

Notes and new species of the Neotropical genus *Nycterotis* Felder, 1874 (Lepidoptera: Notodontidae, Nystaleinae)

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Abstract

Four new species are described: *Nycterotis lineata* Becker, sp. n. and *Nycterotis noelia* Becker, sp. n., from Brazil, *Nycterotis chaconi* Becker, sp. n., from Costa Rica, and *Nycterotis balcazari* Becker, sp. n., from Guatemala. *Nycterotis poecila* Felder, 1874 and *N. dognini* (Draudt, 1932), are very closely related but distinct species.

KEY WORDS: Lepidoptera, Notodontidae, Nystaleinae, *Nycterotis*, new species, Brazil, Costa Rica, Mexico, Guatemala.

Notas y especies nuevas del género Neotropical *Nycterotis* Felder, 1874 (Lepidoptera: Notodontidae, Nystaleinae)

Resumen

Se describen cuatro especies nuevas: *Nycterotis lineata* Becker, sp. n. y *Nycterotis noelia* Becker, sp. n., de Brazil, *Nycterotis chaconi* Becker, sp. n., de Costa Rica y *Nycterotis balcazari* Becker, sp. n., de Guatemala. *Nycterotis poecila* Felder, 1874 y *N. dognini* (Draudt, 1932), están relativamente próximas, pero son especies distintas.

PALAVRAS CLAVE. Lepidoptera, Notodontidae, Nystaleinae, *Nycterotis*, especies nuevas, Brasil, Costa Rica, Guatemala, México.

Introduction

The genus *Nycterotis* Felder, 1874 was overlooked by all authors until WATSON *et al.* (1980: 130), listed it in their catalogue. *N. poecila* Felder, 1874, the type species, was included in *Dasylophia* Packard, 1864 by SCHAUS (1901: 281). BECKER (2014: 17), included 37 species in *Nycterotis*, transferred from *Dasylophia* Packard, *Betola* Schaus, 1901 and *Pentobesa* Schaus, 1901, the last two as synonyms. A further species was added by BECKER (2018). Most of the species currently belonging to this genus have been thoroughly revised -as *Pentobesa*- by WELLER (1991), and THIAUCOURT (2007) and the types of the species deposited in the USNM are illustrated in SCHINTLMEISTER (2016). An examination of type-specimens, and other material in collections, provided new information on the group, including the four species described here. To confirm the similarities and differences of the species treated here with other related species, illustrations of their genitalia are also included, as they had not been published before.

Material and methods

This work is based on 62 specimens, (20 genitalia preparations) in VOB. and on the type-material

in the USNM and the NHMUK. Synoptic collections, representing all these species were taken to those institutions and compared with the types deposited there. The holotypes of the new species are provisionally deposited in VOB, and will be transferred, together with the collection, to a Brazilian institution in the future. Genitalia were prepared following the methods described by ROBINSON (1976). Terms for morphological characters follow HODGES (1971).

Abbreviations

FW = Forewing
 g. s. = Genitalia slide
 HW = Hind wing
 NHMUK = Natural History Museum, United Kingdom
 USNM = United States National Museum, Washington
 VOB = Vitor O. Becker collection, Serra Bonita Reserve, Camacan, Bahia, Brazil

Results and discussion

Nycterotis poecila Felder, 1874 (Figs 3-5, 12-14)

Nycterotis poecila Felder, 1874. *Reise Novara Lep. Het.*, (9)2(2): pl. 97, fig. 20.

Holotype ♀, VENEZUELA, no further data (NHMUK) [examined].

= *Symmerista fulgens* Druce, 1901. *Ann. Mag. Nat. Hist.*, (7) 7: 75.

Lectotype ♂, VENEZUELA, [Merida], Merida (NHMUK), here designated [examined]. Synonymized by Schaus, 1901: 281.

Material studied: Types 4 ♂♂, 2. g. s. ECUADOR, Napo, Cosanga, 00°35'S - 77°52'W, 2010 m, 6-9-VII-2019, g. s. 5526 (Becker 160110) (VOB).

Diagnosis: Male (Figs 3, 5) 22-24 mm (48-50 mm wingspan), female (Fig. 4) like male, slightly larger and with FW slightly broader. FW pale yellow, mottled brown and fuscous; oval area at base pale yellow. Thorax dark brown, abdomen dark fuscous. HW fuscous. Male genitalia (Figs 12, 13) with distal portion of costa enlarged to a blunt process; external edge of midplate with two or three large teeth.

Distribution: Venezuela to Ecuador, at high elevations.

Remarks: *Symmerista fulgens* Druce, 1901 was described from two specimens representing both sexes, the male illustrated here is designated lectotype; the female becomes a paralectotype. This and *N. dognini* are extremely similar (see below), as shown by the illustrations. *N. poecila* has FW slightly narrower and the pale patch at base pure pale yellow. The genitalia are also remarkably similar, but the small differences are consistent. The specimens studied were collected at 2.000 m and below, indicating that it flies at lower elevations than *N. dognini*.

