

# On *Coprosma parviflora* and *C. ciliata* – Going round in circles with awkward questions!

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## THE PLOT

Every now and then a problem continues to bug you until you just have to do something about it.

It all began about 1988, not long after I moved to Nelson. Hugh Wilson, who at the time was writing up his shrub field guide, rang Shannel Courtney but ended up talking to me as he was away. He asked me what I thought of the two forms of *Coprosma ciliata*. My response, based on ignorance, was that there appeared to be a different form in forest to that in the alpine shrubland! Still, there was no difference between the alpine form I had seen in Canterbury and that found in Nelson. Ignorance prevailed. Hit 1!

The next wakeup came in 1998 while plodding through the swamps at Harihari on a Canterbury Botsoc summer camp. David Norton of the Canterbury Forestry School brought me up with a sudden jolt by pointing out that a plant I had assumed to be *Coprosma* “*tayloriae*” was *C. ciliata*. My response was that it seemed more like *C. propinqua* than *C. ciliata* but the hand lens soon proved a lie to that one! Hit 2!

Just a few years later, on a Wellington BotSoc camp at Mount Lyford, Shannel Courtney pointed to “an obvious *C. propinqua*” at the base of the skifield identifying it as *C. ciliata* “eastern South Is”. This time I did the careful search for sheltered leaves and behold there they were—*cilia*. Hit 3!

Finally, in 2002 it all came to a head at Twizel, on another Wellington Bot Soc camp. This time it was Neill Simpson who pulled me up for identifying a shrub as *C. “tayloriae”* by acquainting me with the *C. ciliata* he knew from Central Otago. Hit 4!

Audrey Eagle, Neill Simpson and I then discussed ways of distinguishing *C. ciliata* from *C. “tayloriae”*. Neill suggested the stipules could be used but I was not convinced. Some forms of *C. ciliata* were strongly ciliate and others, it seemed, could be quite glabrous. Some *C. “tayloriae”* could also have completely ciliate shade leaves. The overlaps sparked an interest in trying to sort out what I understood by *C. ciliata* and *C. “tayloriae”*. The first step was to read carefully what the flora and other sources had to say.

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## THE BOOKS

It all begins with Hooker who visited New Zealand in 1839, collected and subsequently described three relevant taxa: *C. myrtillifolia* and *C. ciliata* from the Auckland Islands and *C. parviflora* from the main islands. The first two were described in 1844, and the last in 1853 when he re-described *C. myrtillifolia* from the main NZ islands. In 1867 he further compounded the mess by merging his 1844 *C. myrtillifolia* with *C. parviflora* because it was, he said, described without fruit or flowers and he was not sure it was all that different. Hooker, in describing *C. ciliata* stressed it had “midrib pilose above and below” a character I had never seen. Getting confused?

Next in 1886 Cheeseman, in a treatise on *Coprosma*, noted three forms under *C. parviflora*, one as described by Hooker, one of which he distinguished as var *pilosa* and one recognisable as *C. decurva*. In 1906 Cheeseman formally described *C. parviflora* var *dumosa*. In 1909 he equated *C. parviflora* var *pilosa* with *C. ciliata* and suggested the name *C. myrtillifolia* (Hooker 1853) may be appropriate for his *C. parviflora* var *dumosa*.

In 1935 Oliver, in a treatise on *Coprosma*, recognised only *C. ciliata* and *C. parviflora* although he designated the types for the varieties in *C. parviflora*. Allan (1961) largely followed Oliver but in recognising *C. parviflora* var *dumosa*, added his own twist by assigning the name to a plant with small red fruit, a character of the recently described *C. decurva*. The type cited by Allan for var *dumosa*, designated by Oliver at Auckland however, was clearly not *C. decurva* and did not look like *C. “tayloriae”* either. So where did this leave me? The descriptions of *C. parviflora* and its various varieties seemed confused. Perhaps the best thing to do was to just get out there and see what forms exist, and later try and fit them into existing “boxes”.

## THE JOURNEYS

During my usual February field trip in 2002 I kept an eye out for *C. ciliata* and *C. “tayloriae”* around the northern South Island. A brief trip in to the Allan Herbarium to see the range of forms in the species also answered another of Audrey’s questions—the northern limit for *C. ciliata* (Mount Holdsworth and nearby Jumbo).

