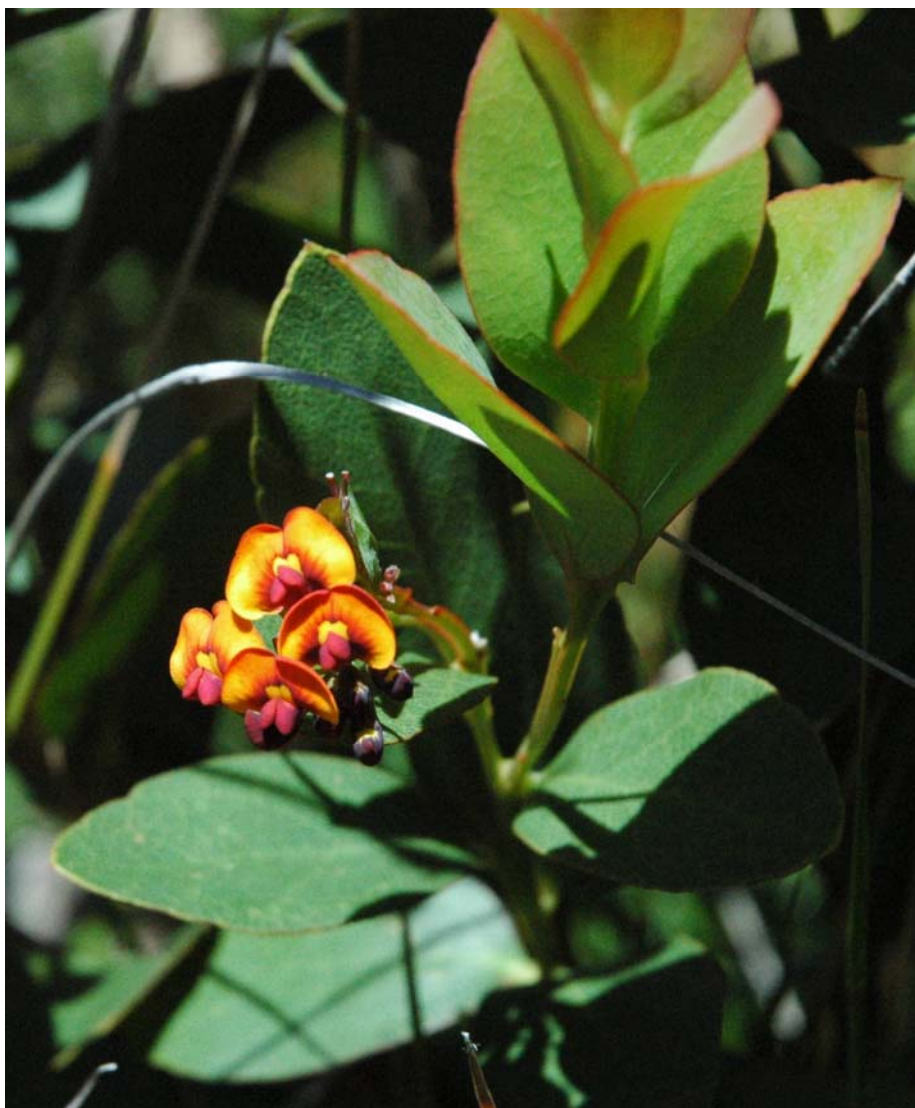


INTERIM RECOVERY PLAN NO. 296

# *Daviesia ovata*

## INTERIM RECOVERY PLAN

2010-2014



January 2010  
Department of Environment and Conservation  
Kensington



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

## 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: the Department of CALM formally became the Department of Environment and Conservation (DEC) in July 2006.

IRPs 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This plan will operate from January 2010 to December 2014 but will remain in force until withdrawn or replaced. It is intended that, if the taxon is still ranked as Critically Endangered (CR), this IRP will be reviewed after five years and the need for further recovery actions assessed.

This IRP was given regional approval on 19 March 2010 and was approved by the Director of Nature Conservation on 8 April 2010. The provision of funds identified in this IRP is dependent on budgetary and other constraints affecting DEC, as well as the need to address other priorities.

