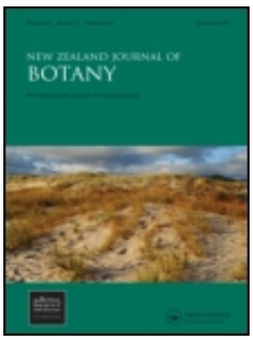

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Short communication

Notes on the *Senecio lautus* complex in New Zealand

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Abstract Two new species are accepted for the *Senecio lautus* complex in New Zealand. The first, *S. carnosulus*, previously treated as a variety or subspecies of *S. lautus*, is distinguished from *S. lautus sens. strict.* by being generally larger in all its parts (except the ligules which are shorter), by its more southerly distribution, and a chromosome number of $2n = 80$ rather than $2n = 40$. As defined here, *S. carnosulus* occurs in coastal areas from Banks Peninsula southwards to the islands of Foveaux Strait and on Stewart Island. The second species, *S. marotiri*, is newly described from offshore islands of northern New Zealand. It differs from S. *lautus* in the more erect habit, in leaf shape, bract and ligule length, and in having a chromosome number of $2n = 80$, and from *S. carnosulus* in the erect habit, in leaf shape, and capitulum shape.

Keywords *Senecio lautus*; *Senecio carnosulus*; *Senecio marotiri*; Senecioneae; Asteraceae; Compositae; new species; chromosome numbers; distributions; New Zealand

INTRODUCTION

A bewildering array of plants found in New Zealand and Australia has been included under *Senecio lautus* (Allan 1961). Ornduff (1960) made considerable progress toward sorting out this complex in New Zealand, particularly by referring to *S. glaucophyllus* those varieties with $2n = 100$, while Ali (1964), working mostly with Australian material, seems to have added little to our understanding of the complex on either continent. Sykes (1971) recognised Kermadec Islands plants as *S. lautus* var. *esperensis* and Webb (in Connor & Edgar 1987) reduced *S. antipodus*, another member of the *S. lautus* complex, to subspecific rank under *S. radiolatus* and clarified the typification of subspecies of *S. glaucophyllus*.

Ornduff (1960) suggested that the name *S. lautus* is not applicable to any Australian plant whereas Ali (1964) regarded New Zealand and Australian plants as only subspecifically distinct. The complex is under revision in Australia, but, as *S. lautus* itself is based on a New Zealand type, conclusions reached for Australian plants need not influence the naming of plants in New Zealand unless some taxa are shared, and this does not seem to be so.

This paper deals only with the *S. lautus* complex in New Zealand, and does not consider problems remaining in *S. glaucophyllus*. Two new species are accepted: the first raised from infraspecific status under *S. lautus*, the second newly described.

TAXONOMY

Senecio carnosulus (Kirk) C. Webb comb. et stat. nov.
Basionym: *S. lautus* var. *carnosulus* Kirk *Stud. Fl. N.Z.* 341 (1899).
Neotype (Ornduff 1960, p. 68): CHR 87642, grown from seed collected at sea-level, Black Head, Dunedin by G.T.S Baylis on 1.1.56, *R. Ornduff*, 1.6.56.

≡ *S. lautus* subsp. *carnosulus* (Kirk) Ornd. *Trans. Roy. Soc. N.Z. 88*: 68 (1960).

≡ *S. lautus* var. *a* Cheeseman pro parte *Man. N.Z. Fl.* 373 (1906).

"*S. carnosulus*, DC." mentioned by J. D. Hooker, *Fl. N.Z. 1*: 146 (1852), is apparently an error for *S. carnulentus* DC. *Prod. 6*: 372 (1838) which is based on Australian material of the *S. lautus* complex.

The taxon raised here to species rank has previously been recognised at infraspecific level within *S. lautus*. Kirk (1899) distinguished *S. lautus* var. *carnosulus* from *S. lautus* var. *lautus* by the robust habit, sessile leaves with broad obtuse lobes, obconic heads, short rays, and silky achenes. However, Kirk gives no information on distribution, nor are there any known sheets named by Kirk (see Ornduff 1960).

