

2–40 mm in diameter), blunt spines, which, in most specimens, are aligned along the branch axis (Plates 43, i, 44, b). Worn specimens that lack coenosteal spines often show a weak underlying costal striation. Corallum white.

Septa invariably hexamerally arranged in 3 complete cycles: S1>S3>S2 (24 septa). S1 about 0.7 mm exsert, with straight inner edges that reach the columella. S2 about half width of S1, with sinuous inner edges, each S2 bearing a tall palus up to 0.6 mm in width. S3 equal to or wider than S2, having lacinate inner edges that solidly fuse to their common P2 within each system. Occasionally S3 will also have small (0.2 mm width) paliform lobes that fuse to their common P2. Septal and palar faces covered with tall (up to 0.11 mm), blunt to clavate spines. Fossa of moderate depth, containing a well-developed papillose columella.

TYPES: The holotype colony of *S. alcocki* is now broken into at least four pieces, three of which are deposited at the USNM (45056) and one at the BM(NH) (1974.1.10.7). The holotype of *D. palita* is deposited at NZOI (H-18).

TYPE LOCALITIES: *S. alcocki*: seaward slope of Bikini Atoll, Marshall Islands, 177–243 m. *D. palita*: NZOI Stn B490, 45°44.3' S, 166°44.8' E (Dusky Sound, Fiordland), 114–118 m.

REMARKS: The coenosteum of *D. alcocki* is so dense that Wells (1954) originally described it as an oculinid. In fact, worn specimens are quite similar to colonies of *Madrepora oculata*, and Squires and Keyes (1967) included several specimens of dead *M. oculata* in the nontype series (NZOI Stn B490) of their *D. palita*. *Dendrophyllia alcocki* is most easily distinguished from the oculinid by its very large S3, which sometimes fuse in pairs before their common S2. Another sympodially branching deep-water species in this region is *Oculina virgosa*, which is similar to *D. alcocki* in calicular diameter and colony form, but differs in having P1, uniformly distributed corallites, and a tendency to have 28 septa per corallite.

Zibrowius (1974c) was the first to recognise the synonymy of *S. alcocki* and *D. palita* and to transfer *S. alcocki* to the Dendrophylliidae, although he was somewhat unsure about the generic placement. According to my partial revision (Cairns 1994) of the genus *Dendrophyllia*, *D. alcocki* is one of eight species of "growth form 3", characterised by having an arborescent colony

with sympodial budding.

Although P2 are usually well developed and diagnostic for *D. alcocki*, in some coralla (e.g., NZOI Stn I91, I92) P2 are poorly or irregularly developed. In some of these colonies, one, several, or no P2 may be developed in one corallite but all six developed in another corallite in the same corallum.

Enallopsammia Michelotti, 1871

Corallum colonial, arborescent to uniplanar, formed by extratentacular budding. Corallites sympodially or unifacially arranged. Synapticulo-theca dense, porous only near calice and inter-costal furrows. Septa normally arranged. Pali absent; columella small and papillose.

TYPE SPECIES: *Coenopsammia scillae* Seguenza, 1864, by monotypy.

REMARKS: *Enallopsammia* is distinguished from *Dendrophyllia* by having normally arranged septa, not a Pourtalès Plan. Four recent species are attributed to this genus: *E. profunda* (Portalès, 1867) (western Atlantic); *E. rostrata* (Portalès, 1878) (cosmopolitan); *E. pusilla* (Alcock, 1902a) (Sulu Sea); and *E. marenzelleri* Zibrowius, 1973 (Indonesia, New Zealand). The type species is *E. scillae* (Seguenza, 1864), an Italian Miocene species.

Enallopsammia rostrata (Portalès, 1878) (Plate 44, c-f)

Amphihelia rostrata Portalès, 1878: 204, pl. 1, figs 4–5.
Enallopsammia rostrata: Zibrowius 1973: 44–45, pl. 2, figs 14–15; Cairns 1982: 57, pl. 18, figs 1–4 (synonymy); Cairns & Parker 1992: 52–53, pl. 18, figs e-i; Cairns & Keller 1993: 281–282; Cairns, 1994: 92–93, pl. 39, figs d-f.

MATERIAL EXAMINED: New Records: NZOI Stn E855; NZOI Stn F319, NZOI Stn I63, NZOI Stn I676, NZOI Stn J715, 2, NZOI Stn K795, 4, USNM 94203; NZOI Stn K800, 1, USNM 94204; NZOI Stn K842, 2; NZOI Stn K846, 2, USNM 94205; NZOI Stn K868, 1; NZOI Stn K872; NZOI Stn P8, USNM 94206; NZOI Stn P945, 1; NZOI Stn P947; NZOI Stn R437, 2, USNM 94207; NZOI Stn X182, 1; KTN 17/82, MoNZ; FV *San Manukau*, AIM AK8317; 36°22' S, 164°49' E, 963–967 m, 19 July 1990, AIM AK8486; *Volcanolog* Stn B30/28,

AU11622, AUM; "off Whangaroa", 110 m, H1075, AUM; *Tui*, Rumble II, 1, AU11140, AUM; *Alexander Nemesyanov Stn N17/6*, AU12251, AUM; *Alexander Nemesyanov Stn N17/15*, AU12256, AUM; RV *Pater-son*, 1 live colony, MoNZ CO361. Previous Records: syntypes of *A. rostrata*.

DISTRIBUTION: Widespread in New Zealand region from Colville to Macquarie Ridge (Map 5); 110–1276 m, but most records deeper than 500 m. Elsewhere: cosmopolitan, except for continental Antarctica and eastern Pacific; 229–2165 m. Also known from the Austral Seamounts, Cook Islands (NZOI Stn F319), reported herein.

DESCRIPTION: Large uniplanar colonies formed by frequent extratentacular budding, which sometimes leads to branch anastomosis. Largest New Zealand specimen examined (AUM H1075) 370 mm in height and 320 mm in width, with a massive basal diameter of 40 mm. Majority of specimens examined dead, and some quite worn, when collected. Calices circular to slightly elliptical and confined to one face of corallum (anterior by definition), arranged uniserially on distal branches. Calices 2–5 mm diameter, some colonies (e.g., NZOI Stn K800, K846, P947) having delicate coralla with consistently small corallites, the remaining coralla having more robust coralla with larger corallites. Adcauline (outermost) CS1 of each calice usually enlarged as a small rostrum, the associated C1 sometimes slightly ridged. Degree of rostral development variable, the rostrum often unrecognised in dead or worn coralla. Costae well developed, especially on acalicular face, where they are slightly convex, about 0.3 mm in width, and separated by thin (0.13 mm wide), deep intercostal furrows that bear circular pores about 0.1 mm in diameter. Intercostal pores covered with coenosteum in older coralla and at bases of larger coralla. Well-preserved costae covered with tall (up to 0.12 mm tall and 0.05 mm in diameter), blunt spines. Corallum white.

Septa invariably hexamerally arranged in 3 complete cycles according to the formula: $S1 > S2 > S3$. $S1$ slightly exsert, have straight inner edges that have dentate lower edges, and are relatively narrow, extending only about one-third distance to centre of fossa. Rostrate CS1 usually 2–3 times as exsert and thick as other CS1. $S2$ less exsert than normal $S1$ but of approximately same width, both cycles of septa reaching the columella. $S3$ rudimentary and

dentate for entire border, having either a free inner edge or being loosely connected to its adjacent $S2$ through a porous fusion. All septal faces spinose. $P2$ (paliform lobes) sometimes present. Fossa of moderate depth, containing a small, granular, papillose columella.

TYPES: The syntypes of *A. rostrata* are deposited at the MCZ (Cairns 1979).

TYPE LOCALITY: *Blake Stn 2*, 23°14' N, 82°25' W (Straits of Florida), 1472 m.

REMARKS: *Enallopsammia rostrata* is one of approximately a dozen species that are virtually cosmopolitan in the world oceans, and occur at relatively great depths. Additional descriptions and discussion of its morphological variation are found in Cairns (1979, 1982) and Zibrowius (1980). It is distinguished from the other six deep-water colonial Scleractinia known from the New Zealand region by having unifacial corallites and a costoseptal rostrum. It also appears to attain the largest size of any New Zealand azooxanthellate scleractinian coral. The other New Zealand deep-water colonial species are: *Oculina virgosa* (29–388 m), *Madrepora oculata* (149–946 m), *Goniocorella dumosa* (88–1488 m), *Solenosmilia variabilis* (509–1075 m), *Dendrophyllia alcocki* (118–570 m), and *Enallopsammia marenzelleri* (333–371 m).

Enallopsammia cf. *marenzelleri* Zibrowius, 1973
(Plate 44, g, h)

Enallopsammia marenzelleri Zibrowius, 1973: 49–51, pl. 1, figs 1–7, pl. 2, figs 8–11 (synonymy).
Enallopsammia sp. cf. *E. marenzelleri*: Cairns 1982: 57–58, pl. 18, figs 5–6.

MATERIAL EXAMINED: New Records: None. Previous Records: *Eltanin Stn 1411*, 13 branch fragments, USNM 47535, reported by Cairns (1982).

DISTRIBUTION: New Zealand region: known only from one record on northern Macquarie Ridge; 333–371 m. Elsewhere: Meteor Seamount and the Azores, Northeast Atlantic; off Nicobar Islands; Indonesia; 595–815 m.

TYPES: The holotype and paratypes of this species are deposited at the ZMA (Coel. 6902, 588, respectively).

TYPE LOCALITY: *Siboga* Stn 266, 5°56.5' S, 132°47.7' E (off Kai Islands, Banda Sea), 595 m.

REMARKS: One lot of 13 branch fragments was reported as *Enallopsammia* sp. cf. *E. marenzelleri* by Cairns (1982) from Macquarie Ridge. These specimens, taken at the same station as *E. rostrata*,

differ from that species in having a bushy colony shape, sympodially arranged corallites, and in lacking any trace of costoseptal rostra. No additional specimens of this species are reported in this study, and, because of the poor representation of this species in the New Zealand region, I remain tentative about its identification.

