

TASMANIAN SPECIES OF *RANUNCULUS* — A NEW KEY

by Y. Menadue and R. K. Crowden

(with six text-figures)

MENADUE, Y. & CROWDEN, R.K., 1989 (31:x): Tasmanian species of *Ranunculus* — a new key. *Pap. Proc. R. Soc. Tasm.* 123: 87-96. <https://doi.org/10.26749/rstpp.123.87> ISSN 0080-4703. Botany Department, University of Tasmania, Australia 7001.

A key to all *Ranunculus* species occurring in Tasmania is provided. Diagnostic characters are presented by means of diagrams. Ecological notes, the main distinguishing features, and chromosome numbers are given for each species  
**Key Words:** *Ranunculus*, Tasmania, chromosome number.

## INTRODUCTION

*Ranunculus* contains more than 500 species, about 50 of which occur in Australia; Curtis & Morris (1975) record 26 species for Tasmania.

In a recent study, Menadue (1986) recognises 28 species in the State, of which 19 are native (including one cosmopolitan and eight endemics) and nine are introduced. This treatment of the genus differs from that of Curtis & Morris in that three new species are recognised, *R. prasinus*, *R. jugosus* and *R. collicolus* (Menadue & Crowden 1985), *R. inundatus* is considered not to occur in Tasmania, *R. concinnus* has been reduced to synonymy under *R. decurvus* (Menadue & Crowden 1988), and the European species *R. flammula* has been recorded from the northeast of the State.

It is generally acknowledged *Ranunculus* species may present identification difficulties because, as in many other herbaceous plant families, leaf shape and size may be subject to environmental influences or show variability as a result of polyploidy. Menadue (1986) demonstrated phenotypic plasticity in *R. nanus* and observed variability in leaf morphology in many other species, particularly the fibrous-rooted native species, e.g. *R. decurvus*, *R. pimpinellifolius*, *R. triplodontus* and *R. lappaceus*. The occurrence of polyploidy was also revealed in two native species, *R. glabrifolius* ( $2n = 48$  and  $64$ ) and *R. amphitrichus* ( $2n = 48, 64$  and  $96$ ), with the accompanying variability in their gross morphology.

For the most part species are not separated on the basis of a single character difference but rather on a combination of several characters. The diagnostic

features used for this current key are presented by means of diagrams. Figures 1 & 2 show the basic leaf form for all species occurring in Tasmania; in most cases, at least two leaves are illustrated to show some of the variability.

The species can be divided into three groups based on the nature of the achenes: those which are lenticular and smooth, those which are lenticular and bear hairs, spines or tubercles, and those which are inflated and rough-surfaced. The shape and size of the achene is uniform within a species. A typical achene for each species is illustrated in figure 3.

Tasmanian *Ranunculus* species have six basic types of nectary or nectar-secreting pit on the upper surface in the basal half of the petal (fig. 4). The shape and size of the petals, together with the nature of the nectary (fig. 5), have proved to be very useful characters for the identification of the local species.

A description of the diagnostic features for *Ranunculus* and a key to all the Tasmanian species follow. (The basic leaf shapes used in the key are defined in figure 6.) For each species, numbered according to the key, ecological notes, main distinguishing features and chromosome numbers are presented.

DIAGNOSTIC FEATURES FOR  
*RANUNCULUS* L.

Annual or perennial herbs, sometimes aquatic. Stems erect or creeping. Leaves spirally arranged, often in a basal rosette, petioles having gradually tapered leaf bases and no stipules; leaf blades may be palmately lobed or divided, ternate or pinnately dissected, sometimes simple or entire (fig. 6).



FIG.1 — Leaves of the native *Ranunculus* species. At least two illustrations are given for each species. Scale bar = 1 cm. (A) *R. lappaceus*; (B) *R. pascuinus*; (C) *R. scapigerus*; (D) *R. collicolus*; (E) *R. setaceus*; (F) *R. pimpinellifolius*; (G) *R. decurvus*; (H) *R. collinus*; (I) *R. pumilio*; (J) *R. sessiliflorus*; (K) *R. glabrifolius*; (L) *R. nanus*; (M) *R. triplodontus*; (N) *R. prasinus*; (O) *R. acaulis*; (P) *R. jugosus*; (Q) *R. gunnianus*; (R) *R. amphitrichus*.

