Government of **Western Australia**
Department of **Environment and Conservation**

INTERIM RECOVERY PLAN NO. 336

ANDROCALVA ADENOTHALIA
(formerly *Commersonia adenothalia*)

INTERIM RECOVERY PLAN

2013–2018

February 2013
Department of Environment and Conservation
Kensington

FOREWORD

Interim Recovery Plans (IRPs) are developed within the framework laid down in Department of Conservation and Land Management (CALM) Policy Statements Nos. 44 and 50. Note: CALM formally became the Department of Environment and Conservation (DEC) in July 2006. DEC will continue to adhere to these Policy Statements until they are revised and reissued.

Plans outline the recovery actions that are required to urgently address those threatening processes most affecting the ongoing survival of threatened taxa or ecological communities, and begin the recovery process.

DEC is committed to ensuring that Threatened taxa are conserved through the preparation and implementation of Recovery Plans (RPs) or IRPs, and by ensuring that conservation action commences as soon as possible and, in the case of Critically Endangered (CR) taxa, always within one year of endorsement of that rank by the Minister.

This plan will operate from February 2013 to January 2018 but will remain in force until withdrawn or replaced. It is intended that, if the species is still ranked as CR, this plan will be reviewed after five years and the need for further recovery actions assessed.

This plan was given regional approval on 18th January 2013 and was approved by the Director of Nature Conservation on 7th February 2013. The provision of funds identified in this plan is dependent on budgetary and other constraints affecting DEC, as well as the need to address other priorities.

Information in this plan was accurate at February 2013.

PLAN PREPARATION

This plan was prepared by Robyn Luu[1] and Andrew Brown[2].

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ACKNOWLEDGMENTS

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Anthony Desmond	Regional Leader Nature Conservation, DEC Midwest Region
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Carol Wilkins	Adjunct Lecturer, The University of Western Australia; Research scientist, DEC Science Division

Thanks also to the staff of the W.A. Herbarium for providing access to Herbarium databases and specimen information.

Cover photograph by Andrew Crawford.

CITATION

This plan should be cited as:

Department of Environment and Conservation (2013) *ANDROCALVA ADENOTHALIA* (formerly *Commersonia adenothalia*) Interim Recovery Plan 2013–2018. Interim Recovery Plan No. 336. Department of Environment and Conservation, Western Australia.

SUMMARY

Scientific name:	***Androcalva adenothalia***	**Common name:**	NA
Family:	Malvaceae	**Flowering period:**	August to October
DEC region:	Midwest	**DEC district:**	Geraldton
Shire:	Morawa	**NRM region:**	NACC
Recovery team:	Geraldton District Threatened Flora Recovery Team (GDTFRT)	**IBRA region:**	Avon Wheatbelt
		IBRA subregion:	Avon Wheatbelt P1

Distribution and habitat: *Androcalva adenothalia* was, until recently, known from one location near Canna where it grew in *Acacia* and *Allocasuarina* scrub with occasional mallee in orange/brown sand, gravel, and laterite.

Habitat critical to the survival of the species, and important populations: *Androcalva adenothalia* is ranked as CR in WA and it is considered that all known habitat for the known wild population is critical to the survival of the species. Habitat critical to the survival of *Androcalva adenothalia* includes the area of occupancy of previously known plants, areas of similar habitat surrounding and linking the area (these providing potential habitat for population recovery and for pollinators), additional occurrences of similar habitat that may contain undiscovered populations of the species or be suitable for future translocations, and the local catchment for the surface and/or groundwater that maintains the habitat of the species.

Conservation status: *Androcalva adenothalia* is declared as rare flora (DRF) under the Western Australian *Wildlife Conservation Act 1950*.and is ranked Critically Endangered (CR) in WA under International Union for Conservation of Nature (IUCN 2001) Red List criteria B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v) due to an extent of occurrence of less than 100km^2; area of occupancy less than 10km^2; it being known to exist at just one location; and there being a continuing decline in the extent of occurrence, area of occupancy, area, extent and/or quality of habitat, number of locations, and number of mature individuals. The current area of occupancy is less than 0.5m^2. Due to vague collection details it is not known exactly what the extent of occurrence was in the past but it is likely to be less than 50km^2. At the time of the last survey, no plants were observed to be extant at the known location. The species is not listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999).

