

Mycological Notes 6: A trip to the beach

Jerry Cooper, June 2012

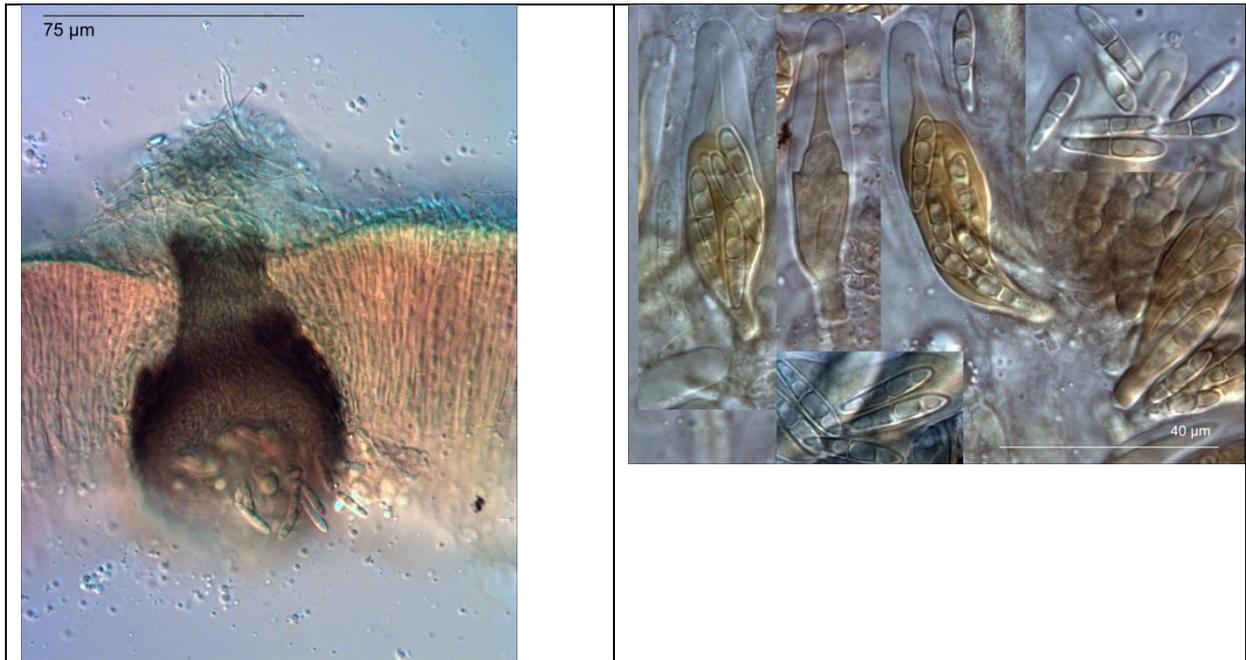
My usual fungal collecting activities recently needed to be modified to accommodate dog walking duties. Healy the border collie (named after Arthur Healy, Christchurch botanist and collector of plant associated fungi) really likes the beach, and so I started looking at marine fungi. Many marine fungi are associated with driftwood and marine plants and algae. There has been some historic interest in these fungi in New Zealand so it isn't a blank sheet. Howard Lintott studied marine fungi on driftwood, and even the global masters of the domain (Jan and Brigitte Kohlmeyer) have studied material from New Zealand.

More recently I had the task of helping to assess 84 'data deficient' fungi. 1445 species were originally listed as Data Deficient in the 2002 Threat System (Hitchmough) and since then we've slowly been adding to our knowledge (especially through the Fungal Foray) and knocking many off the list. Although we've probably been adding just as many more new and poorly known species to the list as we've knocked off. One of my assigned targets was *Polystigma apophleae* specifically associated with the red seaweed *Apophlaea lyallii*. The seaweed has a southern distribution in New Zealand South Island and extends out to Chatham Islands and the subantarctic islands (Adams). This year's fungal foray in Riverton provided an opportunity to look for the seaweed and its fungal friends *Polystigma apophleae* and *Stigmatidium apophlaeae*. These were both described by Kohlmeyers (1981) from New Zealand material. So, one morning me, Shaun Pennycook, Toni Atkinson and Nitish Anand went to the local beach and amazingly we managed to find the seaweed attached to rocks. Unfortunately I did not find the target fungal species on the seaweed so it must remain data deficient, but I did find its friend. Here's that fungus and the other marine fungi I've seen thanks to Healy the dog. ...

Stigmatidium apophlaeae

When I examined the material of *Apophlaea lyalli* we collected I found that every single piece of every collection was 'infected' with a fungus.

<i>Apophleae lyalii</i>	Perithecia buried in the fongs
	
Perithecia exuding spores	Asci and spores



It is clear this fungus isn't damaging or degrading the alga in any way. In fact this fungus and a number of similar ones are considered to be obligate symbionts. The alga needs the fungus and vice-versa. It is interesting to speculate what the alga gets from the deal, perhaps resistance to browsing or desiccation (two suggestions in the literature).