Next, how to distinguish *C. “tayloriae”* from *C. parviflora*? I had not seen the former in the North Is and only once or twice seen the latter. First stop—the Forest Research Rotorua herbarium. I soon found the northern limit of *C. “tayloriae”* was at Mamaku so I headed off home via Galaxy Rd and found a good population. Chris Ecroyd had few specimens of *C. parviflora*, so a trip to Auckland Museum to get a list of places to visit followed.

A request to give a talk for Wellington Bot Soc in Wellington in July gave an opportunity to examine the specimens in Te Papa and to see plants in a few places on the way. First stop at Wharite Peak—revealed a whole lot of forms I

have still to sort out. Hybridism seemed rife. Holdsworth also had an array of forms of *C. "tayloriae"* or was it *C. ciliata* hybrids. It was only on the descent that I certainly found a small patch of *C. ciliata* near treeline.

A similar opportunity arose to visit Lincoln and Otago when a family reunion in Invercargill was planned for June. At the Allan Herbarium at Lincoln (CHR) I was faced with a huge collection of the three recognised taxa—over 800 specimens and at Dunedin over 250 rather uniform specimens under *C. parviflora* var *dumosa*. I appeared to be following the tracks of Tony Druce who determined many of the plants in 1978. *C. ciliata* was a different story. Most of the specimens at CHR caused no concern although about 30 from south Westland and Fiordland had rather large leaves and some appeared rather like small *C. rotundifolia*. At Otago most appeared to fit the eastern form of *C. ciliata* but the local collections from Flagstaff, Cargill and Maungatua exhibited a huge diversity of forms adding more confusion. Again leaves of a few plants from Fiordland were very large and some rather like *C. rotundifolia*. Being winter, with ice in the streets, field trips to even some of these sites had to be deferred.

In August I set out to see more of *C. parviflora* and some orchids. First stop Rubbish Dump Hill for orchids and nearby Tawapoutu Bay, what I thought would be an easy spot to find it. I was belting along near Towai and suddenly I thought I saw *C. "tayloriae"*—no can't be! A few kilometres later I saw the same again. Must stop! Sure enough it was *C. parviflora* with its leaves ciliate beneath. Most of my scheduled stops were equally rewarding. At one remote roadside, a request for directions from a group of local kaumatua and kuia (trustees on a site visit perhaps) resulted in a half hour of awkward discussion about the importance of plants as cultural heritage to iwi. I then turned round and within 200 metres had found the target on the roadside.

## IN SEARCH OF FLOWERS

Audrey Eagle's paintings of the three species show very different flowers and I thought they could be used to identify hybrids. Trips to Mamaku in September found flowers of *C. "tayloriae"*. In October, armed with a new digital camera, I travelled north to find *C. parviflora* flowers. At the first stop flowers were abundant, but they did not look exactly like the paintings. Further stops revealed similar flowers. All were rather similar to those of *C. "tayloriae"* (See Fig. 1).

Next trip in November was south to catch *Caladenia* and *C. ciliata* in flower with the working hypothesis that the northern form was the true *C. ciliata*, the West Coast form was a *C. rotundifolia* hybrid and the eastern form perhaps just a variety of *C. "tayloriae"*.



Figure 1. Female flowers of *Coprosma parviflora* and *Coprosma tayloriae*.

After a few days chasing orchids around Nelson a fine day prompted a trip to seek *Coprosma* on Mount Campbell. I was in luck, both *C. ciliata* and *C. “tayloriae”* in flower, and at one spot growing together. Then it was on to Big Bush and Mount Haast to reaffirm these two finds and lanthe forest for the second form of *C. ciliata*. Here leaves were intensely ciliate, even on the midrib when in the shade, less so in the open when it was somewhat like *C. “tayloriae”*. Plenty of flowers to photograph too, and these were different from both the northern *C. ciliata* and *C. “tayloriae”* (Fig 2.)



Figure 2. Female flowers of *Coprosma ciliata* ss.

Next day it was down to Lake Matheson, one of those sites for the *C. ciliata* × *C. rotundifolia* noted at CHR. Again it was the densely ciliate form of *C. ciliata* yet no sign of hybrids with the *C. rotundifolia* also abundant in the area—one theory squashed! Next was it back to Arthur’s Pass or onwards to the Haast? A decision to revisit Neill Simpson’s *C. ciliata* at Lake Ohau called the tune. Once more in luck—the Otago *C. ciliata* was in flower but again it took some careful examination to convince me it was not *C. “tayloriae”*. The flowers were a help but the bark too, was distinctively red. It was then on to Tony Aldridge in Christchurch. He had several places to take me.

