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4812

Taxonomic revision of the genus *Nychiodes* Lederer, 1853 (Geometridae: Ennominae: Boarmiini) with description of three new species—an integrative approach

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TAXONOMIC REVISION OF THE GENUS *NYCHIODES* LEDERER, 1853 (GEOMETRIDAE: ENNOMINAE: BOARMIINI) WITH DESCRIPTION OF THREE NEW SPECIES—AN INTEGRATIVE APPROACH

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Abstract

The non-European taxa of the genus *Nychiodes* Lederer, 1853 are revised. Type specimens of all described species and a large series of about 800 additional specimens were morphologically examined. More than 400 genitalia preparations were made and analyzed along with distributional and DNA barcode data. As a result of our integrative taxonomic approach, *Nychiodes waltheri saerdabica* Wehrli, 1938 **syn. nov.**, is synonymized with *N. waltheri* Wagner, 1919; *N. palaestinensis libanotica* Zerny, 1933 **syn. nov.** is synonymized with *N. palaestinensis* Wagner, 1919 and the synonymy of *N. persuavis* Wehrli, 1929 **syn. rev.** with *N. palaestinensis* is confirmed; *N. admirabila safidaria* Wiltshire, 1943 **syn. nov.** is synonymized with *N. admirabila* Brandt, 1938; *N. agatcha* Brandt, 1938 **syn. nov.**, *N. subvirida disjuncta* Wehrli, 1941 **syn. nov.** and *N. subvirida taftana* Brandt, 1941 **syn. nov.** are synonymized with *N. subvirida* Brandt, 1938. Also, *N. variabila variabila* Brandt, 1938 **syn. nov.**, *N. variabila opulenta* Brandt, 1941 **syn. nov.**, *N. divergaria elbursica* Wehrli, 1937 **syn. nov.**, *N. divergaria fallax* Wehrli, 1939 **syn. nov.** and *N. divergaria achtyca* Wehrli, 1939 **syn. nov.** are synonymized with *N. divergaria* Staudinger, 1892. *Nychiodes convergata* **sp. nov.** from Israel, *N. mirzayansi* **sp. nov.** from the Iran and *N. eberti* **sp. nov.** from Turkey are described. Lecto- and paralectotypes are designated for *N. palaestinensis*, *N. antiquaria*, *N. divergaria*. Furthermore, *N. antiquaria* is reported as a new species for Pakistan, *N. rayatica* is reported as a new species for Iran and the hypothetical occurrence of *N. amygdalaria* in Iran is confirmed. Additionally, *N. tyttha* needs to be excluded from the genus. Wing pattern, male and female genitalia and diagnostic characters of all examined species are illustrated and distribution maps are provided. Illustrated keys based on genitalia, as well as a complete checklist of the genus is given here.

Key words: Lepidoptera, DNA barcoding, integrative taxonomy, lectotype designations, new combinations, new species, new synonyms

Introduction

The genus *Nychiodes* is currently assigned to the Boarmiini, an especially diverse tribe of geometrid moths comprising more than 5,000 species in 150 genera (Müller *et al.* 2019; Murillo-Ramos *et al.* 2019). The distribution area of *Nychiodes* extends from western Europe and northern Africa into Iran, Afghanistan and Pakistan (Müller *et al.* 2019).

Nychiodes species are large and robust moths, like most of the Boarmiini, which based on external morphology are a variable group without any clear-cut differential characters (Lederer 1853; Müller *et al.* 2019).

Nychiodes species are mainly characterized by their prominent ante- and postmedial lines on the forewing (Müller *et al.* 2019). Despite the conspicuousness of this genus, the taxonomic acquisition is difficult due to their morphological variablity. Moreover, unreliable features for their diagnosis, the lack of identification keys and doubtful status of species strengthen this. Therefore, for clear species diagnoses, the study of genitalia structures is crucial.

The genus *Nychiodes* has been described in 1853 by Lederer based on the type species *Geometra lividaria* Hübner, 1799 which is a synonym of *N. obscuraria* (Villers, 1789). In his catalogue, Staudinger (1871) listed *N. lividaria* and *N. amygdalaria* under this genus and later (Staudinger 1901) added *N. gigantaria* and five variations of *N. lividaria*. Prout (1915) listed eight species, which was supplemented by Wehrli (1954) to a total of 16 species and 29 subspecies. Scoble (1999) listed 26 species and 18 subspecies for the genus, which was later raised to 27 species by Scoble & Hausmann (2007). Müller *et al.* (2019) synonymized one species and five subspecies, downgraded one species to subspecies level and upgraded one subspecies to species level. As a result (and prior to the present study), the genus *Nychiodes* consisted of 27 species and 14 subspecies.

Recently, the genus has been subject of a revision in Europe and the urgency of a further revisionary study on this genus outside Europe has been stated (Müller *et al.* 2019).

Here we present a full revision of the non-European taxa of this genus and update and complement the current knowledge on these taxa. Most type specimens and a large number of additional material were investigated to gain a better understanding of each species. The comparison of external and internal morphological characters, combined with data acquired by DNA barcoding and distribution patterns, was used for this purpose. As a result of this study the genus consists of 25 species and 3 subspecies. Full decriptions for new species, morphological variation of already known species resulting from the comprehensive study of male and female genitalia are given. A complete checklist of the species within the genus is presented here.

Material and Methods

Type material and additional specimens were borrowed and examined from the following collections (acronyms after Evenhuis 2007, as far as included):

BMNH	Natural History Museum, London, England
IMCA	Insect and Mite Collection Ahvaz University, Iran
MNHN	Muséum National d'Histoire Naturelle, Paris, France
MNHU	Museum für Naturkunde der Humboldt-Universität, Berlin, Germany
NHMV	Natural History Museum Vienna, Austria
NHRS	Naturhistoriska Riksmuseet, Stockholm, Sweden
PCBM	Private collection of Bernd Müller, Berlin, Germany
PCDS	Private collection of Dirk Stadie, Eisleben, Germany
PCJG	Private collection of Jörg Gelbrecht, Königs Wusterhausen, Germany
PCJM	Private collection of Jörg-Uwe Meineke, Kippenheim, Germany
PCML	Private collection of Michael Leipnitz, Stuttgart, Germany
PCPG	Private collection of Gergely Petrányi, Budapest, Hungary
PCPS	Private collection of Peder Skou, Vester Skerninge, Denmark
PCRF	Private collection of Ralf Fiebig, Rossleben, Germany
PCTM	Private collection of Toni Mayr, Feldkirch, Austria
SMNK	Staatliches Museum für Naturkunde Karlsruhe, Germany
SMNS	Staatliches Museum für Naturkunde Stuttgart, Germany
ZFMK	Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany
ZSM	Zoologische Staatssammlung München, Germany

In the presentation of label data and original citations square brackets […] are used to explain or correct the spelling of the original information. The abbreviation "g. prep." refers to the number of a genitalia preparation.

Morphological examination. The type material of all investigated species and original descriptions were used for the identification and comparison of specimens. External characters were photographed with a Visionary Digital photography system (LK Imaging System, Dun. Inc., equipped with a Canon EOS 5DSR) and an Olympus E3 digital camera. Preparations of male and female genitalia were carried out following Robinson (1976), embedded as permanent slides in Euparal and photographed with a Leica digital microscope (Z16 APO) or a Keyence digital microscope (VHX-5000). Vesica everting followed the method described by Sihvonen (2001). For positioning and photography of different genitalia structures in liquid the method described by Wanke and Rajaei (2018) was followed. The uncus in lateral view, was photographed following the method proposed by Wanke *et al.* (2019). In the diagnosis paragraphs, each species is compared with externally or internally similar species as well as with sympatric species of the same species group.

Distribution pattern. After identification of species, the geographical coordinates (if not mentioned on the specimen label) were traced using 'Google Earth Pro' (vers. 7.3.1.4507 for Mac). Distribution patterns were plotted and prepared in QGIS (vers 2.18.15 for Mac). Global Multi-resolution Terrain Elevation Data 2010 (GMTED2010) were downloaded from https://earthexplorer.usgs.gov for the preparation of the elevation profile in QGIS. Distribution data were used especially for evaluation of the subspecies status.

DNA barcoding. Standard protocols (e.g., Ivanova *et al.* 2006) were used for extraction of DNA and amplification of the "barcode" fragment (658 base-pairs of the 5' terminus) of the mitochondrial cytochrome-c oxidase, subunit I. PCR products of several specimens were amplified and sent to Macrogen for sequencing. The remaining specimens were amplified and sequenced at the Canadian Centre of DNA barcoding (CCDB, Guelph), in the framework of the Lepidoptera campaign of the international Barcode of Life program (iBOL; www.lepbarcoding.org). All specimens used for DNA analysis are presented in the Appendix along with their label data and process identification numbers. All sequences and metadata are accessible on BOLD in the public dataset DS-NYCHEAST (dx.doi.org/10.5883/DS-NYCHEAST). Software MEGA X (Kumar *et al.* 2018) was used for the reconstruction of the neighbour-joining (NJ) tree (Using K2P model: Kimura 1980) (fig. 145) and for the calculation of genetic distances.

Results and Discussion

Nychiodes Lederer, 1853

Nychiodes Lederer, 1853. Verhandlungen des Zoologisch-Botanischen Vereins in Wien, 3: 177, 216, 219. Type species: *Geometra lividaria* Hübner, 1799 [Europe]. Genus synonyms after Scoble (1999).

Comeesia Wehrli, 1941. in: Seitz, A. (Ed.), Die Großschmetterlinge der Erde 4 (Supplement): 440. Type species: *Nychiodes admirabila* Brandt, 1938.

Eunychiodes Wehrli, 1941. in: Seitz, A. (Ed.), Die Großschmetterlinge der Erde 4 (Supplement): 441. Type species: *Boarmia amygdalaria* Herrich-Schäffer, 1948.

Fritzwagneria Wehrli, 1941. in: Seitz, A. (Ed.), Die Großschmetterlinge der Erde 4 (Supplement): 438. Type species: *Nychiodes dalmatina* Wagner, 1909.

Description. (after Müller *et al.* 2019 with complementary characters): *Wings and body.* Medium to large sized moths (wingspan between 24–50 mm), females slightly larger than males. Antennae bipectinate in males and females (fig. 1A-C). Proboscis entirely reduced. Frons, thorax and abdomen concolourus with the wings. Chaetosemata arranged as two separated patches. Ground colour of wings differing from bright yellow to different kinds of brown or grey. Transverse lines, if present, differing from bright white to dark brown and even black. Terminal line often dark highlighted. Discal spots mostly visible, sometimes faint or absent. In the forewing, veins R1 and R2 with a common stalk arising from the cell; R3–5 with a common stalk arising from the cell; vein A characteristically curved in the basal area. In hindwing Sc+R1 strongly curved in basal area, approximating to the cell in the postbasal area; short A3 and A1+2 originating separately (fig. 2).

Male genitalia (fig. 1D-E). Uncus short, basally broad and triangular, apically pointed and bent to ventral side (visible only in natural position before embedding). Gnathos well developed and strongly sclerotized, medially tongue-shaped. Valva equipped with two main processes on its ventral part, namely ampulla superior and ampulla inferior; a third process, the sacculus process, is present only in the *obscuraria* and *waltheri* species-group (see below). Costa of valva strongly sclerotized. Juxta anchor-shaped, stalk (connection between apical and basal parts of juxta) is diagnostic. Aedeagus equipped with one sclerotized cornutus.

Female genitalia (fig. 1F). Large in size, with a rounded or ovally elongated ovipositor. The apophyses anteriores and posteriores ratio is a diagnostic character in species level. Lamella postvaginalis sclerotized, its shape is a diagnostic character. Ductus bursae membranous, partial sclerotization possible. Corpus bursae membranous with a stellate signum.

Diagnosis. The genus *Nychiodes* is regarded as sister genus to *Eurranthis* (Müller *et al.* 2019; Murillo-Ramos *et al.* 2019) and these two genera can be diagnosed as follows: *Nychiodes* species are mainly nocturnal (*Eurranthis* species diurnal). Ground colour pale yellow to almost black in *Nychiodes* (very characteristic orange-white, with thick black medial lines in *Eurranthis*). In female genitalia of *Nychiodes*, lamella postvaginalis sclerotized, elongated laterally or elongated antero-posteriorly (as sclerotized plate, concave posteriorly in *Eurranthis*). In *Nychiodes*, corpus bursae membranous, rather bag-like; signum stellate (corpus bursae membranous, tubular; signum weak in *Eurranthis*).

Species-groups of the genus *Nychiodes*

Based on the genitalia patterns of *Nychiodes* species, the genus has been subdivided into three different species-groups: *obscuraria* species-group, *waltheri* species-group and the *amygdalaria* species-group (Wehrli 1929a-c; Müller *et al.* 2019). However, this grouping should not be regarded as a phylogeny, before getting confirmation from a comprehensive molecular phylogenetic study. This morphological grouping should rather serve as a tool for species identification. The species are therefore listed here under each species-group.

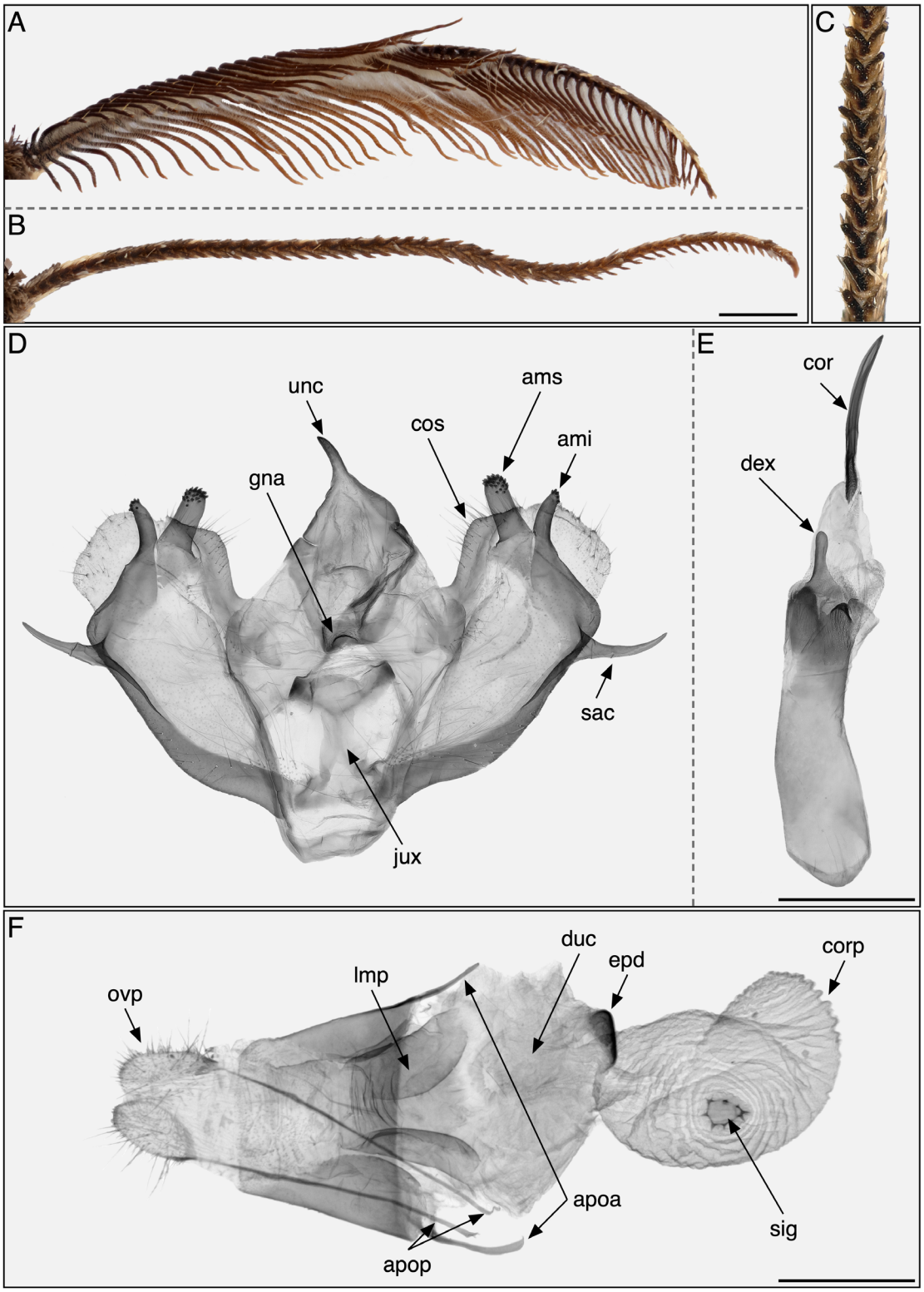


FIGURE 1. Morphological characters of *Nychiodes* species. A-C: Bipectinate antennae of *N. obscuraria*. A: male; B: female; C: ventral close-up of the female; D-F: terminology of male and female genitalia of *N. waltheri*. D: male genitalia capsule; E: aedeagus; F: female genitalia. Abbreviations (after Schmidt 2017; Wanke *et al.* 2019): *ami*–ampulla inferior; *ams*–ampulla superior; *apoa*–apophyses anteriores; *apop*–apophyses posteriores; *cor*–cornutus; *corp*–corpus bursae; *cos*–costa of valva; *dex*–digitiform extension; *duc*–ductus bursae; *epd*–extended sclerotized patch of ductus bursae; *gna*–gnathos; *jux*–juxta; *lmp*–lamella postvaginalis; *ovp*–ovipositor; *sac*–sacculus projection/process; *sig*–signum; *unc*–uncus. Scale-bar 1 mm.

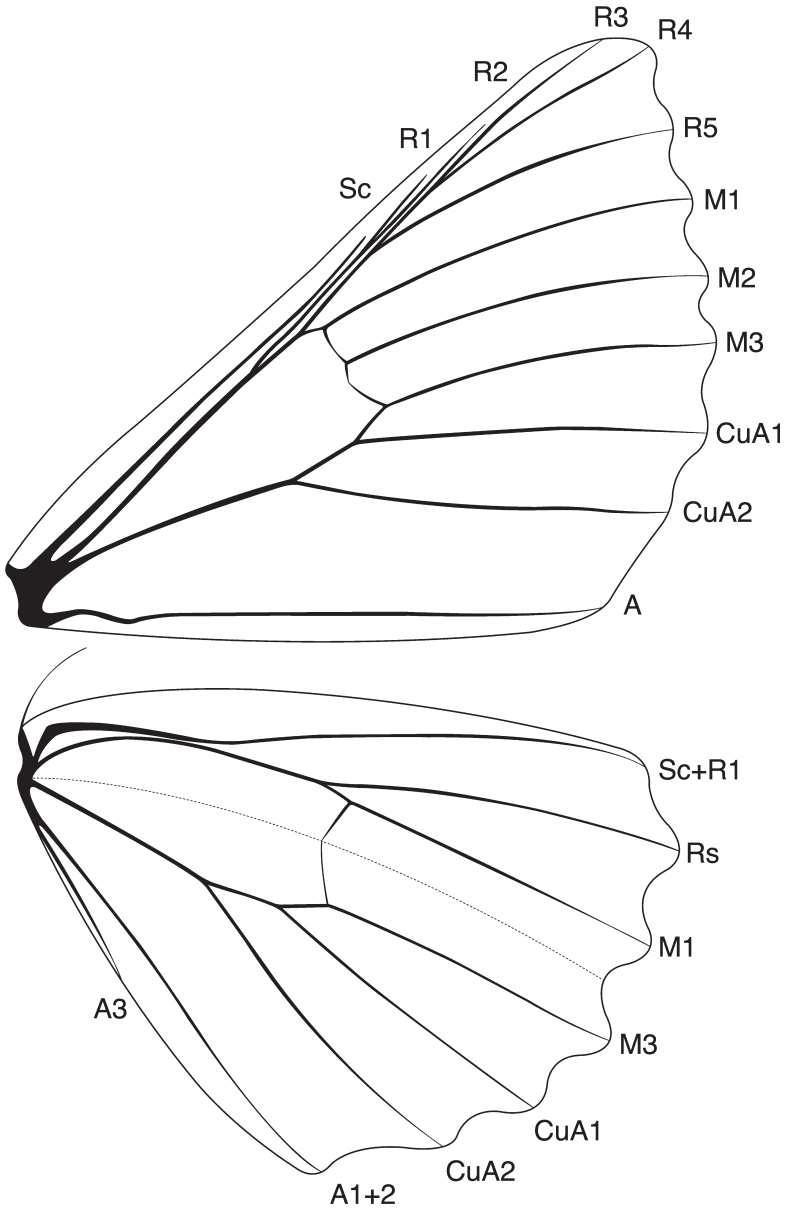


FIGURE 2. Wing venation of male specimen of genus *Nychiodes*: *Nychiodes obscuraria* (type species for the genus).

Key to the *Nychiodes* species-groups based on male genitalia

1. Sacculus process of genitalia capsule absent . . . . . *amygdalaria* species-group (figs 96–126)
   Sacculus process present 2
2. Sacculus process short, pointed; apex of aedeagus triangularly extended, acute at tip . . . . . *obscuraria* species-group (fig. 88)
   Sacculus process strongly pronounced, slender and pointed; apex of aedeagus extended, digitiform . . . . . *waltheri* species-group (figs 89–95)

Key to the *Nychiodes* species-groups based on female genitalia

1. Ductus bursae very short (shorter than half length of corpus bursae). . . . . *waltheri* species-group (figs 128–131)
   Ductus bursae long (half length of corpus bursae or longer) 2
2. Lamella postvaginalis strongly extended laterally . . . . . *obscuraria* species-group(fig. 127)
   Lamella postvaginalis extended antero-posteriorly . . . . . *amygdalaria* species-group (figs 132–144)

Species account

The *obscuraria* species-group

The species of this group can be diagnosed by the following characters (after Müller *et al.* 2019): In male genitalia, costa of valva is sclerotized up to subapical part, humped medially; apex of ampulla superior covered with setae; ampulla inferior not setose, pointed; sacculus process pointed; tip of aedeagus with acute triangular extension. In female genitalia, ductus bursae long and membranous (same size or longer than corpus bursae); lamella postvaginalis laterally strongly extended, sclerotized.

The following species are included in this group: *N. obscuraria* (Villers, 1789), *N. ragusaria* Millière, 1884, *N. andalusiaria* Millière, 1865, *N. notarioi* Expósito, 2005, *N. mauretanica* Wehrli, 1929, *N. hispanica* Wehrli, 1929.

Remarks. All species of this group, except *N. mauretanica* Wehrli, 1929, have been revised previously (see Redondo *et al.* 2009; Müller *et al.* 2019). Therefore, we include here only *N. mauretanica*.

Nychiodes mauretanica Wehrli, 1929

(figs 3, 88, 127)

Nychiodes mauretanica Wehrli, 1929. Internationale Entomologische Zeitschrift 22 (42): 386. Lectotype ♂, designated by Fazekas (1997) (Algeria: Lambèse, juillet 1912, Harold Powel, gen. prep. Fazekas I. No. 2593), Paralectotypes 3 ♂, 2 ♀ (Tunisia: Ain-Drahan; Algeria: Lambèse; Yakouren; Selo el Ghelem) (in ZFMK, examined).

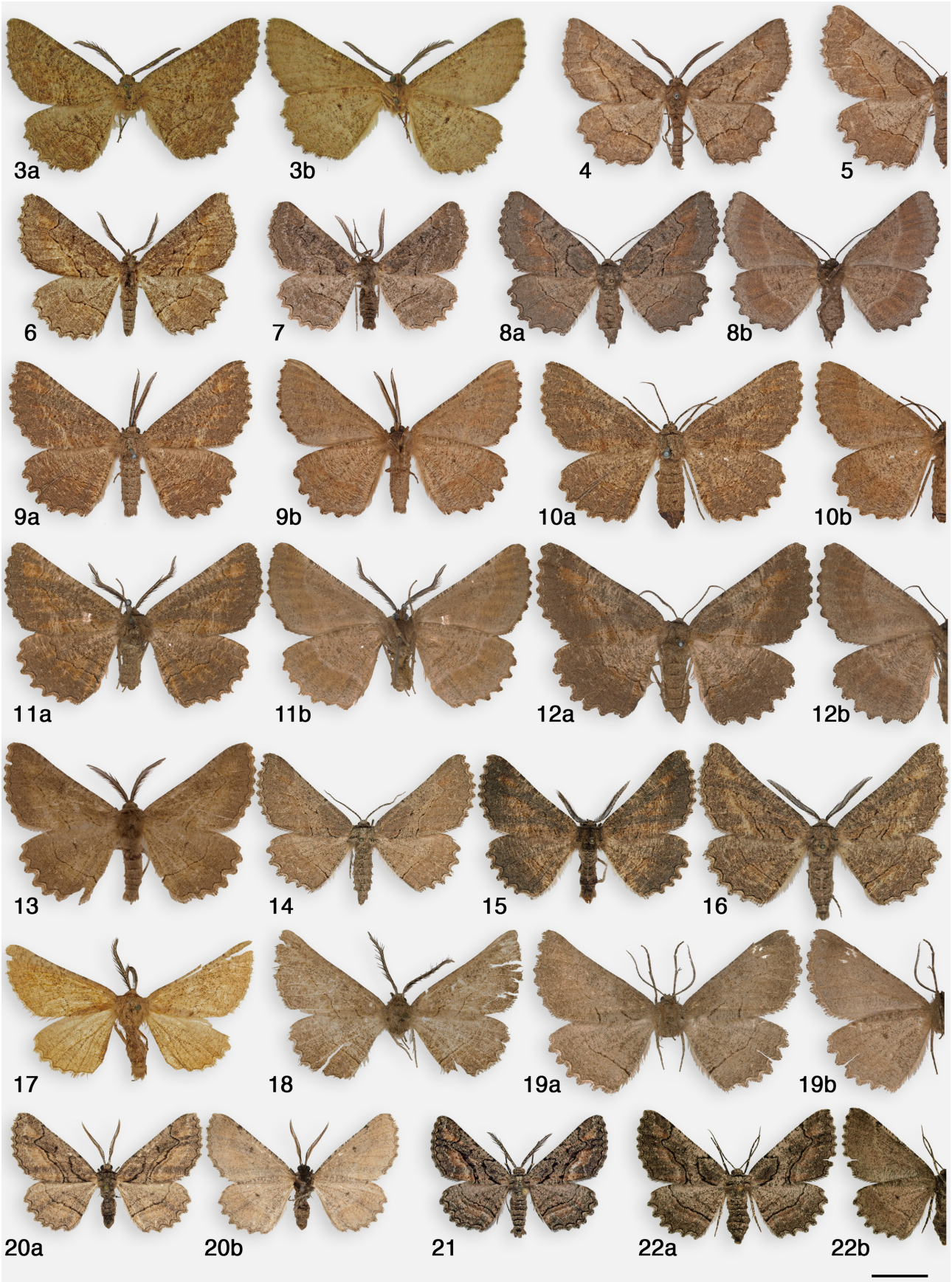
Type material examined. Lectotype (designated by Fazekas 1997), 1 ♂, Algeria, Lambèse, juillet 1912, Harold Powel, g. prep. Fazekas I. No. 2593; in ZFMK.

Diagnosis. Wingspan ♂ 46 mm, ♀ 41–45 mm (fig. 3). Ground colour of the wings pale brown with yellow tinge intermixed with brown scales (grey-brown to dark beige in *N. obscuraria*; light to dark brown in *N. ragusaria*; light brown to brown in *N. andalusaria*; dark beige to grey in *N. notarioi*; grey, sometimes irrorated with yellowish brown in *N. hispanica*). Basal area of the wings slightly brighter. Forewing with postmedial line curved outwards near costa; antemedial line faint. Hindwing with postmedial line well pronounced, medially curved inwards, acute-angled near costa. In male genitalia of *N. mauretanica* (fig. 88), uncus broad, triangular, tapered at tip, costa of valva strongly sclerotized, medially humped (basal part sclerotized, humped in *N. obscuraria*; only basal part sclerotized, basally humped in *N. ragusaria*; basal part sclerotized, strongly humped at centre in *N. andalusaria* and *N. notarioi*; sclerotized up to subapical part, medially humped in *N. hispanica* (see Müller *et al.* 2019: pages 667–668)). Ampulla superior clubbed, long, reaching clearly over the ampulla inferior; apex of both ampulla superior and inferior apically spinose; ampulla inferior short, digitiform (ampulla superior short, clubbed, covered with tiny setae, ampulla inferior very short in *N. obscuraria* and *N. ragusaria*; ampulla superior tubular covered with setae, ampulla inferior acute in *N. andalusaria* and *N. notarioi*; ampulla superior tubular covered with setae, ampulla inferior acute and long in *N. hispanica* (see Müller *et al.* 2019: pages 667–668). Sacculus process strongly sclerotized, short, basally triangular, apically acute (strongly reduced in *N. obscuraria* and *N. ragusaria*; acute and curved in *N. andalusaria*, *N. notarioi* and *N. hispanica* (see Müller *et al.* 2019: pages 667–668). Juxta anchor-shaped, stalk thin and long. Aedeagus short and broad, submedially curved; cornutus slightly shorter than aedeagus. In female genitalia of *N. mauretanica* (fig. 127) lamella postvaginalis sclerotized only at its medial part, without lateral extensions (sclerotized, with arch-shaped extension in *N. obscuraria*; apically split and bilobed in *N. ragusaria*; with lateral arch-shaped extension in *N. andalusiaria*; medially rectangular, with lateral arch-shaped extension in *N. notarioi*; medially heart-shaped, with lateral arch-shaped extension in *N. hispanica* (see Müller *et al.* 2019: pages 732–733). Corpus bursae membranous, oval (more spherical in other species of this group). Signum stellate.

Phenology, biology, habitat. Unknown.

Distribution. Known from Algeria and Tunisia (Wehrli 1929; Fazekas, 1997). Fazekas (1997) mentioned an isolated population in the French Pyrenees, which was considered as doubtful by Leraut (2009) and could not be confirmed by Redondo *et al.* (2009) and Müller *et al.* (2019).

DNA barcoding. Nearest species: *N. ragusaria* (4.6%) and *N. hispanica* (4.7%) (fig. 145).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22a
22b

FIGURES 3-22. Wing coloration and pattern of *Nychiodes* species. 3: Lectotype of *N. mauretanica* (Algeria, Lambèse, g. prep. Fazekas I. No. 2593); 4: Holotype of *N. waltheri saerdabica* **syn. nov.** of *N. waltheri* (Iran, Tacht i Suleiman); 5: Paratype (labeled as Allotype) of *N. waltheri saerdabica* **syn. nov.** of *N. waltheri* (Iran, Tacht i Suleiman); 6-8: *N. waltheri* (6: Turkey, van Gölü, g.prep. 0166/2018 D. Wanke; 7: Turkey, Cavdir, g.prep. 0329/2019 D. Wanke; 8: Bulgaria, Ostrhodope, g.prep. 2140/2017 H. Rajaei); 9: Lectotype (herewith designated) of *N. palaestinensis* (Israel, Jerusalem, g.prep. 0225/2019 D. Wanke); 10: Paralectotype (herewith designated) of *N. palaestinensis* (Israel, Jerusalem, g.prep. 0226/2019 D. Wanke); 11: Lectotype of *N. persuavis* **syn. rev.** (Lebanon, Beirut, g.prep. 4065); 12: Paratype (labeled as Allotype) of *N. persuavis* **syn. rev.** (Lebanon, Beirut); 13: Paratype of *N. palaestinensis libanotica* **syn. nov.** of *N. palaestinensis* (Lebanon, Becharré); 14-17: *N. palaestinensis* (14: Jordan, at-Tafila, g.prep. 0389/2019 D. Wanke; 15: Jordan, Ajlun, g.prep. 0392/2019 D. Wanke; 16: Jordan, at-Tafila, g.prep. 0390/2019 D. Wanke; 17: Israel, Mt. Hermon, g.prep. 0242/2019 D. Wanke); 18: Paratype of *N. muelleri* (S-Jordan, Shoubak, g.prep. 5394 Hausmann); 19: Paratype of *N. muelleri* (S-Jordan, Shoubak, g.prep. 5396 Hausmann); 20: Paratype of *N. aphrodite* (Cyprus, Paphos); 21-22: *N. aphrodite* (21: Cyprus, Paphos, g.prep. 2003/2016 H. Rajaei; 22: Cyprus, Paphos, g.prep. 2004/2016 H. Rajaei;). a = upperside; b = underside. Scale-bar 1 cm.

The *waltheri* species-group

The species of this group can be diagnosed by the following characters (after Müller *et al.* 2019): In male genitalia, the costa of the valva is sclerotized up to the subapical part, humped medially (in most species); apex of ampulla superior and ampulla inferior spinose; sacculus process strongly pronounced, slender and pointed (Müller *et al.* 2019); tip of aedeagus with digitiform extension (straight or curved). In female genitalia, ductus bursae shorter than half length of corpus bursae; lamella postvaginalis conically broadened, strongly sclerotized.

The following species are included in this group: *N. waltheri* Wagner, 1919, *N. palaestinensis* Wagner, 1919, *N. muelleri* Hausmann, 1991 and *N. aphrodite* Hausmann & Wimmer, 1994.

Remarks. Two species, *N. dalmatina* and *N. waltheri* were included in the recent revision of European species (Müller *et al.* 2019). However, as *N. waltheri* is the iconic species of this group and mainly distributed outside Europe, we included this species also to the present study.

Key to the *Nychiodes waltheri* species-group based on male genitalia

1. Digitiform extension on the apical part of aedeagus straight 2
   Digitiform extension on the apical part of aedeagus curved 3
2. Costa of valva sclerotized towards centre, humped medially . . . . . *N. waltheri* (fig. 89)
   Costa of valva sclerotized up to apex of valva, not humped . . . . . *N. aphrodite* (fig. 95)
3. Costa of valva apically thickened. . . . . *N. palaestinensis* (figs 91, 93)
   Costa of valva apically not-thickened (rather flat) . . . . . *N. muelleri* (fig. 94)

Key to the *Nychiodes waltheri* species-group based on female genitalia

Characters of female genitalia are only slightly diagnostic in this group, therefore some distributional data is added for support.

1. Ductus bursae very short, with extended sclerotized patch (in Bulgaria, eastern Greece, Turkey, northern Iran) . . . . . *N. waltheri* (fig. 128)
   Clearly longer, without extended sclerotized patch (in Levant or Cyprus) 2
2. Lamella postvaginalis apically tongue shaped (on Cyprus). . . . . *N. aphrodite* (fig. 131)
   lamella postvaginalis strongly sclerotized conically extended (Palestine, northern Jordan, Lebanon, southwest Syria) . . . . . *N. palaestinensis* (fig. 129)
   Lamella postvaginalis strongly sclerotized conical widely extended (in southern Jordan) . . . . . *N. muelleri* (fig. 130)

Nychiodes waltheri Wagner, 1919
(figs 4–8, 89, 90, 128; map 1)

Nychiodes obscuraria waltheri Wagner, 1919. Deutsche entomologische Zeitschrift Iris 33: 110 (Turkey: Istanbul). Lectotype ♂ (Turkey: Haidar-Pascha), Paralectotypes 1 ♂ 2 ♀ (in BMNH).

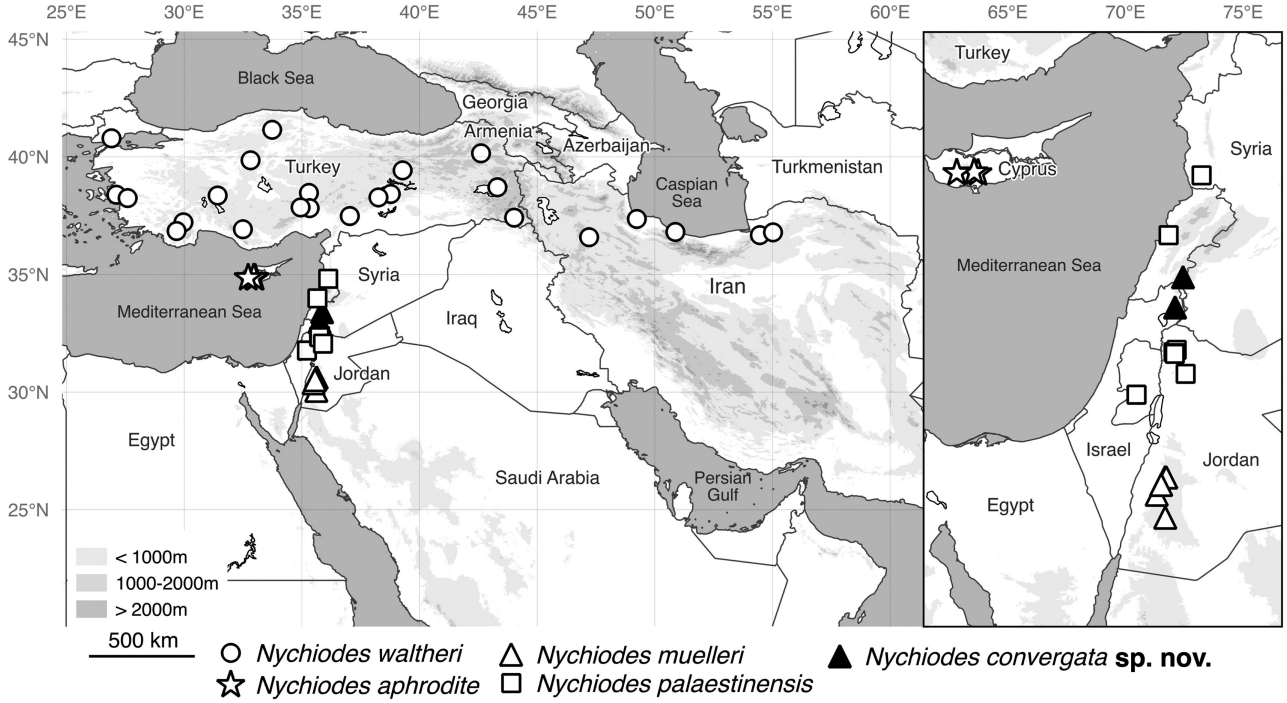
Nychiodes waltheri transcaspia Wehrli, 1929. Internationale entomologische Zeitschrift 22 (42): 386 (Turkmenistan: Ashkhabad). Holotype ♂ (in ZFMK, examined). Valid at subspecific rank in Müller *et al.* 2019. As no more material from the type locality was available we keep it valid at subspecific rank.

