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AN UPDATED CHECK LIST OF THE COCHYLINA (TORTRICIDAE, TORTRICINAE, EULIINI) OF NORTH AMERICA NORTH OF MEXICO INCLUDING GREENLAND, WITH COMMENTS ON CLASSIFICATION AND IDENTIFICATION

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ABSTRACT. We present an updated list of the members of the subtribe Cochylina (Tortricidae) in North America north of Mexico. We summarize the proposed changes in the classification since the end of 1978. We propose revised status for two genera, *Rolandylis* Gibeaux, 1985 and *Thyraylia* Walsingham, 1897. We propose eleven revised combinations: *Saphenista parvimaculana* (Walsingham, 1879), unplaced Cochylina *omphacitis* (Meyrick, 1912) [*Cochylis*], unplaced Cochylina *voxcana* (Kearfott, 1907) [*Phalonia*], *Thyraylia bana* (Kearfott, 1907), *Thyraylia rhodites* (Meyrick, 1912), *Thyraylia bunteana* (Robinson, 1869), *Thyraylia discana* (Kearfott, 1907), *Thyraylia cricota* (Meyrick, 1912), *Thyraylia gunniana* (Busck, 1907), *Thyraylia hollandana* (Kearfott, 1907), and *Thyraylia nana* (Haworth, [1811]). We propose four revised combinations: *Rolandylis fusca* Pogue, 2001, *Rolandylis miana* (Kearfott, 1907), *Rolandylis catalonica* Gibeaux, 1985, *Rolandylis virilia* Pogue, 2001; and three new synonymies: *Aethes ziscana* Kearfott with *A. bomonana* (Kearfott), *Henricus edwardsiana* (Walsingham) with *H. contrastana* (Kearfott), and *Phtheochroa pecosana* (Kearfott, 1907) with *Phtheochroa cartwrightiana* (Kearfott, 1907). The described fauna includes 20 genera and 137 species, yet it is likely that this region of North America includes two to three times that many species; at least six new genera are defined, but not yet formally described.

Additional key words: Cochylidae, Cochylini, *Rolandylis*, *Saphenista*, *Thyraylia*, *Phtheochroa*, new synonymy, new combination

The most comprehensive, contemporary list of the North American members of the family “Cochylidae” was provided by Powell (1983) in his contribution to the Check list of the Lepidoptera of America North of Mexico (Hodges et al. 1983). In 1986, a PhD thesis completed by Michael Pogue at the University of Minnesota provided a thorough review of the classification of the North American fauna at the generic level, including manuscript descriptions of several new genera and many new combinations. The phylogenetic analysis portion of the thesis was published by Pogue and Mckeivich (1990), but the descriptive and taxonomic portions were not. As a consequence, the nomenclatural changes and descriptions were not “formally” proposed, and the new names and actions remained unavailable. Brown (2005) compiled the first list of Cochylini worldwide, and his treatment of the North American fauna basically followed that developed by Pogue (1986). The new genera recognized by Pogue (1986) were identified as “Cochylini new genus 1,” “Cochylini new genus 2,” and so forth in order to provide a more meaningful taxonomic framework for the fauna, i.e., this action seemed a better alternative to leaving the associated species “unplaced.”

Taxonomic changes proposed by Razowski (2009, 2011), Metzler & Albu (2013), and others over the last decade resulted in the generic reassignments of many species. Many of the changes proposed by Pogue (1986) were formalized through various publications (e.g., Pogue 2001, Brown 2005), and new species were added to the faunal list through introduction (e.g., *Agapeta zoegana*) (Powell et al. 2000) or description of the native fauna (e.g., Metzler & Forbes 2012, Brown 2013, Metzler & Albu 2013). In a phylogenetic analysis of Tortricidae based entirely on molecular data, Regier et al. (2012) revealed that Cochylini are a monophyletic lineage embedded within the larger Euliini and should be treated as the subtribe Cochylina until further evidence contradicts this proposed change in classification. Because so much information has accumulated since Powell (1983), we deem it advisable to recap the current list of species from North America and their generic assignments.

MATERIALS AND METHODS

Consistent with the Moths of North America (MONA) project, we treat the fauna of Canada, the United States, and Greenland. This geographical region

is ca. 99% congruent with the Nearctic ecozone. Notable differences are the southern tip of peninsular Florida, which is Neotropical, and most of central Mexico south to approximately 18° north latitude, which is considered Nearctic.

We examined the original descriptions and genital preparations of all species of *Cochylina* that might be found within the study region. Whenever possible, we examined genitalia of types with the proviso that not all types are extant. If types are not available, we examined the genitalia of specimens overwhelmingly considered to be conspecific. In some cases, a judgment of generic assignment seemed to be a matter of convenience rather than based on scientific facts, thus a few species are considered unplaced pending more evidence. We know from experience that many species cannot be placed to genus without examination of the genitalia, thus our conservative approach is justified. While we recognize it is inconvenient to have species names without generic assignments, it would introduce imprecision to pretend we have information not available. Combinations without merit will not help settle the confusion in *Cochylina* classification.

