



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

INTERIM RECOVERY PLAN NO. 333

# **STIRLING RANGE WATTLE**

*(Acacia awestoniana)*

## **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.

These 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 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This plan will operate from February 2013 to January 2018 but will remain in force until withdrawn or replaced.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 taxon is still ranked as Critically Endangered in WA, this plan will be reviewed after five years and the need for further recovery actions assessed.

This plan was given regional approval on 14<sup>th</sup> January 2013 and was approved by the Director of Nature Conservation on 7<sup>th</sup> 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.

## IRP PREPARATION

This plan was prepared by Robyn Luu<sup>1</sup> and Andrew Brown<sup>2</sup>.

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## ACKNOWLEDGMENTS

The following people provided assistance and advice in the preparation of this plan:

Sarah Barrett	Flora Conservation Officer, DEC Albany District.
Andrew Crawford	Principal Technical Officer, Threatened Flora Seed Centre, DEC Science Division.
Rebecca Dillon	Research Scientist, DEC Science Division, Albany.
Mia Podesta	Ecologist – TEC database, DEC Species and Communities Branch.
Amanda Shade	Assistant Curator (Nursery), Botanic Gardens and Parks Authority.

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

Cover photograph by Sarah Barrett.

## CITATION

This plan should be cited as: Department of Environment and Conservation (2013) STIRLING RANGE WATTLE (*Acacia awestoniana*) Interim Recovery Plan 2013–2018. Interim Recovery Plan No. 333. Department of Environment and Conservation, Western Australia.

## SUMMARY

**Scientific name:** *Acacia awestoniana*

**Family:** Fabaceae

**DEC region:** South Coast

**Shire:** Gnowangerup

**Recovery team:** Albany District Threatened Flora and Communities Recovery Team (ADTFCRT)

**Common name:** Stirling Range Wattle

**Flowering period:** September to November

**DEC district:** Albany

**NRM region:** South Coast

**IBRA region:** Esperance Plains

**IBRA subregion:** Fitzgerald

**Distribution and habitat:** *Acacia awestoniana* is endemic to the Stirling Range where it occupies areas of open wandoo (*Eucalyptus wandoo*) woodland on the lower slopes of hills, growing in sandy clay loam over siltstone and quartz in flat areas adjacent to drainage lines. Associated species include *A. pulchella*, *A. veronica*, *Trymalium odoratissimum* subsp. *odoratissimum* and *Billardiera fusiformis*.

**Habitat critical to the survival of the species, and important populations:** *Acacia awestoniana* is ranked in WA as CR, and as such it is considered that all known habitat for the species is habitat critical to its survival, and that all wild populations are important populations. Habitat critical to the survival of *A. awestoniana* includes the area of occupancy of populations, areas of similar habitat surrounding and linking populations (these providing potential habitat for population expansion 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:** *Acacia awestoniana* is declared as rare flora (DRF) under the Western Australian *Wildlife Conservation Act 1950* and is ranked as Critically Endangered (CR) in WA under International Union for Conservation of Nature (IUCN 2001) Red List criteria C2a(ii) due to the number of mature individuals totalling less than 250, a continuing decline in the number of mature plants and there being at least 90 per cent of mature plants in one population. The extent of occurrence is approximately 2.66km<sup>2</sup>; and the area of occupancy is 2.7 hectares. The species is listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999) as Vulnerable.

**Threats:** The main threats to the species are inappropriate fire regimes, grazing and poor recruitment.

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

1. Surveys have been undertaken by DEC staff and consultant botanists.
2. Tree guards and fences have been placed around plants in Population 2 to protect them from grazing.
3. 11,698 seeds collected from *Acacia awestoniana* are stored in DEC's Threatened Flora Seed Centre (TFSC) at -18°C.
4. A translocation was conducted at Population 1 by DEC in 2010.
5. Staff from DEC's Albany District regularly monitor populations.
6. DEC with assistance from the ADTFCRT is overseeing the implementation of this plan and will include information on progress in its annual report to DEC's Corporate Executive and funding bodies.

**IRP 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.

### Recovery Criteria

**Criteria for success:** At least one additional population is discovered or established and/or the number of mature individuals has increased by 20% or more over the term of the plan.