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Table 1 Characters distinguishing *Senecio lautus sens. strict.* and *S. carnosulus.*

S. lautus	*S. carnosulus*
Segments of pinnatifid leaves narrow to broad (up to 6 mm)	Segments of pinnatifid leaves broad (up to 10 mm)
Involucral bracts 4.0–6.5 mm long	Involucral bracts (5.0)–5.5–9.0 mm long
Ligules (1)–2–7–(9) mm long	Ligules (1)–2–4 mm long
Disc 3–6 mm diameter	Disc 4–8 mm diameter
Achenes usually densely hairy only between ribs, rarely glabrous or evenly hairy	Achenes usually evenly hairy, rarely almost glabrous
$2n = 40$	$2n = 80$
North I., South I. south to Punakaiki in the west and Rakaia R. in the east	South I., eastern areas south of Banks Peninsula, Stewart I.

Cheeseman (1906) noted that Kirk's var. *carnosulus* is probably a form of his var. *a.* However, Cheeseman's description is much more general than is Kirk's and was probably intended to include forms retained here in *S. lautus* var. *lautus.* Again Cheeseman gives no precise information on distribution within New Zealand.

Ornduff (1960) in his circumscription of subsp. *carnosulus* noted that it is known definitely from only two localities: Punakaiki Beach and environs of Dunedin. Because he was unable to locate Kirk material he selected the neotype cited above. Ornduff recorded a chromosome number of $n = 20$ on specimens of plants grown from seed from both Dunedin (the neotype) and Punakaiki.

Plants from Punakaiki referred to subsp. *carnosulus* by Ornduff (1960) have more numerous bracts (up to *c.* 20) and rays than southern South Island collections. In these characters they are referable to *S. sterquilinus* Ornd. with which they also share a chromosome number of $2n = 40$. Closer examination of plants in the Punakaiki region is probably required before they can be assigned to *S. sterquilinus* with certainty. However, they are meanwhile excluded from *S. carnosulus.*

Plants matching the neotype of var. *carnosulus* are now known in coastal Canterbury and Otago from Banks Peninsula southwards, on islands in Foveaux Strait, in north-western Stewart Island and Codfish Island. Chromosome counts of $2n = 80$ have been recorded for two collections (CHR 200640, Dan Rogers Ck, near Akaroa Heads, *G. and D. Kelly,* Nov. 1971; CHR 200683, Oamaru, *M. Parsons,* 1.11.1972) (Beuzenberg 1975, as *S. lautus* ssp. *lautus* and ssp. *carnosulus,* respectively) which contrasts with that reported by Ornduff (1960). Plants from the type locality were collected as part of this study and also gave a chromosome number of $2n = 80$ (CHR 400832, cultivated at Botany Division, ex Blackhead, Otago, *P. Johnson,* Sept. 1985; M. Dawson pers. comm.). Therefore it is assumed that Ornduff's annotation of $n = 20$ on Dunedin sheets of *S. carnosulus* is in error.

Senecio carnosulus is distinguished from *S. lautus sens. strict.* in several morphological characters as well as in chromosome number and distribution (Table 1). The two species occur together, and remain distinct, on Banks Peninsula. A typical plant of *S. carnosulus* is well illustrated by Wilson (1982, as *Senecio lautus* subsp. *carnosulus*).

Senecio marotiri C. Webb, sp. nov.

Herba annua, erecta. Folia infima elliptica, longi-cuneata, serrata; folia medicaulina oblanceolata vel linearioblonga, remote dentata; folia summa lanceolata, amplexicaulia integra vel pauci-dentata. Bracteae supplementariae 9–12, lineari-lanceolatae. Involucri bracteae 10–13, (6.5)–7.0–8.0 mm longae. Ligulae 8–11, 1.5–2.0 mm longae. A *S. lauto* bracteis longioribus, radiis brevioribus, folii formaque differt; a *S. carnuloso* habitu erecto, involucro angusto, folii formaque differt.

Holotypus: CHR 186724, Coppermine I., Hauraki Gulf, *M.A. & I.M. Ritchie,* 25.10.68,. "Herbage on isthmus. Herb community on exposed rocky neck."

