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Agyrtes noheli — a new synonym of *Agyrter bicolor* (Coleoptera, Silphidae)

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Taxonomy, variability, synonymy

Abstract. The status of *Agyrtes noheli* Hlisnikovský, 1964, based on an examination of the type material and the original description, is reappraised. The species is shown to be conspecific with *A. bicolor* Laporte de Castelnau, 1840 as a junior synonym.

An examination of the type material of *Agyrtes noheli* HLISNIKOVSKÝ, 1964 in the National Museum, Praha has revealed significant discrepancies with the original description. Furthermore, the comparsion of the types of *A. noheli* with identified material of *A. bicolor* failed to show any real difference between these two species. The aim of the present paper is to clarify the status of *A. noheli*.

MATERIAL STUDIED

Type material of *A. noheli:* holotype ♂, Beskydy, Smrk 7. 11. 1940; allotype ♀, Beskydy, Smrk 7. 11. 1940; paratype, 1 ♀, Beskydy, Travný, 4. 11. 1962; all specimens in the collection of the National Museum, Praha.

Other material: *A. noheli:* 1 ♂ Gurányi, Budapest; 2 ♀♀, Praha Roztoky; 1 ♀, Praha-Radotín; *A. bicolor:* 4 &&, 7 ♂♂ Gurányi — Budapest; 4 ♂♂, 1 ♀ Budapest; 1 ♂, 1 ♀ Moreni Rom 9. 8. 1940; 1 ♀ Paris, 2 ♀♀ Smrk, Beskydy; 2 ♀♀ Příbram-Placy; coll. National Museum, Praha; Slovak National Museum, Bratislava.

The types of *A. bicolor* have not been studied, because it is largely known good species and because the discrepancies found in the original description of *A. noheli* are so large and clar that it was not necessary to examine the types of *A. bicolor*.

Differential diagnosis of *A. noheli*

According to the original description by HLISNIKOVSKÝ (1964) *A. noheli* should differ from *A. bicolor* by the following characters. In *A. noheli* the pronotum is more than 2× wider than long and 1.5× wider than long in *A. bicolor*. The number of punctures in the third row on elytrae is 50 in *A. noheli*, 35 in *A. bicolor*. The distances between the larger punctures on pronotum are 1—2× greater than the diameter of this punctures in *A. noheli* and 3—4× greater than the diameter of punctures in *A. bicolor*. The intervals on elytrae are flat and punctured in *A. noheli* but are convex and without any punctures in *A. bicolor*. The apex of aedeagus is parabolically shaped in *A. noheli* (Fig. 5—6) and with a protuberance on the sides of the medial tip in *A. bicolor* (Figs. 7—8). The fore part of fused paramers is elipsoid in *A. noheli* (Fig. 5) and circular in *A. bicolor* (Fig. 7). The body length is 5.5—6.5 mm in *A. noheli*, 4—5 mm in *A. bicolor*; the body width is 2.4 to 2.5 mm in *A. noheli* and 1.2—1.4 mm in *A. bicolor*.

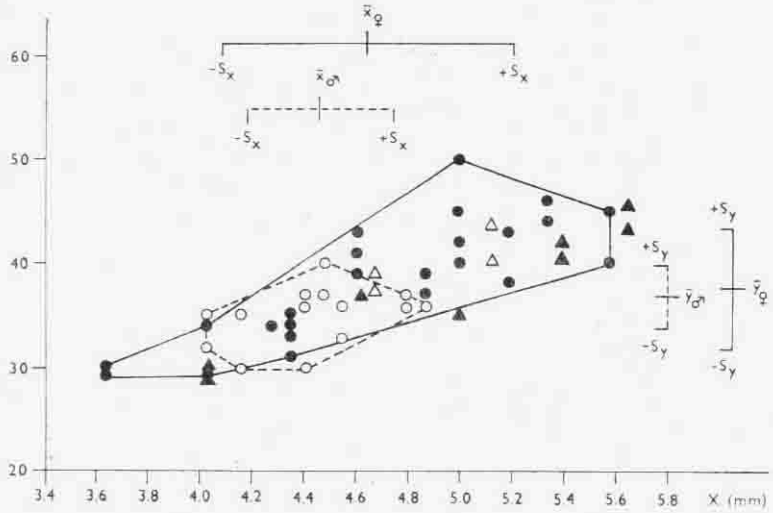


Fig. 1: The dependency of number of punctures in third row on elytrae (y) on body length (x) in *A. bicolor* (○ — ♂♂, ● — ♀♀) and *A. noheli* (△ — ♂♂, ▲ — ♀♀).

