

The Southeast European *Hypnophila* species (Mollusca: Gastropoda Pulmonata: Cochlicopidae)

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The four Southeast European *Hypnophila* species are characterized conchologically. Their ranges are indicated on the basis of reliable records and summarized in a distribution map. The nomenclature is revised: a neotype is selected for *H. polita* (Porro, 1838), a lectotype is selected for *H. pupaeformis* (Cantraine, 1835), and a persistent error in the interpretation of *H. zacynthia* (Roth, 1855) is corrected.

Introduction

The genus *Hypnophila* Bourguignat, 1858, is discontinuously distributed in the Mediterranean region, where it is known from: (1) NW Africa (Algeria, Morocco), (2) the Iberian peninsula and maybe the Mediterranean part of France, (3) the Toscano archipelago (with the M. Argentario peninsula), Corsica, Sardinia, the islands Lipari (Eolie) and Sicily, and (4) the Balkans, from Dalmatia to the Peloponnese. The species are especially found in coastal areas and on islands. The genus is not known from the Italian mainland, apart from the M. Argentario peninsula. After Pilsbry's (1908) monographic treatment of the group, additional data have been presented mainly by Giusti (1970, 1973, 1976), Gittenberger (1983, 1988), and Seddon & Holyoak (1990).

The systematic relationships between the various forms which can be distinguished in *Hypnophila* are not discussed in this paper, in which only the SE European taxa are dealt with. The differences between these four alleged species are not always conspicuous. They are constant, however, and within and between populations there is relatively little variability in shell shape. The known ranges of the three Greek species do not overlap but come very close to each other. Nevertheless, populations with intermediate characters have not been recorded. As a consequence, various rather subjective classifications of species with subspecies are possible. Therefore, for the time being, specific status is given to the four taxa from the Balkans.

In Dalmatia and Greece, where samples of the four species were collected by the present author, living specimens were only found in caves. However, empty shells were also collected under rocks and, especially, among material from deep crevices in limestone rocks. Apparently the animals live at relatively humid places in otherwise warm and dry areas. They are troglophilous.

For collections the following abbreviations are used: Maa = W.J.M. Maassen (Duiwendrecht); Men = H.P.M.G. Menkhorst (Krimpen aan de IJssel); RMNH = Nationaal Natuurhistorisch Museum (formerly: Rijksmuseum van Natuurlijke Historie) (Leiden); SMF = Senckenberg Museum (Frankfurt am Main); Sub = P. Subai (Aachen); ZSM = Zoologische Staatssammlung (München).

Shared conchological characters

The SE European *Hypnophila* species (figs. 1-4) have slender, very glossy, brown to colourless shells, with shallow sutures. The aperture is bordered by an obtuse outer lip, which is somewhat thickened in its lower two thirds; the inner lip is formed by a callous, more or less erect columellar margin, which gradually passes into the thread-like parietal callus. The apertural lip is not reflected. The parietal callus gradually rises into a denticle near the upper angle of the aperture, where a deep and narrow notch occurs. The columella is nearly straight, or more or less truncate at its basis and provided there with a tooth-like structure.

The species

The four species are dealt with according to their ranges, from north to south.

Hypnophila pupaeformis (Cantraine, 1835)

(figs. 2, 5)

Bulimus pupaeformis Cantraine, 1835: 380 ("Zara [= Zadar]" and "Spalato [= Split]", Dalmatia).
Lectotype (design. nov.): RMNH 55581 ("Zara").

Bulimus (Mastus) canthraini Beck, 1837: 73 ("Dalmatia"). Unnecessary replacement name for *B. pupaeformis* Cantraine, 1835.

Achatina dentiens Rossmässler, 1839: 33, pl. 49 fig. 655 ("Griechenland"). Syntypes lost (Zilch, 1962: 229).

