The Next Generation of New Zealand Floras

Ilse Breitwieser, Peter Heenan, and Aaron Wilton, Allan Herbarium, Landcare Research, Lincoln, New Zealand
Catching the criminals ...

Robbery and sawn off shotgun

Pollen on clothing of murder victim
Biosecurity Officer

“What is this *Hypericum* spreading on a hillside behind a beach near Napier?”
“Are these _Hypericum_ plants on the Horizons RPMS list or NPPA and banned from sale?”
DOC Tier One monitoring and other field surveys

“Is this plant the rare wetland endemic species *Hypericum rubicundulum*?”
“... or is it the similar looking but introduced and weedy *Hypericum humifusum*?”
Poisonous plants

“Three children ate some red berries and have been vomiting. What species are the berries? Are they poisonous?”
“My horse vomited after eating the leaves off a tree. What species is the tree and is it poisonous?”
Requests from EPA and MPI

“What is the correct name for Hypericum polyphyllum? What other names are synonyms? Biostatus - is this species present in New Zealand?”


Hypericum macrocalyx Freyn in Bull. Herb. Boiss. 3: 103 (1895). Type: Turkey, Adana, Hadschim [Hadjïn], “in pascuis Aïtuschkuru” [Ayukuru], 30 June 1893 (fl), Manissadien 825 (G-lectotype, selected here; BASBG!, E!, JE!, K!, UPS!, W!, Zl!-isotypes).


These questions have in common needing to know ....

• Correct name
• Synonymy
• Biostatus
• Distribution & habitats
• Identification
• Relationships
• Images
Allan Herbarium
Taxonomy, nomenclature and diagnostic tools

RESEARCH ARTICLE

A review of the fern genus *Sticherus* (Gleicheniaceae) in New Zealand with confirmation of two new species records

P.J. Brownsey, R. Evans, B. Rance, S. Wallis, and L.R. Perrie

Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand, Department of Conservation, Science and Technical Services, Te Amanu Area Office, Te Aro, New Zealand, and Department of Conservation, Wellers Bay Area Office, Takaka, New Zealand


Diversity of *Brassica* (Brassicaceae) species naturalised in Canterbury, New Zealand

P. B. Heenan

R. G. Fitzjohn

Genus placement in *Labellia* and revised taxonomy for New Zealand species previously in *Hypsola* and *isomoea* (Labelliacae)

P. B. Heenan

Allan Herbarium

Landcare Research

PO Box 40

Lincoln 7640, New Zealand

E. B. Knox

Indiana University Herbarium

Department of Biology

Taxonomic revision of Australasian snow hebes (Veronica, Plantaginaceae)

Museum of New Zealand Te Papa Tongarewa

PO Box 467, Wellington 6146, New Zealand

Email: siodia@tepapa.govt.nz

Gingidia grisea (Asteraceae), a new species from north-east Otago, South Island, New Zealand

P. B. Heenan

Allan Herbarium

Landcare Research

PO Box 40

Lincoln 7640, New Zealand

Abstract A new north-east Otago endemic, *Gingidia grisea*, is described. A unique feature of the species is the origin of the type locality and is distinguished from other species in the genus by being a plant of a high percentage of malformed pollen from consistent with being the putative interspecific hybridisation. One plant has a flow cytometry pattern and a high percentage of malformed pollen

Taxonomic notes on the New Zealand flora: the status of *Schizaea australis* and *S. fistulosa*, and lectotypes in Lygodiaceae and Schizaeaceae

P.J. Brownsey and L.R. Perrie

Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand

The status of *Schizaea australis* and *S. fistulosa* in New Zealand has been uncertain. Recently, the results of a morphological analysis of 66 herbarium collections assigned to *S. australis* or *S. fistulosa* were presented to show that two separate species are found in New Zealand, and that hybrids may occur in a few places where their distributions overlap. Lectotypes are also chosen for four species in this genus.
Phylogenetic analyses and DNA diagnostics
Why is knowledge of the plants in New Zealand important?

• Conservation
  – threatened species management
  – important ecosystems
  – circa 450 unnamed flowering plants

• Biosecurity
  – MPI Border
  – Regional Pest Management Strategies
  – National Pest Plant Accord

• Research
  – e.g., Marsden research on moa diets (leaf cuticle, pollen, DNA) and human colonisation (seeds, pollen) of New Zealand
  – e.g., biocontrol – species relationships, insect/pathogen hosts
Dynamic not static – additions to the New Zealand flora

• New records and species
  – Grass - *Piptochaetum depressum* – Banks Peninsula (2012)
  – Ferns - *Sticherus tener* and *S. urceolatus* – western South Island (2013)
  – Flowering plants – *Lepidium* revision & *Gingidia* sp. nov.

