

Anyone for *Coprosma*?

Maureen Young

A sign on the wall of a franchise café reads, “Circa 800 AD. An African farmer discovers the coffee berry after noticing his goats were hooked on its energising effects”. While I suspect that the veracity of this statement owes more to a publicity department than a scientific or historical study, coffee drinkers are familiar with the lift that a flat white or a long black imparts.

While I was in the early stages of my interest in things botanical I was fortunate to count Lucy Moore as my mentor, and one of the useful facts that she passed on to me was that *Coprosma* is in the Rubiaceae, the coffee family. Three experiences since I learned that fact have caused me to wonder about the energising effects of *Coprosma* species on browsing animals. Firstly, when Mt Tamahunga, west of Leigh, was overrun with goats, I noticed that the trunks of the tallest bushes of *Coprosma grandifolia* and *C. robusta* were scored with deep grooves where the teeth of goats had scraped the bark away, exposing an orange-coloured layer beneath. Secondly, an elderly lady who bequeathed a million dollar clifftop property at Algies Bay to the Rodney District Council, on condition that they would nurture her donkeys when she died, showed me that a sure way to attract the attention of her donkeys was to hold out some branches broken from the bushes of *C. macrocarpa* that surrounded their paddock (Fig. 1). And thirdly, when I explained this to Lisa Forester, botanist with the Northland Regional Council, she

said that if her horses were in a paddock surrounded by bush, they would put their heads over the fence and eat the *Coprosma* bushes before they ate anything else.

This causes one’s mind to meander along labyrinthine paths – did moa, unable to get high by the usual avian means, get a high by browsing on *Coprosma* bushes? If one goes along with the “moa browse” theory to explain why New Zealand has so many small-leaved divaricating shrubs, can one presume that the large number of small-leaved species of *Coprosma* evolved to discourage moa from browsing a favourite food?



Fig. 1. Donkeys getting their fix of *Coprosma macrocarpa*. Photo by John Millett, March 2018.

Water pennywort (*Hydrocotyle umbellata*) naturalised in Waiatarua Reserve, Remuera, Auckland

Mike Wilcox

Hydrocotyle umbellata L. (Araliaceae) is an aquatic plant native to North and Central America, and is variously known as water pennywort or dollar weed. I first became aware of this plant in Auckland when seeing it for sale as a culinary or medicinal herb at the Avondale Market (Wilcox 2003). From 2005 to 2017 numerous sightings, supported by herbarium specimens, have been made in various parts of the Auckland region (including Great Barrier Island), the habitats being damp lawns and wet grassy waste places. It seems likely that these patches have expanded vegetatively from original plantings or garden or aquarium discards. The first documented record of water pennywort naturalised (cultivation

escape) in Auckland was from the suburb of Mt Albert (de Lange & de Lange 2005). The Landcare Research checklist of seed plants (Wilton et al. 2016) assigns it the status ζ = exotic, occasional ('casual').

In October 2017 I came across a very extensive colony of water pennywort in Waiatarua Reserve in Remuera, Auckland (Fig. 1). It is not in the main central wetland area but on the northern boundary below the upper entrance to the reserve from Grand Drive in saturated ground where a stormwater drain enters the reserve. Associated plants included buttercup (*Ranunculus repens*), lotus (*Lotus pedunculatus*) and various grasses – particularly



Fig. 1. *Hydrocotyle umbellata* colony in Waiatarua Reserve, 16 Oct 2017. All photographs by author.



Fig. 2. Leaves and flower heads of *Hydrocotyle umbellata*, Waiatarua Reserve, 16 Oct 2017.



Fig. 3. *Hydrocotyle umbellata*, flower, Waiatarua Reserve, 31 Jan 2018. Scale bar = 1 mm.

freshwater paspalum (*Paspalum distichum*), Yorkshire fog (*Holcus lanatus*) and kikuyu grass (*Cenchrus clandestinum*). The pennywort competes successfully and thrives even with this obviously intense competition.

Flowering was observed on 16 October 2017 (Fig. 2), again and more abundantly on 18 November 2017 during a visit by the Auckland Botanical Society, and continued through February 2018. Leaf petioles were up to 40 cm long, and the peltate leaves up to 8 cm wide. The hermaphrodite flowers (male stamens and female styles both present, Fig. 3) were born on pedicels of unequal length in simple umbels of c. 20 flowers, with the umbels frequently of two or more tiers. However, no fertile seed was formed as the ovaries seemingly abort and do not progress to fully-developed schizocarps (Fig. 4) with paired viable mericarps. Its presence and expansion at Waiatarua is thus clearly through vegetative multiplication by rapid rhizome spread (Fig. 5).

There are three *Hydrocotyle* species with large peltate leaves: *H. umbellata*, *H. verticillata* Thunb. and *H. bonariensis* Comm. ex Lam. They are all native to North or South America. *Hydrocotyle verticillata* has inflorescences with spikes of flowers in 2-5 flowered whorls. *Hydrocotyle bonariensis* has compound umbels (the peduncle bearing a cluster of c. 6 rays with each supporting an umbel of sessile or shortly-pedicellate flowers), and favours wet sandy places near the sea, as in New South Wales and Queensland, Australia (Fig. 6).

Water pennywort has been reported as an invasive aquatic plant in Thailand, where it was originally introduced from the USA as an aquarium plant (Pinsupa & Zungsontiporn 2007). Its rapid vegetative growth in Thailand from plant pieces, the lack of seedlings, and its competitive ability amongst grasses has been observed.



Fig. 4. *Hydrocotyle umbellata*, green schizocarp, 31 Jan 2018. Scale bar = 1 mm.

HERBARIUM RECORDS: Avondale Market, *M.D.Wilcox*, 25 May 2003, AK 282159; Asquith Ave, Mt Albert, *P.J.de Lange*, 18 Oct 2005, AK 294037; cult. ex AK 294037, *P.J.de Lange*, 12 Mar 2007, AK 298720; Glen Eden, Routley Drive, in a lawn, *S.Whitwell*, 27 Oct 2010, AK 318414; West Harbour, Rena Place, in a lawn, *G.Hoskins*, 1 Nov 2010, AK 318294; Longford Reserve, Mt Wellington, *T.J.Martin*, 6 Dec 2010, AK 319688; Jane Cowie Ave, Otahuhu, *J.Stevenson*, 10 Jul 2012, AK 331617; Great Barrier Island, Claris, *J. (Jeremy) Warden*, 2 Apr 2014, AK 350990; cult. ex Claris, Great Barrier

Island, *K.Denyer*, 11 Oct 2014, AK 355266; Laurence Street, Manly, garden and lawn weed, *E.K.Cameron 16483*, 5 Mar 2015, AK 356688; Balmoral, cult. ex AK 356688, *E.K.Cameron 16647*, 12 Nov 2015, AK 359522; Balmoral, cult. ex AK 356688, *E.K.Cameron 16750*, 21 Dec 2015, AK 359829; Balmoral, cult. ex AK 356688, *E.K.Cameron 16801*, 12 Mar 2016, AK 360421; Opanuku Stream, Henderson, *E.K.Cameron 17029*, 28 Mar 2017, AK 364486; Waiatarua Reserve, Remuera, *M.D.Wilcox*, 16 Oct 2017, AK 370841; Waiatarua Reserve, Remuera, *M.D.Wilcox*, 31 Jan 2018, AK 370842.



Fig. 5. *Hydrocotyle umbellata* fragment with rhizome and roots, inflorescences and leaves, 31 Jan 2018. Scale bar = 3 cm.



Fig. 6. *Hydrocotyle bonariensis*, Fraser Island, Queensland, 21 Sep 2015.

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