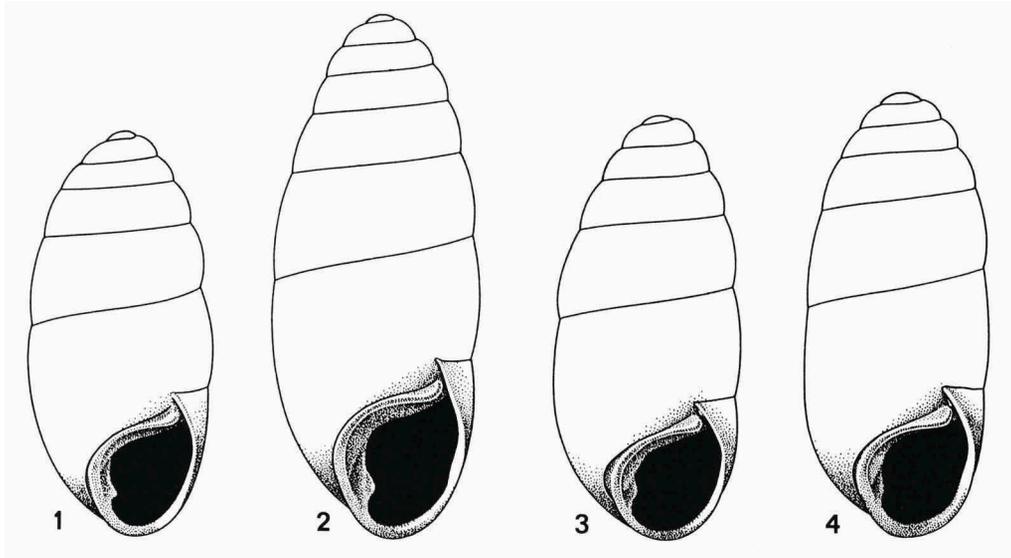
Azecca (Hypnophila) pupaeformis; Pilsbry, 1908: 298, pl. 47 fig. 9.

Material.— Crna Gora: near mouth of the Sutorna river W of Herceg-Novi, BN90 (RMNH); Budva, road to Cetinje, CM28 (Maa; RMNH); Petrovac, CM37 (RMNH); Ulcinj, CM54 (RMNH); Dobrota, 2 km N of Kotor, CN10 (Sub); Risan, CN11 (Sub).

Bosna i Hercegovina: Pridvorci, 2 km SW of Trebinje, BN83 (Maa); Počitelj, 25 km SSW of Mostar, YH28 (Maa; Men); near spring Buna near Blagaj, YH39 (Maa); Popovo Polje near Zavala, YH44 (Maa); Mostar, bridge, YJ20 (Men).

Hrvatska: near cemetery of Komolac, 4 km ENE of Dubrovnik, BN62 (Maa; RMNH); Lapad, NW side of Dubrovnik, BN62 (Maa); cave near Ombla spring E of Dubrovnik, BN62 (Maa; RMNH); Lokrum isl., 2 km SE of Dubrovnik, BN62 (Men; RMNH; Sub); Cavtat, Sipun cave, BN71 (Maa; RMNH; Sub); Dugi Otok isl., near the lighthouse at Veli Rat, 5 m alt., VJ88 (RMNH); SW coast of Sestrunj isl., 5 m alt., VJ98 (RMNH); Zadar (= Zara), WJ18 (RMNH); Biograd na moru, WJ36 (Maa); Korčula isl., Vela Luka, near Vela Spilja, XH45 (Maa); Korčula isl., 3 km from Čara, road to Korčula, XH55 (Maa); Brač isl., Sumartin, XH59 (Maa); Korčula isl., Pupnat, 4 km in the direction of Pupnatska Luka, XH65 (Maa); Račišće, Samograd cave, XH66 (RMNH); Makar, 2 km NE of Makarska, 200-600 m alt., XH69 (Maa); Veliko Brdo, 3 km N of Makarska, XH69 (Maa); Korčula isl., entrance of the Spisurka cave, XH75 (Maa); Pelješac, Kučište, XH76 (Maa); Sv. Ilija, N of Orebić, 150-700 m alt., XH76 (Maa); Staza pass, 5 km to Sv. Jure, 6 km SE of Makarska, NE of Podgora, XH79 (Maa); above Zaostrog, 27.5 km SE of Makarska, XH87 (Sub); Pelješac, mtn. near Trstenik, XH95 (Maa); Pelješac, 6 km W of Potomje, XH95 (Maa); Ploče, 17.5 km W of Metković, XH97 (Maa); 1 km E of Gradac, XH97 (Maa); Split, Mariam hill, XJ11 (Maa); Brač isl., Supetar, XJ20 (Sub); Klis, castle, XJ22 (Maa); Omiš, XJ31 (Maa; RMNH); Zadvarje, 18.5 km NW of Makarska, XJ50 (Maa); Klek, 14 km WSW of Metković, YH06 (Maa); Mljet isl., various localities near Sobra, YH13 (Sub); Prapatna, 3 km SW of Ston (= 17 km WNW of Slano), YH14 (Men; RMNH); Ston, castle, YH24 (Men); near spring at Slano, 5 m alt., YH34 (Men; RMNH).