• Naturalised plant records
  – c. 1,000 new records since 1988 (25 years)

• New distributional information
  – *Dicksonia fibrosa* naturalised in Auckland (2013)
  – *Nassella trichotoma* in south Canterbury (2013)
Traditional New Zealand Floras
Traditional New Zealand Floras in progress

Moss Flora - Allan Fife & Jessica Beever
• 516 species in 202 genera and 60 families
• Illustrations for all species (Rebecca Wagstaff)

Liverwort and Hornwort Flora – David Glenny & John Engel
• Three volumes
• 1/3 of the 600 species
• First liverwort Flora for a southern hemisphere region
Limitations of traditional Floras...
<table>
<thead>
<tr>
<th>Volume</th>
<th>Printed</th>
<th>Est. Entries Current</th>
<th>NZ flora Covered</th>
<th>Est. Collection Growth (CHR)</th>
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<td>1</td>
<td>1961</td>
<td>65%</td>
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<td>1970</td>
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<td>1988</td>
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<td>5</td>
<td>2000</td>
<td>97%</td>
<td>87%</td>
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Small clumps; rhizome short. Stems 25–75 cm × 0.75–1.5 mm, wiry, dull green or reddish, pH interrupted in a regular pattern by very small cavities. Inflorescence of 2 clusters, one pressed against stem, one on a slender branch. Stamens 3–4. Capsule 2.5–3.3 mm long, often < tepals.
N. S., Ch. Scattered throughout in damp places, sometimes on drier grassy slopes.


Fig. 17
Tightly packed clumps; rhizome short. Stems 60–200 cm × (1)–2–3 mm, wiry, bright green, smooth, shining, pH usually interrupted. Inflorescence very variable, few to many-flowered, open and branched or a compact head. Stamens 3. Capsule 1.5–2 (2.3) mm long, usually < tepals.
K., N., S., St., Ch. Very common throughout in damp ground. (Australia)

Very tall and robust; rhizome short. Stems 1–2 m × 3–8 mm, light green, pH tints. Inflorescence large, diffuse or compact, with numerous light coloured flowers. Stamens 6. Capsule 3.5–3.5 mm long, distinctly > tepals.
N., S., St., Ch. Throughout, usually not far from the coast; damp places. (Australia)
Our goal is to provide New Zealand with a dynamic, continually updated, electronically-based Flora.
Next generation of Floras….

• Up-to-date, based on new systematic research

• Dynamic, electronically based

• Available in variety of forms

• Authoritative
Atomic, highly linked data
– New research
– Data linked to specimen
Example: Pubescence

- Technical
  - Glabrous
  - Ciliate
  - Floccose
  - Pilose
  - Tomentose
  - ...

- User friendly
  - Hairless
  - Hairy
Specimen  | Terminal stem diameter (mm)  
--- | ---  
1   | 2.5, 2.6, 2.7, 2.8, 3.7, 3.9  
2   | 6.5  
3   | 4.0  
4   | 1.6, 2.9, 4.4  
5   | 1.3  
6   | 5.8  
7   | 8.7, 10.5  
8   | 9.6, 10.5, 11.3  
... | ...  