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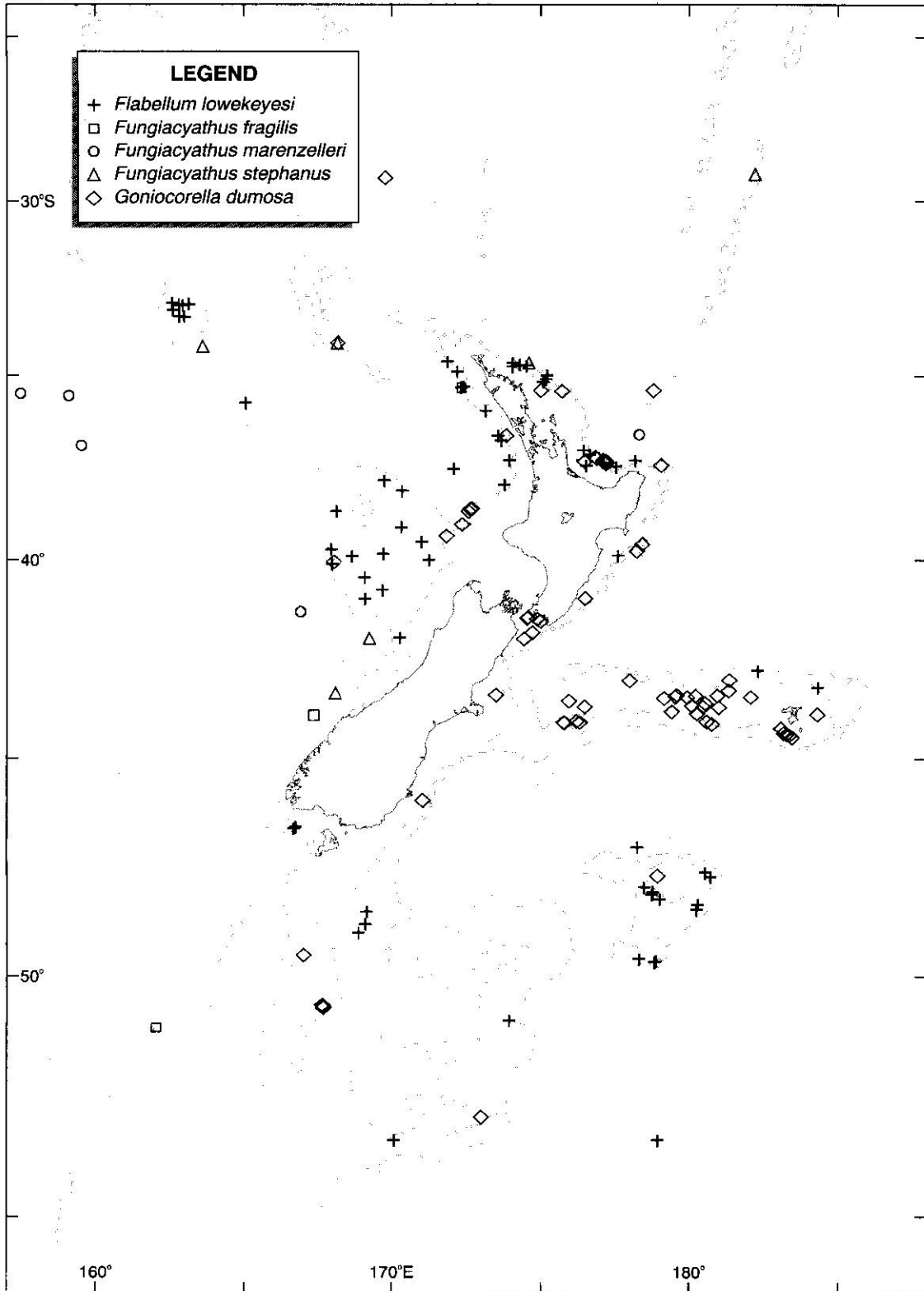
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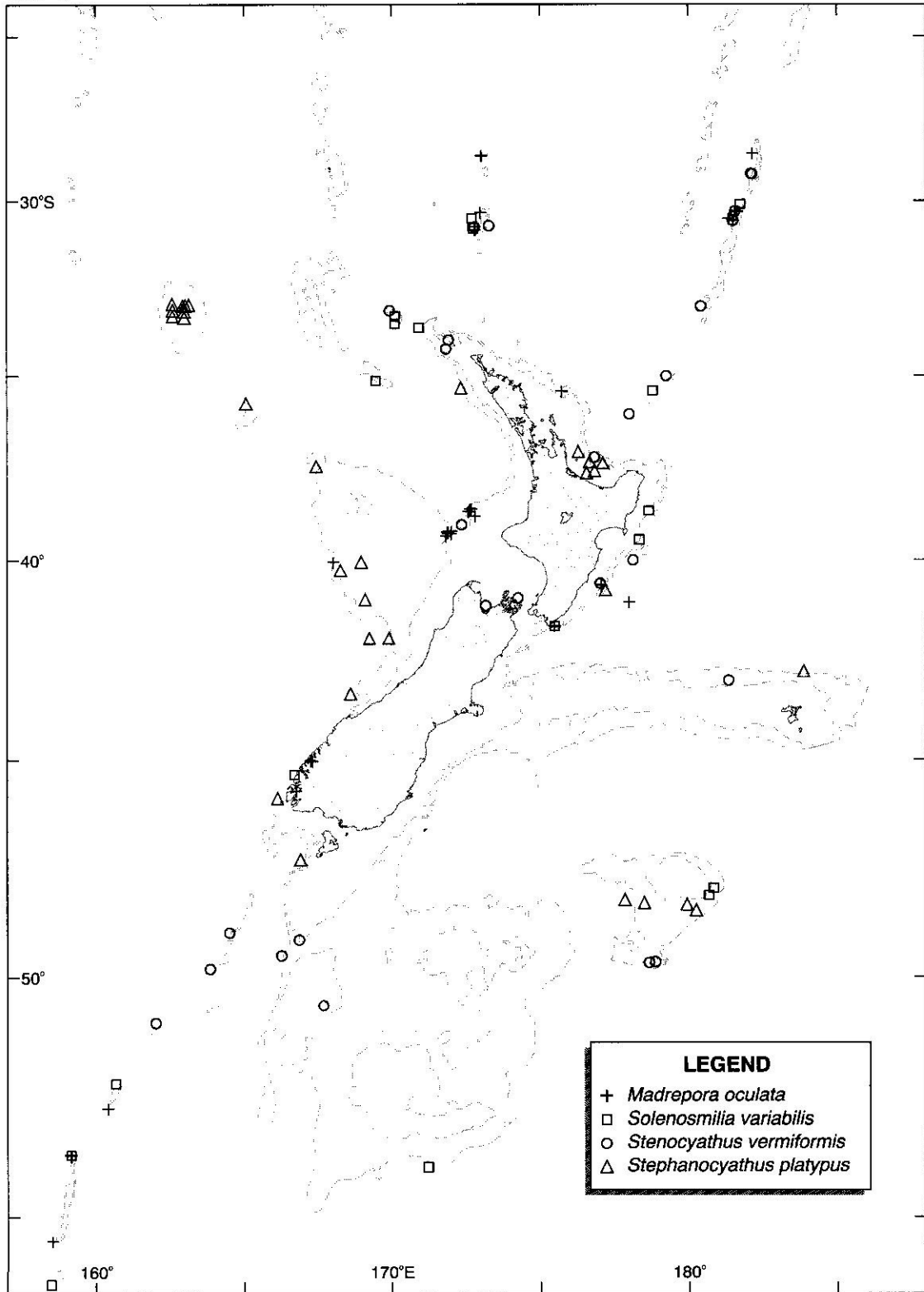
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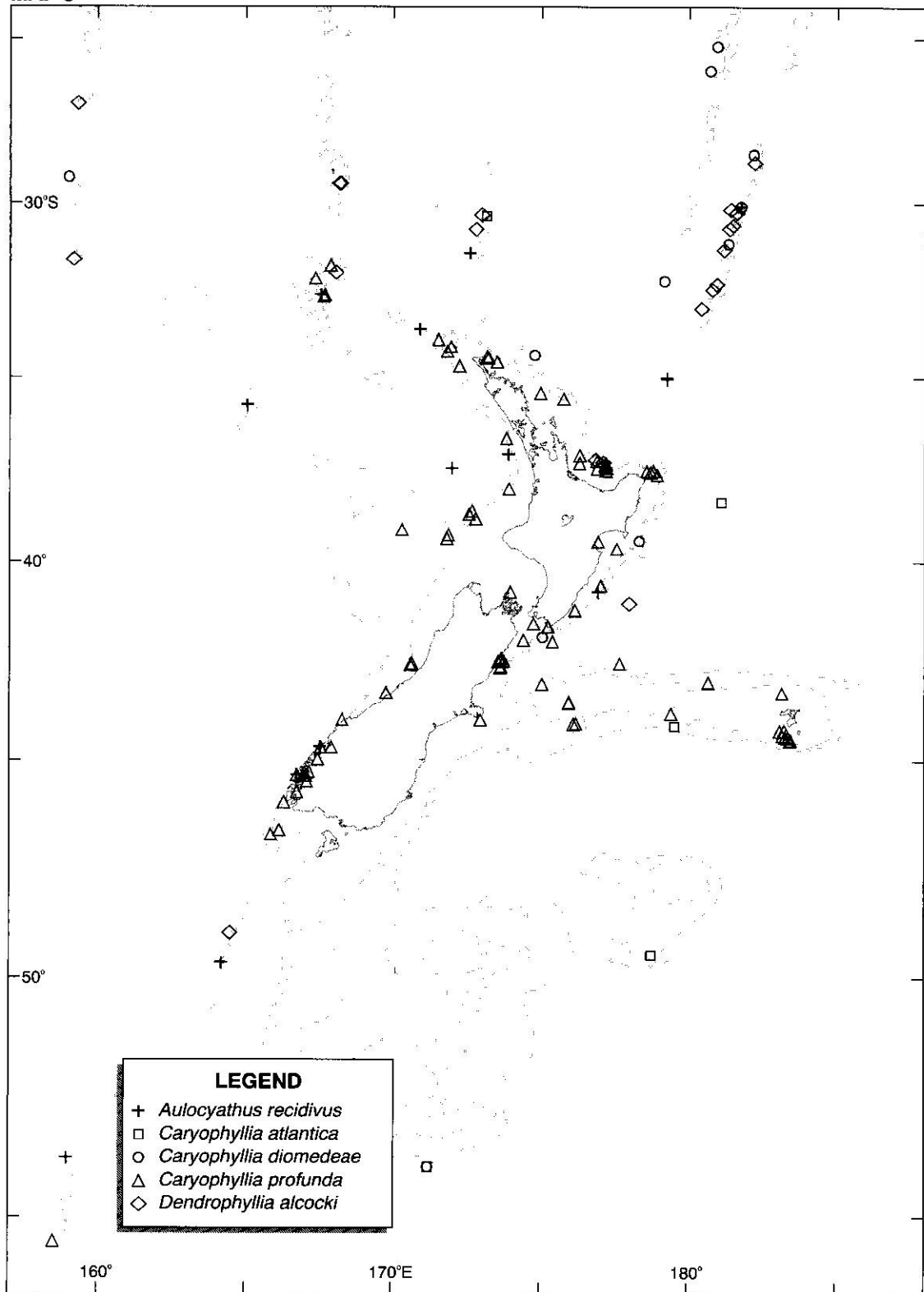
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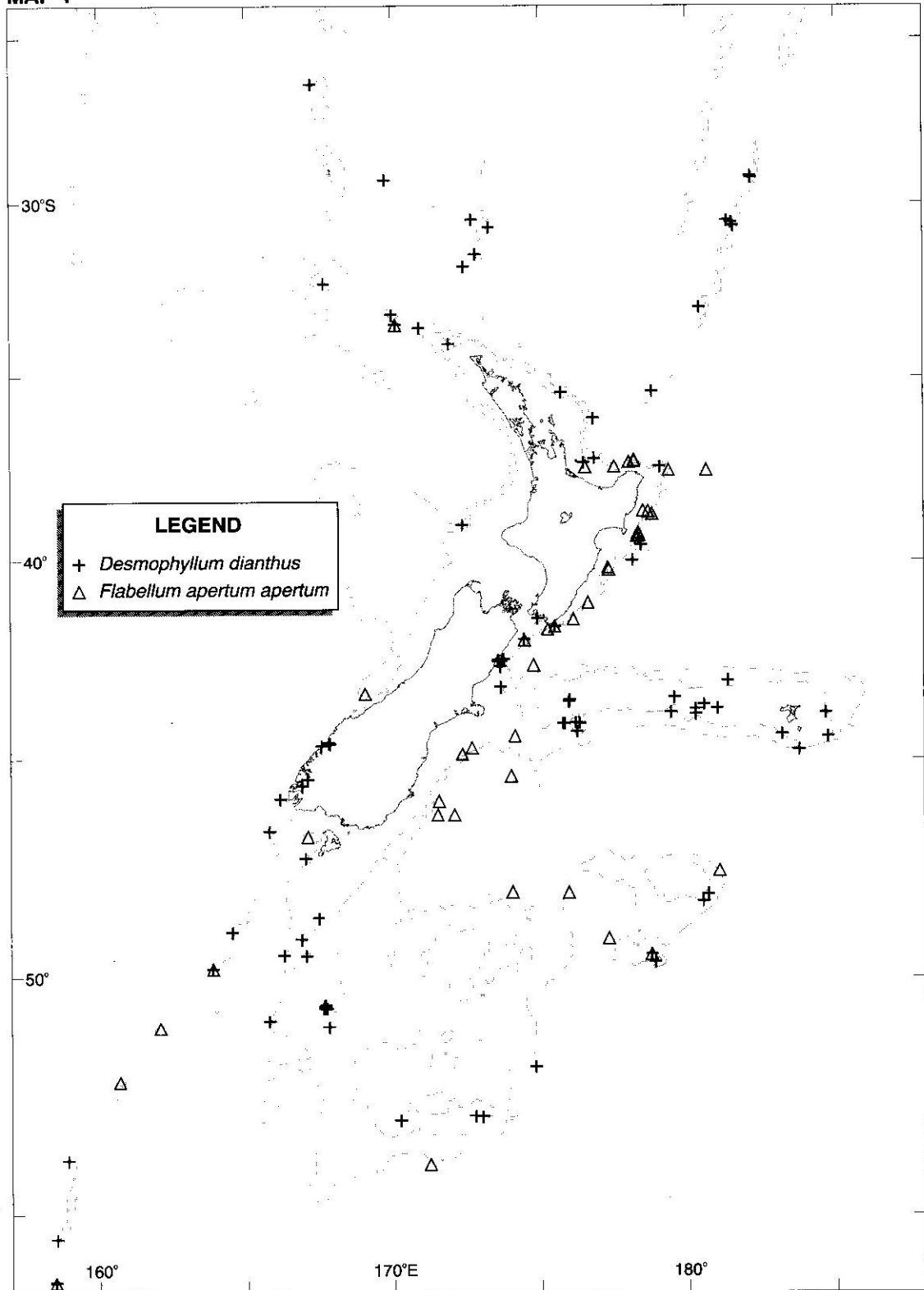
