

Revision of *Evergestis anartalis* (Staudinger, 1892) comb. rev. from Central Asia (Pyraloidea: Crambidae: Evergestinae)

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Abstract. The nomenclature of *Evergestis anartalis* (Staudinger, 1892) **comb. rev.**, a species which has been described three times and of which the names have been placed in three different subfamilies of Crambidae, is investigated. The generic name *Maelinoptera* Staudinger, 1893 **syn. n.** is revised as a junior subjective synonym of *Evergestis* Hübner, 1825 and the type-species of this monotypic genus, *Hercyna anartalis* Staudinger, 1892, is transferred to *Evergestis*. *Evergestis heliacalis* Zerny, 1914 **syn. n.** and *Noctuella anartalis* Hampson, 1918 **syn. n.**, are considered as junior subjective synonyms of *Evergestis anartalis* (Staudinger, 1892) (*Hercyna*). *Evergestis anartalis* Hampson, 1918 (*Noctuella*) therefore becomes a junior secondary homonym of *Evergestis anartalis* (Staudinger, 1892) (*Hercyna*). Lectotypes of *Hercyna anartalis* Staudinger, 1892 and *Evergestis heliacalis* Zerny, 1914 are designated. *Evergestis anartalis* (Staudinger, 1892) is redescribed; adults, male and female genitalia are illustrated. According to the specimens investigated, it is assumed that *Evergestis anartalis* is endemic to sub-alpine and alpine altitudes in Central Asia.

Key words. *Evergestis anartalis*, taxonomic revision, Central Asia, alpine altitudes, endemic species.

Introduction

After Staudinger (1892: pl. 3 fig. 17) already figured *Hercyna anartalis*, he provided the description of this species a year later and described the genus *Maelinoptera* to include *Hercyna anartalis* only (Staudinger 1893: 72–73). Already Meyrick (1890: 457–458), Rebel (1901: 56) and Zerny (1914: 326) included *anartalis* Staudinger in the genus *Evergestis* Hübner, 1825 but did not mention *Maelinoptera*. Subsequently, Klima (1939: 334) treated *Maelinoptera* as a synonym of *Evergestis*. However, *Maelinoptera* was later placed in Pyraustinae (Pyraloidea: Crambidae) by Fletcher & Nye (1984: 60), and the same authors distinguish the Evergestinae with the type genus *Evergestis* as a distinct group from Pyraustinae. The type series of *Hercyna anartalis* Staudinger is deposited at the Museum für Naturkunde in Berlin. However, a specimen looking externally conspecific with *anartalis* Staudinger and labelled as type of *anartalis* Hampson has been found also in the collection of The Natural History Museum in London (BMNH). Subsequent search in the card index of the BMNH referred to an original reference from which it is evident that Hampson (1918: 406–407) described a new species under the name *Noctuella anartalis*. According to current classification, *Noctuella* Guenée, 1854 belongs to the subfamily Odontiinae (Pyraloidea: Crambidae). Searching the literature, a further description has been detected of a species which seems to have affinities to *Hercyna anartalis* Staudinger, too. It is the description of *Evergestis heliacalis* by Zerny (1914: 326–327, pl. 26 fig. 26), which according to current classification belongs to Evergestinae. Thus, three species descriptions have been found in literature which are under the suspicion to belong to one species, or to a few closely related species, which however are assigned to three different subfamilies of Crambidae, depending on the reference used. Due to this confusing situation, the types of all three taxa, as well as additional specimens have been investigated and the results are presented in the following.

Abbreviations

BMNH	The Natural History Museum, London.
MTD	Museum für Tierkunde, Dresden.
NMW	Naturhistorisches Museum, Wien
SMF	Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt am Main
ZMHB	Museum für Naturkunde der Humboldt-Universität zu Berlin

Evergestis anartalis (Staudinger, 1892) comb. rev.

Hercyna anartalis Staudinger, 1892: 466, pl. 3 fig. 17; 1893: 72 (type-locality: 'Centralasien').

