

## Tree privet (*Ligustrum lucidum*) – a controversial plant

Mike Wilcox

Tree privet (*Ligustrum lucidum* Aiton f.) is also known as glossy privet or Chinese wax tree, and in China, as *nu zhen* (Wu & Raven 1996). It belongs to the Oleaceae and is native to China, distributed in Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Tibet, Yunnan, and Zhejiang. It is a completely glabrous evergreen tree or shrub to 25 m tall, and occurs in mainly secondary forests of southern and south-east China below 2000 m, along with species such as *Pinus massoniana*, *Quercus acutissima*, *Quercus variabilis*, *Liquidambar formosana*, *Platycarya strobilacea*, *Pterocarya stenoptera*, *Rhus chinensis*, *Broussonetia papyrifera*, and *Celtis sinensis* (Wang 1961). It is also commonly cultivated in China as a street or garden tree, and thrives in cities, where it has a reputation of being resistant to air pollution.

Tree privet is common in Auckland as a hedge plant, park and garden tree, and as a wild plant in disturbed bush reserves (Goulding 1973). Large trees occur in Jagers Bush (Westmere), in the Oakley Creek Walkway Reserve, in the Auckland Domain (Parnell Gully), and in Ayr Road Reserve, Parnell. It grows to a large size, and coppices from the stump. There is a huge tree (1.3 m diameter x 22.2 m height) at the Masonic Village, Hillsborough, Auckland. The remarkable privet "forest" in Jagers

Bush at Westmere (Fig. 1.) has an almost pure canopy c. 14-15 m high. Tree privet is also abundant in many parts of Northland, and at Whakatane and Opotiki.

It sprouts readily, and according to van Aalst (1992) coppice growth can reach 1 m in 40 weeks. Growth of seedling trees is slower (5 years to 1 m). Wilting and stunting can be caused by infestations of the passion vine hopper (*Scolytopa australis*) and it can also be attacked by cicadas and puriri moth. Privet is shade tolerant and a very versatile competitor, behaving somewhat like a climax species (seeds germinate in shade) and also as a long-lived pioneer, growing in gaps. It is a good coloniser, yet persists in stable environments.

As an environmental weed, privet competes with native shrubs and trees (Anon. 1996; Esler 1988; Little 1981, 1982). The seedlings are very strongly rooted and difficult to pull out by hand.

Van Aalst (1992) has studied the reproductive biology of privet. Flowering takes place in mid-late January to early February, and seeds are ripe in May-August. The flowers are fragrant and insect-pollinated. Each drupe has one or two seeds and are dispersed by birds (blackbird, silvereye, tui). The seeds remain viable for up to two years, and can build up a big seed



Figure 1: Privet forest, Jagers Bush, Westmere, Auckland

bank in the soil. A big tree can produce 1-3 million seeds/year. Germination is best in dark at 15°C, and c. 50% of the seeds germinate.

In China it is one of the main host plants for the females of the Chinese white wax scale insect, *Ericerus pela* (Coccidae) (Goulding 1973; Lancaster 1989; Webb, Sykes & Garnock-Jones 1988). Other hosts are various other species of *Ligustrum*, and *Fraxinus chinensis* subsp. *rhynchophylla* (*hua qu liu*). The wax is used in industry, and food, including the white coating over some types of chocolates, and is still produced in China, Japan, and Korea. Yunnan, Guizhou, and Sichuan are important producers in China. The fruits are used as a tonic and medicine for liver and kidney problems, protection against low back pain, premature greying, dizziness, and tinnitus.

In New Zealand, the fruits and leaves are reputed to be poisonous (Connor 1977; Craw 1995), though on Mangere Mountain cows regularly browse young leaves of tree privet (and also of Chinese privet, *Ligustrum chinense*), evidently without causing themselves harm. The pollen is commonly believed to cause hay fever (Wodehouse 1971), though no clinical studies seem to have been made to test this theory.

The Auckland City Council had several large trees cut down in One Tree Hill in August 2000. I salvaged one for firewood. The wood is hard and cream-coloured with a fine, smooth texture, though lacking in distinctive colour or grain other than some dark heartwood in old trees. It is semi-ring porous, with visible (though not pronounced) growth rings (Baas & Zhang 1986). It splits very easily. The 80-year-old tree had a basic wood density of c. 660 kg/m<sup>3</sup> and a green moisture content of c. 70%. Even when still green the wood burnt well on the open fire, with some initial hissing and crackling as moisture was expelled. It burnt very steadily with good heat completely to hot coals, without much unburned charcoal residues or copious ash. I have found it to be a good wood for the barbecue, producing persistent hot coals. In China, basic wood density is documented as 542 kg/m<sup>3</sup>, air dry density as 660 kg/m<sup>3</sup>, and fibre length as 1.05 mm. Durability is recorded as medium. It planes to a smooth surface, has a high nail-holding capacity, and is used for carving, furniture, and agricultural tools.



Figure 2: Base of a giant privet tree, above the Masonic Village, Pah Road, Auckland.

