

Bannockburn Trip Lichen Report

Allison Knight

What a pleasure to spend a week with such enthusiastic and friendly northern Bot Soccers. Interest in lichens was evident from the very first night, when reports of the vagrant lichen, *Xanthoparmelia semiviridis* (Fig. 1) in the nearby Cromwell Chafer Reserve came in, along with tales of Anthony Wright searching long and hard for fertile specimens, which I was most envious of. Formerly belonging to the monotypic genus *Chondropsis*, the free-living *Xanthoparmelia semiviridis* (Galloway 2007) is a feature of the dry inland plains of the McKenzie country and Central Otago. During infrequent moist periods it opens out flat to photosynthesize and then as it dries the lobes roll inward to protect the algae, thus forming a tiny ball, which is blown by the wind, sometimes into great drifts. At Butchers Dam I was excited to find amongst the drifts a few of the much rarer *Xanthoria soreliata*, which is identical except for its powdery lobe tips, covered with fine sorediate vegetative propagules. Two other small, rather 3-dimensional *Xanthoparmelia* occur sporadically in similar dry areas around Butchers Dam, the Chapman Road Scientific Reserve and the track to Carrick Town. *Xanthoparmelia reptans* has long black cilia along the lobe margins, while *Xanthoparmelia molliuscula* bristles with cylindrical lobules and looks rather like a tiny hedgehog (Fig. 2).



Fig. 1. Opened out *Xanthoparmelia semiviridis*, Butchers Dam. All photos by Allison Knight, taken during the field trip.

Freezing cold winds from the Antarctic come howling through the Nevis Pass and blasts across the tops of the Old Man and Pisa Ranges. So it's not surprising that these areas have several genera and species of lichen in common with the Antarctic. One of the most striking of these is the bright red small foliose *Xanthoria elegans*, which is surprisingly common on vertical rock overhangs in all of these places (Figs. 3 & 4). Little clumps of the less widespread bright orange *Teleoschistes fasciculatus*, which at first glance

could be mistaken for common *Teleoschistes velifer*, brightened up several sub-alpine rock crevices (Fig. 5). Fluoro-yellow and black *Rhizocarpon geographicum*, which can convert ultra-violet light into visible light, is remarkably successful at colonizing rocks from sea level to mountain-tops around the world.



Fig. 2. *Xanthoparmelia molliuscula*, Chapman Road.

Some of the blackened alpine *Usnea* species, formerly in the genus *Neuropogon* (Galloway 2007), range as far as the Antarctic, including the *Usnea acromelana* coating many high rock outcrops. The beautiful *Usnea ciliata* amongst it, however, is endemic (Fig. 6). The higher the exposure and the altitude, the greater the protective black pigment of several lichen genera, so that the tops of the towering tors on the summit



Fig. 3. *Xanthoria elegans*, Portrait, Nevis Pass.

ridge of the Old Man Range appear to be covered by a black fuzz (Fig. 7). *Umbilicaria cylindrica* (Fig. 8) and the tangled mats of *Pseudephebe pubescens* on rock, and *Alectoria nigricans* forming diffuse clouds over cushionfields, are three more widely distributed alpine lichens with black sunscreen protecting their green algae. *Alectoria nigricans* has now been placed in the



Fig. 4. *Xanthoria elegans*, habitat, Nevis Pass.



Fig. 5. Orange *Teloschistes fasciculatus*, Old Man Range.



Fig. 6. Fruiting *Usnea ciliata*, Nevis Pass.



Fig. 7. Lichen-topped tors, Old Man Range.



Fig. 8. *Umbilicaria cylindrica* amongst yellow *Rhizocarpon geographicum*, Old Man Range.



Fig. 9. *Lecanora epibryon* ssp. *broccha* on dead tussock base, Old Man Range.



Fig. 10. Eroded *Siphula dissoluta*, Old Man Range.



Fig. 11. *Solorina crocea* on damp soil, Pisa Range.



Fig. 12. *Haematomma alpinum* on *Melicytus alpinus*, Nevis Pass.



Fig. 13. *Diploschistes muscorum* ssp. *bartlettii* in depression on rock, Chapman Road.



Fig. 14. Pale *Flavoparmelia haysomii* growing over *Xanthoparmelia* spp., Chapman Road.



