

sparrow; dunno; chaffinch; greenfinch; goldfinch; redpoll; yellowhammer.

Thank you to everyone who contributed species to this record. In particular to John Millett, who spotted the Caspian tern at Tahakopa Bay, Peter Hutton, who heard morepork from the Lodge annex and Claire Stevens who upstaged us all by recording N.Z. falcon in the Catlins Valley. Last, but not least, my thanks to Peter Maddison, whose species list, when we compared notes, made this record more complete.

Acknowledgements

Our gratitude to Life Members and South Island friends, Cathy Jones and Anthony Wright, for their part in making our biennial trip run so smoothly. The local knowledge of Southlanders Brian and Chris Rance and Lloyd Esler added greatly to our enjoyment and to the learning experience. Our

thanks to Alan Dewe, the warden of Tautuku Outdoor Education Centre for a well-run and welcoming place to stay. Joshua Salter selected and organised the figures and captions.



Sad passing

Eila Lawton died on 21 May 2014. She had been seriously ill for several months and yet still managed to contribute to this article. We have fond memories of her on Bot Soc camps, and we greatly appreciated her knowledge of birds.

Our sympathy to Peter Maddison.

Eila at our 'banquet' at the Whistling Frog Cafe, the Catlins. Photo: JS, 14 Jan 2014.

References

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A Bryologist's take on the Auckland Botanical Society trip to the Catlins, 11 – 17 January 2014

Jessica E. Beever

Introduction

This trip to the Catlins and nearby areas, in both Otago and Southland, gave an opportunity to investigate mosses in a wide variety of habitats in southern latitudes of mainland New Zealand. For details of participants, itinerary, and accounts of the vascular plants, together with geological and ornithological high-lights, see the adjacent article (Young (ed.) 2014).

Nugget Point Lighthouse

Our first outing, to Nugget Point, did reveal a few mosses, in spite of weather that made glasses and hand lens quickly inoperable. Three species of *Bryum* were spotted: *Bryum campylotheceum*, a hardy coastal species, and *B. billardierei*, both on the track edge. *Bryum dichotomum*, with diagnostic leafy bulbils, was found in the old quarry from which rock was taken for the light-house construction. Here

were also found two exotic mosses, *Brachythecium albicans*, and *Eurhynchium praelongum*. And to rest the eyes (but still stay with the non-vascular flora) we could watch the amazingly resilient bull kelp (*Durvillaea* sp.) on the rocky shore far below, being sucked relentlessly in and out with the waves (Fig. 1).

Roadsides, car-parks, picnic grounds, and other high-light habitats

Roadside habitats provided plenty of interest in the way of light-demanding species. Here on soil were found *Bryum dichotomum*, *Ceratodon purpureus*, *Campylopus ?introflexus*, *Eurhynchium praelongum*, *Hypnum cupressiforme*, and *Polytrichum juniperinum*. In wetter sites *Breutelia pendula*, *Philonotis tenuis*, and the introduced *Calliergonella cuspidata* occurred. At our roadside stop to see the "Naturally Uncommon" vascular plant, *Crassula*

ruamahanga, a quick survey for moss associates revealed two of the aforementioned common roadside ditch species: *B. pendula* and *C. cuspidata*.

The roadside near the entrance to the Tautuku Outdoor Education Centre was rich for leisurely bryologising: here were recorded, on roadside gravel *Brachythecium albicans*, and on soil *Polytrichadelphus magellanicus* plus two micro-*Fissidens* species: *Fissidens curvatus* var. *curvatus* and *F. tenellus* var. *tenellus*. These were the only species of *Fissidens* recorded during the entire trip. Nine species of moss epiphyte were recorded on a single horizontal branch of *Fuchsia excorticata*: *Alleniella hymenodonta* (formerly *Neckera pennata*), *Calyptopogon mnioides*, *Cryphaea* sp., *Hypnum cupressiforme*, *Lembophyllum* sp., *Leptostomum inclinans*, *Macrocoma tenue*, *Rhynchostegium muriculatum* and *Zygodon intermedius*.