Nycterotis dognini (Draudt, 1932) (Figs 1, 2, 15-17)

Dasylophia dognini Draudt, 1932, in Seitz. *Gross-Schmett. d. Erde*, 6: 934, name of substitution.

Lectotype ♂. COLOMBIA, Monte Socorro, 3400-3800 m, Fassl leg. (USNM), designated by Schintlmeister, 2016: 471 [examined].

= *Dasylophia saturata* Dognin, 1911. *Hét. Nouv. Amer. Sud*, 1: 19. Preoccupied by *Dasylophia saturata* Barnes, 1901. *Cand. Ent.*, 33: 53.

Material studied: Type; 5 ♂♂, 1 ♀, 2 g. s., 1 ♀. ECUADOR: Morona Santiago, Indanza, 2800 m, 24-XII-1992 (Becker 103338); 2 ♂♂, Pichincha, Nanegalito, Bella Vista, 00°01'S - 78°41'W, 2100-2340m, 5-19-III-2012, Sinyaev & Brechlin leg., 21-VI-12-VII-2017, g. s. 5527 (Becker 153166); 1 ♂, Napo, Papallacta, 00°21'S - 78°23'W, 2750 m, 4-5-VII-2019 (Becker 159801); 2 ♂♂, Azuay, 02°46'S - 79°26'W, 2840 m, 19-IV-2012, g. s. 5528, Sinyaev & Brechlin leg. (VOB).

Diagnosis: Male (Fig. 1) 20-22 mm (46-48 mm wingspan), female (Fig. 2) 25 mm (56 mm wingspan); FW pale yellow, mottled brown and fuscous; oval pale area at base dusted brown. HW

fuscous. Thorax dark brown, abdomen dark fuscous. Male genitalia (Fig. 15) with distal portion of valva sub-square nearly rounded; external edge of midplate with four or more small teeth.

Distribution: Ecuador, at high elevations.

Remarks: *Dasylophia saturata* was described based on “plusiers ♂♂”, only one syntype has been traced, designated as lectotype. This and *N. poecila* are extremely similar, as shown by the illustrations. The FW in this is slightly broader and the pale patch next to base dusted brown. Their genitalia (Figs 12, 15) are also distinct. Both fly at high elevations in the Andes, from Venezuela to Ecuador, however, as indicated by the specimens studied, all collected between 2.300 and 2.800 m, *N. dognini* flies at higher elevations than *N. poecila*.

***Nycterotis lineata* Becker, sp. n. (Figs 6, 36-38)**

Material examined 5 ♂♂, 2 g. s. Holotype ♂, BRAZIL, Paraná, Curitiba, 920 m 10-I-1975 (Becker 1250) (VOB). Paratypes: 3 ♂♂, g. s. 4662, 5459, same data as holotype but 14, 29-XII-1974, 6-IX-1975 (Becker 1247-1249); 1 ♂, Idem, Rio Negro, 22-IX-1970, Becker leg. (VOB).

Diagnosis: Gray with black dashes above cell between veins; no transverse bands; HW whitish.

Description: Male (Fig. 6) 18-21 mm (40-45 mm wingspan). Fuscous; labial palpi dark fuscous dorsally; thorax whitish; patagia behind, and tegula dorsally, with line of sparse blackish scales; FW with black dashes between veins: two short ones on apex, long one from mid of cell, through M1 and M2, to before termen, long one from base to end of cell, longest one from base, below cell, along M3, to before termen; two diffuse, black dots near tornus, between M3-Cu1, and Cu1-Cu2; underside whitish, slightly dusted fuscous towards costa. HW semi-translucent whitish, dusted fuscous towards margins, veins darker. Abdomen fuscous dorsally, pale ventrally; distal margin of 8th sternite (Fig. 38) with pair of complexes, asymmetrical projections.

Male genitalia (Fig. 36): Uncus short, slightly tapered distad, flattened dorso-ventrally; socius short, thick, flattened laterally; valvae asymmetrical, distal, left portion more protruded than the right one; right midplate square, distal margin with series of small teeth; right one a short, bent digit; juxta an inverted sub-triangle, distal margin slightly round, lateral margins slightly concave; vinculum round. Aedeagus (Fig. 37) cylindrical, long, strongly bent distad; vesica minutely combinate.

Distribution: South-eastern Brazil, at high elevation in the Atlantic Forest.

Etymology: From the Latin *line* = line, bearing lines; feminine.

Remarks: Very distinct from all the others in the genus, resembling a *Trajectina* Becker, 2014 species.

***Nycterotis noelia* Becker, sp. n. (Figs 7-8, 18-20, 39)**

Material studied: Holotype ♂, BRAZIL, Espírito Santo, Linhares, 40 m, 5-9-IX-1992, g. s. 5530 (Becker 82080). Paratype ♀, Rio de Janeiro, Nova Friburgo, 1100 m, 21-I-1998, g. s. 5536 (Becker 112816) (VOB).