New Zealand: 1.3 – 11.3  
Nelson/Marlborough: 4 – 11.3
"TaxonName": "Hypericum androsaemum L.",
"Description": "Shrub, not rhizomatous, up to 1.5 m high. Stems spreading, terete, 2-lined, black glands absent or rarely present and sparse. Leaves 35.0-100.0 mm long, 20.0-57.0 mm wide, ovate, broadly ovate, ovate-oblong or elliptic-ovate, glabrous, reticulate tertiary veins absent; pellucid glands inconspicuous; black glands usually absent or present but sparse; apex acute, subacute, obtuse or rounded, mucro less than 0.1 mm long; margin entire; base cordate or truncate; sessile. Inflorescence terminal, in cymes, flowers 2-9, corolla 15.0-25.0 mm diam. Pedicels 10.0-30.0 mm long. Erectocleps 0.4-0.7 mm long, 0.3-0.4 mm wide, triangular or triangular-ovate, apex obtuse. Sepals 5, 7.0-12.0 mm long, 3.5-7.5 mm wide, unequal, accrescent, reflexed when mature, ovate, broadly ovate, elliptic-ovate or elliptic-oblong; pellucid glands present; black glands absent or present but sparse; apex subacute, obtuse or rounded; margin entire. Petals 8.0-10.0 mm long, 5.0-5.5 mm wide, more or less equals sepals, ovate, elliptic, ovate-elliptic or ovate-ovate, pale yellow, black glands absent, caducous after anthesis. Stamens in 5 bundles, 77-110, 5.5-11.0 mm long, equal or greater than petals; anthers 0.5-0.6 mm long, anther gland orange-brown. Ovary c. 4.5 mm long, 3.5-4.0 mm wide, broad ovoid. Styles 3, 2.5-4.0 mm long, shorter than ovary. Fruit baccate, 8.5-12.0 mm long, 8.0-12.0 mm wide, globose, red, becoming black, indischiscent. Seeds 0.9-1.2 mm long, 0.4-0.5 mm wide, oblong, terete but asymmetric with protruding gland, brown to brown, apices obtuse or rounded.",
"Recognition": "A shrub or subshrub with terete and 2-lined stems, the leaves often with reddish blotches, small (8.0-10.0 mm long) petals that are equal to or slightly longer than the sepals, 3 styles (2.5-4.0 mm long) that are half the length of the ovary, and the fruit being indischiscent, fleshy and black. The leaves usually lack black glands, but very rarely some plants have small groups of black glands scattered over the abaxial surface. This species and H. xindorium are the only naturalised species with fleshy fruit. H. xindorium is distinguished by petals 1.5-2.0 times longer than sepals, styles much longer (12.0-12.5 mm long) than the ovary, fruit bright red, and outer sepals broadly ovate.",
"Habitat": "A common weed in higher rainfall areas where it occurs in open forest, forest margins, scrub and other secondary growth, waste places and garden surrounds.",
"Author": "P.B. Heenan (2010)",
"FactSheetURL": "http://www.nzflora.info/factsheet/taxon/Hypericum androsaemum.html",
"Copyright": "© Landcare Research 2010 - 2013"
eFlora content

• Existing Flora of New Zealand volumes
• Recently published work
• New treatments
Ferns

- New family treatments of indigenous and naturalised species. To date:
  - Australian species recognised as indigenous to New Zealand
  - new species named
  - species boundaries clarified
  - names typified
Moss Flora: decision to publish in eFlora

- Statement of the current knowledge
- Identification keys
- Identification of knowledge gaps
- Illustrations of 516 species in 65 families

*Dawsonia superba*
Drawn by Rebecca Wagstaff
Veronica tubata
Veronica lilliputiana
Veronica hulkeana
Veronica elliptica
Veronica cupressoides
Veronica hookeriana
Veronica tetragona
Veronica salicifolia
Veronica chionohebe
Veronica raoulii
Veronica venustula
Phil Garnock-Jones
Our goal is to provide New Zealand with a dynamic, continually updated, electronically-based Flora.
<table>
<thead>
<tr>
<th>Taxonomic Rank</th>
<th>Genus (1)</th>
<th>Species (19)</th>
<th>Subspecies (2)</th>
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<th>Management Status</th>
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<th>National Priority Critical (1)</th>
<th>Naturally uncommon (1)</th>
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<th>Origin</th>
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<th>Indigenous (Non-endemic) (3)</th>
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<th>Origin uncertain (1)</th>
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<th>Occurrence</th>
<th>Fully Naturalised (14)</th>
<th>Casual (2)</th>
<th>Present in Wild (1)</th>
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<th>Author</th>
<th>P.B. Hopper (2010) (2)</th>
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**Hypocenmum sodorum Mill.**
Shrub, not rhizomatous, up to 2 m high. Stems spreading, terete, 2-lined, black glands absent. Leaves 25.0–75.0 mm long, 9.0–40.0 mm wide, ovate-elliptic, ovate-oblong or narrowly ovate, glabrous, reticulate tertiary veins visible; pellucid glands present, black glands absent, apex subacute or obtuse, often mucronulate, margin entire, base obtuse or truncate; ocellate, inflorescence terminal, in spines, flowers 5–15, corolla 25–45 mm diam. Pedicels 10.0–20.0 mm long. Bracteoles 1.8–3.5 mm long, 0.2–0.5 mm wide, lanceolate or linear-lanceolate, apex acuminate. Sepals 5.4.0–8.0 mm long, 1.9–3.7 mm wide, acroscent, ovate or ovate-oblong; pellucid glands present, black glands absent; apex acute; margin entire. Petals 20.0–22.0 mm long, longer than sepals, ovate, medium yellow, black glands absent, caducous after anthesis. Stamens in 5 bundles, 180–200, 100.0–23.0 mm long, variable in length, equal or shorter than petals, anthers 0.5–0.8 mm long, anther gland yellow. Ovary 4.5–6.5 mm long, 3.5–5.5 mm wide, ovoid. Styles 3, 1.0–4.0 mm long, longer than ovary. Fruit bacate, 7.0–13.0 mm long, 7.0–6.0 mm wide, ovoid or ellipsocylindrical, shining red, dehiscent. Seeds 0.0–1.0 mm long, c. 3.5 mm wide, narrow ovoid or narrowly ovoid, terete, brown.

