VARIATION IN SENECIO KIRKII

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Conspicuous flowering of Senecio kirkii var. angustior in the Waitakeres during this most recent autumn was the subject of a report in the last news-sheet by Sandra Jones. Sandra has suggested that it would be appropriate for me to follow up with a summary of the evidence which I accumulated during my M.Sc. research in 1940 - evidence which led to recognition of the separate, varietal, status of the broad and narrow-leaved forms of S. kirkii. When I published my results in Trans. Royal Soc. N.Z. Vol. 72, 341-346, 1943 I had conviction but lacked experience and so did not formally establish the appropriate nomenclature. The late H.H. Allan did that for me later in Flora of N.Z. Vol. 1, 1961. With hindsight I think that many full specific separations have been based on fewer and weaker differences than those between the broad and narrow-leaved forms of S. kirkii. Anyway here is my summary:

1. Length:breadth ratios of leaves from 1324 mature plants in the Waitakere Ranges indicated two distinct populations with a mean of 2.5 (range 1.5-c.4.5) for the broad-leaved form and a mean just over 6.5 (range c.3.0-12.5) for the narrow. There was a slight overlap between the two but nevertheless there was a strongly bimodal frequency distribution of l:b ratios.
2. From Mt Pirongia (that critical lat. 38° S) southwards, only the broad-leaved form occurs. From 494 collections on Mt Pirongia I obtained an l:b ratio with mean c.2.5 (range 1.5-4.5) and from 153 plants in the Tararua Ranges a mean of just over 2.5 (range 1.8-5.3).
3. Only the narrow-leaved form was seen north of Kaitaia, namely in forest remnants near Te Paki, and in an intriguing colony co-dominant with Leptospermum on rolling hills west of Parengarenga Hbr. Leaves of plants in these locations tended to have obtuse junctions with petioles rather than attenuate. This was especially obvious near Parengarenga, where leaves were almost oblong. Narrow-leaved plants north of lat. 36° S (Waipoua, Trounson and the Far North) are notable for distinct, though sparse, hairyness of young stems and very young leaves.
4. Other, relatively minor, variation can be observed, e.g.,in corolla shapeand leaf margins in both varieties, and in some anatomical comparisons, e.g., more mucilage ducts and stone cells in broad-leaved plants.
5. The broad-leaved form flowers in spring while var.angustior flowers in autumn. Thus there is little chance to hybridise. I did, however, study what was obviously a "hybrid swarm" in the Hunua Ranges near Orere. Leaves from 324 plants provided a broad, unimodal l:b distribution with an l:b range 2-8.5. A few broad-leaved plants were flowering in April, at the same time as narrow, illustrating a regular opportunity for cross-pollination. The progeny, at various stages of maturity, were prolific over an area of "a few sq. chains" on a ridge top. Infrequent, less-spectacular evidence of possible hybridisation was observed in the Waitakeres.
6. The broad-leaved form has a marked preference for an epiphytic habit. It is the only form on Rangitoto Is., where, along with some typically epiphytic species, it often grows directly on lava. The narrow-leaved form is typically terrestrial. However, both can be found, though rather rarely, in each others' habitat - even perhaps sharing the same Dicksonia trunk or being contiguous neighbours on the ground.