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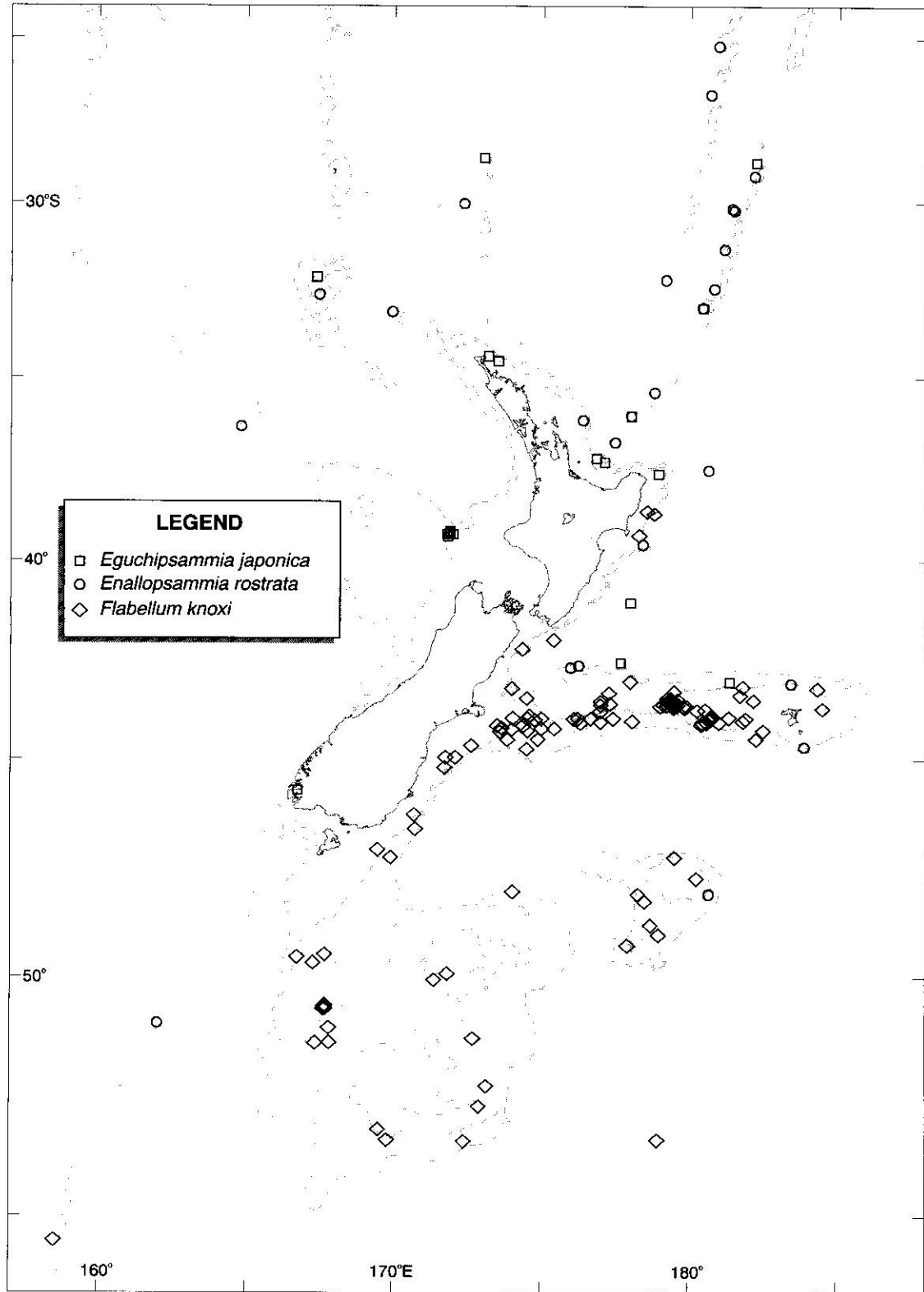
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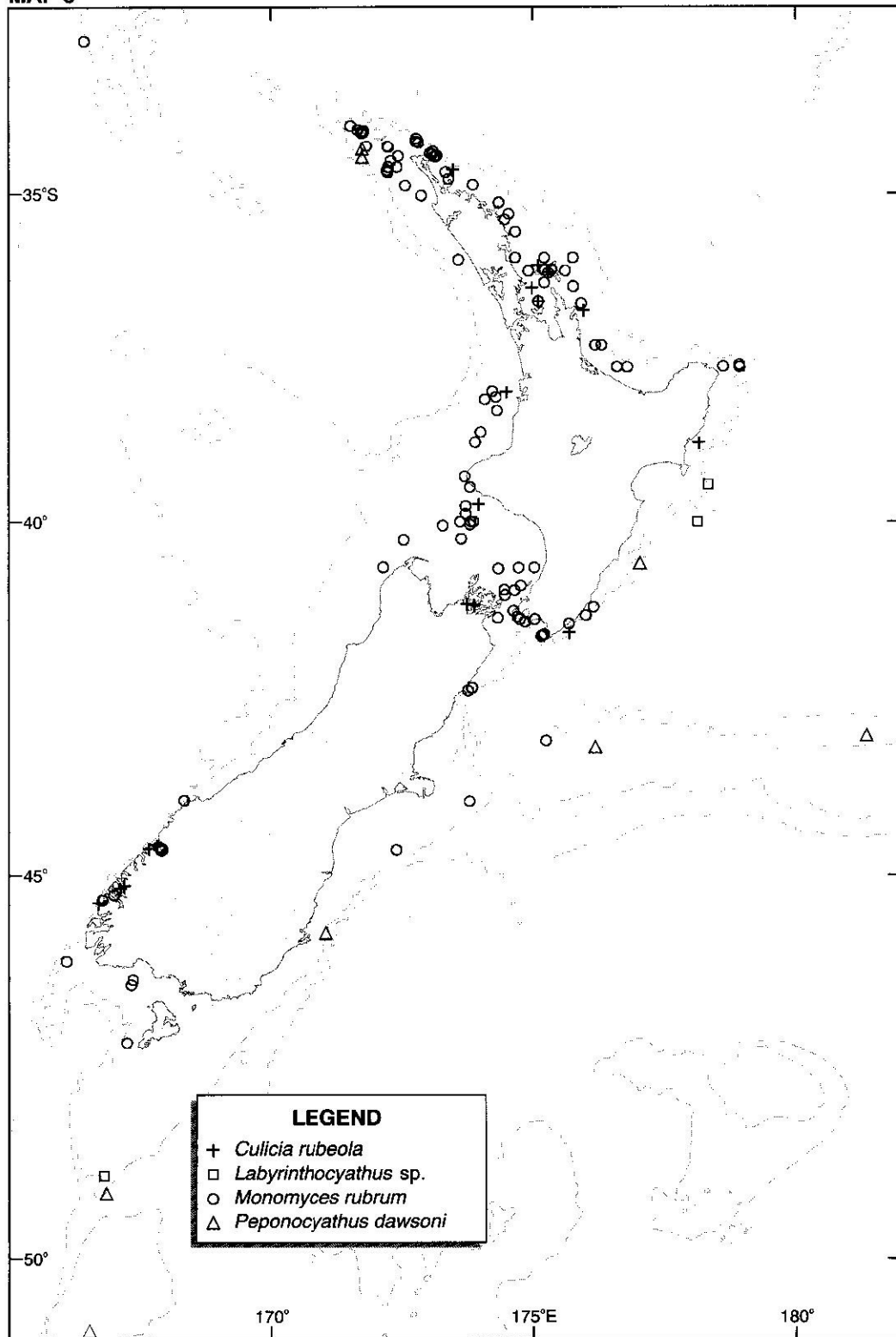
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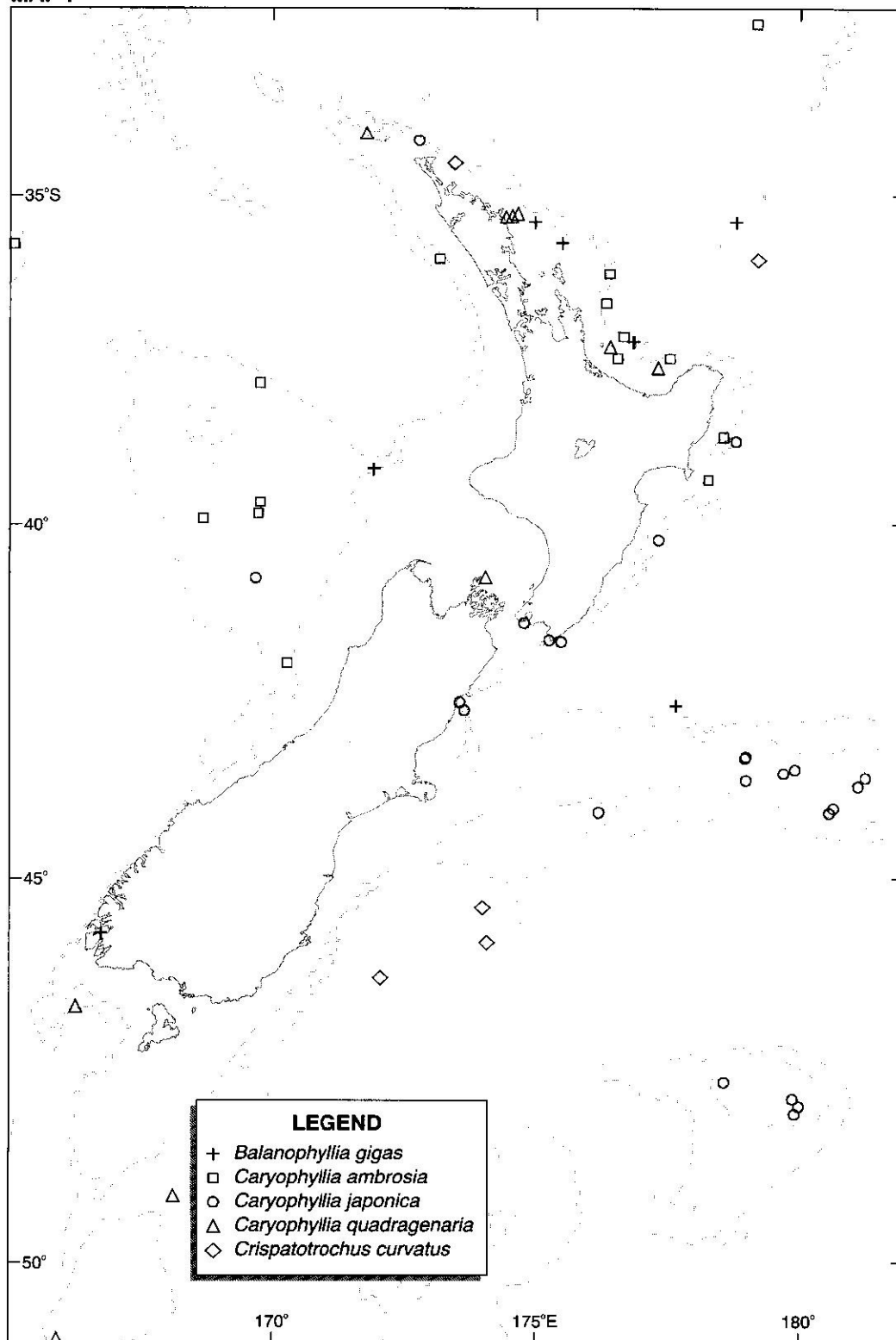
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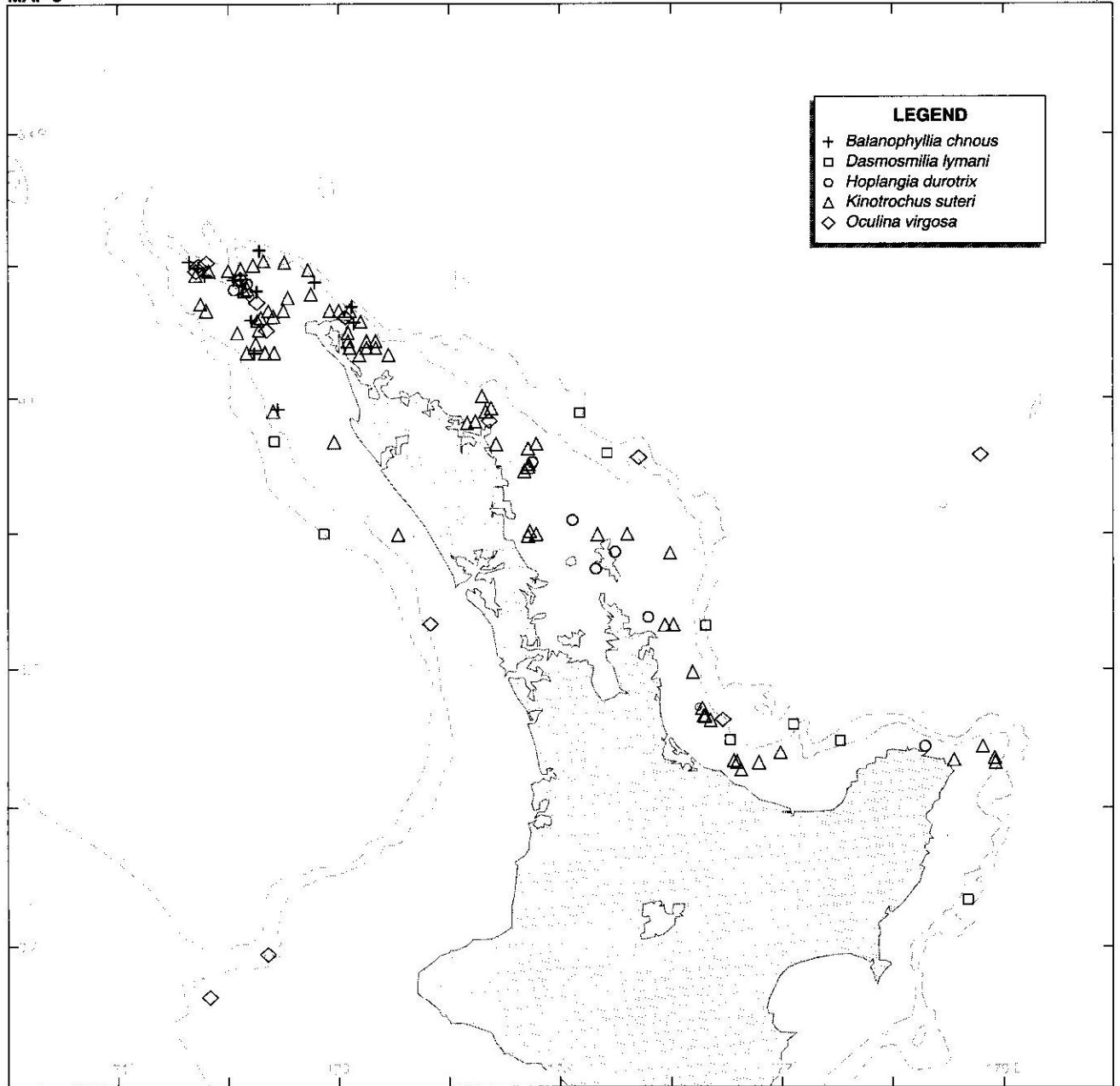
