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Four New Species of Land Snails from New Zealand

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*Abstract*

Two of the small species of land snails described in this paper are operculates of the genus *Cytora*, one from the North and one from the South Island, bringing the number of known species in this genus to twenty-two.

To the Flammulinidae is added a keeled *Thalassohelix* of moderate size from Great Island, Three Kings Group, and a *Phelussa* with some unusual features, from the north-west of the South Island.

The two northern species have a very restricted distribution, and the extent of the range of the southern species is at present undetermined.

Family CYCLOPHORIDAE

Genus CYTORA Kobelt and Moellendorf 1897.

*Cytora depressa* n.sp. Fig. 1.

SHELL small, depressed turbiniform, of four and a half whorls, dark brown in colour, with a shiny appearance. Protoconch of two smooth whorls. Spire two-thirds height of aperture, whorls rounded, suture impressed. Sculpture consists of fine thread-like riblets, one hundred and ten on body whorl (approximately twelve per mm), slightly retractive, and running from suture to suture and around the body whorl to the umbilical region. Interstices with fine growth lines only. Aperture lunate, columella short, vertical, and angled above. Peristome continuous, thickened, and a little reflexed. Inner lip appears to be almost detached from the parietal wall. Umbilicus one-third of greatest diameter of shell, perspective, and clearly showing previous whorls.

Diameter 4.0mm, height 2.25mm.

RADULA: Centrals of dumb-bell shape, with the basal margin reduced. There are five cusps, the middle one of which is largest and noticeably broader in proportion. Laterals strongly produced on the inner edge, and sloping away on the outer side. Base one-third width of tooth. Of the five cusps, the centre one is again larger, the other cusps diminishing towards outer edges. Inner marginal also produced on inner edge, with four cusps, the second from the inner margin showing greatest development. Outer marginal long and narrow, tapering to a point which is curved inwards.

HOLOTYPE: Presented to Auckland Museum; paratypes in Auckland and Dominion Museums.

HABITAT: Leaf mould amongst rocky outcrops, west side of Takaka Hill, West Nelson. N. Gardner -1.67 (holotype); Clifton and Gorge Creek, East Takaka. B. Elliott.

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*Cytora depressa* n.sp. when compared with *C. lignaria* (Pfeiffer) can be identified by its depressed profile, the more numerous riblets, and wider umbilicus. It is also much darker in colour.

While *C. lignaria* has been recorded from the Marlborough Sounds and Nelson areas (Suter 1913), it apparently is not known from further west. It does not appear to co-exist with *depressa* n.sp. from around Takaka Hill, nor has it turned up so far in collections of small landsnails taken from the Mount Arthur Tableland, which is directly south and on the same range.

*Cytora kerrana* n.sp. Figs. 2 and 3.

SHELL small, conical, of five and a half whorls, with a protoconch of two smooth convolutions. Spire one and a half times height of aperture, outlines convex. Sculpture consists of oblique, rather straight riblets running from suture to suture and around on to the base. These membranous riblets, twenty-six on body whorl (six to seven per mm), are produced into hair-like processes at irregular intervals. Although present in juvenile and sub-adult specimens, they are usually worn off in mature shells. Interstices with fine growth-lines on a pitted surface. Spiral threads are sometimes present; variable in number, unevenly spaced, and of uneven strength. Reddish brown in colour with a pale band at the periphery. Aperture lunate, a little constricted, outer lip evenly rounded. Columella oblique, slightly reflexed, angled above and almost covering the perforation.

Diameter 2.0mm, height 3.5mm.

RADULA: Central rather wide with a straight margin and having five cusps, of which the outer one on each side is smaller. Lateral produced on inner margin and sloping away on the outer side. There are five cusps, four well developed, and the outer one smaller. Inner marginal longer than lateral, with six cusps, three small ones on inside, then one large, followed by two small weak ones on the outside. Outer marginal long and narrow, tapering to a point and curved inwards.

HOLOTYPE: Presented to Auckland Museum; paratypes in Auckland and Dominion Museums.

HABITAT: Under stunted scrub on coastal cliff face at Kerr Point, near North Cape. Very common. N. Gardner -1.66 (holotype); Taputaputa, near Cape Reinga -4.66; Pandora and Kahuroanaki, Spirits Bay. N. Gardner -1.66.

Although similar in outline to *Cytora pallida* (Hutton), this new species is readily separated by its consistently smaller size and more regular construction of the axial riblets. In typical *pallida*, the riblets are little more than flat lines of ragged epidermal tissue, very irregularly, and sometimes distantly spaced. In *kerrana* n.sp. the riblets are more raised, and are hirsute in character in sub-adult stages; mature shells are nearly always denuded, however.

