INTERIM RECOVERY PLAN NO. 254

Milky Emu Bush

(*EREMOPHILA LACTEA*)

INTERIM RECOVERY PLAN

2008-2013

April 2008

Department of Environment and Conservation
Kensington

Australian Government

Government of Western Australia

Department of Environment and Conservation
Our environment, our future

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. DEC will continue to adhere to these Policy Statements until they are revised and reissued.

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 Critically Endangered (CR) 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 always within one year of endorsement of that rank by the Minister.

This IRP, which results from a review of and replaces IRP No. 38 *Eremophila lactea* (Stack and Brown, 1999), will operate from April 2008 to March 2013 but will remain in force until withdrawn or replaced. It is intended that, if the species is still ranked CR, this IRP will be reviewed after five years and the need for further recovery actions assessed.

This IRP was approved by the Director of Nature Conservation on 30 April 2008. The allocation of staff time and 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 in April 2008.

This IRP was prepared with financial support from the Australian Government to be adopted as a National Recovery Plan under the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

ACKNOWLEDGMENTS

This Interim Recovery Plan was prepared by Emma Adams[1] and Andrew Brown[2]

[1] Conservation Officer, DEC's Esperance District, 92 Dempster St, Esperance WA 6450.
[2] Threatened Flora Coordinator, Species and Communities Branch, DEC, Locked Bag 104, Bentley Delivery Centre.

The following people provided assistance and advice in the preparation of this Interim Recovery Plan:

John Riley Administrative Officer Flora, Species and Communities Branch, DEC

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

Cover photograph by Andrew Brown

CITATION

This Interim Recovery Plan should be cited as:

Department of Environment and Conservation (2008). Milky Emu Bush (*Eremophila lactea*) Interim Recovery Plan 2008-2013. Interim Recovery Plan No. 254. Department of Environment and Conservation, Western Australia.

SUMMARY

Scientific Name:	***Eremophila lactea***	**Common Name:**	Milky Emu Bush
Family:	MYOPORACEAE	**Flowering Period:**	September - November
Dept Region:	South Coast	**Dept District:**	Esperance
Shire:	Esperance	**Recovery Team:**	Esperance District Threatened Flora Recovery Team (EDTFRT)

Illustrations and/or further information: Chinnock (1985) *Five endangered new species of Myoporaceae from south-western Australia.* Nuytsia 5 (3): 391-400; Blackall and Grieve (1988) *How to know Western Australian Wildflowers* I, 2nd Ed.: 56. University of Western Australia Press, Perth; Brown, A., Thomson-Dans, C. and Marchant, N. (Eds). (1998) *Western Australia's Threatened Flora*. Department Conservation and Land Management, Perth, Western Australia.

Analysis of outputs and effectiveness of IRP No. 38, *Eremophila lactea* (1999-2002), prepared by G. Stack and A. Brown.

The criteria for success in the previous plan (the number of individuals within populations and/or the number of populations have increased) has been met, as the number of known populations in the wild has increased from four to six. The number of known plants in wild populations has increased from 547 to the current 1122, an increase of 575 plants. This has occurred as a result of new areas with similar habitat being searched and new populations being found.

Actions carried out through the previous plan include:

Action 1. All populations are monitored on an annual basis
Action 2. Initial investigations have begun into the impact of fire on *Eremophila lactea*
Action 3. Seed has been collected from 4 populations and placed in long term storage at DEC's Threatened Flora Seed Centre (TFSC).
Action 5. Further surveys for new populations are being conducted in areas of suitable habitat outside the species' known range.
Action 6. An information sheet for *Eremophila lactea* has been produced.
Action 7. An updated Interim Recovery Plan has been prepared.

Actions 1, 2, 3, 5, 6 and 7 in the plan are ongoing and are included in this revised plan.

New recovery actions included in this plan are - coordinate recovery actions, map habitat critical to the survival of the species, conduct fire and disturbance trials, liaise with landholders.