Diagnosis: Medium size; fuscous, FW mottled brown, pale yellow and blackish; male HW semitranslucent whitish, dusted fuscous towards margins; female HW darker.

Description Male (Fig. 7): 22 mm (50 mm wingspan), female (Fig. 8) 25 mm (58 mm wingspan). Labial palpi dark fuscous; thin, pale line ventrally; frons and vertex pale; antenna with flagellum whitish, pectination fuscous. Thorax pale fuscous, sparsely mixed with dark fuscous scales; posterior margin of patagia dark fuscous; tegula pale yellow, dorsal margin dark fuscous. FW pale yellow mottled dark fuscous, gray and blackish; oval area at base, based of antemedial band, below costa, mixed with yellow and dark fuscous scales; basal dash dark brown; costa fuscous, three small white dots before apex; pale, diffuse band from cell to apex, followed by dark fuscous band from postmedial band to below apex; below this a white dash to termen, followed by an irregular, brown fascia, distad of postmedial band and before termen, forming lunules between veins; small, black dot at end of cell, next to M3; dorsum gray, mottled dark fuscous; underside fuscous, pattern faded. Male HW semitranslucent

whitish, veins dark; smoked fuscous towards margins; light fuscous in female. Abdomen dark fuscous dorsally; pale, diffuse band along middle, turning more defined towards tip; ventrally whitish; thin, dark fuscous line along middle. Distal margin of 8th sternite (Fig. 20) with two strong, irregular, asymmetrical processes.

Male genitalia (Fig. 18): Uncus bifurcated distally, slightly constricted at middle; socii long, thin, slightly thickened apically; distal portion of valva nearly round, edges contorted; juxta round; vinculum nearly round. Aedeagus (Fig. 19) short, strong, with three blunt processes of different sizes apically; vesica with bunch of deciduous, stellar spines.

Female genitalia (Fig. 39): Antrum wide; ostium narrow; ductus bursae short, strongly twisted, distal half strongly sclerotized; corpus bursae globose; two signa: a large, cuneiform plate, and a smaller, U-shaped, opposite; lamella postvaginalis square, distal margin denticulated, two small, rounded processes at distal corners.

Distribution: Southern Brazil, in the Atlantic Forest.

Etymology: A recognition to Ms. Noel Mann, from Massachusetts, for her generous contributions to support the Serra Bonita Reserve Project, Camacan, Bahia.

Remarks: This species belongs to the *N. aroata*-group, similar to *N. densissima* Dyar, 1915 but has HW darker; easily distinguished by the uncus, not bifurcate in *densissima* (Fig. 21) and distinct shape of distal portion of valva. They are also allopatric: *densissima* is known from the Guianas, south to Bahia, Brazil, whereas *N. noelia* is known to the south of this range, from Espirito Santo to Rio de Janeiro, where it is sympatric with *N. typhon* (Draudt, 1932), with which it cannot be confused.

***Nycterotis chaconi* Becker, sp. n.** (Figs 9, 10, 24-26, 40)

Material studied: 3 ♂♂, 3 g. s., 2 ♀♀, 1 g. s. Holotype ♂, COSTA RICA, Guanacaste, El Coco, 5 m, 27-VIII-1971, g. s. 5596 (Becker 23454) (VOB). Paratypes: 2 ♂♂, g. s. 4653, 1 ♀, g. s. 5537, same data as holotype; 1 ♀, Idem, Santa Rosa, 280 m, 20-IX-2000 (Becker 128001) (VOB).

Diagnosis: Whitish; FW with diffuse, fuscous area from costa, based of postmedial band, extending obliquely towards base; broad, diffuse dark gray fascia from apex, connecting to the postmedial band at M2; postmedial band double; pair of blackish dots before termen, between M3-Cu2; basal dash a crescent below cell. HW whitish, dusted fuscous towards margins, veins darker.

Description: Male (Fig. 9) FW 17 mm (38 mm wingspan), female (Fig. 10) 20 mm (44 mm wingspan). Body pale fuscous. Labial palpi dark fuscous dorsally; vertex whitish; antenna with flagellum white, pectination fuscous. Thorax light fuscous; patagia dark fuscous; tibia and tarsi dark fuscous dorsally. FW whitish; diffuse, fuscous area from costa, based of postmedial band, extending obliquely, covering cell, towards base; basal dash reduced to double crescent below cell; postmedial band double; broad, diffuse dark gray fascia from apex, connecting to postmedial band at M2; pair of blackish dots between M3-Cu2 before termen; small dots along termen, between veins. HW whitish, dusted fuscous towards margins, veins darker. Abdomen 8th sternite (Fig. 26) oblong, deeply indented, internal margin of each branch with a series of small teeth; apophyses thin.

Male genitalia (Fig. 24): Uncus short, thick; socii as long as uncus, thin; distal portion of valva round with long tail tapering based; midplate reduced to a curved, sharp pointed expansion; juxta oblong, embracing aedeagus; vinculum round, slightly concave at middle. Aedeagus (Fig. 25) strongly curved dorsal, apex expanded, acute-pointed, apical edge serrate.