**Hypocenmum androsorium L.**
Shrub, not rhizomatous, up to 1.5 m high. Stems spreading, terete, 2-lined, black glands absent or rarely present and sparse. Leaves 35.0–100.0 mm long, 20.0–67.0 mm wide, ovate, broadly ovate, ovate-oblong or elliptic-ovate, glabrous, reticulate tertiary veins absent; pellucid glands inconspicuous; black glands usually absent or present but sparse; apex acute, subacute, obtuse or rounded, median less than 0.1 mm long; margin entire, base cordate or truncate; ocellate, inflorescence terminal, in spines, flowers 3–6, corolla 15.0–25.0 mm diam. Pedicels 10.0–30.0 mm long. Bracteoles 0.4–0.7 mm long, 0.3–0.4 mm wide, triangular or triangular-ovate, apex obtuse. Sepals 5.7.0–12.0 mm long, 3.5–7.8 mm wide, unequal, acroscent when mature, ovate, broadly ovate, elliptic-ovate or elliptic-oblong; pellucid glands present; black glands absent or present but sparse; apex subacute, obtuse or rounded, margin entire. Petals 8.0–10.0 mm long, 6.0–5.5 mm wide, more or less equal; oocytes, ovate, elliptic, ovate-elliptic or obovate, pale yellow, black glands absent, caducous after anthesis. Stamens in 5 bundles, 77–110, 6.5–11.0 mm long, equal or greater than petals; anthers 0.5–0.8 mm long, anther gland orange-brown. Ovary c. 4.5 mm long, 3.5–4.0 mm wide, broad ovoid. Styles 3, 2.5–4.0 mm long, shorter than ovary. Fruit bacate, 6.5–12.0 mm long, 8.0–12.0 mm wide, globose, red, becoming black, indehiscent. Seeds 0.6–1.3 mm long, 0.4–0.5 mm wide, oblong, terete but asymmetric with protruding gland, red brown to brown, spines ocellate or rounded.

**Hypocenmum calycinum L.**
Shrub, strongly rhizomatous, up to 0.8 m high. Stems upright, quadrangular, 4-lined; black glands absent. Leaves 30.0–100.0 mm long, 11.0–25.0 mm wide, narrowly ovate, elliptic, ovate-elliptic or ovate-oblong, glabrous, reticulate tertiary veins visible; pellucid glands absent; black glands usually absent or rarely present but in small, scattered groups; apex subacute or obtuse; margin entire, base cuneate, obtuse or rounded; sessile. Inflorescence terminal, in spines, 25–50, 5.0–8.0 mm long; pedicels 10.0–30.0 mm long. Bracteoles 0.6–1.0 mm long, 0.3–0.5 mm wide, lanceolate or linear-lanceolate, apex acuminate. Sepals 5.4.0–6.0 mm long, 1.5–3.0 mm wide, acroscent, ovate or ovate-oblong; pellucid glands present, black glands absent; apex acute; margin entire. Petals 18.0–25.0 mm long, 3.0–5.0 mm wide, ovoid or ellipsocylindrical, shining red, dehiscent. Seeds 0.5–1.0 mm long, c. 3.0 mm wide, narrow ovoid or narrowly ovoid, terete, brown.
Found 2 result(s)