Current status: *Eremophila lactea* was declared as Rare Flora under the Western Australian *Wildlife Conservation Act 1950* in October 1996 and ranked as Critically Endangered under World Conservation Union (IUCN) Red List Criteria B1+2ce (IUCN 1994) in November 1998 due to the fragmented nature of populations and a continuing decline in the numbers of mature plants. The species is probably naturally rare as it has only ever been recorded from a very small area of distribution and this rarity has been exacerbated by the extent of clearing for agriculture in the Esperance area. There are 1122 mature plants known from 6 road reserve populations that are threatened by road maintenance, inappropriate fire regimes and the taking of illegal cutting material. The species is listed as Endangered under the Commonwealth *Environment and Biodiversity Protection Act 1999* (EPBC Act).

Description: *Eremophila lactea* is an erect spindly shrub to 3.5 m tall that often has drooping branches when old. The five lipped flower tube is very pale and densely glandular-hairy on the outside, while inside the tube is deeper lilac with purple spots and contains long soft hairs. *E. lactea* is allied to *E. psilocalyx*, but has thinner, broader leaves, milky exudates on the branches and leaves, smaller sepals and a smaller, glandular-pubescent corolla.

Habitat requirements: *Eremophila lactea* is endemic to the Esperance area of Western Australia where it occurs over a range of approximately 19 km in disturbed habitat (for example, following road verge grading) on low lying sandy-loam flats. Habitat is *Eucalyptus* (including mallee) woodland over a range of shrubs including *Melaleuca bromelioides, Halgania andromedifolia, Acacia profusa and Westringia rigida.*

Habitat critical to the survival of the species, and important populations: The habitat critical to the survival of *Eremophila lactea* comprises the area of occupancy of the known population, similar habitat surrounding the known population and additional nearby occurrences of similar habitat that do not currently contain the species but may have done so in the past and may be suitable for translocations. Given that the species is listed as Critically Endangered it is considered that all known habitat for wild and possible future translocated populations is habitat critical to its survival, and all populations, including translocated populations, are important populations.

Benefits to other species/ecological communities: *Eremophila lactea* is found with several priority flora species including *Acacia amyctica, Eremophila chamaephila* and *Eucalyptus dolichorhyncha*. Recovery actions implemented to improve the quality or security of the habitat of *Eremophila lactea* will also improve the status of these species and the vegetation in which they occur.

International Obligations: This plan is fully consistent with the aims and recommendations of the Convention on Biological Diversity, ratified by Australia in 1993, and will assist in implementing Australia's responsibilities under that convention. This species is not specifically listed under any international treaty and therefore does not affect Australia's obligations under any other international agreements.

Role and interests of indigenous people: According to the Department of Indigenous Affairs Aboriginal Heritage Sites Register, no sites occur within the area inhabited by *Eremophila lactea*. However, the involvement of the Indigenous community is currently being sought to determine whether there are any issues or interests identified in the Plan. If no role is identified for indigenous communities in the recovery of this species, opportunities may exist through cultural interpretation and awareness of the species.

The advice of the South West Aboriginal Land and Sea Council (SWALSC) and Department of Indigenous Affairs is being sought to assist in the identification of potential indigenous management responsibilities for land occupied by threatened species, or groups with a cultural connection to land that is important for the species' conservation.

Continued liaison between DEC and the indigenous community will identify areas in which collaboration will assist implementation of recovery actions.

Affected interests: Stakeholders potentially affected by the implementation of this plan include the Shire of Esperance, DEC, and potentially the owners of private property in close proximity to populations.

Social and economic impact: Most known populations occur on Shire Road Verge managed by the Shire of Esperance and negotiations will continue with the Shire in regard to the future management of *Eremophila lactea* populations in these areas. One subpopulation of *Eremophila lactea* (1b) is located in close proximity to private property and recovery actions refer to continued liaison with the owners in regard to this site.

Evaluation of the Plans Performance: The Department of Environment and Conservation (DEC), in conjunction with the EDTFRT, will evaluate the performance of this IRP.

Completed recovery actions

1. Land managers have been notified of the presence of *Eremophila lactea*
2. Declared Rare Flora (DRF) markers have been installed
3. Populations are being monitored
4. Some biological and ecological information has been obtained
5. Seed has been collected
7. Surveys have been undertaken
8. Fire and soil disturbance trials have been undertaken

IRP Objective: The objective of this IRP is to abate identified threats and maintain viable *in situ* populations of *Eremophila lactea* to ensure the long-term preservation of this species in the wild.