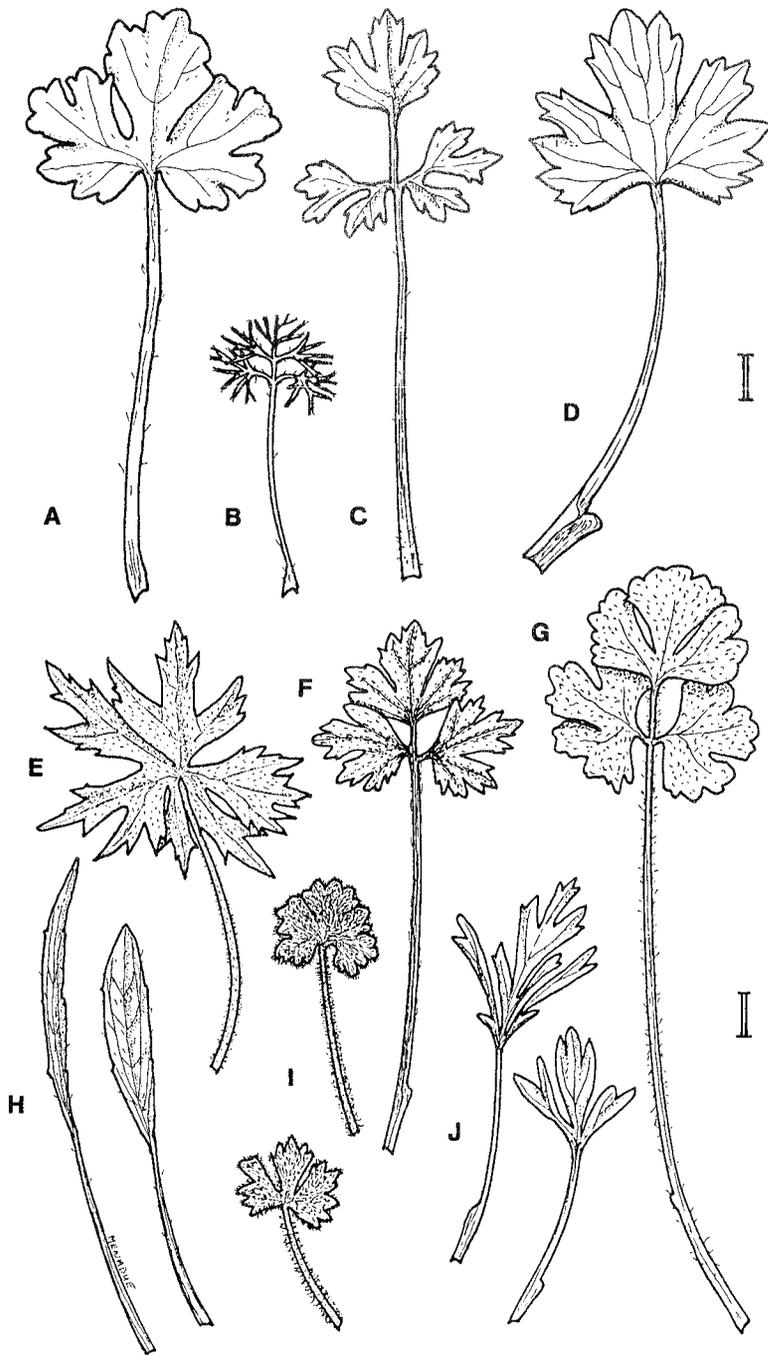


FIG. 2 — Leaves of the introduced and cosmopolitan *Ranunculus* species. Scale bar = 1 cm.  
 (A) *R. scleratus*; (B) *R. trichophyllus* — segments occur in three-dimensions; (C) *R. trilobus*;  
 (D) *R. muricatus*; (E) *R. acris*; (F) *R. repens*; (G) *R. sardous*; (H) *R. flammula*; (I) *R. parviflorus*;  
 (J) *R. arvensis*.

Flowers solitary and terminal or in cymose panicles, hermaphrodite, regular. Sepals 3–5. Petals 5–8, rarely fewer (2–3) or more (up to 24); often golden-yellow and glossy (due to a starch layer) except at the base, or pale-yellow or white and matt (starch free). Nectary or nectar-secreting pit on upper surface of petal in lower half, sometimes covered by a thin scale which may be free or adnate to the petal, forming a pocket (figs 4 & 5). Stamens numerous, rarely only five or fewer. Carpels indefinite in number, free with one basal ovule.

Fruit a globular or elongated head of achenes each with a persistent style forming a glabrous beak (fig. 3).

### KEY TO *RANUNCULUS* IN TASMANIA

Letters in brackets refer to figure 6. Numbers at right refer to later entries in the Key. Superior numbers after names refer to Notes section which follows.

