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On the Geographic Variation of Eugnosta margaritana with Decription of a New Subspecies

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(Lepidoptera, Phaloniidae)

By **Nicholas S. Obraztsov**

The work on this paper was stimulated by an attempt to ascertain the mysterious species *norvichiana* established by Hübner (1814—1817) and later placed by this author in the genus *Eugnosta* Hb. (Hübner, 1825). No data were present about this species, and Duponchel (1846), misspelling the name as "*Novrvichiana*", for some unknown reason gave Hungary as the country of the origin of this species. This never was confirmed or disproved by any other author. Herrich-Schäffer (1851) supposed *norvichiana* to be an exotic species, the origin of which was unknown. Walsingham (1895) wrote about *norvichiana:* "A study of the figure leaves a strong impression upon my mind that it is a *Paedisca* allied to *adamantana,* nor should I be surprised to receive both species from some sub-arctic region." Rebel (1901) remarked: "*Norvichiana* Hb. 252; Wlsghm. Tr. E. S. 1895, p. 506 non incolae territorii esse videntur."

The species *adamantana* Gn., mentioned by Walsingham as probably allied to *norvichiana,* is only known in North America. It belongs to the genus *Eucosma* Hb. (Heinrich, 1923) and has nothing in common with *norvichiana.* A careful examination of a series of various tortricoid species with nacreous markings on the forewing, especially of the Nearctic species of the *Eucosma adamantana* group, made by the author of the present paper, has convinced him that *norvichiana* might only belong to the phaloniid genus *Eugnosta* Hb., endemic to the Palearctic region. Hübner (1822) was probably aware of this, as he placed *norvichiana* in one genus with *margaritana* Hb. and *lathoniana* Hb. Of these two species, *norvichiana* most reminds one of *margaritana,* nevertheless differs from it in some details of the forewing markings and the color of the hind wing. The wing shape of *norvichiana,* judging by Hübner's figure of this species, also is somewhat distinct from that of *margaritana,* but this might be explained by some inaccuracy in the figure. It seems thus better to treat *norvichiana* as a species dubia for the present, and it seems likely that its true status will never be satisfactorily ascertained in the future.

Eugnosta margaritana (Hb.) is a species with a discontinued although rather wide distribution in the Palearctic region. Rebel (1914) was evidently the first who observed the geographic variation of this species, and described its form from Kulja as a separate spe-

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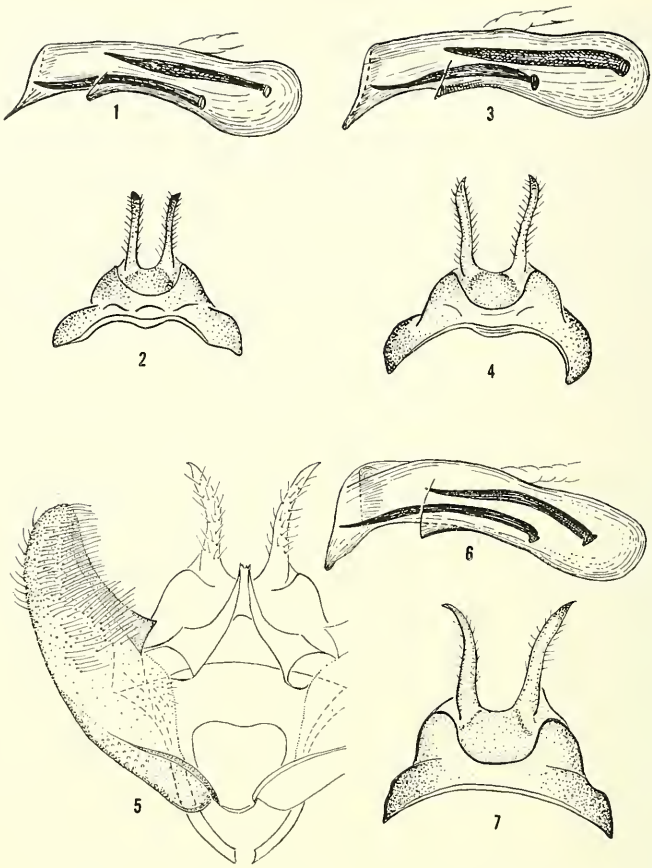

Figures 1, 2. *Eugnosta margaritana margaritana* (Hb.), Ungarn (slide M. 056). 1. Aedoeagus. 2. Dorsal aspect of tegumen and socii.