Threats: The main threats to the species are road maintenance, poor recruitment, inappropriate fire regimes, limited range, drought and future mining operations.

Existing recovery actions: The following recovery actions have been or are currently being implemented:

1. The Shire of Morawa has been made aware of the existence of this species and its location. The notifications detail the current status of the species as DRF and the associated legal obligations in regards to their protection.
2. An unsuccessful attempt was made by staff from DEC's Threatened Flora Seed Centre (TFSC) to collect seed from *Androcalva adenothalia* in October 2007.
3. Numerous surveys have been undertaken for *Androcalva adenothalia* by C. Wilkins, DEC staff, botanical consultants, Botanic Gardens and Parks Authority (BGPA) staff, and local volunteers since the species was collected in 1962.
4. Vegetative material was collected from *Androcalva adenothalia* in January 2008 and several plants have been raised in cultivation at the Botanic Gardens and Parks Authority (BGPA).
5. Staff from DEC's Geraldton District are monitoring the habitat of the last known population.
6. DEC with assistance from the GDTFRT is overseeing the implementation of threatened flora recovery/management in the Geraldton District which will also incorporate implementation of this plan.

Plan objective: The objective of this plan is to abate identified threats and maintain or enhance *in situ* populations to ensure the long-term preservation of the species in the wild.

Criteria for success: New populations or plants found.

Criteria for failure: No new populations or plants found.

Recovery actions

1. Coordinate recovery actions
2. Undertake regeneration trials
3. Undertake surveys
4. Monitor site of last known population
5. Promote awareness
6. Liaise with the Shire of Morawa and Indigenous communities
7. Develop and implement a fire management strategy
8. Obtain biological and ecological information
9. Collect seed when possible
10. Install DRF markers
11. Develop a translocation proposal
12. Map habitat critical to the survival of *Androcalva adenothalia*
13. Review this plan and assess the need for further recovery actions

1. BACKGROUND

History

There have been just two collections of *Androcalva adenothalia*, the first from 'Morawa' by R.D. Royce in 1962 and the second from Canna by Carol Wilkins, Paul Offszanka and J. Wilkins in 2005. The similarity of the two location descriptions suggests that these sites may be the same. Surveys have failed to locate any other populations. In 2005, there were just two plants present on a degraded road reserve. One plant was cleared during road maintenance while the other died in 2009, possibly from drought. A seedling was observed in 2008 but died soon after, despite attempts by a local resident to keep it alive by hand watering. Currently there are no extant plants known. The species was known by the phrase name *Commersonia* sp. Canna (C.F. Wilkins 2030), and the manuscript name *Commersonia adenothalia* C.F. Wilkins ms. under which it was declared as rare flora. *Androcalva adenothalia* was formally described in 2011 (Wilkins and Whitlock (2011a).

Description

Androcalva adenothalia is a prostrate shrub to 0.03m high and to 0.25m wide. Flowers are white and appear in August. The species is derived from the Latin term which refers to the abundance of glands (Wilkins and Whitlock 2011a).

Illustrations and/or further information

Western Australian Herbarium (1998−) *FloraBase − The Western Australian Flora*. Department of Environment and Conservation. http://florabase.dec.wa.gov.au/. C.F. Wilkins & B.A. Whitlock (2011) A new Australian genus, *Androcalva*, separated from *Commersonia* (Malvaceae *s.l.* or Byttneriaceae). Austral.Syst.Bot. 24:290

Distribution and habitat

Androcalva adenothalia was, until recently, known from one location near Canna where it grew in *Acacia* and *Allocasuarina* scrub with scattered mallee *Eucalyptus* in orange/brown sand, gravel, and laterite.