- |  |    |   |    |
|--|----|---|----|
| (1) Aquatic or semi-aquatic plants   | 2  | (10) Leaf lobes usually dentate, flowers pale greenish-yellow   | 11 |
| Terrestrial, swamp or marsh plants   | 3  | Leaf lobes rarely dentate, 1–3 golden-yellow flowers, 5–8 mm diam. ... <i>R. collicolus</i> <sup>7</sup>  |    |
| (2) Leaves trichotomously dividing into capillary segments in several planes (C).....  |    | (11) Leaflets ± fleshy, torus glabrous in the staminal zone ... <i>R. acaulis</i> <sup>8</sup>  |    |
| ... <i>R. trichophyllus</i> <sup>1</sup>   |    | Leaflets thin, torus with ring of stiff hairs in the staminal zone ... <i>R. amphitrichus</i> <sup>2</sup>  |    |
| Leaves palmatifid, palmatisect or ternate, segments in one plane (F,H,I) .....   |    | (12) Basal leaves entire, not lobed   | 13 |
| ... <i>R. amphitrichus</i> <sup>2</sup>  |    | Basal leaves divided or lobed   | 15 |
| (3) Plants connected by long runners or stolons  | 4  | (13) Leaves cuneate, 3-dentate, lamina truncate at the base ... <i>R. triplodontus</i> <sup>9</sup>   |    |
| Plants tufted with fibrous roots or with short creeping rootstock  | 12 | Leaves linear, linear-elliptic tapering into a petiole  | 14 |
| (4) Basal leaves in a rosette connected by stout above-ground stolons ... <i>R. repens</i> <sup>3</sup>  |    | (14) Lamina narrow linear, ± terete, rarely trifurcate (A) ... <i>R. setaceus</i> <sup>10</sup>   |    |
| Basal leaves in a rosette connected by slender underground stolons   | 5  | Lamina linear-elliptic or spatulate (D) .....   |    |
| (5) Leaves palmatifid or palmatisect (H,I)   | 6  | ... <i>R. flammula</i> <sup>11</sup>  |    |
| Leaves trifoliolate, ternate or ternately lobed (E,F,G)  | 7  | (15) Leaves in a basal rosette, rarely with small cauline leaves or bracts on flowering stems   | 16 |
| (6) Sepals appressed hairy; lamina leathery, glabrous or sparsely hairy with teeth apices acute; large (>12 mm), golden-yellow flowers ...       |    | Basal leaves in a rosette, with numerous smaller cauline leaves   | 24 |
| ... <i>R. glabrifolius</i> <sup>4</sup>  |    | (16) Leaves with numerous, narrow terete, linear segments (B) ... <i>R. gunnianus</i> <sup>12</sup>   |    |
| Sepals glabrous; lamina not leathery, glabrous, teeth apices blunt; small (3–13 mm), pale-yellow flowers ... <i>R. amphitrichus</i> <sup>2</sup> |    | Leaves with laminate segments   | 17 |
| (7) Sepals with dense appressed hairs  | 8  | (17) Flowers golden-yellow, conspicuous on scapes as long as or longer than the leaves  | 18 |
| Sepals sparsely villous or glabrous  | 9  | Flowers pale yellow, inconspicuous on scapes shorter than the leaves  | 22 |
| (8) Leaves matt, leathery, teeth apices acute .....  |    | (18) Sepals reflexed, leaves mainly palmatifid, softly sericeous hirsute ... <i>R. scapigerus</i> <sup>13</sup>   |    |
| ... <i>R. glabrifolius</i> <sup>4</sup>  |    | Sepals spreading or appressed to petals   | 19 |
| Leaves glossy, ± fleshy, teeth apices blunt  |    | (19) Hairs on stems and leaves closely appressed; leaflets attached asymmetrically ... <i>R. pascuinus</i> <sup>14</sup>  |    |
| ... <i>R. collinus</i> <sup>5</sup>  |    | Hairs on leaves spreading, on stems spreading or appressed; leaflets attached symmetrically   | 20 |
| (9) Leaves villous ... <i>R. prasinus</i> <sup>6</sup>   |    | (20) Nectary naked, forming a crescentic pit one-third from base of petal; with a short, stout rhizome ... <i>R. nanus</i> <sup>15</sup>  |    |
| Leaves glabrous  | 10 | Nectary covered by a petaloid or small fleshy lobe or nectary a bracket; without a rhizome  | 21 |
|  |    | (21) Leaves pinnate; nectary lobe rounded, or sub-acute triangular ... <i>R. pimpinellifolius</i> <sup>16</sup>   |    |
|  |    | Leaves ternate or ternately lobed; nectary lobe truncate, free to half-attached ... <i>R. lappaceus</i> <sup>17</sup>   |    |
|  |    | (22) Leaves pinnate, hirsute; scape elongating above the leaves when in fruit; nectary a crescentic bracket ... <i>R. decurvedus</i> <sup>18</sup>  |    |
|  |    | Leaves not pinnate, glabrous; scape, often on thick peduncle which bears leaves and may act as an epigeal stolon, elongating in fruit but shorter than the leaves; nectary covered by a small fleshy lobe | 23 |
|  |    | (23) Leaves ternate, palmatifid or entire-cuneate, glabrous or hairy; petals 0–6 .....  |    |
|  |    | ... <i>R. triplodontus</i> <sup>9</sup>   |    |
|  |    | Leaves trifoliolate, lateral leaflets distant from terminal leaflet, glabrous; petals 5–6 .....   |    |
|  |    | ... <i>R. jugosus</i> <sup>19</sup>   |    |
|  |    | (24) Achenes smooth   | 25 |
|  |    | Achenes with hairs, spines or tubercles   | 26 |

- (25) Achenes in oblong head; basal leaves ternately lobed or palmatifid, sparsely hairy ... *R. sceleratus*<sup>20</sup>  
 Achenes in globular head; basal leaves palmatisect with cuneate segments, pubescent ... *R. acris*<sup>21</sup>
- (26) Flowers very small, <7 mm diam.; petals pale-yellow or lemon; sepals erect 27  
 Flowers >8 mm diam.; petals golden-yellow, sepals reflexed 30
- (27) Nectary a prominent petaloid lobe wider than petal; achenes with very long prominent spines ... *R. arvensis*<sup>22</sup>  
 Nectary a small pocket or bracket, achenes with tubercles or bristles 28
- (28) Flowers 4–7 mm diam.; achenes covered with conical tubercles only ... *R. parviflorus*<sup>23</sup>  
 Flowers 2–3 mm diam.; achenes covered with tubercles ending in a stiff bristle, or bristles only 29
- (29) Achenes with numerous bristles over lateral faces and margins ... *R. pumilio*<sup>24</sup>  
 Achenes with a few conical tubercles ending in recurved bristles over lateral faces but not margins ... *R. sessiliflorus*<sup>25</sup>
- (30) Leaves palmatifid; sepals ± glabrous, achenes with smooth margins and long spiny tubercles ... *R. muricatus*<sup>26</sup>  
 Leaves trifoliolate or ternate; sepals pubescent, achenes with short, blunt tubercles 31
- (31) Flower 8–12 mm diam.; stamens 35–50; achenes with flattened brown face and short, blunt conical tubercles ... *R. trilobus*<sup>27</sup>  
 Flower 12–25 mm diam.; stamens 10–18; achenes with small obtuse tubercles round margin ... *R. sardous*<sup>28</sup>

NOTES ON EACH SPECIES

Chromosome voucher specimens were collected in Tasmania by Menadue and Crowden, unless stated otherwise, and are lodged in the Tasmanian Herbarium (HO).