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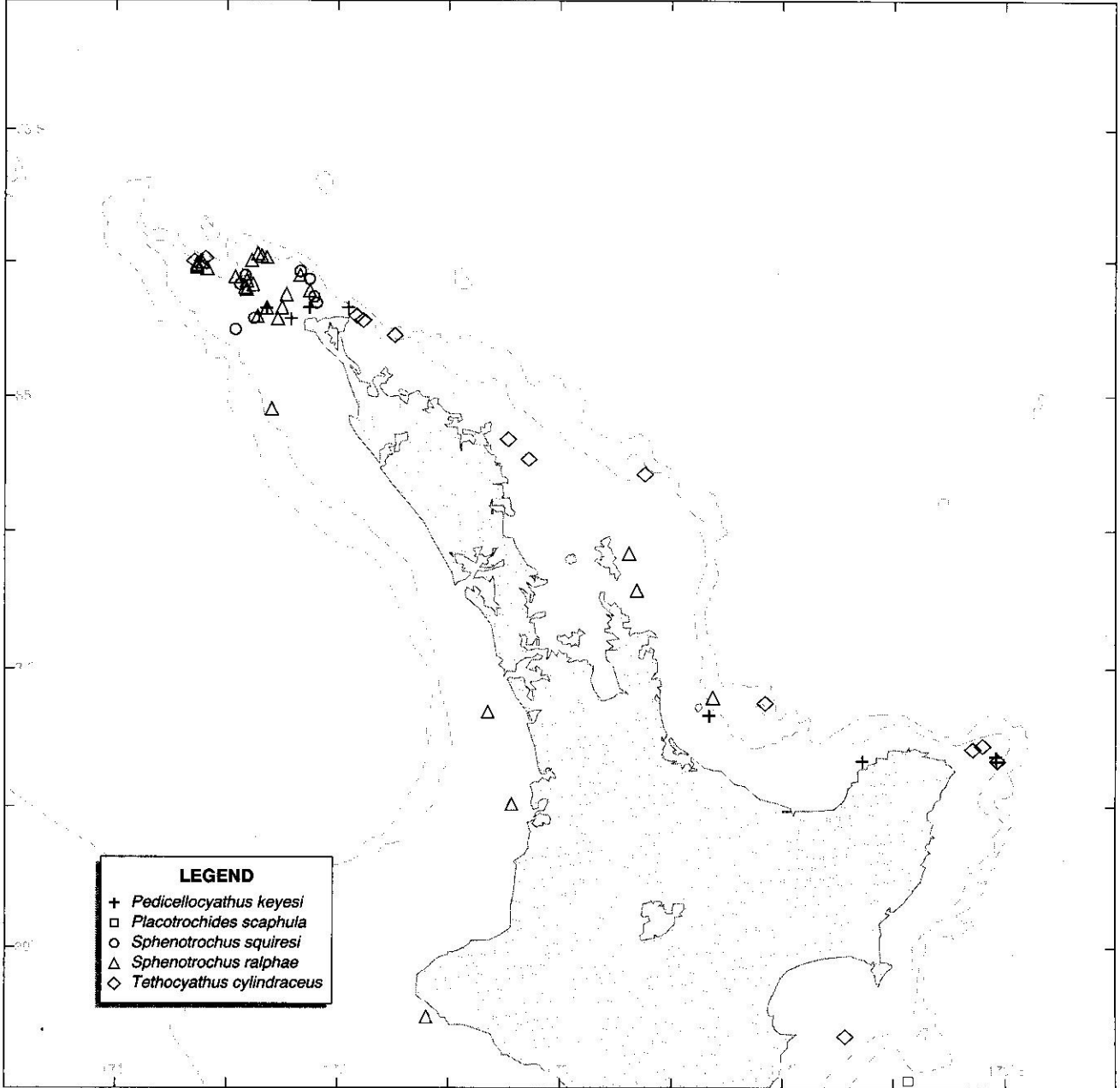
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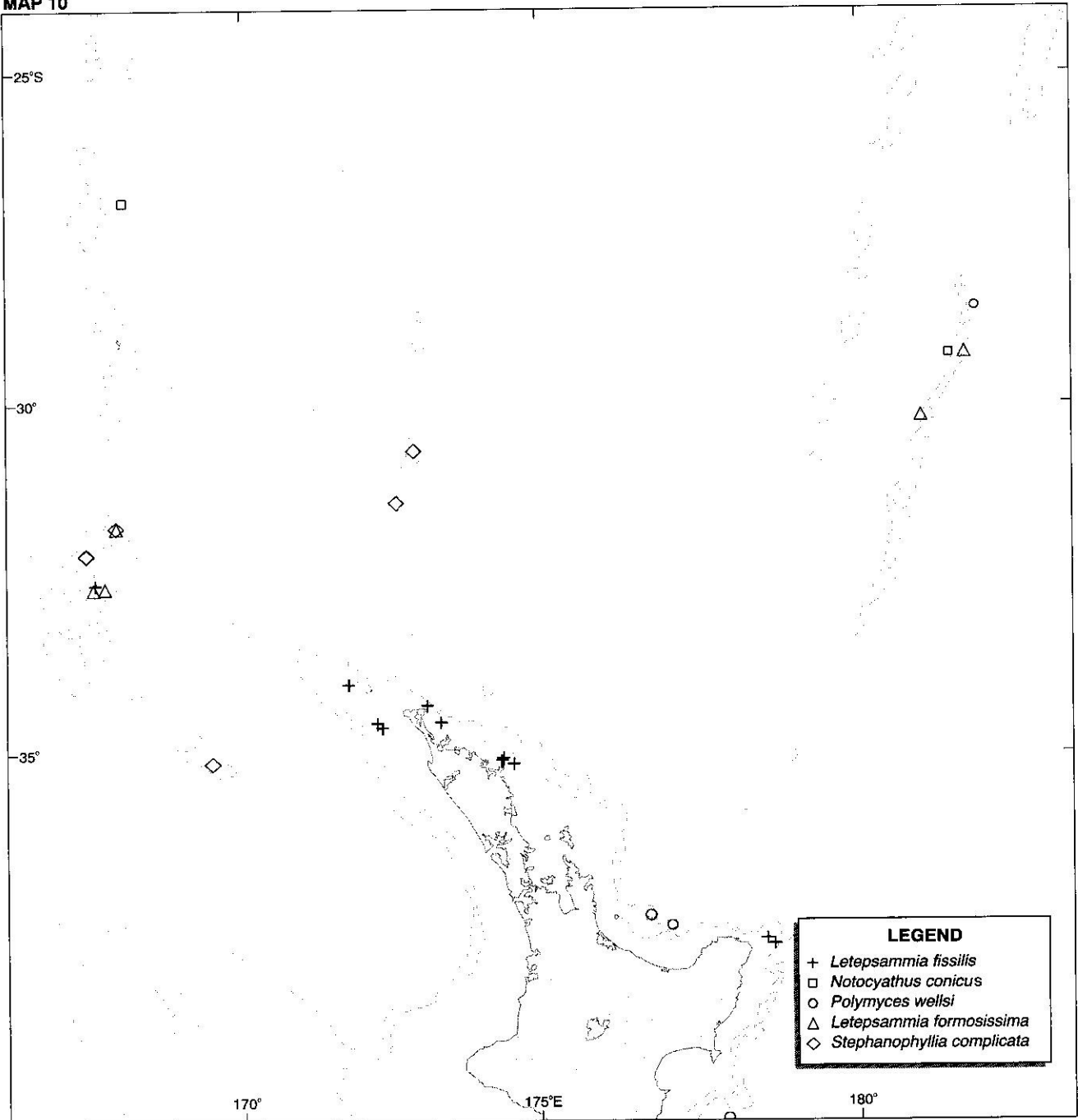
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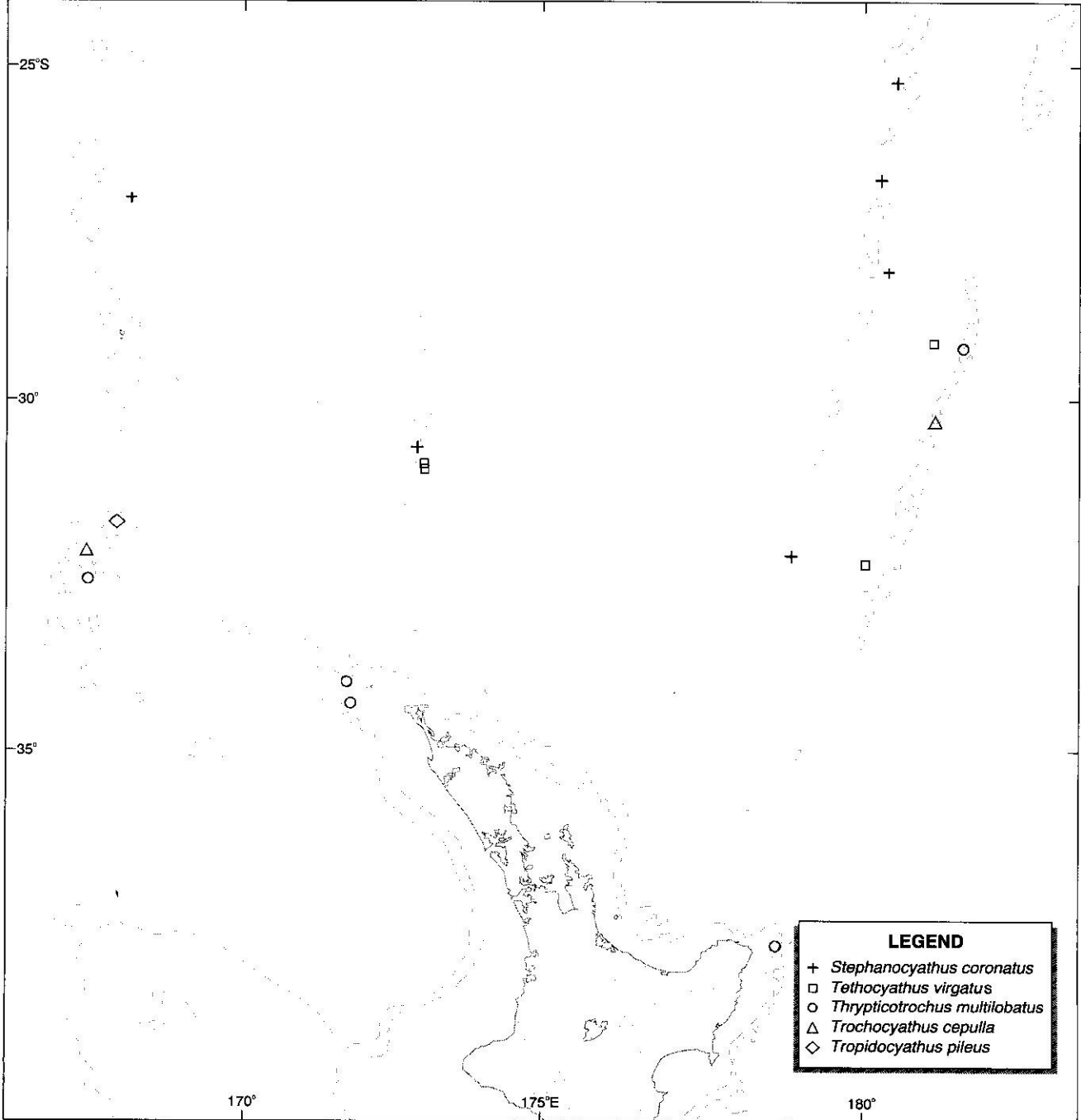
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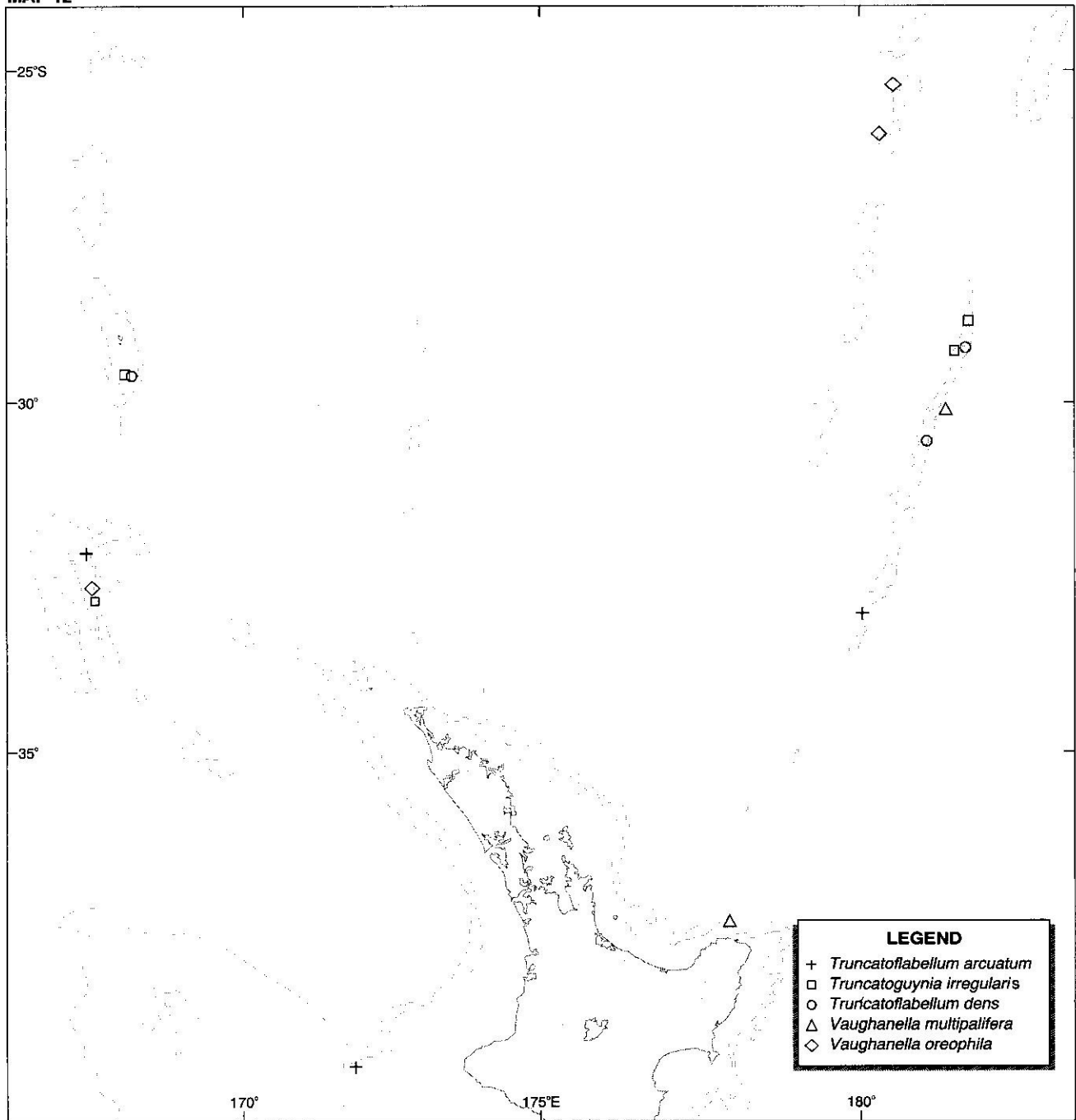