Table 1. Summary of population land vesting, purpose and manager

Pop. no. & location	DEC district	Shire	Vesting	Purpose	Manager
1. SW of Canna	Geraldton	Morawa	Unvested reserve	Road reserve	Shire of Morawa

Biology and ecology

While suckering has not been observed in *Androcalva adenothalia* it is common in other species of the genus. *Androcalva* seeds exhibit physical dormancy and the species is likely to be a disturbance opportunist (A. Crawford pers comm.).

Conservation status

Androcalva adenothalia is declared as rare flora (DRF) under the Western Australian *Wildlife Conservation Act 1950*.and is ranked Critically Endangered (CR) in WA under International Union for Conservation of Nature (IUCN 2001) Red List criteria B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v) due to an extent of occurrence of less than 100km^2; area of occupancy less than 10km^2; it being known to exist at just one location; and there being a continuing decline in the extent of occurrence, area of occupancy, area, extent and/or quality of habitat, number of locations, and number of mature individuals. The current area of occupancy is less than 0.5m^2. Due to vague collection details it is not known exactly what the extent of occurrence was in the past but it is likely to be less than 50km^2. At the time of the last survey, no plants were observed to be extant at

the known location. The species is not listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999).

Threats

The main threats to the species are:

- **Road maintenance.** Threats include grading, chemical spraying, construction of drainage channels and the mowing of roadside vegetation.
- **Poor recruitment**. Little recruitment has been observed with the last known plant dying in 2009.
- **Changed fire regimes**. It is likely that occasional fires are needed for recruitment. However, fire may facilitate weed invasion and should be followed up with appropriate weed control.
- **Limited range.** A single catastrophic event has the potential to remove the last known area of habitat.
- **Drought.** Drought is a threat to the species and may have been the cause of recent deaths.
- **Future mining operations**. A mineral extraction lease covers the site and has the potential to severely impact or destroy the habitat if mining goes ahead.

The intent of this plan is to provide actions that will deal with immediate threats to *Androcalva adenothalia.* Although climate change may have a long-term effect on the species, actions taken directly to prevent the impact of climate change are beyond the scope of this plan.

Table 2. Summary of population information and threats

Pop. no. & location	Land status	Year / no. of plants	Current condition	Threats
1. SW of Canna	Road reserve	2005 2 2008 1 (1) 2009 0	Extinct	Road maintenance, poor recruitment, inappropriate fire regimes, limited range, drought

Note: Populations in **bold text** are considered to be important populations; ( ) = number of seedlings

Guide for decision-makers

Section 1 provides details of current and possible future threats. Actions for development and/or land clearing in the immediate vicinity of *Androcalva adenothalia* may require assessment.

Actions that could result in any of the following may potentially result in a significant impact on the species:

- Damage or destruction of previously occupied or potential habitat.
- Alteration of the local surface hydrology or drainage.
- A major increase in disturbance in the vicinity of the last known population.

Habitat critical to the survival of the species, and important populations

Androcalva adenothalia is ranked in WA as CR, and as such it is considered that all known habitat is critical to the survival of the species. Habitat critical to the survival of *A. adenothalia* includes the area of occupancy of the last known population, areas of similar habitat surrounding and linking the area (these providing potential habitat for population recovery and for pollinators), additional occurrences of similar habitat that may contain undiscovered populations of the species or be suitable for future translocations, and the local catchment for the surface and/or groundwater that maintains the habitat of the species.

Benefits to other species or ecological communities

Recovery actions implemented to improve the quality or security of the habitat of *Androcalva adenothalia* will also improve the status of associated native vegetation. There are no priority or rare flora species occurring within 500m of *C. adenothalia* and the species does not occur within or adjacent to any Threatened or Priority Ecological Communities (TECs/PECs).