Information in this IRP was accurate at January 2010.

### IRP PREPARATION

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

<sup>1</sup> Project Officer, Species and Communities Branch, DEC, 17 Dick Perry Ave, Technology Park, Kensington, WA 6151

<sup>2</sup> Threatened Flora Coordinator, DEC Species and Communities Branch, Locked Bag 104, Bentley Delivery Centre, WA 6983.

### ACKNOWLEDGMENTS

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

Sarah Barrett	Flora Conservation Officer, DEC Albany
Anne Cochrane	Senior Research Scientist, Threatened Flora Seed Centre, DEC Science Division
Sarah Comer	Regional Ecologist, DEC South Coast Region
Monica Hunter	Ecologist, 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, and DEC's Species and Communities Branch for assistance.

Cover photograph by Sarah Barrett.

### CITATION

This IRP should be cited as:

Department of Environment and Conservation (2010) *Daviesia ovata* Interim Recovery Plan 2010-2014. Interim Recovery Plan No. 296. Department of Environment and Conservation, Western Australia.

**SUMMARY**

<b>Scientific Name:</b>	<i>Daviesia ovata</i> Benth.	<b>Common Name:</b>	Broad-leaf Daviesia
<b>Family:</b>	Papilionaceae	<b>Flowering Period:</b>	September to November
<b>DEC Region:</b>	South Coast	<b>DEC District:</b>	Albany
<b>Shire:</b>	City of Albany	<b>NRM Region:</b>	South Coast
<b>Recovery Team:</b>	Albany Threatened Flora and Communities Recovery Team (ATFCRT)		

**Illustrations and/or further information:** Leigh, J. Boden, R. and Briggs, J. (1984) *Extinct and endangered plants of Australia*. Macmillan, South Melbourne; Western Australian Herbarium (1998–) *FloraBase – The Western Australian Flora*. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/>.

**Current status:** *Daviesia ovata* was declared as Rare Flora under the Western Australian *Wildlife Conservation Act 1950* in 2008. It is currently ranked as Critically Endangered (CR) under World Conservation Union (IUCN 2001) criterion C2a(ii) however recent counts have shown that the species no longer meets this criterion and it is proposed to recommend to the Threatened Species Scientific Committee (TSSC) that the criteria be amended to C2a(i)+D. The species is not currently listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999). The main threats to the species are *Phytophthora* dieback, grazing, inappropriate fire regimes and firebreak maintenance.

**Description:** *Daviesia ovata* is an erect, hairless shrub to 2 m high, with long angular branches. The leaves are about 5 cm long, ovate or elliptical with a small thickened tip and narrowed at the base, stiff, leathery and with conspicuous net-like veins. The flowers are pea-like, orange and purple, about 8 mm long, borne singly in the leaf axils in often leafy bunches towards the end of the branches. The fruit is a triangular pod about 13 mm long.

**Habitat requirements:** *Daviesia ovata* is endemic to Western Australia where it is confined to Mount Manypeaks. The species grows in open shrub mallee over heath, or scrub in brown sand-loam over granite.

**Habitat critical to the survival of the species, and important populations:** Given that *Daviesia ovata* is ranked as CR, it is considered that all known habitat for wild populations is critical to the survival of the species, and that all wild populations are important populations.

**Benefits to other species or ecological communities:** Recovery actions implemented to improve the quality or security of the habitat of *Daviesia ovata* will also improve the status of associated native vegetation, including a number of Declared Rare and Priority taxa, and threatened fauna.

**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. *Daviesia ovata* is not listed under any specific international treaty however, and this IRP does not affect Australia's obligations under any other international agreements.

**Indigenous Consultation:** The Aboriginal Sites Register maintained by the Department of Indigenous Affairs lists one significant site in the vicinity of populations of *Daviesia ovata*. Input and involvement is therefore 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. As this is not expected to be completed before the approval of the IRP, further consultation has been included as a recovery action to ensure there has been Indigenous engagement in relation to the recovery actions posed in this plan.