(1) *R. trichophyllus* Chaix (Cosmopolitan) Figs 2B, 3N, 5G  
 An aquatic species in farm dams and slow-moving creeks and rivers. The petals distinguish this species from all other Tasmanian species; they are white with a yellow claw (base) and have a nectary which is a naked semi-lunar pit. Chromosome number 2n = 32.  
 Voucher specimen:  
*Moscal s.n.* Blackman R., 26.xi.1984 (HO88754).

(2) *R. amphitrichus* Colenso (Native) Figs 1R, 3M, 5K. (Synonym: *R. rivularis* Banks & Sol. ex DC.)  
 A species with widespread distribution in lagoons,

creeks and streams from sea level to above 1100 m. The flower is small, pale-yellow, inconspicuous and held well above the leaves on long scapes. It is a polymorphic species with three ploidy levels (see above). Plants in coastal lagoons on the west coast have 2n = 64 and a fairly consistent morphology. A population with 2n = 48 has been found at only one location near Lake Sorell and has a distinctive form. All other specimens from around the State appear to have 2n = 96 but they also show extensive morphological variation. At this stage further investigation of the morphological forms is required before separate taxa can be erected.

Voucher specimens:  
 2n = 96: Isis R., 29.xi.1983 (HO88313); Osterley Rd, 9.xi.1984 (HO89214); Tiger Rise, Dennistoun Rd, 9.xi.1984 (HO88753); Agnews Marsh Ck, 19.iii.1984 (HO88310); N. end Lake Crescent, 17.xi.1983 (HO88312).  
 2n = 64: Sundown Pt, West Coast, 7.ii.1983 (HO88311).  
 2n = 48: Agnews Marsh, 14.xi.1984 (HO91156).

(3) *R. repens* L. (Introduced) Figs 2F, 3S, 5R  
 A widespread weed of gardens, farms and roadside ditches. Spreads by means of vigorous above-ground stolons and has a conspicuous golden-yellow flower. 2n = 32.  
 Voucher specimen:  
 University of Tasmania grounds, Hobart, 14.xi.1984 (HO88755).

(4) *R. glabrifolius* Hook. (Native) Figs 1K, 3K, 5L  
 A widely distributed species in wet areas from 100–1140 m elevation. Though it may be confused with the following species (*R. collinus*), it has larger, golden-yellow flowers and leaves, and may be distinguished by leaf size, teeth apices which are more acute, and by fruit being borne on erect scapes. Two ploidy levels have been found, 2n = 48 and 64.  
 Voucher specimens:  
 2n = 48: Hazelwood Lagoon, 7.xi.1984 (HO89216).  
 2n = 64: Lake Tiberias Railway Station, 3.xi.1983 (HO88315).

(5) *R. collinus* R.Br. ex DC. (Native) Figs 1H, 3L, 5M  
 A species which is widespread in montane and sub-alpine regions above 600 m, in wet seepage areas or slow-running creeks. Compared with *R. glabrifolius* it has leaves which are smaller, fleshier and shinier with blunt leaf teeth apices; the golden-yellow flowers are smaller and the fruiting scapes