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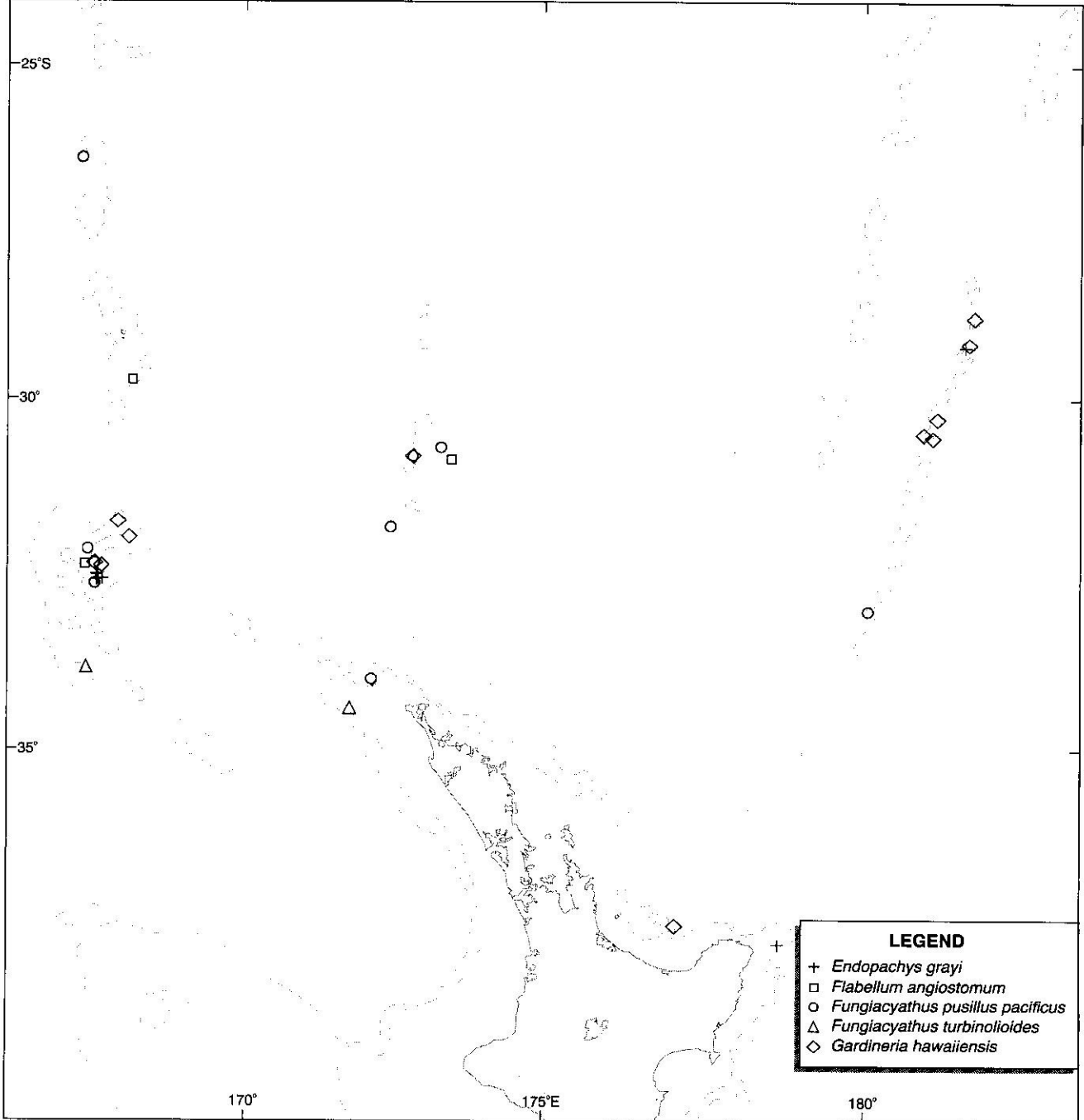
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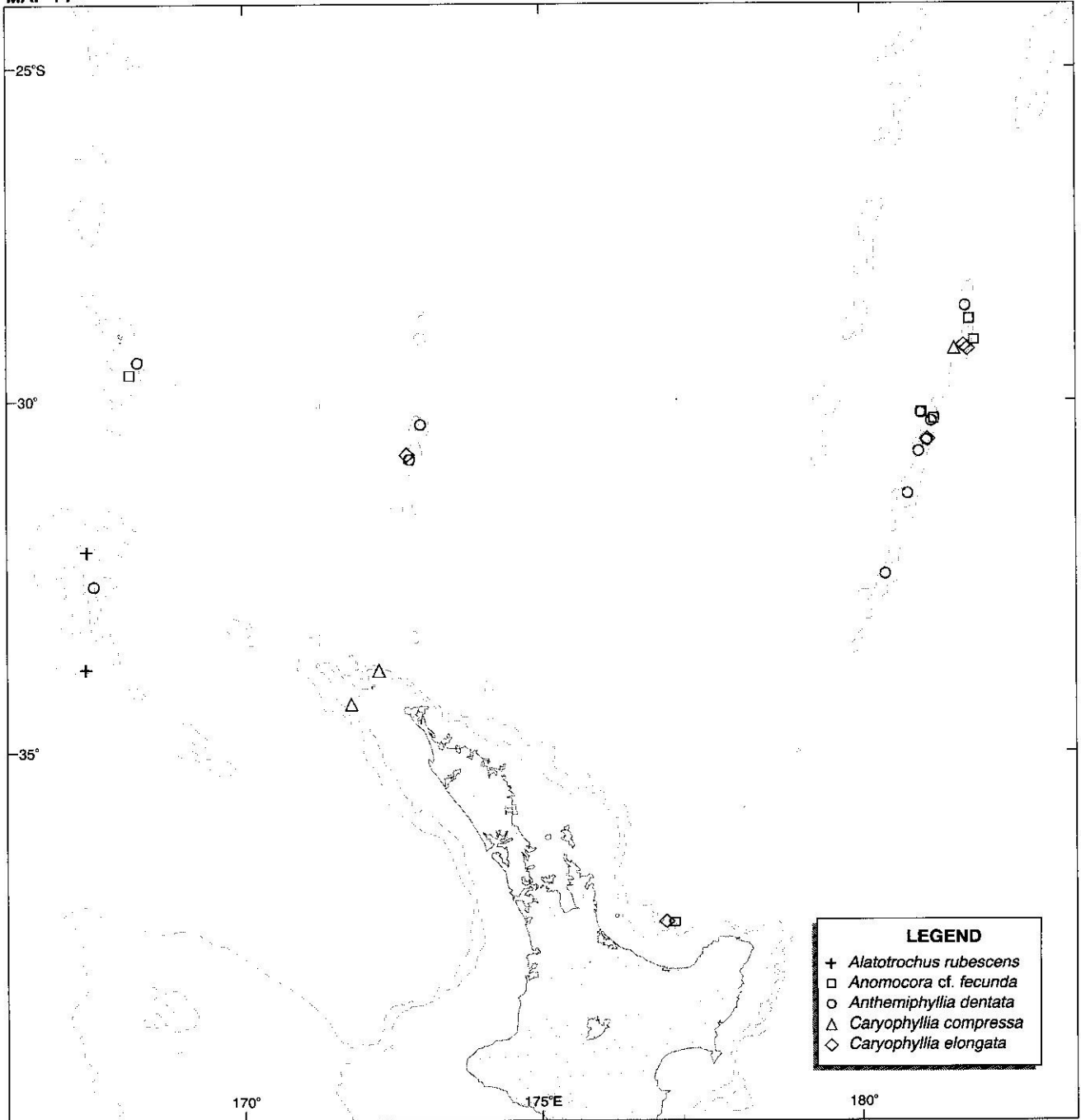
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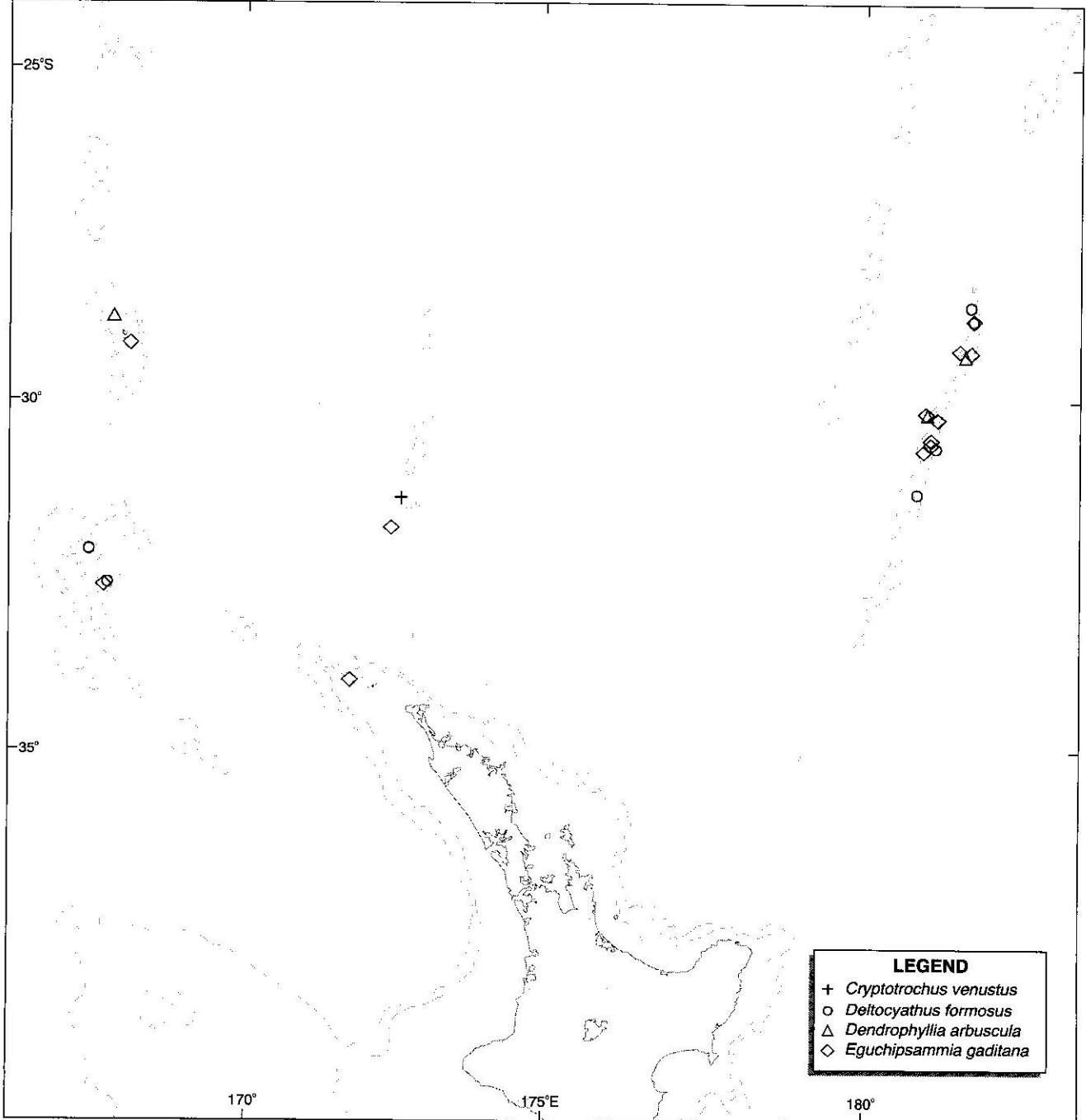
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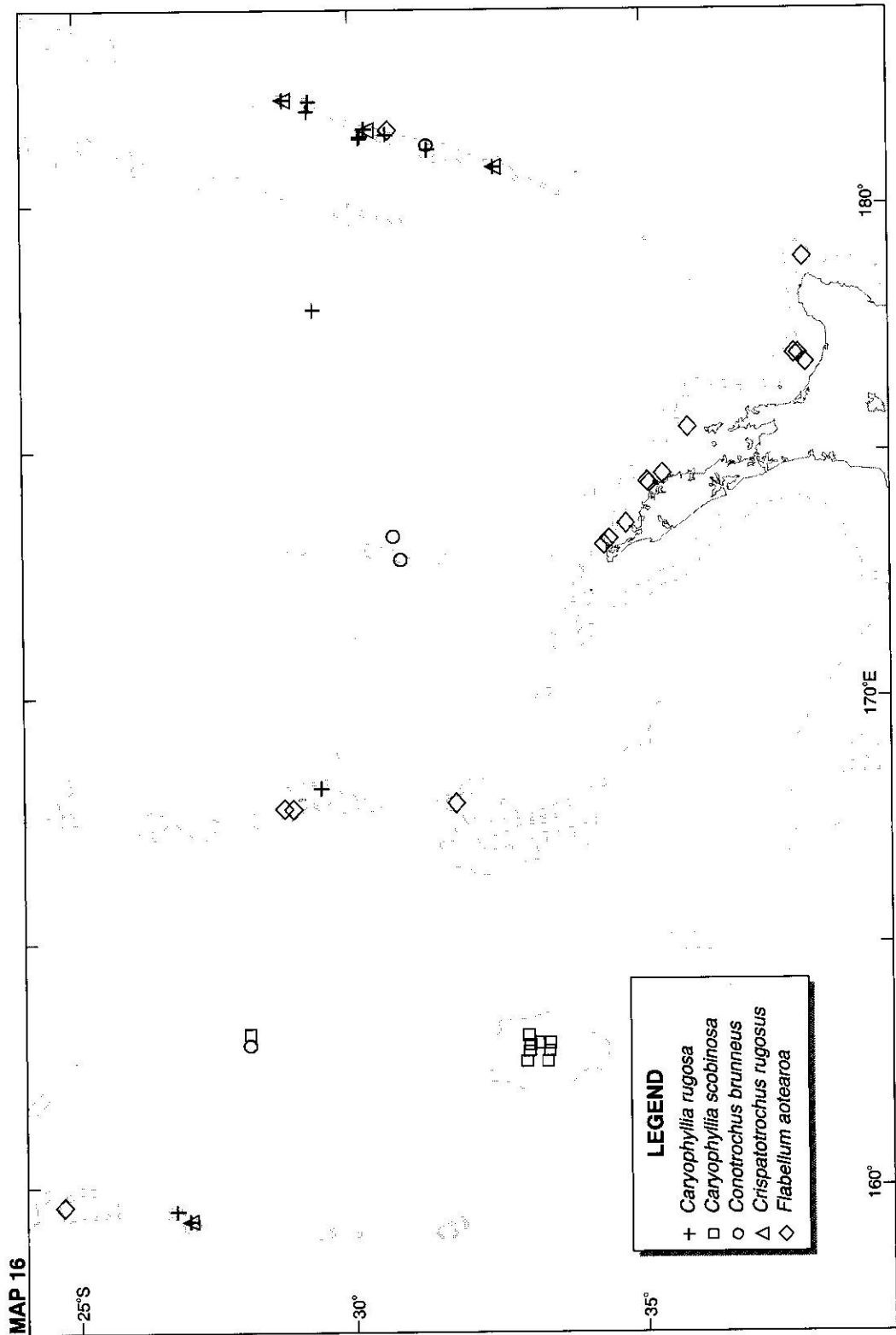