Female genitalia (Fig. 40): Small; corpus and ductus bursae membranous, ductus narrow; lamellae ante- and postvaginalis a wide semicircle; apophyses short, thin.

Distribution: North western Costa Rica, close to the coast.

Etymology: In honour of the Costa Rican biologist Isidro Chacón, whose life has been dedicated to the knowledge of the Lepidoptera of his country, especially the Notodontidae.

Remarks: This species, like the following, belongs to a group of small, pale species that are very similar, and partially sympatric, that includes the polymorphic *N. lupia* (Druce, 1887), *N. wellingi* (Thiaucourt, 1975), *N. colimata* (Dyar, 1925), and *Xylodonta guarana* (Schaus).

Nycterotis balcazari Becker, sp. n. (Figs 11, 33-35)

Material studied: 3 ♂♂, 3 g. s. Holotype ♂, GUATEMALA: Petén, Tikal, 19-22-IX-1973, g. s. 4652 (Becker 23813) (VOB). Paratype ♂, MEXICO: Quintana Roo, Carrillo Puerto, 27-IX-1973, g. s. 5535 (Becker 23941); 1 ♂, same data as paratype, g. s. 5534 (Becker 23938) (VOB).

Diagnosis: Fuscous; FW with two fine, blackish lines: short one from A2, near base, joining A1 before Cu2; second along A2 to before tornus, then angled up to M2, nearly parallel to termen; small black mark before termen, on interspace between Cu2-M3; HW semitranslucent whitish, dusted fuscous along margins.

Description: Male (Fig. 11) 17 mm (38 mm wingspan). Frons pale, vertex dark fuscous; labial palpi dark gray dorsally; antenna fuscous; thorax and abdomen pale fuscous dorsally, pale ventrally; FW fuscous; postmedial band pale, ill-defined; two fine, blackish lines: short one from A2, near base, joining A1 before Cu2; second along A2 to before tornus, then angled up to M2, nearly parallel to termen; small black mark before termen, on interspace Cu2-M3; diffuse dark area distad of postmedial band; cilia blackish, interrupted on veins. HW semitranslucent whitish, veins darker; fuscous along margins, wider along dorsum. Abdomen 8th sternite (Fig. 35) with pair of long rods distad, connected at base, diverging distad, with ridges of minute teeth internally; two short apophyses basally.

Male genitalia (Figs 33): Uncus short, flattened dorso-ventrally; socii small, thin, as long as uncus; distal portion of valva subrectangular, tapering slightly ventral, with a strong distal tooth bent distad, ventral margin concave; a round plate basally; midplate bifurcate; juxta square, embracing aedeagus; vinculum broadly expanded basad. Aedeagus (Fig. 34) strongly curved at basal 3rd, apex divided in two pointed expansions with minute serrated edges.

Distribution: Guatemala and Southern Mexico, in the dry lowlands.

Etymology: In honour of the Mexican biologist Manuel Balcázar, Universidad de Colima, for his hospitality and collaboration during a collection expedition to his beautiful country.

Remarks: Similar to *N. eminens* (Schaus, 1920), but darker. Digital projections of 8th sternite much longer than those of *N. lupia* (Figs 27-29, 40) and *N. colimata* (Figs 30-32); genitalia similar, but with distal portion of costa wider, and bearing single distad thorn, whereas narrower and bearing two distad thorns in those (Figs 30, 33). The male from Carrillo Puerto (23938), not included as paratype, has FW heavily dusted dark gray, looking similar to the dark form of *N. lupia* (Druce) (described as *Dicentria ravana* Dognin, 1904, one synonym of this).

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BIBLIOGRAPHY

- BARNES, W., 1901.— Descriptions of some new species of North American Lepidoptera.— *The Canadian Entomologist*, **33**: 53-57.
- BECKER, V. O., 2014.— Checklist of New World Notodontidae (Lepidoptera: Noctuoidea).— *Lepidoptera novae*, **7**: 1-40.
- BECKER, V. O., 2018.— A new species of *Nycterotis* Felder, 1874 from Central Brazil (Lepidoptera: Notodontidae: Nystaleinae).— *SHILAP Revista de lepidopterología*, **46**(181): 125-127.
- DOGNIN, P., 1904.— Hétérocères nouveaux de l'Amérique du Sud.— *Annales de la Société entomologique de Belgique*, **48**: 115-134.
- DOGNIN, P., 1911.— Hétérocères nouveaux de l'Amérique du Sud, **2**: 56 pp. Oberthür, Rennes.