Between rain storms (Fig. 2) I spent time groveling in the picnic ground at the start of the Catlins River Walk. Two introduced mosses were well established amongst the grass: the familiar *Pseudoscleropodium purum*, which we know as a serious weed around Auckland, and *Rhytidiadelphus squarrosus*, which has not to my knowledge yet been recorded in the North Island. On bare weedicided soil, around the entrance bollards, were *Barbula unguiculata* and *Bryum dichotomum*.

The visit to the shrubland at Chaslands Scenic Reserve, with its many and varied divaricating shrubs, produced some epiphyte records from the margin of the grassy clearing. Here a single large *Olearia lineata* supported a wide range of bryophytes on its horizontal branches. The mosses included *Calyptopogon mnioides*, *Dicranoloma robustum* (fragile-leaved form), *Holomitrium perichaetiale*, *Hypnum cupressiforme* var. *filiforme*, and one of the pin-cushion mosses, *Leptostomum inclinans*, with its characteristic inclined capsules and leaves with unbranched hair-points.

Another site providing a wealth of indigenous mosses was the property of Ray Waghorn, at Waituna. Here we admired a beautiful cushion of *Donatia novae-zeelandiae* (typically a montane to subalpine plant) growing near sea level. The competition from *Leptospermum scoparium* in this retired pasture was described by Ray, and he told us that the surrounding moss (which was *Dicranoloma billardierei*) was also an issue. As well as encroaching at the margins of the *Donatia*, shoots of the moss could be seen emerging from within the cushion (Fig. 3). In the *Empodisma* wetland nearby, *Sphagnum cristatum* was recorded. In the drier areas were *Breutelia pendula*, *Campylopus introflexus* with characteristic reflexed silver hair-points, the robust



Fig. 1. Giant kelp, *Durvillaea* sp., as seen from near Nugget Point lighthouse. Photo: Joshua Salter, 12 January 2014.



Fig. 2. Discomfort stop – rainstorm at picnic area, Catlins River Walk. Photo: Chris Rance, 13 January 2014.



Fig. 3. Competition – golden shoots of the moss *Dicranoloma billardierei* growing through cushion of *Donatia novae-zeelandiae*. Photo: Joshua Salter, 15 January 2014.

Hypnum cupressiforme var. *cupressiforme*, *Thuidium furfurosum*, and the introduced *Eurhynchium praelongum*.

Profitable time was spent bryologising in the grounds of our home base (while still in ear-shot of the dinner bell). Here, at the Tautuku Outdoor Education Centre, different substrates supported characteristic species. *Pseudocrossidium hornschurchianum* was found on compacted soil in the vehicle storage area (along with *Calliergonella cuspidata* and *Funaria hygrometrica*). *Pseudocrossidium hornschurchianum* is a northern hemisphere species, for which the earliest known New Zealand collection (leg. B.O. van Zanten 93.08.145) was from Hawkes Bay in 1993. Ben van Zanten, a visiting Dutch bryologist, recognized it from Europe. At the Outdoor Centre it was found also in cracks in the brick paths (with *Ceratodon purpureus* and *Didymodon australasiae*). On concrete steps, paths, and the bases of buildings an interesting array of mosses was present: *Grimmia pulvinata* var. *africana*, *Racomitrium crispulum*, *Schistidium apocarpum*, *Syntrichia antarctica*, *Tortula muralis* and *Zygodon menziesii*. All these taxa are believed to be native to New Zealand – the construction of suitable artificial substrate by humans has provided them with copious extra habitat.

On silt at the edge of the gravel car-park grew *Bryum argenteum*, *Didymodon torquatus*, and *Tortula truncata*, with the ubiquitous *Calliergon cuspidata*. On the soil bank beside the driveway *Polytrichadelphus magellanicus* flourished, bearing numerous concavo-convex capsules.

On gravel influenced by run-off from a stack of corrugated iron were extensive sheets of *Weissia controversa*, a species sometimes also found under crash-barriers on roadsides. At the Outdoor Centre it grew with an unidentified *Bryum*, a species with dark red shoots and rhizoidal tubers with very protuberant cells.