**Social and economic impacts:** The implementation of this recovery plan is unlikely to cause significant adverse social and economic impact as the known populations of *Daviesia ovata* occur in a Nature Reserve and Water Reserve.

**Affected interests:** There are no significant stakeholders likely to be affected by implementation of this plan, as the known populations occur in a Nature Reserve and Water Reserve.

**Evaluation of the Plan's Performance:** The DEC in conjunction with the Albany Threatened Flora and Communities Recovery Team (ATFCRT) will evaluate the performance of this IRP. In addition to annual reporting on progress and evaluation against the criteria for success and failure, the plan will be reviewed following four years of implementation.

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

1. Seed traps were placed on two *Daviesia ovata* plants at Subpopulation 1a in 2007 with approximately 50 seeds collected later that year.
2. Following continued heavy grazing, cages were placed on seven juvenile (to 30 cm high) *Daviesia ovata* plants in March 2008 in order to prevent access by herbivores.
3. Rare Flora markers have been installed at Subpopulation 1d.

4. DEC staff from DEC Albany monitor populations annually.
5. The ATFCRT are overseeing the implementation of this IRP and will include information on progress in their annual report to DEC's Corporate Executive and funding bodies.

**IRP Objective:** The objective of this IRP 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:** The number of populations have increased and/or the number of mature individuals have increased by twenty percent or more over the term of the plan.

**Criteria for failure:** The number of populations have decreased and/or the number of mature individuals have decreased by twenty percent or more over the term of the plan.

**Recovery actions**

- |   |  |
|---|--|
| 1. Coordinate recovery actions  | 9. Conduct further surveys   |
| 2. Nominate <i>Daviesia ovata</i> for listing under the Commonwealth EPBC Act             | 10. Develop and implement a fire management strategy                 |
| 3. Map habitat critical to the survival of <i>Daviesia ovata</i>                          | 11. Undertake and monitor translocations                             |
| 4. Determine the susceptibility of <i>Daviesia ovata</i> to <i>Phytophthora cinnamomi</i> | 12. Liaise with Indigenous groups                                    |
| 5. Apply phosphite  | 13. Promote awareness  |
| 6. Collect seed and other material to preserve genetic diversity                          | 14. Obtain biological and ecological information                     |
| 7. Monitor populations  | 15. Propose ranking criteria change for <i>Daviesia ovata</i>        |
| 8. Implement grazing management   | 16. Review this IRP and assess the need for further recovery actions |

## 1. BACKGROUND

### History

*Daviesia ovata* was first collected by James Drummond from an unknown locality sometime prior to 1864. The next known collection was made from Mount Manypeaks by C.A. Gardner in 1935. Despite numerous searches in 1980 the species was not located again until 1982, when one plant was found by D. Davidson and B. Swainson, in the same area where Gardner collected it on Mount Manypeaks (Crisp 1983; Leigh *et al.* 1984).

The taxon is currently known from two populations, together containing 21 mature individuals over an area of less than two hectares.

### Description

*Daviesia ovata* is an erect, hairless shrub to 2 m high, with long angular branches. The leaves are about 5 cm long, ovate or elliptical with a small thickened tip and narrowed at the base, stiff, leathery and with conspicuous net-like veins. The flowers are pea-like, orange and purple, about 8 mm long, borne singly in the leaf axils in often leafy bunches towards the end of the branches. The fruit is a triangular pod about 13 mm long. The name *ovata* comes from the Latin egg-shaped, referring to the leaves (Leigh *et al.* 1984).

### Distribution and habitat

*Daviesia ovata* is endemic to Western Australia where it is confined to Mount Manypeaks. The species grows in open shrub mallee over heath, or scrub in brown sand-loam over granite. Associated species include *Eucalyptus marginata*, *Kingia australis*, *Gastrolobium coriaceum*, *Banksia formosa*, *B. sphaerocarpa*, *B. plumosa*, *Hakea elliptica*, *H. cucullata*, *H. ceratophylla*, *H. trifurcata*, *Daviesia alternifolia*, *Sphenotoma dracophylloides*, *Taxandria angustifolia*, *Beaufortia decussata*, *Melaleuca striata*, *Adenanthos apiculatus*, *Allocasuarina humilis*, *Hibbertia microphylla*, *Mesomelaena tetragona* and *Anarthria prolifera*.