International obligations

This plan is fully consistent with the aims and recommendations of the Convention on Biological Diversity, ratified by Australia in June 1993, and will assist in implementing Australia's responsibilities under that Convention. The species is not listed under Appendix II in the United Nations Environment Program World Conservation Monitoring Centre (UNEP-WCMC) Convention on International Trade in Endangered Species (CITES), and this plan does not affect Australia's obligations under any other international agreements.

Indigenous consultation

A search of the Department of Indigenous Affairs Aboriginal Heritage Sites Register revealed two sites of Aboriginal significance within one kilometre of the last known population of *Androcalva adenothalia*. These include site #5568 (man-made structures; open site) and #5456 (artefacts, open). Input and involvement is being sought through the South West Aboriginal Land and Sea Council (SWALSC) and Department of Indigenous Affairs to determine if there are any issues or interests with respect to management for this species in the vicinity of these sites. Indigenous opportunity for future involvement in the implementation of the recovery plan is included as an action in the plan. Indigenous involvement in management of the land is also provided for under the joint management arrangements in the *Conservation and Land Management Act 1984*.

Social and economic impacts

The implementation of this recovery plan may cause some economic impact. The population occurs on land managed by the Shire of Morawa and economic impact may be through the cost of implementing recovery actions (controlling weeds) and alteration to land management practices. The land containing the last known population is also subject to a mineral exploration lease. Although mining is not currently occurring in the area, there is potential for economic impact should operations commence.

Affected interests

The protection of the species may impact on Shire operations and maintenance. As the last known population was found on land that is subject to a mineral exploration lease, there may also be implications for the mining tenement holders.

Evaluation of the plan's performance

DEC, with assistance from the Geraldton District Threatened Flora Recovery Team (GDTFRT), will evaluate the performance of this plan. In addition to annual reporting on progress and evaluation against the criteria for success and failure, the plan will be reviewed following five years of implementation.

2. RECOVERY OBJECTIVE AND CRITERIA

Objective

The objective of this plan is to abate identified threats and maintain or enhance *in situ* populations to ensure the long-term preservation of the species in the wild.

Criteria for success: New populations or plants found.

Criteria for failure: No new populations or plants found.

3. RECOVERY ACTIONS

Existing recovery actions

The Shire of Morawa has been made aware of the existence of this species and its last known location. The notifications detail the current status of the species as DRF and the associated legal obligations in regards to its protection.

An unsuccessful attempt was made by staff from DEC's Threatened Flora Seed Centre (TFSC) to collect seed from *Androcalva adenothalia* in October 2007. At that time there was just one surviving plant and, while it appeared to flower well, it did not produce any seed.

Surveys have been undertaken for *Androcalva adenothalia* by C. Wilkins, DEC staff, botanical consultants, Botanic Gardens and Parks Authority (BGPA) staff and local volunteers. Areas surveyed included road verges, rail reserves, gravel reserves, vegetated fencelines, Morawa airport and areas surrounding the townsite. However, no new populations were located.

Vegetative material was collected from *Androcalva adenothalia* in January 2008 with several plants subsequently cultivated at the BGPA. These plants represent one clone.

Staff from DEC's Geraldton District monitor the habitat of the last known population.

DEC with assistance from the GDTFRT is overseeing threatened flora recovery/management in the Geraldton District, which will also incorporate implementation of this plan.

Future recovery actions

Where recovery actions are to occur on lands other than those managed by DEC, permission has been or will be sought from appropriate owners/land managers prior to recovery actions being undertaken. The following recovery actions are generally in order of descending priority, influenced by their timing over the life of the plan. However this should not constrain addressing any of the actions if funding is available and other opportunities arise.

1. Coordinate recovery actions

DEC, with assistance from the GDTFRT will coordinate recovery actions for *Androcalva adenothalia* and will include information on progress in annual reports to DEC's Species and Communities Branch and funding bodies.