We examined the literature for species descriptions and revised generic assignments published subsequent to Brown (2005). We followed the most recently published combinations, although as more species are examined and described, the combinations are subject to change.

Most of the new genera recognized (but not formally described) by Pogue (1986) and subsequently used by Brown (2005) are retained for stability in the classification. We emphasize that the manuscript names in Pogue (1986) are not published, we do not publish them here, and they are not available. We use original orthography in the spelling of species names.

For ease of use, and because the phylogeny of *Cochylina* is uncertain, the genera and synonyms are listed in alphabetical order, and the species and synonyms are listed in alphabetical order within each genus. We created an index to genus and species names. Detailed literature references to the original description, type locality, and disposition of type specimen(s) can be found in Brown (2005) and Gilligan et al. (2012). Not all misspellings from the literature are included here. Brown (2005) should be consulted for variations of species names found in much of the literature. We did not attempt to find all spellings previously used. Footnotes provide details for the placement of certain taxa subsequent to Pogue (1986) and indicate areas of ambiguity or disagreement that require further investigation.

RESULTS

List of genera and associated species from North America north of Mexico and Greenland

Cochylina Guenée, 1845 (sensu Regier et al. 2012)

Aethes Billberg, 1920

Argyridia Stephens, 1852

Chlidonia Hübner, [1825]

Chrosis Guenée, 1845

Cirriaethes Razowski, 1962, subgenus

Coecaethes Obraztsov, 1943, subgenus

Dapsilia Hübner, [1825]

Loxopera Walsingham, 1900 (emendation of *Lozopera*)

Lozopera Stephens, 1829

Phalonia Hübner, [1825]

Phelonia; Stephens, 1834 (misspelling of *Phalonia*)

angulata (Robinson, 1869)

angustana (Clemens, 1860)

angustana; (Powell, 1983) (misspelling of *angustana*)

dorsimaculana (Robinson, 1869) (unnecessary replacement name for *angustana*)

argentilimitana (Robinson, 1869)

labeculana (Robinson, 1869)¹

atomosana (Busck, 1907)

baloghi Sabourin & Metzler, 2002

biscana (Kearfott, 1907)

giscana (Kearfott, 1907)

ixeuta (Meyrick, 1912)

(unnecessary replacement name for *biscana*)

bomonana (Kearfott, 1907)

cyamitis (Meyrick, 1912) (unnecessary replacement name for *bomonana*)

cyanitis Razowski, 2000 (misspelling of *cyamitis*) *fabicola* (Meyrick, 1912) (unnecessary replacement name for *ziscana*)

ziscana (Kearfott, 1907), **new synonym**²

deutschiana (Zetterstedt, 1839)

chalcana (Packard, 1866)

fuscostriana Razowski, 1997 (misspelling of *fuscostrigana*)

fuscostrigana (Clemens, 1864)

lutulentana (Herrich-Schäffer, 1856)

murciana Caradja, 1916

fernaldana (Walsingham, 1879)

floccosana (Walker, 1863)

confusana (Robinson, 1869)

flaccosana; (Powell, 1983) (misspelling of *floccosana*)

heleniana Razowski, 1997

intactana (Walsingham, 1879)

interruptofasciata (Robinson, 1869)