_Hypericum androsaemum_ L.
Shrub, not rhizomatous, up to 1.5 m high. Stems spreading, terete, 2-lined, black glands absent or rarely present and sparse. Leaves 35.0–100.0 mm long, 20.0–67.0 mm wide, ovate, broadly ovate, ovate-elliptic or elliptic-ovate, glabrous, reticulate tertiary veins absent; pellucid glands inconspicuous, black glands usually absent or present but sparse, apiculate, subacute, obtuse or rounded, midrib less than 0.1 mm long; margin entire, base cordate or truncate, sessile. Inflorescence terminal, in cymes, flowers 2–9, corolla 15.0–25.0 mm diam. Pedicels 10.0–30.0 mm long. Bracteoles 0.4–0.7 mm long, 0.3–0.4 mm wide, triangular or triangular-ovate, apex obtuse. Sepals 5, 7.0–12.0 mm long, 3.5–7.5 mm wide. Unequal, accrescent, reflexed when mature, ovate, broadly ovate, elliptic-ovate or elliptic-oblong, black glands absent or present, black glands absent or present but sparse, apex subacute, obtuse or rounded, margin entire. petals 8.0–10.0 mm long, 5.6–5.8 mm wide, more or less equal, ovate, ovate, elliptic, ovate-elliptic or oblanceolate, pale yellow, black glands absent, caducous after anthesis. Stamens in 5 bundles, 77–110, 6.5–11.0 mm long, equal or greater than petals, anthers 0.5–0.9 mm long, anther gland orange-brown. Ovary 4.5 mm long, 3.5–4.0 mm wide, broad ovoid. Styles 3, 2.5–4.0 mm long, shorter than ovary. Fruit bacca, 8.0–12.0 mm long, 8.0–12.0 mm wide, globose, red, becoming black, indehiscent. Seeds 0.9–1.2 mm long, 0.4–0.5 mm wide, ovate, terete or oblong, with as many as 5 black, globose to crown, apicose, obtuse or rounded.

*Magnoiopsis* > *Malvaceae* > *Hypericaceae* > *Hypericum*

_Hypericum perforatum_ L.
Herbaceous perennial, woody stock, rhizomatous, up to 1 m high. Stems erect, up to 5.0 mm diam, terete, 2-lined, black glands present on lines, sparse. Leaves 7.0–27.0 mm long, 1.0–5.0 mm wide, elliptic-lanceolate, linear-lanceolate or obovate-lanceolate, glabrous, reticulate tertiary veins absent; pellucid glands numerous; black glands intramarginal; apex acute, subacute or obtuse; margin entire, base attenuate, cuneate or obtuse; petiole 0.2–0.5 mm long. Inflorescence terminal, paniculate, bracts 0.3–0.5 mm long, 0.2–0.3 mm wide. Pedicels 1.0–10.0 mm long. Sepals 5, 3.0–7.0 mm long.
**Hypericum androsaemum L.**

**Classification**
- **Class:** Magnoliopsida
- **Order:** Magnoliales
- **Family:** Hypericaceae
- **Genus:** Hypericum

**Scientific Name:** Hypericum androsaemum L., Sp. Pl., 784 (1753)

**Synonymy:**

**Vernacular Name(s):** tutsan

**Description**
Shrub, not rhizomatous, up to 1.5 m high. Stems spreading, terete, 2-lined, black glands absent or rarely present and sparse. Leaves 35.0–100.0 mm long, 20.0–67.0 mm wide, ovate, broadly ovate, ovate-oblong or elliptic-ovate, glabrous, reticulate tertiary veins absent; pellucid glands inconspicuous; black glands usually absent or present but sparse; apex acute, subacute, obtuse or rounded, margin entire, base cordate or truncate; sessile. Inflorescence terminal, in cymes, flowers 2–3, corolla 15.0–25.0 mm diam. Pedicels 10.0–30.0 mm long. Bracteoles 0.4–0.7 mm long, 0.3–0.4 mm wide, triangular or triangular-ovate, apex obtuse. Sepals 5, 7.0–12.0 mm long, 3.5–7.5 mm wide, unequal, accrescent, reflexed when mature, ovate, broadly ovate, elliptic-ovate or elliptic-oblong; pellucid glands present; black glands absent or present but sparse; apex subacute, obtuse or rounded; margin entire. Petals 8.0–10.0 mm long, 5.0–5.5 mm wide, more or less equal; sepals, ovate, elliptic, elliptic-elliptic or obovate, pale yellow, black glands absent, caducous after anthesis. Stamens in 5 bundles, 77–110, 6.5–11.0 mm long, equal or greater than petals; anthers 0.5–8.0 mm long, other gland orange-brown. Ovary c. 4.5 mm long, 3.6–4.0 mm wide, broad ovate. Styles 3, 2.5–4.0 mm long, slender than ovary. Fruit bacate, 6.5–12.0 mm long, 8.0–12.0 mm wide, globose, red, becoming black, indument. Seeds 0.9–1.2 mm long, 0.4–0.5 mm wide, oblong, terete but asymmetric with protruding gland, red-brown to brown, spines obtuse or rounded.