Forests

The most spectacular mossy vegetation was in the forests. In silver beech forest, along the Catlins River Walk in the Catlins Forest Park, the tall gametophytes (stems to c. 20 cm) of *Dendroligotrichum dendroides* caused comment, as did the long pendent strands of the epiphyte *Weymouthia mollis*. Other epiphytes seen included *Dicnemon calycinum* with its sheathing perichaetial bracts, *Lepyrodon australis* with characteristic flagelliform branches, *Macromitrium retusum* with fragile leaf apices forming a tuft at the shoot tips, and *Mesotus celatus* with its strongly undulate, spiraled leaves. *Dicranoloma menziesii* (the only *Dicranoloma* species commonly epiphytic) grew as hair-like green tufts. *Cyathophorum bulbosum*, its bulbous capsules hidden beneath the fronds, grew as

an epiphyte and on rotting wood. On the forest floor was *Achrophyllum quadrifarium* (looking deceptively like a liverwort), *Leucobryum candidum* ("milk moss"), *Ptychomnion aciculare* ("pipe-cleaner moss"), the rather scruffy *Dicranoloma billardierei*, and in a canopy gap on the stream bank, where there was direct sunlight, *Bryum billardierei*.



Fig. 4. Podocarp forest eroding from dune front, Tahakopa Bay. Photo: Joshua Salter, 14 January 2014.

My memories of earlier visits to the Catlins were especially of magnificent podocarp forest, reaching to the sea. On this trip we explored podocarp forests in the Tautuku Scenic Reserve and the Tahakopa Bay Scenic Reserve (along Old Possumers Track and the Old Coach Road). In both places I was struck by the fact that the forest does not in fact quite reach to the sea (except for an eroding stretch where podocarps were actually falling into it along some of the beach front! (Fig. 4). Rather, I was struck by the abrupt ecotones from tall forest to very narrow strips of low foredune vegetation. As we progressed through the forest, getting closer to the sound of the sea, the ground was curiously undulate, and kicking into the duff began to reveal sand mixed in with the humus. In the forested dunes at the eastern end of Old Possumers Track we came upon expanses of standing water – beautiful dune slacks (Fig. 5). Shoots of the umbrella moss *Hypnodendron marginatum* (a species adapted to very wet sites) emerged through a pale green sea of (probably) native duckweed, *Lemna* cf. *disperma* Hegelm. (Fig. 6). *Sphagnum falcatulum* also occurred in forest pools and damp depressions.

In drier parts of the podocarp forests were other umbrella mosses (formerly in genus *Hypnodendron*): *Mniodendron comatum* and *M. comosum*. The latter species is not known in the North Island, but its highly tomentose branched shoots, with some russet coloration, made it easily identifiable in the field. *Sciadocladus kerrii*, with a naked (= non-tomentose)

stipe, many short setae and arcuate capsules was also found. Another umbrella moss with a naked stipe was common, but until Juliet found plants with capsules, we could not be sure of the species. Its few, long setae with cylindrical capsules clinched the identification – as *Sciadocladus menziesii*.

The common tree-fern trunk specialists, *Hymenodon pilifer* (with a long hair point on the leaves) and *Calomnion laetum* (with the “underleaves” on top), were both found, the former on *Dicksonia squarrosa* and *D. fibrosa*, the latter on *Cyathea smithii*. *Leptotheca gaudichaudii* (with its distinctive brown, filamentous brood bodies amongst the upper leaves) was also found on *D. squarrosa*. Intensive searching failed, however, to locate any *Fissidens hylogenes*. The Catlins forests were reminiscent of Urewera podocarp forest, where the minute *F. hylogenes* has been found in abundance on decaying fronds of *Dicksonia fibrosa*. This rarely-collected New Zealand endemic remains unknown in the South Island.

Camptochaete aciphylla (formerly *Fifea aciphylla*) was also searched for in vain. This species, another New Zealand endemic, has a predominantly southern distribution. It is currently known only from a few sites in Nelson, Otago and Southland, as well as on Campbell I. and the Auckland Is. (NZ Virtual Herbarium <http://www.virtualherbarium.org.nz>).