Only minor radular differences are apparent, for each species has five cusps on both central and lateral teeth, while the inner marginal of *kerrana* has six cusps which is one more than in *pallida*.

While *kerrana* occurs in other parts of the Northern Block (Gardner, 1967), it does so much less commonly, and the shell often lacks the distinctive juvenile bristle of the Kerr Point population. Adult specimens from each area appear to be identical, however.

Family FLAMMULINIDAE

Genus THALASSOHELIX Pilsbry 1892.

*Thalassohelix regia* n.sp. Figs. 4, 5 and 6.

SHELL small, depressed turbiniform, distinctly keeled, and of four whorls. Protoconch of one and a half whorls, with about fifteen distinct spirals. Succeeding whorls with axial riblets, rather uneven in strength and disposition; some twelve per mm, directed back towards

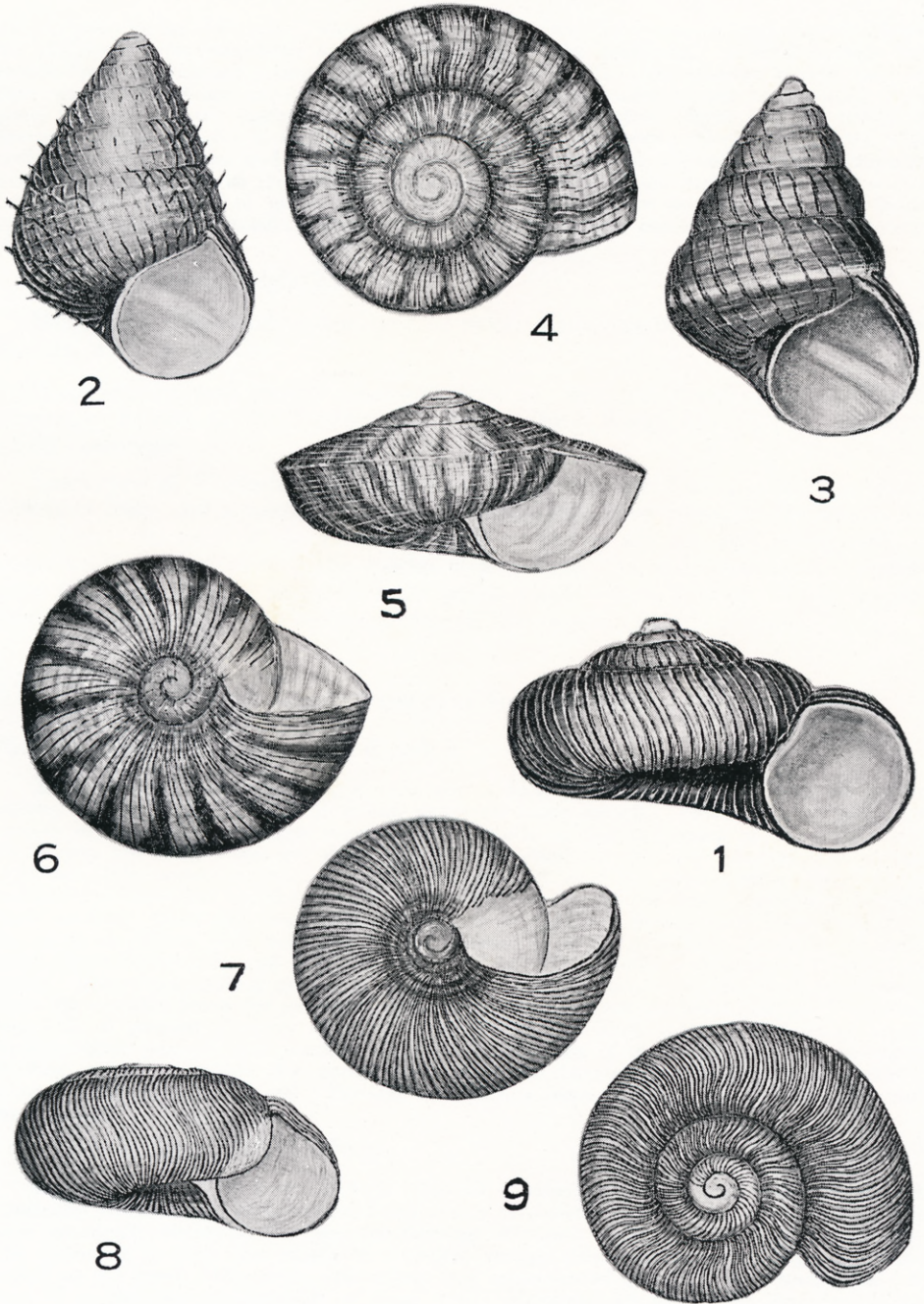


FIG. 1.—*Cytora depressa* n.sp. 4.0mm × 2.25mm.