**Recognition**
A shrub or subshrub with terete and 2-lined stems; the leaves often with reddish blotches, small (8.0–10.0 mm long) petals that are equal to or slightly longer than the sepals; 3 styles (2.5–4.0 mm long) that are half the length of the ovary, and the fruit being indehiscent, fleshy and black. The leaves usually lack black glands, but very rarely some plants have small groups of black glands scattered over the abaxial surface. This species and *H. kinodorum* are the only naturalised species with fleshy fruit. *H. kinodorum* is distinguished by petals 1.6–2.0 times length of sepals, styles much longer (12.0–12.5 mm long) than the ovary, fruit bacate.
Hypericum androsaemum L.

**Common names:** tuban  
**Family:** Hypericaceae  
**Origin:** South and West Europe  
**New Zealand Distribution:** North Island, South Island, Stewart Island, Chatham Islands, Campbell Island  
**Habitat:** bank, cliff, coast, forest, forest edge, gorge, gravel, gull, hillside, lake margin, lowland, margin, moist, open, pasture, riparian, roadside, rock outcrops, sand, shrubland, slope, shady, terrace, track, woodland  
**Phenology:** Flowering: Summer; Fruiting: Autumn  
**Dispersal:** Seed  
**Management Status:** Biosecurity New Zealand (2008); Biosecurity New Zealand (2012); Biosecurity New Zealand (4 Aug 2011); Howells (2006)  
**Toxicity:** Conroy (1977)

**Recognition**
- A small drought-tolerant shrub usually growing up to 1 m tall with slender, somewhat woody, slightly winged stems.  
- Its green or reddish leaves are oppositely arranged, hairless, and either stalkless or stem-clinging.  
- Its flowers (1.5-3 cm across) have five yellow petals and five greenish-coloured sepals that are almost the same size.  
- Its fleshy berries (1-12 mm across) are initially green in colour but turn red and then purplish or blackish as they mature.

[From: *Environmental Weeds of Australia*]

**Links**
- Weeds Key – interactive key to the weed species of New Zealand

**References**
Hypericum androsaemum L.

**Classification**
- **Class**: Magnoliopsida
- **Order**: Magnoliales
- **Family**: Hypericaceae
- **Genus**: Hypericum

**Name**: Hypericum androsaemum L.

**Scientific Name**: Hypericum androsaemum L., Sp. Fil. 784 (1753)

**Synonym**: Lectotype: Herb. Clifford 330, Hypericum 4, BM 000646005 (Robson 1985).

**Vernacular Name(s)**: Healing Herb

**Description**
A shrub or small tree, 1.5 m high. Stems spreading, terete, 2-lined, black glands absent or rarely present and sparse. Leaves: 3.0-4.7 mm long, 0.3-0.4 mm wide, ovate, broadly ovate, elliptic-ovate or elliptic-oblong, glabrous, reticulate-textured, margins entire, black glands inconspicuous, sparsely or absent, black glands usually absent or present but sparse; spines acute, subacute, obtuse or rounded, spine less than 0.1 mm long, margin entire, base cuneate or truncate, sessile. Inflorescence terminal, in cymes, flowers 2-5, calyx 15-25 mm, fringed. Pedicels 18-30 mm, black glands absent or present but sparse; spines acute, obtuse or rounded, spine less than 0.1 mm long, 0.3-0.4 mm wide, more or less equally spaced, ovate, elliptic, ovate-elliptic or orbiculate, pale yellow, black glands absent, caducous after anthesis. Stamens in 5 bundles, 77-110, 6.5-11.0 mm long, equal or greater than petals; anthers 0.5-0.8 mm long, anther gland orange-brown; ovary 0.4-0.6 mm long, 3.5-4.0 mm wide, broad ovoid. Styles 3, 2.5-4.0 mm long, shorter than ovary. Fruit bicapitulate, 8.5-12.0 mm long, 8.0-12.0 mm wide, globose, red, becoming black, indescent. Seeds 0.3-0.4 mm long, 0.4-0.5 mm wide, oblong, terete but asymmetric with protruding gland, reddish to brown, apices obtuse or rounded.