DISCUSSION

Comparing the differential diagnosis with the types and figures in HLISNIKOVSKÝ (1964) it was found that the characters for the separation of *A. noheli* from *A. bicolor* do not correspond with the types. The body length, body width and the ratio of pronotum length and width fluctuate between the same limits in both sexes of both species. It is evident that all values measured in *A. noheli* are fall within the variability range of *A. bicolor* (Table 1).

The ratio of pronotum length and width is about 1.70, as shown by HLISNIKOVSKÝ (1964: Fig. 1), not 2.00 as given in his description and differential diagnosis.

The values of 6.5 mm for the body length of *A. noheli* and 1.2—1.4 mm for the body width of *A. bicolor* as given by Hlisnikovský (1964), and used by him for distinguishing these two species were not found in the material studied (Table 1).

The number of punctures in the third row on elytrae varies in both species. The absolute difference between right and left elytrae fluctuates between 0 and 7. The mean difference between right and left elytrae is the same in both species (2.57) and it is greater than difference of mean numbers of punctures in the two species (*A. noheli* 37, 57; *A. bicolor* 36, 41; difference 1.16). It is evident that the number of punctures in *A. noheli* comes in the variability range of *A. bicolor* (Table 1, Fig. 1). In general, the number of punctures in the third row is correlated with the length of body (Fig. 1). The degree of dependency is lower in males than in females in both species studied.

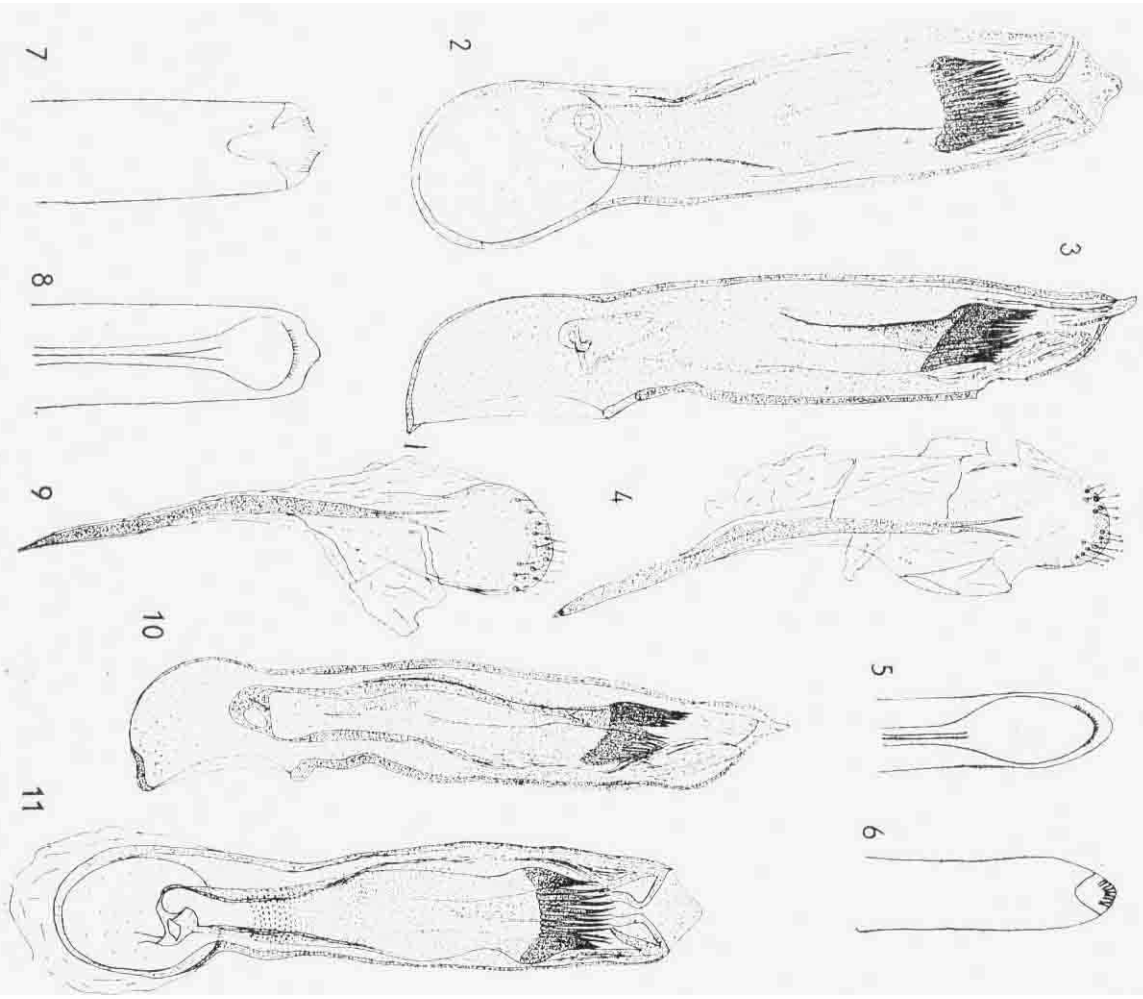
Similarly the difference in the ratio of length and width of the 5th and 6th segments of the antennae are often larger in the individual specimen than between both species studied (Table 1). It is thus impossible to use these three characters for separating *A. noheli* from *A. bicolor*.