First it was Sign of the Bellbird where many years ago Ross Elder claimed *C. ciliata* could be found and so did Tony. I headed for the shelter and the place where I had previously seen *C. "tayloriae"* but Tony drew me to a roadside tree which he claimed was *C. ciliata*.

The leaves certainly were ciliate but they were dark green and the plant was a small tree—puzzling. As a last resort a scrape of the bark revealed an almost blood red under bark—*C. wallii*! I didn't know it could be ciliate and the books didn't mention it. Was it a hybrid? Another mystery to resolve and more photos of flowers to look at (Fig. 3). Then it was on to View Hill to acquaint with *C. pedicellata* a close relation of *C. parviflora*. Sure enough it was soon found with its brilliant violet fruit left over from last season, and more flowers to add to the growing photo collection.



Figure 3. Male flowers of *Coprosma wallii*.

Next it was on to Porters Pass, Arthur's Pass, and Craigieburn skifield plotting the range of the eastern *C. ciliata*. By now I was heading towards the Ferry and homewards with Mount Lyford (Shannel Courtney's site) on my list. But first just a check at Lake Tennyson—it should be the northern form. But no! It's the eastern form and hybridising with *C. cheesemanii* (well reported at CHR). So what is it at the Lewis Pass? Only 40 minutes from the road and there they both were—northern and eastern *C. ciliata* distinguished by leaf colour and growth form. From there it was an easy trip to Parachute Rock at St Arnaud (sorry Shannel). Here, as expected it, was the northern form but on a previous Botsoc trip, I had seen the eastern form just across the valley on the Raglan Range.

## THE LAST ROUND-UP

My February trip in 2003 was devoted to the southern areas and Stewart Island briefly. A quick dash down the West Coast with a scramble up Alex Knob at Franz Joseph for the northern form of *C. ciliata* and side trips to the Cascade and Smoothwater finding both *C. ciliata* and *C. "tayloriae"*, often together, had me at the Makaroa in three days and (a spot with a puzzling array of forms, possibly hybrids) and Bluff in four days.



Figure 4. *Coprosma ciliata* hybrid.

Freshwater Landing and went out to find Back Road, a possible site identified from *C. ciliata* specimens at CHR. At the Hicks Road junction, Back Road turned out to be a track to Horseshoe Bay with some puzzling forms of *C. ciliata* and possibly *C. "tayloriae"*, along with *C. rigida* and *C. propinqua*. Further along there were very ciliate leaved *C. rhamnoides* and finally some typical, very divaricate northern *C. ciliata*. At Freshwater hut I was confronted with an array of forms between *C. propinqua* and *C. ciliata*. Next day it was an aimless wander in search of the Freshwater "gorge" only to find more probable hybrids but no *C. "tayloriae"*. On return to Oban *C. "tayloriae"* still had to be confirmed. This time the Back Road sector to Main Road was traversed and it was not long before plenty of *C. "tayloriae"* were seen—one mystery cleared up.

On return from Port Craig, a track detour caused by the tide led to another nest of hybrids this time between *C. propinqua* and the western form of *C. ciliata*. At Milford and Deep Cove *C. ciliata* was common and hybrids with *C. rhamnoides* were again evident but other stops around Fiordland merely marked out the bounds of the *C. ciliata* forms and *C. "tayloriae"*. Enroute to Maugatua, the Catlins saw some lovely lemon yellow fruited *C. "tayloriae"*, pink fruited *C. propinqua* and *C. rubra* to add to the confusion. Then, those puzzling forms on Flagstaff, Swampy and Mount Cargill noted in the Otago herbarium—more hybrids! Back through sleet at Lawrence for a brief stop over in Queenstown with Neill Simpson to locate more spots to find the eastern *C. ciliata* and *C. "tayloriae"*.

In the sunny mountains of the Rees, Routeburn and Wye, the confusion between eastern *C. ciliata*, *C. "tayloriae"* (largely absent) and other forms of *C. ciliata* deepened. Red, orange and white fruits were abundant on what appeared to be *C. ciliata*. Again forest disturbed by mining at Mount Chritchon was one of those puzzling spots with what appeared to be hybrids of eastern *C. ciliata* with *C. rhamnoides*, *C. rigida* and *C. propinqua*. By the time I reached the Matukituki the distinction between the eastern form of *C. ciliata* and *C. "tayloriae"* was becoming so blurred in my mind a quick trip over the Haast was in order to see the "real" thing again. An impromptu

With time to spare it was off to Bluff Hill to find one of those large leaved forms of *C. ciliata* reported in the herbaria (Fig.4). Once more it wasn't far from the summit car park before they appeared—with *C. "tayloriae"* and hinting at hybrids with *C. propinqua* var *latiuscula*.