Diagnosis.— Shell ovoid-conical, with $6\frac{3}{4}$ - $7\frac{1}{4}$ whorls. Columella with a promi-



Figs. 1-4. *Hypnophila* species. 1, *H. polita* (Porro), neotype (RMNH 56820), Greece, Nissia Ioniou, isl. Kerkira, coastal rocks S of Ermones (actual height 5.4 mm); 2, *H. pupaeformis* (Cantraine), lectotype (RMNH 55581), Hrvatska, Zadar (actual height 6.9 mm); 3, *H. cyclothyra* (O. Boettger) (RMNH), Greece, Sterea Ellas, Etolia-Akarnania, limestone gorge 8 km N of Aitolikon (actual height 5.6 mm); 4, *H. zacynthia* (Roth) (RMNH), Greece, Nissia Ioniou, isl. Kefalonia, near the spring at Karavomilos (actual height 5.9 mm). W. C. G. Gertenaar del.

ment denticle. Aperture somewhat narrowed at the basis. Reaching larger dimensions than the other species: height 6.5-7.6 mm; width 2.6-3.3 mm.

Notes.— The original description is insufficient to recognize the species with certainty. Therefore, to stabilize the actual interpretation of this nominal taxon, a lectotype is selected from among the six conspecific syntypes in RMNH.

The species is known from the island of Dugi Otok (A. S. H. Breure leg.) south-eastward to the Albanian border. The records are from the islands and the coastal mainland. The genus *Hypnophila* has not been reported from Albania. The molluscan fauna of that country is still poorly known, however, and we may assume that both the southern border of the range of *H. pupaeformis* and the northern border of that of *H. polita* are located here.

Kobelt (1894: 20) and Zilch (1962: 229) considered *Achatina dentiens*, described from Greece, a synonym of *H. pupaeformis*. The former author suggested that the type locality of *A. dentiens*, Greece, is incorrect because other *Hypnophila* species are found in that country, which is in agreement with our actual knowledge; the dimensions given by Rossmässler are in accordance with those of *H. pupaeformis*.

***Hypnophila polita* (Porro, 1838)**
(figs. 1, 5)

Bulimus politus Porro, 1838: 54, pl. 2 fig. 8c ("Grecia"). Neotype (design. nov.): RMNH 56820 (Greece, isl. Kerkira, coastal rocks S of Ermones).

Cionella zacynthia; Hesse, 1882: 330, 331. Not *Azeca zacynthia* Roth, 1855.

Cochlicopa (Hypnophila) zacynthia [sic]; Boettger, 1883: 317.

Azeca (Hypnophila) zacynthia; Pilsbry, 1908: 299, pl. 47 figs. 1-3. Not *Azeca zacynthia* Roth, 1855.

Hypnophila zacynthia; Sturany, 1904: 105. Käufel, 1930: 168 (partim). Klemm, 1962: 206, 220. Riedel & Subai, 1978: 82. Rähle, 1980: 220. Not *Azeca zacynthia* Roth, 1855.

Material.— GREECE. Ipiros. Thesprotia: 2 km N of Kestrini (= 11 km NW. of Igoumenitsa), 20 m alt., DJ38 (Sub); Parapotamos (= 8 km NE of Igoumenitsa), DJ47 (Sub); 5 km SE. of Igoumenitsa, crossroad to Ag. Marina, DJ47 (Sub); various localities near Filiates, along the river, alt. 100-300 m, DJ48 (RMNH; Sub); 0.6 km S of Mavroneri, road to Filiates, 150 m alt., DJ49 (Sub); between Keramitsa and Dafni, DJ59 (Reischütz & Sattmann, 1990: 257 "*H. zacynthia*"). Nissia Ioniou (material not listed in detail): isl. Kerkira (23 [RMNH] and 5 [Sub] samples).