- aureana* (Busck, 1907)
sublepidana (Kearfott, 1907)
louisiana (Busck, 1907)
matheri Sabourin & Miller, 2002
matthewcruzi Sabourin & Vargo, 2002
monera Razowski, 1886 (nominal species is extra-limital)
 ssp. *septentrionalis* Razowski, 1997 (described from Canada)
mymara Razowski, 1997
obliquana (Kearfott, 1907)
 obliqua; Razowski, 2000 (misspelling of *obliquana*)
patricia Metzler, 2000
promptana (Robinson, 1869)
rana (Busck, 1907)
 funesta (Meyrick, 1912) (unnecessary replacement name for *rana*)
razowskii Sabourin & Miller, 2002
rutilana (Hübner, [1814]) (nominal species is extra-limital)
 ssp. *canadiana* Razowski, 1997 (described from Canada)
 interruptana (Klemensiewicz, 1907)
 purpurella (Coquebert de Montbret, 1801) [nomen oblitum]
 roridana (Mann, 1867)
 ssp. *tatricana* (Adamszewski, 1936) (extra-limital)
seriatana (Zeller, 1875)
sexdentata Sabourin & Miller, 2002
smeathmanniana (Fabricius, 1781)
 achromata (Skala, 1936)
 biviana (Duponchel, 1842)
 fabricana Hübner, [1796]
 obsoletella (Dufrane, 1955)
 scissana (Walker, 1863)
sonorae (Walsingham, 1884)
spartinana (Barnes & McDunnough, 1916)
terriae Sabourin & Miller, 2002
vachelliana (Kearfott, 1907)
westratei Sabourin & Miller, 2002
- Agapeta** Hübner, 1822
Aapeta Anonymous, 1990 (misspelling of *Agapeta*)
Agapete Hübner 1825 (misspelling of *Agapeta*)
Euxanthis Hübner, [1825]
Apapeta Razowski, 1977
Xanthosetia Stephens, 1829
Xanthosetia Stephens, 1829 (unnecessary redescription)
zoegana (Linnaeus, 1767)
 brunneocycla Razowski, 1961
 ferrugana (Haworth, [1811])
- Cochylidia** Obratzsov, 1956
subroseana (Haworth, [1811])
 derosana Razowski, 1960
 flammeolana (Tengström, 1848)
 phaleratana (Herrich-Schäffer, 1847) (uninominal)
 ssp. *roseotincta* Razowski, 1960 (extra-limital)
 rubroseana (Stephens, 1829)
- Cochylis** Treitschke, 1829
Acornutia Obratzsov, 1944
Brevicornutia Razowski, 1960
Chochylis Duponchel, 1836 (misspelling of *Cochylis*)
Cochylicroa Obratzsov & Swatschek, 1958
Conchlis Razowski, 2011 (misspelling of *Cochylis*)
Conchyli Sodoffsky, 1837 (misspelling of *Cochylis*)
Longicornutia Razowski, 1960
Neocochylis Razowski, 1960 (described as a subgenus of *Cochylis*) (extra-limital)
Paracochylis Razowski, 1960 (described as a subgenus of *Cochylis*) (extra-limital)
Pontoturania Obratzsov, 1943
arthuri Dang, 1984
aurorana (Kearfott, 1907)³
avita Razowski, 1997
bucera Razowski, 1997
carmelana (Kearfott, 1907)
 obispoana (Kearfott, 1907)
caulocatax Razowski, 1984
dormitoria Razowski, 1997
dubitana (Hübner, 1796)
 ambiguana (Frölich, 1828)
 baseirufana (Bruand, 1850)
formonana (Kearfott, 1907)⁴
 myrinitis (Meyrick, 1912) (unnecessary replacement name for *formonana*)
hoffmanana (Kearfott, 1907)³
 baryzela (Meyrick, 1912) (unnecessary replacement name for *toxcana*)
 hofmanana Razowski, 1997 (misspelling of *hoffmanana*)
 magnaedoeagana Gibeaux, 1985⁵
 marloffiana (Busck, 1907)
 nonlavana (Kearfott, 1907)
 telifera (Meyrick, 1912) (unnecessary replacement name for *zoxcana*)
 toxcana (Kearfott, 1907)
 zoxcana (Kearfott, 1907)
hospes (Walsingham, 1884)³
parallelana (Walsingham, 1879)
 paralellana (Razowski, 1964) (misspelling of *parallelana*)
ringsi Metzler, 2000⁷

temerana (Busck, 1907)³
cinnatana (Kearfott, 1907)
transversana (Walsingham, 1879)⁸
viscana (Kearfott, 1907)³
peganitis (Meyrick, 1912) (unnecessary
 replacement name for *viscana*)
yinyangana Metzler, 2012

Eugnosta Hübner, [1825]⁹
Argyrolepis Stephens, 1829
Carolella Busck, 1939¹⁰
Pharmacis Hübner, 1823
Safra Walker, 1863
argyroplaca (Meyrick, 1931)
beevorana (Comstock, 1940)
bimaculana (Robinson, 1869)¹¹
brownana Metzler & Forbes, 2012
busckana (Comstock, 1939)
deceptana (Busck, 1907)
erigeronana (Riley, 1881)
mexicana (Busck, 1907)
sartana (Hübner, 1823)¹¹
willettana (Comstock, 1939)

Eupinivora Brown, 2013
ponderosae Brown, 2013

Gynnidomorpha Turner, 1916
Pierca Razowski, 1977 (misspelling of *Piercea*)
Piercea Filipjev, 1940
romonana (Kearfott, 1908)¹²
officiosa (Meyrick, 1912) (unnecessary
 replacement name for *romonana*)

Henricus Busck, 1943
Heinrichia Busck, 1939
Irazona Razowski, 1964¹³
cognata (Walsingham, 1914)
comes (Walsingham, 1884)
contrastana (Kearfott, 1907)
edwardsiana (Walsingham, 1884), **new**
synonym^{4, 14}
fuscodorsana (Kearfott, 1904)
infernalis (Heinrich, 1920)
brevipalpata McDunnough, 1944
macrocarpana (Walsingham, 1895)
umbrabasana (Kearfott, 1908)

Lorita Busck, 1939
baccharivora Pogue, 1988
scarificata (Meyrick, 1917)
abornana Busck, 1939

