



Phyllocladus toatoa

Common Name(s):

Toatoa

Current Threat Status (2012):

Not Threatened

Distribution:

Endemic. New Zealand: North Island from about Awakino (in the west) and Lake Waikaremoana (in the east) north to Ahipara and Mangonui. There is an outlier population in the northern Kaimanawa Range. Somewhat uncommon and often absent over large parts of this range.

Habitat:

Found from sea level to c.1000 m a.s.l. Toatoa is generally associated with relatively infertile soils on exposed ridges, around bog margins, and on other poorly drained land.

Features*:

Small trees up to 15–25 m tall. Young or exposed plants conical in outline, shaded or enclosed plants with bushy, somewhat rounded, heavy crowns. Stems one or more, erect or leaning, strongly tapered, up to 900 mm diameter, with regular coppice and epicormic shoots. Branches distinctly whorled, robust, suberect, horizontal, or downturned with upturned ends, leaving prominent rounded to elliptic branch scars when shed, and characteristic raised ridges encircling the stems. Outer bark brown, grey-brown, or silvery-brown, at first smooth or lenticellate, persistent, later vertically fissured with prominent rounded or irregular lenticels, occasionally shedding in squarish or rectangular flakes; inner bark dark orange. Roots of mature trees plate-like, pegged, often with low rounded buttresses; mycorrhizal nodules or stub roots simple or branched, epidermal hairs abundant. Strong, erect, epicormic shoots from fallen layered stems. Cotyledons 2, 12–20 x 2–3 mm, submembranous, linear, acute, green above, glaucous beneath, stomata on lower surface only, veins 2, spreading horizontally or drooping, often strongly curved and horseshoelike, persistent. Juvenile leaves of seedlings and epicormic shoots 10–20 or more, 10–15 x 1–2 mm, submembranous, linear and needle-like, acute or obtuse, sometimes falcate, green above, glaucous beneath, stomata on lower surface only, single veined; spreading horizontally or curved downwards, persistent. Seedling phylloclades (flattened branch complex) 15–50 mm long, deeply pinnately lobed, determinate, subtended by juvenile leaves; transition to adult phylloclades gradual or rapid. Adult phylloclades 5–300 mm long, distinctly whorled, simple, or compound and pinnately lobed, determinate or indeterminate, subtended by scale leaves, each phylloclade consisting of 5–14 alternate, distichous, dorsiventral segments 20–80 x 20–40 mm, the segments very leathery, rhombic to flabellate with shallowly or deeply lobed or toothed, thickened, revolute margins, yellow-green, cup-shaped and amphistomatic when young, later flattened, green above, somewhat glaucous beneath, with stomata on lower surface only, subsessile or stalked. Resting buds 5–20 x 3–10 mm, characteristically coated with a white resinous film, consisting of few to many scale leaves, the outermost 0.5–15.0 mm long, subulate, erect, loosely imbricate, at first green with stomata on the lower surface, later reddish, the innermost 10–15 mm long on expansion, linear-obtuse to spatulate, at first green with stomata on the lower surface only, later reddish brown, deflexed and deciduous. Plants unisexual, with inconstant males and females. Male cones 5–20 in terminal whorled clusters, 15–30 x 5–10 mm at the widest point, cylindrical to wedge-shaped, each on a stout bracteate stalk 5–15 mm long; sporophylls many, each with 2 sporangia; pollen monad with 2 small sacci. Female cones distichous on basal regions of phylloclades, or more rarely on phylloclade segments; 0.5–0.8 x 0.5 mm, ovoid to globose, each on a short stout bracteate stalk and consisting of few to many spirally arranged cone bracts; fertile bracts supporting a single, erect, sessile, flask-shaped ovule, arillate at base. Seeds 3–4 x 2.5–3 mm, ovoid to squarish, dorsiventrally compressed, nutlike, dark brown to almost black, protruding when mature, and surrounded at the base by a white, thinly fleshy, crenulate or erose aril; micropyle distinct, curved to the ventral side.

Flowering:

October - December

Fruiting:

January - March

Threats:

Not Threatened. Toatoa has a patchy distribution and is often absent over large parts of its potential range. However, where it is present it is often locally common, typically forming dense stands of seemingly even-aged trees.

*Attribution:

Fact sheet prepared for NZPCN by P.J. de Lange 1 August 2004. Description adapted from Molloy (1996).

References and further reading:

Molloy, B.P.J. 1996: A new species name in *Phyllocladus* (Phyllocladaceae) from New Zealand. *New Zealand Journal of Botany* 34: 287–297.

Moorfield, J. C. (2005). *Te aka : Maori-English, English-Maori dictionary and index*. Pearson Longman: Auckland, New Zealand

For more information, visit:

http://nzpcn.org.nz/flora_details.asp?ID=1116



Caption: Awakino Scenic Reserve
Photographer: Bill Clarkson