**Criteria for failure:** The number of mature individuals has decreased by 20% or more over the term of the plan.

### Recovery actions

- |  |   |
|--|---|
| 1. Coordinate recovery actions         | 8. Undertake further surveys  |
| 2. Undertake grazing control           | 9. Obtain biological and ecological information                       |
| 3. Monitor populations                 | 10. Map habitat critical to the survival of <i>Acacia awestoniana</i> |
| 4. Undertake fire management           | 11. Promote awareness   |
| 5. Conduct disturbance trials          | 12. Liaise with indigenous communities                                |
| 6. Collect and store seed              | 13. Review this plan and assess the need for further recovery actions |
| 7. Undertake additional translocations |   |

## 1. BACKGROUND

### History

The first collection of *Acacia awestoniana* was made northwest of Coyanurup Peak by H. Steedman in 1933. In 1990 the species was formally described by Cowan and Maslin who named it in honour of Arthur Weston (Cowan and Maslin 1990). In 1993, a survey undertaken by DEC staff to locate additional populations of *Acacia awestoniana* was not successful. In 1995, further survey by DEC staff resulted in the discovery of two groups of plants north of Population 2. Since 2006, the species has undergone a considerable population decline following fire and heavy grazing pressure. It appears that grazing following fire may have reduced seedling survival. There are currently two extant populations of *Acacia awestoniana* in the Stirling Range National Park (SRNP), together comprising approximately 69 mature plants.

### Description

*Acacia awestoniana* is a medium to large shrub 2.5 to 3m tall and up to 4m in diameter. The branchlets are terete, glabrous, and are usually heavily resinous apically and at the nodes. The phyllodes are obliquely oval to elliptic in shape, blades are 15 to 30mm long and 11 to 22mm wide, glabrous, dark green, with three or four distant, longitudinal, raised main nerves on each face. The flower heads are globular, golden, 5 to 6mm in diameter, and 54 to 60 flowered. The legumes are narrowly oblong in shape, straight, and 10 to 22mm long and 35mm wide. The species is most closely related to *A. dictyoneura* but is easily distinguished by the much larger phyllodes with cuspidate apex, the larger stipules and bracts, longer peduncles, peltate bracteoles and connate sepals (Cowan and Maslin 1990).

### Illustrations and/or further information

Cowan, R.S. and Maslin, B.R. (1990) *Acacia* Miscellany 1. Some oligoneurous species of *Acacia* (Leguminosae: Mimosoideae : section *Plurinerves*) from Western Australia. *Nuytsia* 7 (2): 183–199; Dillon, R., Monks, L. and Barrett, S. (2010) Translocation Proposal for *Acacia awestoniana*, Stirling Range Wattle (Mimosaceae). Department of Environment and Conservation, Western Australia; Western Australian Herbarium (1998–) *FloraBase – The Western Australian Flora*. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/>.

### Distribution and habitat

*Acacia awestoniana* is endemic to the Stirling Range, where it occupies areas of open wandoo (*Eucalyptus wandoo*) woodland on the lower slopes of hills, growing in sandy clay loam over siltstone and quartz in flat areas adjacent to drainage lines. Associated species include *A. pulchella*, *A. veronica*, *Trymalium odoratissimum* subsp. *odoratissimum* and *Billardiera fusiformis*.

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

Pop. no. & location	DEC district	Shire	Vesting	Purpose	Manager
1. Stirling Range	Albany	Gnowangerup	Conservation Commission of WA	National Park	DEC
2a. Stirling Range	Albany	Gnowangerup	Conservation Commission of WA	National Park	DEC
2b. Stirling Range	Albany	Gnowangerup	Conservation Commission of WA	National Park	DEC
2c. Stirling Range	Albany	Gnowangerup	Conservation Commission of WA	National Park	DEC

### Biology and ecology

*Acacia awestoniana* is an obligate re-seeder, being killed by fire and regenerating from soil stored seed. This was evident in Subpopulation 2a where recruitment occurred following fires in 1991 and 2006 which together burnt 98 per cent of the plants. The juvenile period appears to last approximately four years.

### Conservation status

*Acacia awestoniana* is declared as rare flora (DRF) under the Western Australian *Wildlife Conservation Act 1950* and is ranked as Critically Endangered (CR) under International Union for Conservation of Nature (IUCN 2001) Red List criteria C2a(ii) due to the number of mature individuals totalling less than 250, a continuing decline in the number of mature plants and there being at least 90 per cent of mature plants in one population. The extent of occurrence is approximately 2.66km<sup>2</sup>; and the area of occupancy is 2.7 hectares. The species is listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999) as Vulnerable.