Noctuella anartalis Hampson, 1918: 406–407 (type-locality: 'E-Turkestan') **syn. n., junior secondary homonym.**

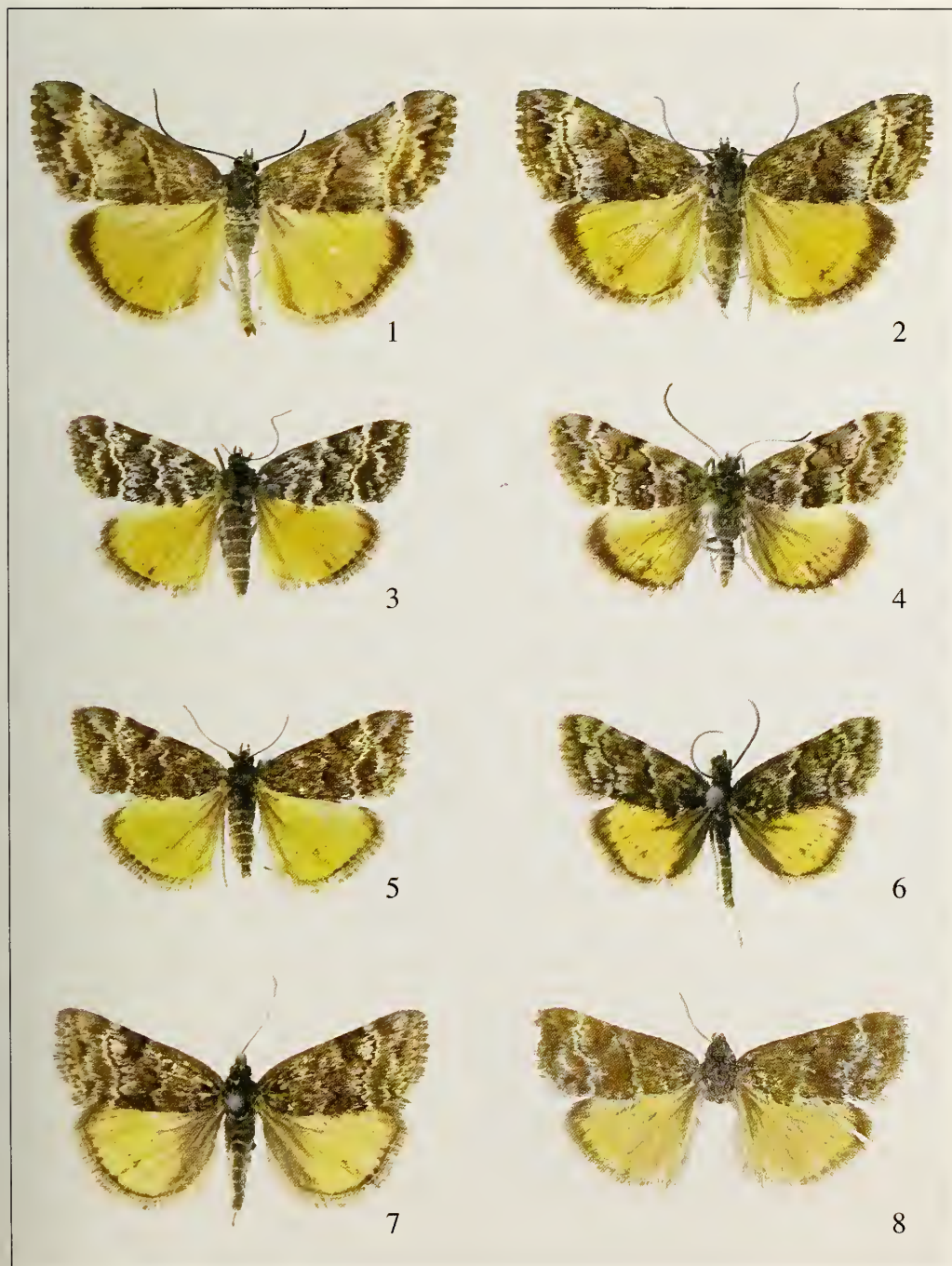
Evergestis heliacalis Zerny, 1914: 326–327, pl. 26 fig. 26 (type-locality: 'Djarkent Ili-Gebiet') **syn. n.**

