

**Taxonomic status of the Mauve Leek-orchid
Prasophyllum suttonii Rogers & Rees, 1912
(Orchidaceae)**

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Taxonomic Status of the Mauve Leek-orchid *Prasophyllum suttonii* Rogers & Rees, 1912 (Orchidaceae)

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Abstract

The 1912 description of *Prasophyllum suttonii* was published in *The Proceedings of the Royal Society of Victoria*, based on a specimen collected by Dr. C.S. Sutton on the Mount Buffalo Plateau in 1902. The type-specimen was about nine years old, showing 'faint tints' (see **Fig. 2**), but the speculation on the actual colours was correct. *P. suttonii* was accurately identified in Victoria until the naming of *P. alpestre* from Mount Kosciuszko (Jones, 1998), with the statement about *P. suttonii* "The species may well be endemic to the Buffalo Plateau". Differences found between the type-specimen and the younger material were treated as being diagnostic to justify naming a new species. The type-specimen is now completely brown and distorted, but importantly the original illustration (**Fig. 3**) shows a comparable shape of the ovary with fresh material (**Fig. 4**), as this was used as one of the more obvious diagnostic characters to split the taxon. *Prasophyllum suttonii* was found to be common at the presumed type-locality in January, 2017, and Victoria's *P. alpestre* is treated here as a junior synonym.

Discussion

In the preparation of the book *Victoria's Summer Orchids* (Kuitert, 2017) colour illustrations of certain species of the leek-orchids were needed, including images of the localised forms for each species. Images of *Prasophyllum 'alpestre'* taken on the Baw Baw Plateau showed flower varieties with either free or connate lateral sepals. Such features are usually seen as being diagnostic characters and used in many publications to distinguish between similar species, or even groups, but both flower forms were found on the same spike at different locations, including the type-locality of *P. suttonii*.

After the description of *Prasophyllum alpestre* as a distinct species from *P. suttonii*, it was suggested that the latter was probably extinct. Despite many searches on the Mount Buffalo Plateau the actual type-form had not been recognised since 1902. Other *P. suttonii* specimens from the plateau area were re-identified as *P. alpestre*. It was thought *P. suttonii* perhaps occurred in shrub or tree habitats, and would flower earlier or only after fire (Dean Rouse, 2002). Stated flowering times: "December" for *P. suttonii*, (based on the single type-specimen, collected 28 December), whilst for *P. alpestre* it was "December to March" (Jones, 2006), thus no real difference, and no records of fires effecting the 1902 season were found. The flowers that featured free lateral sepals, spread in V-formation, matched perfectly with the original *P. suttonii* description

(**Fig. 2**) and left no doubt that this leek-orchid taxon was the 'lost' *P. suttonii*. With all these facts it was clear that this species was not extinct at all, but was only lost in taxonomy, and its status needed to be restored. To confirm its identity, it was essential to check the taxon at the type-locality.

The search for *Prasophyllum suttonii*.

A trip to the Mount Buffalo Plateau was planned for late January, the assumed best time of the season for the Mauve Leek-orchid to be flowering. Likely habitats were checked, starting with the first valley on the plateau, just above 1200 m altitude, where only a finished plant with seed-pods was found. None were found in the next valley up, and hopes for good flowering plants were fading, but at the third stop, Presta Valley, at 1470 m, it didn't take long to find the first flowering plants. They were common there, scattered over the grassy slopes and some had formed clumping groups near some large granite boulders (**Fig. 1**). Most plants were found on both sides of this valley on the higher parts of dry slopes, but a few were located in the bogs. A large number of flowers were browning and many were setting seed, thus well on their way out, looking like they had been in bloom for over a month. This was confirmed by some local orchid enthusiasts, whom were met on site, saying that many full-flowering plants can be found on the Mount Buffalo Plateau from about early January. ... (p.5)



Fig. 1 Habitat of *Prasophyllum suttonii* Rogers & Rees, 1912, at Presta Valley, the presumed type-locality where flowering peaks in January. The majority of plants were found on dry slopes in herb and grass fields, but a few occurred scattered in the lower boggy parts where *P. tadgellianum* dominated.

PRASOPHYLLUM SUTTONI, Rogers and Rees. (Orchidaceae).

