# *Hibbertia rufa*

## brown guineaflower

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Image by Mark Wapstra

**Scientific name:** ***Hibbertia rufa*** N.A.Wakef., *Vict. Nat.* 72(8): 119 (1955)
**Common name:** brown guineaflower (Wapstra et al. 2005)
**Group:** vascular plant, dicotyledon, family **Dilleniaceae**

**Status:** *Threatened Species Protection Act 1995*: **rare**
*Environment Protection and Biodiversity Conservation Act 1999*: **Not listed**

**Distribution:** Endemic status: **Not endemic to Tasmania**
Tasmanian NRM Region: **North**

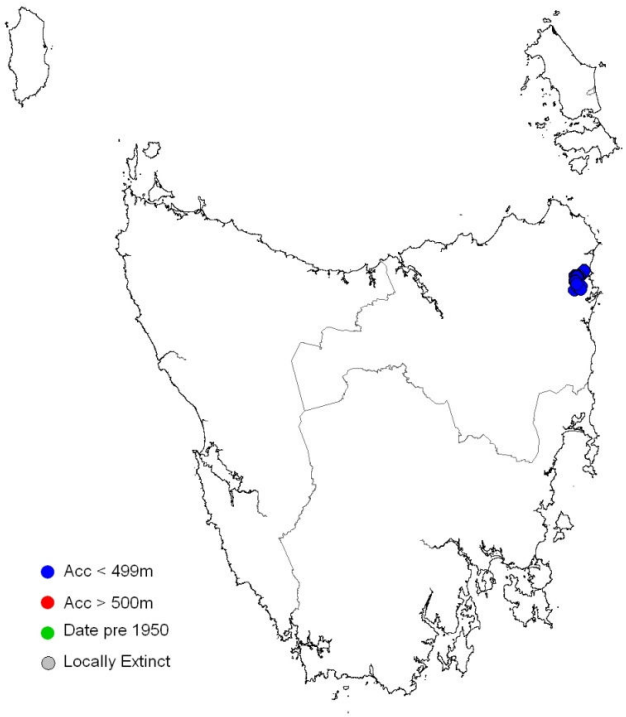


**Figure 1**. Distribution of *Hibbertia rufa* within Tasmania

**Plate 1.** *Hibbertia rufa* showing the characteristic white tufts at the ends of leaves (image by Roy Skabo)

## IDENTIFICATION AND ECOLOGY

*Hibbertia rufa* is a prostrate to scrambling woody plant with often tangled slender, wiry and reddish stems that trail loosely along the ground. It flowers in spring to summer (Toelken 1996). However as the flowers are relatively inconspicuous, detection of the species is only marginally enhanced during the peak flowering season making the timing of survey not critical. Detection may be aided by the presence of obvious brown capsules from late summer and sunny weather to better see the reddish branchlets.

*Hibbertia rufa* is probably pollinated by native bees and as the seed is relatively large and heavy, most seed is likely to be dispersed in the immediate vicinity of existing plants, perhaps explaining the often locally abundant distribution of the species. The species can also reproduce vegetatively with trailing stems rooting at nodes at times. The ecology of *Hibbertia rufa* is likely to be closely linked to fire events, as is maintenance of wet heathland patches in which it occurs. Fire is likely to create recruitment niches for the species.

### Description

The leaves of *Hibbertia rufa* are glabrous or covered in minute erect soft hairs. They are 3 to 8 mm long and 0.8 to 1.4 mm wide and are shortly stalked (petioles 0.2 to 0.5 mm long) and lance-shaped with a heart-shaped base. The narrow margins are bent backwards and the tip is acute to bluntly pointed with a minute tuft of white hairs. The flowers are approximately 12 mm in diameter and have bright yellow petals, red tinged sepals and characteristically glabrous carpels (containing the ovaries). The solitary flowers have 3 to 4 stamens and occur on 3 to 20 mm long peduncles, mostly at the ends of reddish-brown short shoots with 3 bracts at the base. The fruit is a 1 to 4 seeded capsule.

[description from Curtis & Morris 1975, Toelken 1996, ECOtas 2009; Plate 1.]

### Confusing species

In the field, *Hibbertia rufa* most closely resembles *Hibbertia acicularis,* though the latter species tends to occupy better-drained more open sites and it has a more open diffuse spreading to ascending growth habit, leaves that terminate in an often prickly awn and carpels that are covered in short matted or velvety hairs (ECOtas 2009).

