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## *LOMATIA TASMANICA* - A RARE ENDEMIC PLANT FROM TASMANIA'S SOUTH-WEST

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### Introduction

*Lomatia tasmanica* W.M. Curtis (Proteaceae) is a distinctive shrub first described by Curtis (1967). It is known only from one location on the southern foothills of the Bathurst Range, near Cox Bight. The species was found originally by Denny King on the New Harbour Range, but it has since disappeared from that area. When he returned to collect more specimens, he was unable to find any, a thick tangle of *Bauera rubioides* having grown up in the place where the *Lomatia tasmanica* was previously established. No details of the previous vegetation are known, and it is not possible to say whether the species was eliminated from the area by fire or by other means. Subsequently however, Mr. King found the species at the present location on the Bathurst Range, and in 1965 he found it in flower (Curtis and Stones, 1976). Further searches in similar habitats by other botanists have failed to find any more populations of the species (A. Moscal, pers. comm.)

This article outlines the habitat of the species and offers some comments on the extant population.

### Habitat

*Lomatia tasmanica* grows in a mixed forest, consisting of *Eucalyptus nitida* to 25m over a 13-18m implicate rainforest (Jarman *et al.* 1984) dominated by

myrtle (*Nothofagus cunninghamii*), celery-top pine (*Phyllocladus aspleniifolius*) and leatherwood (*Eucryphia lucida*). The understorey consists of a mid-dense 2-8m shrub layer of native laurel (*Anopterus glandulosus*), horizontal (*Anodopetalum biglandulosum*) and native plum (*Cenarrhens nitida*) and a patchy ground layer of *Blechnum watsii*. A checklist of species encountered in the mixed forest is given in the Appendix.

Of particular interest is the occurrence in the mixed forest of a good population of tree-form *Dracophyllum milliganii*. This species usually grows as a rosette shrub on the western mountains, but is also found occasionally growing as a tall shrub or low tree in the forests of the west and south. In these situations it has a form which closely resembles *Richea pandanifolia*.

The mixed forest occurs on the slopes above a button grass plain, separated from the plain by a dense 25-30m belt of scrub which is 4-6m tall. Species observed in these vegetation types are also listed in the Appendix.

### The *Lomatia tasmanica* Population

The species occurs over an area of about 2-3ha in the mixed forest, growing from an altitude of 80m to 280m. A range of diameter classes to c. 7cm were observed, but no seedlings were found. Some small plants which appeared to be seedlings were each found to be attached to single large roots arising from nearby larger plants. It appears that the population is maintained by such root suckers and from coppice. For the most part, the individual stems are tall, thin and spindly, and branch near the top. The leaves tend to be bunched at the ends of the branches. A few old flower spikes were seen, but there was no evidence of any fruits or seeds. The tallest plants were 6-8m high and are apparently very old. Two stem sections have been aged for us by T. Bird (Division of Forest Research, C.S.I.R.O.). One was 2cm diameter and about 60 years old. The second one (from a piece of dead wood belonging to D. King) was 6.3cm diameter and had 240 growth rings. However the rings were poorly formed and difficult to count.

The stand appears to be under no imminent threat, except for the everpresent one of wildfire. The fact that it is growing in mixed forest perhaps argues for a capability to withstand infrequent hot fires. If so, protection following such a fire would be necessary at least until the forest has adequately regenerated and the current fuel moisture differentials between the forest and plains have re-established.

The lack of seed is problematical. Dr. Curtis has suggested that the species may be of hybrid origin (*pers. comm.* to A.M. Gray). If so, then the parents are presumably *Lomatia polymorpha* (which grows in the vicinity) and a "phantom" second parent, possibly *Lomatia tinctoria*. However the nearest recorded population of *L. tinctoria* is at Recherche Bay, 50km to the east of the *Lomatia tasmanica* stand (Brown *et al.* 1983). It is possible that the present population might consist of only one or a few genetically distinct individuals which arose by hybridisation in the past, and which have since spread by vegetative means to cover the present area of distribution. A hybrid origin would account for the apparent sterility of the plants. Their apparent fitness may then only be relevant to the mixed forest environment, so that the plants could become extinct with a drastic change in fire regime. Thus whilst plants apparently coppice and sucker freely in the mixed forest, they may not necessarily be able to cope with fires at more frequent intervals.

