

## Two new species of the genus *Athetis* Hübner, [1821] 1816 from Taiwan (Lepidoptera: Noctuidae: Hadeninae s. l.)

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**Abstract:** Two new species *Athetis taiwanensis* **n. sp.** and *Athetis speidelii* **n. sp.** are described from Taiwan. Both species belong to the *A. cinerascens* species-group. Photographs of the new species are given, male and female genitalia are figured and compared with *A. cinerascens* (Motschulsky, [1861]).

**Key words:** Lepidoptera, Noctuidae, Hadeninae (s. l.), *Athetis*, new species, Taiwan

### Introduction

This paper is dealing with taxa of the *Athetis cinerascens* species-group. This group is characterized by moderate size, robust habitus, dull, often uniform coloration, and weakly expressed wing pattern. The male genitalia are characterized by presence of brush organs in basal segments of the abdomen (coremata), large narrow and rather strong valvae, which have parallel costal and ventral margins, and are curved in the apical part. The harpe is located in the apical third of valva, rather strong, small, narrow, often furcated; the digitus is expressed as small extension under the harpe. The aedeagus is large, the vesica is tubular, armed with moderate or small cornuti. The female genitalia have a characteristic shape of the antrum, often with deep rectangular or triangular cut. All known species of the group occur in the Manchurian subregion of the Palaearctic with a center of diversity in South-West China. Most species are early spring or late autumn flyers. The species-group includes *A. cinerascens* (Motschulsky, [1861]) (plate IV & V, Figs 4, 6, 10) and several yet unde-

scribed species from China and Taiwan, two of them are herein described as new.

***Athetis taiwanensis* n. sp.**  
(plate IV & V, Figs. 1, 5, 8)

Holotype: ♂, N Taiwan, Taoyuan Co., Upper [= Shang] Palin, 1400 m, 6.–7.III.2000, H. Y. WANG. Preserved in ZFMK (Bonn).

Paratypes: 11♂♂, 25♀♀, N Taiwan, Taoyuan Co., Mingchi Recreation area ca 1100 m, 4.III.2000, H. Y. WANG; Genit. Prep. ZFMK Nr. 2035, 2036, 2037, 2038. Preserved in ZFMK (Bonn) and in collection of W. SPEIDEL; 1♂, Taiwan, Chiayi Alishan, 25.II.1980 (T. TANABE), genitalia slide 5076 NSMT; 1♂, Taiwan, “Musha, Nantien, Formosa”, 14.III.1966 (coll. Y. KISHIDA). Preserved in National Science Museum, Tokyo.

Derivation of name: The specific name is given by type locality: Taiwan Island.

Description: Habitus (plate V, Fig. 1). Wing expanse 27–28 mm. Antennae of male slightly serrate, ciliated. Palpae pressed, dark brown laterally, with pale scales on top of 2<sup>nd</sup> and apical segments. Their 3<sup>rd</sup> segment short, two times shorter than 2<sup>nd</sup>. Eyes surrounded with brown lashes. Head and thorax covered with pale brown hair like scales. Forewing pale grey-brownish. Basal line as two thin black dots in the basal field. Subbasal line thin, weak, traceable. Orbicular as black dot. Medial shade traceable. Reniform moderate in size, dark brown, with yellowish nucleus, surrounded with two white spots. Outer line indistinct. Subterminal line traceable as a row of diffused streaks. Terminal line as a row of black dots. Cilia grey with pale borderline. Hindwings grey, with thin dark terminal line and traceable discal spot. Cilia greyish. Base of male abdomen with coremata.

Male genitalia (plate V, Fig. 5). Uncus reduced, very small, tegumen high, with broad lobes. Vinculum V-shaped, with expressed long saccus. Fultura interior leave-like shaped with long, sclerotized medial bar. Valva elongated, with parallel margins, distal part curved dorsally. Cucullus rounded, covered by dense thin hairs. Harpe situated at distal third of valva, strong, broad, apical part three-furcated with apices acute, dorsal apex longer and sharper than medial and ventral ones, ventral apex small. Aedeagus slightly curved, with distal part stronger in sclerotization, carina with long and much stronger sclerotized band. Vesica tubular, recurved at

the middle, armed with short scarce cornuti on surface and row of long but thin pine like cornuti in apical part.

Female genitalia. (plate V, Fig. 8). Papillae anales moderate. Apophyses anteriores 1.5 times longer than posteriores ones. Antrum sclerotized, triangular, large with broad, rectangular antevaginal plate with rectangular cut in the middle. Ductus bursae moderate, sclerotized, with strongly sclerotized folds where it is joining the bursa. Bursa copulatrix with large diverticulum in caudal part.

Differential diagnosis: The species belong to the *A. cinerascens* group and is most similar to *A. cinerascens* and *A. speideli* **n. sp.** Externally it is characterised by pale yellowish-grey coloration of the forewing and the well expressed, relatively large dark reniform. In male genitalia it differs by having a three-furcate harpe, and a weak and short digitus. The structure of the vesica which is covered with small spine-like cornuti and a row of larger spines at apex.

Distribution: Taiwan.

Biology: Early spring species with short flight period from the beginning to mid of March at elevations about 2000 m.

### ***Athetis speideli* n. sp.**

(plate IV & V, Figs. 2, 3, 7, 9)

Holotype: ♂, N Taiwan, Taoyun Co., Mingech Reservation area ca 1100 m, 4.III.2000, H. Y. WANG. Preserved in ZFMK (Bonn).