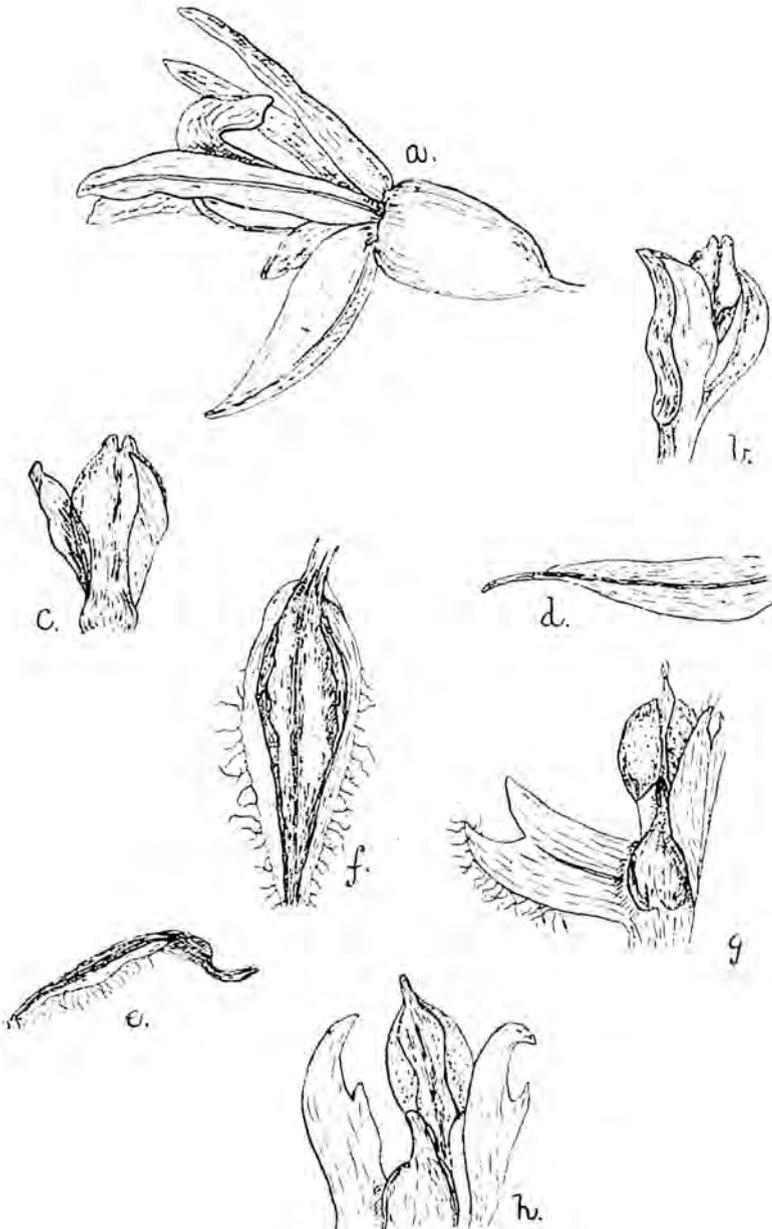
Buffalo Plateau, Victoria, Dr. Sutton, December, 1902.

Plant about 10 inches, fistula about 3 inches below spike, leaf about 2 inches. Spike consists of about 9 flowers, from which the colours have been discharged in the process of drying, although the faint tints on all the sepals and the dark tints on the column suggest that these have been purple. The petals look as though they had been white, with a coloured dark central streak.

Flowers very shortly stalked and subtended by a small semi-ovate bract about as broad as long. Lateral sepals about 4 lines, quite free, not gibbous, rather narrow lanceolate, dark stripe down middle, convex below, channelled on top (i.e., labellar side). Dorsal sepals about 3 lines, rather narrowly hooded, pointed, not recurved. Lateral petals broader and longer than lateral sepals, $4\frac{1}{2}$ lines, rather broadly linear with triangular tips, membranous, with dark stripe down middle. Lateral index 112. Labellum on short claw, obovate recurved at an angle of about 60 deg. at the middle, proximal part measuring about 2 lines from claw to bend, not gibbous, with entire margins, distal part measuring about 2 lines from bend to tip, latter rather broadly blunt and rounded, margins and surface almost entirely membranous, slightly crenulated; callous portion rather narrow, channelled, increasing in thickness towards the bend and ending slightly beyond the latter in 2 raised lines. Anther not pointed, hidden behind rostellum and much shorter than latter. Appendages of column large, reaching quite to level of rostellum, falcate, with small basal ovate lobe, adnate only to base of column. Rostellum voluminous, purple, much higher than anther, triangular. Stigmatic surface large. Ovary short (about $2\frac{1}{2}$ lines), turgid, obovate, on very short pedicel.

The species appears to be perhaps most closely allied to *P. fuscum*, though also related to other species. The examination and description of the plant was carried out jointly by Dr. Rogers and Miss Rees.