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

Pop. No. & Location	DEC District	Shire	Vesting	Purpose	Manager
<b>1a. Mount Manypeaks</b>	Albany	City of Albany	Conservation Commission of Western Australia	Nature Reserve	DEC
<b>1b. Mount Manypeaks</b>	Albany	City of Albany	Conservation Commission of Western Australia	Nature Reserve	DEC
<b>1c. Mount Manypeaks</b>	Albany	City of Albany	Conservation Commission of Western Australia	Nature Reserve	DEC
<b>1d. Mount Manypeaks</b>	Albany	City of Albany	Conservation Commission of Western Australia	Nature Reserve	DEC
<b>2a. NW of Mount Manypeaks</b>	Albany	City of Albany	Department for Planning and Infrastructure	Water Reserve	Department for Planning and Infrastructure
<b>2b. NM of Mount Manypeaks</b>	Albany	City of Albany	Department for Planning and Infrastructure	Water Reserve	Department for Planning and Infrastructure

Populations in **bold text** are considered to be important populations.

### Biology and ecology

*Daviesia ovata* appears to mainly regenerate through seed germination following fire with flowering commencing two years after germination. However, resprouting of some individuals has been observed.

### Threats

*Daviesia ovata* was declared as Rare Flora under the Western Australian *Wildlife Conservation Act 1950* in August 2008. It is currently ranked as Critically Endangered (CR) under World Conservation Union (IUCN

2001) criterion C2a(ii). Recent counts have shown that the species no longer meets this criterion and it is proposed to recommend to the Threatened Species Scientific Committee (TSSC) that the criteria be amended to C2a(i)+D based on a total population size of less than 250 mature individuals, a continuing decline in the number of mature individuals, with no subpopulation having more than 50 mature individuals, and the total population size being less than 50 mature individuals. The species is not currently listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999). The main threats to the species are *Phytophthora* dieback, grazing, inappropriate fire regimes and firebreak maintenance.

- **Phytophthora dieback** caused by *Phytophthora cinnamomi*, a pathogen that causes root rot in susceptible plants, is a serious threat to the habitat of *Daviesia ovata*. *Phytophthora* dieback is prevalent in the area, and although it is not certain that the species is susceptible, many associated plants are susceptible. *Daviesia ovata* is found in small pockets of healthy vegetation with no plants found in infested areas.
- **Grazing** by quokkas (*Setonix brachyurus*) and possibly rabbits (*Oryctolagus cuniculus*), is a threat to both populations. Grazing appears to delay flowering thereby reducing the plants reproductive potential. In particular, grazing of juvenile plants, those up to 0.4 m high, has been heavy. Taller plants have been observed under *Eucalyptus marginata* where they appear to have some protection from grazing.
- **Inappropriate fire regimes.** *Daviesia ovata* is thought to regenerate after fire following germination of soil-stored seed, however resprouting of some individuals has been observed and these commence flowering within two years. Flowering of plants that germinated from seed following fire in 2005 has not been observed to date, however grazing has been significant.
- **Firebreak maintenance** is a potential threat to Subpopulation 1d.

The intent of this plan is to provide actions that will deal with immediate threats to *Daviesia ovata*. 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
1a. Mount Manypeaks	Nature Reserve	1982 1 1983 1 2007 2 (6) 2008 6 (1)	Moderate	<i>Phytophthora</i> dieback, grazing, inappropriate fire regimes
1b. Mount Manypeaks	Nature Reserve	2008 1 (3)	Moderate	<i>Phytophthora</i> dieback, grazing, inappropriate fire regimes
1c. Mount Manypeaks	Nature Reserve	2008 0 (3)	Moderate	<i>Phytophthora</i> dieback, grazing, inappropriate fire regimes
1d. Mount Manypeaks	Nature Reserve	2008 7 (35)	Moderate	<i>Phytophthora</i> dieback, grazing, inappropriate fire regimes, firebreak maintenance
2a. NW of Mount Manypeaks	Water Reserve	2008 3 (3)	Moderate	<i>Phytophthora</i> dieback, grazing, inappropriate fire regimes
2b. NW of Mount Manypeaks	Water Reserve	2008 4 (50)	Moderate	<i>Phytophthora</i> dieback, grazing, inappropriate fire regimes

Note: ( ) = number of juveniles; [ ] = approximate number of dead.