**Recognition**
A shrub or small tree with terete and 2-lined stems, the leaves often with reddish blotches, small terminal shoot black gland, but very rarely some plants have small groups of black glands scattered over the abaxial surface. This species and H. androsaemum are the only naturalized species with fresh fruit in New Zealand, H. androsaemum is distinguished by petals 1.5-2.0 times length of sepals, styles much longer (12.0-12.5 mm) than the ovary, fruit bright red, and outer sepals broadly ovate.

**Distribution**
**Polypodium vulgare L.**

**Classification**
- **Class**: Polypodiopsida
- **Order**: Polypodiales
- **Family**: Polypodiaceae
- **Genus**: Polypodium

**Nomenclature**
- **Scientific Name**: Polypodium vulgare L., Sp. Pl., 1805 (1753)
- **Synonymy**: LECTOTYPE (selected by Jurd & Janis 1993). Herb. Burser XC. 43, UPS.
- **Etymology**: From the Latin vulgare (common), a reference to the plant in its native range.
- **Vernacular Name(s)**: common polypody

**Description**
Rupicolous or terricolous, creeping fern. Rhizomes long-crawling, 4.7 mm diameter, scaly. Rhizome scales non-clasping, ovate, 2.6 mm long, 0.9-2 mm wide, squamose, orange-brown, entire or toothed towards the apex. Fronds 100-550 mm long. Sori 20-550 mm long, not winged except near base of lamina, yellow-brown, glabrous. Laminae 1-pinnate, once to secondarily pinnate, 100-300 mm long, 80-120 mm wide, mid-green turning yellow-green with age, herbaceous to cyanophilous, glabrous except for widely scattered scales at base. Pinnae 9-26 pairs, 30-70 mm long, 6-11 mm wide, elliptic, apex obtuse, margins minutely serrate, decurrent at base, adnate to rachis. Veins reticulate, usually forming 1 series of veins between costa and lobe margin.

**Recognition**
This species is superficially similar to species of Microsorum. It can be distinguished by the lamina, at least in its lower third, being divided right to the rachis to form distinct pinnae, whereas in Microsorum the lamina is only over pinnae. Also, the pinna margins are minutely serrate, in contrast to the entire margin in Microsorum.

**Distribution**
- **North Island**: Southern North Island.
- **South Island**: Canterbury.

Alitudinal range: 0-700 m.

A European and Asian species first recorded from the Port Hills of Christchurch (Lowe 1980). It was first observed in the 1960s and is now spreading aggressively in that area, being viewed from Godley Head to Governors Pass, on Quail Island, and on parts of Banks Peninsula. More recently it has also been collected from several sites in Canterbury between Christchurch and Kaikoura, as far inland as the Awatere Valley, and from Kaikoura Bay north of Parapara (Shepherd & Pernet 2006). It occurs from near sea level around Wellington, to over 200 m in the North Canterbury hills.

**Habitat**
On coastal cliffs, road banks, volcanic rock bluffs, and on greywacke rock under dry scrub or shrub or forest vegetation.

**Biostatus**
Exotic
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Agathis australis (kauri) distribution
**Hypericum L.**

**Classification**

- **Class**: Magnoliopsida
- **Order**: Malpighiales
- **Family**: Hypericaceae

**Subordinate Taxa**

- Hypericum androsaemum
- Hypericum clandestinum
- Hypericum comosum
- Hypericum comosumefolium
- Hypericum comosumefolium
- Hypericum comosumefolium
- Hypericum comosumefolium
- Hypericum comosumefolium
- Hypericum comosumefolium
- Hypericum comosumefolium
- Hypericum comosumefolium

**Nomenclature**

- **Scientific Name**: Hypericum L., Sp. Pl., 783 (1753)
- **Type Taxon**: Hypericum perforatum L.
- **Vernacular Name(s)**: Aaron's beard, goldflower, Saint John's wort