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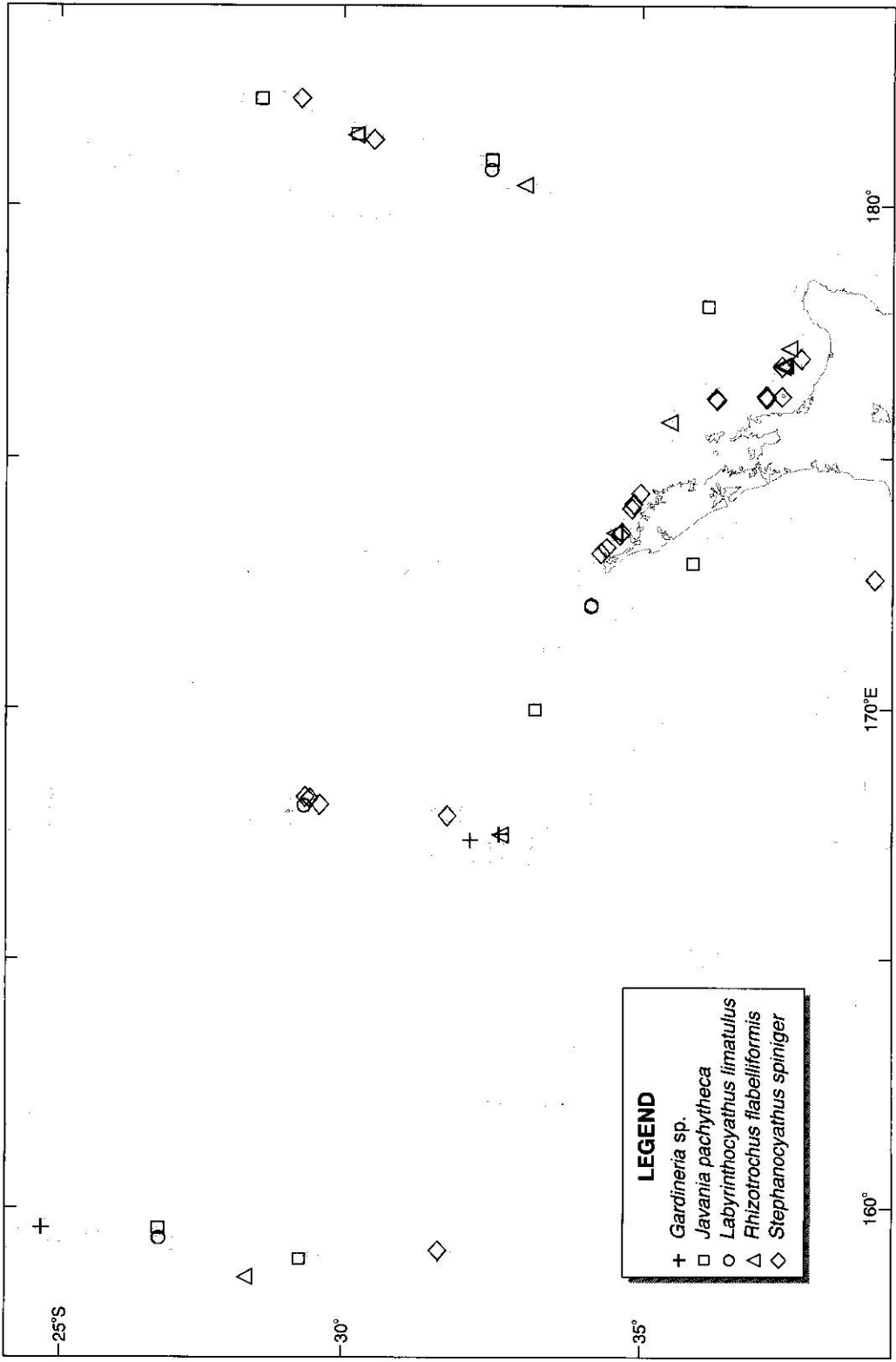


