Bryophytes of Highlands Station, Part 1

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On the Rotorua Botanical Society trip to Highlands Station, 6th August 2022, after vacillating about whether I would or would not, an attempt was made to compile a species list for the few bryophytes that appeared to present as part of a depauperate forest interior flora. This was prosecuted by no more sophisticated means than, over the course of just under three hours, collecting a few small bits and pieces that looked interesting into a bag to identify later. Bryophyte species lists have to be compiled this way, because identification under the microscope is the only way species may be determined with confidence.

I had been looking forward to using many of the recently published New Zealand flora treatments for liverworts and mosses in New Zealand itself, and have spent a little bit of time using them to help identify Australian bryophytes. I had not anticipated gathering much of particular interest at Highlands Station, because the flora appeared to be not particularly diverse and we were moving at the relatively rapid pace of vascular plant botanists. Appearances are often deceiving. The list below comprises 117 species, and does not claim to be a comprehensive account of the bryoflora of the indigenous forests on Highlands Station, rather the first contribution toward the eventual and complete enumeration of the diversity present in the interesting forest remnants on the station.

The bryophyte flora of Highlands Station is an interesting one, it contains many of the species that would be expected of the humid habitats of the forest interior but with a particular, and indeed rather unusual, combination of some more northern warm coastal and more southern cool montane floristic elements mixed amongst those of the cool-humid forest bryoflora. Notable is the occurrence of *Radula allisonii* at Highlands Station. The elevation of around 640 m asl on Highlands Station is possibly the highest elevation recorded for *Radula allisonii*, which is a species widely distributed in warm temperate lowland forests of the upper North Island. Another species more characteristic of warmer lowland habitats is *Spruceanthus olivaceus,* New Zealand's only representative of that tropical lineage. Also at Highlands Station is *Lejeunea rhigophila*, a species of much cooler habitats in the central North Island and South Island, including those experiencing regular frost impacts. Three other species with more southern distributions, *Paracromastigum drucei*, *Pohlia ochii*, and *Temnoma quadrifidum*, also occur at

Highlands Station. These and some other interesting occurrences from Highlands Station are itemised in the notes below.

- *Pohlia ochii the* nearest record is John Macdonald Road, in Tongariro National Park, at elevation 660 m asl. Other North Island records come from the central plateau, Taranaki, Ruahine Ranges, and Tararua. The plants observed at Highlands Station have the vermiculiform gemmae with 1 or 2 peg-like leaf primordia, and long, smooth leaf cells that are characteristic of this species. They represent the northern most record for the species currently known.
- *Macromitrium ligulaefolium* widely distributed along the east coast of Australia, from Tasmania to the Wet Tropics, but of sparse occurrence in New Zealand, circa 20 collections from the North Island. The specimen was, fortunately, fertile, and had plicate capsules with a low membranous peristome around a puckered capsule opening.
- *Temnoma quadrifidum*, Highlands Station is the northernmost station reported on the North Island, there is only one collection further north, from Aotea Great Barrier Island, a record that would be worth confirming.
- I have become familiar with *Heteroscyphus supinus* as one of the more common rheophytic Lophocoleaceae in rainforest along the Great Dividing Range of New South Wales, so collecting it away from waterways within forest settings was interesting, and testament to the more reliably moist climate here in New Zealand, particularly with the additional buffering brief dry periods the interior of closed forests affords.
- *Lejeunea rhigophila* is still not widely collected, and the plants at Highlands Station represent an interesting morph, with short perianths immersed among the leaves of fairly large statured plants, with first lobule tooth up to 6 cells long. Leaves are slightly falcate, and slightly squarrose when moist, which is also unusual for not only this species, but for *Lejeunea* in New Zealand in general. However, the the underleaves are large, and weakly auriculate at the base, as is typical of this species. Together with the distinctive lobule morphology, determination as *Lejeunea rhigophila* is appropriate.
- Also interesting was the co-occurrence of *Plagiochila fasciculata* and *Plagiochila subfasciculata*, both manifest in their typical forms, and both growing as trunk epiphytes. Also interesting was another *Plagiochila* that falls within my (Renner 2018) circumscription of *P. subfasciculata*, but which expressed small but well

formed, consistently bilobed underleaves and which lacked terminal branching. The expression of underleaves place this plant closer to *P. reischeckiana,* and this underleaf-bearing, lateral-intercalary branching morph deserves further attention.