Diagnosis.— Shell spindle-shaped, tapering nearly equally strong above and below the periphery; with $5\frac{1}{2}$ - $6\frac{1}{2}$ whorls. Columella with a prominent denticle, which is more acute than it is in the other species dealt with here; aperture somewhat narrowed near the basis. Height 5.0-6.3 mm; width 2.5-2.7 mm.

Notes.— Porro (1838: 54, pl. 2 fig. 8c) described and figured *Bulimus politus* after material received from L. Parreyss with only the vague indication "Grecia" for its origin. Pilsbry (1908: pl. 47 fig. 4) reproduced the unclear original figure, which shows a very prominent, sharp, columellar denticle. Porro's description is not of much help to judge the taxon in question, which he classified next to *Cochlicopa lubrica* (Müller, 1774). If Greece is accepted as the correct type locality and if we assume with Pilsbry (1908: 300) that one of the *Hypnophila* species known from that country is most probably involved, the epithet introduced by Porro (1838) should be used for the species occurring in Kerkira and the adjacent mainland. Only this species has a columellar denticle which somewhat resembles the very prominent and sharp one roughly figured by Porro. Greek gastropods with pupilloid glossy shells that are more similar are unknown.

The collection of Porro, once in the Museo Civico di Storia Naturale in Milan, Italy, was destroyed in 1943 (Conci, 1967). Specimens distributed by L. Parreyss as *Bulimus politus* are neither in the Naturhistorisches Museum, Vienna, Austria, nor in the Senckenberg Museum, Frankfurt, Germany. In these two institutes such specimens could be expected to be found. To prevent that *B. politus* remains a "nomen dubium", a neotype is selected for this nominal taxon. As a consequence, the Corfiotic *Hypnophila* has to be called *H. polita*. Following an incorrect, rather bizarre hypothesis, several authors have used the name *H. zacynthia* for this species.

How far north this species occurs in Albania, is unknown (see also the notes with *H. pupaeformis*). Its range illustrates the fact that the terrestrial molluscan fauna of Kerkira closely resembles that of the opposite mainland, with which the island was united during glacial sea level lowerings.

Hypnophila zacynthia (Roth, 1855) (figs. 4, 5)

Azeca zacynthia Roth, 1855: 39, pl. 1 figs. 10, 11 ("Unicum tantum specimen abstuli de littore insulae

Zacynthi [a single specimen washed ashore at Zacynthos]"). Holotype: ZSM.

Azeca integra Mousson, 1859: 32 ("dans toute l'île", "île de Céphalonie").

Cochlicopa (Hypnophila) integra; Boettger, 1883: 324.

