Lichens of the mangroves and shell banks near the Miranda Shorebird Centre, Firth of Thames

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Introduction

The Miranda Naturalists' Trust (MNT) organized a "BioBlitz" of the Miranda coast between the Taramaire and Pukorokoro/Miranda streams on the 28th of February 2013. Dan Blanchon, Rick Kooperberg, Orhan Er, Christy Reynolds and Indra Kularatne made up the lichen team for the day, with additional collections from Bruce Hayward and Peter Maddison. This article is an account of the lichen taxa we found on the day. We focused our efforts on the mangroves and shell banks to the southeast of the Miranda Shorebird Centre and the mangroves and concrete slabs in the area around the old limeworks.

Species collected

The lichen flora of the area totalled 33 distinct taxa, mainly common forest-edge bark-dwelling species. Two species, *Lecanora xylophila* and *Ramalina canariensis* (Fig. 1) have been assessed as 'At Risk/Naturally Uncommon', and one, *Opegrapha atra*, as 'Data Deficient' in the recent threat classification of the New Zealand lichen flora (de Lange et al. 2012). A full listing of lichens we collected and lodged in the Unitec Institute of Technology herbarium (UNITEC) is given in Appendix 1.

Key habitats

The dominant tree species was of course mangrove (*Avicennia marina*). In New Zealand, older mangroves usually support a diverse range of lichen species, particularly species of *Ramalina* (Bannister et al. 2004) and *Pseudocyphellaria* (Galloway 1988). Possibly as a consequence of the relatively young age of the mangroves near the Shorebird Centre, only 22 lichen species were recorded, despite a thorough search. The main species were: *Amandinea punctata*, *Dirinaria applanata*, *Flavoparmelia haywardiana*, *Opegrapha atra*, *Parmotrema perlatum*, *P. reticulatum*, *Ramalina celastri*, *Teloschistes chryophthalmus* and *Xanthoria parietina*. Most of the species are also found on trees in urban areas. The most unusual find was *Ramalina canariensis*, which is not commonly collected in New Zealand (Blanchon et al. 1996). The other common angiosperm substrate was saltmarsh ribbonwood (*Plagianthus divaricatus*). Two species of lichens were common; the green-grey *Ramalina celastri*, and the bright orange *Teloschistes chrysophthalmus* (Fig. 2).

The extensive parallel ridges of shell banks were an unexpected location to find lichens. The shell banks at the rear of the beach beside the saltmarsh ribbonwood appeared to be grey or rusty in colour. On closer examination, the orange apothecia (fruiting discs) of a lichen were visible. This proved to be *Caloplaca holocarpa* (Fig. 3), more usually found on limestone (Galloway 2007). A large number of logs, stumps and pieces of driftwood were present on and behind the shell banks. These supported a range of lichens, including *Lecanora xylophila*, *Cladonia darwinii* and the bright orange *Xanthoria parietina*.

A number of slabs and pieces of old concrete were examined at the site of the old limeworks, and these supported some interesting lichens. Apart from large foliose lichens like *Parmotrema reticulatum*, smaller lichens such as *Phaeophyscia orbicularis*, *Jackelixia ligulata* and tiny lemon-yellow granules of *Caloplaca citrina* were found.

Fig. 1. *Ramalina canariensis*, collected from mangrove branch. Photo: D. J. Blanchon.

Fig. 2. *Ramalina celastri* and *Teloschistes chryophthalmus* on branch of *Plagianthus divaricatus*. Photo: D. J. Blanchon.

On the way back to the Miranda Shorebird Centre via the road, close examination of the roadside *Muehlenbeckia* found tiny thalli of *Caloplaca cerinelloides* and *Physcia erumpens*.

Discussion

While only a few hours were spent examining the area for lichens, we are confident that the total of 33 lichen taxa is close to being accurate. Older mangroves tend to support species such as *Pannaria elixii*, *Crocodia* (*Pseudocyphellaria*) *aurata*, *P. carpoloma*, *P. coriacea*, *Ramalina australiensis*, *R. geniculata* and occasionally *R. pacifica*, but these species were conspicuous by their absence. Other species such as *Heterodermia japonica*, *H. speciosa* and *Usnea rubicunda* were uncommon. One possible explanation is that these particular mangroves are relatively recent arrivals and are possibly too distant from older, more established mangroves that could act as sources of lichen propagules. Aerial photos displayed at the Miranda Shorebird Centre suggest that the mangroves arrived in the 1980s.

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Fig. 3. *Caloplaca holocarpa* on surface of a shell. Photo: D. J. Blanchon.

References

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Appendix: Miranda BioBlitz lichen species list, 28th February 2013.

Lichen taxa	Voucher
Amandinea punctata	UNITEC 5638
Bacidia laurocerasi	UNITEC 5636
Caloplaca cerinelloides	UNITEC 5639
Caloplaca citrina (concrete)	UNITEC 5651
Caloplaca holocarpa (shell and lignum forms)	UNITEC 5640
Cladonia chlorophaea	UNITEC 5610
Cladonia darwinii	UNITEC 5611
Dirinaria applanata	UNITEC 5612
Flavoparmelia haywardiana	UNITEC 5613
Heterodermia japonica	UNITEC 5614
Heterodermia speciosa	UNITEC 5615
Hyperphyscia adglutinata	UNITEC 5616
Jackelixia ligulata	No voucher
Lecanora sp. (yellow apothecia)	UNITEC 5617
Lecanora xylophila	UNITEC 5618
Leptogium aucklandicum	UNITEC 5619
Opegrapha atra	UNITEC 5620
Parmelina sp.	UNITEC 5621
Parmotrema perlatum	UNITEC 5622
Parmotrema reticulatum	UNITEC 5623
Phaeophyscia orbicularis	UNITEC 5624
Physcia erumpens	UNITEC 5625
Physcia jackii	UNITEC 5626
Punctelia borreri	UNITEC 5627
Pyxine subcinerea	UNITEC 5628
Ramalina canariensis	UNITEC 5629
Ramalina celastri	UNITEC 5630
Ramalina peruviana	UNITEC 5631
Rhizocarpon submodestum	UNITEC 5632
Rinodina pyrina	UNITEC 5633
Teloschistes chryophthalmus	UNITEC 5634
Usnea rubicunda	UNITEC 5635
Xanthoria parietina	UNITEC 5637