Nychiodes waltheri osthelderi Wehrli, 1929. Mitteilungen der Münchner entomologischen Gesellschaft 19 (2-4): 42, pl. 3, fig. 6 (Turkey: Toros Daglari, Marasch). Holotype ♂ (in ZSM, examined). Regarded as a synonym of *waltheri* in Müller *et al.* 2019.

Nychiodes waltheri syriaca Wehrli, 1929. Mitteilungen der Münchner entomologischen Gesellschaft 19(2-4): 41 (Turkish/Syrian border: Akbès). Holotype ♀ (in ZFMK, examined). Regarded as a synonym of *waltheri* in Müller *et al.* 2019.

Nychiodes waltheri saerdabica Wehrli, 1938. Entomologische Rundschau 55 (31): 355 (Iran: Tacht i Suleiman; Särdab-Tal). Syntypes 2 ♂ 1 ♀ (in ZFMK, examined). Hereby regarded as a **new synonym** of *Nychiodes waltheri* based on morphological examination and sympatric occurrence of these forms.

Nychiodes cuencaensis Leraut, 2009. Moths of Europe 146 ('Spain: Castile', mislabelled), Holotype ♀ (in MNHN, examined). Regarded as a synonym of *waltheri* in Müller *et al.* 2019.



MAP 1. Distribution patterns of *N. waltheri*, *N. palaestinensis*, *N. muelleri*, *N. aphrodite* and *N. convergata* **sp. nov.**. Rectangle: Enlarged section of the Levant.

Type material examined. *Nychiodes waltheri transcaspia* Holotype, ♂, Turkmenistan, Ashkhabad, g.prep. 4064; *N. waltheri osthelderi* Holotype, ♂, Syria sept., Taurus, Marasch, 29.vii.[19]28, 800 m, leg. L. Osthelder; *N. waltheri syriaca* Holotype ♂, Syrie, Akbès, 1896; Paratype (labeled as Allotype), 1 ♀, Syria sept., Taurus, Marasch, 15.-30.vii.[19]29; all in ZFMK.

Nychiodes waltheri saerdabica Holotype, ♂, [Iran], Persia sept., Elburs, mts.c.s., Tacht i Suleiman, Särdab Tal (Hasankif), 10-1400 m, 7.-10.vii.[19]37, leg. E. Pfeiffer & W. Forster München; Paratype (labeled as Allotype), 1 ♀, [Iran], Persia sept., Elburs, mts.c.s., Tacht i Suleiman, Särdab Tal (Hasankif), 10-1400 m, 7.-10.vii.[19]37, leg. E. Pfeiffer & W. Forster München; all in ZFMK.

Nychiodes waltheri cuencaensis Holotype, ♀, Hispania, Serrania de Cuenca, Huelamo, 7.vii.[19]60, 1400m, leg. G. Hesselbarth, g.prep. 10821 P. Leraut; in MNHN.

Additional material studied: 41 ♂, 10 ♀ (see appendix).

Diagnosis. Wingspan ♂ 35–46 mm, ♀ 41–48 mm (forewing length ♂ 21–24 mm, ♀ 23–25 mm) (figs 4–8). Wings light to dark brown, basal and terminal areas of forewing and terminal area of hindwing irrorated with red

brown scales; medial area of forewing and basal and medial areas of hindwing brighter than rest of the wings (medial area of forewing and basal and medial areas of hindwings not clearly delimited in *N. palaestinensis* and *N. muelleri*; wings clearly smaller, darker and with strongly pronounced lines in *N. aphrodite*) (figs 4–22).

Male genitalia of *N. waltheri* with costa of valva sclerotized only up to the centre, medially humped (costa of valva sclerotized towards the apex, medially humped in *N. palaestinensis*, and *N. muelleri*; costa of valva sclerotized towards the apex, not humped in *N. aphrodite*) (figs 89–95). *N. waltheri* with ampulla superior twice as thick as ampulla inferior (narrowed at the centre in *N. palaestinensis*; narrowing towards the apex in *N. muelleri*; strongly curved in *N. aphrodite*). In *N. waltheri* aedeagus apically with short digitiform extension (strongly curved digitiform in *N. palaestinensis*; curved in *N. muelleri*; digitiform in *N. aphrodite*).

Female genitalia of *N. waltheri* with short and broad ovipositor (same in *N. palaestinensis* and *N. muelleri*; clearly longer in *N. aphrodite*). *N. waltheri* with apophyses anteriores 1/3 the length of apophyses posteriores (same condition in *N.* aphrodite; 1/4 in *N. palaestinensis*, and 1/6 in *N. muelleri*) (see figs 128–131). In *N. waltheri* lamella postvaginalis strongly sclerotized conically extended (same condition, but much wider in *N. palaestinensis*, and *N. muelleri*; lamella postvaginalis apically tongue shape in *N. aphrodite*). In *N. waltheri* ductus bursae very short with extended sclerotized patch (clearly longer, without extended sclerotized patch in *N. palaestinensis*, *N. muelleri* and *N. aphrodite*).

Phenology. Depending on the locality bi- or trivoltine, flying from late May to mid-November (Fazekas 1996, Müller *et al.* 2019).

Biology. Larvae oligophagous on Rosaceae. In captivity, bred on *Prunus spinosa*, *P. domestica*, *P. mahaleb*, *P. tenella* and *Cotoneaster* sp. (see Müller *et al.* 2019).

Habitat. Occurs in Mediterranean evergreen sclerophyllous forests, sub-Mediterranean deciduous mixed forests and Continental mixed forests and forest steppe, in altitudes up to 2000 m (Fazekas 1996, Müller *et al.* 2019).

Distribution. Distributed from Bulgaria and eastern Greece to Turkey and northern Iran (map 1).

DNA barcoding. Nearest species (minimum pairwise distances): *N. dalmatina* (6.5%), *N. amygdalaria* (6.8%) and *N. aphrodite* (6.9%) (fig. 145).

Nychiodes palaestinensis Wagner, 1919

(figs 9–17, 91–93, 129; map 1)

Nychiodes palaestinensis Wagner, 1919. Deutsche entomologische Zeitschrift Iris 33: 112. Holotype ♂ (Palestine [Israel]: Jerusalem) (in MNHU, examined).

Nychiodes palaestinensis libanotica Zerny, 1933. Deutsche entomologische Zeitschrift Iris, 47: 97. Syntypes ♂, ♀ (Lebanon). (in BMNH, examined). Hereby regarded as a **new synonym** of *Nychiodes palaestinensis* based on sympatric occurrence of these forms.

Nychiodes persuavis Wehrli, 1929. Internationale Entomologische Zeitschrift 22 (42): 385. Syntypes 1 ♂, 1 ♀ ([Lebanon]: Beirut) (in ZFMK, examined). Regarded as synonym of *Nychiodes palaestinensis* by Zerny (1933), herewith we confirm it.

Type material examined. *Nychiodes palaestinensis* Lectotype (herewith designated), ♂, Palaestina, (Jerusalem), 1898, leg. J. Paulus, g.prep. 0225/2019 D. Wanke; Paralectotype (herewith designated), ♀, Palaestina, (Jerusalem), 1898, leg. J. Paulus, g.prep. 0226/2019 D. Wanke; all in MNHU.

Nychiodes palaestinensis libanotica Paratype ♂, Nord Libanon, Becharré, 1400 m, 3.-10.vi.[19]31, Zerny; in BMNH.

N. persuavis Lectotype (designated by Wehrli), ♂, [Lebanon], Beirut, genital prep. 4065; Paralectotype, 1 ♀, [Lebanon], Beirut; all in ZFMK.

Additional material studied: 21 ♂, 15 ♀ (see appendix).

Diagnosis. Wingspan ♂ 33–40 mm, ♀ 32–45 mm (forewing length ♂ 22–25 mm, ♀ 20–26 mm) (figs 9–17). In *N. palaestinensis* wings light brown, orange brown to chocolate brown, transverse lines faint, medial area of forewing and basal and medial areas of hindwings are not clearly delimited (light brown, medial area of forewing and basal and medial areas of hindwings are not clearly delimited in *N. muelleri*; light to dark brown, basal and terminal areas of forewing and terminal area of hindwing irrorated with red brown scales; medial area of forewing and basal and medial areas of hindwing brighter than rest of the wings in *N. waltheri*; light to chocolate brown, transverse lines strongly pronounced in *N. aphrodite*) (figs 4–22).

On male genitalia, *N. palaestinensis* has a costa of valva sclerotized towards the apex, medially humped (same condition in *N. muelleri*; costa of valva sclerotized only up to the middle, medially humped *N. waltheri*; sclerotized towards the apex, not humped in *N. aphrodite*) (figs 89–95). *N. palaestinensis* with ampulla superior narrowed at the centre (narrowing towards the apex in *N. muelleri*; ampulla superior twice as thick as ampulla inferior in *N. waltheri*; strongly curved in *N. aphrodite*). *N. palaestinensis* aedeagus apically with strongly curved digitiform extension (extension curved in *N. muelleri*; extension digitiform, not curved in *N. waltheri* and *N. aphrodite*).

Female genitalia of *N. palaestinensis* with short and broad ovipositor (the same in *N. muelleri* and *N. waltheri*; clearly longer in *N. aphrodite*). *N. palaestinensis* with apophyses anteriores one fourth length of apophyses posteriores (1/6 in *N. muelleri*; 1/3 in *N. waltheri* and *N. aphrodite*) (see figs 128–131). In *N. palaestinensis* lamella postvaginalis strongly sclerotized, conically extended (same condition, but much wider in *N. muelleri* and much narrower in *N. waltheri*; lamella postvaginalis apically tongue-shaped in *N. aphrodite*). In *N. palaestinensis* ductus bursae long, without extended sclerotized patch (same condition in *N. muelleri* and *N. aphrodite*; very short with extended sclerotized patch in *N. waltheri*).

Phenology. Univoltine, from April to June.

Biology. Unknown.

Habitat. In altitudes from 500 up to 1000m.

Distribution. Restricted to the Levant (Israel, Palestine, northern Jordan, few records from Lebanon and southwestern Syria) (map 1).

DNA barcoding. Nearest species (minimum pairwise distances): *N. dalmatina* (5.9%), *N. waltheri* (6.9%) and *N. aphrodite* (6.9%) (fig. 145). No barcoding data of *N. muelleri* is available.

Nychiodes muelleri Hausmann, 1991

(figs 18, 19, 94, 130; map 1)

Nychiodes muelleri Hausmann, 1991. Mitteilungen der Münchner Entomologischen Gesellschaft 81: 140. Holotype ♂ (Jordan (central): Shaubak) (in ZSM, examined).

Type material examined. Holotype, ♂, S-Jordanien, Schauback [Shobak], 24.v.1968, leg. J. Klapperich; Paratypes, 1 ♂, same locality, 4.v.1968, leg. J. Klapperich; 1 ♂, 3 ♀, same locality, 17.v.1968, leg. J. Klapperich, g.prep. (♀) 5396 Hausmann; 8 ♂, 3 ♀, S-Jordanien, Schauback [Shobak], 24.v.1968, leg. J. Klapperich, (♂) g.preps 5394 Hausmann, 5395 Hausmann, 14416 Hausmann, (♀) g.prep. 5396 Hausmann; all in ZSM.

Diagnosis. Wingspan ♂ 42 mm, ♀ 45 mm (forewing length ♂ 23 mm, ♀ 25 mm) (figs 18, 19).

Wings light brown, transverse lines faint, medial area of forewing and basal and medial areas of hindwings are not clearly delimited (light brown, orange brown to chocolate brown, medial area of forewing and basal and medial areas of hindwings are not clearly delimited in *N. palaestinensis*; light to dark brown, basal and terminal areas of forewing and terminal area of hindwing irrorated with red brown scales; medial area of forewing and basal and medial areas of hindwing brighter than rest of the wings in *N. waltheri*; light to chocolate brown, transverse lines strongly pronounced in *N. aphrodite*) (figs 4–22).

Male genitalia of *N. muelleri* with costa of valva sclerotized towards the apex, medially humped (same condition in *N. palaestinensis*; costa of valva sclerotized only up to the centre, medially humped *N. waltheri*; sclerotized towards the apex, not humped in *N. aphrodite*) (figs 89–95). *N. muelleri* with ampulla superior narrowing towards the apex (ampulla superior narrowed at the centre in *N. palaestinensis*; ampulla superior twice as thick as ampulla inferior in *N. waltheri*; strongly curved in *N. aphrodite*). *N. muelleri* aedeagus apically with curved digitiform extension (aedeagus apically with a strongly curved digitiform extension in *N. palaestinensis*; digitiform, not curved in *N. waltheri* and *N. aphrodite*).

Female genitalia of *N. muelleri* with short and broad ovipositor (same in *N. palaestinensis* and *N. waltheri*; clearly longer in *N. aphrodite*). *N. muelleri* with apophyses anteriores 1/6 length of apophyses posteriores (1/4 in *N. palaestinensis*; 1/3 in *N. waltheri* and *N. aphrodite*) (see figs 128–131). In *N. muelleri* lamella postvaginalis strongly sclerotized conically extended (same condition, but slightly narrower in *N. palaestinensis* and much narrower in *N. waltheri*; lamella postvaginalis apically tongue-shaped in *N. aphrodite*). In *N. muelleri* ductus bursae fairly long, without extended sclerotized patch (same condition in *N. palaestinensis* and *N. aphrodite*; very short with extended sclerotized patch in *N. waltheri*).

Phenology. Scarce data from early to late May.

Biology. Unknown.

Habitat. In altitudes from 1000 up to 1660 m.

Distribution. Endemic species in southern Jordan (see map 1).

DNA barcoding. No data available.

Taxonomic Remark. There are only few morphological differences between *N. muelleri* and *N. palaestinensis* (its hypothetical sister species). For this species, only the type specimens were available. The status of this species needs further clarification, by means of DNA barcoding of the holotype of *N. muelleri*.

Nychiodes aphrodite Hausmann & Wimmer, 1994

(figs 20–22, 95, 131; map 1)

Nychiodes aphrodite Hausmann & Wimmer, 1994. Zeitschrift der Arbeitsgemeinschaft der österreichischen Entomologen 46: 90. Holotype ♂ (Cyprus: Paphos) (in ZSM, examined).

Type material examined. Holotype, ♂, Zypern, Paphos, e.o. 3.viii.1989, leg. J. Wimmer; Paratypes, 3 ♂, 2 ♀, Zypern, Paphos, e.o., 1.-3.viii.1989, leg. J. Wimmer; in ZSM.

Additional material studied: 2 ♂, 3 ♀ (see appendix).

Diagnosis. Wingspan ♂ 29–32 mm, ♀ 34–42 mm (forewing length ♂ 16–21 mm, ♀ 19–23 mm) (figs 20–22). Wings light to chocolate brown, transverse lines strongly pronounced (light to dark brown, basal and terminal areas of forewing and terminal area of hindwing irrorated with red brown scales, medial area of forewing and basal and medial areas of hindwing brighter than rest of the wings in *N. waltheri*; light brown, orange brown to chocolate brown, transverse lines faint, medial area of forewing and basal and medial areas of hindwings are not clearly delimited in *N. muelleri* and *N. palaestinensis*) (figs 4–22).

Male genitalia of *N. aphrodite* with costa of valva sclerotized towards the apex, not humped (costa of valva sclerotized only up to the centre, medially humped *N. waltheri*; costa of valva sclerotized towards the apex, medially humped in *N. muelleri* and *N. palaestinensis*) (figs 89–95). *N. aphrodite* with strongly curved ampulla superior (ampulla superior twice as thick as ampulla inferior in *N. waltheri*; ampulla superior narrowing towards the apex in *N. muelleri*; ampulla superior narrowed at the centre in *N. palaestinensis*). In *N. aphrodite* aedeagus apically with a straight digitiform extension (same condition in *N. waltheri*; digitiform extension curved in *N. muelleri*; strongly curved in *N. palaestinensis*).

Female genitalia of *N. aphrodite* with an elongated ovipositor (short and broad ovipositor in *N. waltheri*, *N. palaestinensis* and *N. muelleri*). Apophyses anteriores 1/3 length of apophyses posteriores (same condition in *N. waltheri*; 1/4 in *N. palaestinensis*; 1/6 in *N. muelleri*) (see figs 128–131). Lamella postvaginalis apically tongue-shaped (strongly sclerotized, conically extended, apically not tongue-shaped in *N. waltheri*, *N. muelleri*, *N. palaestinensis*). Ductus bursae fairly long, without extended sclerotized patch (same condition in *N. palaestinensis* and *N. muelleri*; very short with extended sclerotized patch in *N. waltheri*).

Phenology. Flying in the natural habitat during May. A second generation has been observed in breeding experiments, which probably flies during august (Hausmann 1994).

Biology. Larva bred on Rosaceae (*Crataegus* sp., *Prunus spinosa*). Occurrence of Mediterranean *Crataegus* sp. in their natural habitats may be an indication on being the natural food plants (see Hausmann 1994).

Habitat. In altitudes from 390 up to 850 m.

Distribution. Endemic species on Cyprus (Hausmann, 1994) (map 1).

DNA barcoding. Nearest species (minimum pairwise distances): *N. waltheri* (6.9%) (fig. 145).

The *amygdalaria* species-group

The species of this group can be diagnosed by the following characters (after Müller *et al.* 2019): In male genitalia, costa of valva sclerotized up to apex, usually straight (humped only in few species, see below); apex of ampulla superior and inferior spinose; sacculus process absent; tip of aedeagus without clear extension. In female genitalia, lamella postvaginalis antero-posteriorly broadened, strongly sclerotized.

The following species are included in this group: *N. amygdalaria* (Herrich-Schäffer, 1848), *N. dalmatina* Wagner, 1909, *N. farinosa* Brandt, 1938, *N. antiquaria* Staudinger, 1892, *N. princeps* Wiltshire, 1966, *N. quettensis* Wiltshire, 1966, *N. admirabila* Brandt, 1938, *N. rayatica* Wiltshire, 1957, *N. subfusca* Brandt, 1938, *N. leviata* Brandt, 1938, *N. subvirida* Brandt, 1938, *N. divergaria* Staudinger, 1892, *N. convergata* **sp. nov.**, *N. eberti* **sp. nov.**, *N. mirzayansi* **sp. nov.**.

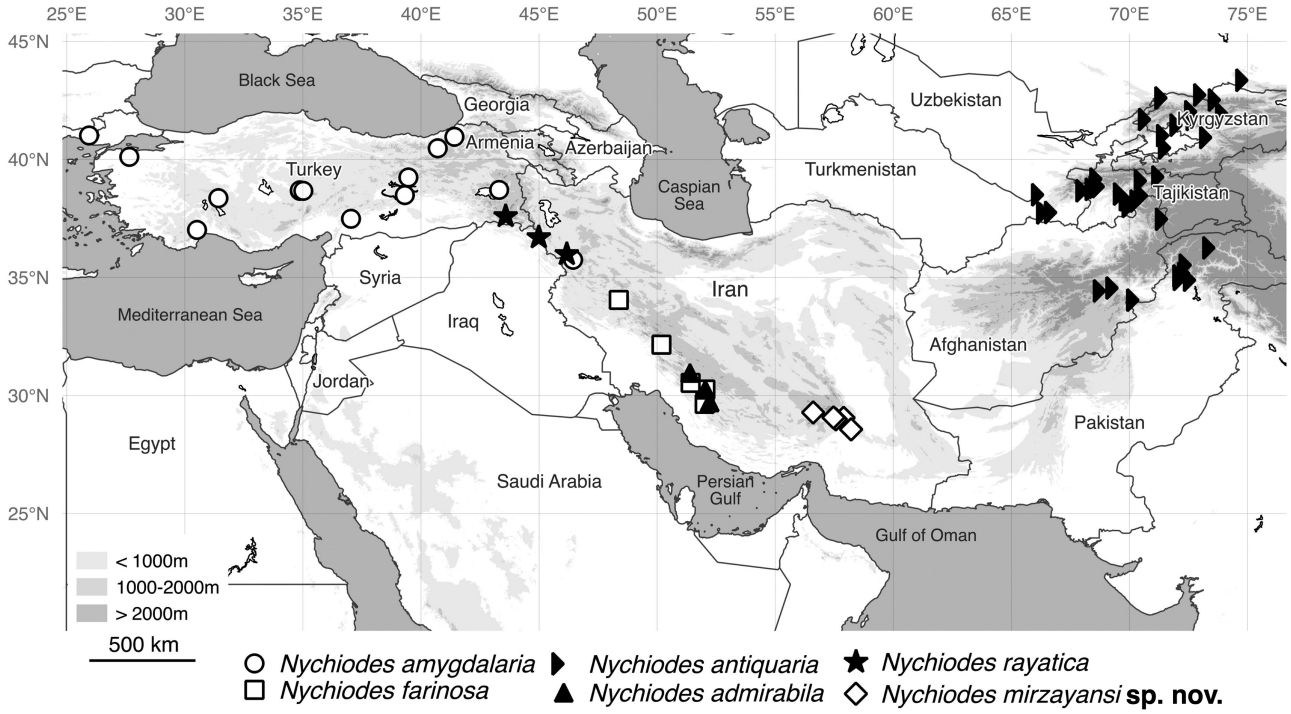
Nychiodes amygdalaria (Herrich-Schäffer, 1848)

(figs 23–25, 96, 97, 132; map 2)

Boarmia amygdalaria Herrich-Schäffer, 1848. Systematische Bearbeitung der Schmetterlinge von Europa (31): 82. Syntype(s) ([Greece]: Crete).

Nychiodes amygdalaria almensis Wehrli, 1941 In: Seitz, A. (Ed.), Die Großschmetterlinge der Erde. Supplement zu Band 4: 441. Syntype(s) 1 ♂, 1 ♀ (Syria; Lebanon; Palestine) (in ZFMK, examined). Regarded as a synonym of *amygdalaria* in Müller *et al.* 2019.

Nychiodes amygdalaria malatyaca Wehrli, 1941 In: Seitz, A. (Ed.), Die Großschmetterlinge der Erde. Supplement zu Band 4: 441. Holotype ♂, Paratype 1 ♂ (Turkey: Malatya-Tecde), (in ZFMK, examined). Regarded as a synonym of *amygdalaria* in Müller *et al.* 2019.

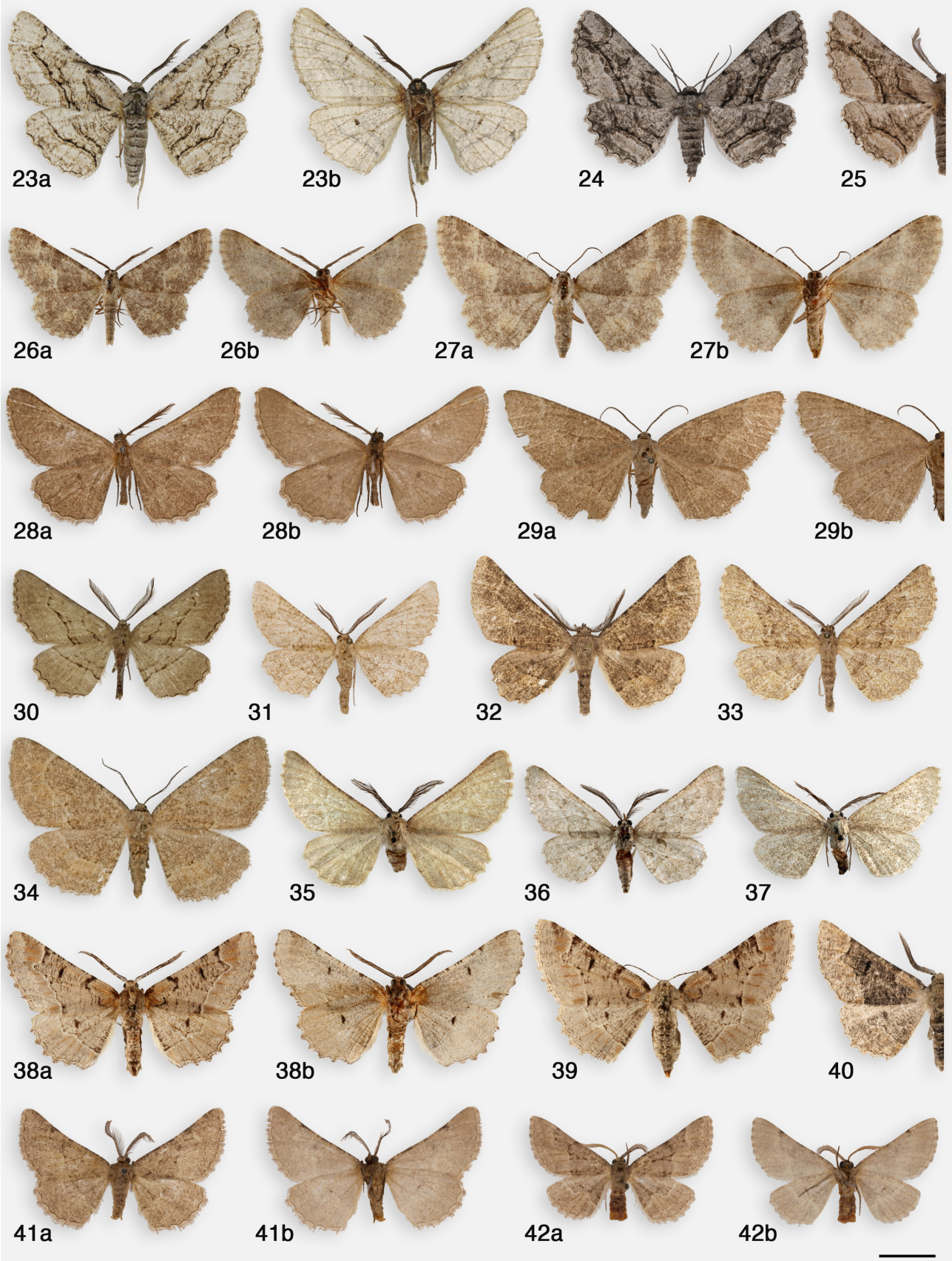


MAP 2. Distribution patterns of *N. amygdalaria*, *N. farinosa*, *N. antiquaria*, *N. admirabila*, *N. rayatica* and *N. mirzayansi* **sp. nov.**.

Type material examined. *Nychiodes amygdalaria almensis* Syntype, 1 ♂, Syria sept, Amanus mts., Düldül Dagh, viii.[19]30, leg. Eing. Slr.; 1 ♀, Syria s., Amanus s., Düldül Dagh, Jeschil dere, viii.[19]34, coll. E. Pfeiffer; all in ZFMK.

Nychiodes amygdalaria malatyaca Holotype, 1 ♂, Asia minor, Malatya-Tecde, 17.ix.[year missing]; in ZFMK.

Material studied: 20 ♂, 2 ♀ (see appendix).


23a
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42a
42b

FIGURES 23-42. Wing coloration and pattern of *Nychiodes* species. 23-25: *N. amygdalaria* (23: Iran, Kordestan, g.prep. 0153/2018 D. Wanke; 25: Turkey, Aksehir, g.prep. 2089/2017 H. Rajaei); 26: Holotype of *N. farinosa* (Iran, Fars, g. prep. 10924); 27: Paratype (labeled as Allotype) of *N. farinosa* (Iran, Fars, g.prep. 10925); 28: Paralectotype (herewith designated) of *N. antiquaria* (Uzbekistan, Margelan); 29: Lectotype (herewith designated) of *N. antiquaria* (Uzbekistan, Namangan, g.prep. 0227/2019 D. Wanke); 30-34: *N. antiquaria* (30: Afghanistan, Safed Koh, g.prep. 0159/2018 D. Wanke; 31: Afghanistan, Tang i Gharu, g.prep. 0136/2018 D. Wanke; 32: Kyrgyzstan, Kyzyl-Oi, g.prep. 0326/2019 D. Wanke; 33: Uzbekistan, Maydan, g.prep. 0096/2018 D. Wanke; 34: Pakistan, Swat, g.prep. 0430/2019 D. Wanke); 35: Holotype of *N. princeps* (Afghanistan, Band-i-Amir, g.prep. WW36); 36: Holotype of *N. quettensis* (Pakistan, Quetta); 37: Paratype of *N. quettensis* (Pakistan, Quetta, g.prep. WW223); 38: Paratype of *N. admirabila* (Iran, Fars, g.prep. 10920); 39: Paratype of *N. admirabila* (Iran, Fars, g.prep. 10921); 40: *N. admirabila* (Iran, Kohkiluye va Boyerahmad, g.prep. 0301/2019 D. Wanke); 41: Holotype of *N. rayatica* (Iraq, Rayat, g.prep. 11019); 42: Paratype of *N. rayatica* (Iraq, Rayat, Präparat E.P. Wiltshire 889). a = upperside; b = underside. Scale-bar 1 cm.

Diagnosis. Wingspan ♂ 31–46 mm, ♀ 38–47 mm (forewing length ♂ 16–26 mm, ♀ 22–26 mm). Regarding its geographic distribution, (see map 2), wing pattern and colour, *Nychiodes amygdalaria* cannot be confused with any other *Nychiodes* species. Ground colour of wings light to dark ivory, with some grey brown highlights; transverse lines well pronounced (see figs 23–25). Male genitalia (figs 96, 97) with uncus very large in lateral view, broad at base, curved and slightly thickened dorsally. The most important diagnostic character of this species is the shape of the costa of valva, which is strongly sclerotized and swollen over the apical part of valva (fig. 96a). Cornutus very short, one third length of aedeagus (this condition is similar only in *N. convergata* **sp. nov.,** but the latter species shows completely different external and internal character combination, see the description and diagnosis of this new species).

Female genitalia of *N. amygdalaria* (fig. 132) extremely large, with ovipositor characteristically elongated (more than in the other *Nychiodes* species). The only species with similar female genitalia is *N. admirabila*. In *N. amygdalaria* length of apophyses anteriores half length of apophyses posteriores, lamella postvaginalis anteriorly and posteriorly extended (apophyses anteriores one fourth length of apophyses posteriores, lamella postvaginalis quadratic, posteriorly concave in *N. admirabila*). Furthermore, *N. amygdalaria* and *N. admirabila* show non-overlapping distribution patterns.

Phenology. Uni- or bivoltine, flying from mid-May to late September (Müller *et al.* 2019).

Biology. Larva oligophagous on Rosaceae, reared on *Prunus spinosa*, *P. domestica* and *Crataegus* sp. (Müller *et al.* 2019).

Habitat. Open woodlands (Müller *et al.* 2019). Occurs from sea-level up to 2150 m.

Distribution. From eastern Europe (Balkan Peninsula) to Turkey, Georgia, Armenia and westernmost part of Iran (new record for Iran) (map 2).

DNA barcoding. Nearest species (minimum pairwise distances): *N. eberti* **sp. nov.** (6.5%), *N. subfusca* (6.6%), *N. mauretanica* (6.6%), *N. admirabila* (6.8%) and *N. waltheri* (6.8%) (fig. 145).

Nychiodes farinosa Brandt, 1938
(figs 26, 27, 98, 99, 133; map 2)

Nychiodes farinosa Brandt, 1938. Entomologische Rundschau, 55 (51), 37. Holotype ♂, ([Iran]: Comèe [Komehr]) (in NHRS, examined).

Type material examined. Holotype, ♂, Iran, Fars, Straße Ardekan-Talochosroe [Tall Khosrow], Comèe [Komehr], ca. 2600 m, 30.vi.1937, coll. Brandt, g.prep. 10924; Paratypes, 1 ♀, same locality, 3.vii.1937, coll. Brandt (labeled as Allotype), g.prep. 10925; 1 ♂, same locality, 26.vi.1937, coll. Brandt; all in NHRS. 1 ♂, same locality, 30.vi.1937, coll. Brandt; in ZFMK.

Additional material studied: 11 ♂, 2 ♀ (see appendix).

Diagnosis. Wingspan ♂ 30–35 mm, ♀ 37–43 mm (forewing length ♂ 19–21 mm, ♀ 21–24 mm) (figs 26, 27). Externally, the colour combination of *N. farinosa* can be confused with that of *N. subvirida*, both with yellow- to

light brown wings, intermixed with darker brown. In *N. farinosa* basal and postmedial areas lighter than medial and subterminal areas; postmedial line yellow, thick, without clear border from subterminal area (in *N. subvirida*, basal, medial and subterminal areas concolorous; postmedial line yellow, thin, clearly bordered from subterminal area) (see figs 26, 27 and 47–51). Additionally, *N. subvirida* shows completely different male and female genitalia (see figs 98, 99 and 110–112).

In male genitalia (fig. 98), uncus short, in lateral view curved (fig. 99), which is similar to that of *N. antiquaria* and *N. subfusca* (both of species show different character combinations in wings (figs 28–34 and 43, 44) and genitalia (figs 100, 101, 106, 107). Diagnostic features of male genitalia of *N. farinosa* from other similar species: In *N. farinosa* valva narrow, with both ampullae located apically, in the upper third of the valva, sacculus straight (valva broad, with both ampullae located in medial part of valva, sacculus curved outwards in *N. antiquaria* and *N. princeps*) (figs 98, 100, 102). The endemic Pakistanian species *N. quettensis* shows a completely different wing pattern (fig. 36, 37) but shares a similar male genitalia capsule with *N. farinosa*, however, the latter having a shorter and thicker aedeagus (very thin and long in *N. quettensis*) (figs 98, 103).

Female genitalia of *N. farinosa* (fig. 133) are reminiscent of those of *N. subvirida* (figs 138–140), the latter species with reduced anteriores apophyses.

Three other species occur sympatric with *N. farinosa*: *N. admirabila* (characterized by a unique wing pattern with light brown wings and prominent markings in the medial area and black transverse lines, figs 23–25), *Nychiodes leviata* (rather small wingspan, with dark brown to black medial area on forewing, and strongly differing male and female genitalia, figs. 45, 46, 108,) and *N. divergaria* (highly variable species, but easily diagnosed based on both male and female genitalia, see figs 113–119, 141, 142).

Phenology. Univoltine, from May to July.

Biology. Unknown.

Habitat. In altitudes from 1850 up to 2800 m.

Distribution. Endemic species in Iran, in the western part of the Zagros Mountains (map 2).

DNA barcoding. Nearest species (minimum pairwise distances): *N. leviata* (5.9%) (fig. 145).

Nychiodes antiquaria Staudinger, 1892

(figs 28–34, 100, 101, 134; map 2)

Nychiodes antiquaria Staudinger, 1892. Deutsche Entomologische Zeitschrift Iris 5, 171. Syntypes 1♂ 2 ♀ ([Central Asia]: Namangan, Margelan, Samarkand) (in MNHU, examined).

Phthonandria confusa Warren, 1902. Novitates zoologicae: a journal of zoology in connection with the Tring Museum 9, 367. Holotype ♂ ([Pakistan]: Chitral). Regarded as a junior synonym by Wehrli 1929c.

Nychiodes antiquarius. Incorrect subsequent spelling in Viidalepp, 1996. Checklist of the Geometridae (Lepidoptera) of the former U.S.S.R. Apollo Books, Stenstrup, 111 pp.

Type material examined. Lectotype (herewith designated), ♀, Origin, [Uzbekistan], Margelan, g.prep. 0227/2019 D. Wanke; Paralectotype (herewith designated), 1 ♂, Typus, Origin, [Uzbekistan], Namangan, [18]84, [last segments of abdomen with genitalia missing]; all in MNHU.

Additional material studied: 106 ♂, 39 ♀ (see appendix).

Diagnosis. Wingspan ♂ 33–45 mm, ♀ 37–46 mm (forewing length ♂ 18–25 mm, ♀ 20–26 mm) (figs 28–34). Ground colour of wings highly variable from bright yellow and light brown to darker brown (figs 28–34), easily confused with many other *Nychiodes* species. However, unique male and female genitalia (figs 100, 101) of *N. antiquaria* and its distribution pattern (only in most eastern part of Central Asia) differentiate this species from all other congeners.

Male genitalia slightly variable (also within populations), but always showing a similar ground plan, characterized by the apical part of costa of valva, exceeding apex of valva (fig. 100). This pattern is similar to that of *N. rayatica*, *N. convergata* **sp. nov.** and *N. eberti* **sp. nov.**, but all these species differ in the character combination of the ampulla superior and inferior (see figs 100, 105, 120–124). Moreover, the aedeagus of *N. antiquaria* is characteristically long and the length of the cornutus is longer than half length of aedeagus. In female genitalia (fig. 134), *N. antiquaria* has a characteristically large corpus bursae compared with that of *N. subfusca*, but these two species can be diagnosed based on the length of apophyses anteriores (figs 134, 136).

Phenology. Flying from May to September.

Biology. Unknown.

Habitat. In altitudes from 550 up to 2350 m.

Distribution. Distributed in south-eastern Uzbekistan, western Tajikistan, in the north to western Kyrgyzstan and south-eastern Kazakhstan, in the south to eastern Afghanistan and northern Pakistan (new record for the fauna of Pakistan) (map 2). Wehrli (1929c) stated a distribution also in northern India and Kashmir, but we had no material to confirm this hypothesis.

DNA barcoding. Nearest species (minimum pairwise distances): *N. subfusca* (5.4%) and *N. admirabila* (5.8%) (fig. 145).

Nychiodes princeps Wiltshire, 1966

(figs 35, 102; map 3)

Nychiodes princeps Wiltshire, 1966. Zeitschrift der Wiener entomologischen Gesellschaft, 51, 142. Holotype ♂ (Afghanistan: Band-i-Amir), (in NHMV, examined).