In podocarp forest, as in beech forest, the pendent *Weymouthia mollis* was conspicuous (Fig. 7). In northern New Zealand forests species of *Papillaria* form similar hanging festoons, but no *Papillaria* were seen on the Catlins trip. A check on the NZ Virtual Herbarium shows over 600 sites for *Papillaria* species, but none south of Balclutha. Other epiphytes included *Holomitrium perichaetiale*, *Leptodon smithii*, *Zygodon intermedius*, the very glossy *Orthorrhynchium elegans*, and several species of *Macromitrium*, namely *M. gracile*, *M. helmsii*, *M. longipes* and *M. prorepens*. Like *M. retusum*, *M. helmsii* has a tuft of fragile leaf tips at the shoot apices. In dry conditions the two can be distinguished in the field: *M. helmsii* has its leaves loosely erect-flexuose, while in *M. retusum* the dry leaves are rather tightly spiraled round the stem. In addition, *M. retusum* has leaf lamina cells smooth, while in *M. helmsii* these cells bear dense, multiple papillae.

As Chris and I came back along Old Possumers Track, we were startled to suddenly hear great snapping and crashing noises in the forest, then silence. Intrepidly we continued and found a large



Fig. 5. Forested dune slack, Old Possumers Track. Photo: Chris Rance, 14 January 2014.



Fig. 6. *Hypnodendron marginatum* in a sea of duckweed (*Lemna* sp.). Photo: Chris Rance, 14 January 2014.

rimu bough across the track, which we agreed had certainly not been there on our earlier traverse (Fig. 8). We were soon joined by Brian and Cathy with Trudy in tow. High canopy epiphytes, now



Fig. 7. Pendent strands of *Weymouthia mollis*. Photo: Joshua Salter, 14 January 2014.



Fig. 8. A canopy gap is born – Old Possumers Track. Photo: Chris Rance, 14 January 2014.

conveniently at ground level, were sampled (only *Macromitrium prorepens* was found but we were working quickly). We were initially puzzled as to where this great mass of rimu had come from, as there was no root plate evident. Then sharp-eyed Brian noticed that the rimu trunk we were standing close to was truncated, with a fresh scar at its top, some 18 m above us. We had observed earlier that, in several places where the board-walks were badly damaged, there were adjacent piles of sawn-up logs – evidence of earlier canopy-gap creation events. Thankfully none of us were in the wrong place at the wrong time.

Foreshore sites

On the narrow strip of low foredune vegetation, where Old Possumers Track emerged from the forest onto the beach at Tahakopa Bay, some ground mosses adapted to high light conditions were found: *Ceratodon purpureus* and *Acrocladium chlamydophyllum* grew here on sand. On the margin of the estuary, *Didymodon torquatus* grew in dense sheets, on a loose shell substrate (presumably midden material), at the Papatōwai Prehistoric Moa Hunter Site.

But I found not a single moss along the shoreline of Waituna Lagoon. Lloyd Esler looked somewhat askance when he thought I had called it a “biological desert”. But no, it was only a “bryological desert” – and the only one encountered in seven eventful days.

Acknowledgements

My special thanks to all those who contributed moss specimens to the displays, and to those who provided me with names for vascular plants, especially Ewen Cameron, Cathy Jones and Brian Rance. Brian also provided details for localities. Thanks to Dhahara Ranatunga for accessioning of specimens into Herbarium AK, Mei Nee Lee and Joshua Salter for skilled work on the manuscript, and to Peter de Lange for identification of the *Lemna* associated with *Hypnodendron marginatum* (work in progress). Chris Rance and Joshua Salter kindly provided me with excellent photos documenting our adventures together. In addition, I am grateful to all members of the party for their good company throughout.

Reference

Young, M.E. (ed.) 2014: South Island trip to the Catlins, 11–17 January 2014. *Auckland Botanical Society Journal* 69: 40–54.

Appendix: Moss taxa recorded

Moss names follow updated versions of the Checklist of the Mosses of New Zealand (Fife 1995). These may be obtained on request to Allan Fife at Manaaki Whenua Landcare Research (FifeA@landcareresearch.co.nz).

Where voucher specimens have been lodged at Auckland Museum Herbarium (AK), the numbers are provided in the table below. Lists are in no way definitive for each locality, as species records were accumulated progressively during the week.