Action: Coordinate recovery actions
Responsibility: DEC (Geraldton District) with assistance from the GDTFRT
Cost: $6,000 per year

2. Undertake regeneration trials

Natural disturbance events (physical or fire) may be the most effective means of germinating *Androcalva adenothalia* seed in the wild. Different disturbance techniques should be investigated (i.e. soil disturbance and fire), to determine the most successful and appropriate method. Records will need to be maintained for future research. Any disturbance trials will need to be undertaken in conjunction with weed control.

Action: Undertake regeneration trials
Responsibility: DEC (Science Division, Geraldton District) through the GDTFRT
Cost: $7,000 in years 1, 2and 3, $2,000 in years 4 and 5

3. Undertake surveys

It is recommended that areas of potential suitable habitat be surveyed for the presence of *Androcalva adenothalia* during its flowering period from August to October.

All surveyed areas will be recorded and the presence or absence of the species documented to increase survey efficiency and reduce unnecessary duplicate surveys. Where possible volunteers from the local community, landcare groups, wildflower societies and naturalists clubs will be encouraged to be involved.

Action: Undertake surveys
Responsibility: DEC (Geraldton District)
Cost: $5,000 per year

4. Monitor site of last known population

Monitoring of factors such as grazing, weed invasion, habitat degradation, hydrology (including salinity) and the presence of seedlings is essential.

Action: Monitor site of last known population
Responsibility: DEC (Geraldton District)
Cost: $10,000 per year

5. Promote awareness

The importance of biodiversity conservation and the protection of *Androcalva adenothalia* will be promoted to the public. This will be achieved through an information campaign using local print and electronic media and by setting up poster displays. An information sheet that includes a description of the plant, its habitat type, threats and management actions, and photos will be produced to support this campaign. Formal links with local naturalist groups and interested individuals will also be encouraged

Action: Promote awareness
Responsibility: DEC (Geraldton District, SCB, Strategic Development and Corporate Affairs Division) with assistance from the GDTFRT
Cost: $6,000 in years 1 and 2; and $2,000 in years 3-5

6. Liaise with the Shire of Morawa and Indigenous communities

Staff from DEC's Geraldton District will liaise with the Shire of Morawa to ensure that the habitat of the last known population of *Androcalva adenothalia* is not accidentaly damaged or destroyed. Indigenous consultation will take place to determine if there are any issues or interests in the area that was habitat for *A. adenothalia*.

Action: Liaise with the Shire of Morawa and Indigenous communities
Responsibility: DEC (Geraldton District)
Cost: $2,000 per year

7. Develop and implement a fire management strategy

Fire will be prevented from occurring in the habitat of the last known population, except where it is being used experimentally as a recovery tool. A fire management strategy will be developed that recommends fire frequency, intensity, season, and control measures.

Action: Develop and implement a fire management strategy
Responsibility: DEC (Geraldton District)
Cost: $10,000 in year 1 and $2,000 in subsequent years

8. Obtain biological and ecological information

Improved knowledge of the biology and ecology of the species will provide a scientific basis for management of *Androcalva adenothalia* in the wild. The collection of information may be limited depending on the presence of plants, however overall investigations will ideally include:

1. Soil seed bank dynamics and the role of various factors including disturbance, competition, drought, inundation and grazing in recruitment and seedling survival.
2. Reproductive strategies, phenology and seasonal growth.
3. Reproductive success and pollination biology (including self pollination potential).
4. Population genetic structure, levels of genetic diversity and minimum viable population size.
5. The impact of changes in hydrology in the habitat.

Action: Obtain biological and ecological information
Responsibility: DEC (Science Division, Geraldton District)
Cost: $10,000 per year

9. Collect seed when possible

If plants are located, seed will be collected as soon as possible and stored at the TFSC. Collections should aim to sample and preserve the maximum range of genetic diversity possible (which should be determined by an appropriate molecular technique such as genetic fingerprinting if feasible).

Action: Collect seed when possible
Responsibility: DEC (Geraldton District, TFSC)
Cost: $5,000 per year

10. Install DRF markers

DRF markers are required to be installed at the population site.