Erect annual herb, (0.1)–0.2–0.5 m tall, usually branched only above to form inflorescence. Leaves hairy when young, becoming sparsely hairy or almost glabrous; lowermost leaves elliptic, long-cuneate and apetiolate, serrate with 3–7 teeth on each side; mid cauline leaves oblanceolate to linear-oblong, remotely dentate, (50)–60–120 × 4–15 mm; uppermost leaves smaller, lanceolate, amplexicaul, entire or few-toothed. Bracts subtending involucre 9–12, linear-lanceolate, 1.5–3 mm long. Involucre cylindric; involucral bracts 10–13, linear, (6)–7–8 mm long. Ray florets 8–11; ligules yellow, 1–2 mm

Fig. 1 *Senecio marotiri* (left) and *S. lautus sens. strict.* (right).

long. Disc yellow, *c.* 4–5 mm diameter. Achenes subcylindric, slightly narrowed to apex, densely hairy only between ribs, 2.8–3.2 mm long.

Chromosome number: $2n = 80$ (Beuzenberg 1975, as *S. lautus* ssp. *lautus*, CHR 200639, grown from seed from type sheet).

Distribution and habitats: Endemic. Whakairipiha I. (Bay of Islands), Motu Muka I., Middle Rock, and Coppermine I. (Hen and Chickens group), and Motumorirau, Waimate I., and Motukopuke I. (Coromandel Islands group, Hauraki Gulf). Rocky or dry coastal slopes or cliffs.

Etymology: The specific epithet, marotiri, is the Maori name for the Chickens group.

Representative specimens: AK 103973, Motu Muka Island, Hen and Chickens Group, *Hynes*, 28.8.1964; AK 159940, Middle Rock, Hen and Chickens Group, *Wright 4560*, 3.1.1982; CHR 225559, Waimate Island, Coromandel Islands, *Esler 3495*, 11.10.1971; CHR 225603, Motumorirau, Coromandel Islands, Hauraki Gulf, *Esler 3560*, 16.10.1971; CHR 225569, Motukopake, Coromandel Islands, Hauraki Gulf, *Esler 3594*, 14.10.1971.

S. marotiri is part of the *S. lautus* complex, but is distinguished from *S. lautus sens. strict.* by the consistently erect habit, longer involucral bracts, shorter ligules, in leaf form (Fig. 1), and by the chromosome number of $2n = 80$ (cf. $2n = 40$ in *S. lautus*). It differs from *S. carnosulus* (also $2n = 80$) in the erect habit, in having cylindric heads, and in leaf form. *S. marotiri* is sympatric with *S. lautus sens. strict.* and *S. lautus* in the region of overlap differs further by its triangular supplementary bracts. One sheet (CHR 186741 A, Coppermine I., Hauraki Gulf, *M.A. & I.M. Ritchie*, 25.10.68) is a mixed collection comprising two pieces of *S. lautus*, one piece of *S. marotiri*, and one sterile fragment.

A superficially similar, apparently endemic, but undescribed, entity has been collected from Norfolk Island. This entity also has $2n = 80$ (Beuzenberg 1975, as *S. lautus* ssp. *lautus*, CHR 200641). It differs from *S. marotiri* as follows: A short-lived perennial often of wet sites; stem often branched from base; lower leaves sometimes 1-lyrate-pinnatifid; involucre urceolate; supplementary bracts 2–3–(4); involucral bracts 4.5–6.0 mm long; ray florets *c.* 8; ligules 2–4 mm long. This entity was recognised as a distinct species by D. G. Drury. It is possible that this species is a polyploid derived from an Australian member of the *S. lautus* complex, whereas *S. marotiri* is a polyploid of New Zealand origin.

CONCLUSION

Three problems in the taxonomy of the *S. lautus* complex in New Zealand remain to be solved. The relationships of Punakaiki plants referred by Ornduff (1960) to *S. lautus* subsp. *carnosulus* need to be determined, larger forms of *S. lautus* with $2n = 40$ which are found on the western coast of Wellington Province need to be examined more closely, and plants from Cuvier Island which seem to belong to a distinct entity need to be compared with material from nearby islands and the mainland. *S. glaucophyllus* also requires further investigation. It has not been possible to resolve these problems while preparing the treatment of *Senecio* for the next volume in the "Flora of New Zealand" series.

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