+	= field record (no voucher)	TNW	= Tautuku Nature Walk
+m	= microscope confirmation (no voucher)	Ch SR	= Chaslands Scenic Reserve
NP	= Nugget Point Lighthouse Reserve	RWP	= Ray Waghorn Property, Waituna
CRW	= Catlins River Walk	r & pa	= Roadsides and picnic areas
TB SR	= Tahakopa Bay Scenic Reserve	TEC	= Tautuku Education Centre grounds

Taxon	CRW	TB SR	TNW	Ch SR	RWP	r & pa	TEC
<i>Achrophyllum quadrifarium</i>	AK351806						
<i>Acrocladium chlamydothecium</i>		AK351790; AK351802					
<i>Alleniella hymenodonta</i>						AK351875	
<i>Atrichum androgynum</i>	AK351815						
<i>Barbula unguiculata</i>						AK351813	
<i>Brachythecium albicans</i>						AK351883	
<i>Breutelia pendula</i>					AK351852		
<i>Bryum argenteum</i>							AK351863
<i>Bryum billardierei</i> var. <i>platyloma</i>	AK351803					AK351865 NP	
<i>Bryum campylotheceum</i>						AK351867 NP	
<i>Bryum dichotomum</i>						AK351868 NP	
<i>Bryum ?laevigatum</i>							AK351872
<i>Bryum ?rubens</i>							AK351857
<i>Bryum</i> sp.							AK351862
<i>Calliergonella cuspidata</i>					AK351855		+m
<i>Calomnion complanatum</i>		+					
<i>Calyptopogon mnioides</i>				+		AK351876	
<i>Camptochaete ?angustata</i>		AK351845					
<i>Camptochaete arbuscula</i> var. <i>arbuscula</i>	AK351816						
<i>Campylopus introflexus</i>		AK351801				+	
<i>Campylopus pyriformis</i>		AK351795					
<i>Canalohypopterygium tamariscinum</i>			AK351825				

Taxon (cont.)	CRW	TB SR	TNW	Ch SR	RWP	r & pa	TEC
<i>Ceratodon purpureus</i>							+m
<i>Cryphaea</i> sp.						AK351881	
<i>Cyathophorum bulbosum</i>	+		AK351829				
<i>Cyrtopus setosus</i>			AK351830				
<i>Dendroligotrichum dendroides</i>	AK351832						
<i>Dicnemon calycinum</i>	AK351804						
<i>Dicranoloma billardierei</i>					AK351854		
<i>Dicranoloma menziesii</i>	AK351811						
<i>Dicranoloma plurisetum</i>	AK351807						
<i>Dicranoloma robustum</i>				AK351848			
<i>Didymodon australasiae</i>							+
<i>Didymodon torquatus</i>		AK351844					AK351833
<i>Ditrichum difficile</i>	AK351819						
<i>Echinodium hispidum</i>		AK351796					
<i>Eurhynchium praelongum</i>					AK351853	AK351866	
<i>Fissidens curvatus</i> var. <i>curvatus</i>						AK351884	
<i>Fissidens tenellus</i> var. <i>tenellus</i>						AK351885	
<i>Funaria hygrometrica</i>							AK351859
<i>Glyphothecium sciuroides</i>	AK351822						
<i>Goniobryum subbasilare</i>		AK351792					
<i>Grimmia pulvinata</i> var. <i>africana</i>							AK351869
<i>Holomitrium perichaetiale</i>	AK351808	AK351797		+			
<i>Hymenodon pilifer</i>		+					
<i>Hypnodendron marginatum</i>		AK351793					
<i>Hypnum chrysogaster</i>	+m						
<i>Hypnum cupressiforme</i> var. <i>cupressiforme</i>		+m			AK351851	+m	
<i>Hypnum cupressiforme</i> var. <i>filiforme</i>				AK351847			
<i>Lembophyllum divulgum</i> s.l.	AK351818					AK351880	
<i>Leptodon smithii</i>		AK351839					
<i>Leptostomum inclinans</i>		AK351791		AK351849		AK351882	
<i>Leptotheca gaudichaudii</i>		AK351837					
<i>Lepyrodon australis</i>	AK351834						