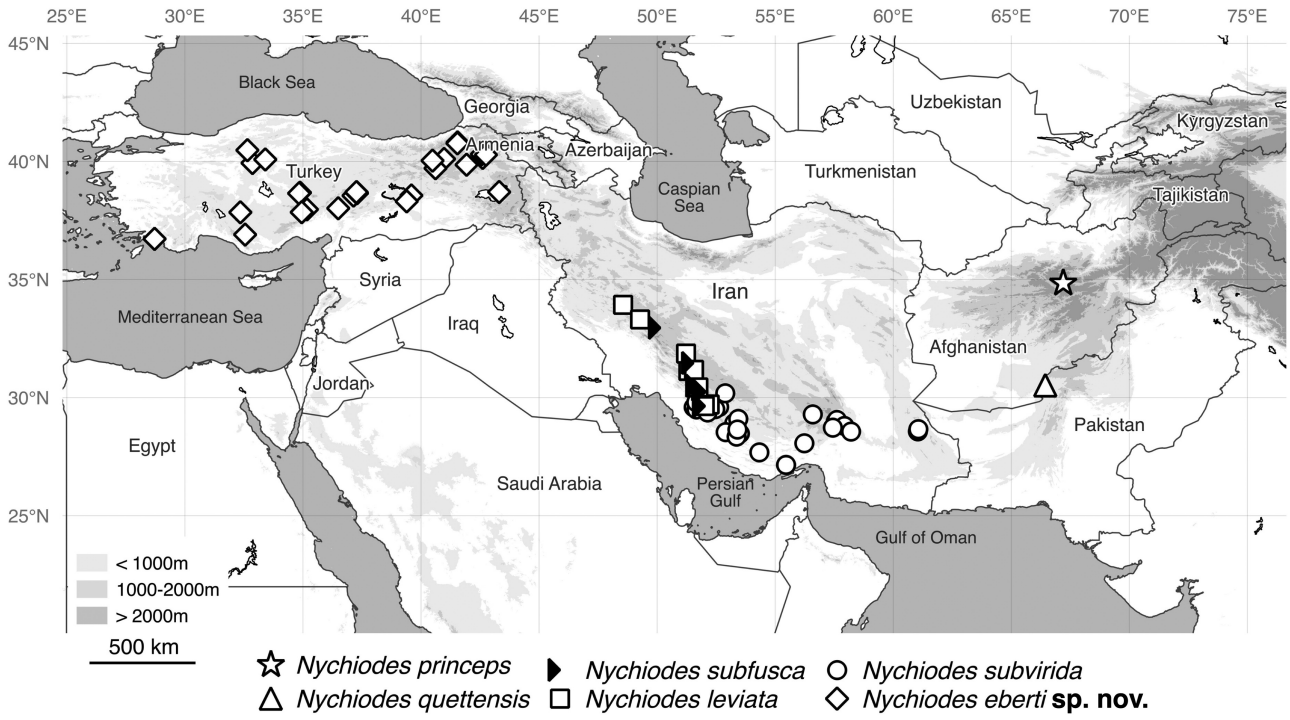
Type material examined. Holotype, ♂, Afghanistan, 30.vii.1963, centr[al], Band-i-Amir, 3000 m, leg. Kasy & Vartian, [genital] preparation WW-36; in NHMV.

Diagnosis. For this species, only the holotype is available, therefore a confidential diagnosis is not possible. However, the holotype shows clear diagnostic characters, which we present here. Wingspan ♂ 41 mm (fig. 35). Ground colour of wings pale yellow, slightly suffused with grey. Based on its geographic distribution, this species can be confused with *N. quettensis* and *N. antiquaria*, but all of these species show different genitalia patterns. In male genitalia these three species can be diagnosed based on the apex of costa of valva (exceeding apex of valva in *N. antiquaria*, in contrast to *N. princeps*, *N. quettensis*) (figs 100–103). *N. princeps* and *N. quettensis* can be separated based on the aedeagus/cornutus ratio, which is clearly larger in *N. quettensis* (see figs 102b, 103b). Female genitalia of *N. princeps* unknown.

Phenology, biology and habitat. Unknown.

Distribution. Only known from the type locality in central Afghanistan (map 3). Distribution in Afghanistan, needs further investigation.

DNA barcoding. No data available.



MAP 3. Distribution patterns of *N. princeps*, *N. quettensis*, *N. subfusca*, *N. leviata*, *N. subvirida* and *N. eberti* **sp. nov.**.

Nychiodes quettensis Wiltshire, 1966
(figs 36, 37, 103; map 3)

Nychiodes quettensis Wiltshire, 1966. Zeitschrift der Wiener entomologischen Gesellschaft, 51, 142. Holotype ♂ (Pakistan: 80 km NW von Quetta), (in NHMV, examined).

Type material examined. Holotype, ♂, Pakistan, 15.v.1965, 80 km NW v. Quetta, 2100 m, leg. Kasy & Vartian. Paratype, 1 ♂, same locality, leg. Kasy & Vartian, [genital] preparation WW-223; in NHMV.

Diagnosis. Wingspan ♂ 34–36 mm. Ground colour of wings pale yellowish grey (figs 36, 37). For this species, only the type series is available, showing, however, clear diagnostic characters (see diagnosis of *N. princeps*). Female genitalia of *N. quettensis* unknown.

Phenology, biology and habitat. Unknown.

Distribution. Only known from the type locality in Pakistan (map 3). Distribution in Pakistan needs further investigation.

DNA barcoding. No data available.

Nychiodes admirabila Brandt, 1938
(figs 38–40, 104, 135; map 2)

Nychiodes admirabila Brandt, 1938. Entomologische Rundschau 55 (51): 36. Holotype ♂ ([Iran]: Fort Sine-Sefid, Comèe) (in NHRS, examined).

Nychiodes admirabila safidaria Wiltshire, 1943. Journal of the Bombay Natural History Society, Bombay, 43, 633, (in BMNH). Hereby regarded as a **new synonym** of *Nychiodes admirabila* based on sympatric occurrence of these forms.

Nychiodes admirabilis Wiltshire, 1943. Journal of the Bombay Natural History Society, Bombay, 43, 632. Incorrect subsequent spelling.

Type material examined. Paratypes, 1 ♂, Iran, Fars, Straße Chiraz Kazeroun, Fort Sine-Sefid, ca. 2200 m, 16.vi.1937, coll. Brandt, g.prep. 10920; 1 ♀, [labeled as allotype], Fars, Straße Chiraz Kazeroun, Fort Sine-Sefid, Comee [Komehr], ca. 2600 m, 30.vii.1937, coll. Brandt, g.prep. 10921; all in NHRS. 1 ♂, same locality, ca. 2200 m, Sept.1937, coll. Brandt; 2 ♂, I same locality, ca 2600 m, Juli.1937, coll. Brandt; 1 ♂, same locality, 2.viii.1937, coll. Brandt; all in ZFMK. 1 ♂, same locality, ca. 2200 m, 10.ix.1937, coll. Brandt; in ZSM.

Additional material studied: 3 ♂ (see appendix).

Diagnosis. Wingspan ♂ 40–41 mm, ♀ 45 mm (forewing length ♂ 20–21 mm, ♀ 23 mm) (figs 38–40). Wing colour and pattern characteristic, no confusion possible with any other *Nychiodes* species. Ground colour of wings light brown, with ochre-red scales in basal and subterminal areas, medial area grey-brown intermixed with dark brown to black scales, discal spots on all wings dark brown to black, exceptionally large (figs 38, 39). In rare cases medial area covered with black scales (fig. 40). Male genitalia of *N. admirabila* are very large and show clear diagnostic characters for a discrimination from the species occurring in southern and south-western Iran species (*N. farinosa*, *N. subfusca*, *N. leviata*, *N. subvirida* and *N. divergaria*): in *N. admirabila* costa of valva medially humped (not humped in *N. farinosa*, *N. subfusca*, *N. leviata* and *N. divergaria*; humped in *N. subvirida*) (see figs 98, 104, 106, 108, 113–119). *N. admirabila* with ampulla inferior stout and curved (small, not curved in *N. subvirida*) (figs 104, 110, 111). Female genitalia of *N. admirabila* with a characteristic quadratic, apically concave lamella postvaginalis (antero-posteriorly extended in *N. subvirida*, and *N. divergaria*; not extended in *N. farinosa*; rounded with foldings in *N. subfusca*; not extended, small in *N. leviata*). In *N. admirabila* apophyses anteriores 1/4 length of apophyses posteriores (1/3 in *N. farinosa* and *N. leviata*; 1/9 in *N. subfusca*; apophyses anteriores strongly reduced in *N. subvirida* and *N. divergaria*) (see figs 135–142).

Phenology. Flying from May to September.

Biology. Unknown.

Habitat. In altitudes from 1890 up to 2800 m.

Distribution. Distributed in south-western Iran (map 2).

DNA barcoding. Nearest species (minimum pairwise distances): *N. subfusca* (5.1%), *N. eberti* **sp. nov.** (5.8%) and *N. antiquaria* (5.8%) (fig. 145).

Nychiodes rayatica Wiltshire, 1957
(figs 41, 42, 105; map 2)

Nychiodes rayatica Wiltshire, 1957. The Lepidoptera of Iraq, 111. Holotype ♂, Paratypes 2 ♂ (Iraq, Haj Omran), (in BMNH, examined).

Type material examined. Holotype, ♂, Iraq, Kurdistan, Rayat, 24.vi.[19]35, E.P. Wiltshire, Geometridae genitalia slide No. 11019; Paratype, 1 ♂, Iraq, Rayat, Haj Omran, 5000-6000 ft. [1524-1829 m], larva 2-13.vi.[19]56, hatched 1.vii.[19]56, E.P. Wiltshire; all in BMNH.

Additional material studied: 2 ♂ (see appendix).

Diagnosis. Wingspan ♂ 33–35 mm (Wiltshire (1957) measured 38–40 mm) (forewing length ♂ 18–21) (figs 41, 42). Ground colour of wings beige to light brown with slightly darker basal and medial areas. The species can be confused, in external appearance, with several *Nychiodes* species (*N. antiquaria*, *N. divergaria, N. leviata, N. convergata* **sp. nov.** and *N. eberti* **sp. nov.**), but unique male genitalia of *N. rayatica* differentiate it from all the others (examination of male genitalia is necessary for reliable identification). The male genitalia of *N. rayatica* is characterized by a large and broad apical part of the costa of valva, which is exceeding the apex of the valva (see fig. 105), this character is similar in *N. antiquaria*, *N. convergata* **sp. nov.** and *N. eberti* **sp. nov.**, but all these species differ in the shape of ampulla superior and inferior (see figs 100, 120–123). Furthermore, the aedeagus of *N. rayatica* is very small and short compared to those in *N. antiquaria*, *N. convergata* **sp. nov.** and *N. eberti* **sp. nov.** (figs 100b, 105b, 120b–123b). Female genitalia of *N. rayatica* are unknown.

Phenology. Univoltine (Wiltshire 1957). Specimens collected during June and July.

Biology. Larva recorded on *Amygdalus* sp. (Wiltshire 1957).

Habitat. Recorded in altitudes from 1524 up to 2300 m.

Distribution. Wiltshire (1957) suggested an occurrence of this species on neighbouring mountains in north-western Iran and eastern Turkey, which we confirmed here. Recorded in Iraq, eastern Turkey and here we report this species from north-western Iran as a new element for the fauna of this country (map 2).

DNA barcoding. No data available.

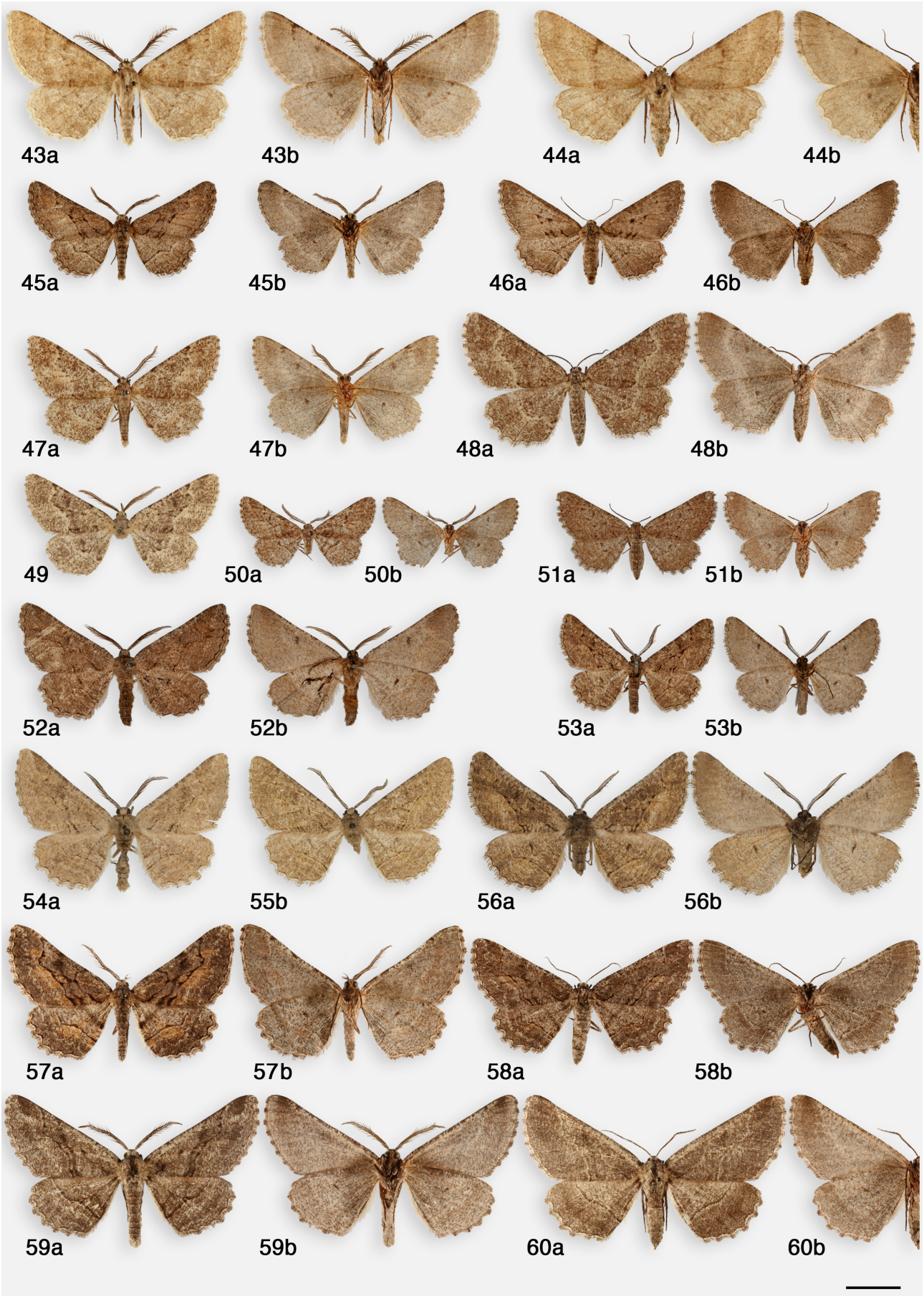
Nychiodes subfusca Brandt, 1938
(figs 43, 44, 106, 107, 136; map 3)

Nychiodes subfusca Brandt, 1938. Entomologische Rundschau, 55 (51), 36. Holotype ♂ ([Iran]: Comée, Fort Sine-Sefid) (in NHRS, examined).

Type material examined. Paratypes, 1 ♂, Iran, Fars, Straße Ardekan-Talochosroe [Tall Khosrow], Comée [Komehr], ca 2600 m, 30.vi.1937, coll Brandt, g.prep. 10932; 1 ♀, same locality, 3750 m, 12.vi.1937, coll Brandt, g.prep. 10933; all in NHRS. 1 ♂, Iran, same locality, (Barm i Firus), ca. 3750 m, 12-20.vii.1937, coll Brandt; 1 ♂, same locality, ca. 2600 m, 5.vii.1937, coll Brandt; all in ZFMK. 1 ♂, same locality, ca. 2600 m, 30.vi.1937, coll Brandt; in ZSM.

Additional material studied*:* 13 ♂, 6 ♀ (see appendix).

Diagnosis. Wingspan ♂ 36–39 mm, ♀ 36–42 mm (forewing length ♂ 19–21 mm, ♀ 22–24 mm) (figs 43, 44). Ground colour of wings sandy-yellow. The species can be confused with some forms of *N. divergaria* and *N. eberti* **sp. nov.**, but *N. subfusca* differs from these two species by clearly unique male and female genitalia (see below). Male genitalia of *N. subfusca* with uncus curved, needle-like, broad at the base in lateral view (fig. 107) (kinked, apex broad and pointed in *N. eberti* **sp. nov.** and *N. divergaria*, see figs 116, 121). Additionally, costa of valva in *N. subfusca* apically tapered and directed to uncus; ampulla superior thin and long, ampulla inferior thick and short, both ampullae located at the centre of valva (see fig. 106) (costa of valva apically digitiform and straight, both ampullae with similar length and located in the distal half of valva in *N. eberti* **sp. nov.** (see figs 120, 122); costa of valva broadened towards apex, ampulla superior thick and long, ampulla inferior highly variable, but in most specimens absent in *N. divergaria*, (see figs 115–119)). *N. subfusca* in female genitalia with a characteristic narrow ductus bursae and a large bag-shaped corpus bursae; lamella postvaginalis round with foldings (fig. 136) (ductus bursae broad, corpus bursae small, lamella postvaginalis antero-posteriorly extended without foldings in *N. eberti* **sp. nov.** and *N. divergaria*). In *N. subfusca* apophyses anteriores 1/9 the length of apophyses posteriores (1/5 in *N. eberti* **sp. nov.**; apophyses anteriores strongly reduced in *N. divergaria*) (see figs 141–143).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FIGURES 43-60. Wing coloration and pattern of *Nychiodes* species. 43: Paratype of *N. subfusca* (Iran, Komehr, g.prep. 10932); 44: Paratype of *N. subfusca* (Iran, Komehr, g.prep. 10933); 45: Paratype of *N. leviata* (Iran, Shiraz, g.prep. 10926); 46: Allotype of *N. leviata* (Iran, Shiraz, g.prep. 10927); 47: Paratype of *N. subvirida* (Iran, Bouchir Tchouroum, g.prep. 10934); 48: Paratype (labeled as Allotype) of *N. subvirida* (Iran, Bouchir Tchouroum, g.prep. 10935); 49: Paratype of *N. subvirida* (Iran, Bouchir Tchouroum, g.prep. 2556); 50: Holotype of *N. agatcha* **syn. nov.** of *N. subvirida* (Iran, Fars); 51: Allotype of *N. agatcha* **syn. nov.** of *N. subvirida* (Iran, Fars, g.prep. 10923); 52: Lectotype of *N. divergaria* (g.prep. 2106/2017 H. Rajaei; herewith designated); 53: Paralectotype of *N. divergaria* (g.prep. 2107/2017 H. Rajaei; herewith designated); 54: Holotype of *N. divergaria achtyca* **syn. nov.** of *N. divergaria*; 55: Holotype of *N. divergaria elbursica* **syn. nov.** of *N. divergaria*; 56: Holotype of *N. divergaria fallax* **syn. nov.** of *N. divergaria*; 57: Holotype of *N. variabila* **syn. nov.** of *N. divergaria* (g.prep. 10930; according to morphological examination this specimen belongs to *N. divergaria*); 58: Paratype (labeled as Allotype) of *N. variabila* **syn. nov.** of *N. divergaria* (g.prep. 10931; according to morphological examination this specimen belongs to *N. divergaria*); 59: Holotype of *N. variabila opulenta* **syn. nov.** of *N. divergaria* (g.prep. 10928); 60: Paratype (labeled as Allotype) of *N. variabila opulenta* **syn. nov.** of *N. divergaria* (g.prep. 10929); a = upperside; b = underside. Scale-bar 1 cm.

In south-western Iran, in addition to *N. divergaria*, at least four other species (*N. farinosa*, *N. admirabila*, *N. leviata*, *N. subvirida*) are sympatric with *N. subfusca*, but none of them can be externally confused with the latter species (see figs 26, 27, 38–40, 45–51).

Phenology. Flying from June to August. Wiltshire (1943) noted a record of the first brood in mid-June in Fars.

Biology. Larvae bred and described by Wiltshire (1943); feeding on *Amygdalus* and *Prunus*.

Habitat. In altitudes from 2000 up to 3750 m.

Distribution. Endemic species in south-western Iran (from Fars to Esfahan) (see map 3).

DNA barcoding. Nearest species (minimum pairwise distances): *N. admirabila* (5.1%) and *N. antiquaria* (5.4%) (fig. 145).

Nychiodes leviata Brandt, 1938

(figs 45, 46, 108, 109, 137; map 3)

Nychiodes leviata Brandt, 1938. Entomologische Rundschau, 55 (51), 37. Holotype ♂ ([Iran]: Sine Sefid) (in NHRS, examined). Originally regarded as subspecies of *Nychiodes variabila*. Raised to species rank by Wehrli (1954). Here confirmed valid at species rank.

Type material examined. Paratypes, 1 ♀, Iran, Fars, Straße Chiraz [Shiraz]-Kazeroun, Fort Sine-Sefid, ca. 2200 m, v.1937, coll. Brandt (labeled as Allotype), g.prep. 10927; 1 ♂, same locality, 23.v.1937, coll. Brandt, g.prep. 10926; 1 ♂, same locality, 5.vi.1937, coll. Brandt; all in NHRS. 1 ♂, same locality, 3.vi.1937, coll. Brandt; 1 ♀, same locality, 23.v.1937, coll. Brandt; 1 ♂, 1 ♀, same locality, 12.vi.1937, coll. Brandt; all in ZFMK.

Additional material studied: 19 ♂ (see appendix).

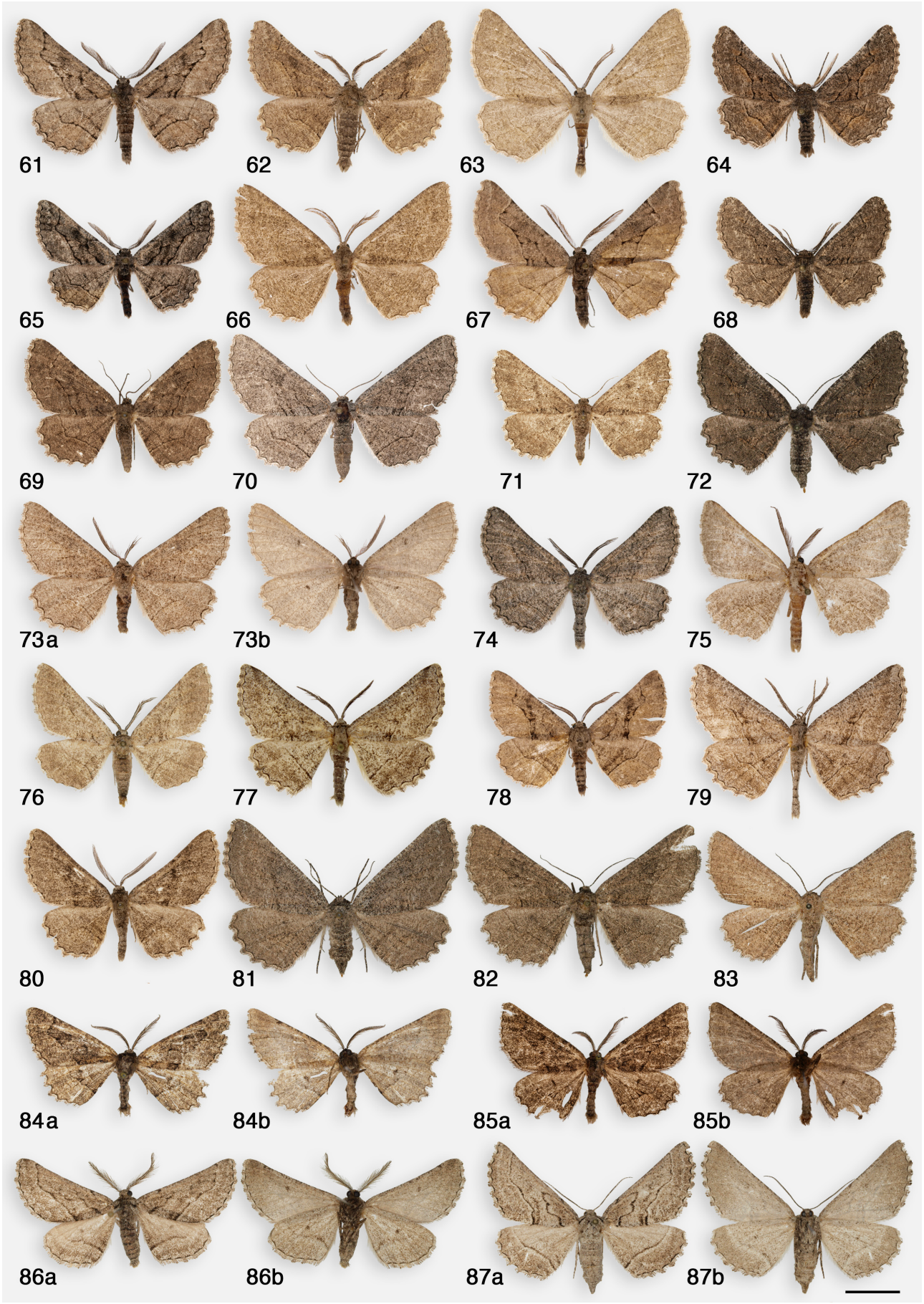
Diagnosis. Characteristically small species with wingspan ♂ 26–33, ♀ 34 (forewing length ♂ 16–19, ♀ 17) (figs 45, 46). Ground colour of wings beige-brown, medial area slightly darker. Resemble to some small specimens of *N. divergaria* (these two species can be diagnosed as below). In the male genitalia of *N. leviata* uncus thin, finely curved (in lateral view); ampulla superior almost same length as ampulla inferior, both clearly curved (uncus stout, curved; ampulla superior long, straight, ampulla inferior highly variable in size or absent, in *N. divergaria*) (see figs 108, 109, 113–119).

In female genitalia of *N. leviata*, apophyses anteriores 1/3 the length of apophyses posteriores; lamella postvaginalis small, not extended; signum circular, very large (apophyses anteriores strongly reduced; lamella postvaginalis antero-posteriorly extended; signum small in *N. divergaria*) (see figs 137, 141, 142).

In southwestern Iran, except *N. divergaria*, at least four other species (*N. farinosa*, *N. admirabila*, *N. subfusca*, *N. subvirida*) are co-distributed with *N. leviata*, but none of them can be externally confused with the latter species (see figs 26, 27, 38–40, 43, 44, 47–51).

Phenology. Flying from May to July.

Biology. Unknown.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FIGURES 61-87. Wing coloration and pattern of *Nychiodes* species. 61-72: *N. divergaria* (61: Iran, Kerman, g.prep. 0125/2018 D. Wanke; 62: Armenia, Yeghegnadzor, g.prep. 0375/2019 D. Wanke; 63: Iran, Mazandaran, g.prep. 2187/2018 H. Rajaei; 64: Turkey, Adiyaman, g.prep. 0324/2019 D. Wanke; 65: Iran, Hormozgan, g.prep. 0115/2018 D. Wanke; 66: Iran, Kendevan, g.prep. 0256/2019 D. Wanke; 67: Turkey, Hakkari, g.prep. 0068/2018 D. Wanke; 68: Turkey, Adiyaman, g.prep. 0321/2019 D. Wanke; 69: Turkey, Sirnak, g.prep. 0251/2019 D. Wanke; 70: Iran, Hormozgan, g.prep. 0295/2019 D. Wanke; 71: Iran, Kordestan, g.prep. 2183/2018 H. Rajaei; 72: Turkey, Adiyaman, g.prep. 0441/2019 D. Wanke); 73: Holotype of *N. eberti* **sp. nov.** (Turkey, Ascale, g.prep. 0267/2019 D. Wanke); 74-83: Paratypes of *N. eberti* **sp. nov.** (74: Turkey, Nevsehir, g.prep. 0398/2019 D. Wanke; 75: Turkey, Nidge, g.prep. 0341/2019 D. Wanke; 76: Turkey, g.prep. 0464/2019 D. Wanke; 77: Turkey, Ankara, g.prep. 0161/2018 D. Wanke; 78: Turkey, Kötek, g.prep. 0080/2018 D. Wanke; 79: Turkey, Ankara, g.prep. 0283/2019 D. Wanke; 80: Turkey, Kars, g.prep. 0079/2018 D. Wanke; 81: Turkey, Erzurum, g.prep. 0457/2019 D. Wanke; 82: Turkey, Kopdagi-Paß, g.prep. 0435/2019 D. Wanke; 83: Turkey, Sivas, g.prep. 0445/2019 D. Wanke); 84: Holotype of *N. convergata* **sp. nov.** (Israel, Mt. Hermon, g.prep. 463/2019 D. Wanke); 85: Paratype of *N. convergata* **sp. nov.** (Israel, Mt. Hermon, g.prep. 0243/2019 D. Wanke); 86: Holotype of *N. mirzayansi* **sp. nov.** (Iran, Kerman); 87: Paratype of *N. mirzayansi* **sp. nov.** (Iran, Kerman, g.prep. 2252/2019 H. Rajaei); a = upperside; b = underside. Scale-bar 1 cm.

Habitat. Specimens collected in altitudes from 1850-2450 m.

Distribution. In Iran, alongside the western part of the Zagros Mountains (map 3).

DNA barcoding. Nearest species (minimum pairwise distances): *N. eberti* **sp. nov.** (4.0%) and *N. mirzayansi* sp. nov. (4.1%) (fig. 145).

Nychiodes subvirida Brandt, 1938

(figs 47–51, 110–112, 138–140; map 3)

Nychiodes subvirida Brandt, 1938. Entomologische Rundschau, 55 (51), 36. Syntypes ♂, ♀ ([Iran]: Tschurum, Chriaz, Fort Mian-Kotal) (in NHRS, examined).

Nychiodes subvirida disjuncta Wehrli, 1941. In: Seitz, A. (Ed.), Die Großschmetterlinge der Erde. Supplement zu Band 4: 443. Holotype 1 ♂ (Iran, Borasdjen [Borazjan], Daliki) (in ZFMK, examined). Hereby regarded as a **new synonym** of *Nychiodes subvirida* based on morphological examination and sympatric occurrence of these forms.

Nychiodes subvirida taftana Brandt, 1941. Mitteilungen der Münchner Entomologischen Gesellschaft, 31, 878. Iran (Taftan Mt.), (in NHRS, examined). Hereby regarded as a **new synonym** of *Nychiodes subvirida* based on sympatric occurrence of these forms.

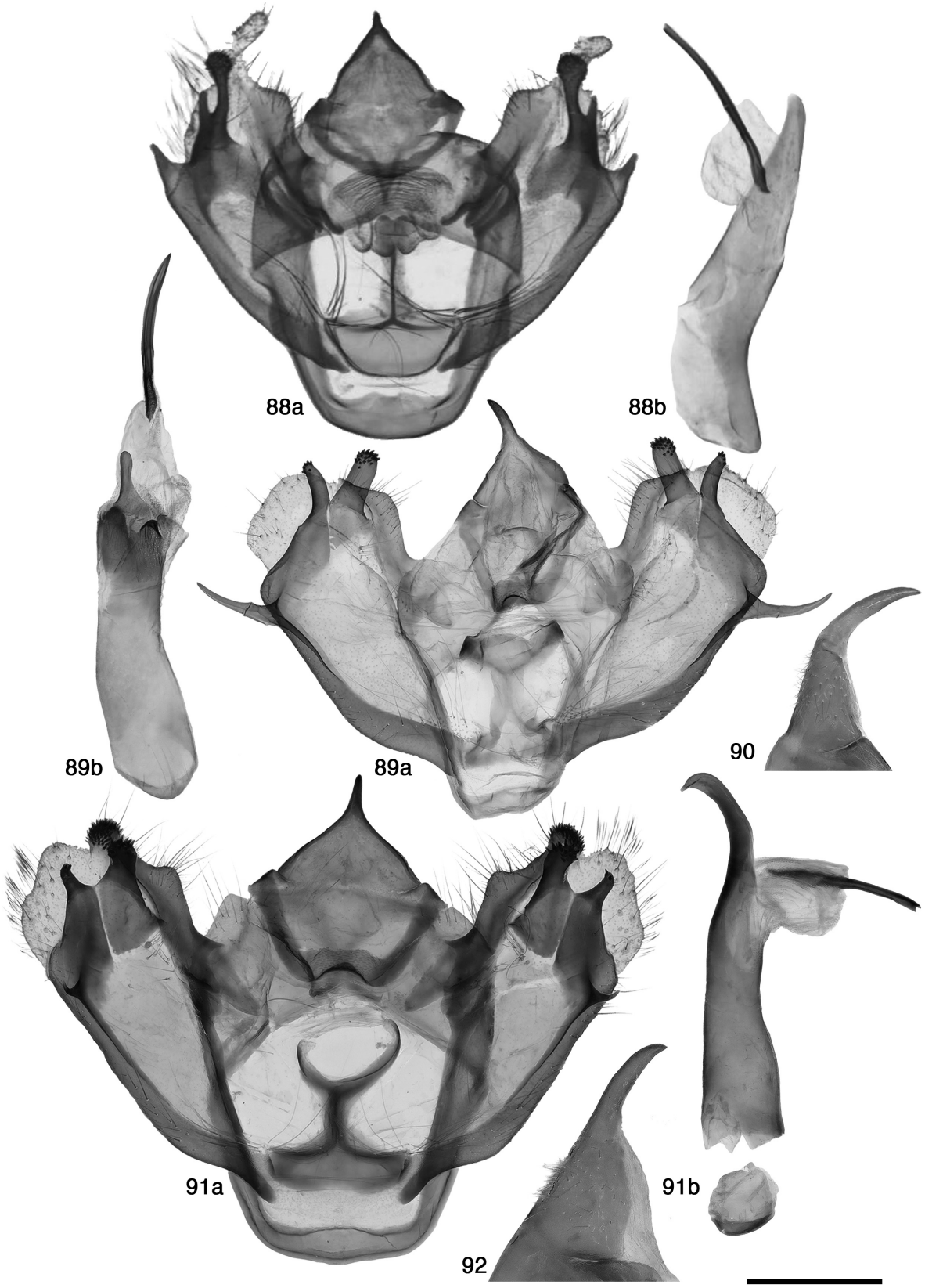
Nychiodes agatcha Brandt, 1938. Entomologische Rundschau, 55 (51), 37. Holotype ♂, Allotype ♀ (Iran, Fars, Fort Sine-Sefid) (in NHRS, examined). Hereby regarded as a **new synonym** of *Nychiodes subvirida* based on morphological examination and sympatric occurrence of these forms.

Type material examined. *Nychiodes subvirida* Paratypes, 2 ♂, Iran, Fars, Straße Kazeroun, Bouchir Tchouroum, ca. 1000 m, 18.-30.iii.1937, coll. Brandt, g.preps 2556, 10934; 1 ♀, same locality, (labeled as allotype), g.prep. 10935; all in NHRS. 1 ♂, same locality, 26.iii.-6.iv.1937, coll. Brandt; in ZFMK. 1 ♂, same locality, 18.-30.iii.1937, coll. Brandt; in ZSM.

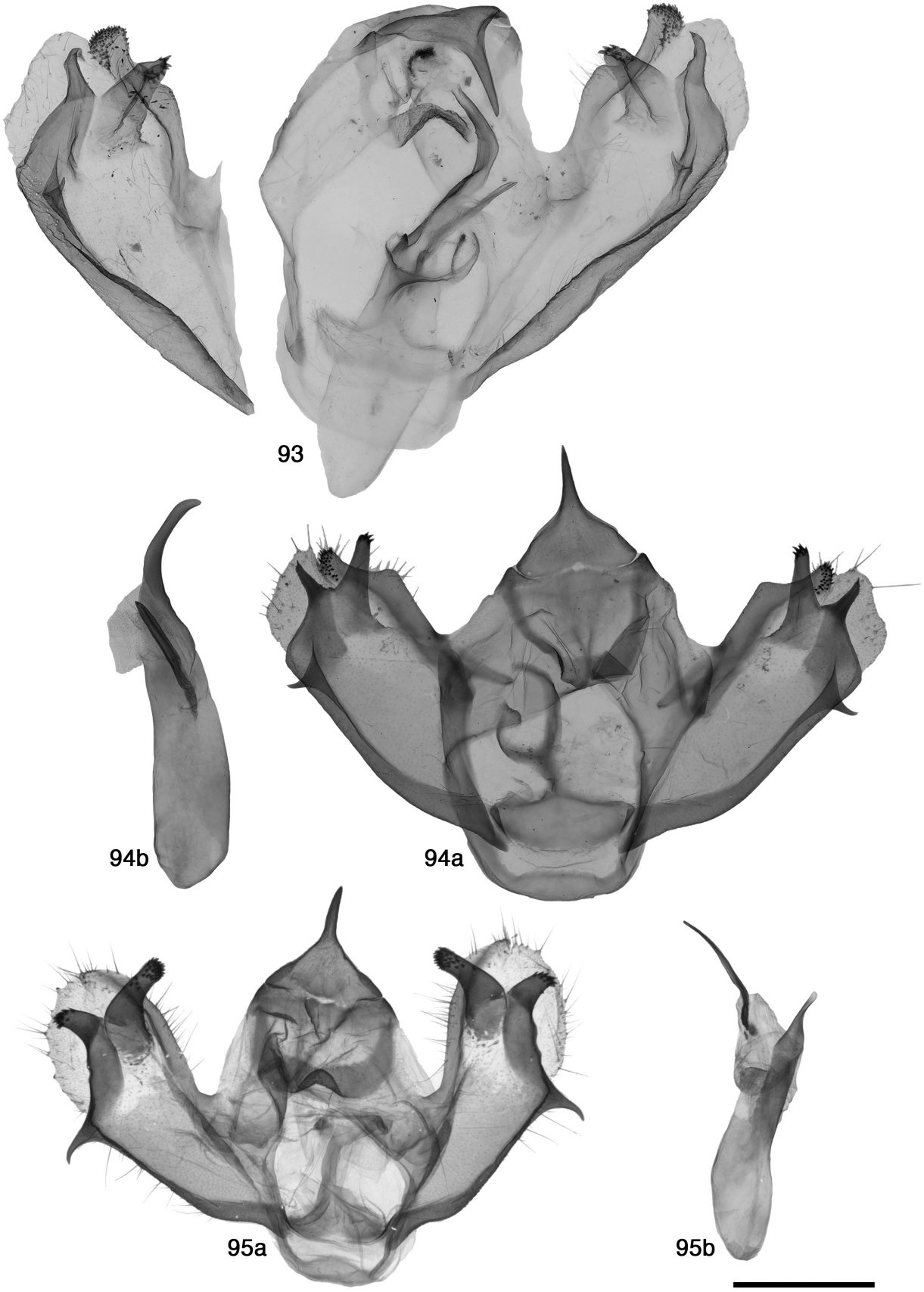
N. subvirida disjuncta Holotype, ♂, Jran [Iran] mer. occ., Borasdjen [Borazjan], Daliki, 120 m, 13.-17.iii.[19]38, g.prep. 7271; Paratype, 1♀, Jran [Iran] mer. occ., Schiras, Taschteba, Ende April [19]38, (labeled as Allotype), g.prep. 0504/2020 D. Wanke; in ZFMK.

