

COMMENTS ON THE CONSERVATION STATUS OF *SENECIO VELLEIOIDES* (FOREST GROUNDSEL) IN TASMANIA

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INTRODUCTION

The genus *Senecio*, generally referred to as groundsel or fireweeds, is one of the most species-rich genera in Tasmania, with 37 native and 4 exotic taxa (Baker & de Salas 2012). For many years the species were poorly-defined and consequently under-represented in collections in formal herbaria. However, with recent clarification of nomenclature and taxonomy (e.g. see Thompson 2006 and references therein), the identification of Tasmanian species has become easier, and many field botanists are becoming increasingly confident in assigning a name to a specimen. In recent years I have been penning some articles on individual species of *Senecio*, particularly those with an already legislated “threatened” status (e.g. *Senecio psilocarpus* – Wapstra (2010a); *Senecio georgianus* – Wapstra (2010b)) or that may warrant listing on schedules of the Tasmanian *Threatened Species Protection Act 1995* (e.g. *Senecio campylocarpus* – Wapstra (2011)). The present article is on an already listed species, *Senecio velleioides*, but is written for different reasons. This is a species that has always been well-defined and easily identified, is well-represented in formal herbarium collections, but its legislated conservation status has perhaps never matched its distribution and ecology.

Some history

Senecio velleioides (forest groundsel) was listed as “rare” (Schedule 5) on the promulgation of the Tasmanian *Threatened Species Protection Act 1995*. The basis for many of the initial listings on the Act was the information provided in *Native Higher Plant Taxa which are Rare or Threatened in Tasmania* (FAC 1994).

So how many records were there prior to 1995? The most recent information in the Department of Primary Industries, Parks, Water & Environment’s (DPIPWE) *Natural Values Atlas* (NVA) database, which incorporates collection information from the Tasmanian Herbarium, indicates that there were just 23 records. These collections represented a widespread distribution (Figure 1) but there was very little ecological information available to indicate if the species was naturally rare

(but widespread), simply under-collected and/or poorly surveyed, or if its distribution and abundance had already been reduced by anthropogenic activities. On this basis, a listing of rare (the lowest threat category) was probably reasonable and would allow for the species to be taken account of in land use management decisions.

What do we now know?

As with many of the so-called “rare” species on the Tasmanian *Threatened Species Protection Act 1995* initially included on the Act because of a perceived distribution, abundance or ecology that may place the species at some peril, the reality of the situation is far from that position. Unfortunately, it can take many years to gather sufficient information to reach such a conclusion, and even then it can be difficult to objectively identify the

factors that mean the species should no longer be considered “rare” and “threatened”.

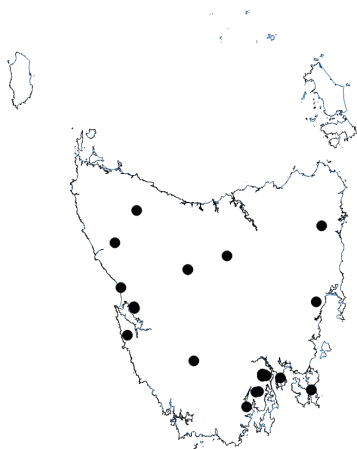


Figure 1. Pre-1995 distribution of *Senecio velleioides* (source: *Natural Values Atlas* data, downloaded 10.10.2012)

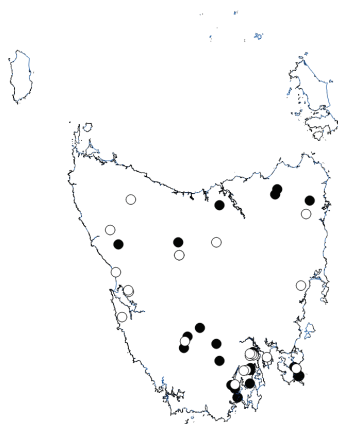


Figure 2. Current distribution of *Senecio velleioides* (source: *Natural Values Atlas* data, downloaded 10.10.2012); open points = pre-1995 records, solid points = post-1995 records

In the case of *Senecio velleioides*, the “real situation” is obvious to many field botanists. Many of us have pushed through dense stands of this species, colonising

clearfelled and/or burnt areas of wet sclerophyll forest, acting as a pioneer species (Plate 1) along with many other typical colonisers including several species of *Senecio*. But just because a species is common at one site does not mean it is common everywhere. Lots of our genuinely threatened species can be locally abundant. In the case of *Senecio velleioides*, however, it is usually locally abundant and less commonly occurs as isolated individuals or in small populations, and almost invariably occurs in disturbed situations.

Since 1995 (i.e. post-listing as a “threatened” species), there have been an additional 26 records added to the database (i.e. about double the number), providing quite a different picture of its Tasmanian distribution (Figure 2). There are now over 30 populations identified from Tasmania. A minimum convex polygon around all records estimates the extent of occurrence as 460,330 km², with a maximum linear range of 293 km.