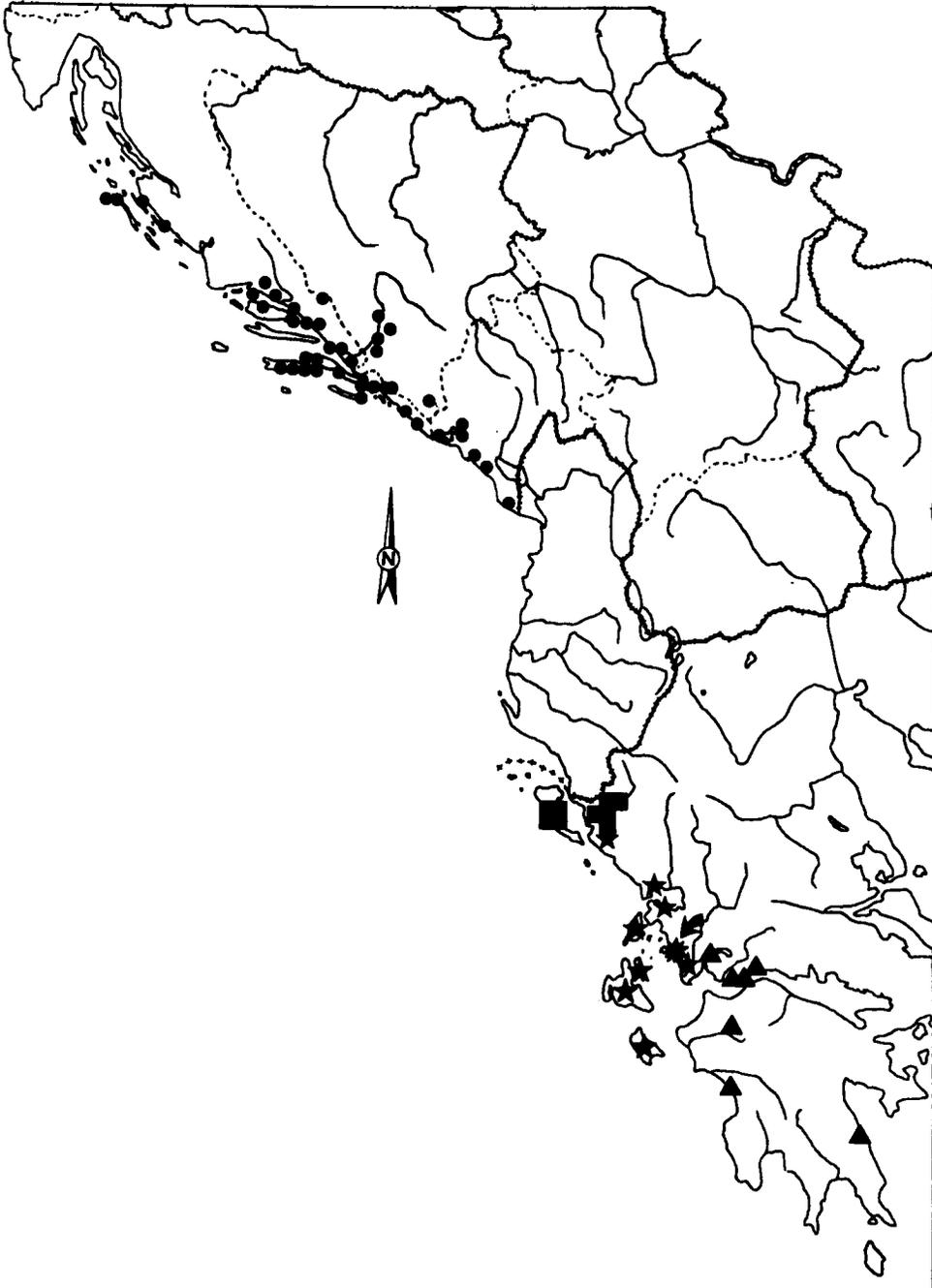


Fig. 5. Records of: *H. pupaeformis* (Cantraine), dots; *H. polita* (Porro), squares; *H. zacynthia* (Roth), stars; *H. cyclothyra* (O. Boettger), triangles.

Cionella zacynthia; Martens, 1889: 172.

Hypnophila integra; Käufel, 1930: 168. Rähle, 1980: 206.

Material.— GREECE. Ipiros. Arta: 11 km SSW. of Arta, 100 m alt., DJ82 (RMNH). Prevesa: 0.5 km E of Voritsa, DJ90 (Sub). Thesprotia: 1 km N of Karteri (= 16 km SE of Igoumenitsa), DJ46 (Sub). Sterea Ellas. Etolia-Akarnania: N side of Astakos, 10-50 m alt., EH06 (Men; RMNH); Astakos, Veloutsia mtn., 80 m alt., EH06 (Sub); Oiniadai ruins, 24 km W of Messolongi, EH15 (RMNH). Nissia Ioniou (material not listed in detail): isl. Lefkada (9 [RMNH] and 5 [Sub] samples); isl. Kefalonia (28 samples [RMNH]); isl. Ithaki (8 samples [RMNH]); isl. Zakynthos (7 samples [RMNH]).

Diagnosis.— Shell sub-cylindrical, with $5\frac{3}{4}$ -7 whorls. The penultimate and the body whorl are about equally wide and strongly flattened; columella straight or with only an obsolete "denticle", not more conspicuous than the one figured in fig. 4; aperture broadly rounded below. Height 5.2-6.6 mm; width 2.4-2.6 mm.