## Threats

The main threats to the species are:

- **Inappropriate fire regimes.** The species germinates from soil-stored seed following fire but requires sufficient time between fire events to reach maturity. Fire should therefore be prevented from occurring in the area of populations, except where it is used as a recovery action.
- **Grazing.** In 2006, it was expected that significant recruitment would follow a fire that burnt 98 per cent of Subpopulation 2a. However subsequent visits in 2008 and 2009 revealed heavy grazing with relatively few surviving seedlings.
- **Poor recruitment.** Population 1 is very small with little natural recruitment. Population 2 has also had relatively poor recruitment (see grazing above and table below).

The intent of this plan is to provide actions that will deal with immediate threats to *Acacia awestoniana*. 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
<b>1. Stirling Range</b>	National park	1992 9 [2] 2000 6 [3] 2008 6 (1)	Moderate	Fire, grazing, poor recruitment
<b>2a. Stirling Range</b>	National park	2001 1000+ 2006 100 [4000+] 2009 5 (53) [1] 2011 5 (95)	Moderate	Fire, grazing, poor recruitment
<b>2b. Stirling Range</b>	National park	1995 1000+ 2009 40 (150+) [50] 2011 50 (200)	Moderate	Fire, grazing, poor recruitment
<b>2c. Stirling Range</b>	National park	1995 1000+ 2009 5 (13) 2011 8 (14)	Moderate	Fire, grazing, poor recruitment

Note: ( ) = number of seedlings; [ ] = number dead. Populations in **bold text** are considered important populations.

## Guide for decision-makers

Section 1 provides details of current and possible future threats. Actions that result in any of the following may have a significant impact on the species.

- Damage or destruction of occupied or potential habitat.
- Alteration of the local surface hydrology or drainage.
- Reduction in population size.
- A major increase in disturbance in the vicinity of a population.

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

*Acacia awestoniana* is ranked in WA as CR, and as such it is considered that all known habitat for the species is habitat critical to its survival, and that all wild populations are important populations. Habitat critical to the

survival of *A. awestoniana* includes the area of occupancy of populations, areas of similar habitat surrounding and linking populations (these providing potential habitat for population expansion 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 *Acacia awestoniana* will also improve the status of associated native vegetation. One Threatened and six Priority taxa occur within 500 m of *A. awestoniana*. These taxa are listed in Table 3 below:

**Table 3. Conservation listed flora species occurring within 500m of *Acacia awestoniana***

Species name	Conservation status (WA)	Conservation status (EPBC Act 1999)
<i>Caladenia bryceana</i> subsp. <i>bryceana</i>	DRF	Endangered
<i>Verticordia brevifolia</i> subsp. <i>stirlingensis</i>	Priority 2	-
<i>Acacia veronica</i>	Priority 3	-
<i>Desmocladius biformis</i>	Priority 3	-
<i>Petrophile longifolia</i>	Priority 3	-
<i>Verticordia coronata</i>	Priority 3	-
<i>Calothamnus affinis</i>	Priority 4	-

For a description of the Priority categories see Smith (2010).

*Acacia awestoniana* also occurs within 1km of a Threatened Ecological Community (TEC) and two Priority Ecological Communities (PECs).

**Table 4. Threatened Ecological Communities (TECs) and Priority Ecological Communities (PECs) in which *Acacia awestoniana* occurs within a 1km area**

TEC title	Conservation status (WA)	Conservation status (EPBC Act 1999)
Montane mallee thicket community of the Stirling Range	Priority 1	-
Montane Thicket of the eastern Stirling Range	Critically Endangered	Endangered
Coyanarup Wetland Suite: microscale paluslopes associated with seepage and creeks in the area between Coyanarup Peak and Bluff Knoll in the Stirling Ranges	Priority 1	-

For a description of the TEC categories see DEC (2007).

### 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 Interim Recovery Plan (IRP) 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 no sites of Aboriginal significance adjacent to the populations of *Acacia awestoniana*. However, input and involvement has been 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. 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 plan may cause some social and economic impact. All known populations are in a National park and impact may be through the costs of implementing recovery actions.

## Affected interests

The implementation of this plan has implications for DEC which has management responsibility for the National park in which the species occurs.

## Evaluation of the plan's performance

DEC, with assistance from the Albany District Threatened Flora and Communities Recovery Team (ADTFCRT), 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:** At least one additional population is discovered or established and/or the number of mature individuals has increased by 20% or more over the term of the plan.