Figures 3, 4. *Eugnosta margaritana magnificana* (Rbl.), Sarepta (slide M. 057). 1. Aedoeagus. 2. Dorsal aspect of tegumen and socii.

Figures 5—7. *Eugnosta margaritana iberica* ssp. nova, Castile (slide M. 055); holotype, male. 5. Caudal aspect of genitalia with right valva not figured and aedoeagus removed. 6. Aedoeagus. 7. Dorsal aspect of tegumen and socii.

cies, *magnificana* Rbl. Caradja (1916) treated the specimens of *margaritana* from Uralsk and Digne as *magnificana,* and mentioned their smaller size in comparison to the specimens from Kulja. Zerny (1927) pointed out the similarity between *magnificana* and the *margaritana* specimens from Spain, but characterized the latter as having "gleichmäßig graue Hinterflügel (wie bei typischen *margaritana*)." Szent-Iványi (1941) discussed the constancy of external characters of *margaritana* in Hungary, and their variation in other countries. He also stated that the *margaritana* specimens from Spain are similar to *magnificana,* and corrected Zerny by an indication that in Spain *margaritana* has paler hind wing than in Hungary. Szent-Iványi supposed that in the *margaritana* group there are more than one species, and that they need careful study.

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The present author has also examined many specimens of *margaritana*. He has come to the conclusion that typical *margaritana* from Hungary, the specimens treated as this form in Spain, and *magnificana*, are all conspecific. In this paper he describes specimens from Spain as a new subspecies of *margaritana*, and sinks *magnificana* to subspecific rank.

The author acknowledges with thanks the kind cooperation of Dr. W. Forster and Dr. K. Sattler who gave him the opportunity to study the materials of the Bavarian State Collection. The work for this paper was done under the auspices of the United States National Science Foundation.

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Key to the Subspecies of *Eugnosta margaritana* (Hb.)

1. Upper and interior margins of tornal patch of forewing join together under a right angle; longitudinal area of ground color between external nacreous band and costa forms a trapezoidal, wedge-like intrusion into this band; basal nacreous band reaches costa; hind wing yellowish white to pale brownish gray . . . . . *iberica* ssp. nova
   Upper and interior margins of tornal patch of forewing join together under an acute angle; longitudinal area of ground color between external nacreous band and costa is slightly widened before wing apex, and does not form any narrow, trapezoidal, wedge-like intrusion into nacreous band; basal nacreous band is separated from costa by a narrow, brown line 2
2. Hind wing dark grayish brown . . . . . ssp. *margaritana* Hb.
   Hind wing white, slightly brownish darkened externally . . . . . ssp. *magnificana* Rbl.

Eugnosta margaritana margaritana (Hb.)

Figures 1, 2, 8

Margaritana Hübner, 1811—1813, Samml. eur. Schmett., Tortr., pl. 35, fig. 219 (uninominal).
Agapeta margaritana Hübner, 1822, Syst.-alph. Verz., p. 62.
Eugnosta margaritana Hübner, 1825, Verz. bek. Schmett., p. 394.
Tortrix margaritana Treitschke, 1830, Schmett. Eur., vol. 8, p. 104; 1835, op. cit., vol. 10, part 3, p. 70, 248.
Argyroptera margaritana Duponchel, 1836, Hist. Nat. Lép. France, vol. 9, p. 450, pl. 260, fig. 4; Guenée, 1845, Ann. Soc. Ent. France, ser. 2, vol. 3, p. 303; (1846), Eur. Micr. Ind. Méth., 1845, p. 65; Duponchel, (1846), Cat. Méth. Lép. Eur., 1844, p. 314.
Tortrix (Eupecillia) margaritana Herrich-Schäffer, 1851, Syst. Bearb. Schm. Eur., vol. 4, p. 179.
Conchylis margaritana Lederer, 1859, Wien. Ent. Mschr., vol. 3, p. 274.
Cochylis margaritana Wocke, 1871, in Staudinger & Wocke, Cat. Lep. eur. Faun., p. 242, No. 797.
Euxanthis margaritana Rebel, 1901, in Staudinger & Rebel, Cat. Lep. pal. Faun., vol. 2, p. 100, No. 1796; Kennel, 1907, in Spuler, Schmett. Eur., vol. 2, p. 260; 1913, Pal. Tortr., Zoologica, fasc. 54, p. 310, pl. 13, fig. 54.
Pharmacis margaritana Szent-Iványi, 1941, Iris, vol. 55, p. 118, pl. 14, fig. 7.