- DRAUDT, M., 1931-1934.– Die amerikanischen Spinner und Schwärmer. Notodontidae: 901-1070.– In A. SEITZ, ed. *Die Gross-Schmetterlinge der Erde, des Amerikanischen Faunengebietes*, **6**: 1339 pp., 185 pls. A. Kernen, Stuttgart.
- DRUCE, H., 1901.– Descriptions of some new genera and species of Heterocera from Tropical America.– *Annals and Magazine of Natural History*, (7) **7**: 74-79.
- FELDER, C., 1874.– Zoologischer Theil. Lepidoptera Heterocera: pls. 75-107.– In C. FELDER, R. FELDER & A. F. ROGENGOFER. *Reise der österreichischen Fregatte Novara um die Erde, in den Jahren 1857, 1858, 1859, unter den Befehlen des Kommodore B. von Wüllerstorff-Urbair* (9)**2**(2): 140 pls. Wien.
- HODGES, R. W., 1971.– Sphingoidea.– In R. B. DOMINICK et al. *The moths of America North of Mexico*, **21**: 158 pp. E. Classey and R. B. D. Publications, London.
- ROBINSON, G. S., 1976.– The preparation of slides of Lepidoptera genitalia with special reference to the Microlepidoptera.– *Entomologist's Gazette*, **27**: 127-132.
- SCHAUS, W., 1901.– Revision of the American Notodontidae.– *Transactions of the Entomological Society of London*, **1901**: 257-343.
- SCHINTLMEISTER, A., 2016.– An illustrated type catalogue of the Notodontidae in the National Museum of Natural History Washington, D. C. (Lepidoptera: Notodontidae).– *Proceedings of the Museum Witt Munich*, **4**: 1-606.
- THIAUCOURT, P., 2007.– Notes sur les genres *Pentobesa* Schaus, 1901 et *Bahaia* Dyar, 1924 (Lepidoptera, Notodontidae).– *Nouvelle Revue d'Entomologie* (N. S.), **24**: 291-319.
- WATSON, A, FLETCHER, D. S. & NYE, I. W. B., 1980.– *The Generic Names of the Moths of the World*, **2**: 228 pp. British Museum (Natural History), London.
- WELLER, S. J., 1991.– Revision of the *Pentobesa xylinoides* (Walker) species group (Lepidoptera: Notodontidae).– *Proceedings of the Entomological Society of Washington*, **93**: 795-807.