### Discussion

The reasons for our visit to the *Lomatia tasmanica* stand were to collect herbarium specimens, to assess the condition of the stand and to collect some material for propagation of the species in the Botanical Gardens. Rare species such as this require very careful management if they are to persist. By taking the species into cultivation it is possible to "spread the risk" in the eventuality of a disaster eliminating the only known wild population (cf. Leigh *et al.* 1984). Such a programme needs to be planned so as to minimise the disturbance to the wild population, and to prevent its over-collection or unnecessary depletion. The programme also needs to be documented fully, so that known sources are available if it becomes necessary to re-introduce the species in the wild. Cuttings are now established at the Botanical Gardens and we wait with interest to see whether they will flower and set fruit.

### Acknowledgements

We thank K. Gillanders, A. McGeary-Brown, P. Meagher and especially Deny King for their assistance on the field trip and we also thank T. Bird for doing the ring counts.

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## APPENDIX

Vascular plant species observed in the vicinity of the *Lomatia tasmanica* population. Species occurring in the mixed forest, scrub and buttongrass plain are indicated by m, s and b respectively. \* = Tasmanian endemic. Unless indicated the authorities are those used by Curtis (1963, 1967), Curtis & Morris (1975), Willis (1970) and Jones and Clemesha (1976).

### PTERIDOPHYTA

Aspidiaceae

Blechnaceae

*Polystichum proliferum*: m

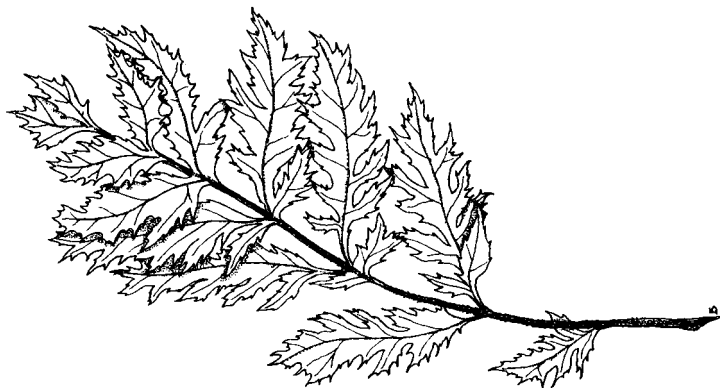
*Blechnum nudum*: m

	<i>Blechnum watsii</i> : m
Dicksoniaceae	<i>Dicksonia antarctica</i> : m
Gleicheniaceae	<i>Gleichenia dicarpa</i> : m
	<i>Gleichenia microphylla</i> : s, m
	<i>Sticherus tener</i> : m
Grammitidaceae	<i>Grammitis billardieri</i> : m
Hymenophyllaceae	<i>Hymenophyllum flabellatum</i> : m
	<i>Hymenophyllum rarum</i> : m
Tmesipteridaceae	<i>Tmesipteris billardieri</i> : m
GYMNOSPERMAE	
Podocarpaceae	* <i>Phyllocladus aspleniifolius</i> : m
ANGIOSPERMAE: DICOTYLEDONAE	
Apiaceae	<i>Actinotus bellidioides</i> : b
	<i>Actinotus suffocata</i> : b
	* <i>Osschatzia saxifraga</i> : b
Araliaceae	* <i>Pseudopanax gunnii</i> (Hook. f.) W.R. Phillipson: m
Asteraceae	* <i>Helichrysum pumilum</i> : b
	* <i>Olearia persoonioides</i> : m
Cunoniaceae	* <i>Anodopetalum biglandulosum</i> : m
	<i>Bauera rubioides</i> : b, s
Elaeocarpaceae	* <i>Aristotelia peduncularis</i> : m
Epacridaceae	* <i>Archeria hirtella</i> : m
	<i>Cyathodes juniperina</i> : m
	* <i>Dracophyllum milliganii</i> : m
	* <i>Monotoca submutica</i> (Benth.) S.J. Jarman: m
	* <i>Prionotes cerinthoides</i> : m
	<i>Sprengelia incarnata</i> : b, s
	* <i>Trochocarpa gunnii</i> : m
Escalloniaceae	* <i>Anopterus glandulosus</i> : m
Eucryphiaceae	* <i>Eucryphia lucida</i> : m
Fagaceae	<i>Nothofagus cunninghamii</i> : m
Mimosaceae	<i>Acacia verticillata</i> : m
Monimiaceae	<i>Atherosperma moschatum</i> : m
Myrtaceae	* <i>Baeckea leptocaulis</i> : b
	<i>Eucalyptus nitida</i> : b, s, m
	* <i>Leptospermum glaucescens</i> : m
	<i>Leptospermum nitidum</i> : b, s
	<i>Melaleuca squamea</i> : b, s
	<i>Melaleuca squarrosa</i> : b, s
Proteaceae	* <i>Agastachys odorata</i> : b, m, s
	<i>Banksia marginata</i> : b, s
	* <i>Cenarrhenes nitida</i> : m
	* <i>Lomatia polymorpha</i> : m
	* <i>Lomatia tasmanica</i> : m
	* <i>Persoonia muelleri</i> (P. Parm.) Orch.: m
Rubiaceae	<i>Coprosma nitida</i> : m
Rutaceae	<i>Boronia citriodora</i> : b
	<i>Boronia pilosa</i> : b