A comparative description of the male genitalia of this subspecies is done in this paper under ssp. *iberica* nova. The subspecies *margaritana* is positively known only from Hungary. Szent-Iványi (1941) names the Hungarian lowland as the area of this subspecies, especially the vicinity of Budapest.

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Eugnosta margaritana magnificana (Rbl.), status nov.

Figures 3, 4, 9

Tortrix margaritana Eversmann, 1844, Fauna lep. Volgo-Ural., p. 496.
Conchylis margaritana (in part) Lederer, 1859, Wien. Ent. Mschr., vol. 3, p. 274; ? 1863, ibid., vol. 7, p. 44.
Cochylis margaritana (in part) Wocke, 1871, in Staudinger & Wocke, Cat. Lep. eur. Faun., p. 242, No. 797.
Euxanthis margaritana Rebel, 1901, in Staudinger & Rebel, Cat. Lep. pal. Faun., vol. 2, p. 100, No. 1796 (in part); Kennel, 1907, in Spuler, Schmett. Eur., vol. 2, p. 260 (in part); 1913, Pal. Tortr., Zoologica, fasc. 54, p. 310 (in part); Petersen, 1924, Lep. Estl., p. 339; Toll, 1939, Jahresber. Physiogr. Komm. Poln. Akad. Wiss., vol. 73, p. 238, 258, pl. 1, fig. 5; Danilevsky, 1962, Trudy Inst. Zool. Akad. Nauk Kazakh. SSR, vol. 18, p. 84.
Euxanthis magnificana Rebel, 1914, Iris, vol. 28, p. 273, pl. 4, fig. 10; Caradja, 1916, ibid., vol. 30, p. 54; 1931, Mem. Sect. Stiint. Acad. Rom., ser. 3, vol. 7, p. 328; ? Zerny, 1940, Zschr. Österr. Ent.-Ver., vol. 25, p. 23—24.

A comparative description of the male genitalia of this subspecies is done in this paper under ssp. *iberica* nova. The subspecies *magnificana* was described as a separate species from Kulja (Rebel, 1914). Eversmann (1844) mentioned "*margaritana*" from the foot-hills of the Ural; this record undoubtedly concerns *magnificana* which was known to Caradja (1916) from Uralsk. The present author had this subspecies from East Russia (Orenburg, Sarepta) and from the Ukraine (Akmetchetka, Park of Vessyolaya Bokovenka, Berdiansk). It is quite possible that the "*margaritana*" recorded by Toll (1939) in Podolia and by Lederer (1863) in Bulgaria, also belonged to *magnificana*. Danilevsky (1962) had a specimen from Tien Shan, very probably belonging to the same subspecies. The data for Transcaucasia and Nukhur in Transcaspia (Christoph, 1885) are uncertain because the present author saw from Armenia a new, not yet described, species of the *margaritana* relationship.