N. subvirida taftana 1 ♂, Iran, Balotchistan, Kouh i Taftan (Khach), 2500 m, 15.v.1938, coll. Brandt; in NHRS.

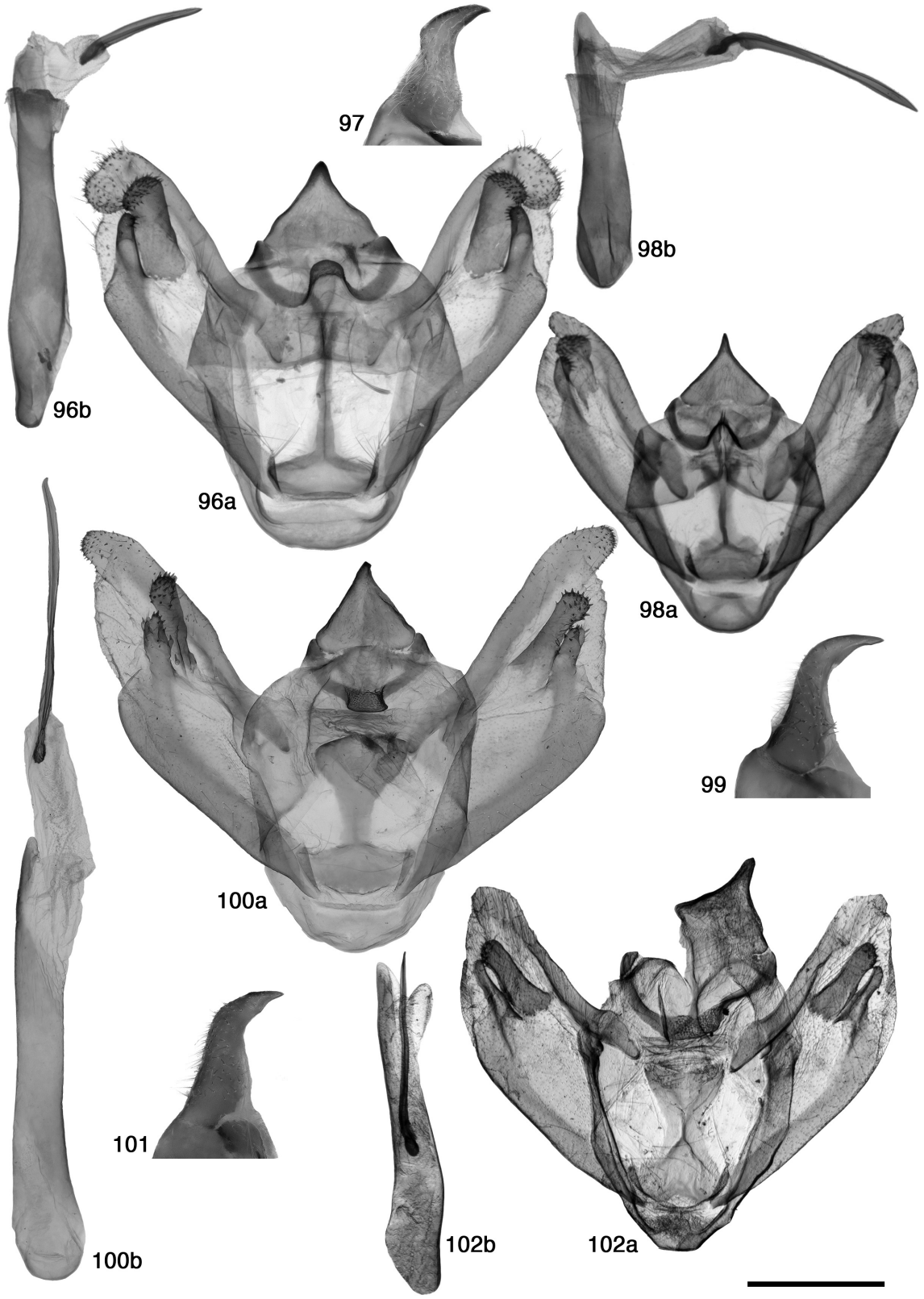
N. agatcha Holotype, ♂, Iran, Fars, Straße Chiraz Kazeroun, Fort Sine-Sefid, ca 2200 m, v.1937, coll. Brandt; Paratype, 1♀, same locality, ix.1937, (labeled as Allotype), g.prep. 10923; in NHRS.



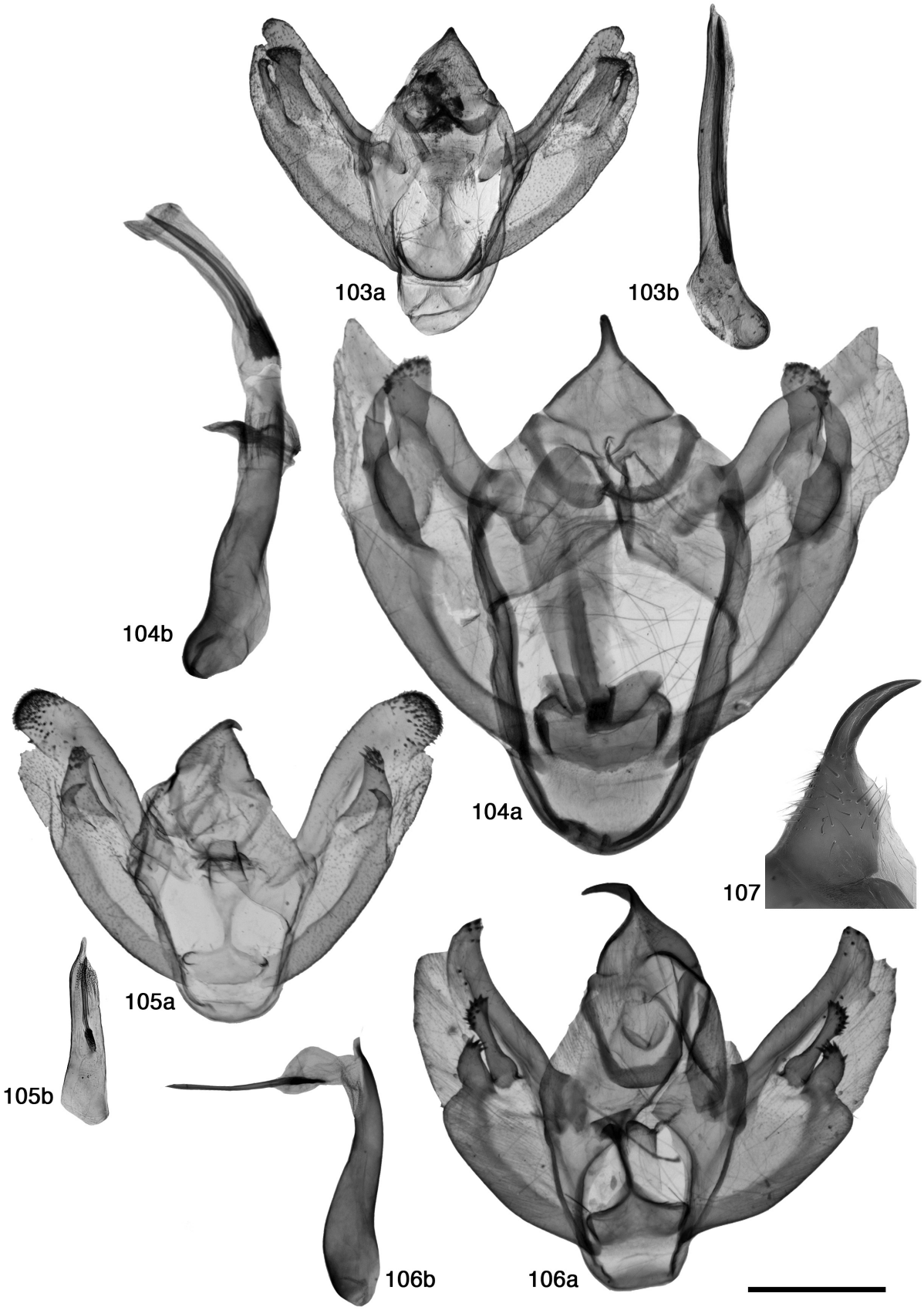
FIGURES 88-92. Male genitalia of *Nychiodes* species. 88: Lectotype of *N. mauretanica* (Algeria, Lambèse, g.prep. Fazekas I. No. 2593); 89: *N. waltheri* (Turkey, Kayseri, g.prep. 0453/2019 D. Wanke); 90: Uncus, lateral view, *N. waltheri* (Turkey, Aksehir, g.prep. 0409/2019 D. Wanke); 91: Lectotype of *N. palaestinensis* (Israel, Jerusalem, g.prep. 0225/2019 D. Wanke); 92: Uncus, lateral view, *N. palaestinensis* (Jordan, Ajlun, g.prep. 0392/2019 D. Wanke). a = genitalia capsule; b = aedeagus. Scale-bar 1 mm.



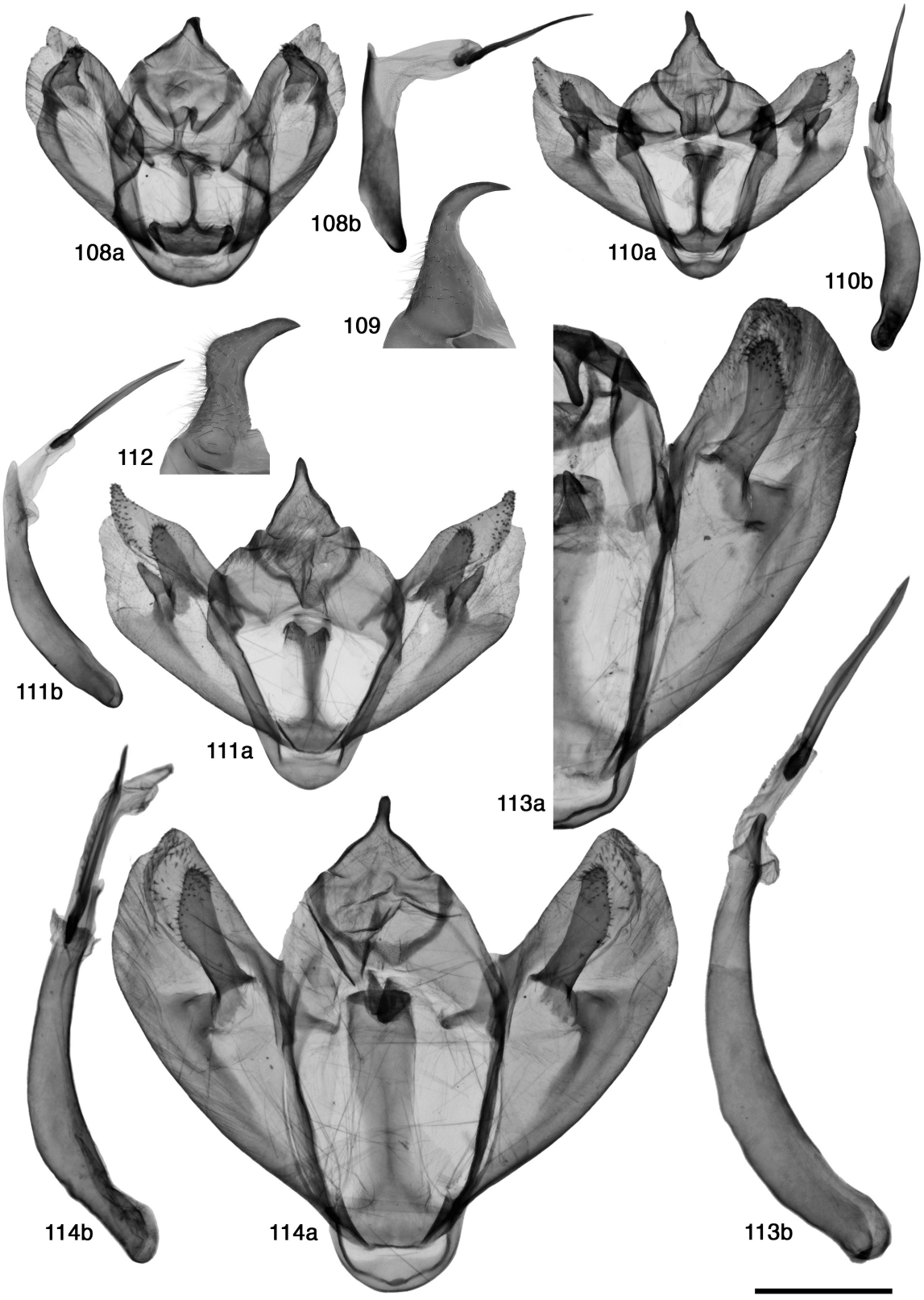
FIGURES 93-95. Male genitalia of *Nychiodes* species. 93: Lectotype of *N. persuavis* **syn. rev.** of *N. palaestinensis* (Lebanon, Beirut, g. prep. 4065; aedeagus in genitalia capsule); 94: Paratype of *N. muelleri* (Jordan, Shaubak, g.prep. 14416); 95: *N. aphrodite* (Cyprus, Paphos, g.prep. 2109/2017 H. Rajaei). a = genitalia capsule; b = aedeagus. Scale-bar 1 mm.



FIGURES 96-102. Male genitalia of *Nychiodes* species. 96: *N. amygdalaria* (Turkey, Aksehir, g.prep. 2089/2017 H. Rajaei); 97: Uncus, lateral view, *N. amygdalaria* (Turkey, Maras, g.prep. 0411/2019 D. Wanke); 98: Holotype of *N. farinosa* (Iran, Fars, g.prep. 10924); 99: Uncus, lateral view, *N. farinosa* (Iran, Hamadan, g.prep. 0414/2019 D. Wanke); 100: *N. antiquaria* (Tadjikistan, Kalaishum, g.prep. 0365/2019 D. Wanke); 101: Uncus, lateral view, *N. antiquaria* (Uzbekistan, Guzar, g.prep. 0408/2019 D. Wanke); 102: Holotype of *N. princeps* (Afghanistan, Band-i-Amir, g.prep. WW36). a = genitalia capsule; b = aedeagus. Scale-bar 1 mm.



FIGURES 103-107. Male genitalia of *Nychiodes* species. 103: Paratype of *N. quettensis* (Pakistan, Quetta, g.prep. WW223); 104: Paratype of *N. admirabila* (Iran, Fars, g.prep. 10920); 105: Holotype of *N. rayatica* (Iraq, Rayat, g.prep. 11019); 106: Paratype of *N. subfusca* (Iran, Komehr, g.prep. 10932); 107: Uncus, lateral view, *N. subfusca* (Iran, Dasht-e Arjan, g.prep. 0412/2019 D. Wanke). a = genitalia capsule; b = aedeagus. Scale-bar 1 mm.



FIGURES 108-114. Male genitalia of *Nychiodes* species. 108: Paratype of *N. leviata* (Iran, Fars, g.prep. 10926); 109: Uncus, lateral view, *N. leviata* (Iran, Isfahan, 0417/2019 D. Wanke); 110: *N. agatcha* **syn. nov.** of *N. subvirida* (Iran, Laristan, g.prep. 10922); 111: Paratype of *N. subvirida* (Iran, Fars, g.prep. 10934); 112: Uncus, lateral view, *N. subvirida* (Iran, Fars, g.prep. 0415/2019 D. Wanke); 113: Holotype of *N. variabila opulenta* **syn. nov.** of *N. divergaria* (Iran, Baloutchistan, g.prep. 10928); 114: Holotype of *N. variabila* **syn. nov.** of *N. divergaria* (Iran, Fars, g.prep. 10930); a = genitalia capsule; b = aedeagus. Scale-bar 1 mm.

Additional material studied: 35 ♂, 22 ♀ (see appendix).

Diagnosis. Wingspan ♂ 24–37 mm, ♀ 25–33 mm (forewing length ♂ 16–21 mm, ♀ 15–19 mm) (figs 47–51). Ground colour of wings yellow-brown sprinkled; postmedial line yellow. Reminiscent of *N. farinosa* (see diagnosis of *N. farinosa*) and some forms of the highly variable *N. divergaria* but differing from these species by the pattern of male and female genitalia. Male genitalia of *N. subvirida* with costa of valva medially humped, apex tapered (costa of valva not humped, apex rounded in *N. divergaria* and *N. farinosa*) (figs 110–112).

In female genitalia of *N. subvirida*, apophyses anteriores strongly reduced; sternite A9 conical, without any appendices (apophyses anteriores strongly reduced, sternite A9 with two strongly sclerotized spherical patches in *N. divergaria*; apophyses anteriores 1/3 length of apophyses posteriores, sternite A9 conical, without any appendices in *N. farinosa*) (figs 133, 138–142).

In southern Iran and on the most western border of its range *N. subvirida* is sympatric with *N. mirzayansi* **sp. nov.**, *N. farinosa*, *N. admirabila*, *N. subfusca* and *N. leviata*, but none of them can be externally confused with *N. subvirida* (see figs 26, 27, 38–40, 43–51).

Phenology. Examined specimens collected from March to November, with a gap from July to August, potentially indicating on two generations.

Biology. Unknown.

Habitat. In altitudes from 200 up to 2800 m.

Distribution. Distributed throughout southern Iran (see map 3).

DNA barcoding. COI data in a complex, overlapping and BIN-sharing cluster with *N. divergaria*, but morphologically showing clear diagnostic characters, which support the validity of both taxa. Nearest species (minimum pairwise distances): *N. mirzayansi* **sp. nov.** (1.6%) and *N. eberti* **sp. nov.** (3.1%) (fig. 145).

Nychiodes divergaria Staudinger, 1892

(figs 52–72, 113–119, 141, 142; maps 4, 5)

Nychiodes divergaria divergaria Staudinger, 1892. Deutsche Entomologische Zeitschrift Iris 5, 171. Syntypes ♂ (Mesopotamia [Turkey]: Mardin, Egin) (in MNHU, examined).

Nychiodes divergaria achtyca Wehrli, 1939. Entomologische Rundschau 56 (33), 365. Syntypes 3♂ ([Transcaucasus]: Rjabov) (in ZFMK, examined). Hereby regarded as a **new synonym** of *Nychiodes divergaria* based on morphological examination and sympatric occurrence of these forms.

Nychiodes divergaria elbursica Wehrli, 1937. Lambillionea 37 (8-9), 187. Syntypes 11♂ 4♀ ([Iran]: Elburs Mts.), (in NHRS, examined). Hereby regarded as a **new synonym** of *Nychiodes divergaria* based on morphological examination and sympatric occurrence of these forms.

Nychiodes divergaria fallax Wehrli, 1939. Entomologische Rundschau 56 (33), 366. Holotype ♂ (Transcaucasus), (in ZFMK, examined). Hereby regarded as a **new synonym** of *Nychiodes divergaria* based on morphological examination and sympatric occurrence of these forms.

Nychiodes variabila Brandt, 1938. Entomologische Rundschau, 55 (51), 37. Syntypes ♂, ♀ ([Iran]: Comèe, Fort Mian-Kotal, Fort Sine-Sefid), (in NHRS, examined). Hereby regarded as a **new synonym** of *Nychiodes divergaria* based on morphological and molecular examination.

Nychiodes variabila opulenta Brandt, 1941. Mitteilungen der Münchner Entomologischen Gesellschaft, 31, 878. Syntypes ♂, ♀ (Iran, Baloutchistan, Kouh i Taftan (Khach)), (in NHRS, examined). Hereby regarded as a **new synonym** of *Nychiodes divergaria* based on morphological examination and sympatric occurrence of these forms.

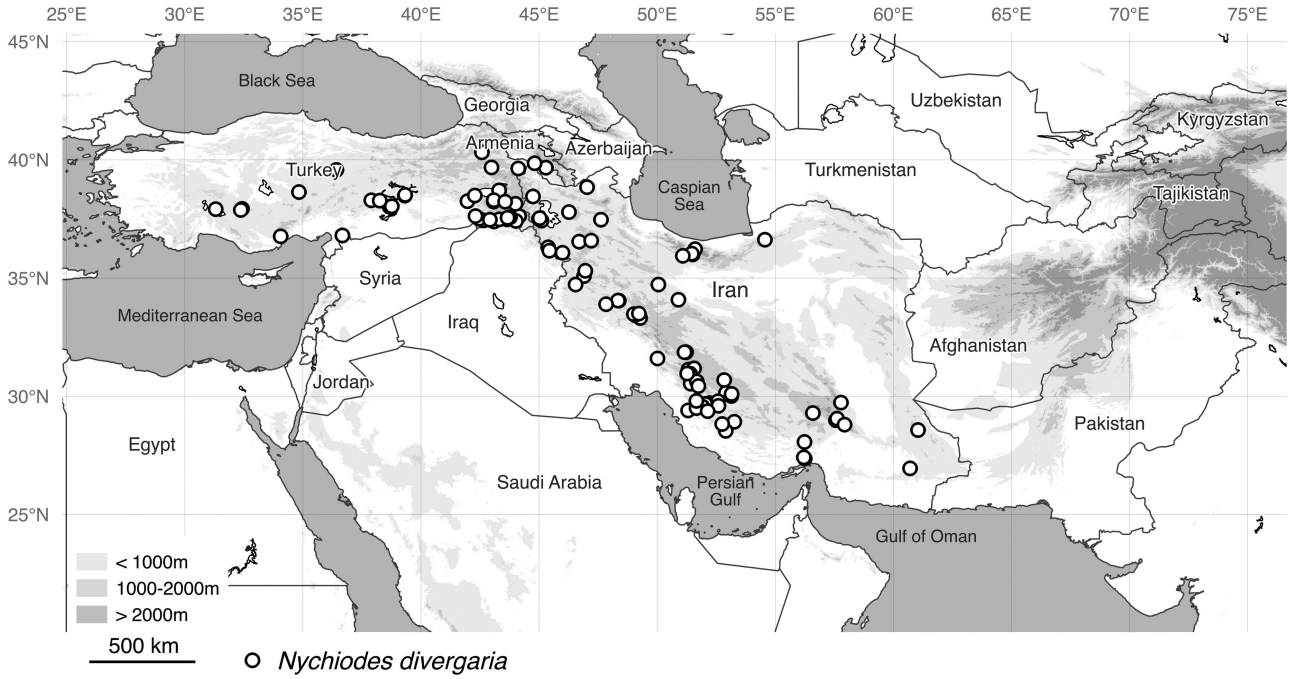
Nychiodes variabilis. Incorrect subsequent spelling of *Nychiodes variabila* **syn. nov.** of *Nychiodes divergaria* in Wiltshire, 1943. Journal of the Bombay Natural History Society, Bombay, 43, 630.

Nychiodes variabilis. Incorrect subsequent spelling of *Nychiodes variabila* **syn. nov.** of *Nychiodes divergaria* in Wiltshire, 1957. The Lepidoptera of Iraq. Government of Iraq (Ministry of Agriculture), 111.

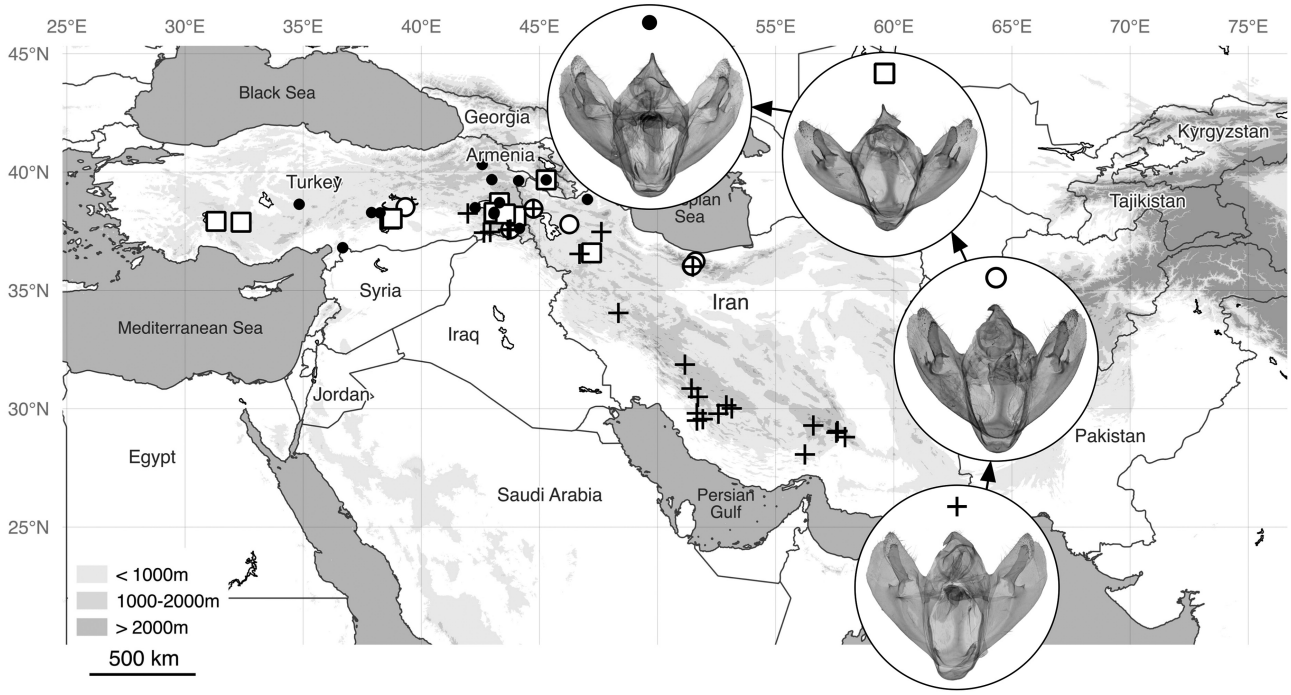
Type material examined. *Nychiodes divergaria*, Lectotype (herewith designated), ♂, Origin, [Turkey], Mardin, g.prep. 2106/2017 H. Rajaei; Paralectotype (herewith designated), 1 ♂, Origin, [Turkey], Egin, g.prep. 2107/2017 H. Rajaei; all in MNHU.

Nychiodes divergaria achtyca. Syntype, 1 ♂, Dagestan, Ackty, 28.vii.[19]33, M. Rjabov, g.prep. 7272; in ZFMK.

Nychiodes divergaria elbursica Holotype, ♂, Persia, Elbursgebirge, Rehne-Demavend, 2600 m, 21.-27.vii.[19]36, Schwingenschuss; in ZFMK.



MAP 4. Distribution pattern of *N. divergaria.* This species is widely distributed from Turkey to south-eastern Iran.



MAP 5. Distribution pattern of male *N. divergaria* specimens indicating on a cline in the Middle East. The ampulla inferior is highly variable from absent to present in this species. An increase in the development of this structure is visible from Southern Iran to Turkey.

Nychiodes divergaria fallax Holotype, ♂, Transcaucasus, Arax, Darasham, v. 1934, M. Rjabov g.prep. 7273; in ZFMK.

Nychiodes variabila Holotype, ♂, Iran, Fars, Straße Chiraz-Kazeroun, Fort Sine-Sefid, ca. 2200 m, 25.v.1937, coll. Brandt, g.prep. 10930; Paratypes, 1 ♀, same locality, ca. 2000 m, 8.-7.v.1937, coll. Brandt, (labeled as Allotype), g.prep. 10931; all in NHRS. 1 ♂, same locality, ca. 2200 m, Sept.1937, coll. Brandt; 1 ♀, same locality, 28.v.1937, coll. Brandt; 1 ♂, same locality, Mai.1937, coll. Brandt; 1 ♂, 1 ♀, same locality, 10.v.1937, coll. Brandt; all in ZFMK.

Nychiodes variabila opulenta Holotype ♂, Iran, Baloutchistan, Kouh i Taftan (Khach), 2500 m, 26.iv.1938, coll. Brandt, g.prep. 10928; Paratypes, 1 ♂, Iran, Baloutchistan, Kouh i Taftan (Khach), 2500 m, 3.v.1938, coll. Brandt, (labeled as Allotype) g.prep. 10929; NHRS. 1 ♂, same locality, 3000 m, 20.vi.1938, coll. Brandt; Paratype 1 ♂, same locality, 2500 m, 17.vi.1938, coll. Brandt; all in ZFMK.

Additional material studied: 232 ♂, 84 ♀ (see appendix).

Note. *Nychiodes divergaria* is the most variable species within this genus, in sense of wing pattern and male genitalia (see figs 52–72). This extreme variability caused the description of several species and subspecies, which are regarded as synonymous taxa based on the extensive morphological and molecular examinations in the current study. In male genitalia, the most variable structure is the ampulla inferior of the valva. Examination of 180 genitalia slides and plotting these on a geographic map reveals a clinous charater distribution of the size of the ampulla inferior, starting from southern Iran (without ampulla inferior) to south-western Turkey (with well-developed ampulla inferior) (see map 5). The female genitalia show stable diagnostic characters with little variation between populations. Another reliable differential character is the costa of valva in the male genitalia. Therefore, we strongly recommend dissection for secure species identification of *N. divergaria*.

Diagnosis. Wingspan ♂ 25–40 mm, ♀ 29–44 mm (forewing length ♂ 15–22 mm, ♀ 17–25 mm) (figs 52–72). Ground colour of wings highly variable, differing from sandy yellow and light brown to dark, almost black specimens. *N. divergaria* can be confused with most sympatric congeners (*N. farinosa*, *N. rayatica*, *N. subfusca*, *N. leviata*, *N. subvirida*, *N. eberti* **sp. nov.**). Diagnostic characters of male and female genitalia in comparison to the above mentioned sympatric species are presented below.

Male genitalia (figs 113–119) with costa of valva wide, strongly sclerotized, reaching the apex of valva (in rare cases exceeding apex, figs 119J–P) (costa of valva exceeding tip of valva, slightly curved in *N. farinosa*; apically extremely dilated, exceeding tip of valva in *N. rayatica*; curved towards uncus in *N. subfusca*; curved in *N. leviata*; medially humped in *N. subvirida*; costa of valva narrow, digitiform in *N. eberti* **sp. nov.**) (see figs 98, 105, 106, 108, 110, 111, 119, 120, 122). Ampulla superior long, broad, usually tubular; ampulla inferior highly variable, from absent state to thin and long in size, if present always much narrower than ampulla superior (see fig 119) (ampulla superior apically dilated, ampulla inferior slightly curved in *N. farinosa*; ampulla superior conical, broad, ampulla inferior strongly curved in *N. rayatica*; ampulla superior narrow, apically dilated, ampulla inferior short and broad in *N. subfusca*; ampulla superior broader than ampulla inferior, both with similar length and curved in *N. leviata*; both ampullae slightly conical in *N. subvirida*; both ampullae digitiform, characteristically located in the distal half of valva in *N. eberti* **sp. nov.**) (see figs 98, 105, 106, 108, 110, 111, 119, 120, 122).

Female genitalia *N. divergaria* with strongly reduced apophyses anteriores, and two strongly sclerotized spherical patches on sternite A9 which cannot be confused with any other species of the *amygdalaria* species-group (see figs 141, 142).

Phenology. Three generations (as mentioned also by Wiltshire 1957), flying from March to November.

Biology. In Iraq feeding observations on trees and shrubs of Rosaceae (*Prunus*, *Amygdalus* and cultivated apricot) (Wiltshire 1957).

Habitat. Occurring in the woodland zone of the mountains and in apricot orchards in lower plains; in the Zagros range inhabiting scrub woods (Wiltshire 1957). In altitudes from 400 up to 3000 m.

Distribution. Anatolian-Iranian, from southern Turkey, southern Armenia, to western, northern and south-eastern Iran (maps 4, 5).

DNA barcoding. Clustering with *N. subvirida* in a '*divergaria-subvirida*-complex', but showing diagnostic morphological characters, supporting the taxonomic validity of both taxa at species rank. Nearest species (minimum pairwise distances): *N. eberti* **sp. nov.** (3.1%) (fig. 145).

Nychiodes eberti sp. nov. Wanke, Hausmann & Rajaei

(figs 73–83, 120–122; map 3)

Type material examined. Holotype, ♂, Türkei, Prov. Erzurum, Kopdagi Pass, vic. Ascale, 2200 m, 27.-31.vii.1978, Lichtf., leg. W. Thomas, g.prep. 0267/2019 D. Wanke; in SMNS. Paratypes, 1 ♂, 1 ♀, NE Türkei, Prov. Erzurum, Dogu Karadeniz Daglari, Korga Dagi, Köprüköy, Umg. bei Ispir, 2000 m, w. 28.vii.2001, e.o. 3.xi.2001, leg. J. Gelbrecht, S. Beshkov, R. Busse, A. Kazanci & E. Schwabe, g.preps (♂) 0456/2019 D. Wanke, (♀) 0457/2019

D. Wanke; 1 ♂, NE Türkei, Dogu Karadeniz Daglari, Ovit Dagi, ca. 5 km südl. Ovit Dagi Gecidi, 2400-2500 m, 27.vii.2001, leg. J. Gelbrecht, S. Beshkov, R. Busse, A. Kazanci & E. Schwabe, g.prep. 0241/2019 D. Wanke; all in PCJG. 1 ♂, Turkey, St. 2108, Nigde, Bolkardaglari N Side, SW Maden, 1600 m, 3.viii.1995, leg. D.v.d. Poorten, W. De Prins, g.prep. 0341/2019 D. Wanke; 1 ♀, Turkiye, Konya, 38 km W Konya, 1550 m, 8.-9.vii.[19]88, leg. S. Wagener, g.prep. 0443/2019 D. Wanke; 1 ♂, 1 ♀, Turkey, Erzincan, Caglayan, 4 km S. Kalecik, 1600 m, 13.-15.vii.2000, leg. K. Larsen, g.prep. (♂) 0339/2019 D. Wanke, (♀) 0444/2019 D. Wanke; 2 ♂, Turkey, Konya, Toros Daglari, Adiller Taskent, 1700 m, 14.vii.1986, leg. Arne Moberg, g.prep. 0343/2019 D. Wanke; 1 ♂, Turkey, Ankara, 1150-1250 m, 10 km NW Kizilcahaman, 6.-7.viii.1989, leg. Fibiger, Esser; 1 ♂, Turkiye, St. 1711, Artvin, 8-10 km SW Yusufeli Coruh valley, 900-1000 m, 4.-9.vii.1991, leg. W. De Prins, D.v.d. Poorten, A. Riemis, g.prep. 0344/2019 D. Wanke; 3 ♂, Turkey, Nigde, Bolkar Daglari, N.s. Maden, 2100 m, 29.vii.1997, K. Larsen, g.prep. 0342/2019 D. Wanke; 1 ♂, Turkey, Sivas, Gökpinar, 10 km S Gürün, 1500 m, 1.viii.1997, leg. K. Larsen, g.prep. 0340/2019 D. Wanke; 1 ♂, Turkey, Sivas, Gökpinar, 12 km S Gürün, 1500 m, 25.vii.1998, leg. K. Larsen; 1 ♀, Turkey, Sivas, Gökpinar, 10 km S Gürün, 1500 m, 11.vii.2000, leg. K. Larsen, g.prep. 0445/2019 D. Wanke; 1 ♀, [Turkey], Maras, Binboga Daglari, Göksun Yalakköy, 1600 m, 17.vii.1986, leg. A. Moberg, g.prep. 0451/2019 D. Wanke; all in PCPS. 2 ♂, Türkei centr., Provinz Sivas, Gökpinar, 1,5 km westlich, N 38°39‘21“, O 37°17‘19“, 1600 m ü.NN, 02.vii.2008, LF, leg. Ralf & Sylvana Fiebig, g.prep. 2134/2017 H. Rajaei; 1 ♂, 1 ♀, Türkei centr., Provinz Nevsehir, Kappadokien, Göreme, N 38°39‘, O 34°50’, 1080-1150 m ü.NN, 08.-11.vii.2011, LF, leg. R. Fiebig & S. Rothe, g.preps. (♂) 0398/2019 D. Wanke (♀) 0399/2019 D. Wanke; 1 ♂, Türkei centr., Prov. Nevsehir, Kappadokien, Aktepe 1 km SSO, N 38°40‘43“, O 34°52‘25“, 1070 m ü.NN, 26.-27.viii.2009 LF, leg. R. & S. Fiebig, g.prep. 0400/2019 D. Wanke; 1 ♂, Türkei centr, Provinz Nigde, Aladag West, 5 km SSO von Sulucaova, N 37°58‘13“, O 35°09‘58“, 2200-2500m ü.NN, 16.viii.2009, LF, leg. R. Fiebig & S. Rothe, g.prep. 0396/2019 D. Wanke; all in PCRF. 2 ♂, Türkei, Kopdagi, 4.viii.1978, 2100m, leg. Dittrich, Austria; in PCTM. 2 ♀, Türkei, Prov. Erzurum, Kopdagi Pass, vic. Ascale, 2200 m, 27.-31.vii.1978, Lichtf., leg. W. Thomas, g.preps 0263, 0435/2019 D. Wanke; 1 ♂, [Turkey], Kleinasien, Prov. Erzurum, 40 km NW Erzurum, vic. Egerti, 1850-2000 m, 30.vii.-01.viii.[19]80, g.prep. 0066/2018 D. Wanke; 5 ♂, [Turkey], Kleinasien, Prov. Kars, vic. Karakurt, Aras-Tal, 1500 m, 15.-16.vii.1978, leg. de Freina, g.preps 0076, 0077/2018 D. Wanke, 0260/2019 D. Wanke; 5 ♂, 1 ♀, [Turkey], Kleinasien, Prov. Kars, vic. Kagizman, Kötek, 1550 m, 29.-31.vii.[19]78, leg. de Freina, g.preps (♂) 0078, 0080/2018 D. Wanke, 0261, 0262, 0264/2019 D. Wanke, (♀) 0266/2019 D. Wanke; 2 ♂, [Turkey], Kleinasien, Prov. Erzurum, Umg. Ovacik, Camlika, 2100 m, 01.-02.viii.1980, leg. de Freina, g.prep. 0086/2018 D. Wanke; 1 ♂, [Turkey], Kleinasien, Prov. Kars, vic. Sarikamis, 2000-2300 m, 21-27.vii.[19]80, leg. de Freina, 0079/2018 D. Wanke; 1 ♀, Türkei, Anatolien, 25 km, südl. Sivas, 1500 m, 24.+25.vii.1978, leg. W. Thomas, g.prep. 0432/2019 D. Wanke; 2 ♀, [Turkey], Kleinasien, Prov. Artvin, 5 km SE Sarigöl, 750 m, 31.vii.-09.viii.[19]83, leg. de Freina, g.prep. 2090/2017 H. Rajaei, 0436/2019 D. Wanke; all in SMNS. 6 ♂, [Turkey], Anatolien, Ankara, 1000 m, vi.1934, leg. Herbert Noack, g.preps 0161, 0162/2018 D. Wanke, 0282, 0283, 0284/2019 D. Wanke; 1 ♀, Türk., Ostkurdistan, Van Gölü, ca. 1800 m, 1.-31.Vii.1965, leg. Herbert Noack, g.prep. (♀) 0292/2019 D. Wanke; all in SMNK. 1 ♂, Türkei, vii.[19]95, leg. Gelbrecht, g.prep. 0464/2019, D. Wanke; in ZSM.