**Plate 2.** Habitat of *Hibbertia rufa,* Last River heathlands (image by Jennifer Skabo)

## DISTRIBUTION AND HABITAT

On the mainland this species occurs in Victoria, New South Wales and Queensland. In Tasmania, *Hibbertia rufa* was known only from the St Helens area where it was collected in 1892 until its rediscovery in late 2008 (Skabo 2008, 2009, Wapstra et al. 2009). It is now known to have a restricted distribution, occurring between Priory and Thomas Creek (Figure 1). The linear range of the taxon is approximately 14 km, the extent of occurrence 53 km$^2$ and the area of occupancy has been estimated (M. Wapstra pers. comm.) to be in the order of 5 to 20 hectares.

In Tasmania, *Hibbertia rufa* occurs mainly in wet heathland but also extends through to buttongrass moorland and occasionally sedgy-scrubby *Eucalyptus ovata – E. amygdalina* forest/woodland (ECOtas 2009). It occurs in the transition zone between dry heathy woodland and denser wet heathland and is almost wholly restricted to very gentle slopes in the low-lying areas (Plate 2). Most sites are dominated by low sclerophyllous shrubs and a dense ground layer of sedges and rushes (Plate 3).

## POPULATION ESTIMATE

Until rediscovered in December 2008, *Hibbertia rufa* was known in Tasmania from a single 1892 collection from the St Helens area (ECOtas 2009). Extension surveys, prompted by the rediscovery by field naturalist Roy Skabo, found the species to be present in 26 of approximately 85 potential sites that were surveyed in an effort to delineate the distribution of the species (ECOtas 2009).

Though it can be relatively inconspicuous amongst surrounding vegetation, *Hibbertia rufa* is not difficult to identify and it can be identified year round. However, imprecise location details of the 1892 collection, a lack of understanding of the habitat of the species in Tasmania prior to its rediscovery and a relatively restricted distribution may have contributed to the species having avoided detection in Tasmania for 116 years.

*Hibbertia rufa* is known from about 15 locations (Table 1), defined for this species as discrete wet heathlands that act as effective barriers to events such as broadscale fires (ECOtas 2009). However, the number of subpopulations and area occupied are difficult to estimate as the species often occurs in long narrow bands with intermittent gaps or as mosaics amongst patches of habitat not preferred by the species i.e. occurring between patches of open heathy/shrubby forest/woodland and dense shrubby vegetation of the most poorly drained parts of wet heathland. This and the growth habit of the species make the estimation of the number of individuals difficult though it is probable that the total population substantially exceeds 10,000 mature individuals (ECOtas 2009). The Bells Marsh and Last River occurrences are possibly the largest (M. Wapstra pers. comm.).

**Plate 3.** *Hibbertia rufa,* growing amongst sedges and rushes (image by Mark Wapstra)

## RESERVATION STATUS

*Hibbertia rufa* is reserved in the Bells Marsh Forest Reserve and Doctors Peak Forest Reserve.

## CONSERVATION STATUS

*Hibbertia rufa* was listed as extinct on the Tasmanian *Threatened Species Protection Act 1995* when the Act came into being. The species was downlisted to rare in March 2011, meeting the following criteria:

(A) A taxon of limited distribution or numbers, threatened by existing on-going processes occurring over sufficient of their range to suggest that they would satisfy the indicative criteria for vulnerable unless the threatening process was abated based on:

1. The extent of occurrence is less than 80 x 80 km or 2,000 km$^2$;
2. The area of occupancy is not more than 0.5 km$^2$ (50 hectares).