In summary, on the negative side, tree privet has become an ecological weed in New Zealand because the abundant seeds are readily spread by birds and they have a high germination, and the combination of vigour and shade tolerance allows the seedlings to penetrate and develop in disturbed native bush. It thus deserves its status as a Regional Surveillance Plant Pest (Anon. 1996). However, its reputation as a toxic plant is controversial, and may have been exaggerated (Rudman 2000). In its favour, tree privet makes a handsome, healthy street tree or hedge, and, as exhibited at Jagers Bush, it can form an attractive forest. Moreover, the Chinese use the fruits for a medicinal tonic, and the wood is useful.

## References

Anon. 1996: Privet. *Ligustrum lucidum* (tree privet), *Ligustrum sinense* (Chinese privet). *Pestfacts* No. 49. Auckland Regional Council.

- Baas, P.; Zhang, X. Y. 1986: Wood anatomy of trees and shrubs from China. I. Oleaceae. *IAWA Bulletin* 7(3): 195-220.
- Connor, H. E. 1977: *The poisonous plants of New Zealand*. ed. 2. DSIR Bulletin No. 99, Wellington.
- Craw, J. C. 1995: *Poisonous plants and fungi in New Zealand. A guide for parents, schools and child minders*. Northland Regional Council. 88 p.
- Esler, A. E. 1988: *Naturalisation of plants in urban Auckland*. DSIR Publishing, Wellington.
- Goulding, J. H. 1973: Privets. *Annual Journal of the Royal New Zealand Institute of Horticulture* 1: 45-48.
- Lancaster, R. 1989: *Travels in China. A plantsman's paradise*. Antique Collector's Club, Woodbridge, Suffolk, UK. 520 p.
- Little, C. 1981: A much-maligned plant [privet]. *New Zealand Farmer* 25 June 1981:104, 107.
- Little, C. 1982: How to control privet. *New Zealand Journal of Agriculture, October 1982*: 15.
- Rudman 2000: Privet big loser in street fight. *N. Z. Herald, 25 October 2000*: A5
- van Aalst, M. M. 1992: Seed ecology and vegetative regrowth of tree privet (*Ligustrum lucidum*). Unpublished *M. Sc. Thesis*, Botany, University of Auckland. 135 p.
- Wang, C. W. 1961: *The forests of China with a survey of grassland and desert vegetation*. Maria Moors Cabot Foundation Publ. No. 5. Harvard University, Cambridge, Massachusetts, USA. 313 p.
- Webb, C. J., Sykes, W. R., Garnock-Jones, P. J. 1988: *Flora of New Zealand. Vol. IV. Naturalised pteridophytes, gymnosperms, dicotyledons*. Botany Division, DSIR. 1365 p.
- Wodehouse, R. P. 1971: *Hay fever plants*. 2nd edition. Hafner, New York.
- Wu, Zheng-yi, Raven, P.H. 1996: *Flora of China*. Volume 15. Myrsinaceae through Loganiaceae. Science Press, Beijing and Missouri Botanical Garden. 387 p.



## Bot Soc Field Trip to Paremoremo Scenic Reserve, 16 Sept 2000

Rhys Gardner

Twenty or so of us gathered on a fine and not-as-brisk-as-it-can-be-here spring morning by the bridge over Paremoremo Creek, just beyond the prison, at the southern end of this the North Shore's largest reserve. We set out along the track (a modest Lands & Survey legacy) on the narrow floodplain at the foot of the escarpment, past kahikatea and large kanuka, kowhai and turepo, making for the creek's several rapids. It may have been these that gave the locality its name, one meaning of which (still appropriate in view of modern developments) is "slippery".

On reaching the first rapids we were pleased to find thriving quantities of *Gunnera monoica*, in the seepages over the cool mossy potholed beds of Albany Conglomerate, the light diffused in through the trees along the open eastern edge of the creek. *Loxsoma cunninghamii*, regionally uncommon, was here too on the creek banks, in a dozen or so discrete colonies most less than a metre or so in diameter. A plant we did not find, not that we realized Paremoremo to be one of its sites, was *Libertia pulchella*, collected by Margaret Sexton in 1957 (AK 54840).

Some disagreement surfaced when the question of transplanting some of the *Gunnera* was voiced — was it "playing God" or "playing with God"? Dithering continued as we went up and back along the prison-owned pasture on the extensive floodplain on the south side of the creek, and, not finding a good place to cross (the creek at this

higher end of the reserve is entrenched and without rapids) we contented ourselves with a furtive lunch under the streamside kanuka, totara, Hall's totara and tanekaha.

After lunch we reentered the reserve and began to climb up and down along the scarp. We passed over the site of the old "camp" as marked on the 1940s 1: 25000 topo. sheet, with its shell and glass (or was it obsidian?). At the base of the scarp nearabouts we saw numerous small deep pits, perhaps made by kauri-gum fossickers.

The eastern valley is one of the great secret places of Auckland's reserves, with half a dozen or so very large matai, rimu (one recently fallen) and kahikatea. The kauri on the ridges are perhaps not as large as those in the Albany Scenic Reserve but are quite numerous, and the seldom-visited pole kauri stand on the ridge in the valley's main fork is pristine with saplings, mosses and orchids. Hard beech is here too.

Numerous loquat and Chinese privet seedlings were pulled out from below the first large matai, but none of monkey-apple, even though young plants of this are all too common further back along the main creek. This circumstance, and the general lack of young matai, tends to suggest that there might be a not completely unexpected local scarcity of native pigeon here, and that the monkey-apple might be spreading not through the agency of these birds but by floating in from upstream properties.