Action: Install DRF markers
Responsibility: DEC (Geraldton District)
Cost: $2,000 in year 1

11. Develop and implement a translocation proposal

Cultivated plants from one clone are growing at the BGPA. Establishment of a wild population from these plans may be of limited value unless the species is able to produce viable seed. Translocation can only be effectively undertaken if either new plants are located and seed and cuttings collected, or research demonstrates that the species is able to successfully self pollinate to produce viable seeds. If either situation occurs, a translocation proposal will be developed and suitable translocation sites selected. Information on the translocation of threatened plants and animals in the wild is provided in DEC's Policy Statement No. 29 *Translocation of Threatened Flora and Fauna* (CALM 1995), and the Australian Network for Plant Conservation translocation guidelines (Vallee *et al*. 2004). All translocation proposals require endorsement by DEC's Director of Nature Conservation. Monitoring of translocations is essential and will be included in the timetable developed for the Translocation Proposal.

Action: Develop and implement a translocation proposal
Responsibility: DEC (Geraldton District, TFSC), BGPA
Cost: $5,000 in year 4

12. Map habitat critical to the survival of *Androcalva adenothalia*

Although habitat critical to the survival of the species is alluded to in Section 1, it has not yet been mapped and will be addressed under this action. If additional populations are located, habitat critical to their survival will also be determined and mapped.

Action: Map habitat critical to the survival of *Androcalva adenothalia*
Responsibility: DEC (SCB, Geraldton District)
Cost: $6,000 in year 2

13. Review this plan and assess the need for further recovery actions

If *Androcalva adenothalia* is still ranked as CR at the end of the five-year term of this plan, the need for further recovery actions, or a review of the plan will be assessed and a revised plan prepared if necessary.

Action: Review this plan and assess the need for further recovery actions
Responsibility: DEC (SCB, Geraldton District)
Cost: $3,000 in year 5

Table 3. Summary of Recovery actions

Recovery action	Priority	Responsibility	Completion date
Coordinate recovery actions	High	DEC (Geraldton District) with assistance from the GDTFRT	Ongoing
Undertake regeneration trials	High	DEC (Science Division, Geraldton District)	Ongoing
Undertake surveys	High	DEC (Geraldton District)	Ongoing
Monitor site of last known population	High	DEC (Geraldton District)	Ongoing
Promote awareness	High	DEC (Geraldton District, SCB, Strategic Development and Corporate Affairs Division) with assistance from the GDTFRT	Ongoing
Liaise with the Shire of Morawa and Indigenous communities	High	DEC (Geraldton District)	Ongoing
Develop and implement a fire management strategy	High	DEC (Geraldton District)	Developed by 2014 with implementation ongoing
Obtain biological and ecological information	High	DEC (Science Division, Geraldton District)	2017
Collect seed when possible	High	DEC (Geraldton District, TFSC)	2017
Install DRF markers	Medium	DEC (Geraldton District)	2013
Develop and implement a translocation proposal	Medium	DEC (Geraldton District, TFSC), BGPA	2017
Map habitat critical to the survival of *Androcalva adenothalia*	Medium	DEC (SCB, Geraldton District)	2015
Review this plan and assess the need for further recovery actions	Medium	DEC (SCB, Geraldton District)	2017

4. TERM OF PLAN

This plan will operate from February 2013 to January 2018 but will remain in force until withdrawn or replaced. If the species is still ranked CR after five years, the need for further recovery actions will be determined.

5. REFERENCES

Department of Conservation and Land Management (1992) Policy Statement No. 44 *Wildlife Management Programs*. Department of Conservation and Land Management, Western Australia.

Department of Conservation and Land Management (1994) Policy Statement No. 50 *Setting Priorities for the Conservation of Western Australia's Threatened Flora and Fauna*. Department of Conservation and Land Management, Western Australia.

Department of Conservation and Land Management (1995) *Policy Statement No. 29: Translocation of Threatened Flora and Fauna*. Department of Conservation and Land Management, Perth, Western Australia.