- Scrophulariaceae      *Phebalium squameum*: m, s  
                               \**Euphrasia gibbsiae* ssp. *kingii* (W.M. Curtis)  
   W.R. Barker: b  
 Stylidiaceae          *Stylidium graminifolium*: b  
 Winteraceae          *Tasmania lanceolata* (Poir) A.C. Sm.: m

## ANGIOSPERMAE: MONOCOTYLEDONAE

- Cyperaceae            *Gahnia grandis*: m, s  
                               *Gymnoschoenus sphaerocephalus*: b, s  
                               *Lepidosperma filiforme*: b  
                               *Schoenus tenuissimus*: b  
 Haemodoraceae      \**Haemodorum distichophyllum* Hook.: b  
 Iridaceae              \**Isophysis tasmanica* (Hook.) T. Moore: b  
 Restionaceae        *Calorophus elongatus*: s  
                               *Empodisma minus* (Hook. f.) L.A.S. Johnson &  
   Cutler: b  
                               *Leptocarpus tenax*: b  
                               *Lepyrodia tasmanica*: b  
                               *Restio complanatus*: b  
                               \**Restio monocephalus* R.Br.: b

Leaves of *Lomatia tasmanica* - Drawing by Fred Duncan

**A RECORD FROM TASMANIA OF A MAINLAND AUSTRALIAN  
FUNNELWEB SPIDER, *ATRAX FORMIDABILIS* (ARANEIDA:  
HEXATHELIDAE)**

*Alison Green and Elizabeth Turner*  
Tasmanian Museum, Hobart

Sometimes an invertebrate animal from the mainland of Australia is found unexpectedly in Tasmania. One such interstate traveller would not be welcome as a fellow passenger!

On the 17th March, 1985, Mr. J. Wilson found a large spider floating on the surface of a swimming pool at his home in Casuarina Crescent, Berriedale, Tasmania. He caught it in a net and presented it, still alive, to the Tasmanian Museum. The specimen was recognised as a male funnelweb spider belonging to genus *Atrax*.

Two species of *Atrax* are native to Tasmania. *Atrax venenatus* Hickman, 1927, known as the Tasmanian Funnelweb Spider, is widespread in the eastern half of the island. *A. pulvinator* Hickman, 1927, is a rare species found near Hobart and known only from females.

We suspected that the Berriedale spider differed from these local species. One of us wished to kill it and check its identity promptly. The other was arranging a display of live redback and funnelweb spiders in the museum's Zoology Gallery and the arrival of this large example, just as the exhibit was being set up, seemed too good an opportunity to miss. The spider gained a reprieve while it was put on show for visitors. Like most funnelwebs, it was very aggressive and nobody wished to examine it under a microscope while it was alive!

On the 22nd March, 1985, the live spiders and a tiger snake, on display in the Tasmanian Museum, were filmed by the Australian Broadcasting Corporation so our large funnelweb was featured on "The National" television programme that night.

The spider died, of natural causes, on the 6th April, 1985. After spending the rest of Easter in a freezer, it was examined closely at last. It could not be placed in a Tasmanian species. Evidence suggested the Northern Tree Funnelweb Spider, *Atrax formidabilis* Rainbow, 1914, as the most likely possibility. In particular, the ornamentation of the 2nd leg matched that of a male of *A. formidabilis*.

Our spider from Berriedale was examined by Mr. M.R. Gray of the Australian Museum, Sydney, who identified it positively as *A. formidabilis*. This species occurs in New South Wales and southern Queensland. There is an isolated population in the Illawarra district of New South Wales but its main distribution is north of the Hunter River (Gray, 1981, p. 265). Tree funnelwebs often live in cavities in rough-barked trees but ground-dwellers also occur. Male spiders wander to look for females, especially in summer and autumn.