Recovery criteria
Criteria for success: The number of populations have increased and/or the number individuals within populations have increased by ten percent or more over the 5 year term of this plan.
Criteria for failure: The number of populations have decreased and/or the number of individuals within populations has decreased by ten percent or more over the 5 year term of this plan.

Recovery actions:

1. Coordinate recovery actions	7. Liaise with landholders and land managers
2. Map habitat critical to the survival of *Eremophila lactea*	8. Collect seed
3. Monitor populations	9. Promote awareness
4. Conduct further surveys	10. Obtain biological and ecological information
5. Conduct further fire and disturbance trials	11. Review the IRP and assess the need for further recovery actions
6. Develop and implement a fire management strategy	

1. BACKGROUND

Analysis of outputs and effectiveness of IRP No. 38, *Eremophila lactea* (1999-2002), prepared by G. Stack and A. Brown.

The criteria for success in the previous plan (the number of individuals within populations and/or the number of populations have increased) has been met, as the number of known populations in the wild has increased from four to six and the number of known plants in wild populations has increased from 547 in 1999 to 1122 as at January 2007, an increase of 575 plants.

This has occurred as a result of new populations being located through searches completed in additional areas of similar habitat.

Actions carried out through the previous plan include:
Action 1. All populations are monitored on an annual basis
Action 2. Initial investigations have begun into the impact of fire on *Eremophila lactea*
Action 3. Seed has been collected from four populations and placed in long term storage at DEC's Threatened Flora Seed Centre (TFSC).
Action 5. Further surveys are being conducted for new populations in areas of suitable habitat outside the species' known range
Action 6. An information sheet has been produced for *Eremophila lactea*.
Action 7. An updated Interim Recovery Plan has been prepared.

Actions 1, 2, 3, 5, 6 and 7 in the previous plan are ongoing and are included in this revised plan.

New recovery actions included in this plan are - coordinate recovery actions, map habitat critical to the survival of the species, conduct fire and disturbance trials, liaise with landholders.

History

Eremophila lactea was first collected by T. Loffler in 1967. R. Chinnock made further collections in 1978 from the same general area and then searched widely over several seasons but did not locate additional populations. A new population was located by G. Stack, L. Monks and B. Haberley in 1997, increasing the total number of known extant plants to 547.

In 1997 one plant died following the taking of cutting material by unknown person/s, and in 1998 further cuttings were taken from a much larger number of plants with several plants killed by the severity of the pruning. The person/s responsible for the damage was not determined.

Since 1997, seven seed collections have been made with a total of 2017+ seeds now stored in DEC's Threatened Flora Seed Centre.

Between 1999 and 2005, six additional populations were located by C. Turley and R. Butler, increasing the number of known extant plants to 1,122 individuals.

Description

Eremophila lactea is an erect spindly shrub to 3.5 m tall that often has drooping branches when old. The five lobed flower tube is very pale and densely glandular-hairy on the outside, while inside the tube is deeper lilac with purple spots and contains long soft hairs. *E. lactea* is allied to *E. psilocalyx*, but has thinner, broader leaves, milky exudates on the branches and leaves, smaller sepals and a smaller, glandular-pubescent corolla.

Distribution and habitat

Eremophila lactea is endemic to the Esperance area of Western Australia, where it occurs in disturbed habitat (for example, following grading) over a range of approximately 19km on low-lying sandy-loam flats. Habitat is *Eucalyptus* (including mallee) woodland over a range of shrubs including *Melaleuca bromelioides, Halgania andromedifolia, Acacia profusa and Westringia rigida.*