- *Paracromastigum drucei*, is virtually unknown away from volcanic soils of the central plateau and Taranaki, only two collections have been made outside of these areas, in the Kaimai Range by Peter Beveridge. The occurrence of *P. drucei* on Highlands Station suggests it may be more widespread in the Taupo Volcanic zone.
- *Porella amoena* Colenso has been regarded as a synonym of *Porella elegantula* (see for example So 2002) but unpublished morphological and molecular evidence (Renner and Glenny in prep.) supports its recognition. The revision of New Zealand *Porella* has been in prep. for so long that this name has 'escaped' it and entered into more wide use ahead of the publication of the evidence supporting its reinstatement.

Division Marchantiophyta

Aneura alterniloba
Aneura lobata
Asterella tenera
Bazzania adnexa var. *adnexa*
*Cheilolejeunea s*p. indet.
Chiloscyphus erosus
Chiloscyphus lentus
Chiloscyphus muricatus
Chiloscyphus semiteres
Chiloscyphus subporosus
Cololejeunea hodgsoniae
Cololejeunea laevigata
Cryptolophocolea helmsiana
Cryptolophocolea mitteniana var. *mitteniana*
Fossombronia sp. indet.
Frullania falciloba
Frullania incumbens
Frullania monocera
Frullania patula
Frullania pycnantha
Heteroscyphus coalitus
Heteroscyphus supinus
Hymenophyton leontopodum
Isotachis montana
Lamellocolea granditexta
Leiomitra lanata
Lejeunea colensoana
Lejeunea flava
Lejeunea rhigophila
Lepidolaena taylorii
Lopholejeunea colensoana
Marchantia berteroana
Marchantia foliacea
Metalejeunea cucullata
Metzgeria bartlettii
Metzgeria flavovirens
Microlejeunea latitans
Myriocoleopsis minutissima
Paracromastigum drucei
Plagiochila fasciculata
Plagiochila stephensoniana
Plagiochila subfasciculata
Plagiochila trispicata
Porella amoena
Radula allisonii
Radula demissa
Radula grandis
Radula strangulata
Riccardia aequicellularis
Riccardia colensoi
Riccardia marginata

Riccardia nitida
Schistochila balfouriana
Schistochila repleta
Siphonolejeunea nudipes
Siphonolejeunea olgae
Solenostoma inundata
Spruceanthus olivaceus
Symphyogyna hymenophyllum
Symphyogyna tenuinervis
Temnoma quadrifidum
Treubia lacunosa
Trichocolea hatcheri
Tricholepidozia lindenbergii var. *lindenbergii*
Tricholepidozia tetradactyla
Zoopsis argentea var. *flagelliformis*

Division Bryophyta

Achrophyllum dentatum
Achrophyllum quadrifarium
Atrichium androgynum
Breutelia pendula
Calyptrochaete cristata
Camptochaete angustata
Camptochaete arbuscula
Campylopus clavatus
Catagonium nitens
Catharomnion ciliatum
Cyrtopus setosus
Dicnemon dixonianum
Distichophyllum microcarpum
Distichophyllum pulchellum
Echinodium hispidum
Fissidens asplenioides
Fissidens curvatus var. curvatus
Homalia falcifolia
Hymenodon pilifer
Hypnodendron arcuatum
Hypopterygium filicauliforme
Leptostomum inclinans
Leucobryum javense
Lopidium concinnum
Macromitrium ligulaefolium
Macromitrium microstomum
Ornithorhynchium elegans
Papillaria flavo-limbata
Papillaria flexicaulis
Pendulothecium punctatum
Philonotis tenuis
Plagiomnion novae-zelandiae
Pogonatum subulatum
Pohlia ochii
Polytrichadelphus megallanicus
Polytrichum juniperinum
Pottia sp. indet.
Ptychomnion aciculare
Racopilum cuspidigerum
Rhaphidorrhynchium amoenum
Rhynchostegiella muriculata
Rhynchostegium laxatum
Rhynchostegium tenuifolium
Stokesiella praelonga
Thuidium sparsum
Trachyloma planifolia
Weymouthia cochlearifolia
Weymouthia mollis
Wijkia extenuata

Division Anthocerophyta

Megaceros sp. indet
Phaeoceros sp. indet.

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References

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