### Guide for decision-makers

Section 1 provides details of current and possible future threats. Developments and/or land clearing in the immediate vicinity of *Daviesia ovata* populations require assessment. Developments or clearing should not be approved unless the proponents can demonstrate that their actions will not have a significant impact on the species, its habitat or potential habitat, the local surface hydrology, such that drainage in the habitat of the species would be altered, or have the potential to spread or amplify dieback disease caused by the plant pathogen *Phytophthora cinnamomi*.

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

Given that *Daviesia ovata* is ranked as CR, it is considered that all known habitat for wild populations is critical to the survival of the species, and that all wild populations are important populations. Habitat critical to the survival of *D. ovata* 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 *Daviesia ovata* will also improve the status of associated native vegetation as well as other Declared Rare and Priority flora that occur in the area. These taxa are listed in the table below:

**Table 3. Conservation-listed flora species occurring adjacent to *Daviesia ovata*.**

Species name	Conservation Status (WA)	Conservation Status (EPBC Act 1999)
<i>Sphenotoma drummondii</i>	DRF (Endangered)	Endangered
<i>Scaevola</i> sp. Waychinicup	Priority 2	
<i>Stylidium articulatum</i>	Priority 2	
<i>Agrostocrinum scabrum</i> subsp. <i>littorale</i>	Priority 2	
<i>Melaleuca diosmifolia</i>	Priority 3	
<i>Thomasia discolor</i>	Priority 3	
<i>Eucalyptus acies</i>	Priority 4	
<i>Pomaderris grandis</i>	Priority 4	

For a description of the Priority categories see Atkins (2008).

Recovery actions implemented to improve the quality or security of the habitat of *Daviesia ovata* may also improve the habitat of the two threatened fauna species listed in the table below:

**Table 5: Threatened fauna which may benefit from the protection of habitat in which *Daviesia ovata* occurs.**

Species Name	Conservation status (WA)	Conservation Status (EPBC Act 1999)
<i>Atrichornis clamosus</i> (Noisy Scrub Bird)	Endangered	Vulnerable
<i>Dasyornis longirostris</i> (Western Bristle Bird)	Vulnerable	Vulnerable

### 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. *Daviesia ovata* is not listed under any specific international treaty however, and this IRP does not affect Australia's obligations under any other international agreements.

### Indigenous Consultation

The Aboriginal Sites Register maintained by the Department of Indigenous Affairs lists one significant site in the vicinity of populations of *Daviesia ovata*. The Yoolberup site (#17474) is listed as a ceremonial/mythological site and has no restrictions. Input and involvement is therefore 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. As this is not expected to be completed before the approval of the IRP, further consultation has been included as a recovery action to ensure there has been Indigenous engagement in relation to the recovery actions posed in this plan.

### Social and economic impacts

The implementation of this recovery plan is unlikely to cause significant adverse social and economic impact as the known populations of *Daviesia ovata* occur in a Nature Reserve and Water Reserve.

## **Affected interests**

There are no significant stakeholders likely to be affected by implementation of this plan.

## **Evaluation of the Plans Performance**

The DEC in conjunction with the Albany Threatened Flora and Communities Recovery Team (ATFCRT) will evaluate the performance of this IRP. In addition to annual reporting on progress and evaluation against the criteria for success and failure, the plan will be reviewed following four years of implementation.

## **2. RECOVERY OBJECTIVE AND CRITERIA**

### **Objective**

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

**Criterion for success:** The number of populations have increased and/or the number of mature individuals have increased by ten percent or more over the term of the plan.