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

Pop. No. & Location	DEC District	Shire	Vesting	Purpose	Manager
1a. NW of Esperance	Esperance	Esperance	Shire of Esperance	Road Verge	Shire of Esperance
1b. NW of Esperance	Esperance	Esperance	Shire of Esperance	Road Verge	Shire of Esperance
1c. NW of Esperance	Esperance	Esperance	Shire of Esperance	Road Verge	Shire of Esperance
1d. NW of Esperance	Esperance	Esperance	Shire of Esperance	Road Verge	Shire of Esperance
2. NW of Esperance	Esperance	Esperance	Shire of Esperance	Road Verge	Shire of Esperance
3. NW of Esperance	Esperance	Esperance	Shire of Esperance	Road Verge	Shire of Esperance
4. NW of Esperance	Esperance	Esperance	Shire of Esperance	Road Verge	Shire of Esperance
5a. NW of Esperance	Esperance	Esperance	Shire of Esperance	Road Verge	Shire of Esperance
5b. NW of Esperance	Esperance	Esperance	Shire of Esperance	Road Verge	Shire of Esperance
5c. NW of Esperance	Esperance	Esperance	Shire of Esperance	Road Verge	Shire of Esperance
5d. NW of Esperance	Esperance	Esperance	Shire of Esperance	Road Verge	Shire of Esperance
5e. NW of Esperance	Esperance	Esperance	Shire of Esperance	Road Verge	Shire of Esperance
6. NW of Esperance	Esperance	Esperance	Shire of Esperance	Road Verge	Shire of Esperance

Populations in **bold text** are considered to be Important Populations.

Biology and ecology

The biology and ecology of *Eremophila lactea* is still largely unknown. However, the species does appear to be a disturbance opportunist as all populations are in disturbed road reserves or old soil pits. Disturbance trials aimed at stimulating germination of soil-stored seed have shown positive responses to fire and mechanical disturbance. The species is thought to be pollinated by native wasps as they have been seen on the flowers.

Threatening processes

Eremophila lactea was declared as Rare Flora under the Western Australian *Wildlife Conservation Act 1950* in October 1996 and ranked as Critically Endangered under World Conservation Union (IUCN) Red List Criteria B1+2ce (IUCN 1994) in November 1998, due to the fragmented nature of populations and a continuing decline in the number of mature plants. The species is probably naturally rare as it has only ever been recorded over a very small area and this rarity has been exacerbated by clearing for agriculture in the Esperance area. There are currently 1,122 plants known from six road reserve populations, all of which are threatened by road maintenance, inappropriate fire regimes and the taking of illegal cutting material. The species is listed as Endangered under the Commonwealth *Environment and Biodiversity Protection Act 1999* (EPBC Act).

Threats include:

- **Road maintenance and activities to maintain private property access** impacts directly on several populations through grading of road reserves, construction of drainage channels and widening private property access.
- **Inappropriate fire regimes** may adversely affect the viability of populations. Seed of *Eremophila lactea* appears to germinate following fire and disturbance and it is likely that occasional fires are needed for recruitment. However, fires that occur during the reproductive phase of *Eremophila lactea* (i.e. flowering, pollination, seed development and seed dispersal) may result in poor or no seed production. Frequent fire that occurs before plants have reached reproductive maturity may kill juvenile plants and result in poor or no recruitment.
- **Cuttings** were illegally taken from at least one plant in 1997 and a much larger number of plants in 1998. The party responsible is unknown, as is the reason for taking the material. The severity of damage from the taking of the cuttings varies between plants, with some plants being killed by the removal of all branches to a height of approximately 30cm above the ground.