**Table 1.** Site summary for *Hibbertia rufa* within Tasmania

| | Site# | Tenure | NRM region * | 1:25 000 mapsheet | Year last seen | Abundance/extent |
|---|---|---|---|---|---|---|
| **1** | Albion Creek (centre) | State forest | North | Binalong | 2009 | Localised site |
| **2** | Badger Marsh | State forest | North | Blue Tier | 2009 | Localised to two main patches on eastern side of marsh |

| | Site# | Tenure | NRM region * | 1:25 000 mapsheet | Year last seen | Abundance/extent |
|---|---|---|---|---|---|---|
| **3** | Bells Marsh (centre) | State forest/Bells Marsh Forest Reserve | North | Blue Tier | 2009 | Extensive throughout much of marsh along 330 m strip |
| **4** | Bells Marsh (south) | State forest | North | Blue Tier | 2009 | Extensive throughout much of marsh along 320 m strip |
| **5** | Chaplins Road (north of) | State forest | North | Spurrs Rivulet | 2009 | Localised to southeastern corner of buttongrass sedgeland, c. 5 x 10 m |
| **6** | Charlies Marsh (north) | State forest | North | Blue Tier | 2009 | Localised to eastern fringe of drainage line |
| **7** | Charlies Marsh (south) | State forest | North | Blue Tier | 2009 | Localised to western (lower) end of wet heathland near dense thickets of teatree |
| **8** | Dead Horse Creek (S of Chaplins Road) | State forest | North | Blue Tier | 2009 | Locally common in several patches including on eastern side of marsh |
| **9** | Fight Creek (downstream of old dam) in Rattrays Marshes | Doctors Peak Forest Reserve | North | Blue Tier | 2009 | Presumably widespread, easily located but no extensive search |
| **10** | Fight Creek (E of Ansons Bay Road) | Doctors Peak Forest Reserve | North | Blue Tier | 2009 | Localised to eastern side of shrubby drainage line and single small patch on western side of drainage line |
| **11** | Fight Creek (east of), N of Fire Road | Doctors Peak Forest Reserve | North | Spurrs Rivulet | 2009 | Locally abundant along most of 230 m strip |
| **12** | Fight Creek (far south) | Doctors Peak Forest Reserve | North | Blue Tier | 2009 | Widespread and locally abundant in 3 patches |
| **13** | Fight Creek (S of Fire Road) | Doctors Peak Forest Reserve | North | Blue Tier | 2009 | Locally common in over 20 patches along most of 700 m of the marsh and the top and bottom arms of the marsh |
| **14** | Fight Creek (west of), N of Fire Road | Doctors Peak Forest Reserve | North | Spurrs Rivulet | 2009 | Localised to patches along 55 m |
| **15** | Forester Creek headwaters (W of Ansons Bay Road) | State forest | North | Blue Tier | 2009 | Localised site |
| **16** | Gardens through-road (north) | State forest | North | The Gardens | 2009 | Locally frequent along 100 m strip |
| **17** | Gardens through-road (south/west) | State forest | North | The Gardens | 2009 | Dense in 2 main patches in 100 x 50 m area |
| **18** | Kates Marsh | State forest | North | The Gardens | 2009 | Locally common in lower end of heathland along 100 |

| | Site# | Tenure | NRM region * | 1:25 000 mapsheet | Year last seen | Abundance/extent |
|---|---|---|---|---|---|---|
| **19** | Last River (eastern tributary), N of Fire Road | Doctors Peak Forest Reserve | North | Blue Tier, Spurrs Rivulet | 2009 | Locally frequent, widespread over 350 x 100 m oblong |
| **20** | Last River (middle tributary, east), N of Fire Road | Doctors Peak Forest Reserve | North | Blue Tier, Spurrs Rivulet | 2009 | Locally abundant in patches over ~ 230 x130 m |
| **21** | Last River (middle tributary, west), N of Fire Road | Doctors Peak Forest Reserve | North | Blue Tier | 2009 | Localised in 3 patches |
| **22** | Last River (south of Fire Road) | Doctors Peak Forest Reserve | North | Blue Tier | 2009 | Widespread in 2 main areas in a 230 x 50 m oblong |
| **23** | Last River, east of (south of Fire Road) | Doctors Peak Forest Reserve | North | Blue Tier | 2009 | Site of rediscovery |
| **24** | Priory Marsh (north), E of Ansons Bay Road | State forest | North | Blue Tier | 2009 | Highly localised to northern end of heathland |
| **25** | Priory Marsh North (W of Ansons Bay Road) | State forest | North | Blue Tier | 2009 | Localised |
| **26** | Priory Marsh (south) | State forest | North | Binalong | 2009 | Highly localised to one patch in heathland |
| **27** | Rattrays Marshes (east) | Doctors Peak Forest Reserve | North | Blue Tier | 2009 | Locally abundant on eastern side of 1500 m shrubby drainage line at grid references but searches localised only |
| **28** | Thomas Creek (south) | Private property | North | The Gardens | 2009 | Localised along 100 m |

# Sites as per ECOtas (2009)
* NRM region = Natural Resource Management region

## THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Despite its relative abundance, *Hibbertia rufa* is of conservation concern due to its restricted distribution though risks can be alleviated through appropriate management. Potential threats to the species are detailed below.