Material. *Hercyna anartalis* Staudinger: Lectotype ♂ 'Origin', [Uzbekistan, Namangan, 40°57'N 71°40'E], '*Hercyna anartalis* | Staudinger, 1892 | det & coll Stdr 3#18 | teste M. Nuss, 1998', '*Lectotype | Hercyna anartalis | Staudinger, 1892 | des. M. Nuss, 2005*' (hereby designated), '*prep. no. | 1040 | M. Nuss, 2005*', ZMHB. – Paralectotypes: 3♂, 2♀, same data as lectotype: 1♀ Margelan [Alai, 40°24'N 71°43'E]; 1♂ **Kyrgyzstan**, Osch [40°29'N 72°51'E]; 1♂ Alexandergebirge (Kirgizskiy Khrebet, 42°30'N 73°30'E); 2♂, 2♀ **Kazakhstan**, Alatau [Dzungarischer Ala-Tau, 45°10'N 81°00'E]; 1♀ Kuldja [=Kuldsha. = **China**, Xinjiang, Gulja 43°57'N 81°24'E]; 1♂, 1♀ **Altai**: ZMHB. – *Noctuella anartalis* Hampson: Holotype (by monotypy) ♀ 'Type', 'Turkestan | A. Avinoff. | 1913–191.', '*Noctuella | anartalis | type ♀. Hmps. |*', 'B.M. Pyralidae | Genitalia slide | No. 20282 ♀' (gen. prep. Nuss 828), BMNH. – *Evergestis heliacalis* Zerny: Lectotype ♂, with white label, printed: 'Asia centr. | [**Kazakhstan**] Ili Gebiet | Umg. Djarkent | Coll. Wagner', white label handwritten in black ink: '20.7.[19]10', white label handwritten in black ink: '*Evergestis | heliacalis* Zerny | ♂ [and in red ink:] Type', white label, printed: '*prep. no. | 1039 | M. Nuss, 2005*' [prep. no. NMW: 16847], red label, printed: '*Lectotypus | Evergestis heliacalis | Zerny, 1914 | des. M. Nuss, 2005*', (hereby designated), NMW. Paralectotypes: 2♀, same data, [but no date given], (one ♀ without abdomen), NMW. – **Additional material.** 1♂ **Kyrgyzstan**, Chatkal'skij Chrebet, Sarsuta Pass (41°31'N 70°46'E), 2800 m, 26.vi.1998, leg. et coll. Karisch; 1♂, 1♀ Turkestan Mts., Ak-Terek, Noo-Dzhailo valley, 3000–3400 m, 1.–14.vii.1999, Petrov leg., MTD; 1♂ Alayskij Mts., Taldykpass, 3550 m, 39°46'N 73°09'E, 13.vii.1998, Nuss leg., MTD; 2♂, 1♀ Alai, Paravicini Coll. B.M. 1937–383, BMNH. 1♂ **Kazakhstan**, Ili Gebiet, Djarkent (= Dzarkent, = Panfilov 44°10'N 80°01'E), coll. Möbius, MTD; 1♂ Zailijskij Alatau, Turgen valley, 43°15'N 77°52'E, 2400 m, 19.vi.2000, Nuss leg., MTD; 1♀ same data, but 2660 m; 3♂ Zailijskij Alatau, 43°05'N 77°04'E, 3300 m, 5.–6.vii.2000, Nuss leg., MTD. 2♀ **China**, Xinjiang, Korla, ZMHB; 1♂ Tura, coll. A. Seitz, SMF.