Paratypes: 8♂♂, 11♀♀, same locality, 4.III.2000, H. Y. Wang; 1♂, N Taiwan Taipei Co., Wulai, 400 m, 1.–2.III.2000, H. Y. Wang; 1♂, N Taiwan, I-lan Co., Chilan forest station, 600 m 3.–5.III.2000 W. SPEIDEL & H. Y. WANG leg. Genit. Prep. 2039m, 2040f, 2043m. Preserved in ZFMK (Bonn) and in collection of W. SPEIDEL.

Derivation of name: The specific name is dedicated to the well known German lepidopterist Dr. Wolfgang SPEIDEL, to whom I am deeply grateful for providing valuable material and data for this study.

Description: Habitus (plate IV, Fig. 2). Wing expanse 29–30 mm. Antennae of male slightly serrate, ciliated. Palpae pressed, dark brown laterally, with pale yellowish scales on top of 2<sup>nd</sup> and apical segments. Their 3<sup>rd</sup> segment short, two times shorter than 2<sup>nd</sup>. Eyes surrounded with brown lashes. Head and thorax covered with dark brown, almost black hair like scales. Ground color dark blackish-brown with some shining, reniform contrasting with ground color. The wing pattern dimorphic: in some specimens (both, males and females) contrasting reniform not ex-

pressed. Forewing dark blackish-brown. Basal line thin, as two waved lines. Subbasal line thin, weak, hardly traceable. Orbicular hardly traceable, as small black dot. Medial shade black, diffused. Reniform moderate in size, pale, yellowish-white, contrasting with dark ground color, sometimes with dark nucleus, in some specimens reniform not expressed (plate IV, Fig. 3). Dark with reddish-brown, may be surrounded with few whitish scales. Outer line traceable, dentate or separated in a row of black dots. Subterminal line as diffused black line. Terminal line as a row of black dots, surrounded with white scales. Cilia dark blackish-brown with terminal line. Hindwings dark blackish-brown grey, with traceable discal spot. Cilia brown-black with yellowish border. Basis of male abdomen with coremata.

Male genitalia (plate V, Fig. 7). Uncus reduced, very small, tegumen high (two times higher than vinculum), with broad lobes. Vinculum V-shaped, with long saccus. Fultura interior leave-like shaped. Valva elongated, with parallel margins, some expanded apically, dorsally curved in the distal part. Cucullus rounded, covered by dense thin hairs. Harpe flat, located at distal third of valva, strong, with apical part bifurcated with apices acute, its dorsal apex somewhat longer and sharper than ventral ones. Digitus well expressed, finger like, flattened, located under the harpe. Aedeagus curved, with a stronger sclerotized distal part, carina as two long and much stronger sclerotized bands. Vesica tubular, everted dorsally, curved, armed with a long cornutifield covered by small and moderate setae like dense cornuti.

Female genitalia: (plate V, Fig. 9). Papillae anales moderate. Apophyses anteriores 1.5 times longer than posteriores ones. Antrum sclerotized, triangular, large with moderate rounded antevaginal plate with triangular cut in the middle. Ductus bursae moderate, sclerotized, flattened, with strongly sclerotized folds where it is joining the bursa. Bursa copulatrix with large extended diverticulum in the caudal part.

Differential diagnosis: The new species differs significantly from its nearest allies *A. cinerascens* and *A. taiwanensis* sp. n. by dark blackish brown coloration of the wings and the contrasting pale yellowish reniform. Male genitalia structure differ in the shape of the valva, bifurcate harpe, well expressed digitus and arming of the vesica. Female genitalia differ in the presence of a moderate rounded antevaginal plate having a deep triangular cut in the center.

Distribution: Taiwan.

Biology: Early spring species with short flight period from the beginning to mid of March at elevations about 2000 m.

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**Plate IV:** Figs. 1–4. *Athetis* spp., imagines. **1:** *Athetis taiwanensis* n. sp., holotype, ♂, N Taiwan, Taoyuan Co., Upper [=Shang] Palin, 1400 m, 6.–7.III.2000, H. Y. WANG; **2:** *Athetis speideli* n. sp. holotype, ♂, N Taiwan, Taoyuan Co., Mingchi Recreation area ca 1100 m, 4.III.2000, H. Y. WANG; **3:** *Athetis speideli* n. sp. paratype, ♀, with same data; **4:** *Athetis cinerascens*, ♂, China, “West Tien-Mi-Shan” (Chekinag) 1600 m, 3.IV.1932 (H. HÖNE).

**Plate V:** Figs. 5–10. *Athetis* spp., genitalia. **5:** *Athetis taiwanensis* n. sp., paratype, ♂, (Taiwan), genit. prep. ZFMK2038; **6:** *Athetis speideli* n. sp., paratype, ♂, (Taiwan), genit. prep. ZFMK2039; **7:** *Athetis cinerascens*, ♂, (China, West Tien-Mi-Shan), genit. prep. ZFMK1794; **8:** *Athetis taiwanensis* n. sp., paratype, ♀, (Taiwan), genit. prep. ZFMK2035; **9:** *Athetis speideli* n. sp. paratype, ♀, (Taiwan), genit prep. ZFMK2035; **10:** *Athetis cinerascens*, ♀, (China, West Tien-Mi-Shan) genit. prep. ZFMK1741.

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