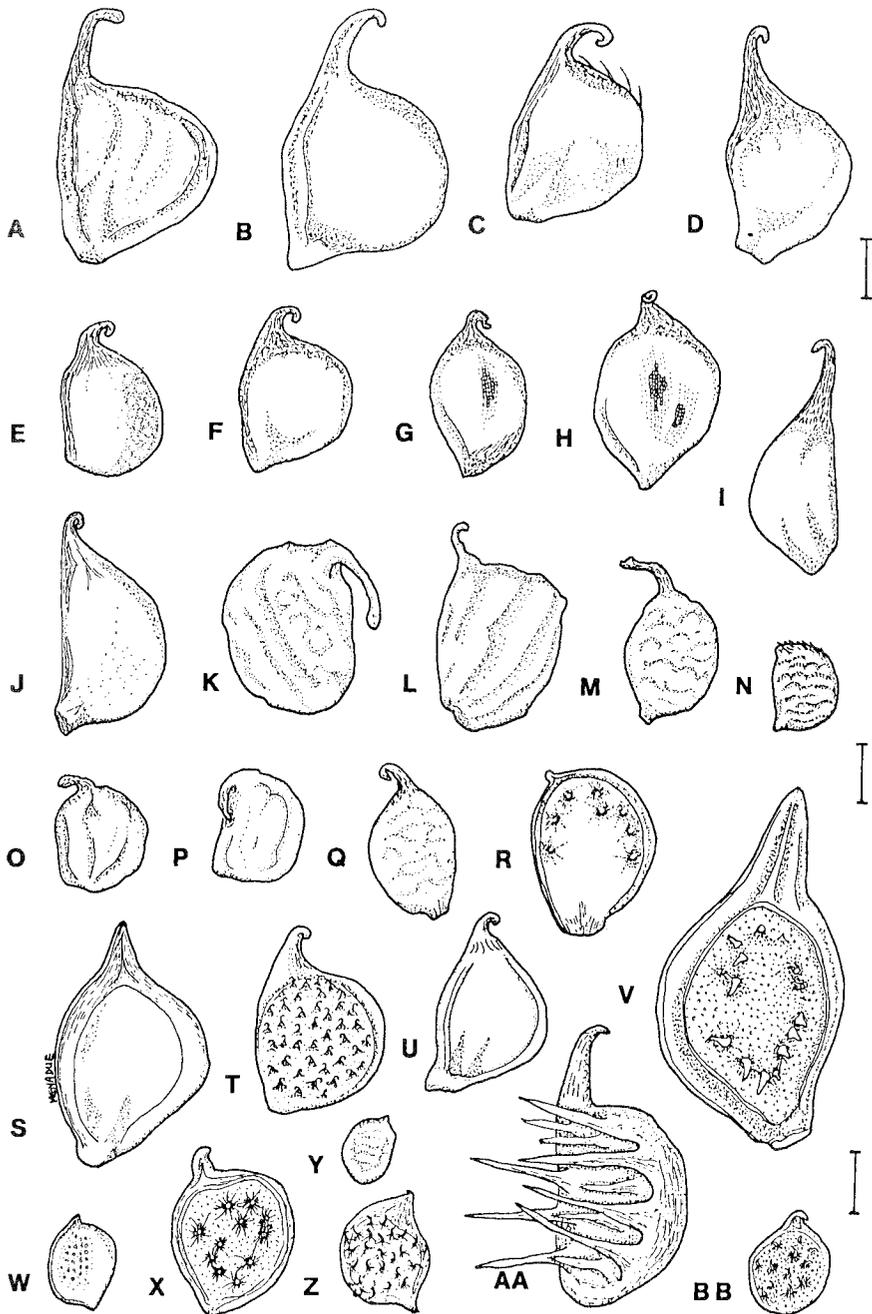


FIG. 3 — Achenes of Tasmanian *Ranunculus* species. Scale bar = 1 mm. (A) *R. lappaceus*; (B) *R. pascuinus*; (C) *R. scapigerus*; (D) *R. nanus*; (E) *R. pimpinellifolius*; (F) *R. decurvus*; (G) *R. jugosus*; (H) *R. triplodontus*; (I) *R. gunnianus*; (J) *R. setaceus*; (K) *R. glabrifolius*; (L) *R. collinus*; (M) *R. amphitrichus*; (N) *R. trichophyllus*; (O) *R. acaulis*; (P) *R. prasinus*; (Q) *R. collicolus*; (R) *R. sardous*; (S) *R. repens*; (T) *R. parviflorus*; (U) *R. acris*; (V) *R. muricatus*; (W) *R. flammula*; (X) *R. trilobus*; (Y) *R. scleratus*; (Z) *R. pumilio*; (AA) *R. arvensis*; (BB) *R. sessiliflorus*.

tend to curve over.  $2n = 48$ .

Voucher specimen:

Mt Wellington, 7.xii.1984 (HO88834).

(6) *R. prasinus* Y. Menadue (Endemic) Figs 1N, 3P, 5N

This species shows affinities with *R. collinus* and *R. amphitrichus* but differs by having pale-yellow, glabrous sepals, and thinner grass-green leaflets with acute teeth apices. Its flowers are golden-yellow borne on tall scapes. It is restricted to two small lagoons north of Tunbridge in the Midlands.  $2n = 48$ .

Voucher specimen:

Whites Lagoon, Tunbridge, 11.xii.1984 (HO88842).

(7) *R. collicolus* Y. Menadue (Endemic) Figs 1D, 3Q, 5O

Most closely resembles *R. acaulis* and *R. collinus*; however, it is distinguished by dull, golden-yellow petals with a shallow nectary pocket and mostly entire, narrow leaflets. It is a very small plant about 3 cm high. It is restricted to two small lagoons near Lake Augusta on the Central Plateau.  $2n = 48$ .

Voucher specimen:

Second Lagoon, Central Plateau, 17.ii.1984 (HO88749).

(8) *R. acaulis* Banks & Sol. ex DC. (Native) Figs 1O, 3O, 5B

This grows on consolidated sand near a stream or seepage area in the frontal dunes of sandy beaches on the West Coast. It extends from Ocean Beach near Strahan to Cox Bight in the south. It has a slightly succulent leaf and narrow, greenish-yellow petals.  $2n = 48$ .

Voucher specimen:

Ocean Beach, Strahan, 19.x.1984 (HO88516).

(9) *R. triplodontus* Melville (Endemic) Figs 1M, 3H, 5Q

Widespread in alpine and subalpine grasslands, swamps and creeks. It is very polymorphic in the leaf and has two basic flower forms, 2–3 pale petals or 5 glossier petals. The flowers are inconspicuous and borne on scapes shorter than the leaves. It often may be identified by a stout, potentially stoloniferous stem bearing leaves and flowers at the end.  $2n = 48$ .

Voucher specimens:

Lake Augusta, Central Plateau, 14.xi.1984 (HO88837); Tiger Rise, Dennistoun Rd, 14.xi.1984 (HO88839); Lake Chipman, 17.ii.1984 (HO89211).