Phalonidia Le Marchand, 1933
Brevisociaria Obraztsov, 1943
Platphalonidia Razowski, 1985
basiochreana (Kearfott, 1907)⁴
elderana (Kearfott, 1907)⁴
helonoma (Meyrick, 1912) (unnecessary
 replacement name for *elderana*)
felix (Walsingham, 1895)¹⁵
latipunctana (Walsingham, 1879)¹⁶
lepidana (Clemens, 1860)¹⁶
plummeriana (Busck, 1907)¹⁶
schwarziana (Busck, 1907)¹⁶
zaracana (Kearfott, 1907)¹⁶
memoranda Razowski, 1997
ontariana Razowski, 1997
straminoides (Grote, 1873), **revised status**^{16, 17}

Phtheochroa Stephens, 1829
Arce Joannis, 1919
Durrantia Razowski, 1960 (described as a subgenus
 of *Hysterosia*) (extra-limital)
Hysterosia Stephens, 1852
Idiographis Lederer, 1859
Parahysterosia Razowski, 1960 (described as a subgenus
 of *Hysterosia*) (extra-limital)
Phtheochroa Caradja, 1926 (misspelling of *Phtheochroa*)
Pitheochroa Razowski, 1964 (misspelling of *Phtheochroa*)
Propira Durrant, 1914
Trachysmia Guenée, 1845
aegrana (Walsingham, 1879)
aureoalbida (Walsingham, 1895)
baracana (Busck, 1907)
tiscana (Kearfott, 1907)
vigilans (Meyrick, 1912)
 (unnecessary replacement name for *tiscana*)
birdana (Busck, 1907)
canariana (Barnes & Busck, 1920)
cartwrightana (Kearfott, 1907)
pecosana Kearfott, 1907, **new synonym**¹⁸
fulviplicana (Walsingham, 1879)
fermentana (Meyrick, 1912) (unnecessary
 replacement name for *komonana*)
homanana (Kearfott, 1907)
komonana (Kearfott, 1907)
refuga (Meyrick, 1912) (unnecessary
 replacement name for *homanana*)
huachucana (Kearfott, 1907)
modestana (Busck, 1907)
perspicuana (Barnes & Busck, 1920)
riscana (Kearfott, 1907)
vincta (Meyrick, 1912) (unnecessary
 replacement name for *riscana*)

- terminana** (Busck, 1907)
merrickana (Kearfott, 1907)
villana (Busck, 1907)
vitellinana (Zeller, 1875)
vulneratana (Zetterstedt, 1839)
exsulana (Lederer, 1855)
meinki (Amsel, 1932)
niponica (Kawabe, 1982) (misspelling of *nipponica*)
 ssp. *nipponica* (Matsumura, 1931) (extra-limital)
waracana (Kearfott, 1907)
dicax (Meyrick, 1912) (unnecessary replacement name for *waracana*)
- Platphalonia** Razowski, 2011
albertae (Razowski, 1997)¹⁹
campicolana (Walsingham, 1879)^{16, 19}
dangi (Razowski, 1997)¹⁹
lavana (Busck, 1907)^{16, 19}
magdalenae Metzler & Albu, 2013
plicana (Walsingham 1884)^{16, 19}
- Rolandylis** Gibeaux, 1985, **revised combination**²⁰
 “Clothoa” (unavailable name)²¹
fusca Pogue, 2001, **revised combination**²²
maiana (Kearfott, 1907), **revised combination**²²
catalonica Gibeaux, 1985, **revised combination**^{5, 22}
virilia Pogue, 2001, **revised combination**²²
- Rudenia** Razowski, 1985
leguminana (Busck, 1907)
- Saphenista** Walsingham, 1914
nomonana (Kearfott, 1907)
voluntaria (Meyrick, 1912) (unnecessary replacement name for *nomonana*)
parvimaculana (Walsingham, 1879),
new combination²³
saxicolana (Walsingham, 1879)
- Spinipogon** Razowski, 1967
resthavenensis Metzler & Sabourin, 2002
thes Razowski & Becker, 1983
- Thyralia** Walsingham, 1897 **revised status**²⁴
Thyralia Walsingham 1914 (misspelling of *Thyralia*)
bana (Kearfott, 1907), **new combination**
rhodites (Meyrick, 1912) (unnecessary replacement name for *bana*)
- bunteana** (Robinson, 1869), **new combination**
discana (Kearfott, 1907), **new combination**
cricota (Meyrick, 1912) (unnecessary replacement name for *discana*)
gunniana (Busck, 1907), **new combination**
hollandana (Kearfott, 1907), **new combination**
nana (Haworth, [1811]) **new combination**²⁹
albidana (Walker, 1866)⁶
altocorsicana (Petty, 1904)
carneana (Guenée, 1845)
cruentana (Guenée, 1845)
ochreoalbana (Walker, 1863)
pallidana (Herrich-Schäffer, 1847) (uninomial) (nomen nudum)
pallidana (Herrich-Schäffer, 1851)
pumillana (Herrich-Schäffer, 1847) (uninomial) (nomen nudum)
winniana (Kearfott, 1905)
- Cochylini new genus ¹ - “Atroposia” (unavailable name)²¹
oenotherana (Riley, 1881)
- Cochylini new genus ² - “Cagiva” (unavailable name)²¹
cephalanthana (Heinrich, 1921)
- Cochylini new genus ³ - “Cybilla” (unavailable name)²¹
hubbardana (Busck, 1907)
- Cochylini new genus ⁴ - “Honca” (unavailable name)²¹
grandis (Busck, 1907)
- Cochylini new genus ⁵ - “Nycthia” (unavailable name)²¹
pimana (Busck, 1907)
yuccatana (Busck, 1907)
- Cochylini new genus ⁶ - “Poterioparvus” (unavailable name)²¹
wiscana (Kearfott, 1907)
acropeda (Meyrick, 1912) (unnecessary replacement name for *wiscana*)
- Cochylina unplaced²⁵
baboquivariana Kearfott, 1907 [Tortrix]
dilutana Walsingham, 1879 [Cochylis]
foxcana Kearfott, 1907 [Phalonia]
liquida Meyrick, 1912 [Phalonia] (unnecessary replacement name for *foxcana*)
fulvotinctana Walsingham, 1884 [Conchylis]
glaucofuscana Zeller, 1875 [Conchylis]
imitabilis Razowski, 1997 [Platphalonidia]²⁶
punctadiscana Kearfott, 1908 [Phalonia]²⁷
voxcana Kearfott, 1907 [Phalonia]²⁸