Description. Wingspan ♂ 29–40 mm, ♀ 35–42 mm (forewing length ♂ 18–22 mm, ♀ 19–24 mm) (figs 73–83). Antennae bipectinate in both sexes. Frons flat, projecting about one quarter diameter of eye, smoothly scaled. Chaetosemata present as two small patches. Length of labial palpi about 1.0 times diameter of the eye, slightly exceeding frons. Proboscis absent. Ground colour of wings highly variable, varying from sandy grey-yellow and light brown to dark brown. Transverse lines faint or visible. Terminal line from light to dark brown, sometimes faint. Postmedial line of forewing, if present, curved between M1 and M2; antemedial line, if visible, curved outwards. Postmedial line of hindwing absent or slightly visible. Antemedial line often faint or slightly visible as a shadow. Underside of wings variable, from unicolorous to vaguely showing the pattern of the upper side. Discal spots present only on underside.

In male genitalia (figs 120–122) uncus tapered and curved, basally broad (fig. 121). Gnathos well developed, strongly sclerotized, medially tongue-shaped. Saccus wide. Costa of valva narrow, strongly sclerotized, apically spinose, digitiform and slightly exceeding apex of valva. Both ampullae located in the distal half of valva, apically spinose; ampulla superior long, basally wide, medially narower; ampulla inferior well developed, of similar length like ampulla superior and narrower than the latter. Juxta anchor-shaped, stalk broad. Aedeagus broad (width-length ratio, 1:9), medially curved; cornutus half length of aedeagus.

In female genitalia ovipositor broad, Apophyses anteriores one fifth length of apophyses posteriores (fig. 143).

Sternite A9 conical. Lamella postvaginalis antero-posteriorly extended. Ductus bursae sclerotized. Corpus bursae membranous, pear-shaped, signum stellate.

Note. *Nychiodes eberti* **sp. nov.** is highly variable in wing pattern, similar to the large variability in *N. divergaria* (see figs 52–83). Therefore, wing pattern and coloration are absolutely unreliable characters for a secure diagnosis of these two species and examination of male and female genitalia is mandatory.

Diagnosis. In the distribution range of *N. eberti* **sp. nov.** the sympatrically occurring *N. rayatica* and *N. divergaria* can be confused when comparing wing pattern only (see figs 41, 42, 52–83). Furthermore, the wing pattern and coloration of *N. eberti* **sp. nov.** overlaps with that of *N. convergata* **sp. nov.**, which is so far only known from Israel (figs 84, 85).

Male genitalia of *N. eberti* **sp. nov.** with costa of valva characteristically narrow, digitiform at apex, slightly exceeding apex of valva (costa of valva apically very large and broad, clearly exceeding apex of valva in *N. rayatica*; costa of valva wide, not exceeding apex of valva in *N. divergaria*; costa of valva basally narrow, apically widely clubbed, clearly exceeding apex of valva in *N. convergata* **sp. nov.**) (see figs 105, 113–123). In *N. eberti* **sp. nov.** ampulla superior twice as broad as ampulla inferior, both ampullae not curved, located in the distal half of valva (ampulla superior conical, ampulla inferior strongly curved, both ampullae located at the centre of valva in *N. rayatica*; ampulla superior very long and broad, ampulla inferior highly variable, both ampullae located at the centre of valva in *N. divergaria*; ampulla superior digitiform, three times as broad as ampulla inferior, both ampullae located at the centre of valva in *N. convergata* **sp. nov.**) (see figs 105, 113–123). In *N. eberti* **sp. nov.** aedeagus thick and slightly curved, cornutus-aedeagus ratio 1/2 (aedeagus very small and short, cornutus-aedeagus ratio 1/2 in *N. rayatica*; aedeagus thick and strongly curved, cornutus-aedeagus ratio 2/3 in *N. divergaria*; aedeagus narrow and long; cornutus-aedeagus ratio 1/3 in *N. convergata* **sp. nov.**) (see figs 105b, 113b–118b, 123b). Female genitalia of *N. eberti* **sp. nov.** with apophyses anteriores one fifth length of apophyses posteriores (strongly reduced apophyses anteriores, two strongly sclerotized spherical patches on sternite A9 in *N. divergaria*; female of *N. rayatica* and *N. convergata* **sp. nov.** unknown) (see figs 141–143).

Phenology. Flying from May to August.

Biology. Unknown.

Habitat. In altitudes from 50 up to 2500m.

Distribution. Distributed in Turkey (map 3).

DNA barcoding. Diverging by 3.1% (minimum pairwise distance) from the *N. divergaria-subvirida* complex. Nearest species (minimum pairwise distances): *N. mirzayansi* sp. nov. (3.1%) and *N. convergata* sp. nov. (3.4%) (fig. 145).

Etymology. The name of this species is dedicated to Günter Ebert (born in 1935), former curator of the Lepidoptera collection in Karlsruhe State Museum of Natural History and editor in chief of the masterpiece "Die Schmetterlinge Baden-Württenbergs" in 10 volumes. During his many expeditions in Iran and Afghanistan, Günter Ebert collected the most important reference collection for these countries, deposited in SMNK (and parts in ZSM). All *Nychiodes* specimens, which were collected by Ebert are examined in this paper.

Nychiodes convergata sp. nov. Hausmann, Wanke & Rajaei

(figs 84, 85, 123, 124; map 1)

Material examined. Holotype, ♂, N. Israel, Mt. Hermon, Upper Cable Station, 2200 m, 8.-10.vi.2000, leg. Müller, g.prep. 0463/2019 D. Wanke; in ZSM.

Paratypes, 1 ♂, N. Israel, Mt. Hermon, Upper Cable Station, 2200 m, 8.-10.vi.2000, leg. Müller; 1 ♂, N. Israel, South Golan, 500 m, v.2003, leg. Müller & Kravchenko, g.prep. ZSM G 13237; both in ZSM. 1 ♂, N. Israel, Mt. Hermon, Upper Cable Station, 2200 m, 8.-10.vi.2000, leg. Müller, g.prep. 0243/2019 D. Wanke; in SMNS.

Description. Wingspan ♂ 37 mm, (forewing length ♂ 17–20 mm) (figs 84, 85). Antennae bipectinate in males (female unknown). Frons rather flat, projecting about one quarter diameter of eye, smoothly scaled. Chaetosemata present as two small patches. Labial palpi about the size of eye diameter. Proboscis absent. Ground colour of wings brown, intermixed with dark brown scales, basal and medial areas slightly darker. On both wings antemedial line faint; postmedial line dark brown; postmedial line on forewing slightly angled outwards between M1-M2. Underside of wings unicolorous, light to dark brown, postmedial line partially visible. Terminal line dark brown. Discal spot black, more prominent on hindwing.

In male genitalia (figs 123, 124) uncus long, basally broad, medially curved, apically pointed. Gnathos strongly sclerotized, tongue-shaped. Saccus wide,anteriorly flat. Costa of valva strongly sclerotized, straight, apically broad and spinose, exceeding apex of valva. Ampulla superior broad, slightly curved, apically spinose; ampulla inferior narrow, half length of ampulla superior. Juxta anchor-shaped, stalk very thin, apical part extended. Aedeagus long and narrow (width-length ratio 1:11), cornutus one third length of aedeagus.

Female genitalia. Unknown.

Diagnosis. The type locality of the new species is in Israel, where only *N. amygdalaria* is (co-)distributed, but due to their wing pattern and colour these species cannot be confused. The wing pattern and coloration of *N. convergata* **sp. nov.** overlaps with that of *N. divergaria* and *N. eberti* **sp. nov.** (figs 52–85). Although the last two species are not yet reported from Israel, here we present a differential diagnosis for their male genitalia: In *N. convergata* **sp. nov.** costa of valva basally narrow, apically clubbed, exceeding apex of valva (costa of valva basally and apically narrow, digitiform, reaching slightly over apex of valva in *N. eberti* **sp. nov.**; costa of valva basally and apically wide, reaching apex of valva in *N. divergaria*) (see figs 113–123). *N. convergata* **sp. nov.** with ampulla superior digitiform, twice as broad as ampulla inferior, both ampullae located at the centre of valva (ampulla superior twice as broad as ampulla inferior, both ampullae located in the distal half of valva in *N. eberti* **sp. nov.**; ampulla superior very long and broad, ampulla inferior highly variable, both ampullae located at the centre of valva in *N. divergaria*) (see figs 113–123). *N. convergata* **sp. nov.** with long and narrow aedeagus; cornutus-aedeagus ratio 1/3 (aedeagus thick and strongly curved, cornutus-aedeagus ratio 2/3 in *N. divergaria*; aedeagus thick and slightly curved, cornutus-aedeagus ratio 1/2 in *N. eberti* **sp. nov.**) (see figs 113–123).

Phenology. Univoltine late spring species. From May to early June.

Biology. Unknown.

Habitat. Montane. Dry rocky or stony slopes with scattered steppe vegetation. From 500 up to 2200 m (Mt. Hermon, upper cable station).

Distribution. So far only collected on Mt. Hermon and on Golan heights (map 1). The unclear record of '*Nychiodes* (?) *divergaria*' in Wehrli (1934) for 'Haifa', may belong here, too, but the occurrence in the Carmel requires further confirmation.

DNA barcoding. Genetically homogeneous in the Levant (n=2 from Israel). Nearest species (minimum pairwise distances): *N. eberti* **sp. nov.** (3.3%) (fig. 145).

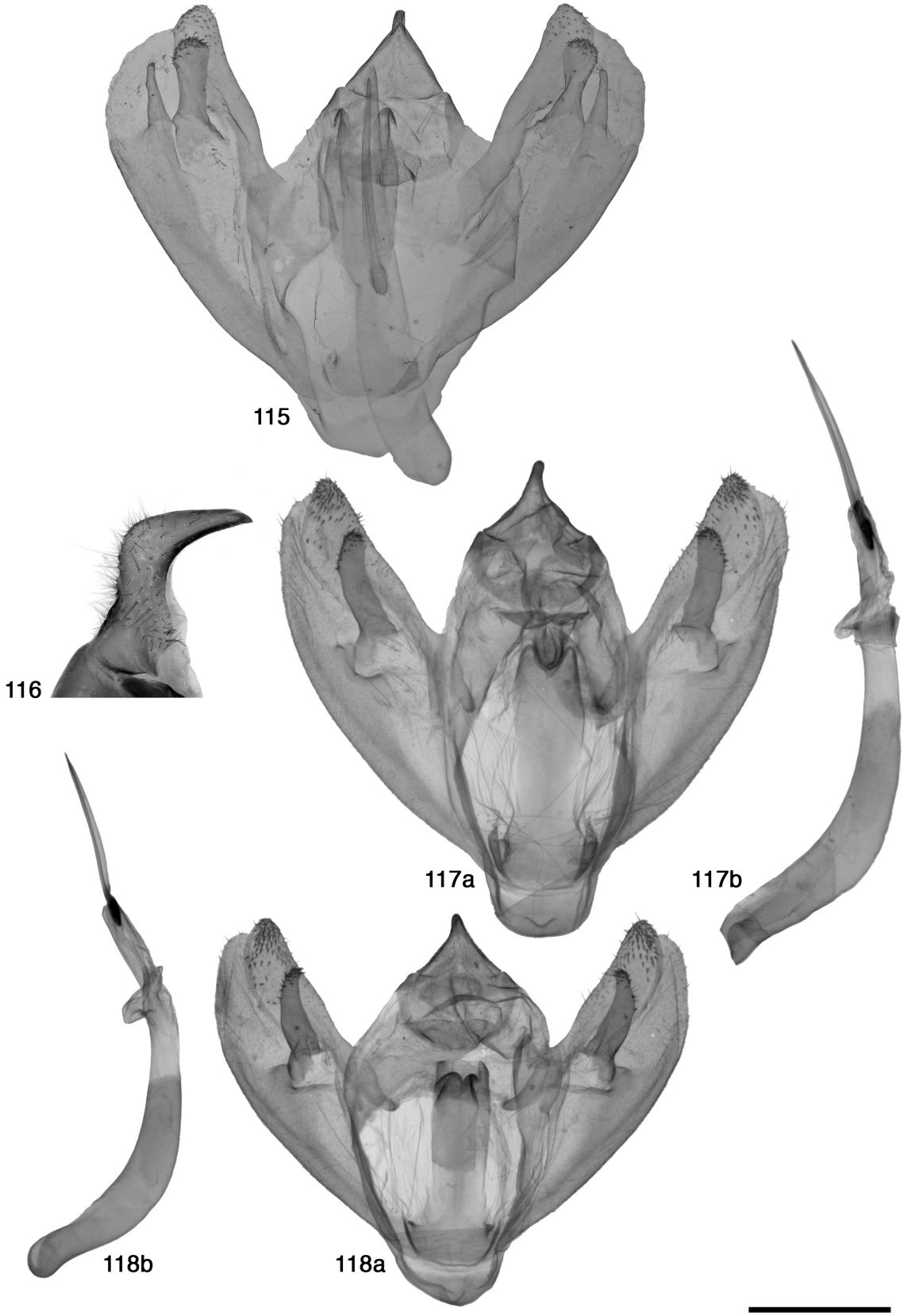
Etymology. The name alludes to the species name of its sister species *N. divergaria*, and to the latin verb convergere = to agree with.

Nychiodes mirzayansi sp. nov. Wanke, Hausmann & Rajaei

(figs 86, 87, 125, 126, 144; map 2)

Material examined. Holotype, ♂, Iran, Kerman, Jiroft NW, Gardaneh, Sarbishan, Shingara vic., 2700-2900 m, 3./4.vi.2002, leg. J.-U. Meineke, A. Hofmann, A. Kallies *et al.*; in SMNK.

Paratypes, 5 ♂, same as before, g.preps 0314, 0315, 0320/2019 D. Wanke; 1 ♀, Iran, Kerman, Bam SW, Deh Bakri, 2000-2200 m, 18.-21.v.2004, leg. A. Hofmann, J.-U. Meineke, G. Tremewan, g.prep. 0420/2019 D. Wanke; 1 ♀, Iran, Prov. Kerman, Baft N, Kherin N, 2600-2700 m, 12.vi.1998, leg. A. Hofmann, J.-U. Meineke, B. Mollet, g.prep. 0316/2019 D. Wanke; 1 ♀, [Iran, Kerman prov.], Djebal-Barez, Abtorsch, 12.vi.1971, leg. Neim.[i], Hasch.[emi], g.prep. 0186/2018 D. Wanke; 1 ♂, same data, 12.vi.1971; all in SMNK. 1 ♂, Iran, Kerman, Jiroft NW, Gardaneh, Sarbishan, Shingara vic., 2700-2900 m, 3./4.vi.2002, leg. J.-U. Meineke, A. Hofmann, A. Kallies *et al.*; in HMIM (Hayk Mirzayans Insect Museum, Tehran). 3 ♂, Iran, Kerman, Jiroft NW, Gardaneh, Sarbishan, Shingara vic., 2700-2900 m, 3./4.vi.2002, leg. J.-U. Meineke, A. Hofmann, A. Kallies *et al.*; 1 ♀, Iran, Kerman, Bam SW, Deh Bakri, 2000-2200 m, 18.-21.v.2004, leg. A. Hofmann, J.-U. Meineke, G. Tremewan, g.prep. 2252/2019 H. Rajaei; all in PCJG. 1 ♂, Iran, Kerman, Jiroft NW, Gardaneh, Sarbishan, Shingara vic., 2700-2900 m, 3./4.vi.2002, leg. J.-U. Meineke, A. Hofmann, A. Kallies *et al.*; in PCPS. 2 ♂, Iran, Kerman, Jiroft NW, Gardaneh, Sarbishan, Shingara vic., 2700–2900 m, 3./4.vi.2002, leg. J.-U. Meineke, A. Hofmann, A. Kallies *et al.*, g.preps 0222, 0419/2019 D. Wanke; 1 ♀, Iran, prov. Kerman, 5 km to Dehbakri from Bam, near Kuh-e Shir, N 29°04'01'' E057°28'03'', Alt. 1940 m, 18.–19.v.2009, *Amygdalus* community, leg. Hossein Rajaei, g.prep 0304/2019 D. Wanke; all in SMNS. 1 ♂, Iran, Kerman, Jiroft NW, Gardaneh, Sarbishan, Shingara vic., 2700–2900 m, 3./4.vi.2002, leg. J.-U. Meineke, A. Hofmann, A. Kallies *et al.*; in ZSM.



FIGURES 115-118. Male genitalia of *Nychiodes* species. 115: Syntype of *N. divergaria achtyca* **syn. nov.** of *N. divergaria* (Dagestan, Ackty, g.prep. 7272); 116: Uncus, lateral view, *N. divergaria* (Turkey, Hakkari, g.prep. 0395/2019 D. Wanke); 117: Lectotype (herewith designated) of *N. divergaria* (Turkey, Mardin, g.prep. 2106/2017 H. Rajaei); 118: Paralectotype (herewith designated) of *N. divergaria* (Turkey, Egin, g.prep. 2107/2017 H. Rajaei); a = genitalia capsule; b = aedeagus. Scale-bar 1 mm.

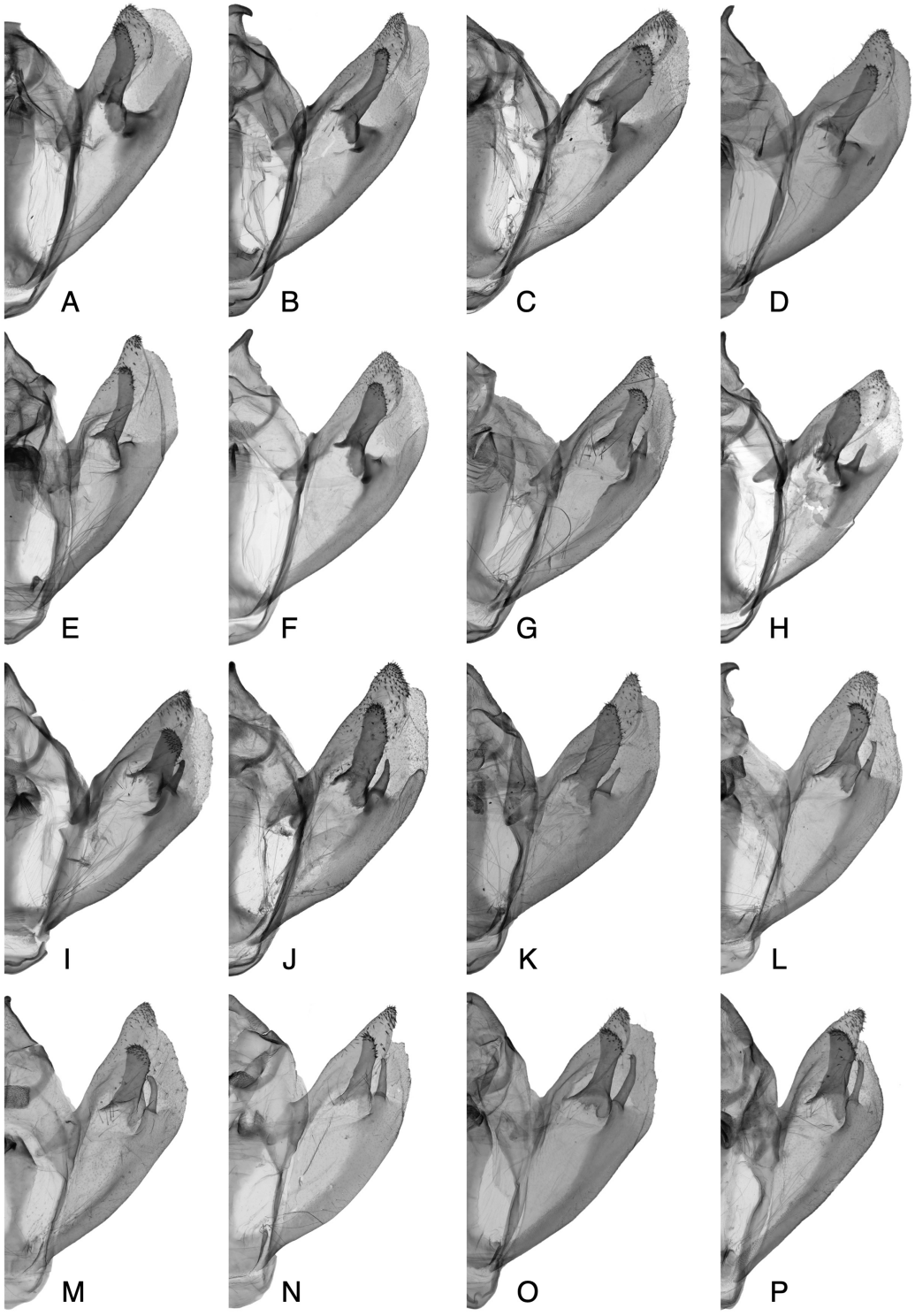
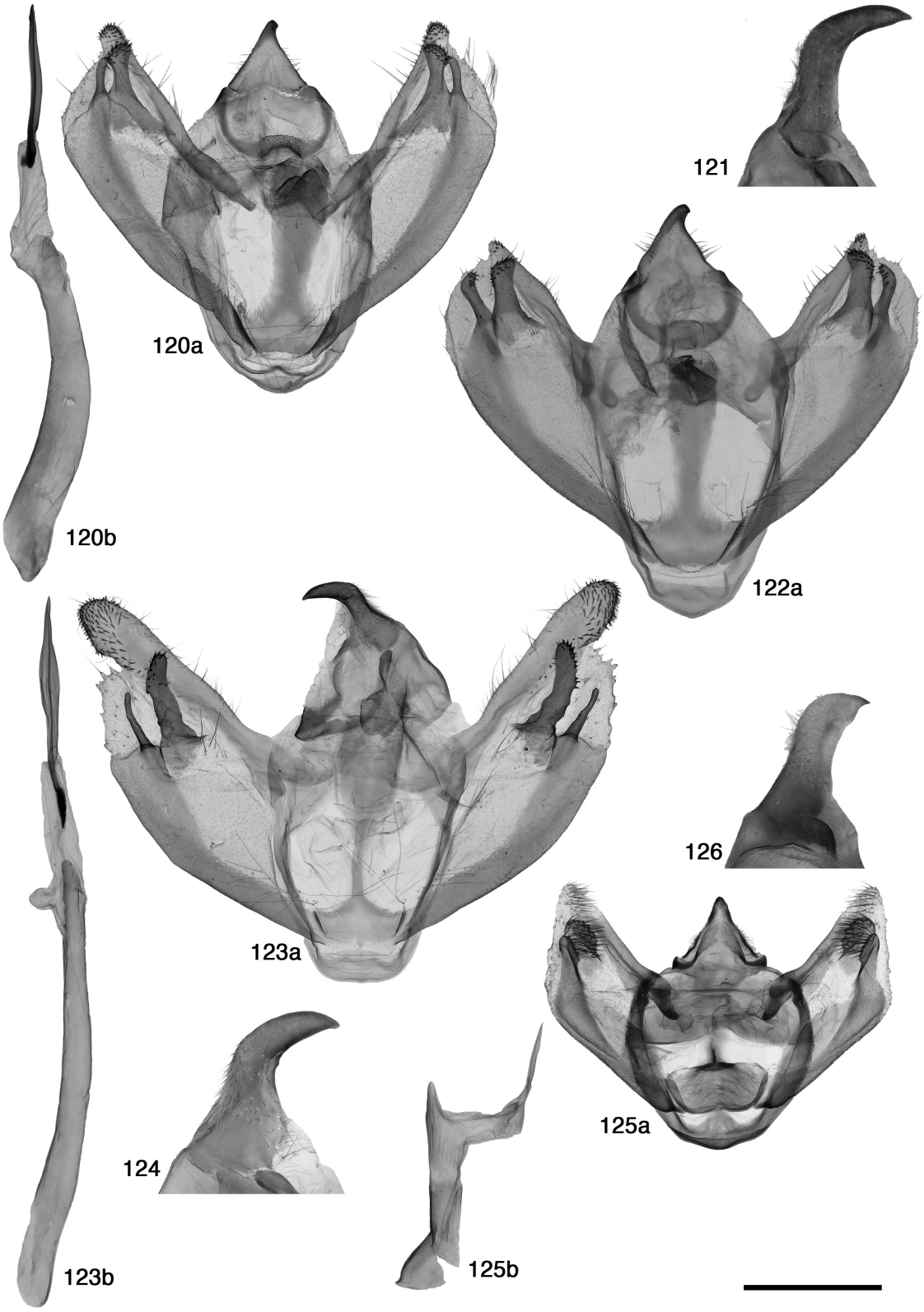


FIGURE 119. Variations in the genitalia capsule of *N. divergaria*. Differences occur in the shape of the costa of the valva, the shape of the ampulla superior and the presence versus absence of the ampulla inferior. Genitalia capsules sorted from no ampulla inferior (A) to a fully developed one (P). A: Iran, Kermanschah, g.prep. 0189/2018 D. Wanke; B: Iran, Rezaiyeh, g.prep. 0201/2018 D. Wanke; C: Iran, Azerbaijan, g.prep. 0204/2018 D. Wanke; D: g.prep. 0064/2018 D. Wanke; E: Iran, Azerbaijan-e Gharbi, g.prep. 0131/2018 D. Wanke; F: Iran, Miyan Kotal, g.prep. 0177/2018 D. Wanke; G: Turkey, Van, g.prep. 0258/2019 D. Wanke; H: Iran, prov. Kerman, g.prep. 0170/2018 D. Wanke; I: Turkey, Van, g.prep. 0257/2019 D. Wanke; J: Iran, Kendevan, g.prep. 0256/2019 D. Wanke; K: Iran, Mazandaran, g.prep. 2187/2018 H. Rajaei; L: Armenia, Yeghegnadzor suburbs, g.prep. 0375/2019 D. Wanke; M: Armenia, Yeghegnadzor suburbs, g.prep. 0376/2019 D. Wanke; N: Turkey, Malatya, g.prep. 0452/2019 D. Wanke; O: Turkey, Van, g.prep. 0062/2018 D. Wanke; P: Armenia, Yeghegnadzor suburbs, g.prep. 0374/2019 D. Wanke.



FIGURES 120-126. 120: Paratype of *N. eberti* **sp. nov.** (Turkey, g.prep 0464/2019 D. Wanke); 121: Uncus, lateral view, *N. eberti* **sp. nov.** (Turkey, Sulucaova, g.prep 0396/2019 D. Wanke); 122: Paratype of *N. eberti* **sp. nov.** (Turkey, Kötek, g.prep 0264/2019 D. Wanke); 123: Holotype of *N. convergata* **sp. nov.** (Israel, Mt. Hermon, g.prep. 463/2019 D. Wanke); 124: Uncus, lateral view, *N. convergata* **sp. nov.** (Israel, Mt. Hermon, g.prep. 463/2019 D. Wanke); 125: Paratype of *N. mirzayansi* **sp. nov.** (a: Iran, Kerman, g.prep. 0222/2019 D. Wanke; b: Iran, Kerman, 0315/2019 D. Wanke); 126: Uncus, lateral view, *N. mirzayansi* **sp. nov.** (Iran, Kerman, g.prep. 0419/2019 D. Wanke). a = genitalia capsule; b = aedeagus. Scale-bar 1 mm.

Description. Wingspan ♂ 34–39 mm, ♀ 37–40 mm (forewing length ♂ 17–20 mm, ♀ 19–21 mm) (figs 86, 87). Antennae bipectinate in both male and female. Frons rather flat, projecting about one quarter diameter of eye, smoothly scaled. Chaetosemata present as two small spots. Labial palpi very short, not exceeding frons. Proboscis absent. Ground colour of wings beige, olive-grey intermixed with dark brown scales. Terminal line black, discontinuous at veins, its margin yellow highlighted. Antemedial line of forewing characteristically curved outwards twice. Postmedial line nearly parallel to termen, curved inwards at vein M1. Hindwing slightly lighter than forewing, only postmedial line visible, subcostally curved outwards, at costa curved inwards. Underside of wings lighter than upperside, without clear pattern, only postmedial line on hindwing partially visible. Terminal line uninterrupted. Discal spots present on the hindwings.

Male genitalia (figs 125, 126). Genital capsule small. Uncus broad, slightly constricted at centre, apex bent and tapered. Gnathos well developed, medially tongue-shaped. Saccus broad. Costa of valva sclerotized, narrow, not humped at centre, apically merged with apex of valva, poorly sclerotized. Ampulla superior short, twice as broad as ampulla inferior, spinose over the whole length; length of ampulla inferior similar to that of ampulla superior, apically spinose. Sacculus dilated. Juxta anchor-shaped, stalk very thin and short, basal part large and extremely wide. Aedeagus short, straight, apically tapered; cornutus weakly sclerotized, one third length of aedeagus.

Female genitalia (fig. 144). Generally short in size, with broad ovipositor. Length of apophyses anteriores almost reaching length of apophyses posteriores (diagnostic within the genus *Nychiodes*). Lamella postvaginalis without strong sclerotization and extension. Ductus bursae narrow, posteriorly sclerotized. Corpus bursae small, membranous, signum absent.

Diagnosis. Endemic species in southern Iran with very characteristic wing colour and pattern, confusion with any other *Nychiodes* species excluded (see figs 86, 87).

N. mirzayansi **sp. nov.** is co-distributed with *N. subvirida* and *N. divergaria*. Ground colour and wing pattern of *N. mirzayansi* **sp. nov.** diagnostic, beige or olive grey intermixed with dark brown scales (wing pattern yellow-brown sprinkled, postmedial line yellow in *N. subvirida*; wing pattern highly variable in *N. divergaria*) (see figs 47–72). In male genitalia of *N. mirzayansi* **sp. nov.**, apex of uncus short and tapered in lateral view (apex long and curved in *N. subvirida* and *N. divergaria*) (see figs 112, 116, 126). In *N. mirzayansi* **sp. nov.** costa of valva medially not humped, apically merged with apex of valva (costa of valva medially humped, apex tapered in *N. subvirida*; costa of valva wide, medially not humped, not exceeding apex of valva in *N. divergaria*) (see figs 110, 111, 113–119, 125). Both ampullae of *N. mirzayansi* **sp. nov.** broad, short and strongly spinose; basal part of juxta large and broad (both ampullae straight, slightly spinose; basal part of juxta very thin in *N. subvirida*; ampulla superior long, broad, usually tubular, ampulla inferior highly variable, basal part of juxta not wide in *N. divergaria*) (see figs 110, 111, 113–119, 125).

The female genitalia of *N. mirzayansi* **sp. nov.** cannot be confused with any other *Nychiodes* species, because the apophyses anteriores have (almost) the same length as apophyses posteriores; lamella postvaginalis without strong sclerotization and extension (apophyses anteriores strongly reduced; lamella postvaginalis antero-posteriorly extended in *N. subvirida* and *N. divergaria*) (see figs 138–142, 144).

Phenology. Flying in May, June.

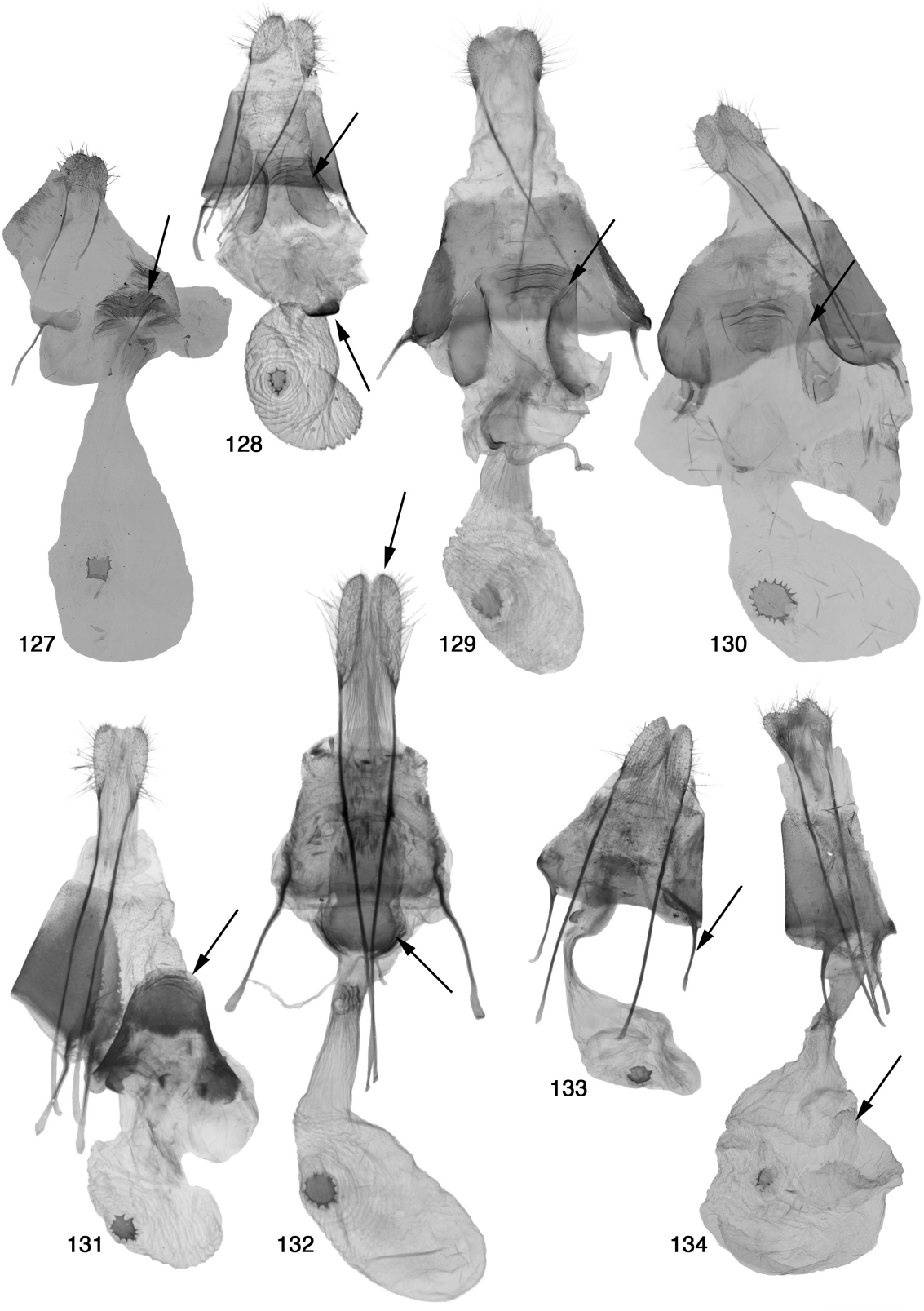
Biology. Unknown.