Table 2. Summary of population information and threats

Pop no & location	Land status	Year/No of plants	Condition	Threats
1a.NW of Esperance	Shire Road Reserve	1998 186 2002 149 2005 75	Moderate	Road maintenance, inappropriate fire
1b.NW of Esperance	Shire Road Reserve	1998 334 2002 4 2006 3	Poor	Road maintenance, private property access, inappropriate fire, illegal cuttings
1c.NW of Esperance	Shire Road Reserve	2002 219 2006 130	Moderate	Road maintenance, inappropriate fire
1d.NW of Esperance	Shire Road Reserve	2005 7	Moderate	Road maintenance, inappropriate fire
2. NW of Esperance	Shire Road Reserve	1999 27 2002 11 2005 6	Poor	Road maintenance, private property access, inappropriate fire
3. NW of Esperance	Shire Road Reserve	1997 16 2002 28 2005 0	Poor/Extinct	Road maintenance, inappropriate fire
4. NW of Esperance	Shire Road Reserve	1997 29 2000 11 2002 4 2005 1	Poor	Road maintenance, inappropriate fire
5a. NW of Esperance	Shire Road Reserve	2004 392	Healthy	Road maintenance, inappropriate fire
5b. NW of Esperance	Shire Road Reserve	2004 413	Healthy	Road maintenance, inappropriate fire
5c. NW of Esperance	Shire Road Reserve	2004 13	Moderate	Road maintenance, inappropriate fire
5d. NW of Esperance	Shire Road Reserve	2005 45	Moderate	Road maintenance, inappropriate fire
5e.NW of Esperance	Shire Road Reserve	2005 35	Moderate	Road maintenance, inappropriate fire
6. NW of Esperance	Shire Road Reserve	2005 2	Poor	Road maintenance, inappropriate fire
TOTAL		**1122**		

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

The habitat critical to the survival of *Eremophila lactea* comprises the area of occupancy of known populations, similar habitat surrounding populations and additional nearby occurrences of similar habitat that do not currently contain the species but may have done so in the past and may be suitable for translocations. Given that the species is listed as Critically Endangered it is considered that all known habitat for wild and possible future translocated populations is habitat critical to its survival, and all populations, including translocated populations, are important populations.

Benefits to other species/ecological communities

Eremophila lactea occurs in *Eucalyptus* woodland where it is found growing with several priority species including *Acacia amyctica*, *Eremophila chamaephila* and *Eucalyptus dolichorhyncha*. Recovery actions implemented to improve the quality or security of the habitat of *Eremophila lactea* will also improve the status of these priority species and the vegetation type in which they occur.

International obligations

This plan is fully consistent with the aims and recommendations of the Convention on Biological Diversity, ratified by Australia in 1993, and will assist in implementing Australia's responsibilities under that convention. This species is not specifically listed under any international treaty and therefore does not affect Australia's obligations under any other international agreements.

Role and interests of indigenous people

According to the Department of Indigenous Affairs Aboriginal Heritage Sites Register, no sites occur within the area inhabited by *Eremophila lactea*. However, the involvement of the Indigenous community is currently being sought to determine whether there are any issues of interest identified in the Plan. If no role is identified for indigenous communities in the recovery of this subspecies, opportunities may exist through cultural interpretation and awareness of the subspecies.

The advice of the South West Aboriginal Land and Sea Council (SWALSC) and Department of Indigenous

Affairs is being sought to assist in the identification of potential indigenous management responsibilities for land occupied by threatened species, or groups with a cultural connection to land that is important for the subspecies' conservation.

Continued liaison between DEC and the indigenous community will identify areas in which collaboration will assist implementation of recovery actions.

Affected interests

Stakeholders potentially affected by the implementation of this plan include the Shire of Esperance, DEC and a private property owner that has land that abuts a population of *Eremophila lactea*.

Social and economic impacts

As all populations of *Eremophila lactea* occur on Shire Road verges and in a Shire soil pit negotiations will continue with the Shire in regard to their future management. One subpopulation of *Eremophila lactea* (1b) is located adjacent to private property and recovery actions refer to continued liaison between stakeholders with regard to this area.

Guide for decision-makers

Section 1 provides details of current and possible future threats. Developments in the immediate vicinity of populations or within the defined habitat critical to the survival of *Eremophila lactea* require assessment of the level of impact. No developments should be approved unless the proponents can demonstrate that they will not have a detrimental impact on the species or its habitat or potential habitat.

Evaluation of the Plans Performance

The Department of Environment and Conservation (DEC), in conjunction with the Esperance District Threatened Flora Recovery Team (EDTFRT), will evaluate the performance of this IRP. In addition to annual reporting on progress with listed actions and comparison against criteria for success and failure, the plan is to be reviewed within five years of its implementation. Any changes to management and/or recovery actions made in response to monitoring results will be documented accordingly.

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.