On Stewart Island, in search of *C. "tayloriae"*, I booked a passage to

stop in the sunny mountains of the Rees, Routeburn and Wye, the confusion between eastern *C. ciliata*, *C. "tayloriae"* (largely absent) and other forms of *C. ciliata* deepened. Red, orange and white fruits were abundant on what appeared to be *C. ciliata*. Again forest disturbed by mining at Mount Chritchon was one of those puzzling spots with what appeared to be hybrids of eastern *C. ciliata* with *C. rhamnoides*, *C. rigida* and *C. propinqua*. By the time I reached the Matukituki the distinction between the eastern form of *C. ciliata* and *C. "tayloriae"* was becoming so blurred in my mind a quick trip over the Haast was in order to see the "real" thing again. An impromptu stop at the Blue Pools revealed a stand of *C. wallii* and once more the leaves were ciliate. That meant one more stop was needed at the Howard Valley (Nelson) to affirm that ciliate leaves were the norm in *C. wallii*. Homewards, it was via Mount Cook and Arthur's Pass to revisit a few more spots to check records of *C. "tayloriae"* and *C. ciliata*. Thankfully, no new problems.

One last day at the Rahu Saddle found hybrids of *C. ciliata* with *C. depressa*. At the Howard valley I at last confirmed ciliate leaves in *C. wallii* (not observed on earlier trips there with Nelson Bot Soc!). A final stop to check out plants seen on the spring trip at Lake Rotoiti landed me in the middle of the yachting regatta. A park found with difficulty but up the track searching for a bronze leafed plant from the spring trip revealed *C. colensoi* in flower and more hybrids. By this time it was becoming a monotonous theme and time was needed to carefully sort, reconsider and absorb the summer's data.

Three clear forms of *C. ciliata* have quite distinct, largely non-overlapping distributions: a high altitude one common in the north but extending to Stewart Island, a southern intensely ciliate, lowland one in the west and an eastern, largely glabrous one, quite like *C. "tayloriae"* (Fig. 5). But what names have they? Hybrids of all with three main parents: *C. propinqua*, *C. colensoi* and *C. rhamnoides* also appear to be locally common. Homework required!

Meanwhile for Audrey:

### KEY TO *C. CILIATA* FORMS AND *C. "TAYLORIAE"*

- |   |   |  |
|---|---|--|
| 1 | Leaves more or less evenly shaped   | 2  |
|   | Leaves of mixed shapes, especially obovate and elliptic or linear   | hybrids  |
| 2 | Leaves obovate to oblanceolate; midrib stout at the base, tapering rapidly and usually petering out by mid leaf beneath | 3  |
|   | Leaves elliptic to oval; midrib fine, usually extending almost to leaf tip beneath                                      | 4  |
| 3 | Leaves with recurved margins; veins evident above   | <i>C. "tayloriae"</i> (now <i>C. tayloriae</i> ) hybrids |
|   | Leaf margins flat; veins not evident above or if so not raised or impressed   | <i>C. "tayloriae"</i> (now <i>C. tayloriae</i> )         |



Figure 5. Leaves of the three *C. ciliata* forms and *C. "tayloriae"*. A. *C. ciliata* "eastern" (now *C. dumosa*). B. *C. "tayloriae"* (now *C. tayloriae*). C. *C. ciliata* "western" (now *C. ciliata* ss). D. *C. ciliata* "northern" (now *C. pseudociliata*).

4	Leaf veins not raised below	<i>C. "ciliata eastern"</i> (now <i>C. dumosa</i> )
	Leaf veins raised below	5
5	Leaf margins recurved , thickened, or scalloped	hybrids
	Leaf margins not prominently thickened, flat	6
6	Branches shaggy hairy, midrib long hairy above and sometimes also below	<i>C. "ciliata western"</i> (now <i>C. ciliata</i> ss)
	Branches finely hairy, midrib glabrous	<i>C. "ciliata northern"</i> (now <i>C. pseudociliata</i> )