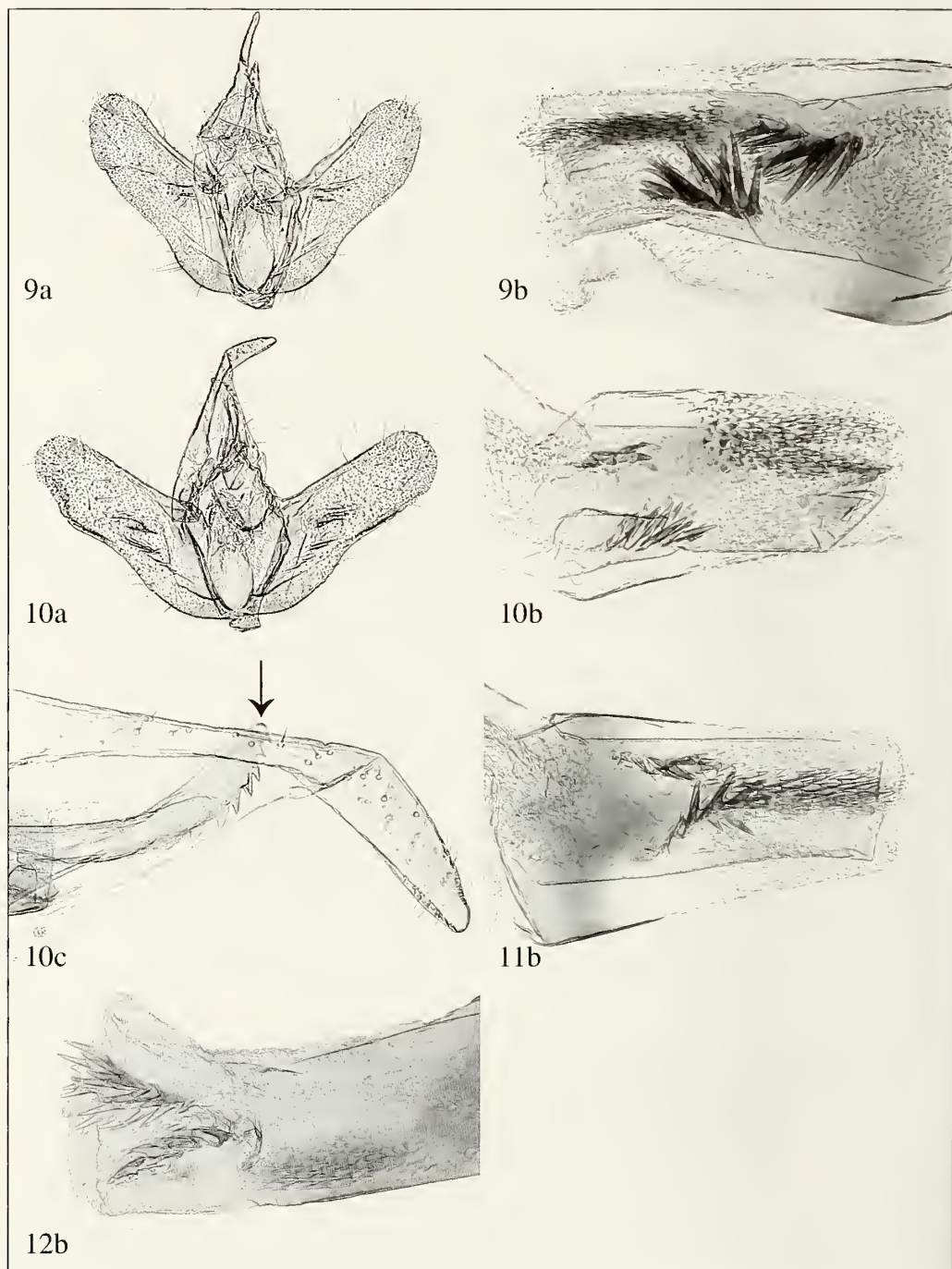
Description of the lectotype of *E. anartalis* (Staudinger), ♂ (Fig. 1).

Head. Globular; labial palpi porrect, as long as diameter of eyes, long and white scaled ventrally, light brown coloured laterally; maxillary palpi slender, cylindrical, upright; flagellum slenderly filiform, flagellomeres slightly prismatic, dorsally whitish brown scaled, ventrally densely setose. Head dorsally covered with spatulate scales, coloured brown, intermixed with white; ventrally predominantly white scaled; long hair-like scales are intermixed around the head, with the exception of compound eyes.

Thorax. Dorsally dominantly covered with spatulate scales, coloured brown, black and white; intermixed with white hair-like scales. Ventrally predominantly scaled with white, hair-like scales, also at coxae and femora. Forewing 12 mm long, dorsal side dominant brown coloured; basal area with a white, dentate line proximal of antemedian line; antemedian line white, dentate, black edged towards median space; distal discocellular stigma X-like, black; postmedian line yellowish white, S-like bent from anterior to posterior margin of wing, proximally black edged and with broad cream-white band; at termen a white, strongly dentate line, black edged toward termen; fringe brown and white chequered. Hindwing dorsally dominant indian yellow coloured, with