Notes.— Roth (1855: 39, pl. 1 figs. 10, 11) described and figured *H. zacynthia* after a single shell, found at the beach on Zakynthos. Hesse (1882: 331) reported that he collected specimens on Kerkira, fitting Roth's description, but less so the accompanying illustrations: "Seine Diagnose passt auf meine corfiotischen Stücke vortrefflich, weniger die Abbildung, welche die Spindeltruncatur nicht zeigt" [His diagnosis fits my corfiotic specimens perfectly well, less so the illustration, which does not show the truncate spindle]. Because he had been unable to find a *Hypnophila* species on Zakynthos, Hesse hypothesized that Roth's specimen might be from Kerkira, i.e. that it had been transported by the sea from Kerkira to Zakynthos over a distance of about 200 km. Consequently, Hesse (1882: 330) used the epithet *zacynthia* for the Corfiotic *Hypnophila* species. He was followed remarkably persistent by nearly all subsequent authors (not by Martens, 1889), among which even Boettger (1883: 324), who correctly indicated the differences between "*zacynthia*" (= *H. polita*) and "*integra*" (= *H. zacynthia*). Käufel (1930: 168) reported *H. zacynthia* from Zakynthos, Lefkada and Kerkira, and *H. integra* from Kefalonia only.

Meanwhile it became known that there is a *Hypnophila* species widely distributed on Zakynthos, which differs from the one on Kerkira. There is no good reason to assume that Roth did not simply collect a specimen of this local species on the Zakynthos beach, a specimen that had been transported for only a few meters over land, instead of 200 km over sea. Roth's illustrations (1855: pl. 1 figs. 10, 11) strongly support this view, which is found nowhere in the literature more recent than 1855, however, in spite of the suggestive nomenclature. According to these good figures, the holotype of *H. zacynthia* is a sub-cylindrical shell without a prominent columellar denticle. The holotype itself, still present in the Zoologische Staatssammlung, München, F.R. Germany, closely resembles these figures. Thus the epithet *zacynthia* was given correctly to a species first reported from Zakynthos.

No differences were found between the *Hypnophila* species from Zakynthos and the one represented on Kefalonia, for which Mousson (1859: 32) introduced the epithet *integra*. The species also occurs on the islands of Ithaki and Lefkada as well as in the adjoining mainland, where its range comes very close to that of *H. cyclothyra* (near Astakos).

***Hypnophila cyclothyra* (O. Boettger, 1885)**

(figs. 3, 5)

Cochlicopa (*Hypnophila*) *cyclothyra* Boettger, 1885: 121 ("Santameri Achaiae [= Santomerion, Akhaia]").*Azeza* (*Hypnophila*) *cyclothyra*; Pilsbry, 1908: 300, pl. 47 figs. 7, 8.*Hypnophila cyclothyra*; Zilch, 1962: 229, pl. 7 fig. 2 (lectotype).

Material.— GREECE. Sterea Ellas. Etolia-Akarnania: 1 km E of Astakos, low rocky hills near the sea, 10 m alt., EH06 (Sub); gorge 8 km N of Aitolikon, near the monastery Ag. Eleusis, EH36 (RMNH; Sub); Krionerion, SW slope Varassova mtn., 50-250 m alt., EH54 (Sub); gorge in Riza, 6 km NW of Andirriion, EH64 (Men; RMNH; Sub); Nafpaktos, EH75 (Sub).

Peloponnisos. Ahaia: Santomerion (type locality), EH50 (Boettger, 1885: 121); idem, Skollis mtn., 550 m alt., EH50 (Sub). Arkadia: 4.5 km NE of Leonidhion along the coastal road among large rocks, 30 m alt., FG6816 (RMNH). Iliia: 6 km NW of Zakharo, 10-25 m alt., EG55 (Men).

Diagnosis.— Shell elongated ovoid, with 6-6³/₄ whorls. Columella with a rather prominent, blunt denticle. Aperture more rounded than it is in the other species; its ring-like callus more clearly protruding, and constricting the aperture in such a way that the lowest point of the shell is situated behind the apertural lip. Height 5.5-6.6 mm; width 2.5-2.8 mm.

Notes.— This species illustrates that biogeographically the southern Ionian islands and the nearby Peloponnese belong to different entities (see also Gittenberger, 1986). Near Astakos nine specimens of this species were found by P. Subai at a locality situated only one to two km apart from a large population of *H. zacynthia*.

The disjunctions in the known range of *H. cyclothyra* might at least partly result from incomplete sampling.

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