

***CAREX CIRRHOSA* AT BLUE LAKE - OR NOT?**

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This story starts in summer 2006 with my regular trips out to Blue Lake for a swim after work. The difference this year was that I chose to swim at western end of the beach rather than at the more popular and crowded main beach opposite Blue Lake Holiday Park.

Upon heading for the changing rooms I immediately noticed clumps of a bronzy coloured sedge growing nearby amongst the mown exotic grassland. My immediate thought was that it looked very similar to the *Carex cirrhosa* which I had only recently become familiar with at Lake Rerewhakaaitu. I made a cursory inspection of the larger plants looking for seed heads and curled fronds hoping to confirm this thought. No seed-heads could be found and with the plants obviously being mown regularly the true size of plants and curly leaf tips were also not particularly obvious. I resolved to keep an eye on this population not at all confident of its genus or species or even whether native or exotic. I resisted the attempt to take some seedless specimen back to the herbarium or even worse announce to fellow botanists an amazing new threatened plant discovery only to find out later I had found a mown version of some common or even worse exotic sedge.

A month or more later I took John Hobbs out to the lake for a 'second opinion' on my discovery. His thoughts echoed mine still with a strong degree of uncertainty. We managed to find a small amount of seed this time which warranted a specimen to the herbarium. While lacking good quality seed a herbarium examination cautiously agreed with my initial suspicions of *Carex cirrhosa*, but with a firm request for better seeding material to confirm.

Feeling rather pleased but somewhat surprised with my newly confirmed discovery I didn't have much time to reflect on the significance of it. Another week had passed

since the initial assessment of this species identification. I didn't feel there was any great urgency for resolving this one as after all the population had probably been sitting there growing happily in the exotic mown grassland of Blue Lake for decades, waiting for a botanist to come along and find it, so a few more weeks or months wasn't going to make a difference.

That relaxed attitude changed suddenly in late March when while driving around the Blue Lake, ironically to go to Tarawera for a Botanical Society trip, I noted the appearance of large piles of freshly dumped soil near the *Carex* site. A hurried phone call to Rotorua District Council Parks and Reserves the following Monday was not good news. A major redevelopment of the area had been planned for months unbeknown to me and one of the areas affected was directly where the core population of *Carex* was. Alarm bells rang and suddenly this casual after hours 'interest' suddenly became a top priority for me to sort out in my day job.

Putting aside other field work I immediately went out to the site with Chris Ecroyd with the aim of obtaining some better plant material, the aim being to try to confirm the identification of this *Carex*, this issue obviously being of paramount importance to resolve before we could justify making any effort to protect a supposed threatened plant population. Thankfully we found more seed heads although they were still few and far between. Back in the herbarium comparing the freshly collected specimens under the microscope with those of existing herbarium specimens and the Flora brought us to the conclusion that yes it appeared to confirm our initial identification as far as we could tell with the material we had. We appeared to be dealing with a large and significant newly discovered population of *Carex cirrhosa* - a species known currently from only approximately half a dozen sites in the entire North Island and hence listed as being in Gradual Decline by de Lange *et. al.* 2004.

This was followed by a hurriedly arranged site meeting with RDC to show staff the plants and discuss the proposal for developing the area. It wasn't good news for the

Carex population as it was definitely growing right where most of the development was planned. The week went by with ongoing regular discussions between DoC and RDC over options for 'protecting' this population ranging from modifying the development planned through to translocating the entire population of several hundred plants or combinations of both. With only a week until the earthworks started there was a great sense of urgency to sorting this out.

It wasn't until the end of that week during yet another site visit that I happened to look in and around the shrubs in the garden beside the toilet, on the off chance that there were *Carex* plants hiding in there. Despite the dense shrubs to my amazement a lone plant was found in there. This was the first plant found that was not being regularly mown and I was initially surprised at the overall size of the plant, the length of the spike and the general limited curling of the leaf tips. It certainly looked somewhat different to its mown cousins on the nearby' lawn.

I grabbed a sample of this plant and headed back to the office with a nagging feeling that something wasn't right with this plant. After a late Friday night under the microscope with the Flora I had tentatively concluded that I didn't feel this was *Carex cirrhosa* after all. The problem was there was a range of other possible *Carex* species to choose from and no specimens to compare with. I had no definite ideas as to what it might be, given it could be a naturalisation from a garden situation which opened up a much wider range of possible species.

With a phone call to my colleague John Hobbs we decided we had to sort this once and for all. The next day we headed out to Lake Rerewhaakaitu with the aim of looking at the real *Carex cirrhosa* in the field to confirm my suspicions. Unfortunately this well intentioned plan fell apart when we got to the site. After what can only be assumed to be a wet summer at Lake Rerewhaakaitu the lake level was exceedingly high, even over the jetty at the boat ramp!! Not a single plant was to be found, dead or alive.

Undeterred we headed back to the office to have a look at a potted specimen of *Carex*

comans which by sheer coincidence John happened to have at the rhododendron nursery where he works which he had the foresight to bring along with him. After yet another session under the microscope with the Flora this potted specimen matched very nicely with our Blue Lake *Carex*. The Flora's description for *Carex comans* describing it as “an increasingly troublesome weed of grassland” fitted the Blue Lake situation exactly. Even without any *Carex cirrhosa* material on hand the match between characteristics was sufficient for us to be reasonably satisfied that we had identified this species.

Confirmation of this from the herbarium was needed however, which much to my personal relief we received on Monday morning. 'Crisis' over. With a quick apologetic phone call to all parties concerned this issue disappeared as quickly as it rose - all over in the space of one (very long) week.

I would like to think most parties came out of this reasonably happy - RDC was able to proceed with their development as originally planned and on schedule. At DOC it meant I didn't have to potentially dig up and move several hundred *Carex* plants at short notice or try and keep the earth works away from the remainder of the population.

It also showed that botanists are only human and we all make mistakes - sometimes. In our defence this was a tricky one, although in hindsight we did miss some key characteristics such as number of stigmas. With the entire population being regularly mown, the size of the plants and length of spikes was not typical of what you would expect from *Carex comans*. The habitat, while obviously suffering a degree of modification through years of re-contouring the area, construction of toilet blocks, planting gardens, mowing, raking and high public use was not all that dissimilar to the highly modified habitat at Lake Rerewhaakaitu where it occurs at the camp ground, although it did seem rather remarkable that a threatened plant could survive all these changes.

Several other *Carex* species were considered when we examined the herbarium

specimens. Unfortunately *Carex comans* was not one them. This species, while obviously a common plant in landscape gardens in the district had never been recorded in the Rotorua Ecological District either as a naturally occurring species or naturalised, therefore it wasn't an obvious initial consideration. So this find was a first in that respect - not a threatened plant but in fact a new naturalisation of a native species common elsewhere in the country.

We were right about one thing though. It appeared all along that this species was being dispersed around Blue Lake by mowers and it's most likely that it was from seed introduced on mowing equipment that this population has established at Blue Lake.

REFERENCES

P. J. de Lange; D. A. Norton; P. B. Heenan; S. P. Courtney; B. P. J. Molloy; C. C. Ogle; B. D. Rance; P. N. Johnson; R. Hitchmough 2004. Threatened and uncommon plants of New Zealand. *New Zealand Journal of Botany* 42:45-76.



Figure 1: *Carex comans* at Blue Lake.