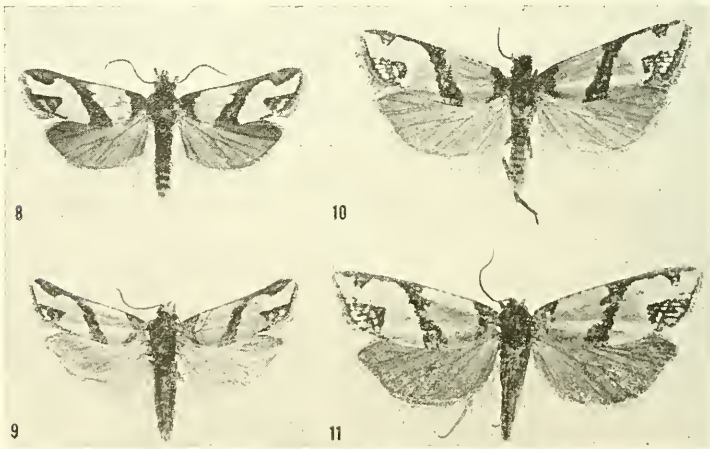

Figure 8. *Eugnosta margaritana margaritana* (Hb.), Ungarn; male.
Figure 9. *Eugnosta margaritana magnificana* (Rbl.), Sarepta; male.
Figures 10, 11. *Eugnosta margaritana iberica* ssp. nova, Castile.
10. Male paratype. 11. Female, allotype.

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Eugnosta margaritana iberica ssp. nova

Figures 5—7, 10, 11

Argyroptera margaritana (in part) ? Duponchel, (1846), Cat. Méth. Lép. Eur., p. 314.

Euxanthis margaritana (in part) ? Kennel, 1907, in Spuler, Schmett. Eur., vol. 2, p. 260; ? 1913, Pal. Tortr., Zoologica, fasc. 54, p. 310; Zerny, 1927, Eos, vol. 3, p. 468; ? Lhomme, 1939, Cat. Lép. France Belg., vol. 2, p. 232.

Euxanthis magnificana (in part.) ? Caradja, 1916, Iris, vol. 30, p. 54; ? 1931, Mem. Sect. Stiint. Acad. Rom., ser. 3, vol. 7, p. 328; ? Lhomme, 1939, Cat. Lép. France Belg., vol. 2, p. 232.

Pharmacis magnificana Szent-Iványi, 1941, Iris, vol. 55, p. 118, pl. 14, fig. 8.

Forewing broad with costa almost straight and apex narrowly rounded; main markings as in *margaritana* and *magnificana;* ground somewhat more speckled with white; basal nacreous band broad, reaching costa and bearing some brown, minute costal streaks; its interior margin almost straight, slightly undulate; external margin oblique, turned basad shortly before costa; external nacreous band reaching costa closer than in *margaritana* and *magnificana,* and leaving a narrow longitudinal space of ground color between itself and costa; before wing apex this space intrudes as a subtrapezoidal wedge into nacreous band; tornal patch of ground color, large, with white nacreous dots, and upper and interior margins joining under an almost right angle. Length of forewing: 10—14 mm. Hind wing paler than in *margaritana,* but slightly darker than in *magnificana.*

Types: Holotype (male, genitalia on slide M.055), allotype (female), and three male and one female paratypes; Castile, Spain (Faller); deposited in the Bavarian State Collection, Munich.

The male genitalia of the new subspecies do not differ from those in *margaritana* and *magnificana,* only the socii are perhaps slightly stronger. The tip of the aedoeagus is less narrowed than in the two mentioned subspecies; the lower of the two cornuti is longer. These slight differences seem not to be of specific nature. The socii are the shortest in *margaritana,* but those of *magnificana* intergrade between *margaritana* and *iberica.* The same concerns the tip of the aedoeagus which is in *magnificana* somewhat broader than in *margaritana* but narrower than in *iberica.* Both of the cornuti are equally long in *margaritana;* in *magnificana* the lower cornutus is shorter than the upper. Toll (1939) figured the male genitalia of a specimen from Podolia, in which the proportions of the cornuti are similar to those in *iberica,* but the tip of the aedoeagus is like that in the subspecies *margaritana* from Hungary. These small variations of the male genitalia speak rather in favour of the conspecificity of the above *margaritana* forms, and there is no reason to treat *margaritana, magnificana,* and *iberica* as three separate species.

The subspecies *iberica* is positively known only from Spain (Aragon and Castile). The specimens from Digne (Caradja, 1916) and the Croatian coast (Szent-Iványi, 1941) probably also belong to this subspecies. Duponchel (1836) mentioned *margaritana* specimens from Sicily, which also might belong to *iberica.*

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Anschrift des Verfassers:
Dr. Nicholas S. Obraztsov,
68 Glenlawn Ave., Sea Cliff,
Long Island, N. Y., U. S. A.

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