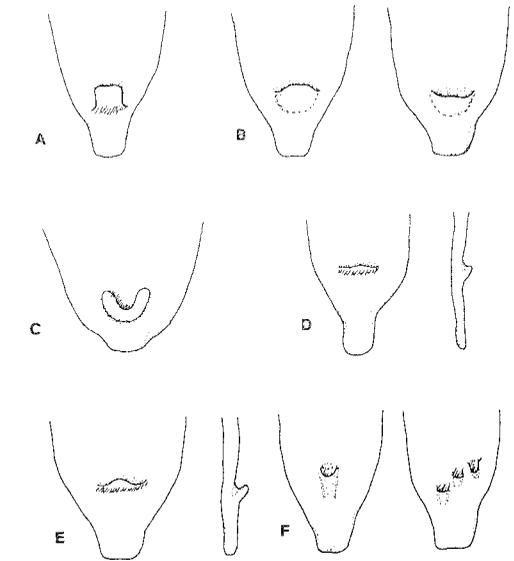


FIG. 4 — Types of nectary in Tasmanian *Ranunculus*. (A) a free lobe; (B) a pocket with or without raised lip; (C) a lunate pit; (D) bracket or ledge; (E) bracket or ledge with fleshy lobe; (F) semi-lunar pits or naked glands.

(10) *R. setaceus* Rodway (Endemic) Figs 1E, 3J, 5I  
This grows in small alpine streams or depressions subject to flooding. It will flower and set seed under water. It has a monocotyledonous habit resulting in it often being overlooked. The flower has five pale creamy-yellow petals.  $2n = 16$ .

Voucher specimen:

Ben Lomond Plateau, 19.iii.1984 (HO88306).

(11) *R. flammula* L. (Introduced) Figs 2H, 3W, 5AA

Only known from one farming property *Nabowla* in the northeast of the State. It has a simple leaf blade and a cluster of small, yellow flowers.  $2n = 32$ .

Voucher specimen:

*Walker s.n. Nabowla*, 14.xi.1984 (HO88873).

(12) *R. gunnianus* Hook. (Native) Figs 1Q, 3I, 5C  
This occurs on mountain tops above 1000 m in very wet situations. It is very distinctive with pinnate, linear-lobed, dull-green leaves and very large, golden-yellow flowers with up to 24 petals. The petals have a triple naked nectary which is unique for the Tasmania species.  $2n = 48$ .