Habitat. In altitudes from 2000 up to 2900m

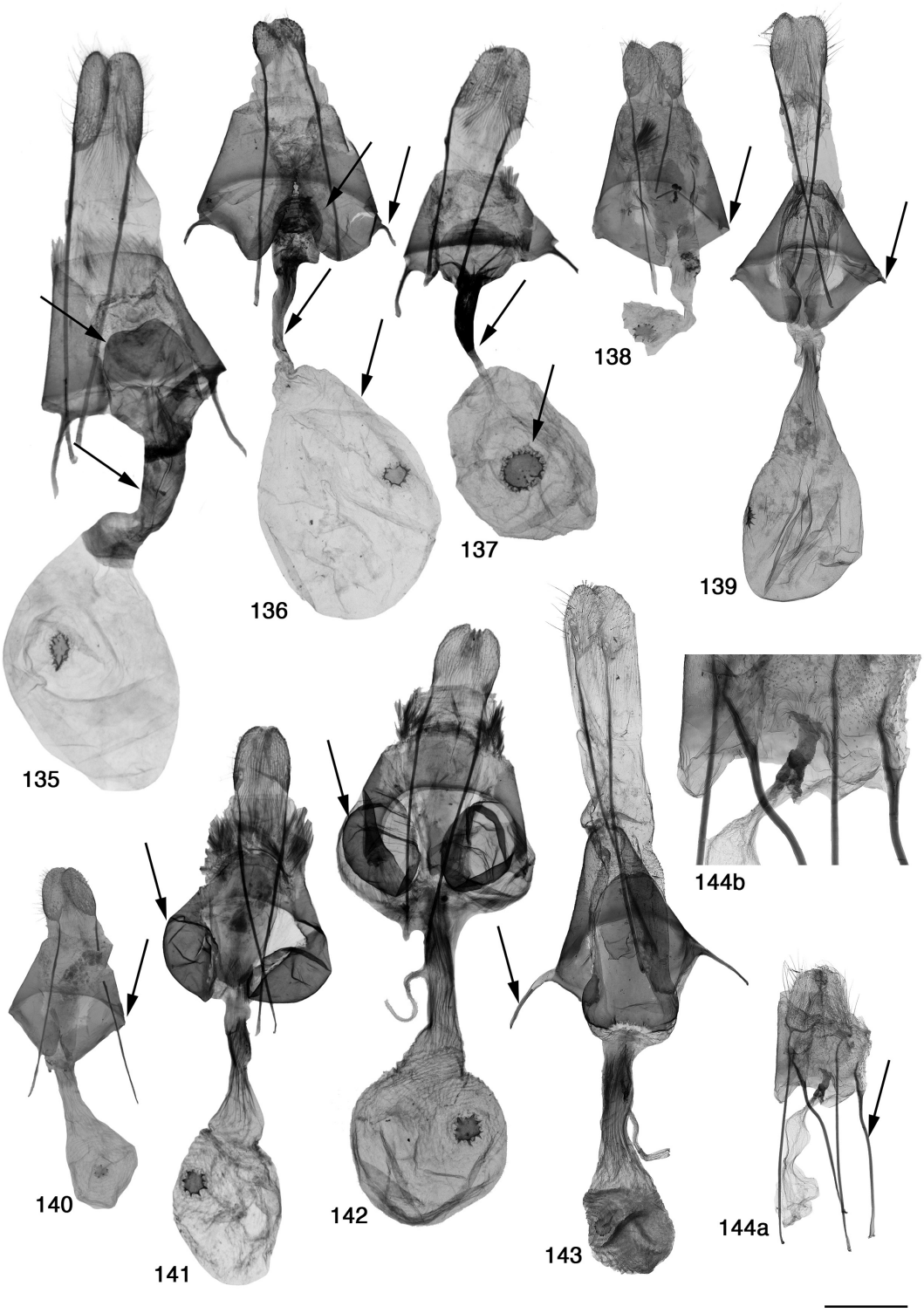
Distribution. Endemic species in Kerman (map 2).

DNA barcoding. Slightly diverging by 1.6% from the '*divergaria*-*subvirida*-complex' (see above), but showing strong morphological differences from both species (fig. 145).

Etymology. The name of this species is dedicated to Hayk Mirzayans (1920–1999), well-known Iranian entomologist, founder of Hayk Mirzayans Insect Museum, (Iranian Research Institute of Plant Protection, Tehran) and founding member of the Entomological Society of Iran. He was a communicative researcher, who was open-minded to cooperate with any enthusiastic entomologist around the world. During his life, he collected intensively in all corners of Iran and extensively improved the quantity and quality of the collection. Hayk Mirzayans was a close friend of Günter Ebert, to whom another new species is dedicated in this paper.



FIGURES 127-134. Female genitalia of *Nychiodes* species. 127: *N. mauretanica* (Algeria, Lambèse, g.prep. G2365); 128: *N. waltheri* (Bulgaria, Sozopol, g.prep. BMB386); 129: Paralectotype (herewith designated) of *N. palaestinensis* (Israel, Jerusalem, g.prep. 0226/2019 D. Wanke); 130: Paratype of *N. muelleri* (Jordan, Shoubak, G6437); 131: *N. aphrodite* (Cyprus, Moniatis, 2108/2017 H. Rajaei); 132: *N. amygdalaria* (Turkey, Artvin, g.prep. 2088/2017 H. Rajaei); 133: *N. farinosa* (Iran, Fars, g.prep. 10925); 134: Lectotype (herewith designated) of *N. antiquaria* (Uzbekistan, Margelan, g.prep. 0227/2019 D. Wanke). Scale-bar 1 mm.



FIGURES 135-144. Female genitalia of *Nychiodes* species. 135: Paratype of *N. admirabila* (Iran, Fars, g.prep. 10921); 136: Paratype of *N. subfusca* (Iran, Fars, g.prep. 10933); 137: Paratype (labeled as Allotype) of *N. leviata* (Iran, Fars, g.prep. 10927); 138: Paratype (labeled as Allotype) of *N. subvirida* (Iran, Fars, g.prep. 10935); 139: *N. subvirida* (Iran, Fars, g.prep. 0169/2018 D. Wanke); 140: Paratype (labeled as Allotype) of *N. agatcha* **syn. nov.** of *N. subvirida* (Iran, Laristan, g.prep. 10923); 141: Paratype (labeled as Allotype) of *N. variabila* **syn. nov.** of *N. divergaria* (Iran, Fars, g.prep. 10931; according to morphological examination this specimen belongs to *N. divergaria*); 142: Paratype (labeled as Allotype) of *N. variabila opulenta* **syn. nov.** of *N. divergaria* (Iran, Baloutchistan, g.prep. 10929), 143: Paratype of *N. eberti* **sp. nov.** (Turkey, Ascale, g.prep. 0263/2019 D. Wanke); 144: Paratype of *N. mirzayansi* **sp. nov.** (Iran, Kerman, a: whole genitalia; b: close up; g.prep. 2252/2019 H. Rajaei). Scale-bar 1 mm.

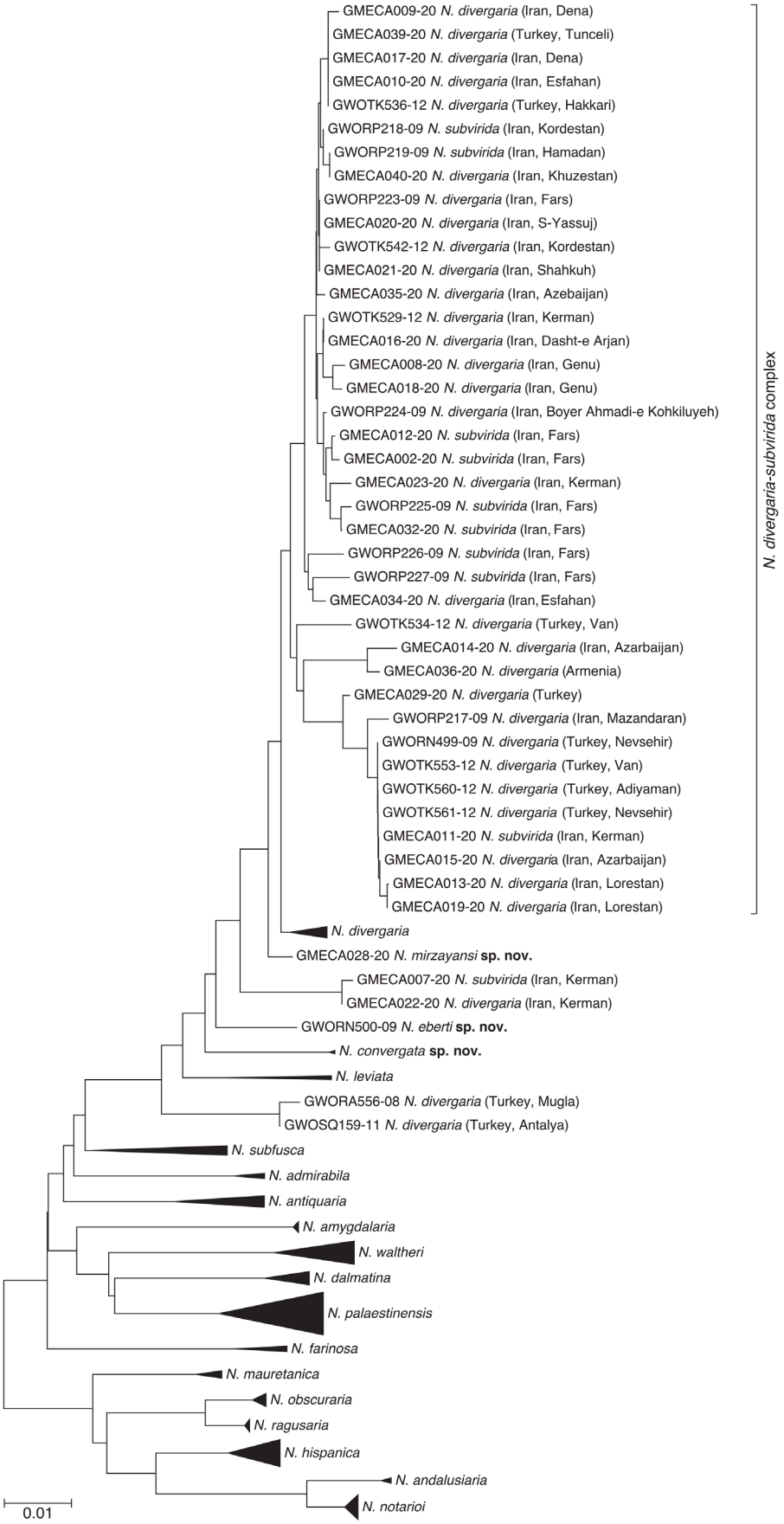


FIGURE 145. Un-rooted neighbour joining tree (Saitou & Nei 1987) based on 20 species of the genus *Nychiodes* (calculated using K2P model: Kimura 1980 with MEGA X (Kumar *et al.* 2018).

Taxonomic remark to the systematic position of *Nychiodes tyttha* Prout, 1915.

Prout (1915) described *Nychiodes tyttha* based on one male and one female specimen from Eritrea (Caraiai) as the only *Nychiodes* species south of North Africa. Thereby Prout mentioned the slightly different venation from *Nychiodes* species and the much smaller size. In fact, even the smallest known *Nychiodes* species are much larger than *N. tyttha*. Furthermore, the strongly differing morphological characters of the genitalia of *N. tyttha* show that this taxon cannot be a *Nychiodes* species, confirmed by the DNA barcode (n=3 from Ethiopia and Eritrea, including the holotype). Herewith, we propose that this species should be excluded from the genus *Nychiodes*, as the genitalia characters of *N. tyttha* could assign it to several other genera in the subfamily Ennominae. We recommend further investigation on this taxon for a convincing classification.

Complete checklist of the species of *Nychiodes* with taxonomic changes in this paper

(Distribution data for European species taken from Müller *et al.* 2019):

***N. obscuraria* (Villers, 1789)** (eastern France, Italy, southern Switzerland, Slovenia, Croatia)
***N. ragusaria* Millière, 1884** (endemic in Sicily and southern Italy)
***N. andalusiaria* Millière, 1865** (endemic in western Iberian Peninsula)
***N. notarioi* Expósito, 2005** (eastern Spain to south-western France)
***N. hispanica* Wehrli, 1929** (southern Spain, Morocco to northern Algeria)
    ***hispanica torrevinagrensis* Expósito, 1984** (valid at subspecific rank)
    ***hispanica atlanticaria* Schwingenschuss, 1936** (valid at subspecific rank)
***N. mauretanica* Wehrli, 1929** (Algeria, Tunisia)
***N. waltheri* Wagner, 1919** (from Bulgaria, Greece, Turkey to northern Iran)
    waltheri saerdabica Wehrli, 1938 **syn. nov.**
    ***waltheri transcaspia* Wehrli, 1938** (valid at subspecific rank)
***N. palaestinensis* Wagner, 1919** (Israel, Palestine, northern Jordan, Lebanon and south- western Syria)
    palaestinensis libanotica Zerny, 1933 **syn. nov.**
    persuavis Wehrli, 1929 **syn. rev.**
***N. muelleri* Hausmann, 1991** (endemic in southern Jordan)
***N. aphrodite* Hausmann & Wimmer, 1994** (endemic in Cyprus)
***N. amygdalaria* (Herrich-Schäffer, 1848)** (Balkan Peninsula, Levant, Transcaucasia, western Iran)
***N. dalmatina* Wagner, 1909** (from north-easternmost Italy to Balkan Peninsula)
***N. farinosa* Brandt, 1938** (endemic in western Iran)
***N. antiquaria* Staudinger, 1892** (in south-eastern Uzbekistan, western Tajikistan, western Kyrgyzstan, south-eastern Kazakhstan, eastern Afghanistan and northern Pakistan)
***N. princeps* Wiltshire, 1966** (endemic in central Afghanistan)
***N. quettensis* Wiltshire, 1966** (endemic in Pakistan)
***N. admirabila* Brandt, 1938** (endemic in south-western Iran)
    admirabila safidaria Wiltshire, 1943 **syn. nov.**
***N. rayatica* Wiltshire, 1957** (Iraq, eastern Turkey, north-western Iran)
***N. subfusca* Brandt, 1938** (endemic in south-western Iran)
***N. leviata* Brandt, 1938** (endemic in western Iran)
***N. subvirida* Brandt, 1938** (endemic in southern Iran)
    agatcha Brandt, 1938 **syn. nov.**
    subvirida disjuncta Wehrli, 1941 **syn. nov.**
    subvirida taftana Brandt, 1941 **syn. nov.**
***N. divergaria* Staudinger, 1892** (from southern Turkey and Armenia to Iran)
    variabila Brandt, 1938 **syn. nov.**
    variabila opulenta Brandt, 1941 **syn. nov.**
    divergaria elbursica Wehrli, 1937 **syn. nov.**

divergaria fallax Wehrli, 1939 **syn. nov.**
divergaria achtyca Wehrli, 1939 **syn. nov.**
***N. eberti* sp. nov. Wanke, Hausmann, Rajaei** (Turkey)
***N. convergata* sp. nov. Hausmann, Wanke, Rajaei** (endemic in Israel)
***N. mirzayansi* sp. nov. Wanke, Hausmann, Rajaei** (endemic in Kerman, Iran)

Conclusion

This study provides the first comprehensive integrative taxonomic revision of the genus *Nychiodes*, covering mainly the Middle East. This region can be defined as a hotspot of biodiversity for the genus *Nychiodes*, as 16 out of 25 known species occur there. Within this region, our results revealed a high intraspecific variation in external and internal characters of some species (e.g., *N. divergaria*, *N. antiquaria*, *N. eberti* **sp. nov.**). This has led to misidentifications and descriptions of a number of taxa in the past. Under the most problematic species, *N. divergaria*, several described taxa had to be synonymized here. For this reason, in any future taxonomic description in *Nychiodes*, a large number of specimens should be carefully examined using an integrative approach (at least combination of genetic and morphologic data). Additionally, it should be considered that some geometrid species in the Middle East may show a clinal character distribution (e.g., *N. divergaria* and *Gnopharmia rubraria* Staudinger, 1892 (see Rajaei *et al.* 2011)), and this may lead to taxonomic misinterpretations.

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Appendix

Additional material examined.

Nychiodes waltheri Wagner, 1919

2 ♂, Türkei, Katrancik Dagi, Str. Korkuteli-Tefenni, 1300 m, Lichtfang, 30.vi.1998, 37°13‘N, 29°58‘O, leg. Bartsch, Salmen; 1 ♀, Türkei, Anatolien, Capadocia, Develi Ovasi, Seyhsaban, 1150 m, 18.vi.1998, Lichtfang, 38°28‘N, 35°18‘O, leg. Bartsch, Salmen; all in SMNS.

1 ♂, Türkei centr., Prov. Tunceli, 9,5 km NO von Ovacik, 1400 m ü. NN, N 39°25‘27‘, / O 39°16‘52“, 24.viii.2009, LF, leg. R. & S. Fiebig; in PCRF.

1 ♂, 1 ♀, Türkei, Prov. Mugla, Taurus, Boncuk Daglari, 15 km südl. Cavdir, Kozdag Pass, 1440 m, EL, 27.v.1998, leg. Leipnitz, g.prep. (♂) 0329/2019 D. Wanke; in PCML.

1 ♂, Turkey, Konya, Taskent, 1500 m, 20.-21.vii.1994, leg. K. Larsen; 1 ♂, Turkey, Kayseri, Ala Daglar, Ulupinar, 1600 m, 30.vii.1998, leg. K. Larsen, g.prep. 0453/2019 D. Wanke; 1 ♂, Turkey, Malatya, Gündüzbey, 1200 m, 4.-5.viii.1997, leg. K. Larsen; 1 ♂, Turkey, Nigde, Bolkar Daglari, N.s. Maden, 2100 m, 29.vii.1997, K. Larsen, g.prep. 0447/2019 D. Wanke; all in PCPS.

5 ♂, [Turkey], Kleinasien, Prov. Hakkari, Sat-Daglari, vic. Varagöz, 1850-2000 m, 21.-24.vii.[19]83, leg. de Freina, g.prep. 2156/2017 H. Rajaei; 1 ♂, [Turkey], Kleinasien, Prov. Kastamonu, 20 km SW Kastamonu, 1300 m, 14.viii.[19]83, leg. de Freina; 1 ♀, [Turkey], Kleinasien, Prov. Maras, Umg. Maras, vic. Agabeyli, 700-1200 m, 27.-28.v.[19]81, leg. de Freina; 1 ♀, [Turkey], Kleinasien, Prov. Maras, Umg. Maras, vic. Agabeyli, 700-1200 m, 25.-28.v.[19]78, leg. de Freina; 1 ♀, [Turkey], Kleinasien, Prov. Kars, Aras Tal, vic. Karakurt, 1500 m, 24.vi.[19]81, leg. de Freina; 2 ♂, [Turkey], Aksehir, Asia Minor, 1000 m, 20.vii.-5.viii.1966, leg. Czipka, g.prep. 0409/2019 D. Wanke; 2 ♂, Turkey, Izmir, 1 km N. Bayindir, 600 m, 17.viii.1987, leg. M. Fibiger, g.prep. 0428/2019 D. Wanke; 1 ♂, [Turkey], Asia Minor, Izmir, S Darutsav, Hotel Jetis, 5 m, 28.viii.-2.ix.1984, leg. St. Reiss; all in SMNS.

4 ♂, [Turkey], Anatolien, Akshehir, ca. 1000 m, 1.-30.viii.[19]64, leg. Herbert Noack; 6 ♂, 3 ♀, Türk. Ostkurdistan, van Gölü, ca 1800 m, 1.-31.vii.1965, leg. Herbert Noack, g.prep. (♂) 0166/2018 D. Wanke; 2 ♂, Türk. Ostkurdistan, van Gölü, ca 1800 m, 1.-8.viii.1965, leg. Herbert Noack; 4 ♂, Ostanatolien, van Gölü, ca 1800 m, 1.-31.vii.1965, leg. Herbert Noack; 3 ♂, Ostanatolien, van Gölü, ca 1800 m, 6.-31.vii.1965, leg. Herbert Noack; 1 ♂, Iran N, E Alborz, Prov. Mazanderan, E Gorgan, S Aliabad, oberh. Shirinabad, N 36°47‘21‘‘, E 055°01‘25‘‘, 1100mNN, 21.v.2005, leg. Trusch, Petschenka, Müller, g.prep. 0207/2018 D. Wanke; 1 ♀, [Iran], Gorgan, Paz. Abai, 24.ix.1972, g.prep. 0208/2018 D. Wanke; 1 ♀, N-Iran, Masandaran, Schasavar envir., 0m Zone, 27.ix.1972, leg. Ebert; 1 ♀, N-Iran, Bandar Phalavi, -20 m, 28.ix.1970, leg. G. Ebert; all in SMNK.

1 ♂, 1 ♀, West Türkei, Koru Dagi, 30.v.1986, 350 m, leg. P. Kuhna; 1 ♀, SO-Türkei, 20 km nördlich Cölbasi, 17.vi.1977, leg. P. Kuhna; 2 ♂, O-Türkei, Euphrat, Kale, 12.vi.1977, leg. P. Kuhna; 1 ♂, Ost-Türkei, 47 km Malatya, Kale Euphrat, 700 m, 28.vi.1979, leg. P. Kuhna; all in ZFMK.

2 ♂, [Iran], Persia sept., Elburs mts.c.s. Särdab Tal, Vandarban, 19-2200 m, 10.-14.vii. [19]37, leg. E. Pfeiffer & W. Forster, g.prep. 0239/2019 D. Wanke; 2 ♂, [Iran], Persia sept., Elburs mts.c.s., Tacht i Suleiman, Särdab Tal, Vanderban, 25-2700 m, 14.-18.vii. [19]37, leg. E. Pfeiffer & W. Forster, g.prep. 0240/2019 D. Wanke; all in ZSM.

Nychiodes palaestinensis Wagner, 1919

1 ♂, Jordanien, Gouvern. At Tafila, Dhana Nature Reserve, N 30°37‘11‘‘, E 35°37‘37‘‘, 1300 m ü.NN, 12.-15.v.2010 LF, leg. R. & S. Fiebig; 2 ♂, 1 ♀, Jordanien, Gouvern. At Tafila, Dhana Nature Reserve, N 30°37‘11‘‘, E 35°37‘37‘‘, 1300 m ü.NN, ♀ 14.-24.v.2010 LF e.o., leg. R. & S. Fiebig, g.preps (♂) 2136/2017 H. Rajaei, 0232/2019 D. Wanke (♀) 0389/2019 D. Wanke; 1 ♀, Jordanien, Gouvern. At Tafila, Dhana Nature Reserve, N 30°37’11‘’, E 35°37’37‘’, 1300 m ü.NN, 22.-24.v.2010 LF, leg. R. & S. Fiebig; 1 ♂, 1 ♀, Jordanien, Gouvern. At Tafila, Dhana Nature Reserve, N 30°38’39‘’, E 35°36’48‘’, 1150 m ü.NN, 19.v.2010, LF, leg. R. & S. Fiebig, g.prep. (♂) 0390/2019 D. Wanke; 2 ♂, 2 ♀, Jordanien centr., Dana, Nature Reservation, N 30°37’27‘’, E 35°36’44‘’, 1000-1100 m ü.NN, ♀ LF 19.-21.v.2010 e.o., leg. R. & S. Fiebig, g.preps (♂) 0234/2019 D. Wanke (♀) 0391/2019 D. Wanke; 1 ♀, Jordanien, Gouvernement Ma‘an, 7 km N von Petra, N 30°22‘47‘‘, E 35°29‘41‘‘, 1660 m ü.NN, 13.v.2010 LF, leg. R. & S. Fiebig; 1 ♂, 1 ♀, Jordanien, Ajlun vic, 900 m, 04.v.2010, N32°21‘33‘‘, E035°43‘40‘‘, ex. ovo. (♂) 14.ix.2010 (♀) 20.ix.2010, leg. S. Schellhorn, Schnitter, Zucht Bernd Müller; in PCPS.

5 ♂, 6 ♀, Jordanien, Gouvernement Ajlun, Ajlun Nature Reserve, N32°23‘29‘‘, E 35°46‘19‘‘, 860 m ü. NN, ♀ LF 09.-10.v.2010 e.o., leg. R. & S. Fiebig, g.preps (♂) 2135/2017 H. Rajaei, 0233, 0392/2019 D. Wanke (♀) 0393/2019 D. Wanke; 1 ♂, Jordanien, Gouvernement Ajlun, Umg. Ajlun 2 km Nördlich, N32°20‘47‘‘, E 35°44‘45‘‘, 920 m ü. NN, LF 08.-10.v.2010 e.o., leg. R. & S. Fiebig; all in PCRF.

2 ♂, 1 ♀, Jordanien, Umg. Ajlun, 900 m NN, Mitte 06.2011, Ex ovo Zucht Wauer, g.prep 0401/2019 D. Wanke; 1 ♂, 1 ♀, Syrien, Safita, ca. 500 m, LF 15.5.98, leg. Löbel & Drechsel, Nachzucht M. Leipnitz, g.prep. 2194/2018 H. Rajaei; all in SMNS.

1 ♂, N. Jordan, Badran, 20 km N Amman, 1000 m, 15.v.1999, leg. Li/Müller; 2 ♂, Asia, Lybanon, Batha Harissa, 800 m, 26.iv.1950, leg. Fabigan; 2 ♂, N. Israel, Mt. Hermon, Upper Cabel Station, 2200 m, 8.-10.vi.2000, leg. Müller, g.preps 0242, 0422/2019 D. Wanke; all in ZSM.

Nychiodes aphrodite Hausmann & Wimmer, 1994

1 ♂, 1 ♀, Cyprus, occ., NE Pafos, NW Filousa, 390 m, 34°51‘N 32°43‘E, ♀: 12.v.20015, ex ovo, leg. Friedrich & Peuker, g.prep. 200§/2016 H. Rajaei; in PCBM.

1 ♀, Cyprus, Moniatis, N. Limassol, 850 m, 23-29.vi.1997, leg. D. Nilsson, A. Madsen, M. Fibiger, P. Svendsen, g.prep. 2108/2017 H. Rajaei; 1 ♂, Cyprus, Southern part, Panagia Valana, 720 m, 1,2 km, NE Laneia, 4.vi.2017, leg. B. Skule; g.prep. 2109/2017 H. Rajaei; all in PCPS.

1 ♀, GR, Cyprus, occ. n/e Pafos, n/w Filousa, 390 m, 34°51‘N 32°43‘E, LF 12.v.15, E. Friedrich, 1. NZ Leipnitz, e.o. 9/2015 Thomas Müller; in SMNS.

***Nychiodes amygdalaria* (Herrich-Schäffer, 1848)**

1 ♂, Türkei, Capadocia, Ürgüp, Umg. 5 km Est., 1300 m, Lichtfang, 17.vi.1998, 38°40‘ N 35°01‘ O, leg. D. Bartsch & Salmen; 1 ♂, Türkei, Kapadocia, Göreme Umg. 3 km O., 1000 m, Lichtfang, 16.vi.1998, 38°40‘ N 34°52‘ O, leg. D. Bartsch & Salmen; all in SMNS.

1 ♂, Griechenland, (NE) Thrakien, 1 km südlich Esimi bei Alexandroupoli, 320 m, N 41°00‘40“, E 25°56‘33“, 20.ix.2017, leg. J. Gelbrecht & E. Schwabe; in PCJG.

2 ♂, Türkei centr., Prov. Tunceli, Munzur Tal, 16 km NW von Tunceli, 1100 m ü. NN, N 39°14‘, O 39°28‘, 06.vii.2011, LF, leg. R. Fiebig & S. Rothe; in PCRF.

1 ♂, Anatolien, Aksehir, ca. 1000 m, 1.-31.vii.[19]64, leg. Herbert Noack g.prep. 0168/2018 D. Wanke; 1 ♂, Türk. -Ostkurdistan, Van Gölü, ca. 1800 m, 1.-8.viii.1965, leg. Herbert Noack; 3 ♂, Anatolien, Aksehir, ca. 1000 m, 1.-30.viii.[19]64, leg. Herbert Noack; 1 ♂, W-Iran, Kordestan, 36 km, NE Marivan, Straße nach Baneh, 1550 m, 8.-9.vii.1975, leg. Ebert & Falkner g.prep 0153/2018 D. Wanke; all in SMNK.

2 ♀, Kleinasien, Prov. Artvin, NO-Anatolisches Randgebirge-SE-Seite, Barhal Tal, 4 km NE Altiparmak, 1100 m, 31.vii.-03.viii.[19]83, leg. de Freina, g.prep. 2088/2017 H. Rajaei; 3 ♂, Aksehir, Asia minor, 1000 m, 20.vii.-23.viii.[19]67, leg. Czipka, 2089/2017 H. Rajaei; 1 ♂, Kleinasien, Prov. Maras, Umg. Maras, Agabeyli, 700-1200 m, 25.v.-28.5.[19]78, leg. de Freina, g.prep. 0411/2019 D. Wanke; 1 ♂, Kleinasien, Prov. Erzurum, Soganli-Daglari, Ovit-Paß, 20 km NW Ispir, 1600 m, 20.vii.1986, leg, de Freina; 1 ♂, Türkei, Zelve, Kapadocien, 23.vii.1978, leg. W. Thomas; 1 ♂, Kleinasien, Prov. Baliksehir, Gönen, 15 m, 22.viii.[19]78, leg. de Freina; all in SMNS.

1 ♂, Türkei, Hazar-See, NW-Ufer, 13.vi.[19]77, leg. P. Kuhna; 1 ♂, Türkei,Thermessos, 15.viii.[19]85, leg. Dittrich; all in ZFMK.

Nychiodes farinosa Brandt, 1938

2 ♂, 2 ♀, Iran Prov. Hamadan, Nehavand, 1851 m, N 34°02.756‘, E 048°22, 614‘, 26.vi.2005, leg. G. Petranyi, g.preps (♂) 2182/2018 H. Rajaei, 0414/2019 D. Wanke (♀) 0416/2019 D. Wanke; all in PCGP.

7 ♂, Iran, Fars prov., Shiraz-Kazeroun road, Dasht-e Arjan, 2090 m, N 29°38‘38“, E 52°00‘59“, 12.vi.2010, leg. H. Rajaei, g.prep. 0108/2018 D. Wanke; 1 ♂, Iran, prov. Kohkiluye va Boyerahmad, 30 km S Yassuj, road Abshare-Tange-Tamoradi, 8 km before Abshar, N30°31‘53“, E51°25‘11“, Alt. 2254 m, 24.v.2009, leg. Hossein Rajaei, g.prep. 0120/2018 D. Wanke; all in SMNS.

1 ♂, Iran, Prov. Chahar Mahal, Zagros mts., NW Samsami, 2800 m NN, N 32°09‘, E050°11‘, 13.vii.2003, (lux), leg. G. Ebert & R. Trusch, g.prep. 0180/2018 D. Wanke; in SMNK.

Nychiodes antiquaria Staudinger, 1892

1 ♂, Kyrgyzstan, Jalal Abad, Chatkal Valley 2 km NE Jany Bazar, 1522 m, ALF, 41°41‘18“N, 70°52‘41“E, 26.vi.2016, leg. D. Bartsch, g.prep. 0228/2019 D. Wanke; 1 ♂, Kyrgyzstan, Naryn Slopes 1 km S Kyzyl-Oi, 41°55’52’’N, 74°09’03’’E, 1780 m, 4.vii.2015, at light, leg. D. Bartsch, g.prep. 0326/2019 D. Wanke; 1 ♂, Kyrgyzstan, Naryn Slopes 1 km S Kyzyl-Oi, 41°55’52’’N, 74°09’03’’E, 1780 m, 5.vii.2015, at light, leg. D. Bartsch, g.prep. 0229/2019 D. Wanke; all in SMNS.

1 ♂, 1 ♀, Kyrgyzstan, Ferganskiy Mts., 1450 m, LF, Tschitschkan river valley, 1.vii.[20]01, leg. Drechsel, Kallies, NZ Leipnitz, g. prep. (♂) 0330/2019 D. Wanke; in PCML.

2 ♂, Tadjikistan, Gissar Gebirge, Guschary, 1300 m, 11.-12.vi.1999, g.prep. 0360/2019 D. Wanke; 7 ♂, same locality, 13.-15.viii.1999, g.preps 0345, 0346/2019 D. Wanke; 1 ♂, same locality, 13.-14.viii.1999; 3 ♂, Tadjikistan, Gissar Gebirge, Takob Umgebung, Dorf Peschanbe, 1800 m, 19.-20.viii.1999, g.prep. 0347/2019 D. Wanke; 4 ♂, same locality, 21.-22.viii.1999, g.prep. 0348/2019 D. Wanke; 2 ♂, same locality, 16.viii.1999, g.prep. 0351/2019 D. Wanke; 5 ♂, Tadjikistan, Gissar Gebirge, Takob Umgebung, Dorf Porut, 1750 m, 15.-16.viii.1999, g.preps 0350, 0421/2019 D. Wanke; 6 ♂, Tadjikistan, Chosratischo Gebirge, Schuroabad Umgebung bei Nikolaj Pass, 2000 m, 14.-15.viii.1999, g.preps 0352, 0353, 0354, 0355/2019 D. Wanke; 1 ♀, same locality, 19.-20.vii.1999; 10 ♂, Tadjikistan, Chosratischo Gebirge bei Daschtidjum, Schlucht Yoschdara, 1080 m, 9.-10.ix.1999, g.preps 0356, 0357/2019 D. Wanke; 2 ♂, 4 ♀, Tadjikistan, Gissar Gebirge, Kondara, 1100 m, 1.-3.vi.1999, g.prep. 0358/2019 D. Wanke; 1 ♀, same locality, 7.-8.viii.1999; 2 ♂, Tadjikistan, Gissar Gebirge, Fluss Ansob, 2250 m, 8.vii.1999; 2 ♂, 1 ♀, same locality, 9.-10.vii.1999, g.prep. (♂) 0359/2019 D. Wanke; 1 ♂, 1 ♀, Tadjikistan, Wachsch-Gebiet, Sarychosor, 1300 m, 1.-2.vii.1999, g.prep. (♂) 0361/2019 D. Wanke; 2 ♂, Tadjikistan, Baldjuan-Umgebung, Wachsch Gebiet, Sarychosor, 1300 m, 16.-18.vii.1999, g.prep. 0363/2019 D. Wanke; 1 ♂, [Tadjikistan], Pamir, Chorog [Chorugh], 2300 m, 29.-31.vii.1999, g.prep. 0364/2019 D. Wanke; 1 ♀, Tadjikistan, Gebiet Peter I, Ganichou, 2110 m, 20.-21.vi.1999, g.prep. 0366/2019 D. Wanke; 1 ♂, 1 ♀, Tadjikistan, Darvaz mts., Kugireui range, Host vill, Kalaishum city environs, 1500 m, 4.vii.2014, leg. Valentina Zurilina, g.prep. (♂) 0365/2019 D. Wanke; 1 ♂, 7 ♀, Kasakhstan, Dzhambul Region, Kirgizsky Mountains, Merke, 1100 m, 13.vi.2000, leg. A. Lukhtanov, g.preps (♂) 0379/2019 D. Wanke, (♀) 0380/2019 D. Wanke; 1 ♀, Kasakhstan, Dzhambul Region, Kurdai Pass, 950 m, 11.vi.2000, leg. A. Lukhtanov, g.prep. 0378/2019 D. Wanke; 1 ♂, Kirghisien, Talasskij, Chrebet, Sosnovka, 1600 m, 6.viii.1999, leg. I. Pljushtch, g.prep. 0413/2019 D. Wanke; 1 ♂, Kirgizstan, Ferganskij Mt., Alasch, 7.-8.vii.1998, 1800 m, leg. V. Dolin; all in PCPS.

5 ♂, 8 ♀, Uzbekistan, 20 km, SW Guzar, 38°30‘N, 66°21‘E, 3.vi.1995, 750 m, leg. Z. Weidenhoffer, g.preps (♂) 0099/2018, 0408/2019 D. Wanke, (♀) 0137, 0138/2018 D. Wanke; 1 ♂ Uzbekistan, Kugitangtau Mts., Shalkan Valley, 37°51‘N, 66°39‘E, 1.vi.1995, 1500 m, leg. Z. Weidenhoffer; 1 ♂ Uzbekistan, Kugitangtau Mts., Shalkan Valley, Vandob, 37°44‘N, 66°34‘E, 30.v.1995, 1500 m, leg. Z. Weidenhoffer, g.prep. 0098/2018 D. Wanke; 2 ♂ Uzbekistan, Sherabad Region, Maydan, 37°45‘N, 66°54‘E, 29.v.1995, 1500 m, leg. Z. Weidenhoffer, g.preps 0096, 0097/2018 D. Wanke; 1 ♂ Kyrgyzstan, Jalal Abad, road Toktogul-Kara-Kul, SW Kebbel Pass, 1120 m, 41°41‘25‘‘N, 072°53‘46‘‘E, 29.v.2014, lighttrap, leg. D. Bartsch, g. prep. 0100/2018 D. Wanke; 3 ♂ Kyrgyzstan, Jalal Abad, road Toktogul-Kara-Kul, Kebbel Pass, 1220 m, at light, 41°41’39’’N, 072°53’48’’E, 30.v.2014, leg. D. Bartsch, g. preps 0139/2018, 0410/2019 D. Wanke; 3 ♂ Kyrgyzstan, Jalal Abad, road Tash-Kumyr-Alcha, 770 m, lighttrap, 41°26’52’’N, 072°12’46’’E, 3.vi.2014, leg. D. Bartsch, g. prep. 0101/2018 D. Wanke; 1 ♂ Kyrgyzstan, Talas, S Talas, S Kozuchak, Besh-Tash NR, 1640 m, 42°36’04’’N, 071°34’17’’E, 19.vi.2014, leg. D. Bartsch, g. prep. 0102/2018 D. Wanke; 5 ♂ Afghanistan, Kabul Fluß, Tang i Gharu Schlucht 22.-23.v.1977, 1600 m, leg. de Freina, g.preps. 0094, 0135, 0136/2018 D. Wanke, 0407/2019 D. Wanke; 1 ♂ Afghanistan, Kabul Fluß, Tang i Gharu Schlucht, 11.viii.1977, 1600 m, leg. de Freina; all in SMNS.