**Alphabetical list of species, their synonyms,
and their associated genera from North America
north of Mexico.**

- Aapeta* (misspelling of *Agapeta*)
abornana, *Lorita*
achromata, *Aethes*
Acornutia (synonym of *Cochylis*)
acropeda, *Cochylina* new genus ⁶ ("*Poterioparvus*")
aegrana, *Phtheochroa*
Aethes
Agapeta
Agapete (misspelling of *Agapeta*)
albertae, *Platphalonia*
albidana, *Cochylis*
altocorsicana, *Cochylis*
ambiguana, *Cochylis*
angulatana, *Aethes*
angustana, *Aethes*
Apapeta
Arce (synonym of *Phtheochroa*)
argentilimitana, *Aethes*
Argyridia (synonym of *Aethes*)
Argyrolepia (synonym of *Eugnosta*)
argyroplaca, *Eugnosta*
arthuri, *Cochylis*
atomosana, *Aethes*
"Atroposia" (*Cochylina* new genus 1) (unavailable name)
augustana, *Aethes*
aureana, *Aethes*
aureoalbida, *Phtheochroa*
aurorana, *Cochylis*
avita, *Cochylis*
baboquivariana, *Cochylina* unplaced
baccharivora, *Lorita*
baloghi, *Aethes*
bana, *Thyraylia*
baracana, *Phtheochroa*
baryzela, *Cochylis*
baseirufana, *Cochylis*
basiochreana, *Phalonidia*
beevorana, *Eugnosta*
bimaculana, *Eugnosta*
birdana, *Phtheochroa*
biscana, *Aethes*
biviana, *Aethes*
bomonana, *Aethes*
Brevicornutia (synonym of *Cochylis*)
brevipalpata, *Henricus*
Brevisociaria (synonym of *Phalonidia*)
brownana, *Eugnosta*
brunneocycla, *Agapeta*
bucera, *Cochylis*
bunteana, *Thyraylia*
busckana, *Eugnosta*
"Cagiva" (*Cochylina* new genus 2) (unavailable name)
campicolana, *Platphalonia*
canadiana, *Aethes*
canariana, *Phtheochroa*
carmelana, *Cochylis*
carneana, *Cochylis*
Carolella (synonym of *Eugnosta*)
cartwrightana, *Phtheochroa*
catalonica, *Rolandylis*
caulocatax, *Cochylis*
cephalanthana, *Cochylina* new genus 2 ("*Cagiva*")
chalcana, *Aethes*
Chlidonia (synonym of *Aethes*)
Chochylis (misspelling of *Cochylis*)
Chrosis (synonym of *Aethes*)
cinnannatana, *Phalonidia*
Cirriaethes (synonym of *Aethes*)
"Clotho" (synonym of *Rolandylis*)
Cochylicroa (synonym of *Cochylis*)
Cochylidia
Cochylina unplaced
Cochylis
Coecaethes (synonym of *Aethes*)
cognata, *Henricus*
comes, *Henricus*
Conchlis (misspelling of *Cochylis*)
Conchylis (misspelling of *Cochylis*)
Conchylis (misspelling of *Cochylis*)
confusana, *Aethes*
contrastana, *Henricus*
cricota, *Thyraylia*
cruentana, *Cochylis*
cyamitis, *Aethes*
cyanitis, *Aethes*
"Cybilla" (*Cochylina* new genus 3) (unavailable name)
dangi, *Platphalonia*
Dapsilia (synonym of *Aethes*)
deceptana, *Eugnosta*
derosana, *Cochylidia*
deutschiana, *Aethes*
dicax, *Phtheochroa*
dilutana, *Cochylina* unplaced
discana, *Thyraylia*
dormitoria, *Cochylis*
dorsimaculana, *Aethes*
dubitana, *Cochylis*
Durrantia (synonym of *Phtheochroa*)
edwardsiana, *Henricus*
elderana, *Phalonidia*
erigeronana, *Eugnosta*
Eugnosta
Eupinivora
Euxanthis (synonym of *Agapeta*)
exsulana, *Phtheochroa*
fabicola, *Aethes*
fabricana, *Aethes*
felix, *Phalonidia*
fermentata, *Phtheochroa*
fernaldana, *Aethes*
ferrugana, *Agapeta*
flaccosana, *Aethes*
flammeolana, *Cochylidia*
floccosana, *Aethes*
formonana, *Cochylis*
foxcana, *Cochylina* unplaced
fulviplicana, *Phtheochroa*
fulvotinctana, *Cochylina* unplaced
funesta, *Aethes*
fusca, *Rolandylis*
fuscodorsana, *Henricus*
fuscotriana, *Aethes*