Fig. 15. *Phycia adscendens*, *Ramalina glaucescens*, *Teloschistes chrysophthalmus*, *Teloschistes velifer*, *Usnea inermis* and *Xanthoria parietina*, on thyme twig, Butchers Dam.

genus *Gowardia* (Halonen et al. 2009). Thin bronze strands of *Bryoria austromontana* straggled amongst other alpine rock lichens, while the spiny pair *Cetraria islandica* ssp. *antarctica* and *Cetraria aculeata* hunkered down in the hollows of the cushion field. Among them the hollow-lobed *Hypogymnia lugubris* var. *lugubris* is variably blackened.

Having a thick white outer cortex to reflect the harsh alpine sun is also a successful strategy, as evident by the white, worm-like *Thamnolia vermicularis*, the isidiate crust, *Pertussaria dactylina* and *Lecanora epibryon* ssp. *broccha*, a white crust with brown fruit often found on dead tussock bases (Fig. 9). Finely branched *Cladonia mitis* is another white accent among the brown and black lichens accumulated in the frost hollows. White, ground-hugging *Siphula dissoluta* is from a genus of sterile lichens characterized by their distinctive, root-like structures (Fig. 10). Where the wind and frost had eroded the soil away they looked like pulled teeth. On very damp soil on the top of the Old Man and Pisa Range the beautiful *Solorina crocea* provided an infrequent curls of orange (Fig. 11).

In crevices on rock outcrops on the Nevis Pass the endemic *Haematomma alpinum* spurted its bright red fruiting bodies over a white thallus wrapped around twigs of *Melicytus alpinus* (Fig. 12). In a mossy nook the sun-browned form of *Pseudocyphellaria crocata* was very photogenic, with its edging of bright yellow sorediate granules. The rather similar *Pseudocyphellaria maculata*, also brown with yellow dots of pseudocyphellae on the lower surface, snuggled under tussock by a rock outcrop part way down the Old Man Range, alongside *Hypogymnia lugubris* ssp. *compactior*. Pale crusts on rocks from the subalpine range down included the paint-splash white *Lecanora farinacea* and *Lecanora rupicola* and the pinkish-tinged *Diploschistes scruposis*.

References

- Galloway, D. J. 2007: Flora of New Zealand Lichens, revised second edition. Manaaki Whenua Press, Lincoln, New Zealand
 Halonen, P., Myllys, L., Velmala, S & Hyvarinen, H. 2009: *Gowardia* (Parmeliaceae) – a new alectorioid lichen genus with two species. *Bryologist* 112: 138 – 146.
 Young, M. (ed) 2010: Central Otago, 9-15 January 2010: *Auckland Botanical Society Journal* 65: 50-59.

Back down in the valley *Diploschistes muscorum* ssp. *bartlettii* formed contorted shapes in depressions on rocks in the Chapman Road Scientific Reserve (Fig. 13). Rocks in the valley so strikingly decorated by pale lichens were most likely to be covered by an assortment of the many species of yellow-green foliose *Xanthoparmelia*, some with dramatic brown fruits, while rosettes of the pale yellowish *Flavoparmelia haysomii* were also common (Fig. 14). Cryptic brown *Xanthoparmelia* species, formerly in the genus *Neofusculia* (Galloway 2007), were also common and varied, though much harder to spot. On soil, moss and rock the ubiquitous *Cladia aggregata* was never far away, often tangled among other lichens, and distinguished by its hollow spiky branches with tiny perforations.

The closer we got to civilization the more cosmopolitan the lichens became, especially on exotic trees and shrubs. Just one small twig of wild thyme at Butchers Dam sported a thriving population of *Physcia adscendens*, *Ramalina glaucescens*, *Usnea inermis*, *Xanthoria parietina*, *Teloschistes chrysophthalmus* and *Teloschistes velifer* (Fig. 15). Although *Teloschistes chrysophthalmus*, an indicator of clean air, is common here it is very rare in Britain, and a cause for much rejoicing whenever it is found.

On the dry salt-pan soil of the Mahaka Katia Reserve Geoff Davidson spotted the best find of the trip, the tiny soil-binding crust *Psora decipiens*, which I'd never seen before. It prefers alkaline soil and has not been reported from Central Otago before (Galloway 2009), so this is an exciting new record.

All in all, a very worthwhile summer trip. Thank you for inviting our southern contingent, and for your outstanding hospitality.