FIGS. 2 and 3.—*Cytora kerrana* n.sp. 2.0mm × 3.25mm.

FIGS. 4, 5 and 6.—*Thalassohelix regia* n.sp. 4.5mm × 2.2mm.

FIGS. 7, 8 and 9.—*Phelussa elliottae* n.sp. 5.0mm × 2.5mm.

the periphery in an even curve, where they have a tendency to become a little ragged. Below the periphery, they straighten up and remain so to the umbilicus. Interstices with fine growth-lines. Spirals are present on all whorls, and in addition, six or seven heavier threads, more widely spaced, are present sub-suturally, and more apparent on the body whorl. Periphery high up, sharply angled, with whorl evenly rounded below. Spire half the height of aperture, almost straight in outline. Suture moderately impressed. Shell horn colour, with radiating reddish brown and somewhat wavy flashes, irregular in disposition, and continuing past the periphery across the base to the umbilical cavity. These flashes are visible within the aperture. A series of spirals on the brink of the perforation produce some short membranous processes. Columella oblique and reflexed. Umbilicus one-quarter greatest diameter of shell.

Diameter 5.5mm, height 2.2mm.

HOLOTYPE: Presented to Auckland Museum; paratypes in collections of L. Price, Kaitaia, and the author.

HABITAT: In leaf mould amongst rocks on southern slope of Great Island (generally known as the "Arbutus" area), Three Kings Islands. N. Gardner -1.63 (holotype).

Specimens of *Thalassohelix regia* n.sp. were collected during a visit to these islands in 1963, and although a few freshly dead shells were taken, no live specimens were seen. In view of the fact that visits to this group are very infrequent, it seems worthwhile describing the species at this stage. In shell characters it agrees quite well with the key features of the genus *Thalassohelix* Pilsbry, which has not previously appeared in the molluscan faunal lists of these islands (Powell, 1951).

#### Genus PHELUSSA Iredale 1915.

*Phelussa elliottae* n.sp. Figs. 7, 8 and 9.

SHELL small, silky, discoidal, of four and a half whorls, horn colour with no colour pattern. Protoconch of one and a half distinctly lirate whorls. Post-embryonic sculpture consists of fine flexuous riblets commencing abruptly at the beginning of the teleoconch, where they are fairly close, but those on the body whorl number one hundred and sixteen (approximately twelve per mm). They slope forward near the suture, then evenly curve backwards towards the periphery, and thence straighten up on the base, where they become much weaker. Spire only slightly raised, convex in outline. Interstices a little more than the width of riblets, with fine growth-lines crossed by spiral striations. Shoulder of body whorl slopes downwards, and is evenly curved below. The umbilical depression is lighter in colour. Suture encroaching on the previous whorl in such a way as to form a deep channel. Outer lip receding below the periphery, and rather straight along the basal margin. Umbilicus one-ninth of greatest diameter of shell. Around the umbilicus, there is a series of spiral threads, which pass on to a peculiar thickening at the base of the columella. The strongest of these spirals is within the perforation. Aperture lunate, a little depressed laterally, columella oblique and reflexed. Parietal wall with a large callosity, which extends beyond the aperture.

Diameter 5.0mm, height 2.5mm.

RADULA: 9 + 5 + 1 + 5 + 9. Central tricuspid, mesocone long and club shaped terminally, entocone and ectocone small and evenly produced. Base a little expanded. Lateral teeth practically bicuspid, the entocone showing only as a slight undulation in the outline. The mesocone is twice the length of ectocone, straight-sided on the inner edge, and sub-angled on the outer. Marginals with a long and sabre-shaped mesocone on a small base. A trace of an entocone is discernible on some teeth. Marginals are smaller on inner and outer edges of radula.

HOLOTYPE: Presented to Auckland Museum; paratype in Dominion Museum. Other paratypes in collection of Miss B. Elliott, East Takaka.

HABITAT: Sheltering in collapsed *Paryphanta* shells, Fenian Track, Oparara, South Island. B. Elliott -1.66 (holotype); Kahurangi River 800ft, West Nelson. L. Price -1.67.

This species, although resembling *Allodiscus* in some respects, is placed in the genus *Phelussa* after examination of the radula, which is in accordance with the style of that genus, that is, with only a long mesocone in the marginal teeth. A discordant feature is the spirally lined protoconch which is more like that of *Allodiscus*.

*Phelussa elliottae* n.sp. also has several distinctive features such as the umbilical spirals, the channelled suture and the thickening, which runs back from the columella and around the brink of the perforation.

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