- fuscostrigana*, *Aethes*
giscana, *Aethes*
glaucofuscana, *Cochylina* unplaced
grandis, *Cochylina* new genus 4 ("Honca")
gunniana, *Thyraylia*
Gynnidomorpha
Heinrichia (synonym of *Henricus*)
heleniana, *Aethes*
helonoma, *Phalonidia*
Henricus
hoffmanana, *Cochylis*
hofmanana, *Cochylis*
hollandana, *Thyraylia*
homanana, *Phtheochroa*
 "Honca" (*Cochylina* new genus 4) (unavailable name)
hospes, *Cochylis*
huachucana, *Phtheochroa*
hubbardana, *Cochylina* new genus 3 ("Cybilla")
Hysterosia (synonym of *Phtheochroa*)
Idiographis (synonym of *Phtheochroa*)
imitabilis, *Cochylina* unplaced
infernalis, *Henricus*
intactana, *Aethes*
interruptana, *Aethes*
interruptofasciata, *Aethes*
Irazona (synonym of *Henricus*)
ixeuta, *Aethes*
komonana, *Phtheochroa*
labeculana, *Aethes*
latipunctana, *Phalonidia*
lavana, *Platphalonia*
leguminana, *Rudenia*
lepidana, *Phalonidia*
liquida, *Cochylina* unplaced
Longicornutia (synonym of *Cochylis*)
Lorita
louisiana, *Aethes*
Loxopera (synonym of *Aethes*)
Lozopera (synonym of *Aethes*)
lutulentana, *Aethes*
macrocarpana, *Henricus*
magdalenae, *Platphalonia*
magnaedoeagana, *Cochylis*
matana, *Rolandylis*
marloffiana, *Cochylis*
matheri, *Aethes*
matthewcruzi, *Aethes*
meincki, *Phtheochroa*
memoranda, *Phalonidia*
merrickana, *Phtheochroa*
mexicana, *Eugnota*
modestana, *Phtheochroa*
monera, *Aethes*
murciana, *Aethes*
mymara, *Aethes*
myrinitis, *Cochylis*
nana, *Thyraylia*
Neocochylis (synonym of *Cochylis*)
niponica, *Phtheochroa*
nipponica, *Phtheochroa*
nomonana, *Saphenista*
nonlavana, *Cochylis*
 "Nycthia" (*Cochylina* new genus 5)
obispoana, *Cochylis*
obliquana, *Aethes*
obliquana, *Aethes*
obsoletella, *Aethes*
ochreoalbana, *Cochylis*
oenotherana, *Cochylina* new genus 1 ("Atroposia")
officiosa, *Gynnidomorpha*
omphacitis, *Cochylina* unplaced
ontariana, *Phalonidia*
pallidana, *Cochylis*
Paracochylis (synonym of *Cochylis*)
Parahysterosia (synonym of *Phtheochroa*)
paralellana, *Cochylis*
parallelana, *Cochylis*
parvimaculana, *Saphenista*
patricia, *Aethes*
pecosana, *Phtheochroa*
peganitis, *Cochylis*
perspicuana, *Phtheochroa*
phaleratana, *Cochylidia*
Phalonia (synonym of *Aethes*)
Phalonidia
Pharmacis (synonym of *Eugnota*)
Phelonia (synonym of *Aethes*)
Phtheochroa (misspelling of *Phtheochroa*)
Phtheochroa
Pierca (synonym of *Gynnidomorpha*)
Piercea (synonym of *Gynnidomorpha*)
pimana, *Cochylina* new genus 5 ("Nycthia")
Platphalonia
Platphalonia (synonym of *Phalonidia*)
plicana, *Platphalonia*
plummeriana, *Phalonidia*
ponderosae, *Eupinivora*
Pontoturamia (synonym of *Cochylis*)
 "Poterioparvus" (*Cochylina* new genus 6) (unavailable name)
promptana, *Aethes*
Propira (synonym of *Phtheochroa*)
Ptheochroa (misspelling of *Phtheochroa*)
pumillana, *Cochylis*
punctadiscana, *Cochylina* unplaced
purpurella, *Aethes*
rana, *Aethes*
razowskii, *Aethes*
refuga, *Phtheochroa*
resthavenensis, *Spinipogon*
rhodites, *Thyraylia*
ringsi, *Cochylis*
riscana, *Phtheochroa*
Rolandylis
romonana, *Gynnidomorpha*
roridana, *Aethes*
roseotincta, *Cochylidia*
rubroseana, *Cochylidia*
Rudenia
rutilana, *Aethes*
Safra (synonym of *Eugnota*)
Saphenista
sartana, *Eugnota*
saxicolana, *Saphenista*
scarificata, *Lorita*
schwarziana, *Phalonidia*