***Phytophthora cinnamomi*:** The potential for the species to be susceptible to the root rot pathogen is probably the greatest risk to the species (ECOtas 2009). Several species of *Hibbertia* are highly susceptible, though no disease symptoms have been noted in *Hibbertia rufa* to date, even in areas disturbed by tracks that may have allowed exposure to the pathogen.

**Land clearing:** Approximately 10% of the potential range of *Hibbertia rufa* has been converted to pasture though it is not known whether these areas originally supported the species. How far the species extends to private land within the Last River catchment and to the north of the currently known distribution is not known.

**Dam construction:** As virtually all known sites for *Hibbertia rufa* are in low-lying areas suitable for water storage, new dam proposals have the potential to impact the species. There have been dams within the Rattrays Marsh system with the species widespread and locally common below the old dam wall and absent

from the poorly drained ex-dam site (ECOtas 2009).

**Geothermal energy:** A site that may be suitable for the production of geothermal energy has been identified in the Doctors Peak Forest Reserve. Existing regulatory processes should ensure the avoidance of an impact to the species should a power station be constructed in the area.

**Inappropriate fire regime:** The absence of the species in some long unburnt densely shrubby heathland suggests that leaving heathlands unburnt for too long may be detrimental. It is likely that the species would benefit from fuel reduction burning to maintain a mosaic of different density heathlands.

**Forestry operations:** All but one of the known sites occur in State Forest or in Forest Reserves managed by Forestry Tasmania. However, open heathlands are generally excluded from timber harvesting operations with an informal buffer limiting direct impacts to *Hibbertia rufa*. Peripheral activities such as fire management, track or road construction or providing for public recreational activities that have the potential to impact on populations can be adequately managed through existing planning processes. As an added precaution, Special Management Zones (Orr & Gerrand 1998) now incorporate all sites on State Forest that are not included in Forest Reserves in order to ensure that planned activities take account of the species' presence and potential presence.

**Weeds and grazing:** The long history of stock grazing on the different heathlands supporting *Hibbertia rufa* appears to have had little detrimental impact on the species and none of the known sites support significant weed populations (ECOtas 2009). However, recommencement of grazing is not advocated because of the risk of weed invasion.

## MANAGEMENT STRATEGY

### What has been done?

Following the rediscovery of *Hibbertia rufa*, the Northern NRM Region commissioned extension surveys and a report addressing the conservation status including threats and management needs (ECOtas 2009). A field day involving Forestry Tasmania and other interested parties to see the species in its habitat and to discuss management was held in 2009.

The wider botanical community has been informed of the rediscovery of the species. Some seed has been collected for long term conservation storage at the Tasmanian Seed Conservation Centre at the Royal Tasmanian Botanical Gardens.

### Management objectives

- prevent the loss of known sites;
- ensure that sites are managed appropriately;
- elucidate the full range of the species.

### What is needed?

Most of the following recommendations are adapted from ECOtas (2009):

- determine susceptibility to *Phytophthora cinnamomi*;
- complete extension surveys, particularly on potential private land sites, to better define the northern extent of the species;
- monitor the species before and after fire to improve understanding of regeneration and recruitment in order to better inform fire management prescriptions;
- provide information and extension support to relevant Natural Resource Management committees, Forestry Tasmania, local councils, government agencies and the local community on the locality, significance and management of known sites;
- supplement the collection of seed for long term conservation storage;
- pursue a Public Authority Management Agreement between Forestry Tasmania and the Department of Primary Industries, Parks, Water and Environment for management of the species.

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**View:**
www.dpipwe.tas.gov.au/threatenedspecieslists

**Contact details:** Threatened Species Section, Department of Primary Industries, Parks, Water and Environment, GPO Box 44, Hobart, Tasmania, Australia, 7001. Ph (03) 6233 6556; fax (03) 6233 3477.

**Permit:** It is an offence to collect, disturb, damage or destroy this species unless under permit.