Fig. 2 An image of the original description page in *The Proceedings of the Royal Society of Victoria of Prasophyllum suttonii* by Rogers & Rees, 1912. A "line" is equal to 1/12 of an inch (2.117 mm). The form with lateral sepals "quite free" is much less common than the connate form. In many flowers checked at the type-locality and the Baw Baw Plateau, the connate lateral sepals started to separate, evident by the gap near the base. Some flower-spikes comprised a mix of both free and connate forms.



Prasophyllum, sp.

Fig. 3 Copy of the original drawings with the description. These were prepared from the type-specimen, which would have been about 9 years old by then. The flower "a" was inverted here, as originally it was drawn upside-down from the natural posture.

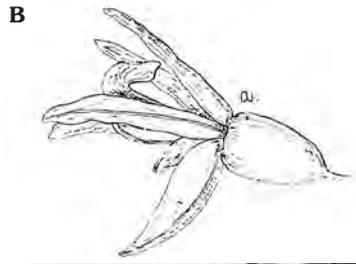


Fig. 4. **A/** Type-form at the type-locality. **B/** Original drawing of the flower. **C/** The flower from which the drawing above was probably made, showing distortion, especially evident in the shape of the ovary.

Prasophyllum suttonii

The vernacular name for *Prasophyllum suttonii* is Mauve Leek-orchid, which was based on the mauve or purple column features. It is locally common in the Alpine areas of Victoria, ranging into NSW. In Victoria it is usually found well above 1200 m. At Tamboritha Saddle it occurs at about 1300 m, whilst at most other places between 1400 and 1600 m. The type locality on the Mount Buffalo Plateau was at about 1450 m and this form ranges southwest to about the Bennison High Plains. Localised forms with slight differences occur on the isolated southern Baw Baw Plateau and the western location of Lake Mountain, but the taxon is variable like many other members of the genus. It is reported in NSW up to 2000 m as *P. alpestre* (Jones, 2006). In images from the ACT (RetiredAussies.com), many flowers look typical *P. suttonii*, and this appears to be the common form there. Most of the taxa of the genus *Prasophyllum* are variable in their morphology and in flowering times. They are influenced by seasonal conditions or locality, especially at the high alpine altitudes where it depends on the cold of Winter ending and arrival of the warmer Spring conditions, which can differ as much as by a month.

The flowering times of the *Prasophyllum suttonii* populations between the Baw Baw Plateau, Mount Tamboritha, and Lake Mountain, were found to be from about late December to March, but this may change from one season to the next, and plants may bloom over several months at a locality. A single

plant of *P. suttonii* with several open flowers was found on the Bennison High Plain on 25 December, 2016, at 1560 m altitude. In an area on Mount St Gwinear, part of the Baw Baw Plateau, the plants in one colony were in full flower the 11th of January, whilst plants in another colony at a slightly higher altitude on the same track, were only in bud, and fully flowering in mid-February. Flowering times or locality alone can not be used as a reason to split a taxon into separate species and has to be supported with actual diagnostic characters, based on reliable morphological differences. From finding the typical form at the presumed exact type-locality, and also learning about seasonal flowering times, only one conclusion could be made: **this leek-orchid was indeed the 'lost' *P. suttonii*.**

The flowers of *Prasophyllum suttonii* feature a crystalline white labellum, but a few pink forms were found during different seasons on the Baw Baw Plateau, and one at Lake Mountain. The petals are typically white with a central purplish stripe fading towards the tip, but they variable in spreading or curving inwards. Sepals are usually dark brown to purplish, but olive-green can be common in some locations. A certain variation may be dominant at a site, but in populations elsewhere different ones may be mixed. It was well known that in the Victorian Highlands the Mauve Leek-orchid had different flower forms since its early discovery. Identification by Rogers (1923) of some plants, on show from an expedition to Mount Bogong, was reported in the



Fig. 5 Typical *Prasophyllum suttonii* flower with free lateral sepals, at the presumed type-locality.

Victorian Naturalist journal as “*Prasophyllum Suttonii* (the connate sepals variety)” (form shown in **Fig. 6**). Distinguishing *P. alpestre* and *P. suttonii* from each other by the formation of lateral sepals or being gibbous (when connate) can be ruled out as both forms were found to be present on the same spike. At Presta Valley the labella were extremely variable in shape and margins ranged from smooth or entire to strongly undulate. Flowers with a broad labellum and lateral sepals in V-formation (Fig 4-A) could easily be misidentified as a *P. odoratum* form, but usually have the purple column appendages.