TABLE 1

Fluctuation limits of dimensions measured and mean and standard deviations of their ratios

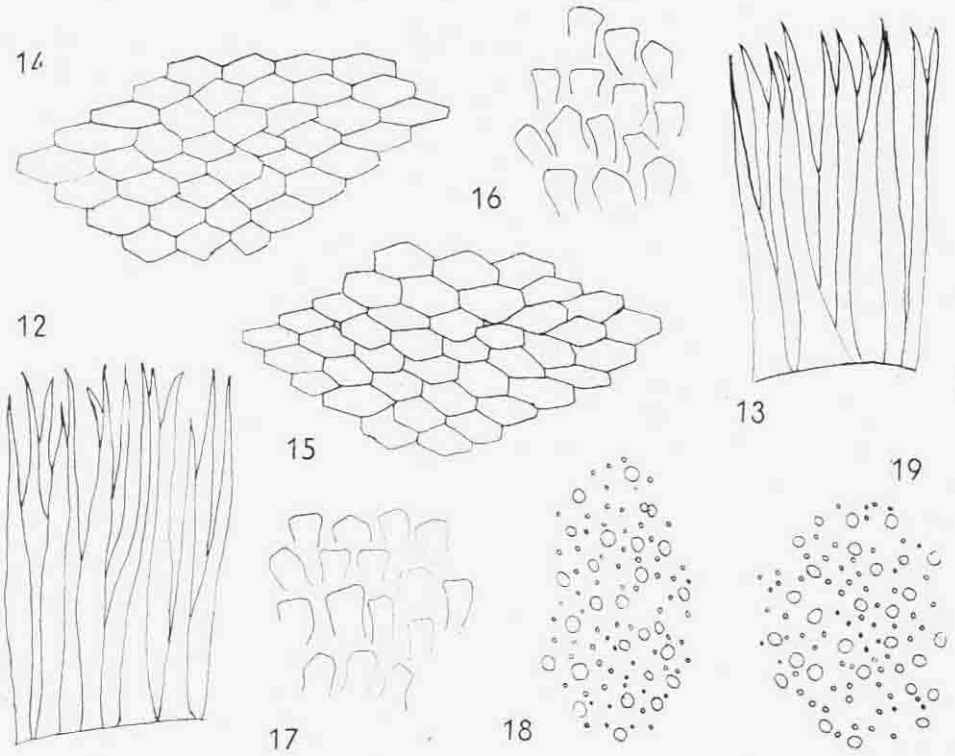
	A. bicolor		*A. noheli*	
	9 ♂♂	14 ♀♀	2 ♂♂	5 ♀♀
Body length	4.03—4.87	3.63—5.58	4.07—5.12	4.03—5.65
Body width	1.98—2.31	1.79—2.64	2.26—2.38	1.88—2.53
Ratio of pronotum length and width	1.53—1.72	1.58—1.71	1.66—1.69	1.56—1.59
Mean and standard deviation of ratio of pronotum length and width	1.62±0.05	1.64±0.08	1.67	1.61±0.05
Number of punctures in 3. row on left elytra	30—40	29—45	37—47	30—38
Number of punctures in 3. row on right elytra	30—40	30—50	39—40	30—45
Ratio of length and width of 5th antennal segment	0.92—1.33	0.93—1.35	1.00—1.14	1.11—1.18
Mean and standard deviation of the ratio of 5th antennal segment length and width	1.167±0.090	1.158±0.081	1.090	1.153±0.021
Ratio of length and width of 6th antennal segment	1.00—1.33	1.03—1.25	1.00—1.14	1.08—1.14
Mean and standard deviation of ratio of 6th antennal segment length and width	1.171±0.080	1.151±0.044	1.080	1.138±0.032