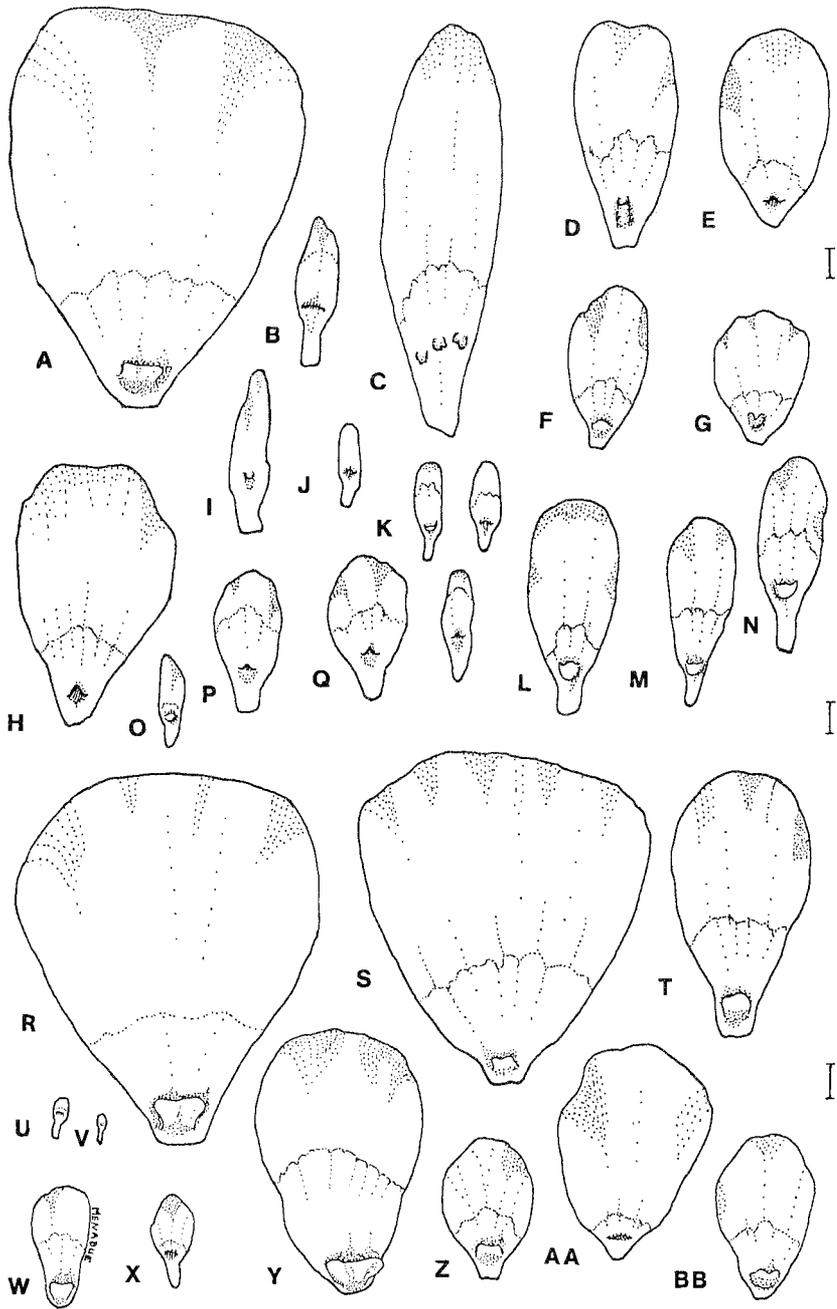


FIG. 5 — Petals of Tasmanian *Ranunculus* species showing nectary shape and position. Scale bar = 1 mm. (A) *R. lappaceus*; (B) *R. acaulis*; (C) *R. gunnianus*; (D) *R. nanus*; (E) *R. pimpinellifolius*; (F) *R. scapigerus*; (G) *R. trichophyllus*; (H) *R. pascuinus*; (I) *R. setaceus*; (J) *R. decurvedus*; (K) *R. amphitrichus*; (L) *R. glabrifolius*; (M) *R. collinus*; (N) *R. prasinus*; (O) *R. collicolus*; (P) *R. jugosus*; (Q) *R. triplodontus*; (R) *R. repens*; (S) *R. acris*; (T) *R. muricatus*; (U) *R. pumilio*; (V) *R. sessiliflorus*; (W) *R. arvensis*; (X) *R. parviflorus*; (Y) *R. sardous*; (Z) *R. scleratus*; (AA) *R. flammula*; (BB) *R. trilobus*.

Voucher specimen:

Pine Lake, Central Plateau, 11.xii.1984 (HO88835).

(13) *R. scapigerus* Hook. (Native) Figs 1C, 3C, 5F

This grows in wet grasslands and forests often in association with *R. lappaceus*. Its flower is golden-yellow, often red-flushed on a tall scape, and may be distinguished by reflexed sepals.  $2n = 16$ .

Voucher specimen:

Clarence Weir, 11.xii.1984 (HO88845).

(14) *R. pascuinus* (Hook. f.) Melville (Endemic) Figs 1B, 3B, 5H

This occurs in subalpine to alpine habitats on Middlesex Plain and Central Plateau. It has a single golden-yellow flower borne on a tall scape; the plant is covered by appressed hairs and the leaves show a characteristic asymmetry.  $2n = 16$ .

Voucher specimen:

Blackbog Creek, Cradle Mt Rd, 30.xii.1983 (HO88517).

(15) *R. nanus* Hook. (Endemic) Figs 1L, 3D, 5D  
Widespread at altitudes of 740–1400 m. This species is vegetatively variable but has a conspicuous golden-yellow flower borne above the leaves. A feature which may help distinguish this species is the frequent presence of a short, thick, erect rhizome which occasionally links two rosettes of leaves.  $2n = 16$ .

Voucher specimen:

Second Lagoon, Central Plateau, 19.iii.1984 (HO88307).

(16) *R. pimpinellifolius* Hook. (Native) Figs 1F, 3E, 5E

This species appears to be restricted to the southeastern part of the Central Plateau and its eastern border. It has a pinnate leaf which may be confused with the leaves of *R. decurvus* (below) but it has a golden-yellow flower borne on a tall scape.  $2n = 16$ .

Voucher specimen:

Clarence Weir, 20.x.1984 (HO88521).

(17) *R. lappaceus* Smith (Native) Figs 1A, 3A, 5A  
Widespread and frequent in grasslands and sclerophyll forests with good drainage, often in association with *R. scapigerus*. It has large, golden-yellow flowers on tall scapes, often two per flowering stem.  $2n = 16$ .

Voucher specimen:

Quoin Hill, 16.x.1983 (HO88316).

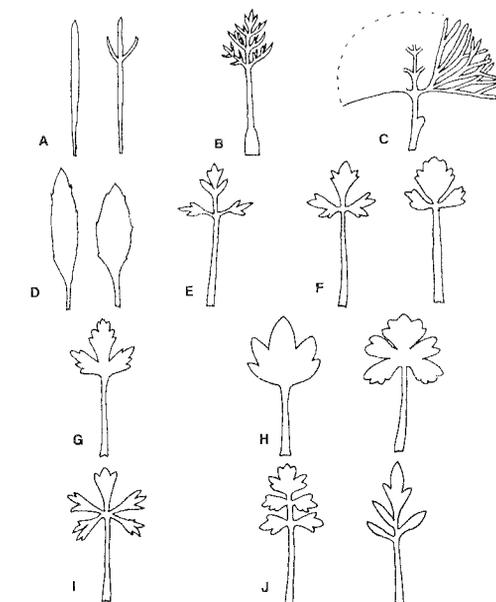


FIG. 6 — Definition of leaf shapes used in the key. (A) Linear  $\pm$  terete; (B) pinnate with terete segments; (C) trichotomously branching in capillary segments; (D) spatulate, linear lanceolate; (E) trifoliate, leaflets with distinct petiolules; (F) ternate, in three parts without petiolules; (G) ternately-lobed, in three parts not deeply divided; (H) palmatifid, not deeply divided; (I) palmatisect, deeply divided to the centre; (J) pinnate, (3)–5 leaflets with petiolules.