scissana, *Aethes*
septentrionalis, *Aethes*
seriatana, *Aethes*
sexdentata, *Aethes*
smeathmanniana, *Aethes*
sonorae, *Aethes*
spartinana, *Aethes*
Spinipogon
straminoides, *Phalonidia*
sublepidana, *Aethes*
subroseana, *Cochylidia*
tatricana, *Aethes*
telifera, *Cochylis*
temerana, *Cochylis*
terminana, *Phtheochroa*
terriae, *Aethes*
thes, *Spinipogon*
Thyralia (misspelling of *Thyralia*)
Thyralia
tiscana, *Phtheochroa*
toxcana, *Cochylis*
Trachybyris (synonym of *Eugnosta*)
Trachybyrsis (synonym of *Eugnosta*)
Trachysmia (synonym of *Phtheochroa*)
transversana, *Cochylis*
umbrabasana, *Henricus*
vachelliana, *Aethes*
vigilans, *Phtheochroa*
villana, *Phtheochroa*
vineta, *Phtheochroa*
virilia, *Rolandylis*
viscana, *Cochylis*
vitellinana, *Phtheochroa*
voluntaria, *Saphenista*
voxcana, *Cochylina* unplaced
vulneratana, *Phtheochroa*
waracana, *Phtheochroa*
westratei, *Aethes*
willettana, *Eugnosta*
winniana, *Cochylis*
wiscana, *Cochylina* new genus 6 ("Poterioparvus")
Xanthosetia (synonym of *Agapeta*)
yuccatana, *Cochylina* new genus 5 ("Nythia")
zaracana, *Phalonidia*
ziscana, *Aethes*
zoegana, *Agapeta*
zoxcana, *Cochylis*

DISCUSSION

The taxonomy of the subtribe *Cochylina* is poorly known. Although the number of described species worldwide increases every year, mostly as a result of the efforts of Józef Razowski, Polish Academy of Sciences, Krakow and his co-authors, the number of described species from North America has not increased dramatically since Powell (1983).

Michael G. Pogue (pers. comm.) repeated anecdotal information provided by J. F. G. Clarke that approximately 2/3 of the species from North America are undescribed, suggesting that the North American

fauna may include more than 300 species. Identifying specimens of *Cochylina* is problematic because of the number of undescribed species, lack of diagnostic illustrations, and a list of current names.

The frustration of not knowing the identity of an individual specimen of a "*Cochylina*" in the sea of named and unnamed species is an unresolved issue. Jason Dombroskie (pers. comm.), who is a consultant for Bug Guide (2013), finds that users are not satisfied if they do not receive a specific identification based on photographs of specimens that are neither spread nor dissected. Many species of *Cochylina* cannot be placed to genus without examination of the genitalia (Brown 2006). Identification is no less complicated because many species of *Cochylina*, even within a single genus, e.g., *Aethes* Billberg, 1820, often have forewing patterns that are incongruous. Many species' descriptions do not include illustrations of adults.

Photographs on Moth Photographers Group (2013) are useful for guidance on the habitus of many species. Genitalic illustrations of the types for many species are lacking. Information about descriptions, with references to literature, subsequent to Brown (2005), along with illustrations of type specimens is available at Gilligan et al. (2013). We caution that without examination aided by microscopy, many species simply cannot be identified.