2 ♂, 2 ♀, Tajikistan, S. Darvaz mts. Pianj river, Ravnob river valley, 1.5 km N of Zhag village, N38°14‘316‘‘, E70°31‘753‘‘, 1057 m, 23.v.2017, leg. B. Benedek & S. Ilniczky, g.prep. (♂) 0429/2019 D. Wanke; 1 ♂, SO-Afghanistan, Safed Koh, Südseite, Kotkai, 2350 m, 21.vi.-1.vii.1969, leg. Vartian, g.prep. 0156/2018 D. Wanke; 3 ♂, same locality, 21.vi.-1.vii.1969, leg. G. Ebert, g.preps 0157, 0158, 0159/2018 D. Wanke; 2 ♀, same locality, 28.vii.1968, leg. M. Müller; 1 ♂, same locality, 4.viii.1967, leg. M. Müller; 1 ♀, same locality, 9.vii.1968, leg. M. Müller; 2 ♂, 1 ♀, same locality, 20.vii.1968, leg. M. Müller, g.prep. (♂) 0160/2019 D. Wanke; 4 ♂, 1 ♀, W-Pakistan, Swat, N.v. Kalam, Gabral Tal, 2100 m, 6.-9.vii.1969, g.preps (♂) 0154/2019 D. Wanke, (♀) 0430/2019 D. Wanke; all in SMNK.

1 ♂, Afghanistan, Pagman-Gebirge (Kabul), ca. 3000 m, vi.-vii.1942, coll. Brandt; 1 ♂, NW-Pakistan, 20 km W of Besham, Karaora, 1200 m, N34°53’, E72°47’, 27.v.1992, leg. M. Hreblay & G. Csorba; 2 ♂, 2 ♀, Pakistan, Kohistan, Swat prov., N35°10’, E72°32’, Miandam, 1800 m, 25.vi.-5.vii.1992, leg. Z. Waldenhoffer; 5 ♂, NW-Pakistan, Kalam, 2200 m, 35°31‘N, 72°36‘E, 25-26.v.1992, leg. M. Hreblay & G. Csorba; 2 ♂, 1 ♀, NW-Pakistan, Khwazakheia, 1100 m, 34°55‘N, 72°21‘E, 24.v.1992, leg. M. Hreblay & G. Csorba; 1 ♂, N-Pakistan, 20 km E of Gupis, 2500 m, 36°15‘N, 73°36‘E, 20.vi.1992, leg. M. Hreblay & G. Csorba; 1 ♂, 1 ♀, Tadjikistan, Gissar Gebirge, Kandara, 1100 m, 29.-30.vii.1998, leg. local Coll; 3 ♂, Tadjikistan, Karategin-Gebirge, Schlucht Sangikar, 7.vii.[19]69, 1700 m, leg. Stschetkin; all in ZFMK.

***Nychiodes admirabila* Brandt, 1938**

2 ♂, Iran, Kohkiluye va Boyerahmad, yasuj, Sisakht, Dena, 2799 m, 30°57‘23.6‘‘N, 51°23‘28.9‘‘E, 30.vii.2016, leg. Sh. Feizpour, g.preps 0301, 0302/2019 D. Wanke; in SMNS.

1 ♂, Iran, Fars, Straße Ardekan-Talochosroe, Comè, 2600 m, vii.1937, g.prep. 0174/2018 D. Wanke; in SMNK.

***Nychiodes rayatica* Wiltshire, 1957**

1 ♂, [Turkey], Kleinasien, Prov. Hakkari, Hakkari-Daglari, 10 km, östl. Gecitli, 2100-2300 m, 13.vii.-14.vii.[19]80, leg. de Freina, g.prep. 0254/2019 D. Wanke; in SMNS.

1 ♂, W-Iran, Kordestan, Straße Baneh-Marivan, 25 km E Baneh, 1950 m, 4.vii.1975, leg. Ebert & Falkner, g.prep. 0197/2018 D. Wanke; in SMNK.

***Nychiodes subfusca* Brandt, 1938**

2 ♂, 3 ♀, Iran, Prov. Fars, Komehr, 2892 m, N 30°20.505‘, E 051°57.324‘, 29.vi.2005, leg. Petrányi G., g.prep. (♂) 2189/2018 H. Rajaei; 2 ♂, 2 ♀, Iran, Prov. Buyer Ahmad, Kuh-E-Dinar, 15 km N from Vazag, N 30°30,140‘, E 51°42,376‘, 2350 m, 12.vi.2007, leg. T. Hacz, L. Nadai, g.preps. (♂) 2190, 2191/2018 H. Rajaei; all in PCGP.

3 ♂, Iran, Fars prov., Shiraz-Kazeroun road, Dasht-e Arjan, 2090 m, N 29°38‘38‘‘, E 52°00‘59‘‘, 12.vi.2010, leg. H. Rajaei, g.preps 0367, 0412/2019 D. Wanke; 1 ♂, Iran, Prov. Esfahan, Zagros Mts., Fereidun Shar, 3000 m, 15.-17.vi.2010, leg. B. Benedek & T. Hácz, g.prep. 0368/2019 D. Wanke; 2 ♂, 1 ♀, [Iran], Esfahan, Smeirom Padena, Tange Bijan, 2930 m, 13.viii.1978, leg. Paz./Brou., g.preps (♂) 0369/2019 D. Wanke, (♀) 0442/2019 D. Wanke; all in PCPS.

1 ♂, Iran, Fars prov., Shiraz-Kazeroun road, Dasht-e Arjan, 2090 m, N 29°38‘38‘‘, E 52°00‘59‘‘, 12.vi.2010, leg. H. Rajaei, g.prep. 0107/2018 D. Wanke; in SMNS.

1 ♂, Iran, Fars, Straße Ardekan-Talochosroe, Comé, 2600 m, vii.1937, Brandt, g.prep. 0171/2018 D. Wanke; 1 ♂, S-Iran, Fars, Daschte Ardjan, Kotal-Pirehsan, 2000 m, 18.vi.1972, leg. Ebert & Falkner; all in SMNK.

***Nychiodes leviata* Brandt, 1938**

1 ♂, Iran, Lorestan, Kuh-e Garin, Gard ye Gema-Siab O [Gardaneh-e Gamasiab East], 2200 m, 25.vi.2009, leg. A. Hofmann, J.-U. Meineke, H. Rajaei, g.prep. 0214/2019 D. Wanke; 4 ♂, Iran, Boyerahmad-va-Kohgiluyeh, Gardaneh, Meymand, 2450-2800 m, 14./15.vi.2001, leg. A. Hofmann, J.-U. Meineke, W.G. Tremewan, g.preps 0219, 0221/2019 D. Wanke; all in PCJM.

1 ♂, same locality as before; in PCPS.

9 ♂, Iran, Isfahan prov. Hanna protected area, Hanna-Komee [Komehr] road, 15 km after Hanna, Baghak Mt., 2355 m, N 31°10'44'', E 51°33'51'', 10.vi.2010, leg. H. Rajaei, g.preps 0111, 0112, 0113/2018 D. Wanke, 0417/2019 D. Wanke; 1 ♂, Iran, Fars prov., Shiraz-Kazeroun road, Dasht-e Arjan, 2090 m, N 29°38'38'', E 52°00'59'', 12.vi.2010, leg. H. Rajaei, g.prep. 0109/2018 D. Wanke; 1 ♂, Iran, Lorestan, Dorud, Gahar lake, 2309 m, 33°18'40.8''N, 49°16'43''E, 28.vii.2016, leg. Sh. Feizpour, g.prep. 0122/2018 D. Wanke; all in SMNS.

1 ♂, Iran, Chaharmahal-va-Bakhtiyari, Borujen S Dorahun 6 km S, 1850-2100 m, 1.vi.2005, leg. A. Hofmann & J.-U. Meineke, g.prep. 0181/2018 D. Wanke; 1 ♂, S-Iran, Prov. Fars, Tange Surkh, 50 km NW Ardekan, 2250 m NN, 12.-15.vi.1975, leg. Ebert, Falkner, g.prep. 0280/2019 D. Wanke; all in SMNK.

***Nychiodes subvirida* Brandt, 1938**

1 ♂, Iran, Baloutchistan, Kouh i Taftan (Khach), 2500 m, 15.v.1938, coll. Brandt, gpprep 10937; 1 ♀, Iran Laristan, Straße Bender-Abbas-Saidabad, Sardze Umgebung, ca. 200 m, Mitte Nomvember 1937, gpprep 10936; all in NHRS.

2 ♂, Iran, Prov. Fars, Ghir, 1500 m, 11.iv.2004, leg. T. Hacz, B. Benedek, g.prep. 0415/2019 D. Wanke; 10 ♂, 2 ♀, Iran, Prov. Fars, Lar, 30.iii.-04.iv.2009, leg. G. Petranyi, g.preps (♂) 2179, 2181/2018 H. Rajaei (♀) 2180/2018 H. Rajaei; all in PCGP.

1 ♂, Iran, Kerman, Jiroft NW, Gardaneh, Sarbishan, Shingara vic., 2700-2900 m, 3./4.vi.2002, leg. J.-U. Meineke, A. Hofmann, A. Kallies *et al.*, g.prep. 0224/2019 D. Wanke; 1 ♂, Iran, Kerman, Jiroft W, Shingera, 2800 m, 26./27.5.2004, leg. A. Hofmann, J.-U. Meineke, G. Tremewan, g.prep. 0305/2019 D. Wanke; 1 ♀, Iran, Balucestan, Kuh-e Taftan, Jam Chin, 2500 m, 16.-18.v.2004, leg. A. Hofmann, J.-U. Meineke, G. Tremewan, g.prep. 0306/2019 D. Wanke; all in PCJM.

1 ♀, [Iran], Kerman, Jiroft, Esfandagheh, 2.iv.2012, N 28°43'42.8'', E 057°26'41.0'', 1321 m, leg. M. Afsarian, g.prep. 0446/2019 D. Wanke; in PCPS.

4 ♂, Iran, prov. Kerman, Baft-Sirjan road, 2 km after Baft, sandy road, 3 km to Nord, Ras-Kuh village, N29°17' 27'', E 56°35'37'', Alt. 2543 m, 20.-21.v.2009, leg. H. Rajaei, g.prep. 0110/2018 D. Wanke; 2 ♂, 3 ♀, Iran, Kerman, Bam-Jiroft road, Kuhe Dehbakri, 2152 m, 28°48'01''N, 57°56'05''E, 27.iv.2016, leg. Sh. Feizpour, g.preps (♂) 0126, 0127/2018 D. Wanke, (♀) 0294/2019 D. Wanke; 1 ♀, Iran, prov. Fars, Estahban-Sarwestan road, 22 km before Sarwestan, after Ab-Asemani village, N29°05'51'', E053°26'12'', Alt. 1890 m, 22.v.2009, leg. Hossein Rajaei, g.prep 0303/2019 D. Wanke; 1 ♂, 1 ♀, Iran, Prov. Fars, ca. 20 km S Jahron, Sistan, Garden Ahmad Najafzadeh., N28°21', E53°22', 30.iii.2011, 870 mNN, leg. Hossein Rajaei, g.prep. (♂) 0132/2018 D. Wanke; 1 ♀, Iran, Fars prov., SE Jahrom, 1080 m, N28°28'45.57'', E53°30'24.28'', 25.ix.2014, leg. H. Rajaei; 2 ♂, 1 ♀, Iran, Fars, 30 km N Persepolis, 1.v.1975, leg. W. Thomas, g.preps (♂) 0092, 0093/2018 D. Wanke; 1 ♂, Iran, Fars, 40 km W Fasa, 3.v.1975, leg. W. Thomas; 1 ♀, Iran, Fars, 115 km W Shiraz, 9.v.1975, leg. W. Thomas; 1 ♂, Iran, Prov. Fars, ca. 20 km S Jahron, Sistan, N28°21', E53°22', 06.12.2018, 870 m, leg. H. Rajaei, g.prep. 0060/2018 D. Wanke; all in SMNS.

1 ♂, S-Iran, Straße Shiraz-Kazerun, Imam Sade, 1200 m, 3.vi.1969, leg. G. Ebert, g.prep. 0176/2018 D. Wanke; 1 ♀, S-Iran, Miyan-Kotal, östl. Kazerun, 51°40' E, 29°30' N, 1900 m, 4.-7.vi.1969, leg. G. Ebert; 1 ♀, Iran, Fars, Umgebung von Chiraz, ca. 1600 m, 24.iv.1937, coll Brandt; 4 ♂, 1 ♀, S-Iran, Bandar Abbas, km 107 d. Strasse nach Sirdjan, 850 m, 7.iii.1973, leg. G. Ebert, g.prep. (♂) 0185/2018 D. Wanke; 1 ♂, S-Iran, Tangetchogan, 30 km n. Kazerun, 930 m, 23.ii.[19]73, leg. H.G. Amsel, g.prep. 0179/2018 D. Wanke; 1 ♂, S-Iran, 42 km wnw Djahrom, Astragalus Steppe, 1300 m, 26.iii.1973, H. Amsel; 1 ♂, Iran, Fars, Shiraz ESE, Darab N (Pass), 1850-2100 m, 19.v.2005, leg. T. & A. Hofmann; 1 ♂, Iran, Baloutchistan, Kouh i Taftan (Khach), 2500 m, Mai 1938, coll. Brandt, g.prep. 0188/2018 D. Wanke; 6 ♀, Iran, prov. Fars, Estahban-Sarwestan road, 22 km before Sarwestan after Ab-Asemani village, N29°05'51'', E53°26'12'', 1890mNN, 22.v.2009, leg. Hossein Rajaei, g.prep. 0169/2018 D. Wanke; all in SMNK.

***Nychiodes divergaria* Staudinger, 1892**

1 ♂, Iran, Prov. Khuzestan, Mal aqa, 1100 m, 31°35'57'' N, 50°00'50'' E, 07.x.2016, leg. Mehdi Esfandiari, g.prep. 0418/2019 D. Wanke; 1 ♀, Iran, Prov. Fars, Tange bolhayat, 1300 m, 29°44'02'' N, 51°47'00''E, 27.x.2016, leg. Mehdi Esfandiari; all in IMCA.

2 ♂, Türkei, Prov. Van, Paßweg 10 km südlich von Gevas, 2500 m, TF/LF, 30.vii.2001, leg. D. Stadie, H. Löbel, g.preps 0231, 0319/2019 D. Wanke; 2 ♂, 2 ♀, Türkei, Prov. Van, 7 km südlich Güseldere Gecidi, 31.vii.2001, LF, 2300 m, leg. D. Stadie, H. Löbel, g.preps (♂) 0322, 0323/2019 D. Wanke, (♀) 0318/2019 D. Wanke; 3 ♂, 2 ♀, Türkei, Prov. Adiyaman, Nemrut Dagh, 1600-2000 m, N 38°02', E 38°45', 21.-23.viii.2009, LF, e.o., leg. Ralf Fiebig, g.preps (♂) 0321, 0324, 0325/2019 D. Wanke; 1 ♂, Türkei, Prov. Malatya, Nemrut dagi, 1430 m, N 38°00'54'', E 38°40'09'', 24.v.2009, LF, leg. D. Stadie & H. Löbel, g.prep. 0317/2019 D. Wanke; all in PCDS.

1 ♂, 1 ♀, SW-Türkei, Provinz Mugla, Dalaman, Sarigerne, 50 m, w. 22.v.-5.vi.2000, e.o. (♂) 31.vii.2000, e.o. (♀) 2.-5.vii.2000, leg. M. Leipnitz, g.prep. (♀) 0458/2019 D. Wanke; in PCJG. 3 ♂, 2 ♀, Iran, Prov. Fars, Kum Mts., Saidad, Sahr 1843 m, N 30°00.757', E 053°08.530', 1.vii.2005, leg. G. Petrányi, g.preps (♂) 2184, 2185/2018 H. Rajaei; 4 ♂, 4 ♀, Iran, Prov. Buyer Ahmad, Kuh-E-Dinar, 15 km N from Vazag, N 30°30,140', E 51°42;376', 2350 m, 12.vi.2007, leg. T. Hacz, L. Nadai, g.prep. (♂) 2186/2018 H. Rajaei; 1 ♂, Iran, Prov. Mazandaran, Minokh, Resteh-Ye-Elborz, Balade Valley, 2400 m, N 36°13,409', E 51°36,381', 18.vi.2007, leg. T. Hacz, L. Nadai, g.prep. 2187/2018 H. Rajaei; 1 ♂, Iran, Prov. Fars, Ghir,

1500 m, 11.iv.2004, leg. T. Hacz, B. Benedek, g.prep. 2188/2018 H. Rajaei; 1 ♀, Iran Prov. Hamadan, Nehavand, 1851 m, N 34°02.756‘, E 048°22.614‘, 26.vi.2005, leg. G. Petranyi; 8 ♂, 5 ♀, Iran, Kordestan, Sanandaj, Askaran, 1380 m, N 35°05.084‘, E 046°54.118‘, 25.vi.2005, leg. G. Petrányi, g.preps (♂) 2192, 2193/2018 H. Rajaei (♀) 2183/2018 H. Rajaei; all in PCGP.

1 ♂, Iran, Fars, Moshkan, 10 km NW, 2500 m, 28.v.2004, leg. A. Hofmann, J.-U. Meineke, G. Tremewan, g.prep. 0211/2019 D. Wanke; 1 ♂, 2 ♀, Iran, Shiraz, Meymand 5 km S, Ginstersteppe, 1600 m, 13.x.2010, leg. J.-U. Meineke, A. Hofmann, g.prep. (♂) 0210/2019 D. Wanke; 1 ♀, Iran, Fars, Shiraz E, Dash-e-Arzhan E, 1900-2200 m, 6./7.vi.2002, leg. J.-U. Meineke, A. Hofmann, A. Kallies *et al.*; 1 ♀, Iran, Zagros, Lorestan, Dorud Umg. Kuh-e-Osturkan, 2200 m, 7./8.vii.1999, leg. A. Hofmann, J. Meineke; 1 ♂, Iran, Markazi, Tafresh via Dastgerd, 2300-2500 m, 15./16.vi.2005, leg. J.-U. Meineke, g.prep. 0212/2019 D. Wanke; 4 ♂, 1 ♀, Iran, Kerman, Jiroft NW, Gardaneh, Sarbishan, Shingara vic., 2700-2900 m, 3./4. vi.2002, leg. J.-U. Meineke, A. Hofmann, A. Kallies *et al.*, g.preps (♂) 0223, 0308, 0309/2019 D. Wanke; 1 ♂, 1 ♀, Iran, Kerman, Jiroft W, Shingera, 2800 m, 26./27.5.2004, leg. A. Hofmann, J.-U. Meineke, G. Tremewan, g.prep. (♂) 0218/2019 D. Wanke; 1 ♀, Iran, Kerman, Jiroft W, Shingera, 2800 m, 22./23.5.2004, leg. A. Hofmann, J.-U. Meineke, G. Tremewan, g.prep. 0307/2019 D. Wanke; 2 ♀, Iran, Boyer Ahmad-Va-Kohgiluyeh, Yasuj NW, Sisakht 7 km NNE, 2650-2700 m, 14.vi.2001, leg. A. Hofmann, J.-U. Meineke, W.G. Tremewan, g.prep. 0310/2019 D. Wanke; 1 ♂, Iran, Boyer Ahmad-Va-Kohgiluyeh, Gardaneh, Meymand, 2450-2800 m, 14./15.vi.2001, leg. A. Hofmann, J.-U. Meineke, W.G. Tremewan, g.prep. 0220/2019 D. Wanke; 2 ♀, Iran, Boyer Ahmad-Va-Kohgiluyeh, Yasuj E, Kakan-baba Hassan, 2600-2800 m, 8.vi.2002, leg. J.-U. Meineke, A. Hofmann, Kallies *et al.*, g.prep. 0311/2019 D. Wanke; 2 ♂, Iran, Azerbaijan-e Gharbi prov., Khoy to Ghotur road, Esteran vill., Alt. 1637 m, N 38°27‘03.1“, E 44°44‘33.6“, 1.vii.2013, leg. J.-U. Meineke, H. Rajaei, B. Hafezi, g.preps 0215, 0312/2019 D. Wanke; 2 ♂, 2 ♀, Iran, Esfahan, Gandoman S, Gerdeish-e, 200 m, 12./13. vi.2002, leg. J.-U. Meineke, A. Hofmann, Kallies *et al.*, g.preps (♂) 0216/2019 D. Wanke (♀) 0313/2019 D. Wanke; 4 ♂, Iran, Chaharmahal-va-Bakhtiyari, Borujen S, Dorahun 6 km S, 1850-2100 m, 1.vi.2005, leg. A. Hofmann, J.-U. Meineke, g.prep. 0217/2019 D. Wanke; all in PCJM.

1 ♂, 1 ♀, SW-Türkei, Provinz Mugla, Dalaman, Sarigerne, 50 m, w. 22.v.-5.vi.2000, e.o. 2.-5.viii.2000, leg. M. Leipnitz, g.prep. 0331/2019 D. Wanke; in PCML. 1 ♂, Türkei east, Provinz Van, Gürpinar, 17 km OSO, 2100 m ü.NN, N38°13‘44“, O 43°33‘42“, 29.vi.2008, LF, leg. Ralf & Sylvana Fiebig, g.prep. 0397/2019 D. Wanke; 1 ♀, Türkei Southeast, Provinz Hakkari, 40 km SW von Hakkari, Sürvahalil Gecidi, 2200-2500 m ü.NN, N 37°29‘, O 43°19‘, 03.vii.2011, LF, leg. R. Fiebig & S. Rothe; 3 ♂, Türkei Southeast, Provinz Hakkari, 6,5 km westl. von Hakkari, 2500-2600 m ü.NN, N 37°33‘, O 43°40‘. 29.vi.-03.vii.2011, LF, leg. R. Fiebig & S. Rothe, g.preps 0394, 0395/2019 D. Wanke; 2 ♂, Türkei Southeast, Provinz Sirnak, 6 km NW von Uludere, 1600-2000 m ü.NN, N37°28‘, O42°55‘, 04.vii.2011, LF, leg. R. Fiebig & S. Rothe, g.prep. 0237/2019 D. Wanke; 9 ♂, 7 ♀, Türkei centr., Provinz Adiyaman, Nemrut Dag, N 38°02‘, O 38°45‘, 1600-2000 m, ü.NN, ♀ 21.-23.viii.2009 e.o., leg. R. & S. Fiebig, g.prep. (♂) 2131, 2132/2017 H. Rajaei, (♀) 0441, 0455/2019 D. Wanke; 2 ♂, Türkei centr., Provinz Adiyaman, Nemrut Dag, N 38°02‘07“, O 38°45‘48“, 1700-2000 m, ü.NN, 23.-25.v.2009, LF, leg. R. & S. Fiebig, g.prep. 2133/2017 H. Rajaei; 1 ♂, Türkei centr., Provinz Adiyaman, Nemrut Dag, N 38°02‘07“, O 38°45‘48“, 2000 m, ü.NN, 26.vi.2006, LF, leg. Ralf & Sylvana Fiebig, g.prep. 0235/2019 D. Wanke; 4 ♂, Turkey, Tunceli, Munzur Tal, 16 km NW Tunceli, 1100m ü. NN, N 39°14‘, O 39°28‘, e.o., 06.vii.2011, Ralf Fiebig & S Rothe, all in PCRF.

1 ♂, Republic Armenia, Yeranos Mts. 1600 m, Dvinvillage suburbs, Arat district, 11.-13.vi.2009, leg. Yuriy Shevnin; 1 ♂, Turkey, Bitlis, Tatvan, 1800 m, 30.vi.2001, leg. K. Larsen, g.prep. 0337/2019 D. Wanke; 1 ♂, Turkey, Agri, Ararat N. s. 2050 m, 18 km SE Suveren, 1.vii.2001, leg. K. Larsen, g.prep. 0338/2019 D. Wanke; 1 ♂, Republic Armenia, Aiotzdorsky range, 2000 m, Yeghegnadzor suburbs, 150 km to SE from Yerevan, Mozrov Village, Mountain steppes, 25.-27.vi.2009, leg. Yuriy Shevnin, g.prep. 0374/2019 D. Wanke; 1 ♂, Republic Armenia, Aiotzdorsky range, 2000 m, Yeghegnadzor suburbs, 150 km to SE from Yerevan, Mozrov Village, Mountain steppes, 12.-19.vii.2009, leg. Yuriy Shevnin, g.prep. 0375/2019 D. Wanke; 2 ♂, Republic Armenia, Aiotzdorsky range, 2000 m, Yeghegnadzor suburbs, 150 km to SE from Yerevan, Mozrov Village, Mountain steppes, 21.-23.vii.2009, leg. Yuriy Shevnin, g.prep. 0376/2019 D. Wanke; all in PCPS.

6 ♂, 4 ♀, Iran, Hormozgan, Bandar Abbas, Genu, 2128 m, 27°25‘02“ N, 56°10‘160“ E, 01.v.2016, leg. Sh.Feizpour, g.preps (♂) 0114, 0115/2018 D. Wanke, (♀) 0295/2019 D. Wanke; 8 ♂, 8 ♀, Iran, Kohkiluye va Boyerahmad, yasuj, Sisakht, Dena, 2799 m, 30°57‘23. ,‘N, 51°23‘28.9“E, 30.vii.2016, leg. Sh. Feizpour, g.preps (♂) 0116, 0117/2018 D. Wanke, (♀) 0297/2019 D. Wanke; 1 ♀ Iran, prov. Fars, Shiraz-Kazerun road, 5 km before Dashte Arjan, N 29°40‘34“, E 052°02‘18“, Alt. 2158 m, 23.v.2009, leg. Hossein Rajaei, g.prep. 0296/2019 D. Wanke; 5 ♂, Iran, Lorestan, Dorud, Gahar lake, 2309 m, 33°18‘40.8“N, 49°16‘43“E, 28.vii.2016, leg. Sh. Feizpour, g.prep. 0121/2018 D. Wanke; 1 ♂, 1 ♀, Iran, Azerbaijan-e Gharbi prov., Khoy to Ghotur road, Esteran vill., Alt. 1637 m, N 38°27‘03.1“, E 44°44‘33.6“, 1.vii.2013, leg. H. Rajaei, J.U. Meineke, B. Hafezi, g.preps (♂) 0131/2018 D. Wanke, (♀) 0298/2019 D. Wanke; 1 ♂, Iran, prov. Lorestan, Noorabad-Nahawand road, 25 km to Nahawand, Gardane-Garrin, N34°02‘48“ E 48°20‘31“, Alt. 2135 m, 25.vi.2009, leg. H. Rajaei, J.U. Meineke & A. Hoffmann, g.prep. 0124/2018 D. Wanke; 1 ♂, Iran, prov. Kohkiluye va Boyerahmad, 30 km S Yassuj, road Abshare-Tange-Tamoradi, 8 km before Abshar, N30°31’53”, E51°25’11”, Alt. 2254 m, 24.v.2009, leg. Hossein Rajaei, g.prep. 0119/2018 D. Wanke; 1 ♂, Iran, Shahrud, Shahkouh, Tash, Ayoub Hosseini region, 2588 m, 36°37’18”N, 54°33’42.6”E, 11.vii.2016, leg. Sh. Feizpour, g.prep. 0133/2018 D. Wanke; 3 ♀, Isfahan prov. Hanna protected area, Hanna-Komee road, 15 km after Hanna, Baghak Mt., 2355 m, N 31°10’44”, E 51°33’51”, 10.vi.2010, leg. H. Rajaei, g.prep. 0293/2019 D. Wanke; 4 ♂, Iran, Kerman, Bam-Jiroft road, Kuhe Dehbakri, 2152 m 28°48’01”N, 57°56’05”E, 27.iv.2016, leg. Sh. Feizpour, g.preps 0125, 0128, 0129, 0130/2018 D. Wanke; 11 ♂, Iran, Fars, 30 km N Persepolis, 1.v.1975, leg. W. Thomas, g.preps 0089/2018, 0332, 0333, 0334, 0335/2019 D. Wanke; 1 ♀, Iran, Fars, 40 km

W Fasa, 3.v.1975, leg. W. Thomas; 3 ♂, 1 ♀, Iran, Elburs, vic. Kendevan, 7.-9.viii.1977, 2500-3000 m, leg. W. Thomas, g.preps, (♂) 0082/201, 0256/2019 D. Wanke, (♀) 0437/2019 D. Wanke; 1 ♂, Iran, Elburs, vic. Shemshak, 12.-13.viii.1977, ca. 3000 m, leg. W. Thomas; 1 ♂, Iran, Elburs, Shemshak, 2700 m, 10.-11.viii.1978, leg. W. Thomas, g.prep. 0083/2019 D. Wanke; 1 ♂, NW-Iran, Kaleibar, 1700 m, 3.viii.1977, leg. W. Thomas, g.prep. 0084/2018 D. Wanke; 1 ♂, Iran, Ostan Tehran, Reshteh Ye Alborz, Dizin Gardaneh, 2700-3000 m, 5.-8.vii. 1978, leg. W. L. Blom, g.prep. 0081/2018 D. Wanke; 1 ♂, Iran, Makran, südöstl. Nahu, 1300 m, 19.u.26.iii.1954, Richter u. Schäuffele, g.prep. 0090/2018 D. Wanke; 7 ♂, [Turkey], Kleinasien, Prov. Siirt, 25 km W Uludere, 1200 m, 31.v.[19]81, leg. de Freina, g.preps 0064, 0065/2018 D. Wanke, 0247, 0248, 0249/2019 D. Wanke, 2091/2016 H. Rajaei; 1 ♂, 1 ♀, Türkei, Anatolien, Kurdistan, Elazig SÜ, vii.1976, leg. Czipka, g.preps (♂) 2093/2017 H. Rajaei, (♀) 0431/2019 D. Wanke; 4 ♂, [Turkey], Kleinasien, Prov. Siirt, Umg. Sirnak, 900-1200 m, 02.6.1982, leg. de Freina, g.preps. 0067/2018 D. Wanke, 0250/2019 D. Wanke, 2095/2017 H. Rajaei; 1 ♀, [Turkey], Kleinasien, Prov. Siirt, 16 km NW Sirnak, 1100 m, 09.vii.[19]83, leg. de Freina, g.prep. 0251/2019 D. Wanke; 1 ♂, 1 ♀, [Turkey], Kleinasien, Prov. Hakkari, Sat-Daglari, vic. Varagöz, 1850-2000 m, 21.-24.vii.[19]83, leg. de Freina, g.preps (♂) 2094/2017 H. Rajaei, (♀) 0433/2019 D. Wanke; 8 ♂, 1 ♀, [Turkey], Kleinasien, Prov. Hakkari, Zab-Tal, 20 km östl. Hakkari, 1300-1400 m, 06.-16.vi.[19]81, g.preps (♂) 0068, 0069, 0070, 0071, 0074/2018 D. Wanke, (♀) 0434/2019 D. Wanke; 6 ♂, 2 ♀, Türkei, Van, 5 km W Gevas, 1700-1800 m, 24.vii.-5.viii.[19]92, leg. P. Kautt & V. Weiss, g.preps (♂) 0061, 0062, 0063/2018 D. Wanke, 0257, 0258/2019 D. Wanke, (♀) 0259/2019 D. Wanke; 4 ♂, [Turkey], Kleinasien, Prov. Hakkari, 15 km NW Yüksekova, vic. Suüstü (=Sakitan), 1900 m, 19.-20.vii.1983, leg. de Freina, g.preps 0072/2018 D. Wanke, 0253/2019 D. Wanke; 1 ♂, [Turkey], Kleinasien, Prov. Hakkari, 15 km NW Yüksekova, vic. Suüstü, 1900 m, 15.-16.vii.[19]80, leg. de Freina, g.prep. 0073/2018 D. Wanke; 1 ♂, [Turkey], Kleinasien, Prov. Hakkari, Zab-Tal, 30 km SW Hakkari, 1200-1300 m, 06.-08.6.[19]82, g.prep. 0252/2019 D. Wanke; 1 ♂, Türkei, Zap-Tal, vic. Hakkari, 1.+2.vii.1982, leg. W. Thomas; 2 ♂, [Turkey], Kleinasien, Prov. Hakkari, Umg. Hakkari, Zab-Tal, 1350-1400 m, 10.vii.-12.vii.[19]80, g.prep. 0075/2018 D. Wanke; 1 ♂, [Turkey], Kleinasien, Prov. Hakkari, 40 km Ö Uludere, Mutluca-Tal, vic. Melise, 1150 m, 5.vi.[19]82, leg. de Freina, g.prep. 0255/2019 D. Wanke; 1 ♂, Turkey, Mersin, 10 km SW Güzeloluk, Taurus, 12.vii.1987, 1400 m, leg. M. Fibiger; 2 ♂, [Turkey], Kleinasien, Prov. Bitlis, Bitlis Cay-Tal, vic. Sarikonak, 1050-1100 m, 07.-08.vii.[19]83, leg. de Freina, g.prep. 0087/2018 D. Wanke; 1 ♂, Türkei, Kars, 5 km S Sarikamis, 2200 m, 22.vii.[19]92, leg. P. Kautt & V. Weiss, g.prep. 0085/2018 D. Wanke; 1 ♂, Türkei, Prov. Agri, vic. Cumacay, 1500 m, 3.viii.1978, Lichtf., leg. W. Thomas, g.prep. 0265/2019 D. Wanke; all in SMNS.

17 ♂, Türk., Ost-kurdistan, Van Gölü, ca. 1800 m, 1.-31.Vii.1965, leg. Herbert Noack, g.preps 0163, 0164, 0165, 0167/2018 D. Wanke, 0285, 0286, 0287, 0289, 0290/2019 D. Wanke; 1 ♂, same locality as before, 6.-30.Vii.1965, leg. Herbert Noack, g.prep 0288/2019 D. Wanke; 3 ♂, Ostanatolien, Van Gölü, ca. 1800 m, 1.-31.Vii.1965, leg. Herbert Noack, g.prep. 0291/2019 D. Wanke; all in SMNK. 1 ♂, Iran, Prov. Khuzestan, Mal aqa, 1100 m, 31°35‘57‘‘N, 50°00‘50‘‘E, 07.x.2016, leg. Mehdi Esfandiari; 1 ♀, Iran, Provinz Fars, Tange bolhayat, 1300 m, 29°44‘02‘‘N, 57°47‘00‘‘E, 27.x.2016, leg. Mehdi Esfandiari; all in PCME.

1 ♂, 3 ♀, Iran, Isfahan prov. Hanna protected area, Hanna-Komee road, 15 km after Hanna, Baghak Mt., 2355 m, N 31°10’44’’, E 51°33’51’’, 10.vi.2010, leg. H. Rajaei, g.preps (♂) 0372/2019 D. Wanke (♀) 0373/2019 D. Wanke; 1 ♂, [Iran] Azarbeijan-e Gharbi, Takab, Shahin Dej., 2.vii.2013, N 36°32’19.7’’, E 046°41’43.9’’, 1521 m, leg. M. Afsarian, g.prep. 0387/2019 D. Wanke; 7 ♂, Turkey, Malatya, Gündüzbey, 1300 m, 26.vii.1998, leg. K. Larsen, g.preps 0336, 0452/2019 D. Wanke; 1 ♀, Iran, Boyer Ahmad-Va-Kohgiluyeh, Yasuj NW, Sisakht 7 km NNE, 2650-2700 m, 14.vi.2001, leg. A. Hofmann, J.-U. Meineke, W.G. Tremewan, g.prep. 0448/2019 D. Wanke; 1 ♀, Iran, Hormozgan, Mt. Geno, 700 m, 26.iv.2002, leg. Vazrick Nazari, g.prep. 0449/2019 D. Wanke; 1 ♀, Iran, Shiraz, 1600 m, 19.v.1977, leg. Dittrich, g.prep. 0450/2019 D. Wanke; all in PCPS.