**Criterion for failure:** The number of populations have decreased and/or the number of mature individuals have decreased by ten percent or more over the term of the plan.

## **3. RECOVERY ACTIONS**

### **Existing recovery actions**

Seed traps were placed on two *Daviesia ovata* plants at Subpopulation 1a in 2007 and approximately 50 seeds collected later that year. The seed is currently being stored in DEC's Threatened Flora Seed Centre (TFSC) awaiting processing.

Following continued heavy grazing, cages were placed on seven juvenile (to 30 cm high) *Daviesia ovata* plants in March 2008 to prevent access by herbivores.

Declared Rare Flora (DRF) markers have been installed at Subpopulation 1d. These serve to alert people to the presence of the DRF and the need to avoid work that may damage the species or its habitat.

DEC staff from DEC Albany monitor populations annually.

The ATFCRT is overseeing the implementation of this IRP and will include information on progress in its annual report to DEC's Corporate Executive and funding bodies.

### **Future recovery actions**

Where recovery actions 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**

The ATFCRT will continue to oversee the implementation of the recovery actions for *Daviesia ovata* and will include information on progress in their annual report to DEC's Corporate Executive and funding bodies.

**Action:** Coordinate recovery actions



**Responsibility:** DEC (Albany) through the ATFCRT  
**Cost:** \$3,000 per year

## 2. Nominate *Daviesia ovata* for listing under the Commonwealth EPBC Act

Staff from DEC's Species and Communities Branch (SCB) will develop a Species Profile and Threats (SPRAT) and nomination form for this species, and forward it to the Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA) for referral to the Threatened Species Scientific Committee (TSSC) for endorsement under the EPBC Act.

**Action:** Nominate *Daviesia ovata* for listing under the Commonwealth EPBC Act  
**Responsibility:** DEC (SCB)  
**Cost:** \$1,500 in year 1

## 3. Map habitat critical to the survival of *Daviesia ovata*

It is a requirement of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) (Section 207A) that spatial data relating to critical habitat be determined. 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, then habitat critical to the survival of the species will be determined and mapped for these locations also.

**Action:** Map habitat critical to the survival of *Daviesia ovata*  
**Responsibility:** DEC (SCB, Albany) through the ATFCRT  
**Cost:** \$3,000 in year 2

## 4. Determine the susceptibility of *Daviesia ovata* to *Phytophthora cinnamomi*

It is not known how susceptible *Daviesia ovata* is to *Phytophthora cinnamomi*. Plants grown from seed will be forwarded to Science Division for testing.

**Action:** Determine the susceptibility of *Daviesia ovata* to *Phytophthora cinnamomi*  
**Responsibility:** DEC (Albany, Science Division) through the ATFCRT  
**Cost:** \$2,000 in year 1

## 5. Apply phosphite

As *Daviesia ovata* habitat is infested with *Phytophthora cinnamomi* and the species is likely to be susceptible, DEC will apply phosphite as a protective measure.

**Action:** Apply phosphite  
**Responsibility:** DEC (Albany, Dieback Disease Coordinator) through the AWCTFRT  
**Cost:** \$7,000 per year for phosphite application; and \$2,000 per year for monitoring

## 6. Collect seed and other material to preserve genetic diversity

Seed collections are needed to ensure the genetic diversity of the species is captured. Cuttings will also be collected to establish a living collection.

**Action:** Collect seed and other material to preserve genetic diversity  
**Responsibility:** DEC (Albany, TFSC), BGPA through the ATFCRT  
**Cost:** \$2,500 per year

## 7. Monitor populations

Annual monitoring of factors such as habitat degradation (including the impact of dieback), population stability (expansion or decline), grazing, pollinator activity, seed production, recruitment, longevity, predation and the impact of phosphite application on *Daviesia ovata* and the control of *Phytophthora cinnamomi* is essential.

**Action:** Monitor populations  
**Responsibility:** DEC (Albany) through the ATFCRT  
**Cost:** \$3,500 per year

## 8. Implement grazing control

The level of threat posed by rabbits and native fauna may vary from year to year. When monitoring ascertains the threat is high, management measures may be required. Previous methods, including the use of tree guards/cages on individual plants and scatter baiting of 1080 oats, have proven to be effective. Non-destructive methods will be required where quokka grazing requires management.