Estimating the area of occurrence is somewhat trickier because many of the database records (including herbarium collections) are not accompanied by population information. This is where personal experience is needed to “fill the gaps”. My own knowledge of some sites suggests that the species can occupy 10s of hectares and number in the 1000s e.g. post-burnt coupes in the Southern Forests (Wapstra 2005; Plate 1). I have also seen the species growing within and along the edges of commercial hardwood (e.g. Simmonds Hill area on Forestier Peninsula) and softwood plantations (e.g. northeast of Scottsdale). One of the issues with the species is that it is relatively short-lived – like many colonisers of bare ground, it virtually disappears as the vegetation becomes denser and only re-appears after the next

disturbance event. This means that going back to see if the species is still at a particular locality indicated by a database is a bit meaningless. The map presented in Figure 2 is likely to change as this “geographically transient” species shifts itself around the landscape, its windblown seed taking advantage of gaps in the forest canopy.



Plate 1. *Senecio velleioides* growing in a clearfelled and burnt forestry coupe near Dover

Senecio velleioides is a species of wet sclerophyll forests, a forest type long targeted for commercial wood production in Tasmania. It could be argued that forestry activities have somehow artificially increased the distribution, and perhaps the abundance, of the species. If this is the case, a reduction in commercial forestry, or a shift in the method of wood production (e.g. cessation of high intensity regeneration burns in post-clearfelled coupes), could shift the populations back the other way. Should such a variable be taken into account in assessing the conservation status of a forest-dependent species like *Senecio velleioides*? Yes, it

should, but only in the context of the “original” ecology of the species. In this case, the species was always a “disturbance-phile” and the pre-1995 records probably represent a small fraction of the actual populations in Tasmania (simply a reflection of the paucity of surveys but also the transience of populations). Extensive and localised wildfires, windthrowing of isolated and large patches of trees, and maintenance of the huge network of forestry roads throughout Tasmanian wet forests will continue to occur, creating and maintaining habitat for the species.

A re-assessment of conservation status

So, do we have enough information to consider the species for removal from the Tasmanian *Threatened Species Protection Act 1995*. Fortunately, DPIPWE provides some guidelines on the criteria for listing species in various categories on the Act (DPIW 2009). The criteria for the rare category are as follows:

A taxon of native flora or fauna may be listed as rare if it has a small population in Tasmania that is not endangered or vulnerable but is at risk. The following criteria may provide evidence of the level of threat. In order to be considered as rare at least ONE of the criteria A-B should apply.

(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 (and specifying) any one of the following:

1. the extent of occurrence is less than 80 x 80 km or 2,000 km²;
2. the area of occupancy is not more than 0.5 km² (50 hectares);
3. taxa that are not A1 or A2 above, but that have very small and localised subpopulations wherever they occur

(generally no subpopulation with an area of occupancy greater than 0.01 km² (1 hectare) and no more than 1,000 mature individuals).

(B) Total population small or restricted and at risk in the form of EITHER of the following:

1. the total population consists of fewer than 10,000 mature individuals, and no more than 2,500 mature individuals occur on land that is in an area free from sudden processes capable of causing largely irreversible loss of individuals or habitat; OR

2. 90% of mature individuals occur in 15 or fewer subpopulations or locations and no more than 5 of these occur in an area that is free from sudden processes capable of causing largely irreversible loss of individuals or habitat.

So is *Senecio velleioides* “rare” under the criteria? The short answer is no. The longer answer is that the available evidence indicates that the species has an extent of occurrence, area of occupancy and total population abundance greater than the thresholds indicated in the guidelines for listing.

In my opinion, therefore, the key phrasing in these criteria is “rare...and...at risk”. If it could be argued that *Senecio velleioides* is “rare” (which I do not think it can, as stated above), all evidence points to the species being a “disturbance-ophile”, often occurring in very high numbers over extensive areas of heavily disturbed ground – this does not point to a species “at risk” from obvious anthropogenic events. So is it at risk from less easily defined anthropogenic threats such as climate change? The species does occur principally in wet sclerophyll and conceivably the extent of such forest could change with a warming climate, and even changes to the Tasmanian forest industry. But looking at the distribution of the species and the extent of wet forest, listing a species on the great unknown of how it

may respond to such a shift (in either climate or forestry practices) is not warranted (otherwise we would need to list virtually all native flora because we simply don’t know how they may respond to such factors).

The conclusion from this discussion is that while the original listing of *Senecio velleioides* as a threatened species under the Tasmanian *Threatened Species Protection Act 1995* is understandable, the species no longer qualifies as “rare” due to its extent of occurrence, number of populations, and response to disturbance.

ACKNOWLEDGEMENTS

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Addendum

Since writing this article, the author observed a massive population of *Senecio velleioides* in a recently (c. 2 years) burnt clearfelled forestry coupe off the southern end of Florentine Road, and a single specimen of the species under a quite long-established powerline easement running through open dry sclerophyll forest on South Arm, confirming the species as a disturbance-ophile of various habitat types.

In addition, a serendipitous encounter of a specimen being curated at the Tasmanian Herbarium indicated a new population that was apparently eradicated as a weed from a forestry area in the central north.

Note: The author is a member of both the Scientific Advisory Committee and Community Review Committee established under the *Tasmanian Threatened Species Protection Act 1995*. This article reflects the personal opinions of the author, not of any particular government agency or committee.