*) Standard deviation not calculated



Figs. 2—4: *A. noheli* (holotype), aedeagus in dorsal (2) and lateral (3) views and fused paramera (4) separated from the aedeagus. Figs. 5—6: Aedeagus of *A. noheli* in ventral (5) and dorsal views (6) according to HLISNIKOVSKÝ (1964). Figs. 7—8: Aedeagus of *A. bicolor* in dorsal (7) and ventral (8) views according to HLISNIKOVSKÝ (1964). Figs. 9—11: Aedeagus of *A. bicolor* in dorsal (10) and lateral (11) views and fused paramera (9) separated from aedeagus.

The area between punctures on pronotum disc and the form of punctures are the same in both species (Figs. 18, 19). There is also no difference between the convexity and puncture of intervals on elytrae in *A. bicolor* specimens and the types of *A. noheli*. The distinctness of very fine and irregular punc-



Figs. 12—13: The "fleam-shaped" lamellae of fore part of internal lobus in *A. noheli* (12) and in *A. bicolor* (13). Figs. 14—15: The structure of surface of internal lobus in medial part of *A. noheli* (14) and of *A. bicolor* (15). Figs. 16—17: The structure of surface of internal lobus in basal part in *A. noheli* (16) and in *A. bicolor* (17). Figs. 18—19: The puncture of the pronotum disc in *A. noheli* (18) and in *A. bicolor* (19).

tures of intervals depends on the illumination and the angle of incidence of light rays.

As shown in Fig. 2 the apex of aedeagus of *A. noheli* is not parabolically shaped as in Figs. 5 and 6 taken from HLISNIKOVSKÝ (1964), but it has protuberances on the sides of the medial tip as in *A. bicolor* (Figs. 7—11). The enlarged fore part of parameres in *A. noheli* is circular as in *A. bicolor* (Figs. 4, 9). Comparing Figs. 2—4, 7—11 we can see that the form of aedeagus of the holotype of *A. noheli* is identical with the aedeagus of *A. bicolor*. The surface of basal and medial part of internal lobus and the form of "fleam—shaped" lamellae in the terminal wreath are also identical in both species (Figs. 12—17). The figure of the parabolically formed apex of aedeagus of *A. noheli* (Figs. 5, 6, HLISNIKOVSKÝ, 1964) is very easily abtained if the aedeagus is drawn at a slant of about 45° from horizontal. The distal enlarged part of paramers is membraneous (Figs. 4, 9). The elliptic form of enlarged part of parameres as shown in Fig. 5 taken from HLISNIKOVSKÝ (1964) is probably due to the aedeagus being drawn in dry condition, as it is then difficult to discern the sclerotized part of the parameres f om the membraneous one.

Thus no differences of specific importance exist in *A. noheli* and *A. bicolor*. Differences in some characters given by HLISNIKOVSKÝ (1964) are often greater between the right and left side of the body in an individual specimen than between the two so-called species. The difference given by HLISNIKOVSKÝ exist, actually, only in his paper (HLISNIKOVSKÝ, 1964). Consequently we can only conclude that *A. noheli* is synonymous with *A. bicolor*.

CONCLUSIONS

The present discussion and the comparison of the original descriptions of *A. noheli*, of the types of *A. noheli* and specimens of *A. bicolor* demonstrate that there exist no differences between *A. noheli* and *A. bicolor*. The differences given by HLISNIKOVSKÝ (1964) and existing actually only in his description are based partly on the inadequate drawing of the aedeagus under the dry conditions of specimens and on mistakes in measurements.

A. noheli and *A. bicolor* represent a single taxon with the following synonymy:

Agyrtes bicolor LAPORTE DE CASTELNAU, 1840
Agyrtes subniger DEJEAN, 1833, nom. nud.
Agyrtes noheli HLISNIKOVSKÝ, 1964, **syn. n.**

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Agyrtes noheli — новый синоним вида Agyrtes bicolor (Coleoptera, Silphidae)

Таксономия, изменчивость, синонимия

Резюме. На основании типового материала и оригинального описания проверялся статус вида *Agyrtes noheli* Hlisnikovský, 1964. Было установлено, что последний тождествен с видом *A. bicolor* Laporte de Castelnau, 1840 и является его младшим синонимом.

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