So if this is a partnership between an alga and a fungus then surely that's what we call a lichen. It is tradition that we name lichens after their fungal partner and not the algal partner so I propose this seaweed be renamed *Stigmatidium apophlaeae*! That just highlights the arbitrary nature of terms like lichen. It isn't a 'taxon', it's a lifestyle choice. I recall a vigorous debate in a meeting about a lichen checklists in one of my Catalogue of Life meetings (wearing another hat). The debate concerned the issue of what name to apply to lichens where a single fungal partner has two different partnerships with an green alga and a cyanobacterium. One name, or two? I struggled to get across that obviously it was three. One for the fungus and one each for the two algae. You don't give taxonomic names to lifestyle choices, you give them to taxa!

Conidia *Asteromyces cruciatus* on incubated *Carpophyllum*, Taylor's Mistake



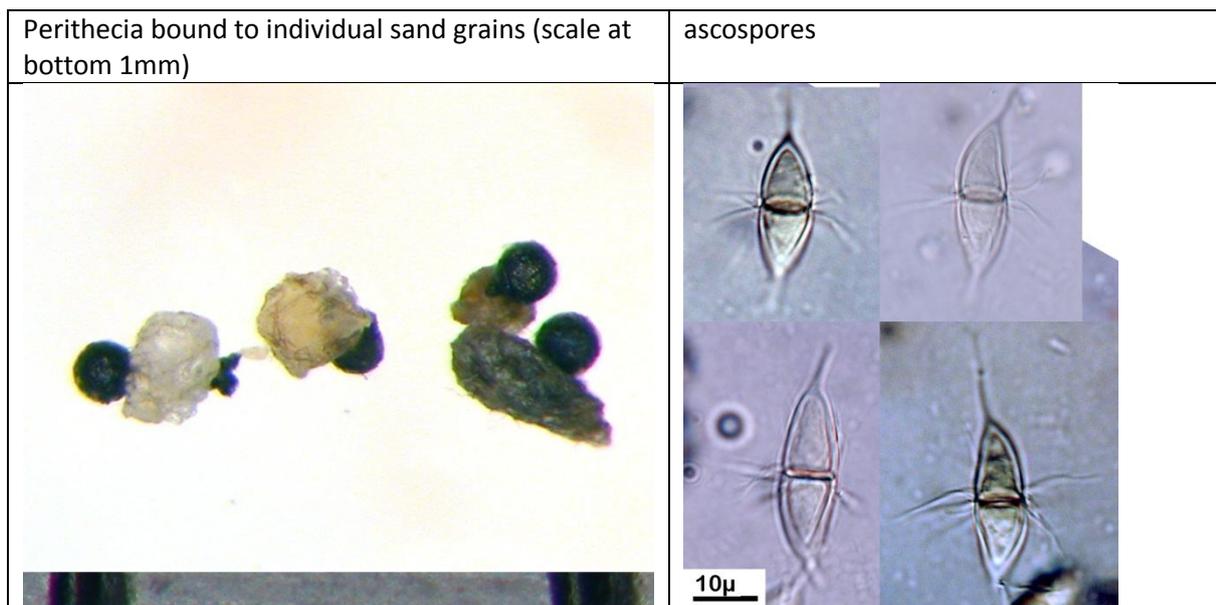
An asexual hyphomycete fungus common on decaying seaweed

Spores of *Corollospora angustata* on incubated *Carpophyllum*, Taylor's Mistake (new record)



Note the appendages, common on many marine fungi

***Corollospora maritima* from driftwood, New Brighton**

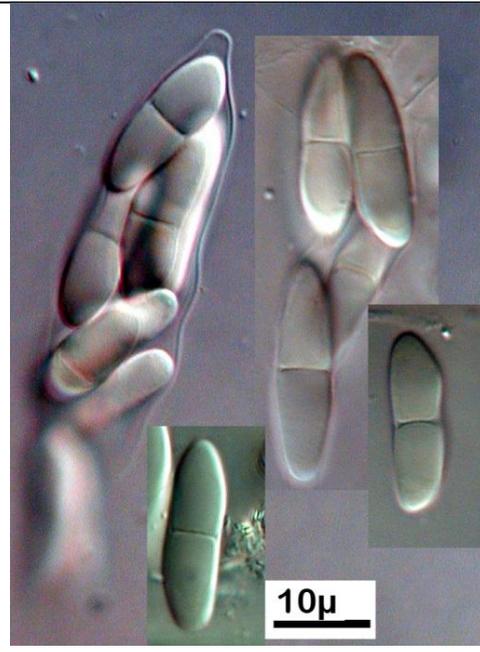


***Halosigmoidea marina* on incubated *Carpophyllum*, Taylor's Mistake**



Another asexual state

***Lignincola laevis* on incubated driftwood, New Brighton**



***Dendryphiella salina* on *Durvillea*, Scaroboro Beach (new record)**



References

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