**Criteria for failure:** The number of mature individuals has decreased by 20% or more over the term of the plan.

## 3. RECOVERY ACTIONS

### Existing recovery actions

Surveys have been undertaken for *Acacia awestoniana* by DEC staff and consultant botanists with no new populations located.

Tree guards and fences have been placed around plants in Population 2 to protect them from grazing.

Some 11,698 seeds collected from *Acacia awestoniana* are stored in DEC Threatened Flora Seed Centre (TFSC) at  $-18^{\circ}\text{C}$  (see table 5). The seed has been processed and the germination rate varies between 89 and 100 per cent.

**Table 5. Threatened Flora Seed Centre collection details for *Acacia awestoniana***

Accession number	Date collected	Population number	Collection type	Number of seed	Germination rate (%)
00196	4/12/1994	1	B/7	424	92
00379	3/12/1996	1	B/9, B/9	950	89
00383	5/12/1996	2	B/50, B/50	9025	97
01954	31/01/2006	2	B/50	943	Not yet tested
03195	16/12/2009	2C	I/3, I/5	168	98
03196	16/12/2009	2A	I/2, I/3	88	100
03218	23/12/2009	2B	I/16	100	-

Note: 'I' = a collection of individuals and the number of plants collected; 'B' = a bulked collection and the number of plants sampled

A translocation proposal aimed at re-stocking *Acacia awestoniana* plants at Population 1 was developed by DEC in 2010. Seed collected by DEC TFSC staff was sourced from approximately 16 plants in Population 1 and 150 plants in Population 2. Seedlings raised at the Botanic Gardens and Parks Authority (BGPA) were planted out at the site in autumn/winter 2010. Most plants were fenced to prevent grazing by vertebrates. However, a proportion of plants were left unfenced as part of a grazing trial. In order to gain a better understanding of translocation techniques, plant establishment and management, a collaborative project between DEC and UWA investigating microhabitat selection, time of planting and water relations of translocated plants was also instigated. Investigations include:

- Testing the effectiveness of different nursery pre-treatments (sand and standard potting mix).
- Different translocation dates (April versus June).
- Different microhabitats (under canopy or outside the canopy of *Eucalyptus wandoo* trees) and
- Different summer/autumn watering treatments (no watering, hand watering, automatic watering) (Dillon *et al.* 2010).

Monitoring of the translocated population was undertaken by University of Western Australia (UWA) and DEC staff every three months over the first year and six monthly in the second and third years. It will be conducted annually thereafter (Dillon *et al.* 2010). When monitored in October 2010, a 5.2% mortality was observed. Seedlings planted for the grazing trial were ungrazed.

Staff from DEC's Albany District regularly monitors populations.

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

### Future recovery actions

Where recovery actions occur on lands other than those managed by DEC, permission has been or will be sought from 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 ADTFCRT will oversee the implementation of recovery actions for *Acacia awestoniana* and will include information on progress in its annual report to DEC's Species and Communities Branch and funding bodies.

**Action:** Coordinate recovery actions  
**Responsibility:** DEC (Albany District) with assistance from the ADTFCRT  
**Cost:** \$6,000 per year

#### 2. Undertake grazing control

Rabbit (*Oryctolagus cuniculus*) and/or quokka (*Setonix brachyurus*) grazing is a threat to both populations of the species and it is recommended that control measures be investigated. This may include fencing and/or laying of 1080 oats (for rabbit control).

**Action:** Undertake grazing control  
**Responsibility:** DEC (Albany District)  
**Cost:** \$10,000 per year

#### 3. Monitor populations

Monitoring of factors such as grazing, weed invasion, habitat degradation, hydrology, population stability (expansion or decline), pollinator activity, seed production, recruitment, and longevity is essential. Monitoring



of the translocated population will also be undertaken as per the approved Translocation Proposal (see Dillon *et al.* 2010).

**Action:** Monitor populations  
**Responsibility:** DEC (Albany District, Science Division)  
**Cost:** \$10,000 per year

#### 4. Undertake fire management

Fire is known to kill adult *Acacia awestoniana* plants and could be detrimental to the species' long-term survival if it occurs before soil seed stores have been replenished. If possible, fire should be prevented from occurring in the area of populations, except where it is being used as a recovery tool.