Prasophyllum suttonii was the only white-labellum leek-orchid found during the Summer in the Alpine regions of Victoria, and depending on the seasonal conditions can be locally common in good habitats. *P. alpestre* is a junior synonym in Victoria and this may apply in NSW as well. The Spring-condition flowering scented leek-orchids of the *P. odoratum* group were usually found below 1200 m altitude, where flowering is normally earlier than *P. suttonii* in the same region. The green *P. lindleyanum* is rarely sympatric (mixed colonies occur near Mount Tamboritha), and also flowers much earlier, usually has seed-pods when *P. suttonii* begins to flower. Flowering times may overlap at high altitudes with the often sympatric *P. tadgellianum*, but it usually occurs in the wetter habitats close to Alpine bogs. For pollination, the leek-orchid flowers with white labella primarily attract native bees, whilst flowers with dark labella target small wasps, and they rarely



Fig. 6 The connate sepals variety of *Prasophyllum suttonii*, at the presumed type-locality.

cross, but hybrid plants were found at Mount Baw Baw. Soldier beetles may be attracted to both species and were assumed to be responsible for hybridisation (Kuitert, 2017). In Presta Valley most *P. tadgellianum* were setting seed by the end of January and only a few flowers were recognisable as the species. Flowering times would overlap in December and early January.

Type-locality of *Prasophyllum suttonii*

A suggested possible site, where a Chalet was built in 1910 on a rocky outcrop, was the cattlemen’s camping ground at the end of the main trail and not a suitable leek-orchid habitat. Checking the history of Mount Buffalo (see listed websites), revealed that the main trail was carved out by pioneer cattlemen Edward Carlile and “Buffalo Bill” Weston whom had prepared the site for their crew. It became part of Carlile’s Hospice, built adjacent and “near the Otolith” on the “tundra”. It opened for guests in December 1891 and was advertised with “Guides & Horses Always Available”. According to reports in the *Victorian Naturalist* on a Mount Buffalo Camp-out (Coghill, 1904), participants were guided by cattlemen to the places of interest. Guides were required to the distant sites on the unmarked rough plateau tracks. Presta Valley, where *Prasophyllum suttonii* was found in large numbers in January, was crossed on foot or horse in their outings to the Hump (4 mls) or Horn (5.5 mls) and seemed to be the most likely locality where Dr. Sutton would have collected the specimens in 1902.

Measurements of flowers were made at several sites, including at Mount Buffalo, and the sizes were virtually the same in the original description of *Prasophyllum suttonii*. The plants vary in height in relation to habitat conditions and ground cover. The type was about 30 cm tall, but at some sites they averaged about 25 cm in a colony, whilst at others 40 cm, and a few plants measured 50 cm. Lengths of the inflorescence were more uniform, averaging approximately 8–10 cm when comprising about 10 open flowers. The variations caused by densities were similar at all localities. The top is most dense, especially when flowers are fresh and has buds present as well, which usually elongates over time. In general, the leek-orchid taxa growing amongst tall ground cover, and in favourable habitats can grow exceptionally tall with many more flowers.

Summary

When searching literature for the correct scientific name of a species, it is imperative to work first with original descriptions and illustrations. Descriptions and illustration by later authors may be based on additional plants that may include sibling taxa, that possible differ from the type-form. Most authors add information or have personal views of certain species, which is not always dependable. Often information is second hand, taken from various sources that may include incorrect data from other authors. To identify a true species from a group of sibling taxa complexes, typically comprising almost identical looking species, the type-locality plays an important role as normally it has the correct form. Checking the type material is normally very useful, but old specimens do not always represent a species accurately, as usually they deteriorate over time and when old, original descriptions should be preferred and take priority over type-material, as was the case with *Prasophyllum suttonii*.

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Drawings are good for general use, but can not be trusted like a good photograph. They were mostly made from collected plants and some illustrations may have been done from preserved specimens, which may result in distortion from the original or living form and this needs to be understood when comparing it with fresh material. Accuracy of such an illustration depends on the precision or style of the artist, and work by the same artist of well known common species can be used to familiarise. When checking pressed and preserved plants one has to be familiar with the effect of the process or drying on the specimens. The drawing of the type flower of *Prasophyllum suttonii* was simple, but showed the important detail needed to work with.

It should also be kept in mind that there is a degree of variability that can be very different in each taxon of an orchid genus. It ranges from members in a population being uniform in colour or morphology to appearing to comprise a mix of species. The causes may be genetical, from habitat differences, or seasonal conditions. The different flower forms seen in *Prasophyllum suttonii* may be part of an evolutionary development or they are peloric. Throw-backs may commonly occur in certain species or populations. Pollinator behaviour may also play a role in the development of certain forms in an orchid taxon. The recent orchid taxonomy in Australia is highly exaggerated, with the naming of clades or tribes of sibling species as new genera, and many localised or variable forms of a species as new, causing the present state of confusion.

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