Taxon (cont.)	CRW	TB SR	TNW	Ch SR	RWP	r & pa	TEC
<i>Lepyrodon lagurus</i>	AK351820						
<i>Leucobryum javense</i>	AK351810						
<i>Macrocoma tenue</i>						AK351879	
<i>Macromitrium gracile</i>		AK351843					
<i>Macromitrium helmsii</i>		AK351838					
<i>Macromitrium longipes</i>		AK351846					
<i>Macromitrium prorepens</i>		AK351841; AK351798					
<i>Macromitrium retusum</i>	AK351821						
<i>Mesotus celatus</i>	AK351814						
<i>Mniodendron comatum</i>			AK351823				
<i>Mniodendron comosum</i>		AK351840					
<i>Orthorrhynchium elegans</i>		AK351789					
<i>Philonotis tenuis</i>						+	
<i>Pogonatum subulatum</i>	AK351809						
<i>Polytrichadelphus magellanicus</i>						AK351874	
<i>Polytrichum juniperinum</i>							AK351831
<i>Pseudocrossidium hornschuchianum</i>							AK351858
<i>Pseudoscleropodium purum</i>						AK351812	
<i>Ptychomnion aciculare</i>	+	+	AK351826				
<i>Pyrrhobryum bifarium</i>			AK351824				
<i>Racomitrium crispulum</i>							AK351873
<i>Rhaphidorrhynchium amoenum</i>			AK351827				
<i>Rhizogonium distichum</i>	AK351817						
<i>Rhynchostegium muriculatum</i>						AK351877	
<i>Rhytidiadelphus squarrosus</i>						AK351836	
<i>Schistidium apocarpum</i>							AK351860
<i>Sciadocladus kerrii</i>		AK351799					
<i>Sciadocladus menziesii</i>		AK351788					
<i>Sphagnum cristatum</i>					AK351850		
<i>Sphagnum falcatulum</i>		AK351800					
<i>Syntrichia antarctica</i>							AK351861
<i>Thuidium furfurosum</i>	AK351805					+	

Taxon (cont.)	CRW	TB SR	TNW	Ch SR	RWP	r & pa	TEC
<i>Thuidium laeviusculum</i>		AK351794					
<i>Tortula muralis</i>							AK351871
<i>Tortula truncata</i>							AK351864
<i>Weissia controversa</i>							AK351856
<i>Weymouthia cochlearifolia</i>		AK351886					
<i>Weymouthia mollis</i>		+	AK351828				
<i>Zygodon intermedius</i>		AK351842				AK351878	
<i>Zygodon menziesii</i>							AK351870

What's in a name? *Lathyrus japonicus* at Lathyrus Bay, Catlins, South Island

Ewen K. Cameron



Fig. 1. Beach pea (*Lathyrus japonicus*) at the back of Lathyrus Bay where it is well-established along c. 70 m of the sandy upper beach edge, and inland up to 15 m amongst the grasses and flax. Photo: Rory Gold, 22 Feb 2009.

The Auckland Bot Soc Catlins trip in January 2014 was based at Tautuku Bay (Young 2014), nearly 4 km away from Lathyrus Bay, which is just south of Tautuku Beach on the south side of the Tautuku River. Unfortunately the combination of a full field programme, and the access governed by the tide and private land resulted in no attempt being made to visit the remote Lathyrus Bay during our Bot Soc camp.

In 2008 Keith Hammett was contacted by Lynton Diggle, a maritime historian, about the identification of a type of perennial "sweet pea" found at Lathyrus Bay which possibly related to a nineteenth century ship wreck. After a little difficulty the pea was identified by a botanical "consortium" as beach pea (*Lathyrus japonicus*) (which incl. *L. maritimus*) and Keith published an account of the remarkable story of how the Bay was supposedly named (Hammett 2009): that in 1871 a constable was sent to investigate the discovery of a skeleton and two European graves in addition to wreckage at the mouth of the Tautuku River; as well as some wreckage the constable reported "about half an acre of sweet peas in blossom, growing just above the high water mark". The inference is that the wreck may be the sailing ship *Burmah*, which left London on 28 Aug 1859 and was last seen on 17 Nov 1859 by another ship well south of Australia, about two weeks sailing time from her destination, Lyttelton,