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- ¹¹ This species was placed in *Carolella* by Pogue (1986) and Brown (2005). The combination listed here was created by Razowski (2009).
- ¹² *Gynnidomorpha romonana* was listed in *Saphenista* by Pogue (1986).
- ¹³ *Irazona* was treated as a separate genus by Pogue (1986) and synonymized with *Henricus* by Razowski (1997).
- ¹⁴ *Henricus edwardsiana* is synonymized with *H. contrastana* based on examination of the types of both species.
- ¹⁵ *Phalonia felix* was placed in *Saphenista* by Pogue (1986), it was placed in *Platphalonia* by Razowski (1985) and Brown (2005), and it was placed in *Phalonia* by Razowski (2011).
- ¹⁶ These species were listed in *Saphenista* by Pogue (1986).
- ¹⁷ The relationship between *lepidana*, *plummeriana*, *schwarziana*, *straminoides*, and *zaracana* was variously presented (Pogue 1986, Razowski 1997, Brown 2005). We examined photographs of the types of *lepidana*, *plummeriana*, *schwarziana*, *straminoides*, and *zaracana*. We propose that *straminoides* is not conspecific with the others.
- ¹⁸ Pogue (1986) listed *Phtheochroa pecosana* as a synonym of *P. cartwrightana*. Razowski (1997) did not include *pecosana* in the synonymy of *cartwrightana*. Brown (2005) listed *cartwrightana* and *pecosana* as separate species. We validate the synonymy proposed by Pogue (1986).
- ¹⁹ These species were listed in *Platphalonia* by Brown (2005). When Razowski (2011) transferred *P. felix*, the type species of *Platphalonia*, to *Phalonia* the action resulted in the synonymy of *Platphalonia* with *Phalonia*. However, all other species of *Platphalonia* were left without a generic assignment. Metzler & Albu (2013) transferred some of the unplaced species to *Platphalonia*. More analysis is needed.
- ²⁰ *Rolandylis* was synonymized with *Cochylis* by Razowski (2009), and restated (2011). We consider *Rolandylis* to be a separate genus.
- ²¹ These genera were proposed by Pogue (1986) in his unpublished Ph.D. thesis and used without descriptions or designation of type species in a phylogenetic analysis by Pogue & Micevitch (1990). We retain the names here for the sake of continuity and clarity, but we do not publish the names here.
- ²² These species were listed in *Rolandylis* by Brown (2005).
- ²³ *Saphenista parvimaculana* was listed in *Platphalonia* by Brown (2005). When Razowski (2011) transferred *P. felix*, the type species of *Platphalonia*, to *Phalonia* the action resulted in the synonymy of *Platphalonia* with *Phalonia*. However, all other species of *Platphalonia* were left without a generic assignment. We follow Pogue (1986), and we place *P. parvimaculana* in *Saphenista*. More analysis is needed.
- ²⁴ *Thyralia* was listed as a synonym of *Cochylis* by Razowski (1997, 2009, 2011). However, Pogue (1986) and Brown (2005) both listed *Thyralia* as a separate genus. We follow the latter concept.
- ²⁵ *Clepsis listerana*, listed as "*incertae sedis*" in Pogue (1986), is in the tribe Archipini (Tortricidae).
- ²⁶ *Platphalonia imitabilis* was listed in *Platphalonia* by Brown (2005). When Razowski (2011) transferred *felix*, the type species of *Platphalonia*, to *Phalonia* the action resulted in the synonymy of *Platphalonia* with *Phalonia*. However, all other species of *Platphalonia* were left without a generic assignment. We propose that more study is needed before *P. imitabilis* can be placed in a genus.
- ²⁷ *Phalonia punctadiscana* was listed in "Recavícula" (unavailable name) in Pogue (1986). It was listed in "Cochylini Unplaced Species" by Brown (2005).
- ²⁸ *Phalonia voxcana* was listed as a synonym of *Thyralia hollandana* by Pogue (1986), placed in *Cochylis* in Razowski (1997) and Brown (2005). The genitalia illustrated by Razowski (1997) are congeneric with *Thyralia*. Our examination of the wings of the types of *hollandana* and *voxcana* indicate they are not conspecific.
- ²⁹ This species was listed in *Thyralia* by Pogue (1986), and it was listed in *Cochylis* by Razowski (1997) and Brown (2005). Our examination of the male genitalia shows that it should be listed in *Thyralia*.

END NOTES

¹ *Aethes labeculana* was listed as a separate species by Pogue (1986); it was synonymized with *A. argentilimitana* by Sabourin et al. (2002).

² The synonymy of *Aethes ziscana* with *A. bomonana* is based on examination of photographs of the types and male genitalia of both species.

³ These species were placed in "Recavícula" by Pogue (1986).

⁴ These species were listed as "incertae sedis" by Pogue (1986).

⁵ This name is supposedly based on a mislabeled specimen (Razowski, 2002).

⁶ *Cochylis albidana* was listed as a synonym of *Cochylis dubitana* by Pogue (1986).

⁷ The date was incorrectly listed as 1999 by Brown (2005).

⁸ *Cochylis transversana* was placed in *Saphenista* by Pogue (1986).

⁹ *Trachybyrsis* Meyrick, 1927 was listed as a separate genus by Brown (2005) and Aarvik (2010). It was listed as a synonym of *Eugnosta* by Razowski (2011). Because species of *Trachybyrsis* occur in Africa rather than in our faunal region, we make no further comments.

¹⁰ *Carolella* was synonymized with *Eugnosta* by Razowski (2009).

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