**Action:** Implement grazing management  
**Responsibility:** DEC (Albany) through the ATFCRT  
**Cost:** \$3,000 in first, third and fifth years

## 9. Conduct further surveys

It is recommended that areas of potential suitable habitat be surveyed for the presence of *Daviesia ovata* during the flowering period in September to November.

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:** Conduct further surveys  
**Responsibility:** DEC (Albany) through the ATFCRT  
**Cost:** \$3,000 in years 1, 3 and 5

## 10. Develop and implement a fire management strategy

*Daviesia ovata* appears to regenerate through the germination of soil-stored seed following fire. However, resprouting of some individuals has been observed with flowering commencing two years later. To date, plants that germinated from seed after a fire in 2005 have not yet flowered. The timing and frequency of fire events may impact on recruitment. Fire should therefore be prevented from occurring in the area of populations, except where it is being used as a recovery tool. The species will be listed as requiring exclusion from prescribed fire as defined in the draft Fire Management Strategy for the Waychinicup Nature Reserve (DEC South Coast Region, in press).

A fire management strategy will be developed to determine fire control measures and fire frequency. This strategy should incorporate other priority and threatened flora species in the area.

**Action:** Develop and implement a fire management strategy  
**Responsibility:** DEC (Albany) through the ATFCRT  
**Cost:** \$2,500 in first year and \$1,000 in subsequent years

## 11. Undertake and monitor translocations

Translocation is thought to be essential for the long-term conservation of *Daviesia ovata*, as the total number of extant plants is low and the only known populations are threatened by grazing and dieback disease caused by *Phytophthora cinnamomi*. As the habitat of the species is highly susceptible to infestation by *P. cinnamomi*, a translocation to a disease free, secure site is necessary.

A translocation proposal will be developed and forwarded to the Department's Director of Nature Conservation for endorsement. 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*.

Monitoring of the translocation is essential and will be undertaken according to the timetable developed for the Translocation Proposal.

**Action:** Undertake and monitor translocations  
**Responsibility:** DEC (Science Division, Albany) through the ATFCRT  
**Cost:** \$36,000 in the first, second and third years, and \$3,500 in other years

## 12. Liaise with Indigenous groups

*Daviesia ovata* occurs within the Mount Manypeaks Nature Reserve which may be an area that is culturally sensitive. Indigenous consultation will take place to determine if there are any issues or interests.

**Action:** Liaise with Indigenous groups  
**Responsibility:** DEC (Albany) through the ATFCRT  
**Cost:** \$500 per year

## 13. Promote awareness

The importance of biodiversity conservation and the protection of *Daviesia ovata* 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. Formal links with local naturalist groups and interested individuals will also be encouraged.

Due to the susceptibility of the habitat of this species to dieback, the need for hygiene procedures will be included in information provided to visitors to the area. This will stress the need to restrict the movement of soil into the habitat of the populations.

**Action:** Promote awareness  
**Responsibility:** DEC (Albany, SCB, Strategic Development and Corporate Affairs Division) through the ATFCRT  
**Cost:** \$1,500 in year 1 and \$1,000 in years 2-5

## 14. Obtain biological and ecological information

Increased knowledge of the biology and ecology of the species will provide a scientific basis for management of *Daviesia ovata* in the wild. Overall investigations will ideally 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 the mating system and pollination biology.
4. Investigation of population genetic structure, levels of genetic diversity and minimum viable population size.
5. Impacts of dieback disease and phosphite application on *Daviesia ovata* and its habitat.
6. The impact of changes in hydrology in the habitat.

**Action:** Obtain biological and ecological information  
**Responsibility:** DEC (Science Division, Albany) through the ATFCRT  
**Cost:** \$10,000 per year

## 15. Propose ranking criteria change for *Daviesia ovata*

At the next meeting of the TSSC the ranking of *Daviesia ovata* will be recommended to be amended from CR C2a(ii) to CR C2a(i)+D based on a total population size of less than 250 mature individuals, a continuing decline in the number of mature individuals, with no subpopulation having more than 50 mature individuals, and the total population size being less than 50 mature individuals.