1 ♂, W-Iran, Kordestan, 95 km N Kermanschah, Straße nach Sanandaj, 1350 m, 11.vii.1975, leg. Ebert & Falkner, g.prep 0191/2018 D. Wanke; 1 ♂, W-Iran, Lorestan, Dorud, 5 km SE Saravand, Kohyeh, 2300 m, 29.-30.vii.1975, leg. Ebert & Falkner, g.prep. 0193/2018 D. Wanke; 1 ♂, W-Iran, Lorestan, 14 km E Dorud, 1990 m, 6.viii.1975, leg. Ebert & Falkner, g.prep. 0194/2018 D. Wanke; 2 ♂, 1 ♀, Iran, Kordestan, Saghez-Baneh road, 10 km to Baneh Garnadeh-Khan, N 36°04‘13‘‘. E 45°59‘31‘‘, 1976 m NN, 26.-27.vi.2009, leg. H. Rajaei, J.U. Meineke & A. Hofmann, g.preps (♂) 0199, 0200/2018 D. Wanke; 1 ♀, Iran, Kordestan, Sanandaj NW, Saqqez Baneh (pass), 1950-2100 m, 28.u.29.vi.2005, leg. A. Hofmann, g.prep. 0271/2019 D. Wanke; 2 ♂, W-Iran, Kermanschah, Surkhe Dizeh, 56 km NW Schahabad, 1320 m, 14.vii.1975, leg. Ebert & Falkner, g.prep. 0198/2018 D. Wanke; 1 ♂, NW-Iran, 30 km südl. Rezaiyeh, 1400 m, 10.vi.1975, leg. H.G. Amsel, g.prep. 0201/2018 D. Wanke; 1 ♂, NW-Iran, 15 km westl. Rezaiyeh, 1400 m, 11.vi.1975, leg. H.G. Amsel, g.prep. 0202/2018 D. Wanke; 1 ♀, 12 km westl. Rezoiyeh, 1350 m, 30.v.1975, leg. Amsel; 1 ♂, NW-Iran, 50 km Straße Piranshar-Sardascht, 1400 m, Quercetum, 14.vi.1975, leg. H.G. Amsel, g.prep. 0203/2018 D. Wanke; 1 ♂, W-Iran, W-Azarbaijan, 2 km W Sardasht, 1650 m, 3.vii.1975, leg. Ebert & Falkner, g.prep 0205/2018 D. Wanke; 3 ♂, 1 ♀, Iran, prov. Azerbayejan, E-Sharqi, 10 km NW of Miyane, 31.v.-1.vi.2005, leg. P. Gyulai & A. Garai, g.preps (♂) 0204/2018 D. Wanke, 0268/2019 D. Wanke; 1 ♂, 1 ♀, Iran, prov. Azerbayejan, E-Sharqi, 10 km NW of Miyane, 14.-15.vi.2005, leg. P. Gyulai & A. Garai, g.prep. (♂) 0269/2019 D. Wanke; 1 ♂, Iran, prov. Kohkiluye va Boyerahmad, 30 km S Yassuj, road Abshare-Tange-Tamoradi, 8 km before Abshar [=waterfall], N30°31’53’’, E51°25’11’’, 2254 m NN, 24.v.2009, leg. Hossein Rajaei, g.prep. 0183/2018 D. Wanke; 1 ♂, Iran, Balotchistan, Kouh i Taftan (Khach), 2500 m, vi.1938, coll. Brandt, g.prep. 0189/2018 D. Wanke; 1 ♂, Iran, Prov. Tehran, Elburz mts., 3 km NNW Shemshak, 2860 m NN, N 36°02’, E 051°28’, 24.vii.2003, (lux), g.prep. 0206/2018 D. Wanke; 1 ♀, N-Iran, Elburs-Mts., Prov. Tehran, Arangeh, 25 km N Karadi, 1550 m, 4.vii.1972, leg. Ebert & Falkner, g.prep. 0272/2019 D. Wanke; 1 ♂, Iran, prov. Fars, S-Zagros, 5 km NE of Saidatshahr, 09.-10.vi.2005, leg. P. Gyu-

lai & A. Garai; 1 ♂, 1 ♀, Iran, prov. Fars, S-Zagros, 40 km SW of Sivand, 09.-10.vi.2005, leg. P. Gyulai & A. Garai, g.preps (♂) 0273/2019 D. Wanke (♀) 0274/2019 D. Wanke; 2 ♂, 1 ♀, S-Iran, Miyan Kotal, östl. Kazerun, 1900 m, 4.-7.vi.1969, N 29°30', E 51°40', leg. G. Ebert, g.preps (♂) 0175, 0177/2018 D. Wanke; 1 ♂, S-Iran, Tangetchogan, 30 km n. Kazerun, 930 m, 23.iii.[19]73, leg. H.G. Amsel, g.prep. 0275/2019 D. Wanke; 1 ♀, Iran, prov. Bushehr, S-Zagros, Thang e Ram near Dalekhi, 400 m, 07.-08.vi.2005, leg. P. Gyulai & A. Garai, g.prep. 0276/2019 D. Wanke; 2 ♂, 1 ♀, S-Iran, Bandar Abbas, km 107 d. Strasse nach Sirdjan, 850 m, 7.iii.1973, leg. G. Ebert, g.prep. (♂) 0187/2018 D. Wanke; 4 ♂, S-Iran, Khusestan, 15 km SE Yassudj, 2050 m, 15.vi.1972, leg. Ebert & Falkner, g.preps 0184/2018 D. Wanke, 0277/2019 D. Wanke; 2 ♂, 2 ♀, S-Iran, Prov. Khuzestan, Yasudj, Sisakht, 50 km NW, 15.-18.vi.1975, leg. Ebert, Falkner, g.preps (♀) 0278, 0438/2019 D. Wanke; 1 ♀, Iran, Prov. Esfahan, NE of Naraq, Kuh-e Goran, 2500 m NN, N 34°05', E 050°54', 06.vii.2003, leg. G. Ebert & R. Trusch, g.prep. 0439/2019 D. Wanke; 1 ♂, S-Iran, Fars, Kaserun, Mian-kotal, 1900 m, 11.vi.1972, leg. Ebert & Falkner, g.prep. 0173/2018 D. Wanke; 1 ♂, S-Iran, Straße Shiraz-Kazerun, Imam Sade, 1200 m, 3.vi.1969, leg. G. Ebert, g.prep. 0178/2018 D. Wanke; 2 ♂, Iran, prov. Boyerahmad-va-Kohgiluyeh, SE-Zagros, Kuh-e-Dena, 5 km SW of Sisakht, 2450 m, 04.-05.vi.2005, g.preps 0182/2018 D. Wanke, 0270/2019 D. Wanke; 1 ♂, Iran, prov. Kerman, Baft-Sirjan road 2 km after Baft, sandy road, 3 km to Nord, Ras-Kuh village, N 29°17'27'', E 56°35'37'', 2543 m NN, 20.-21.v.2009, leg. Hossein Rajaei, g.prep. 0170/2018 D. Wanke; 3 ♂, S-Iran, Prov. Fars, Tange Surkh, 50 km NW Ardekan, 2250mNN, 12.-15.vi.1975, leg. Ebert, Falkner, g.preps 0172/2018 D. Wanke, 0279/2019 D. Wanke; 1 ♂, Iran, Chaharmahal-va-Bakhtiyari, Borujen S Dorahun 6 km S, 1850-2100 m, 1.vi.2005, leg. A. Hofmann & J.-U. Meineke, g.prep. 0281/2019 D. Wanke; all in SMNK.

1 ♂, Türkei, Anatolia centr., Umg. Göreme, 15.-19.vi.1991, leg. Dr. Löbel, g.prep. 0402/2019 D. Wanke; 1 ♂, O-Türkei, Malatya, Recadive Paß, südl. Sürgü, 1500 m, 27.vi.1979, leg. Groß, g.prep. 2039/2016 H. Rajaei; 1 ♀, O-Türkei, Elazig, Hazar See, NW Ufer, 1250 m, 30.vi.1979, leg. Groß, g.prep. 2040/2016 H. Rajaei; 1 ♂, Syria, Taurus, Marasch, v.[19]31, g.prep. 0405/2019 D. Wanke; 1 ♂, Syria s. Taurus m. Marasch, vi.1930, g.prep. 0404/2019 D. Wanke; 1 ♀, Syria s. Taurus m. Marasch, vi.1931, 0461/2019 D. Wanke; 1 ♂, [Turkey] Asia min. NW Ende d. Beysehir gölü, 14.-18.vi.1966, leg. J. Klimesch, g.prep. 0406/2019 D. Wanke; 1 ♂, Türkiye, Konya, 55 km, W Konya, 1300 m, 26.vii.1990, leg. H. Falkner, g.prep. 0459/2019 D. Wanke; 1 ♂, 1 ♀, Asia min. Turcia, Köprüköy, Kizilirmak, 750 m, 5.-8.vi.1969, leg. G. Friedel, g.prep. (♂) 0403/2019 D. Wanke, (♀) 0460/2019 D. Wanke; 1 ♀, [Turkey] Asia minor, Sille p. Konya, 10.vi.1966, leg. J. Klimesch, 0462/2019 D. Wanke; 2 ♂, Persia sept, Elburs mts.c.s. Tacht i Suleiman, Särdab Tal (Vandarban), 25-2700 m, 14.-18.vii.[19]37, leg. E.Pfeiffer & W. Forster München, g.prep. 0238/2019 D. Wanke; in ZSM.

APPENDIX TABLE. Sequenced specimens of *Nychiodes*, with identification, sampling site and process ID in the Barcode of Life Data Systems (BOLD). Tissue provided or data generated by: Antonio S. Ortiz[(1)]; Axel Hausmann[(2)]; Bernd Mueller[(3)]; Dirk Stadie[(4)]; Feza Can[(5)]; Gabriele Fiumi[(6)]; Gergely Petrányi[(7)]; Iva Mihoci[(8)]; Jörg Gelbrecht[(9)]; Marco Infusino[(10)]; Muhammad Ashfaq[(11)]; Norbert Poell[(12)]; Wanke *et al.* (current paper)[(13)].

Taxon Identification	Sampling Site	Process ID
***Nychiodes admirabila*[(13)]**	Iran, Kohkiluye va Boyerahmad, yasuj, Sisakht, 30.vii.2016, leg. Sh. Feizpour	GMECA024-20
***Nychiodes admirabila*[(13)]**	Iran, Kohkiluye va Boyerahmad, yasuj, Sisakht, 30.vii.2016, leg. Sh. Feizpour	GMECA025-20
***Nychiodes admirabila*[(13)]**	Türkei, Prov. Malatya, Nemrut dagi, 1430 m, 24.v.2009, leg. D. Stadie & H. Löbel	GMECA027-20
***Nychiodes admirabila*[(4)]**	Iran, Fars, Estahban-Sarwestan road, after Ab-Asemani, 22.v.2009, Hossein Rajaei	GWOTK551-12
***Nychiodes amygdalaria*[(4)]**	Turkey, Erzurum, Ispir Umg., Koepruekoey Umg., 02.viii.2001, Dirk Stadie	GWOTK550-12
***Nychiodes amygdalaria*[(4)]**	Turkey, Tunceli, Munzur Tal, 16 km NW Tunceli, 06.vii.2011, Ralf Fiebig	GWOTK549-12
***Nychiodes amygdalaria*[(5)]**	Turkey, Isparta, Akdeniz, Isparta, Egirdir-Yenisarbademli, 27.vi.2007, F. Can	GWORC570-07
***Nychiodes amygdalaria*[(5)]**	Turkey, Isparta, Akdeniz, Isparta, Egirdir-Yenisarbademli, 27.vi.2007, F. Can	GWORC571-07
***Nychiodes amygdalaria*[(9)]**	Turkey, Artvin, Karadeniz, Artvin, Barhal bel. Yusufeli, 28.x.1995, J. Gelbrecht & S. Beshkov	GWORA546-08
***Nychiodes amygdalaria*[(9)]**	Turkey, Erzurum, Dogu Anadolu, Dogu Karadeniz Daglari: Korga Dagi Koprukoy, Ispir, 04.viii.2001, J. Gelbrecht, S. Beshkov, R. Busse & A. Kazanci	GWORA544-08

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APPENDIX. (Continued)

Taxon Identification	Sampling Site	Process ID
Nychiodes andalusiaria **(1)**	Spain, Lugo, Galicia, Degrada, 16.viii.2012, J.J. Guerrero	IBLAO915-12
Nychiodes andalusiaria **(1)**	Spain, Lugo, Galicia, Degrada, 29.vii.2010, J.J. Guerrero	IBLAO1106-14
Nychiodes andalusiaria **(3)**	Spain, Castilla y Leon, Avila, Sierra de Gredos, Platforme de Gredos, 21.vii.2003, P. Skou	GWOSM071-11
Nychiodes antiquaria **(11)**	Pakistan, Ajk, AJK, Rhamboor, 18.vi.2011, S. Akhtar	MAMOT1190-11
Nychiodes antiquaria **(12)**	Kyrgyzstan, Prov. Jalal-Abad, Distr. Aksy, At-Oynok-Mountains, Kurp-Sai, 02.vi.2010, leg. N. Poell	GWOSM128-11
Nychiodes antiquaria **(13)**	Kyrgyzstan, Jalal Abad, Chatkal Valley 2 km NE Jany Bazar, 26.vi.2016, leg. D. Bartsch	GMECA001-20
Nychiodes antiquaria **(13)**	Kyrgyzstan, Naryn Slopes 1 km S Kyzyl-Oi, 4.vii.2015, at light, leg. D. Bartsch	GMECA003-20
Nychiodes antiquaria **(13)**	Tadjikistan, Darvaz mts., Kugireui range, Host vill, Kalaishum city environs, 1500 m, 4.vii.2014, leg. Valentina Zurilina	GMECA037-20
Nychiodes antiquaria **(13)**	Tadjikistan, Darvaz mts., Kugireui range, Host vill, Kalaishum city environs, 1500 m, 4.vii.2014, leg. Valentina Zurilina	GMECA038-20
Nychiodes convergata **sp. nov.** **(2)**	Israel, Northern, Hermon, Mt. Hermon, Up. Cable Stat, 10.vi.2000, G. Mueller	GWOR700-07
Nychiodes convergata **sp. nov.** **(2)**	Israel, Northern, Hermon, Mt. Hermon, Up. Cable Stat, 10.vi.2000, G. Mueller	GWOR701-07
Nychiodes dalmatina **(2)**	Greece, Epirus, Thesprotia, Fascomilia, 15.vii.1997, P. Schaider	GWORD448-07
Nychiodes dalmatina **(2)**	Greece, Thassos, Theologos, 03.vi.2010, M. Leipnitz	GWOSI285-10
Nychiodes dalmatina **(2)**	Greece, Thesprotia, env. Plataria, 30.v.1993	GWORN501-09
Nychiodes dalmatina **(3)**	Bulgaria, Blagoevgrad/Sandanski, Pirin mts., Lilyanovo, 14.viii.1981, B. Mueller	GWORU419-10
Nychiodes dalmatina **(3)**	Greece, Central Macedonia, Serres, 2 km W Angistro, 30.viii.1980, P. Skou	GWOSM069-11
Nychiodes dalmatina **(3)**	Greece, West Macedonia, Florina, Limni Mikra Prespa near Karies, 24.vi.2004, B. Skule	GWOSM079-11
Nychiodes dalmatina **(8)**	Croatia, Splitsko-dalmatinska, Dalmatia, NP Mt. Biokovo L3, 12.ix.2007, I. Mihoci, M. Vajdic	GWOSI028-10
Nychiodes divergaria **(13)**	[Iran], Azarbeijan-e Gharbi, Takab, Shahin Dej., 2.vii.2013, leg. M. Afsarian	GMECA035-20
Nychiodes divergaria **(13)**	Iran, Kohkiluye va Boyerahmad, yasuj, Sisakht, Dena, 30.vii.2016, leg. Sh. Feizpour	GMECA009-20
Nychiodes divergaria **(13)**	Iran, Azerbaijan-e Gharbi prov., Khoy to Ghotur road, Esteran vill., 1.vii.2013, leg. H. Rajaei, J.U. Meineke, B. Hafezi	GMECA014-20
Nychiodes divergaria **(13)**	Iran, Azerbaijan-e Gharbi prov., Khoy to Ghotur road, Esteran vill., 1.vii.2013, leg. H. Rajaei, J.U. Meineke, B. Hafezi	GMECA015-20
Nychiodes divergaria **(13)**	Iran, Hormozgan, Bandar Abbas, Genu, 01.v.2016, leg. Sh. Feizpour	GMECA008-20
Nychiodes divergaria **(13)**	Iran, Hormozgan, Bandar Abbas, Genu, 01.v.2016, leg. Sh. Feizpour	GMECA018-20
Nychiodes divergaria **(13)**	Iran, Isfahan prov. Hanna protected area, Hanna-Komee road, 15 km after Hanna, Baghak Mt., 10.vi.2010, leg. H. Rajaei	GMECA034-20
Nychiodes divergaria **(13)**	Iran, Kerman, Bam-Jiroft road, Kuhe Dehbakri, 27.iv.2016, leg. Sh. Feizpour	GMECA022-20

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APPENDIX. (Continued)

Taxon Identification	Sampling Site	Process ID
Nychiodes divergaria[13]	Iran, Kerman, Bam-Jiroft road, Kuhe Dehbakri, 27.iv.2016, leg. Sh. Feizpour	GMECA023-20
Nychiodes divergaria[13]	Iran, Kohkiluye va Boyerahmad, yasuj, Sisakht, Dena, 30.vii.2016, leg. Sh. Feizpour	GMECA017-20
Nychiodes divergaria[13]	Iran, Lorestan, Dorud, Gahar lake, 28.vii.2016, leg. Sh. Feizpour	GMECA013-20
Nychiodes divergaria[13]	Iran, prov. Fars, Shiraz-Kazerun road, 5 km before Dashte Arjan, 23.v.2009, leg. Hossein Rajaei	GMECA016-20
Nychiodes divergaria[13]	Iran, Prov. Khuzestan, Mal aqa,, 07.x.2016, leg. Mehdi Esfandiari	GMECA040-20
Nychiodes divergaria[13]	Iran, prov. Kohkiluye va Boyerahmad, 30 km S Yassuj, road Abshare-Tange-Tamoradi, 8 km before Abshar, 24.v.2009, leg. Hossein Rajaei	GMECA020-20
Nychiodes divergaria[13]	Iran, prov. Lorestan, Noorabad-Nahawand road, 25 km to Nahawand, Gardane-Garrin, 25.vi.2009, leg. H. Rajaei, J.U. Meineke & A. Hoffmann	GMECA019-20
Nychiodes divergaria[13]	Iran, Shahrud, Shahkouh, Tash, Ayoub Hosseini region, 11.vii.2016, leg. Sh. Feizpour	GMECA021-20
Nychiodes divergaria[13]	Isfahan prov. Hanna protected area, Hanna-Komee road, 15 km after Hanna, Baghak Mt., 10.vi.2010, leg. H. Rajaei	GMECA010-20
Nychiodes divergaria[13]	Republic Armenia, Aiotzdorsky range, Yeghegnadzor suburbs, 150 km to SE from Yerevan, Mozrov Village, Mountain steppes, 25.-27.vi.2009, leg. Yuriy Shevnin	GMECA036-20
Nychiodes divergaria[13]	Türkei, centr., Provinz Tunceli, Munzur Tal 16 km NW von Tunceli, 06.vii.2011, leg. R. Fiebig & S. Rothe	GMECA039-20
Nychiodes divergaria[13]	Türkei, Prov. Adiyaman, Nemrut Dagh, 21.-23.viii.2009, leg. Ralf Fiebig	GMECA029-20
Nychiodes divergaria[2]	Turkey, Erzurum, Dogu Anadolu, Dogu Karadeniz Daglari: Korga Dagi Koprukoy, Ispir, 28.vii.2001, J. Gelbrecht, S. Beshkov, R. Busse, A. Kazanci & E. Schwabe	GWORA559-08
Nychiodes divergaria[2]	Turkey, Mugla, Aegean Region, Dalaman, Sarigerne, 05.vi.2000, M. Leipnitz	GWORA556-08
Nychiodes divergaria[4]	Iran, Kerman, Baft-Sirjan road, 2 km after Baft, 21.v.2009, Hossein Rajaei	GWOTK529-12
Nychiodes divergaria[4]	Iran, Kordestan, Saghez-Baneh road, 10 km to Baneh, Garnadeh-Khan, 27.vi.2009, Hossein Rajaei	GWOTK542-12
Nychiodes divergaria[4]	Turkey, Adiyaman, Nemrut Dagh, 23.viii.2009, Ralf Fiebig	GWOTK560-12
Nychiodes divergaria[4]	Turkey, Hakkari, 5 km W Hakkari, 03.vii.2011, Ralf Fiebig	GWOTK536-12
Nychiodes divergaria[4]	Turkey, Nevsehir, Aktepe, 27.viii.2009, Ralf Fiebig	GWOTK561-12
Nychiodes divergaria[4]	Turkey, Van, Gevas 10 km S, 30.vii.2001, Dirk Stadie	GWOTK534-12
Nychiodes divergaria[4]	Turkey, Van, Gevas 10 km S, 30.vii.2001, Dirk Stadie	GWOTK553-12
Nychiodes divergaria[7]	Iran, Mazandaran, Resteh-Ye-Elborz, Minokh, Baladeh Valley, 18.vi.2007, Hacz T. - Nadai L.	GWORP217-09
Nychiodes divergaria[7]	Iran, Boyer Ahmadi-e Kohkiluyeh, Kuhha-ye-Zagros, Kuh-e-Dinar, 15 km N of Vazag, 12.vi.2007, Hacz T. - Nadai L.	GWORP224-09
Nychiodes divergaria[7]	Iran, Fars, Kum Mts., Saidatsahr, 01.vii.2005, Petranyi G.	GWORP223-09
Nychiodes divergaria[9]	Turkey, Antalya, Antalya 35 km South from Kemer, 25.ix.2009, A. & A. Saldaitis	GWOSQ159-11
Nychiodes divergaria[9]	Turkey, Erzurum, Dogu Anadolu, Dogu Karadeniz Daglari, Ovit Dagi, 5 km sudl. Ovit Dagi geciti, 27.vi.2001, J. Gelbrecht, S. Beshkov, R. Busse, A. Kazanci & E. Schwabe	GWORA558-08

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APPENDIX. (Continued)

Taxon Identification	Sampling Site	Process ID
***Nychiodes divergaria*[9]**	Turkey, Erzurum, Dogu Anadolu, Dogu Karadeniz Daglari: Korga Dagi Koprukoy, Ispir, 28.vi.2001, J. Gelbrecht, S. Beshkov, R. Busse, A. Kazanci & E. Schwabe	GWORA560-08
***Nychiodes divergaria*[9]**	Turkey, Nevsehir, Central Anatolia, Goereme, 19.vi.1991, Dr. Loebel	GWORN499-09
***Nychiodes eberti* sp. nov.[2]**	Turkey, 31.vii.1995, Gelbrecht	GWORN500-09
***Nychiodes farinosa*[13]**	Iran, Fars prov., Shiraz-Kazeroun road, Dasht-e Arjan, 12.vi.2010, leg. H. Rajaei	GMECA005-20
***Nychiodes farinosa*[7]**	Iran, Hamadan, Kuhha-ye-Zagros, Nehavand, 26.vi.2005, Petranyi G.	GWORP228-09
***Nychiodes farinosa*[7]**	Iran, Hamadan, Kuhha-ye-Zagros, Nehavand, 26.vi.2005, Petranyi G.	GWORP229-09
***Nychiodes hispanica*[1]**	Spain, Andalusia, Granada, Puebla de Don Fadrique, 13.vii.2010, C. Abad	IBLAO113-11
***Nychiodes hispanica*[2]**	Morocco, Marrakesh-Tensift-El Haouz, H. Atlas, Ait el Qaq, 10.viii.2012, G. Mueller & E. Revay	GWOTM824-14
***Nychiodes hispanica*[2]**	Morocco, Marrakesh-Tensift-El Haouz, H. Atlas, Oukaimeden, 10.viii.2012, G. Mueller & E. Revay	GWOTM718-14
***Nychiodes hispanica*[2]**	Spain, Andalusia, Granada, Siesrra Nevada, 31.xii.2009, Bernd Mueller	GWOST182-11
***Nychiodes hispanica*[2]**	Spain, Castilla-La Mancha, Albacete, vic. Riopar, 06.viii.1992, E. Aistleitner	GWORO331-09
***Nychiodes hispanica*[2]**	Spain, Castilla-La Mancha, Albacete, vic. Riopar, 14.vii.1992, E. Aistleitner	GWORO330-09
***Nychiodes hispanica*[2]**	Spain, Castilla-La Mancha, Albacete, vic. Riopar, 23.vii.1992, Aistleitner	GWOTZ120-16
***Nychiodes hispanica*[2]**	Spain, Castilla-La Mancha, Albacete, vic. Riopar, 23.vii.1992, Aistleitner	GWOTZ121-16
***Nychiodes hispanica*[3]**	Morocco, Meknes-Tafilalet Region, Ifrane, Moyen Atlas, Ifrane, 30.vi.1994, H. Loebel	GWORU414-10
***Nychiodes hispanica*[3]**	Morocco, Meknes-Tafilalet Region, Ifrane, Moyen Atlas, Ifrane, 30.vi.1994, H. Loebel	GWORU415-10
***Nychiodes hispanica*[3]**	Spain, Andalusia, Malaga, Algatocin, 28.vii.1998, N. Poell	GWORU433-10
***Nychiodes hispanica*[3]**	Spain, Andalusia, Sierra Nevada, S Puerto de la Ragua, 12.vii.2009, B. Mueller	GWORU431-10
Nychiodes hispanica(3)	Spain, Andalusia, Sierra Nevada, S Puerto de la Ragua, 15.vii.2009, B. Mueller	GWORU430-10
***Nychiodes hispanica*[3]**	Spain, Andalusia, Sierra Nevada, S Puerto de la Ragua, 18.vii.2009, B. Mueller	GWORU429-10
***Nychiodes leviata*[13]**	Iran, Lorestan, Dorud, Gahar lake, 28.vii.2016, leg. Sh. Feizpour	GMECA004-20
***Nychiodes leviata*[13]**	Iran, Lorestan, Kuh-e Garin, Gard ye Gema Siab O, 25.vi.2009, leg. A. Hofmann, J.-U. Meineke, H. Rayai	GMECA026-20
***Nychiodes mirzayansi* sp. nov.[13]**	Iran, Kerman, Jiroft NW, Gardaneh, Sarbishan, Shingara vic., 3./4.vi.2002, leg. J.-U. Meineke, A. Hofmann, A. Kallies et al.,	GMECA028-20
***Nychiodes notarioi*[1]**	Spain, Aragon, Huesca, Aineto, 08.viii.2007, G. King	IBLAO216-11
***Nychiodes notarioi*[1]**	Spain, Aragon, Huesca, Aineto, 08.viii.2007, G. King	IBLAO217-11
***Nychiodes notarioi*[1]**	Spain, Castilla-La Mancha, Cuenca, Huelamo, 11.vii.2010, J.J. Guerrero	IBLAO111-11
***Nychiodes notarioi*[1]**	Spain, Castilla-La Mancha, Cuenca, Huelamo, 11.vii.2010, J.J. Guerrero	IBLAO112-11
***Nychiodes notarioi*[1]**	Spain, Cuenca, Castilla-La Mancha, Puerto del Cubillo-Tragacete, 14.vi.2012, J.J. Guerrero	IBLAO913-12
***Nychiodes notarioi*[1]**	Spain, Huesca, Aragon, Biascas de Obarra, 19.vii.2012, J.J. Guerrero	IBLAO839-12
***Nychiodes notarioi*[1]**	Spain, Huesca, Aragon, Biascas de Obarra, 19.vii.2012, J.J. Guerrero	IBLAO914-12

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APPENDIX. (Continued)

Taxon Identification	Sampling Site	Process ID
Nychiodes notarioi[3]	Spain, Aragon, Teruel, Sierra de Albarracin, 3 km WSW Moscardon, 06.viii.2007, P. Skou	GWOSM073-11
Nychiodes notarioi[3]	Spain, Aragon, Teruel, Sierra de Albarracin, Albarracin, Val de Vecar, 05.viii.2007, P. Skou	GWOSM072-11
Nychiodes notarioi[3]	Spain, Castilla-La Mancha, Cuenca, Sierra de Cuenca, Una, 09.vii.2002, B. Skule	GWOSM076-11
Nychiodes notarioi[3]	Spain, Castilla-La Mancha, Cuenca, Sierra de Cuenca, Una, 09-.vii.2002, B. Skule	GWOSM077-11
Nychiodes notarioi[3]	Spain, Catalonia, Barcelona, Sierra del Montseny, 08.vii.1993, B. Mueller	GWORU412-10
Nychiodes notarioi[3]	Spain, Catalonia, Barcelona, Sierra del Montseny, 08.vii.1993, B. Mueller	GWORU413-10
Nychiodes obscuraria[2]	France, Provence-Alpes-Cote d'Azur, 30.vi.2006, Koschwitz & Leipnitz	GWORD415-07
Nychiodes obscuraria[2]	France, Provence-Alpes-Cote d'Azur, 30.vi.2006, Koschwitz & Leipnitz	GWORD416-07
Nychiodes obscuraria[2]	France, Provence-Alpes-Cote d'Azur, 30.vi.2006, Koschwitz & Leipnitz	GWORD417-07
Nychiodes obscuraria[2]	France, St. Crepin, 02.vii.2009, Herzet NL. Leipnitz	GWOSC944-10
Nychiodes obscuraria[2]	Italy, Calabria, Prov. Cosenza, Sila, Lago Cecita, Longobucco, 13.viii.2013, A Hausmann	GWOTA909-13
Nychiodes obscuraria[3]	Italy, Trentino-Alto Adige/Sudtirol, Vinschgau, Staben, 18.vii.1984, E. Loser	GWORU411-10
Nychiodes obscuraria[6]	Italy, Emilia-Romagna, Forli, Castrocaro Terme, 01.vii.2008, G. Govi	GWOTH931-12
Nychiodes palaestinensis[2]	Israel, Haifa, Carmel, 2 km S Uni Haifa, 31.iii.2003, G.Mueller	GWOR352-07
Nychiodes palaestinensis[2]	Israel, Haifa, Carmel, Carmel Haifa, 15 km South of Haifa, 30.vi.2003, Mueller, Kravchenko	GWOR237-07
Nychiodes palaestinensis[2]	Israel, Jerusalem, 10 km West of Jerusalem, 31.v.2003, Mueller, Kravchenko	GWOR369-07
Nychiodes palaestinensis[2]	Israel, Northern, Hermon, Mt. Hermon, Up. Cable Stat, 10.vi.2000, G. Mueller	GWORE2087-09
Nychiodes palaestinensis[2]	Israel, Northern, Hermon, Mt. Hermon, Up. Cable Stat, 10.vi.2000, G. Mueller	GWOR363-07
Nychiodes palaestinensis[2]	Israel, Northern, Hermon, Mt. Hermon, Up. Cable Stat, 10.vi.2000, G. Mueller	GWOR364-07
Nychiodes palaestinensis[2]	Israel, Northern, Hermon, Mt. Hermon, Up. Cable Stat, 10.vi.2000, G. Mueller	GWOR365-07
Nychiodes palaestinensis[2]	Israel, Northern, Yiftakh Rocks, 30.v.2003, Mueller, Kravchenko	GWOR353-07
Nychiodes palaestinensis[2]	Israel, Northern, Yiftakh, 30.v.2003, leg. Mueller & Kravchenko	GWOR235-07
Nychiodes palaestinensis[2]	Israel, Northern, Yiftakh, 30.v.2003, leg. Mueller & Kravchenko	GWOR236-07
Nychiodes palaestinensis[2]	Jordan, Ajloun, oak forest, 12.v.2010, Schellhorn	GWOSI541-10
Nychiodes palaestinensis[2]	Jordan, Ajloun, oak forest, 12.v.2010, Schellhorn	GWOSI542-10
Nychiodes palaestinensis[2]	Jordan, Ajloun, oak forest, 12.v.2010, Schellhorn	GWOSI543-10

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APPENDIX. (Continued)

Taxon Identification	Sampling Site	Process ID
Nychiodes palaestinensis [2]	Jordan, Al Asimah, Badran, 20 km N Amman, 15.v.1999, Li, Mueller	GWOR699-07
Nychiodes palaestinensis [2]	Jordan, Al Asimah, Badran, 20 km N Amman, 15.v.1999, Li, Mueller	GWORB1191-07
Nychiodes palaestinensis [2]	Jordan, Al Asimah, Badran, 20 km N Amman, 15.v.1999, Li, Mueller	GWORE2086-09
Nychiodes palaestinensis [2]	Jordan, Al Karak, Al Karak, Jibal Abu al Idham, 30.xi.2002, Li, Mueller	GWOR123-07
Nychiodes palaestinensis [2]	Jordan, Dhana NR, juniper/oak on sand stone, 05.v.2010, Schellhorn	GWOSO568-11
Nychiodes palaestinensis [2]	Jordan, Dhana NR, juniper/oak on sand stone, 05.v.2010, Schellhorn	GWOSO569-11
Nychiodes palaestinensis [2]	Jordan, Dhana NR, juniper/oak on sand stone, 05.v.2010, Schellhorn	GWOSO570-11
Nychiodes palaestinensis [2]	Syria, Tartus, Al-Alawijin mts., vic. Safita, 15.v.1998, T. Drechsel & H. Loebel	GWOTC324-12
Nychiodes palaestinensis [2]	Syria, Tartus, Al-Alawijin mts., vic. Safita, 15.v.1998, T. Drechsel & H. Loebel	GWOTC325-12
Nychiodes ragusaria [10]	Italy, Sicily, Bosco di Malabotta, 08.viii.2007, M. Infusino	GWORB1552-08
Nychiodes ragusaria [2]	Italy, Calabria, Coccorina, Tropea, 12.vi.2008, Schneider, Leipnitz	GWORM285-09
Nychiodes ragusaria [2]	Italy, Calabria, Coccorina, Tropea, 12.vi.2008, Schneider, Leipnitz	GWORM286-09
Nychiodes ragusaria [2]	Italy, Calabria, Coccorina, Tropea, 12.vi.2008, Schneider, Leipnitz	GWORM287-09
Nychiodes ragusaria [2]	Italy, Calabria, Cosenza, Coccorino nr Tropea, 31.vii.2008, Schneider	GWORZ718-10
Nychiodes ragusaria [3]	Italy, Calabria, Vibo Valentia, Coccorino, 15.vi.2008, Schneider	GWORU417-10
Nychiodes ragusaria [3]	Italy, Calabria, Vibo Valentia, Coccorino, 15.vi.2008, Schneider	GWORU418-10
Nychiodes subfusca [13]	Iran, Fars prov., Shiraz-Kazeroun road, Dasht-e Arjan, 12.vi.2010, leg. H. Rajaei	GMECA006-20
Nychiodes subfusca [13]	Iran, Fars prov., Shiraz-Kazeroun road, Dasht-e Arjan, 12.vi.2010, leg. H. Rajaei	GMECA033-20
Nychiodes subfusca [7]	Iran, Boyer Ahmadi-e Kohkiluyeh, Kuhha-ye-Zagros, Kuh-e-Dinar, 15 km N of Vazag, 12.vi.2007, Hacz T. - Nadai L.	GWORP230-09
Nychiodes subfusca [7]	Iran, Boyer Ahmadi-e Kohkiluyeh, Kuhha-ye-Zagros, Kuh-e-Dinar, 15 km N of Vazag, 12.vi.2007, Hacz T. - Nadai L.	GWORP231-09
Nychiodes subfusca [7]	Iran, Boyer Ahmadi-e Kohkiluyeh, Kuhha-ye-Zagros, Kuh-e-Dinar, 15 km N of Vazag, 12.vi.2007, Hacz T. - Nadai L.	GWORP232-09
Nychiodes subvirida [13]	Iran, prov. Fars, Estahban-Sarwestan road, 22 km before Sarwestan after Ab-Asemani village, 22.v.2009, leg. H. Rajaei	GMECA032-20
Nychiodes subvirida [13]	Iran, Prov. Fars, ca. 20 km S Jahron, Sistan, 06.xii.2018, 870 m, leg. H. Rajaei	GMECA002-20
Nychiodes subvirida [13]	Iran, Kerman, Bam-Jiroft road, Kuhe Dehbakri, 27.iv.2016, leg. Sh. Feizpour	GMECA007-20
Nychiodes subvirida [13]	Iran, Prov. Fars, ca. 20 km S Jahron, Sistan, Garden Ahmad Najafzadeh., 30.iii.2011, leg. Hossein Rajaei	GMECA012-20

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APPENDIX. (Continued)

Taxon Identification	Sampling Site	Process ID
Nychiodes subvirida[13]	Iran, prov. Kerman, Baft-Sirjan road, 2 km after Baft, sandy road, 3 km to Nord, Ras-Kuh village, 20.-21.v.2009, leg. H. Rajaei	GMECA011-20
Nychiodes subvirida[13]	Türkei, Prov. Adiyaman, Nemrut Dagh, 21.-23.viii.2009, leg. Ralf Fiebig	GMECA030-20
Nychiodes subvirida[7]	Iran, Fars, Ghir, 11.iv.2004, Hacz T., Benedek B.	GWORP225-09
Nychiodes subvirida[7]	Iran, Fars, Lar, 30.iii.2009, Petranyi G.	GWORP226-09
Nychiodes subvirida[7]	Iran, Fars, Lar, 30.iii.2009, Petranyi G.	GWORP227-09
Nychiodes subvirida[7]	Iran, Hamadan, Kuhha-ye-Zagros, Nehavand, 26.vi.2005, Petranyi G.	GWORP219-09
Nychiodes subvirida[7]	Iran, Kordestan, Sanandaj, Askaran, 25.vi.2005, Petranyi G.	GWORP218-09
Nychiodes waltheri[12]	Iran, Khorasan, Golestan National Park, Almeh, 17.vi.2007, N. Poell	GWORE1241-08
Nychiodes waltheri[12]	Iran, Khorasan, Golestan National Park, Almeh, 17.vi.2007, N. Poell	GWORE1242-08
Nychiodes waltheri[13]	Iran N, E Alborz, Prov. Mazanderan, E Gorgan, S Aliabad, oberh. Shirinabad, 21.v.2005, leg. Trusch, Petschenka, Müller	GMECA031-20
Nychiodes waltheri[2]	Bulgaria, Kardjali, E. Rhodopi mts., Studen Kladenez, 23.v.1990, Beschkow	GWOSM078-11
Nychiodes waltheri[2]	Turkey, Burdur, Burdur, Boncuk Daglari, Kozagac, Kozdag, 27.ix.1998, M. Leipnitz	GWORU427-10
Nychiodes waltheri[2]	Turkey, Tunceli, 9.5 km NE Ovacik, 24.viii.2009, R. & S. Fiebig	GWOSN895-11
Nychiodes waltheri[3]	Turkey, Erzurum, Dogu Anadolu, Korga Dagi Koprukoy bei Ispir, 19.viii.2002, H. Loebel & D. Stadie	GWORA551-08
Nychiodes waltheri[3]	Turkey, Mugla, Aegean Region, Boncuk Daglari, Kozdag gecidi, 15 km S Cavdir, 29.x.1998, M. Leipnitz	GWORA552-08
Nychiodes waltheri[3]	Turkey, Mugla, Aegean Region, Boncuk Daglari, Kozdag gecidi, 15 km S Cavdir, 29.x.1998, M. Leipnitz	GWORA553-08
Nychiodes waltheri[9]	Greece, South Aegean, Samos, Kokkari, 12.v.2012, May	GBLAA569-14
Nychiodes waltheri[9]	Turkey, Erzurum, Dogu Anadolu, Korga Dagi Koprukoy bei Ispir, 19.viii.2002, H. Loebel & D. Stadie	GWORA549-08
Nychiodes waltheri[9]	Turkey, Erzurum, Dogu Anadolu, Korga Dagi Koprukoy bei Ispir, 19.viii.2002, H. Loebel & D. Stadie	GWORA550-08