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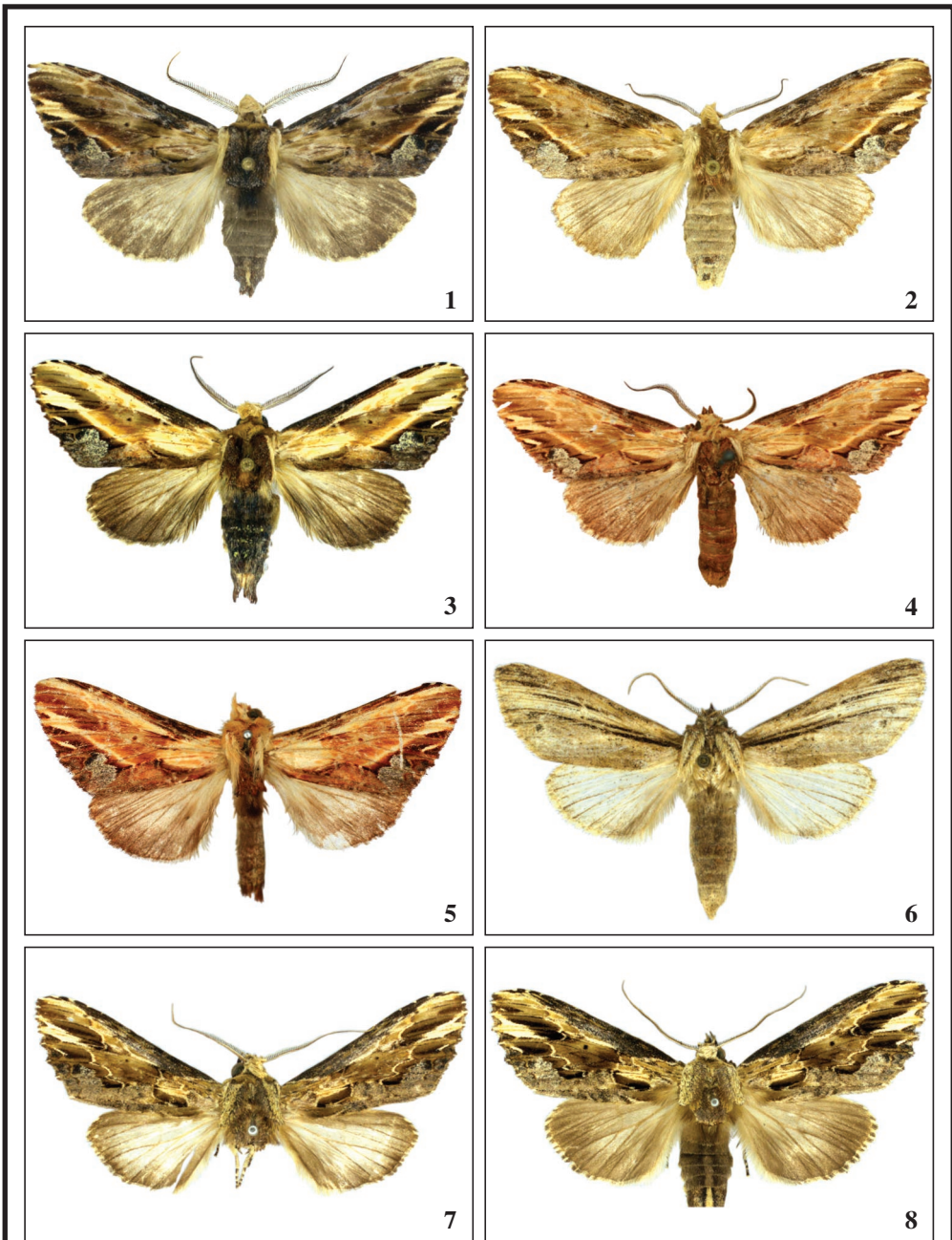
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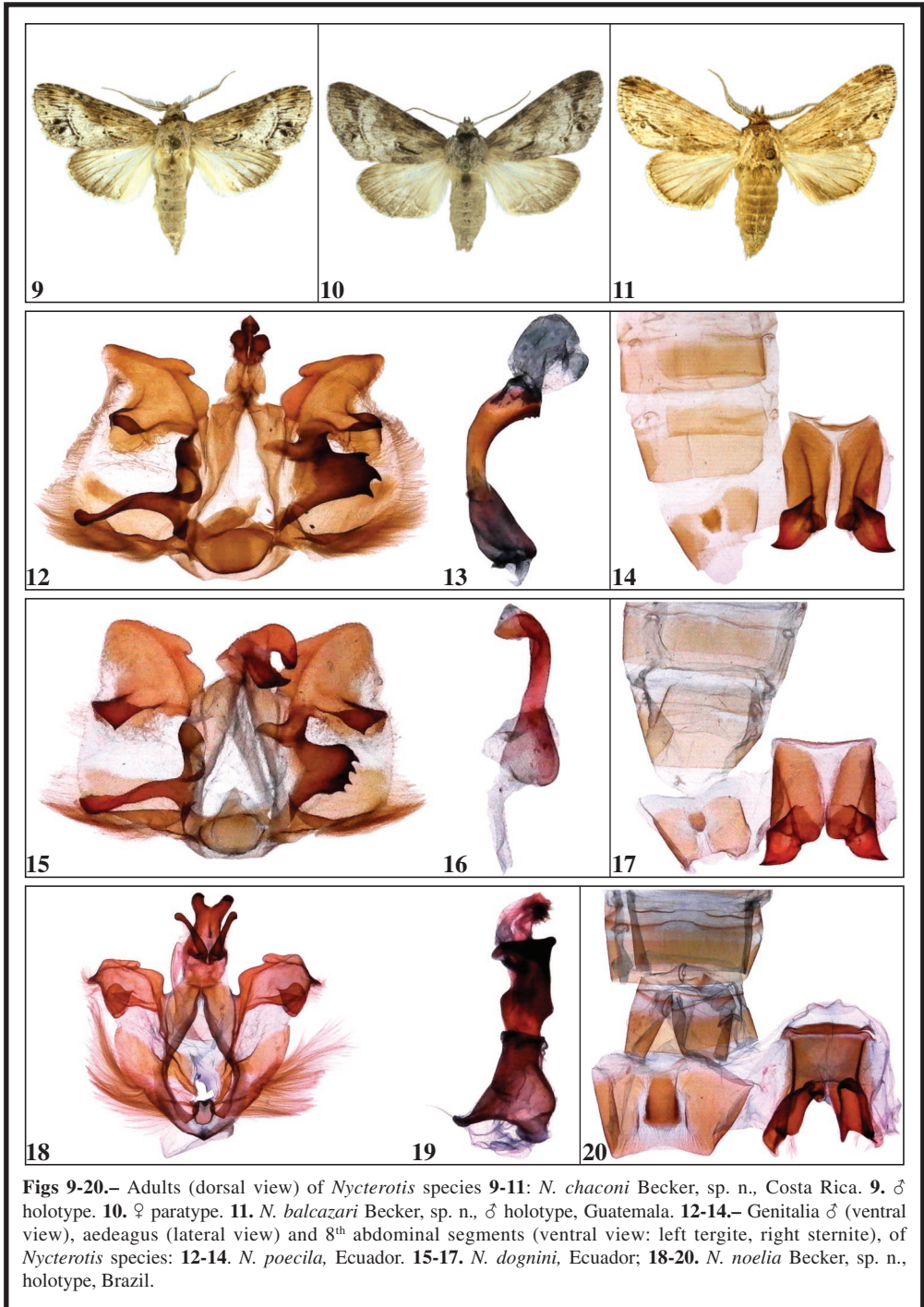
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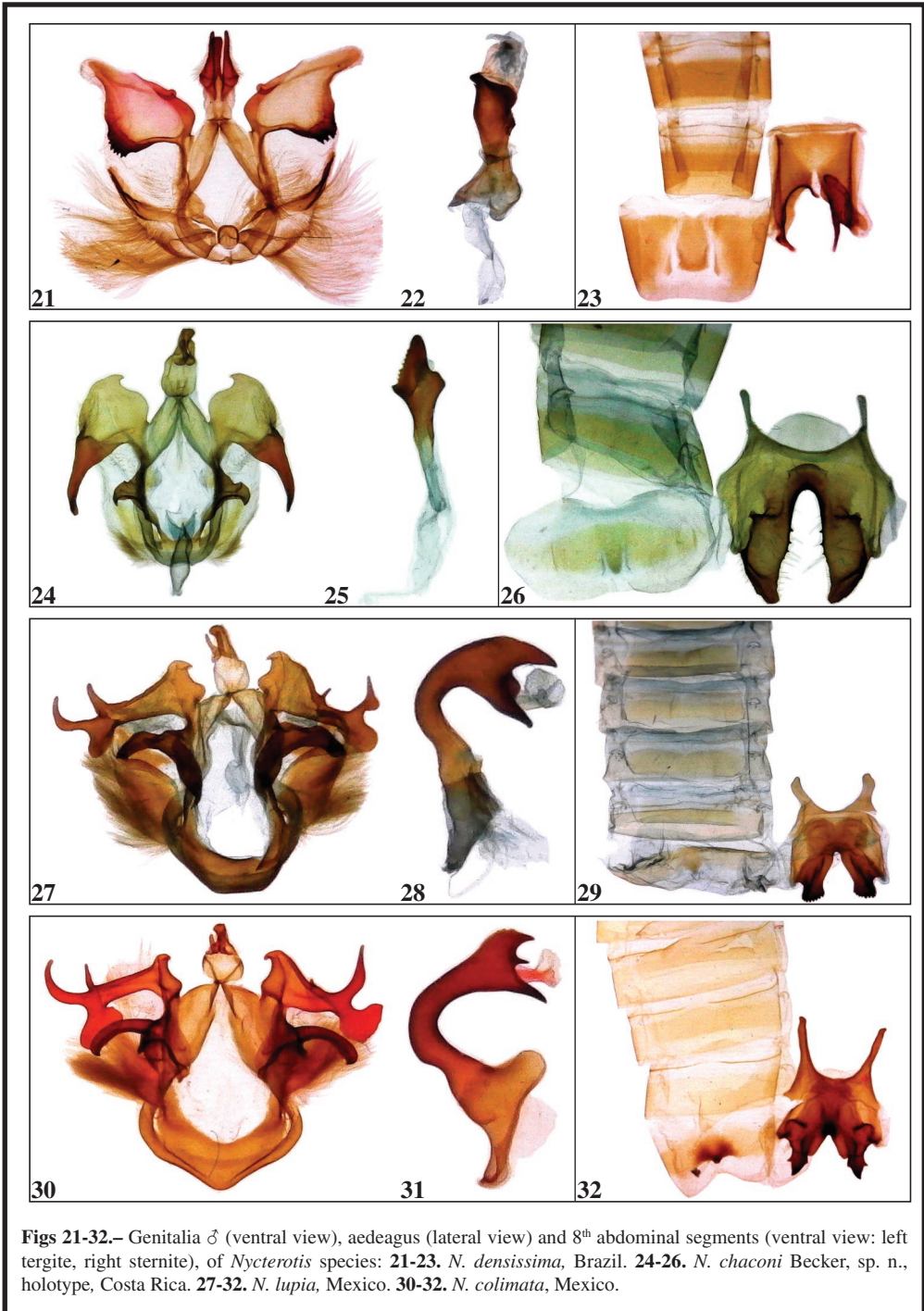
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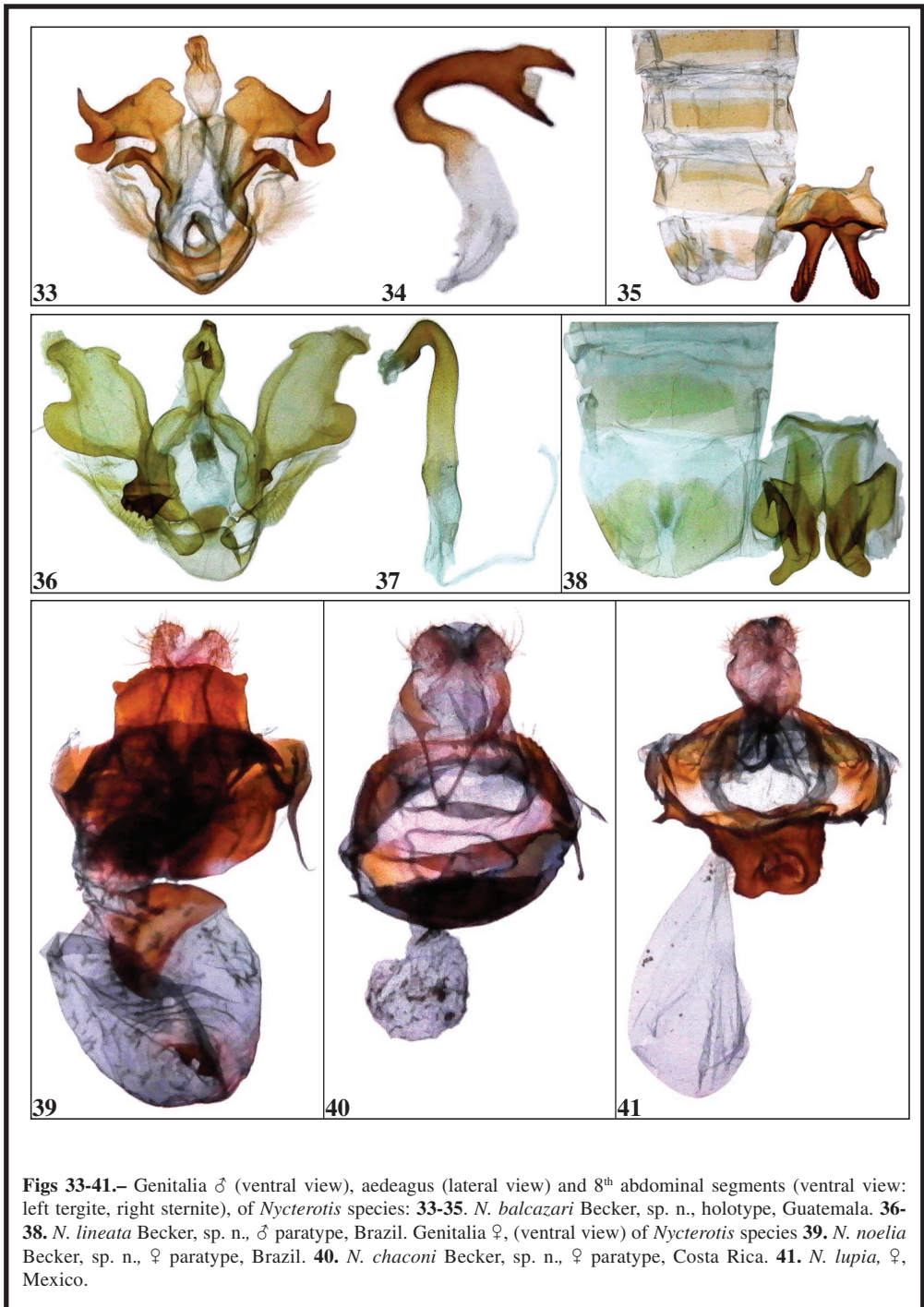
Figs 1-8.— Adults (dorsal view) of *Nycterotis* species: **1-2.** *N. dognini*, Ecuador. **1.** ♂. **2.** ♀. **3-5.** *N. poecila*. **3.** ♂, Ecuador. **4.** ♀ Lectotype, Venezuela. **5.** ♂ Holotype of *N. fulgens*, Venezuela. **6.** *N. lineata* Becker, sp. n., Brazil, ♂ holotype. **7-8.** *N. noelia* Becker, sp. n., Brazil. **7.** ♂ holotype. **8.** ♀ paratype.