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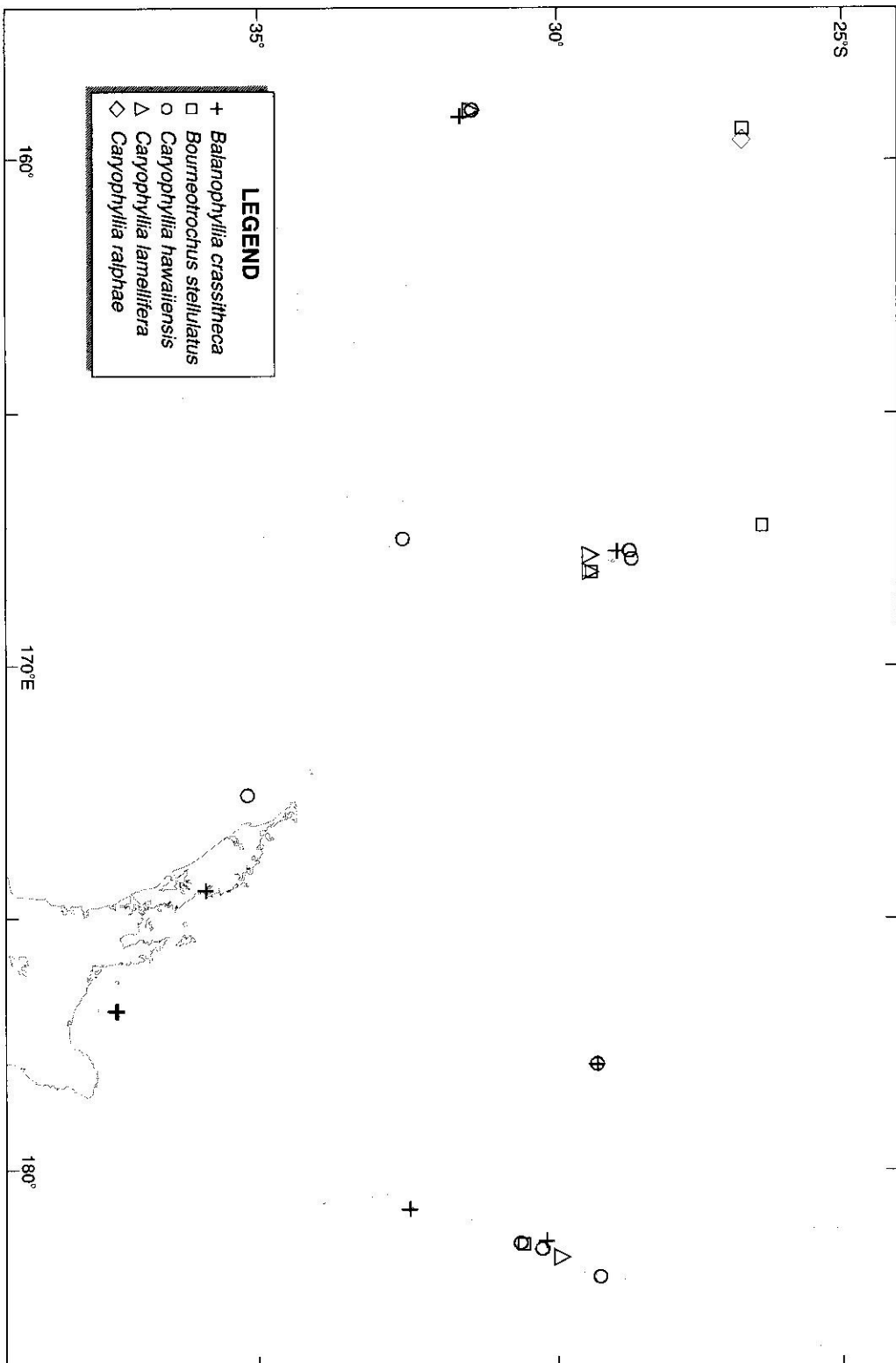