Appendix 1. Lichen List, Bannockburn Summer Camp, 9 - 15 Jan 2010

Compiled from lichens photographed at Sutton Salt Lake, Nevis, Old Man Range, Butchers Dam, Chapman Road Scientific Reserve, Mahata Katia Reserve and Clyde Dam

Species (2007 Flora names)	Form	Growing on
FOLIOSE - leaf-like lobes with distinct upper and lower surfaces		
Large Foliose (largest lobes more than 8 mm wide)		
<i>Flavoparmelia haysomii</i>	Large foliose	rock surfaces
<i>Pseudocyphellaria crocata</i>	Large foliose	mossy rock
<i>Pseudocyphellaria glabra</i>	Large foliose	mossy rock
<i>Pseudocyphellaria granulata</i>	Large foliose	mossy rock
<i>Pseudocyphellaria maculata</i>	Large foliose	moss under tussock
<i>Solorina crocea</i>	Large foliose	soil, alpine

<i>Umbilicaria cylindrica</i>	Large foliose	rock outcrop
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Small foliose (largest lobes less than 8 mm wide)

<i>Hypogymnia lugubris</i> var. <i>compactior</i>	Small foliose	mossy rock
<i>Hypogymnia lugubris</i> var. <i>lugubris</i>	Small foliose	cushion-field plants
<i>Melanelia subglabra</i>	Small foliose	bark, willow
<i>Parmelia signifera</i>	Small foliose	rock sides and base
<i>Peltula euploca</i>	Small foliose	rock water run-off sites
<i>Physcia dubia</i>	Small foliose	rock surfaces
<i>Xanthoparmelia neotinctina</i>	Small foliose	rock surfaces
<i>Xanthoparmelia digitiformis</i>	Small foliose	rock surfaces
<i>Xanthoparmelia pictada</i>	Small foliose	rock surfaces
<i>Xanthoparmelia reptans</i>	Small foliose	soil, dry
<i>Xanthoparmelia semiviridis</i>	Small foliose	soil, dry. Unattached
<i>Xanthoparmelia soledata</i>	Small foliose	soil, dry. Unattached
<i>Xanthoria elegans</i>	Small foliose	rock, vertical surfaces
<i>Xanthoria parietina</i>	Small foliose	twig, thyme

FRUTICOSE - twiggy three-dimensional structure, branched or unbranched

<i>Alectoria nigricans</i>	Fruticose	cushion-field plants
<i>Bryoria austromontana</i>	Fruticose	rock, amongst lichens
<i>Bunodophorum ramuliferum</i>	Fruticose	rock outcrop
<i>Cetraria aculeata</i>	Fruticose	cushion-field hollows
<i>Cetraria islandica</i> ssp. <i>antarctica</i>	Fruticose	cushion-field hollows
<i>Cladia aggregata</i>	Fruticose	soil, moss, rock crevices
<i>Physcia adscendens</i>	Fruticose	twig, thyme
<i>Pseudephebe pubescens</i>	Fruticose	rock surfaces
<i>Ramalina glaucescens</i>	Fruticose	twig, thyme
<i>Siphula coriacea</i>	Fruticose	Soil, alpine
<i>Siphula dissoluta</i>	Fruticose	soil, alpine
<i>Teloschistes chrysophthalmus</i>	Fruticose	twig, thyme
<i>Teloschistes fasciculatus</i>	Fruticose	rock crevices
<i>Teloschistes velifer</i>	Fruticose	twig, thyme
<i>Thamnolia vermicularis</i>	Fruticose	cushion-field
<i>Usnea acromelana</i>	Fruticose	rock outcrop
<i>Usnea ciliata</i>	Fruticose	rock outcrop
<i>Usnea contexta</i>	Fruticose	rock outcrop
<i>Usnea inermis</i>	Fruticose	twig, thyme
<i>Usnea pseudocapillaris</i>	Fruticose	rock outcrop
<i>Xanthoparmelia molliuscula</i>	Fruticose	soil, dry

CRUSTOSE - forming a non-detachable crust with lower surface embedded in the substrate

<i>Caloplaca rubelliana</i>	Crustose	rock surfaces
<i>Diploschistes muscorum</i> ssp. <i>bartlettii</i>	Crustose	depressions on rocks
<i>Diploschistes scruposus</i>	Crustose	rock surfaces
<i>Haematomma alpinum</i>	Crustose	bark, <i>Melicytus alpinus</i>
<i>Lecanora epibryon</i> ssp. <i>broccha</i>	Crustose	dead tussock bases
<i>Lecanora farinacea</i>	Crustose	rock surfaces
<i>Lecanora rupicola</i>	Crustose	rock surfaces
<i>Pertusaria dactylina</i>	Crustose	base of tor
<i>Psora decipiens</i>	Crustose	soil, dry
<i>Rhizocarpon geographicum</i>	Crustose	rock surfaces