**Description**

Shrubs, subshrubs, perennial herbs, or annuals, often with annual stems; containing resin or oil in schizogenous spaces or canals and sometimes black or red glands containing hypericin or pseudohypericin. Stems terete or quadrate, sometimes angular, often with raised lines. Leaves simple, sessile or shortly petiolate, usually with pilose glands, often dotted with black glands, margin usually entire, glabrous or occasionally with single hairs. Inflorescences terminal, sometimes lateral, in panicles or cymes; flowers bisexual or unisexual, regular, hypogynous. Bracteoles often inserted below calyx. Sepals usually 4, sometimes 5, petals usually 4, sometimes 5, free, constricted at base, golden to lemon yellow, abaxially sometimes tinged red, often oblique. Staminodes usually connate at base in 3, 4 or 5 bundles, sometimes antipetalous; anther dehisces longitudinally. Ovary superior, 3-5-loculed with axile placenta, or 1-loculed with parietal placenta, each placenta with 2-many ovules; styles usually 3-5, sometimes free or partly to completely united. Fruit usually a septifixed capsule, valves often with oil-containing vesicles; sometimes baccate. Seeds oblong or cylindric, often carinate or narrowly unilaterally winged.

**Key**

1. Black glands absent from stems, leaves, sepals and petals, or rarely present on leaves but then only in small groups; styles 3 or 5
2. Black glands present on stems, leaves, sepals or petals; styles 3

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Author(s): P.B. Heenan (2010)
Flowering plants of Australia: Genera of Caesalpinioideae

Current node

- Leaves imparipinnate, digitate or unifoliolate
- Leaves paripinnate

Remaining entities (16)
- Cassia
- Ceratonia silicula
- Chamaecrista
- Crudem
- Ceratonia siliqua
- Gleditsia triacanthos
- Haematoxylum campechianum
- Intsia bijuga
- Lebicichia
- Manilkara tiliacea
- Parkinsonia aculeata
- Petalostylis
- Senna
- Sindora supa
- Stoeckelia australiensis
- Tamarindus indica

Path
1. Leaves compound, rarely unifoliolate and then usually punctate-pointed apically
2. Leaves simply pinnate, rarely unifoliolate
3. Pending question

Discarded entities (6)
- Barklya sringifolia
- Bauhinia
- Caesalpinia
- Dolonix regia
- Erythrophleum chlorostachys
- Peltophorus pterocarpum
Eragrostis curvula (Schrad.) Nees

Common names:
- African love grass
- Pongoro, Weeping love grass

Family: Gramineae (Juss.)

Origin: Africa

Habitat: Banks, dry grassland, hill pasture, roadside, sand, dune, wetland


Description
- Stiff, densely tufted perennials, to 70 cm, branching intramurally, stems 3–6 mm thick, rigid, light creamy brown at base, purplish above, with short, dirty brown, abaxially glabrous, axially ribbed, its minutely scabrid, many-celled Cyma, 10–20 cm, rarely branched above, erect, internodes glabrous, slightly open, branches ascending to later spreading, solitary or branched
- Spikelets 4.5–6.8 mm, 4.5–6.8 mm, 4.5–6.8 mm; flower, a smooth, not very crowded, 1-flowered, oblong-ovate; apex subacute, minutely scabrid; 3–5-nerved, membranous, elliptic-oblong, obtuse, hardly keeled, truncate-collate, Rachis glabrous, 0.8–0.8 mm, 0.8–0.8 mm, 0.8–0.8 mm, 3–5 mm

Recognition
- A relatively large and tufted long-lived grass with stems growing 30–120 cm tall
- Its stems and leaves are mostly upright but are sometimes arched or slightly weeping in nature
- Its leaf blades are linear and often have inrolled margins
- Its seedhead is a much-branched panicle with a large number of greenish-green or purplish-coloured flower spikelets
- These fewer spikelets are flattened, integument in shape, and contain 4–13 tiny flowers

From: Environmental Weeds of Australia

Links
- Heads Key – Interactive key to the weed species of New Zealand

References

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New Zealand interactive keys

Available (chronological order):

- Australasian liverwort and hornwort genera
- Grasses
- NPPA/Weeds key
- Cultivated pines (SCION)
- Native plants of schools and marae
- *Coprosma*
- Flowering plant genera
- Native orchids
- Ferns & conifers of Cass
- Key to plants and animals of the Styx
- Weedy daisies of the South Pacific
Apps for New Zealand interactive identification keys
Next steps for Flora of NZ

- **Develop tools**
  - Traits toolkit
  - Integration of work flow tools
  - Different profiles
  - Feeds to NZPCN...
  - Apps for smartphones
  - Exploring different types of keys
  - Complete pdf maker work

- **Add content**
  - New version of Lichen Flora
  - Moss Flora treatments
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  - Diagnostic images
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