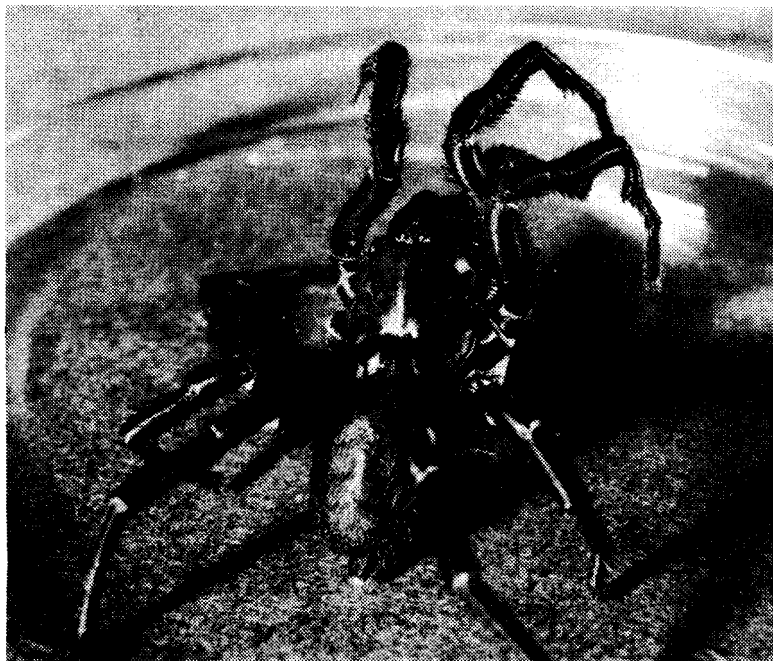
In *A. formidabilis* the body length may reach 35mm for a male and 50mm for a female. The body of the Berriedale spider is 26mm long, chelicerae (which bear the fangs) excluded. In *A. venenatus* the range of body length for males is 18-22mm (Hickman, 1967, p. 21). However, the Tasmanian Museum has a female of *A. venenatus*, from Coles Bay, whose body is 29mm long. *A. pulvinator* is a smaller spider (body length 17mm).

No human deaths have been attributed with certainty to *A. formidabilis*. However, the bite of this species can cause severe envenomation, making its victims very ill. An antivenom which has been developed for treating bites of the Sydney Funnelweb Spider, *Atrax robustus* Cambridge, 1877, neutralises the venom of *A. formidabilis* also (Sutherland, 1981, p. 70).

How a live specimen of *A. formidabilis* came to be in Tasmania is a mystery. The family at whose home it was found had visited Sydney earlier in the year. However, they travelled by plane and resided in the city itself so it is most unlikely that the spider stowed away in their luggage. In any case, *A. formidabilis* is not an inhabitant of Sydney.

There is a caravan park in Berriedale so the possibility that the spider came to Tasmania in a tourist's vehicle must be considered. However, the Berriedale Caravan Park and Casuarina Crescent are located on opposite headlands of Lowestoft Bay, on the shore of the Derwent River. The distance between them, by land, is almost 1km. This is further than the spider would be likely to walk (M.R. Gray, *pers. comm.*). Thus the travel arrangements of the unwelcome immigrant can not be explained.

The authors thank Mr. M.R. Gray, Australian Museum, for his identification and advice, Miss Erica Burgess for her photograph of the spider, and Mr. J. Wilson, Berriedale, for his significant gift to the Tasmanian Museum's collection.



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**WHITE-FRONTED TERN EGGS FROM BASS STRAIT IN 1924**

*R.H. Green*

Queen Victoria Museum, Launceston

The White-fronted Tern *Sterna striata* was first recorded breeding in Australia by Whinray (1979, 1980) following his finding of a small colony on Battery Island, Furneaux Group in January 1979. More were found breeding in the Furneaux Group in subsequent years.

Recently, while rehousing and cataloguing birds eggs in the Queen Victoria Museum, I found a set of White-fronted Tern eggs.

The accompanying data sheet reads:- "From the collection of P.B. Grubb, Ref No 114; Name *Sterna Striata* White-fronted Tern; Collected by Frank Washbourne; on 16-12-24 at Little Woody Island Bass Strait; No. of eggs in set two; Set mark 2/915; Identity Certain, Incubation Heavy; Nest was a small depression in the ground in Pig-face weed close to the shore a small colony nesting. Rare eggs in collection".

The presence of a few White-fronted Terns in Eastern Bass Strait during Summer has, for many years, suggested the possibility of local breeding but the great number of reefs, islets and such potential breeding sites in the Furneaux Group makes the task of finding small breeding colonies difficult and tedious. In the absence of dedicated survey work such as that undertaken by Whinray in recent years it is natural that such small breeding colonies could go undetected.

The clutch of White-fronted Tern eggs collected by Washbourne in 1924, together with the numerous references to over-summering birds spanning almost the last hundred years indicates that a few have always bred in the region. The recent findings of Whinray and others do not reflect an expansion of breeding distribution but rather the continued existence of a long established small local breeding population, possibly supplemented occasionally by New Zealand emigrants.

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