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Wilkins, C.F. and Whitlock, B.A. (2011a) A new Australian genus *Androcalva* separated from *Commersonia* (Malvaceae *s.l.* or Byttneriaceae). *Australian Systematic Botany* 24: 284-349.

Wilkins, C.F. and Whitlock, B.A. (2011b) A revision of *Commersonia* including *Rulingia* (Malvaceae *s.l.* or Byttneriaceae) *Australian Systematic Botany* 24: 226-283.

6. TAXONOMIC DESCRIPTION

Androcalva adenothalia **(**formerly known as *Commersonia adenothalia* ms and *Commersonia* sp. Canna CF Wilkins 2030)

Wilkins and Whitlock (2011a)

Shrub prostrate, suckering not observed, 3–5 x 10–25cm. *Young stems* with medium to dense, sessile, white, 3-8 erect-armed, stellate hairs, to 0.3mm long, and scattered, stalked, red-tipped, clavate glands to 0.3mm long. *Stipules* caducous, narrowly-ovate, 2.1–4.1 x 0.4–1.4mm. *Leaves* single at nodes, petioles 1.1–11.9mm long, base unequal, blade ovate, 2.3–23.5 x 1.8–18mm (juvenile leaves not seen); discolorous dark green, glossy over paler fawn green, adaxial surface glabrous or with scattered, sessile, white, 1–2- armed, erect, hairs to 0.2mm long and occasional, white, clavate glands to 0.1mm long; abaxial surface with dense, sessile, white, *c*. 6, erect-armed, stellate hairs to 0.4mm long, over smaller stellate hairs and scattered, stalked red-tipped, clavate glands to 0.35mm long; leaf flat with margin irregularly crenulate, and lobes scarcely recurved, scarcely undulate, apex obtuse. *Inflorescence* 6.3–7mm long, flowers 4–11. *Bud* dark pink, angular, strongly ribbed, base attenuate, apex rounded. *Peduncle* 0.6–5.2mm long, *Pedicel* 1.8–4.1mm long. Peduncle and pedicel with dense, sessile, white, *c*. 6-armed, to 0.25mm long, erect, stellate hairs, and medium density, stalked red-tipped, clavate glands to 0.3mm long. *Bract* towards base of pedicel, late caducous, narrowly-ovate, 1.1–4.1 x 0.15–0.6mm. *Calyx* outer surface dark pink, inner surface white, becoming pink, 2.1–2.3mm long, tube 0.5–0.6mm long, lobes ovate, 1.6–1.7 x 0.6–1.1mm, apex acute; adaxial surface, base same colour as lobes, base glabrous, central lobe with scattered, white, simple, appressed, hairs to 0.2mm long, or scattered, white, clavate glands to 0.1mm long, towards margin with medium density simple hairs to 0.1mm long; abaxial surface with dense, white, 6-armed, to 0.2mm long, erect, stellate, hairs, base and towards apex of lobe, with same size hairs mixed with stalked, clavate glands. *Petals* glabrous, white with streak of red up the main vein, 1.5 x 1.1–1.2mm, base ovate, incurved around stamen, not gibbous, margin of base flat; apical ligule broadly spathulate, white, 0.7–0.8 x 0.55–0.6mm. *Staminal tube* 0.2–0.25mm long. *Staminodes* one or three between each anther, glabrous, central staminode, white, ovate, 1.4–1.5 x 0.5mm, two lateral staminodes, linear, papillose, white, adnate to filament, *c*. 0.6 x 0.15mm. *Filaments* white, glabrous, 0.5–0.7 x 0.25mm. *Anthers* dark red, with white connective, 0.25–0.3 x 0.4–0.5mm, pollen yellow. *Ovary* five celled, ovoid, 0.6–0.7 x 0.6–0.7mm, locules fused laterally with no indentation and free at the central axis, outer surface green smooth, glabrous. *Ovules* 4–6 per locule. *Styles* five, green, 0.5–0.6mm long. *Fruit* and *seed* not seen.