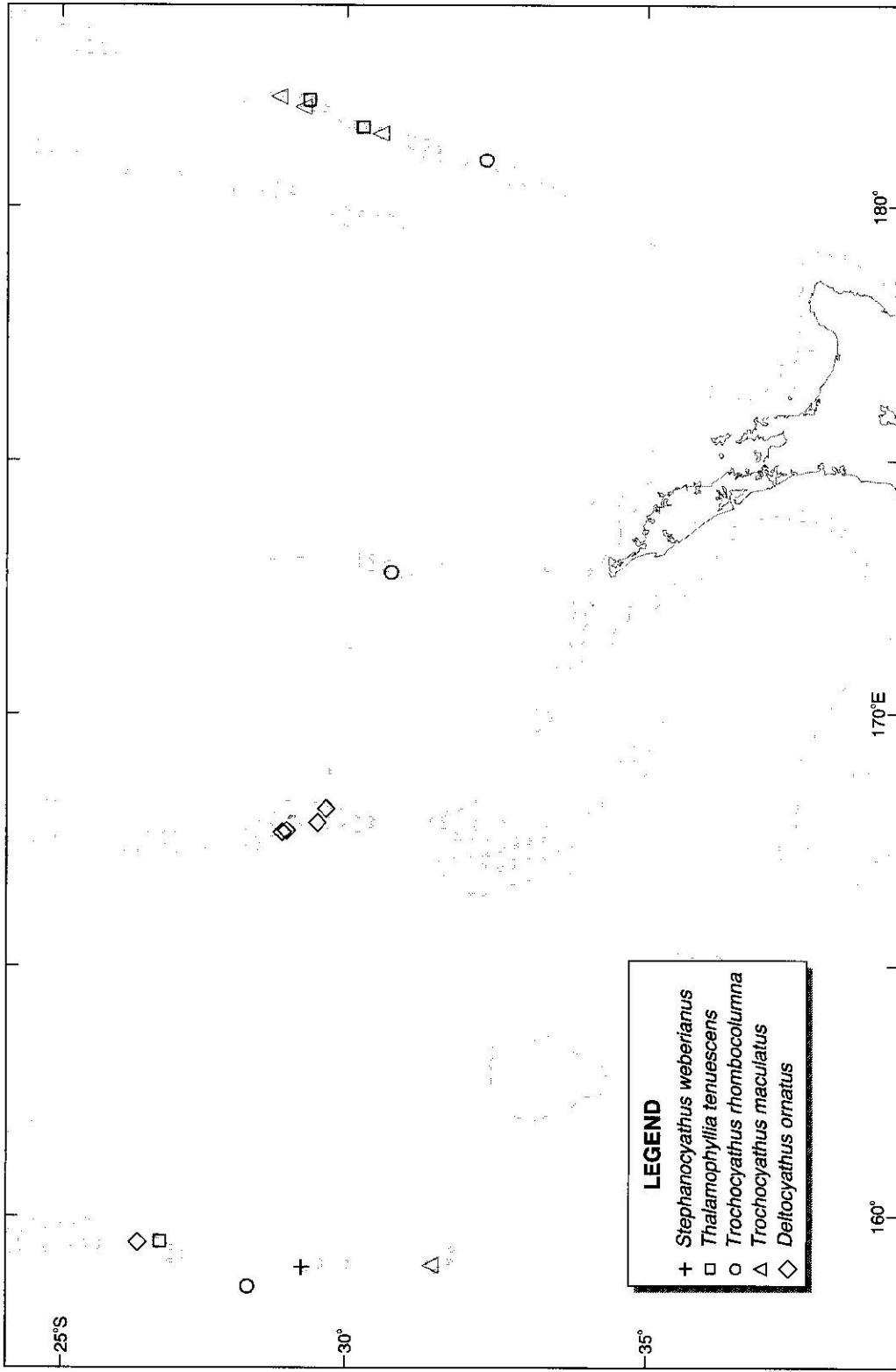
MAP 17



MAP 18

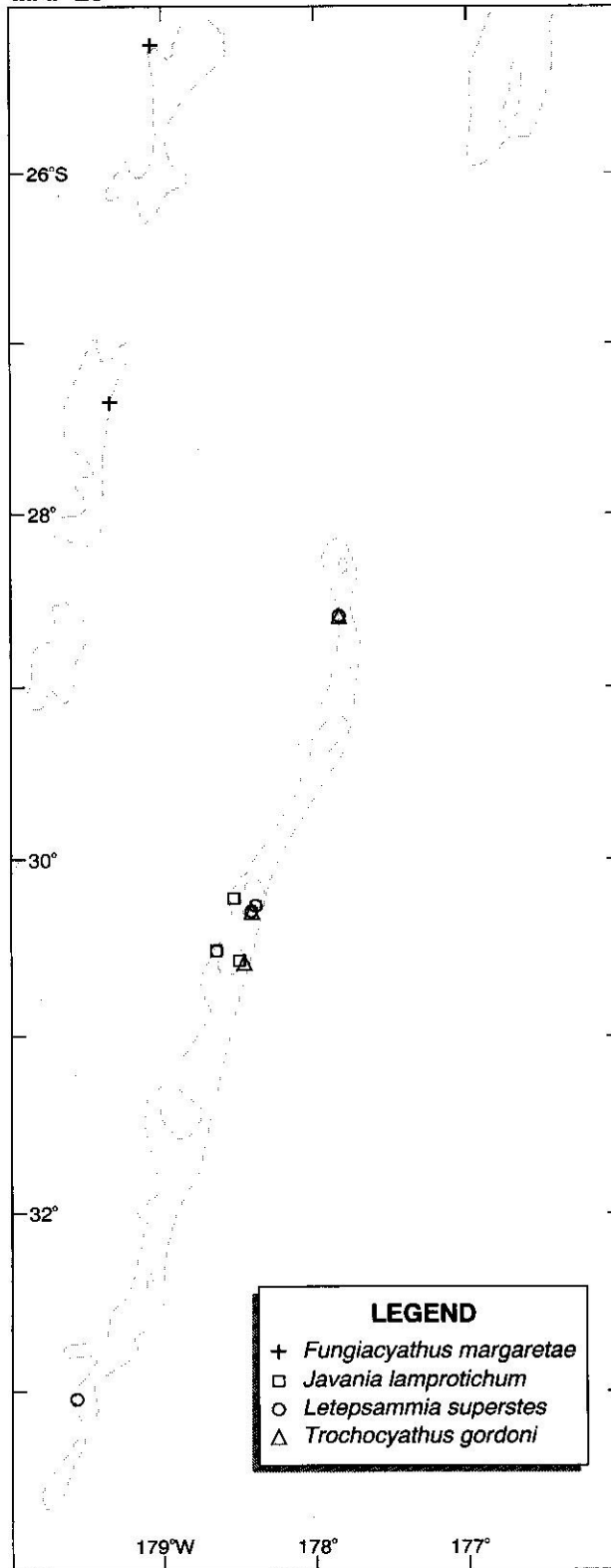


MAP 19

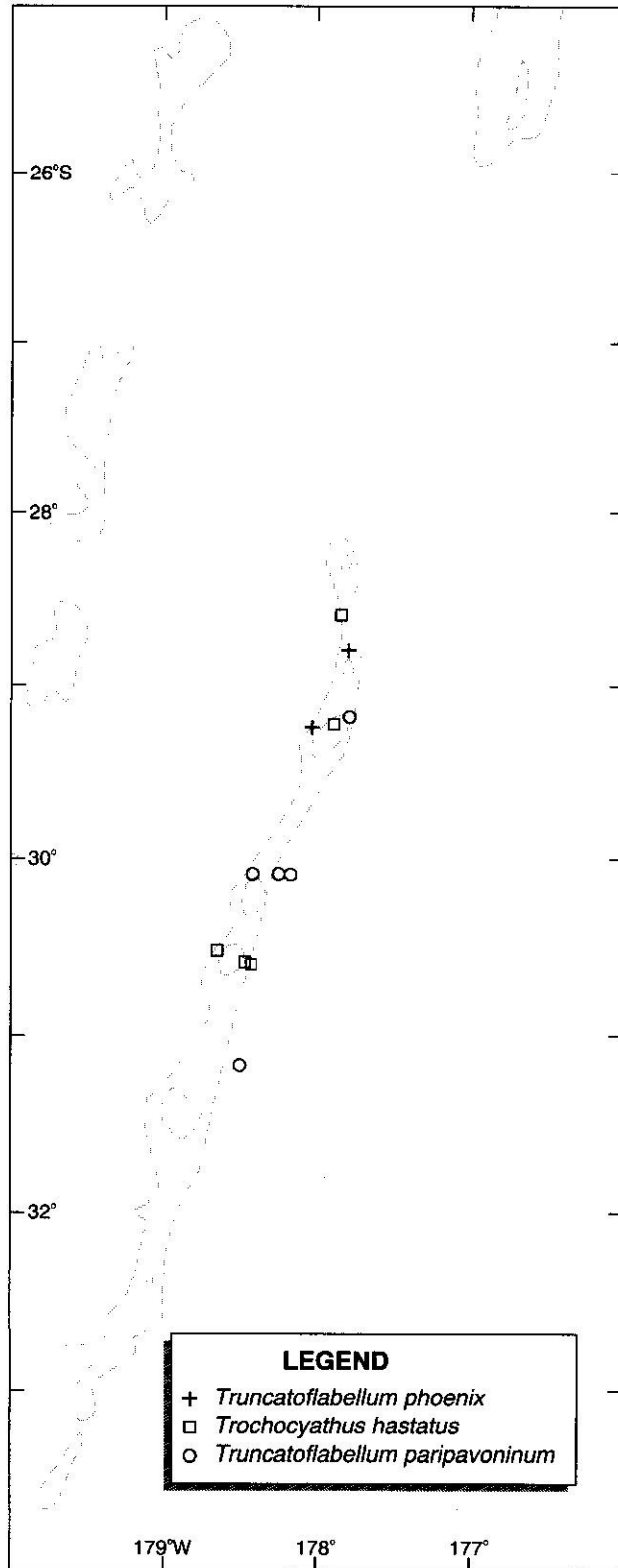


- LEGEND**
- + *Stephanocyathus weberianus*
 - *Thalamophyllia tenuescens*
 - *Trochocyathus rhombocolumna*
 - △ *Trochocyathus maculatus*
 - ◇ *Deitocyathus ornatus*

MAP 20



MAP 21



MAP 22

