagus lindbergi* (Palm) (Coleoptera, Eucnemidae) a valid species?

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Dirrhagus lindbergi Palm, 1958 is regarded to be a junior subjective synonym of *Microrhagus lepidus* Rosenhauer 1847. The type series of *D. lindbergi* consisted of two species, the holotype male being conspecific with *Microrhagus lepidus*, the two paratype females with *Microrhagus pygmaeus* (Fabricius).

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Eucnemids, like many other beetles developing in decaying wood, show extensive variation in size, form and sculpture. The genus *Microrhagus* Dejean 1833 (= *Dirrhagus* Latreille 1834) is no exception to this. Palm (1958) described a species he called *Dirrhagus* (sic!) *lindbergi* from southern Finland. Only three specimens were available to him, one male and two females.

The use of mass collecting techniques, especially window traps, has increased the catches of eucnemids in Finland during the last decade. No new *M. lindbergi* specimens have been found, however. This prompted me to study the syntypes of this apparently endemic Finnish species in detail.

Microrhagus lepidus Rosenhauer versus *M. pygmaeus* (Fabricius)

To evaluate the specific status of *M. lindbergi* it was necessary to have a clear view of the variation found in the two widespread European species, *M. pygmaeus* and *M. lepidus*. It became clear that the males of these species could be easily distinguished. In *M. lepidus* the antennal rami start from about the

middle of the antennomeres, and the secondary lateral lobes of the aedeagus are rounded and prominent. In *M. pygmaeus* the rami are apical and the secondary lateral lobes are much less prominent. The antennal character was pointed out by Lohse (1979:194–196) and the aedeagal difference was clearly shown in Palm (especially 1955, but also 1958). Unfortunately Palm misunderstood the complex *Microrhagus* male genitaliae — an updated terminology of the structures involved is given in Muona (1993: Figs. 114, 147, 148). What Palm (1958) called “Penisspitze” was actually the ventral lobe formed by the fused lateral lobes — a structure found only in the subfamily Dirrhaginae.

Armed with two decisive male features I searched for further structural differences that might be useful for identifying the females as well. Palm (1958) placed much weight on the height of the scutellum. Lohse (1979) shared this view, but stressed the difference in the shape of the scutellum, this being more elongate and acute caudally in *M. lepidus* than in *M. pygmaeus*. I found the shape of the scutellum to be an excellent character. The height of the scutellum, on the other hand, clearly varied in *M. pygmaeus*. I did not see a *M. pygmaeus*

specimen with as high a scutellum as that found in *M. lepidus*, but the illustrations of this character given in Palm (1958) and Lohse (1979) are misleading — in the case of *M. pygmaeus* they apply for so-called “typical” specimens only.

I was not able to find additional constant diagnostic characters. The fairly useful ones I did observe should not be trusted blindly, as they all vary to some extent. First, the punctuation on hypomera tends to be orderly in *M. lepidus*, whereas in *M. pygmaeus* it is usually congested and basally rugose, clearly damping the shine of the surface. Second, in *M. lepidus* the elytral punctuation is dense and strong, and the striae are distinct, whereas in *M. pygmaeus* the punctuation is less dense and strong and the striae are usually absent. Third, as stated in most sources (e.g. Lohse 1979), *M. lepidus* is on the average larger than *M. pygmaeus*. In my material the *M. lepidus* males were 4.7–5.2 mm long (N = 7), the *M. pygmaeus* ones being 3.3–4.8 mm (N = 70) long; in females the respective values were 4.4–5.5 mm (N = 10) and 3.6–5.5 mm (N = 42).

The identity of *Microrhagus lindbergi* (Palm)

The holotype male and one paratype female of *M. lindbergi* are deposited in the Finnish Museum of Natural History in Helsinki (ZMH), the second female paratype is in the collections of the Zoological Museum, University of Lund, Sweden (LM). A study of this type series revealed a surprising thing: the male and the females appeared to belong to two different species!

The holotype male showed all the diagnostic characters of *M. lepidus*: medially attached antennal rami, orderly punctured hypomera, densely and strongly punctured elytra with distinct striae and aedeagus with wide, rounded secondary lateral lobes. Even though the scutellum was not as high as in most *M. lepidus* specimens I had seen, it was of the same characteristic shape as in *M. lepidus*. The size of the *M. lindbergi* holotype was 4.8 mm. The female paratype in ZMH, on the other hand, had a rounded wide scutellum, no elytral striae, was only moderately strongly punctured and measured 4.0 mm in length. The LM paratype had a slightly compressed scutellum, feebly indicated striae on elytral disk, was moderately strongly punctured

and measured 4.2 mm in length. Both paratypes had a scutellum that in height fit well within the variation observed in *M. pygmaeus*. Palm's (1958) illustration of the female antenna of *M. lindbergi* referred to the LM paratype, which has exceptional, deeply ramose antennomeres 4–10. In the ZMH paratype the antennomeres are less strongly developed, deeply serrate.

The inescapable result was that the holotype male was a perfectly typical specimen of *M. lepidus*. Consequently *Dirrhagus lindbergi* Palm, 1958 must be regarded a subjective junior synonym of *Microrhagus lepidus* Rosenhauer, 1847.

Unfortunately I have not been able to locate the syntypes of *Elater pygmaeus* Fabricius and *Microrhagus lepidus* Rosenhauer. This is not in itself a large problem, as it is clear that these two species should retain their well established names, even if something suggesting a change is unearthed.

When accepting *M. lindbergi* as a separate species, Palm (1958) most likely relied on the seemingly highly characteristic female antennae. The two paratypes were not identical in this respect, however. I have been able to study a fairly large number of *Microrhagus* specimens from Finland, some 200 exx. altogether. The variation in antennal structure is large in both sexes of *M. pygmaeus*. Female specimens with deeply serrate antennomeres have been caught together with “typical” *M. pygmaeus* males in N: Kirkkonummi (Kaila & Martikainen leg.). In all other respects these females showed the diagnostic features of *M. pygmaeus* — as did the ZMH paratype female of *M. lindbergi*. The LM paratype female differed from all other specimens on the basis of its ramose antennomeres. In addition to this, it had a fairly narrow scutellum. In other respects it fell well within the variation of *M. pygmaeus*. I am convinced it should be regarded to be an aberrant *pygmaeus* specimen.

Palm (1958) appears to have believed that the three syntypes were taken from one and the same location, and thus belonged to the same population. This does not seem to be the case. Palm wrote (1958:37):”Trotzdem, dass die Lindbergi-Ex. aus derselben Lokalität stammen, ist wohl nicht ganz ausgeschlossen, dass das Männchen und die 2 Weibchen zu verschiedenen Arten gehören können, da nämlich Dirrhagus-Arten oft zusammen leben.” As the Lindbergs had a summer cottage at the type

locality, Lojo (= Lohja), this was a fair assumption. The specimens forming the type series were taken during a long time-period, i.e. from 1915 to 1944, and I checked the actual collecting localities from Lindberg's notes. They revealed that both the syntypic females were taken by beating vegetation close to the Lindberg's summer cottage on the island Jalassaari in the lake Lohjanjärvi. The holotype male, on the other hand, was taken from the Tytyri area some 15 km east of Jalassaari. Clearly there is no reason to believe *a priori* that all three specimen belonged to the same population.

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