(18) *R. decurvus* (Hook. f.) Melville (Endemic) Figs 1G, 3F, 5J. (Synonymy: *R. concinnus* (Hook. f.) Melville)

Widespread throughout alpine and subalpine grasslands and heaths above 400 m. It has a small, greenish-yellow flower, borne on a scape much shorter than the leaves, which elongates when fruiting.  $2n = 16$ .

Voucher specimen:

Iris R., Cradle Mt Rd, 29.xi.1984 (HO88309).

(19) *R. jugosus* Y. Menadue (Endemic) Figs 1P, 3G, 5P

Locally abundant in river silt and soak areas of the Central Plateau at altitudes about 1100 m. It is closely related to *R. tripodontus*; however, it has a consistent leaf-form and a flower with six petals. The leaves are pinnately trifoliate with reflexed

lateral leaflets. They are glabrous and have long, reddish-brown, recurved petioles.  $2n = 48$ .

Voucher specimen:

Lake Augusta, Central Plateau, 10.xi.1983 (HO81877).

(20) *R. scleratus* L. (Introduced) Figs 2A, 3Y, 5Z  
Probably no longer exists in the State. Only one specimen, collected in the early 1900's near Hobart, exists in the Tasmanian Herbarium. This species has an elongated fruiting head.

(21) *R. acris* L. (Introduced) Figs 2E, 3U, 5S  
Has been found in agricultural land south of Hobart. The flowering stems can be up to 1 m tall and bear several golden-yellow flowers.  $2n = 14$ .  
Voucher specimen:

Kettering, 7.xi.1984 (HO88520).

(22) *R. arvensis* L. (Introduced) Figs 2J, 3AA, 5W  
Probably no longer exists in the State. The Tasmanian Herbarium has only one specimen of this species collected at Cressy.

(23) *R. parviflorus* L. (Introduced) Figs 2I, 3T, 5X  
A robust weed of waste land. This is a very hairy plant and has numerous small, yellow flowers. The achenes have brownish faces covered with conical tubercles ending in a fine hair.  $2n = 28$ .

Voucher specimen:

Geilston Bay, 18.xi.1984 (HO88752).

(24) *R. pumilio* R.Br. ex DC. (Native) Figs 1I, 3Z, 5U

This appears to be confined to the Midlands regions and mainly grows in pasture grasses in very damp places. The leaves are light grass-green and small, pale-yellow flowers are borne on the stems.  $2n = 14$ .

Voucher specimen:

Brownwater Lagoon, Lake Crescent, 14.xi.1984 (HO88518).

(25) *R. sessiliflorus* R.Br. ex DC. (Native) Figs 1J, 3BB, 5V

This grows in poor rocky soils under dry sclerophyll forest. It is probably more widespread than collections would indicate as it is a straggly inconspicuous plant.  $2n = 14$ .

This species may be separated from *R. pumilio* by the achenes: *R. sessiliflorus* has fewer bristles on prominent, conical tubercles on the surface of the achene, which has a conspicuous margin.

*R. pumilio* has numerous longer, recurved bristles all over the achene surface, including the poorly

defined margin (fig. 3).

Voucher specimen:

Geilston Bay, 14.xi.1984 (HO88840).

(26) *R. muricatus* L. (Introduced) Figs 2D, 3V, 5T  
A weed of waste ground and cultivated areas in damp soil. The flowering stems bear numerous golden-yellow flowers with reflexed sepals. The achenes are in large heads and bear a few short spiny tubercles on their surfaces.  $2n = 64$ .

Voucher specimen:

Hamilton, 24.x.1984 (HO88522).

(27) *R. trilobus* Desf. (Introduced) Figs 2C, 3X, 5BB

Mainly found in the upper Derwent Valley around Glenora and Bushy Park in damp roadside ditches. Flowering stems bear numerous small, golden-yellow flowers with reflexed sepals. The achene has brown faces with blunt conical tubercles and a distinct margin.  $2n = 48$ .

Voucher specimen:

Morris s.n. Glenora, 24.x.1984 (HO88519).

(28) *R. sardous* Crantz (Introduced) Figs 2G, 3R, 5Y

Grows on old agricultural land around the north-west of the State. It has pale-yellow flowers with reflexed sepals. The petals have a large, free-lobed nectary right at the base of the claw.  $2n = 48$ .

Voucher specimen:

Omeo Rd, Victoria, 27.i.1984 (HO88750).

## ACKNOWLEDGEMENTS

This study was undertaken while YM was in receipt of a Commonwealth Postgraduate Research Award.

## REFERENCES

- CURTIS, W.M. & MORRIS, D.I., 1975: *A STUDENT'S FLORA OF TASMANIA*. Vol.I, 2nd edition. Government Printer, Hobart.
- MENADUE, Y., 1986: Taxonomy of *Ranunculus* in Tasmania. Unpubl. Ph.D. thesis, Univ. Tasm., Hobart.
- MENADUE, Y. & CROWDEN, R.K., 1985: Three new species of *Ranunculus* (Ranunculaceae) from Tasmania. *Brunonia* 8: 373-380.
- MENADUE, Y. & CROWDEN, R.K., 1988: Multivariate analysis of variation in *Ranunculus decurvus* (Hook. f.) Melville and *Ranunculus concinnus* (Hook. f.) Melville, Ranunculaceae. *Bot. J. Linn. Soc.* 98(1): 71-83.

(accepted 12 May 1989)