

NSW SCIENTIFIC COMMITTEE

Determination for provisional listing of a critically endangered species on an emergency basis

The Scientific Committee, established by the *Threatened Species Conservation Act 1995* (the Act), has made a Determination for provisional listing, on an emergency basis, of the species *Hibbertia fumana* Sieber ex Toelken as an CRITICALLY ENDANGERED SPECIES in Part 1 of Schedule 1A of the Act. Provisional Listing of Critically Endangered species on an emergency basis is provided for by Part 2 of the Act.

The Scientific Committee has found that:

1. *Hibbertia fumana* Sieber ex Toelken (family Dilleniaceae) has been described by Toelken and Miller (2012) as a ‘Decumbent shrublet, prostrate, with many branches from the base, moderately to much branched; branches, wiry, with raised leaf bases shortly decurrent, shortly fascicled-pubescent. *Vestiture* persistent, consisting of more or less coarse simple hairs over fine fascicled hairs on tubercles; *on branches* more or less densely covered with short subequal multiangulate fascicled hairs (4–7 equal arms) and without simple hairs except for intrapetiolar tufts of hairs in leaf axils; *on leaves above* scattered, short antrorse fine bi- or triforked to simple hairs, sparse becoming denser onto the petiole, few simple hairs along the flanks, all wearing off soon; *on leaves below* dense, with short subequal multiangulate fascicled hairs (4–12 subequal arms) particularly on central vein, overtopped by few simple hairs on the flanks of the revolute margins; *on outer calyx* moderately outside dense, with spreading coarse antrorse simple hairs over erect-spreading multiangulate fascicled hairs (8–15 subequal arms), inside dense, with forked to simple antrorse hairs over most of surface; *on inner calyx lobes* outside dense with spreading multiangular fascicled hairs (2–12 subequal or unequal arms) becoming smaller towards the membranous margins, overtopped by coarse antrorse simple hairs along the central ridge, inside glabrous except for a few simple hairs towards the apex. *Leaves* with intrapetiolar axillary tuft of hairs up to 0.7 mm long; *petiole* 0.2–0.45 mm long; *lamina* narrowly oblong, rarely linear-elliptic, (1.9–) 2.1–3.1 (–3.3) × 0.5–0.8 mm, obtuse, with terminal tuft on a somewhat recurved apex of the central vein, more or less abruptly constricted into petiole, above ± flat and puberulous to glabrescent, below with broadened central vein recessed below the level of revolute margins and protruding into apex, pubescent to puberulous. *Flowers* single, terminal, commonly on main branches; *flower stalk* 2–8 mm long, recurved and elongating after flowering; *bract* linear to linear-triangular, 1–1.3 mm long, fascicled-pubescent, on lower third of flower stalk. *Calyx* distinctly accrescent, with lobes subequally long; *outer calyx lobes* lanceolate, 4.5–5.7 × 1.3–1.65 mm, acute to acuminate, without ridge, outside strigose-pubescent, inside finely strigose with antrorse forked hairs on much of the surface; *inner calyx lobes* oblong-ovate, 4.5–5.8 × 3.1–3.5 mm, usually cuspidate, outside strigose along the central vein and tomentose towards the margins, inside glabrous with few forked hairs at the apex. *Petals* obovate, 4–5.2 mm long, broadly bilobed. *Stamens* 5 or 6 (7), subequal, clustered on one side of the ovaries; *filaments* 0.4–0.6 mm long, basally connate; *anthers* broadly oblong, 1.3–1.4 mm long, ± abruptly constricted above and below. *Pistils* 2; *ovaries* obovoid but ± laterally compressed, each with 4 ovules, fascicled-tomentose, with style attached to dorsal apex then base recurved to the base and up on either side of the stamens with stigmas exposed above the anthers. *Fruit* and *seeds* unknown”.
2. *Hibbertia fumana* is endemic to New South Wales (NSW) and was considered to be extinct when described by Toelken and Miller (2012) as, at the time of description, the species was known from only three herbarium collections made in the early 19th Century. Two of these had vague collection details (viz. “near Sydney” and “occidental [western] Sydney”) and the third came from “near South Head”. The species is not currently listed in NSW under the Act or the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
3. *Hibbertia fumana* was rediscovered in Moorebank, at the Moorebank Intermodal Terminal Precinct (<http://simta.com.au/>), south-western Sydney, during flora surveys in October 2016. This site was re-surveyed in November 2016 when c. 100 individuals were located growing in the transition zone between Castlereagh Ironbark Forest and Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion (a listed Vulnerable Ecological Community under the Act) and with *H. pubula* (a listed Endangered species under the Act) (A. Orme *in litt.* November 2016). The population occupies an area of c. 5 ha (A. Orme pers. comm. November 2016).

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4. Little is known about the life history of *Hibbertia fumana*. Seed production has been observed and plants of different ages were observed within the only known population (A. Orme *in litt.* November 2016). The species does sucker (A. Orme *in litt.* November 2016) suggesting it may be able to resprouting from rootstock following fire.
5. *Hibbertia fumana* appears to have had a significant reduction in distribution over the last 200 years. Historically it was more widespread being recorded from both eastern (South Head) and western Sydney but is now believed to be extinct at these localities. Since there have been very few records of this species it may have always been rare and/or has suffered significant habitat loss during the early growth of Sydney.
6. The distribution of *Hibbertia fumana* is very highly restricted. As there is only one known population, the area of occupancy (AOO) and the extent of occurrence are both estimated to be 4 km². The AOO is based on a single 2 x 2 km grid cell, the scale recommended for assessing AOO by IUCN (2016).
7. The only known population of *Hibbertia fumana* is within the Moorebank Intermodal Terminal Precinct and is potentially threatened by habitat loss and degradation. Habitat at the site is disturbed with the population being traversed by a railway line. Infrastructure work in the area is likely to result in further habitat loss and disturbance facilitate weed invasion. Alterations to fire regimes in this isolated habitat fragment may also adversely affect the species.
8. *Hibbertia fumana* Sieber ex Toelken is eligible to be listed as a Critically Endangered species as, in the opinion of the Scientific Committee, it is facing an extremely high risk of extinction in New South Wales in the immediate future as determined in accordance with the following criteria as prescribed by the *Threatened Species Conservation Regulation 2010*:

Clause 7 Restricted geographic distribution and other conditions

The geographic distribution of the species is estimated or inferred to be:

- (a) very highly restricted,
and either:
 - (d) a projected or continuing decline is observed, estimated or inferred in either of the key indicators:
 - (a) an index of abundance appropriate to the taxon.
 - (b) the geographic distribution, habitat quality or diversity, or genetic diversity.
9. *Hibbertia fumana* Sieber ex Toelken is eligible to be provisionally listed in Schedule 1 as a critically endangered species as, in the opinion of the Scientific Committee:
 - (a) the species:
 - (ii) was presumed to be extinct in New South Wales but has been rediscovered, and
 - (b) the species is not listed in Part 1 of Schedule 1 or 1A.

Dr Mark Eldridge
Chairperson
NSW Scientific Committee

Exhibition period: 16/12/16 – 10/02/17

Proposed Gazettal date: 16/12/16

References:

Toelken HR, Miller RT (2012) Notes on *Hibbertia* (Dilleniaceae) 8. Seven new species, a new combination and four new subspecies from subgen. *Hemistemma*, mainly from the central coast of New South Wales. *Journal of the Adelaide Botanic Gardens* **25**, 71–96.