The SRNP Fire Management Strategy (2010) lists the habitat of the species as requiring no planned fire introduction until at least 2016 (Barrett *et al.* 2010).

**Action:** Undertake fire management  
**Responsibility:** DEC (Albany District)  
**Cost:** \$10,000 in first year and \$2,000 in subsequent years

#### 5. Conduct disturbance trials

If populations continue to decline, action to stimulate the germination of *Acacia awestoniana* seed in the wild may be required.

**Action:** Conduct disturbance trials  
**Responsibility:** DEC (Science Division, Albany District)  
**Cost:** \$7,000 in years 2, 3 and 4

#### 6. Collect and store seed

Seed has been collected from natural populations, however additional collections may be required to ensure the genetic diversity of the species is captured.

**Action:** Collect and store seed  
**Responsibility:** DEC (Albany District, TFSC), BGPA  
**Cost:** \$5,000 per year

#### 7. Undertake additional translocations

*Acacia awestoniana* is known from two small populations with a relatively low number of extant plants. If the current translocation is deemed successful another site will be selected and a further translocation proposal developed. Information on the translocation of threatened plants and animals in the wild is provided in the Department's Policy Statement No. 29 *Translocation of Threatened Flora and Fauna*. Translocation should meet the standards set in Guidelines for the Translocation of Threatened Australian Plants (Vallee *et al* 2004).

**Action:** Undertake additional translocations  
**Responsibility:** DEC (Science Division, Albany District), BGPA  
**Cost:** \$20,000 in year 3; and \$10,000 in years 4 and 5

#### 8. Undertake further surveys

It is recommended that areas of potential suitable habitat be surveyed during the flowering period of the species. All surveyed areas will be recorded and the presence or absence of the species documented to increase survey efficiency and reduce unnecessary duplicate surveys.

**Action:** Undertake further surveys

**Responsibility:** DEC (Albany District)  
**Cost:** \$5,000 per year

## 9. Obtain Biological and ecological information

Knowledge of the biology and ecology of the species will provide a more informed basis for management of *Acacia awestoniana* in the wild. Research should include:

1. Study of the soil seed bank dynamics and the role of various factors including disturbance, competition, drought, inundation and grazing in recruitment and seedling survival.
2. Determination of reproductive strategies, phenology and seasonal growth.
3. Investigation of reproductive success and pollination biology.
4. Investigation of population genetic structure, levels of genetic diversity and minimum viable population size.
5. The impact of hydrological changes.

**Action:** Obtain Biological and ecological information  
**Responsibility:** DEC (Science Division, Albany District)  
**Cost:** \$10,000 per year

## 10. Map habitat critical to the survival of *Acacia awestoniana*

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

**Action:** Map habitat critical to the survival of *Acacia awestoniana*  
**Responsibility:** DEC (SCB, Albany District)  
**Cost:** \$6,000 in year 2

## 11. Promote awareness

The importance of biodiversity conservation and the protection of *Acacia awestoniana* will be promoted to the public. Formal links with local naturalist groups and interested individuals will also be encouraged.

**Action:** Promote awareness  
**Responsibility:** DEC (Albany District, SCB, Strategic Development and Corporate Affairs Division) with assistance from the ADTFCRT  
**Cost:** \$4,000 in year 1 and \$2,000 in years 2-5

## 12. Liaise with indigenous communities

Indigenous consultation will take place to determine if there are any issues or interests in areas that are habitat for *Acacia awestoniana*.

**Action:** Liaise with indigenous communities  
**Responsibility:** DEC (Albany District)  
**Cost:** \$1,000 per year

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

If *Acacia awestoniana* is still ranked as Critically Endangered at the end of the five-year term of this plan, the need for further recovery actions, or a review of this 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, Albany District) through the ADTFCRT  
**Cost:** \$3,000 in year 5