Figs. 1–8. Adults of *Evergestis anartalis* (Staudinger, 1892). 1. Lectotype, ♂, *Hercyna anartalis* Staudinger, 1892, from Namangan (ZMHB). 2. Paralectotype, ♀, *Hercyna anartalis* Staudinger, 1892, from Namangan (ZMHB). 3. Paralectotype, ♀, *Hercyna anartalis* Staudinger, 1892, from the Alay Mts. (ZMHB). 4. Paralectotype, ♂, *Hercyna anartalis* Staudinger, 1892, from the Alexander Mts. (ZMHB). 5. Paralectotype, ♀, *Hercyna anartalis* Staudinger, 1892, from the Alatau Mts. (ZMHB). 6. Lectotype, ♂, *Evergestis heliacalis* Zerny, 1914 from Panfilov (NMW). 7. Paralectotype, ♀, *Evergestis heliacalis* Zerny, 1914 from Panfilov (NMW). 8. Holotype, ♀, *Noctuelia anartalis* Hampson, 1918 (BMNH).



Figs. 9–12. Male genitalia of *Evergestis anartalis* (Staudinger, 1892). **9.** Lectotype of *E. anartalis* (Staudinger), prep. Nuss 1040. **10.** Lectotype of *E. heliacalis* Zerny, prep. Nuss 1039. **11.** Paralectotype, *E. anartalis* Staudinger, prep. Nuss 1041 (same specimen as Fig. 4). **12.** Paralectotype, *E. anartalis* Staudinger from Namangan, prep. Nuss 831. **a.** male genitalia. **b.** posterior end of phallus with cornuti. **c.** distal tip of gnathos (arrow) and uncus.

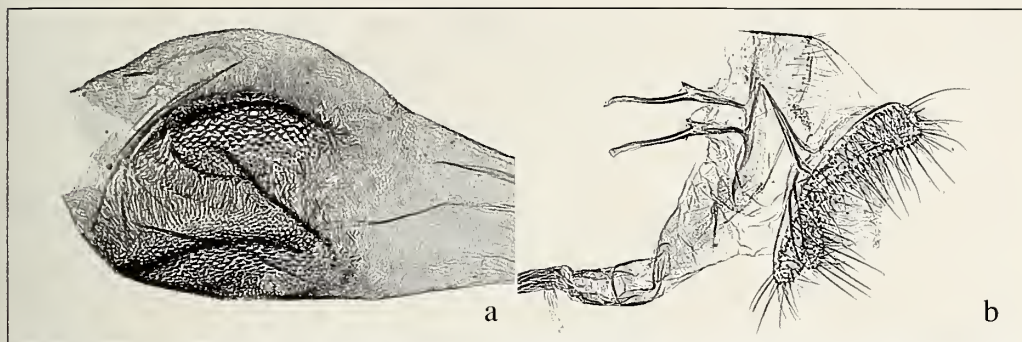


Fig. 13. Female genitalia of *Evergestis anartalis* (Staudinger, 1892), paralectotype from Alay Mts., prep. Nuss 829. **a.** bursa copulatrix. **b.** colliculum, segment VIII and papillae anales (from left to right).

dark brown margin; fringe brown at base, pale ochre distally. All wings ventrally pale yellow; forewings with conspicuous black-brown distal discoidal stigma, pale brown coloured apex, which is interrupted by a yellow line at costa; hindwings with brown apex too, and an inconspicuous spotted line parallel to termen. Male retinaculum with hamus.

Abdomen. Dorsally brown scaled, white edge along posterior margin of tergites; ventrally predominantly white coloured.

Male genitalia (Figs. 9–12). Uncus triangular. Gnathos slightly bent; broadly articulating along ventral edge of tegumen as characteristic for *Evergestinae*; dentate dorsally before distal tip. Valvae with straight dorsal edge, ventrally at base strongly convex, a folded, slightly stronger sclerotised field medially; juxta elongate ovate; vinculum slender. Phallus conspicuously blunt angled after two thirds from the anterior; opening of ductus ejaculatorius just anterior to this angle; within the posterior third, there are two ventro-lateral elongate fields of thorn-like cornuti close to the posterior edge of the phallodeme; anterior to this fields there are two lateral groups of larger cornuti, too.

Female genitalia (Fig. 13). Corpus bursae globular, with a pair of signa composed of numerous rectangular sclerites, surrounded by needle-like sclerotisations; cervix bursae large funnel shaped; ductus bursae narrow; colliculum and antrum dorsally forming a sclerotised ring, open ventrally; sternite VIII very narrow; apophyses anteriores and apophyses posteriores short; papillae anales connected dorsally, strongly setose.

