A Rare Shrub Violet

Scientific name: ***Melicytus drucei*** *(Melicytus* from the Greek meaning 'honey-cavity' referring to a nectar cavity found below flower stamens and *drucei* after A.P. Druce, 1920-1999.)
Family name: **Violaceae** (Violet Family)

This unusual tangle-branched (divaricating) subalpine shrub, and relative of the commonly known forest tree, mahoe (*Melicytus ramiflorus*), is named after leading plant ecologist A.P. (Tony) Druce who first discovered it. It has been recognized as a botanically unique, rare, and threatened species, growing in Egmont National Park and nowhere else in the world. It is in fact currently the only indigenous species known to be truly endemic to the park. It is mainly found growing in a narrow band along the edge of the Ahukawakawa Swamp and in several other places on Pouakai Range. More recent sightings include some plants near the swamp but distinctly on the main cone of Mt Taranaki.

It is the only known *Melicytus* species with a triple arrangement of chromosomes (the first known 'stable triploid' within that genus). Most plants have a double arrangement of chromosomes but some have a quadruple set. The triple arrangement results when two species hybridize (one double and one quadruple) and a new species becomes separated from the parent species and is 'self-compatible'- not needing either of the parent species to reproduce. *Melicytus drucei* is believed to have originated as a hybrid between two *Melicytus* species, namely *M. flexuosus* and a member of the alpinus group, both of which are no longer found in Taranaki. The crossing of the two species may have happened during a period of harsh climatic conditions (such as a glacial period of the Pliestocene Ice Age) when the two parent species were more widespread.

The plant consists of a tangled mass of crooked branches bearing small linear to oblong leaves, which are to some degree protected within a latticework of rigid grey-brown stems and spiny tips. This is believed to be an adaptive form, which may resist browsing or enable plants to survive and recover more quickly from browsing, and may also help protect growing points and leaves from wind abrasion and other harsh temperature and climatic extremes. In the more exposed or open sites the shrub forms even more tightly compact crowns or hummocks up to 1 m diameter which are often covered with a heavy coating of lichen, moss and epiphytic ferns.

The plant has some other unusual features; its stems not just its leaves are able to photosynthesise (convert carbon dioxide into sugars using the energy of sunlight), while the shrub's flowers, which resemble tiny creamy-yellow bells, are hermaphrodite and set fruit regularly and abundantly but the reproductive process requires further study. Flowering takes place between October and December while between March and May white and purple spotted berries hang down from the stems in abundance. These berries are believed more likely dispersed by lizards because they are not easily visible or accessible to birds.

Substantial colonies are found on an alluvial terrace on the Ahukawakawa Swamp margin adjacent to the Stony (Hangatahua) River. It is found here in the canopy layer of mixed scrub/shrubland which includes many other divaricating species (*Coprosma*

tayloriae, Coprosma decurva, Coprosma rugosa, Olearia capillaris, Raukaua (formerly Pseudopanax) anomalus, Myrsine divaricata, and Aristotelia fruticosa) that in combination produce a general appearance of 'grey scrub'. In another site, on the northern slopes below Pouakai Peak, they seem far less numerous and are in direct competition with the leatherwood (*Brachyglottis elaeagnifolia*) that dominates the shrubland canopy in that area. More extensive surveys are needed to determine the full extent of population size and distribution.

Field observations in 1991-1992 confirmed that possums and hares were heavily browsing adult plants and that many seedlings and saplings were being destroyed. The species is monitored by the Conservation Department and some plants have also been caged to prevent browsing. Management of pests, including 1080 possum control, have resulted in significant recovery and improved regeneration in the uncaged plants. Monitoring and pest management strategies are reviewed regularly in order to maintain and improve general plant health and habitat protection.

A fuller description of this interesting plant is at the New Zealand Journal of Botany website: http://www.royalsociety.org.nz/Site/publish/Journals/nzjb/1996/157.aspx