**Table 6. Summary of recovery actions**

Recovery action	Priority	Responsibility	Completion Date
Coordinate recovery actions	High	DEC (Albany District) through the ADTFCRT	Ongoing
Undertake grazing control	High	DEC (Albany District) through the ADTFCRT	Ongoing
Monitor populations	High	DEC (Albany District) through the ADTFCRT	Ongoing
Undertake fire management	High	DEC (Albany District) through the ADTFCRT	Developed by 2012 with implementation ongoing
Conduct disturbance trials	High	DEC (Science Division, Albany District) through the ADTFCRT	2015
Collect and store seed	High	DEC (Albany District, TFSC), BGPA through ADTFCRT	2017
Undertake additional translocations	High	DEC (Albany District), BGPA through ADTFCRT	2016
Undertake further surveys	Medium	DEC (Albany District) through the ADTFCRT	Ongoing
Obtain Biological and ecological information	Medium	DEC (Science Division, Albany District) through the ADTFCRT	2017
Map habitat critical to the survival of <i>Acacia awestoniana</i>	Medium	DEC (SCB, Albany District) through the ADTFCRT	2014
Promote awareness	Medium	DEC (Albany District, SCB, Strategic Development and Corporate Affairs Division) through the ADTFCRT	Ongoing
Liaise with indigenous communities	Medium	DEC (Albany District) through the ADTFCRT	Ongoing
Review this plan and assess the need for further recovery actions	Medium	DEC (SCB, Albany District) through the ADTFCRT	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 Critically Endangered after five years, the need for further recovery actions will be determined.

#### 5. REFERENCES

- Barrett, S., Comer, S., Freebury, G., Grant, M., Broomhall, G. and Hilder, V. (2010) Fire Management Strategy for the Stirling Range National Park. Department of Environment and Conservation, Western Australia.
- Cowan, R.S. and Maslin, B.R. (1990) *Acacia* Miscellany 1. Some oligoneurous species of *Acacia* (Leguminosae : Mimosoideae : section *Plurinerves*) from Western Australia. *Nuytsia* 7 (2): 183–199.
- Department of Conservation and Land Management (1992) Policy Statement No. 44 *Wildlife Management Programs*. Department of Conservation and Land Management, Western Australia.
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- Dillon, R., Monks, L. and Barrett, S. (2010) Translocation Proposal for *Acacia awestoniana*, Stirling Range Wattle (Mimosaceae). Department of Environment and Conservation, Western Australia.
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- Smith, M. (2010) *Declared Rare and Priority Flora List for Western Australia*. Department of Environment and Conservation, Perth, Western Australia.

Vallee L., Hogbin T., Monks L., Makinson B., Matthes M. and Rossetto M. (2004) Guidelines for the Translocation of Threatened Australian Plants. Second Edition. *The Australian Network for Plant Conservation*. Canberra, Australia.

Western Australian Herbarium (1998-) *FloraBase – The Western Australian Flora*. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/>.

## 6. TAXONOMIC DESCRIPTION

### *Acacia awestoniana*

Cowan, R.S. and Maslin, B.R. (1990) *Acacia* Miscellany 1. Some oligoneurous species of *Acacia* (Leguminosae: Mimosoideae : section *Plurinerves*) from Western Australia. *Nuytsia* 7 (2): 183–199.

Spreading *shrubs* 2.5–3m tall, to 4m diam. *Bark* longitudinally fissured at base of trunks, grey, red-brown on branchlets. *Branchlets* terete, glabrous, usually heavily resinous apically and at nodes. *Stipules* persistent, more or less foliaceous, obliquely ovate, 2–2.5mm long, 1–1.5mm wide, glabrous. *Phyllodes* obliquely oval to elliptic, apex obtuse to truncate and with a distinct, short-acuminate tip, base rounded but inequilaterally attenuate to 1–2mm long pulvinus, blades 15–30mm long, 11–22mm wide, coriaceous, patent, often becoming deflexed in drying, undulate, glabrous, dark green, 3 or 4 distant, longitudinal, raised main nerves on each face, openly anastomosing with salient secondary nerves. *Gland* small, situated on upper margin just above pulvinus. *Raceme axes* 2–7mm long, resinous, puberulous, 1–3-headed. Peduncles (6–)12–20mm long, glabrous; basal peduncular bract encircling base of peduncle, more or less foliaceous, 1.5–2.5mm long, 1.5–2mm wide, glabrous. *Flower-heads* globular, golden, 5–6mm diam., 54–60-flowered. *Bracteoles* peltate, blade ovate, acuminate, shorter than slender claw. *Flowers* 5–numerous. *Sepals* 1/2–3/4 length of petals, 3/4 united, puberulous externally. *Petals* oblanceolate-linear, free, glabrous. *Legumes* narrowly oblong, 10–22mm long, 3.5mm wide, straight, villose, margins strongly thickened. *Seeds* oblique (?), oblong–elliptic, c. 4mm long, 3mm wide, glossy brown; pleurogram large, conspicuous; *aril* subapical.