Variation (Figs. 2–8, 9–12b). Forewing length 8–12 mm; the six specimens from Namangan, north of the Fergana Valley, present a larger forewing length (11–12 mm) as all other specimens, including the primary types of *Evergestis heliacalis* and *E. anartalis* (Hampson) (8–10 mm). The quantity of hair like scales varies, especially around the head and dorsal side of thorax. Forewing dorsally with white basal line in some specimens absent, antemedian line and subterminal line more or less inconspicuous, shape of S-bent postmedian line varies slightly; and scales covering the hamus are pale yellow or brown coloured. The hindwing with dark-brown marginal band variable in width; the basal area in some specimens with large brown field, in some specimens occupying

the entire inner edge of wing; ventrally, the spotted line is absent in some specimens. In male genitalia, dentation at distal tip of gnathos is reduced in some specimens and size of cornuti varies slightly. Variation of different characters do not correspond to each other. Females with somewhat broader forewings, comparing specimens of the same size.

Generic placement. The genus *Maelinoptera* Staudinger, 1893 with its only included species *Hercyna anartalis* Staudinger, 1892 has been described mainly by the presence of intensively yellow coloured hindwings, while most *Evergestis* species have pale-brown hindwings. However, all other morphological characters used for generic concepts in Evergestinae are so similar to *Evergestis*, that *Maelinoptera* Staudinger, 1893 **syn. rev.** is revised as a synonym of *Evergestis* Hübner, 1825 (type species: *Pyralis margaritalis* [Denis & Schiffermüller], 1775) here. So far, *Evergestis* is not proven as a monophyletic group, but the species included are so similar in morphology, especially that of genitalia, that there is no reason to doubt that they constitute a natural group. Some characters the *Evergestis* species have in common are in male genitalia the long and slender uncus and gnathos, the latter distally toothed and articulating from the ventral edges of tegumen, a long juxta, the valvae are simple and unarmed, and the phallus is obtusely angled behind the middle, in some species with cornuti. The females have well developed papillae anales, the bursa copulatrix is globular and has a pair of large signa (Munroe 1973; Goater, in press).

Life history. Adults have been collected between 19.vi.–20.vii. The early stages are unknown.

Distribution. The species is known only from Central Asia. All records with reliable data are related to localities at 2400–3550 m altitude, the sub-alpine and alpine meadows. Thus, it is assumed that *E. anartalis* Staudinger is endemic to the high mountains of Central Asia.

Remarks. The few specimens available for study suggests that only the six specimens from Namangan in the Fergana Valley present a larger forewing length (11–12 mm), while all other specimens with a smaller forewing length (8–10 mm) probably originate from higher altitudes, as indicated by those specimens collected more recently with more precise data. The specimens originating from higher altitudes also seem to have more black pigments suffused on thorax and forewings, as well as a higher quantity of hair like scales at head and thorax. Therefore, it might be possible that at least some of the variable character states are related to altitudinal adaptation. However, few specimens have been investigated only and it remains interesting to learn more about the factors influencing the variation. Overall variation shows no constant and distinct characters to separate species of the *Evergestis anartalis* complex. Therefore, *Evergestis heliacalis* Zerny, 1914 **syn. n.** and *Noctuelia anartalis* Hampson, 1918 **syn. n.** are synonymised here with *Evergestis anartalis* Staudinger, 1892 (*Hercyna*). Thus, *Noctuelia anartalis* Hampson becomes a junior secondary homonym of *Evergestis anartalis* Staudinger. In order to clearly verify the status of the species group names for the taxa investigated and to fix their name bearing types, lectotypes are designated for *Hercyna anartalis* Staudinger, 1892 and *Evergestis heliacalis* Zerny, 1914.

Acknowledgements

I am grateful to Sabine Gaal-Haszler (NMW), Timm Karisch (Dessau, Germany), Wolfram Mey (ZMHB) and Wolfgang Nässig (SMF) for the loan of specimens as well as to Michael Shaffer & Kevin Tuck (BMNH) for access to the collections under their care.

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Zeitschrift/Journal: [Nota lepidopterologica](#)

Jahr/Year: 2005

Band/Volume: [28](#)

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Artikel/Article: [Revision of Evergestis anartalis \(Staudinger, 1892\) comb. rev. from Central Asia \(Pyraloidea: Crambidae: Evergestinae\) 17-23](#)