Figs 9-20.— Adults (dorsal view) of *Nycterotis* species **9-11**: *N. chaconi* Becker, sp. n., Costa Rica. **9**. ♂ holotype. **10**. ♀ paratype. **11**. *N. balcazari* Becker, sp. n., ♂ holotype, Guatemala. **12-14.**— Genitalia ♂ (ventral view), aedeagus (lateral view) and 8th abdominal segments (ventral view: left tergite, right sternite), of *Nycterotis* species: **12-14**. *N. poecila*, Ecuador. **15-17**. *N. dognini*, Ecuador; **18-20**. *N. noelia* Becker, sp. n., holotype, Brazil.



Figs 21-32.— Genitalia ♂ (ventral view), aedeagus (lateral view) and 8th abdominal segments (ventral view: left tergite, right sternite), of *Nycterotis* species: **21-23.** *N. densissima*, Brazil. **24-26.** *N. chaconi* Becker, sp. n., holotype, Costa Rica. **27-29.** *N. lupia*, Mexico. **30-32.** *N. colimata*, Mexico.



Figs 33-41.— Genitalia ♂ (ventral view), aedeagus (lateral view) and 8th abdominal segments (ventral view: left tergite, right sternite), of *Nycterotis* species: **33-35.** *N. balcazari* Becker, sp. n., holotype, Guatemala. **36-38.** *N. lineata* Becker, sp. n., ♂ paratype, Brazil. Genitalia ♀ (ventral view) of *Nycterotis* species **39.** *N. noelia* Becker, sp. n., ♀ paratype, Brazil. **40.** *N. chaconi* Becker, sp. n., ♀ paratype, Costa Rica. **41.** *N. lupia*, ♀, Mexico.