**Action:** Propose ranking criteria change for *Daviesia ovata*  
**Responsibility:** DEC (SCB, Albany) through ATFCRT  
**Cost:** \$1,000 in year 1

#### 16. Review this IRP and assess the need for further recovery actions

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

**Action:** Review this IRP and assess the need for further recovery actions  
**Responsibility:** DEC (SCB, Albany) through the ATFCRT  
**Cost:** \$2,000 in year 5

**Table 6. Summary of Recovery Actions**

Recovery Action	Priority	Responsibility	Completion Date
Coordinate recovery actions	High	DEC (Albany) through the ATFCRT	Ongoing
Nominate <i>Daviesia ovata</i> for listing under the Commonwealth EPBC Act	High	DEC (SCB)	2010
Map habitat critical to the survival of <i>Daviesia ovata</i>	High	DEC (SCB, Albany) through the ATFCRT	2011
Determine the susceptibility of <i>Daviesia ovata</i> to <i>Phytophthora cinnamomi</i>	High	DEC (Albany) through the ATFCRT	2010
Apply phosphite	High	DEC (Albany) through the ATFCRT	Ongoing
Collect seed and other material to preserve genetic diversity	High	DEC (Albany, TFSC), BGPA through the ATFCRT	2014
Monitor populations	High	DEC (Albany) through the ATFCRT	Ongoing
Implement grazing management	High	DEC (Albany) through the ATFCRT	Ongoing
Conduct further surveys	High	DEC (Albany) through the ATFCRT	Ongoing
Develop and implement a fire management strategy	High	DEC (Albany) through the ATFCRT	Developed by 2010 with implementation ongoing
Undertake and monitor translocations	High	DEC (Science Division, Albany) through the ATFCRT	2014
Liaise with Indigenous groups	Medium	DEC (Albany) through the ATFCRT	Ongoing
Promote awareness	Medium	DEC (Albany, SCB, and Strategic Development and Corporate Affairs Division) through the ATFCRT	Ongoing
Obtain biological and ecological information	Medium	DEC (Science Division, Albany District) through the ATFCRT	2014
Propose ranking criteria change for <i>Daviesia ovata</i>	Medium	DEC (SCB, Albany District) through the ATFCRT	2010
Review this IRP and assess the need for further recovery actions	Medium	DEC (SCB, Albany District) through the ATFCRT	2014

#### 4. TERM OF PLAN

This IRP will operate from January 2010 to December 2014 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

Atkins, K. (2008) *Declared Rare and Priority Flora List for Western Australia*. Department of Environment and Conservation, Perth, Western Australia.

- Bentham (1864) *Flora of Australia*, 2:72.
- Conservation and Land Management (1992) Policy Statement No. 44 *Wildlife Management Programs*. Department of Conservation and Land Management, Western Australia.
- 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.
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- Leigh, J. Boden, R. and Briggs, J. (1984) *Extinct and endangered plants of Australia*. Macmillan, South Melbourne.
- Western Australian Herbarium (1998-) *FloraBase – The Western Australian Flora*. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/>.
- World Conservation Union (2001) *IUCN Red List Categories: Version 3.1*. Prepared by the IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, UK.

## 6. TAXONOMIC DESCRIPTION

### *Daviesia ovata*

Bentham (1864) *Flora of Australia*, 2:72.

A glabrous shrub, with the habit, angular stems, and large bracts of *D. cordata*. Leaves ovate or elliptical, with a small callous point, mostly about 2 in. long, narrowed at the base, rigidly coriaceous and strongly reticulate as in *D. cordata*. Peduncles axillary, but often growing out into leafy branches, with a terminal umbel, surrounded when in fruit by 2 or 3 large orbicular bracts, rigidly scarious and elegantly veined as in *D. cordata*, and of about the same size. Calyx and pod of *D. cordata*. Flowers not seen.