Criteria

Criteria for success: The number of populations have increased and/or the number individuals within populations have increased by ten percent or more over the 5 year term of this plan.
Criteria for failure: The number of populations have decreased and/or the number of individuals within populations has decreased by ten percent or more over the 5 year term of this plan.

3. RECOVERY ACTIONS

Completed recovery actions

1. Surveys of all known populations were undertaken by DEC in 2002, 2003, 2004, 2005 and 2006.
2. Rare flora markers have been erected at all of the populations, and the Esperance Shire has been notified of the locations of all populations.
3. Shire road reserves surrounding the known populations were surveyed along with other areas of suitable habitat outside the species' known range, but no new populations were identified.

4. Fire and soil disturbance trials using several different regimes were undertaken in May 2004 to encourage recruitment of soil-stored seed. Sites were burnt, disturbed or burnt and disturbed. The most positive response was from sites that were both burnt and disturbed. However, replication of these trials is needed to confirm that the previous results weren't dependent on some unreported factor and to provide further confidence for future management directions.
5. Seed was collected from 4 populations between 2001 and 2004, with approximately 25,155 seed stored at DEC's Threatened Flora Seed Centre.
6. A two sided poster containing photographs of the species, description and threat information, and outlining current recovery actions has been produced by DEC and distributed.

Ongoing and future recovery actions

The following recovery actions are roughly in order of descending priority; however this should not constrain addressing any action if funding is available and the opportunity arises.

1. Coordinate recovery actions

The Esperance District Threatened Flora Recovery Team (EDTFRT) is coordinating recovery actions for *Eremophila lactea* and will include information on progress in their annual report to DEC's Corporate Executive and funding bodies.

Action: Coordinate recovery actions
Responsibility: DEC (Esperance District) through the EDTFRT
Cost: $1,500 per year.

2. Map habitat critical to the survival of *Eremophila lactea*

It is a requirement of the EPBC Act that spatial data relating to critical habitat be determined. Although critical habitat is described in Section 1, it has not yet been fully mapped and this will be redressed under this action. If any additional populations are located habitat critical to their survival will also be determined and mapped.

Action: Map habitat critical to the survival of *Eremophila lactea*
Responsibility: DEC (Esperance District, Science Division) through the EDTFRT
Cost: $1600 per year.

3. Monitor populations

Monitoring of factors such as weed encroachment, habitat degradation, population stability (expansion or decline), seed production, recruitment and longevity is required. Populations will be inspected annually.

Action: Monitor populations
Responsibility: DEC (Esperance District, Science Division) through the EDTFRT
Cost: $1,200 per year.

4. Conduct further surveys

Further surveys will be conducted in areas of suitable habitat outside the species' known range. Volunteers from the local community and wildflower societies and naturalist clubs will be encouraged to become involved in surveys supervised by DEC staff.

Action: Conduct further surveys
Responsibility: DEC (Esperance District) through the EDTFRT
Cost: $2000 per year.

5. Conduct further fire and soil disturbance trials

Fire and soil disturbance trials to encourage recruitment of soil-stored seed using several different regimes were conducted in 2004. Sites were burnt, disturbed or burnt and disturbed. The most positive response was from sites that were both burnt and disturbed. However, replication of these trials will be carried out to confirm that the previous results weren't dependent on some unreported factor and to provide further confidence for future management directions.

Action: Conduct further fire and soil disturbance trials
Responsibility: DEC (Esperance District) through the EDTFRT
Cost: $2,000 in the first and second year, and $500 in subsequent years.

6. Develop and implement a fire management strategy

Recent disturbance trials have shown that the species germinates from soil-stored seed following fire or other disturbance. However, frequent fire may prevent the accumulation of sufficient soil-stored seed for recruitment to occur. Fire should therefore generally be prevented from occurring in the habitat of populations except where it is being used as a recovery tool and until such time as further research results indicate a suitable burn regime. A fire management strategy will be developed to determine fire control measures and fire frequency. This recovery action will be linked to Recovery Action 5.

Action: Develop and implement a fire management strategy
Responsibility: DEC (Esperance District) through the EDTFRT
Cost: $2,500 in the second year, and $1000 in subsequent years.

7. Liaise with landowners and land managers

Continued liaison with the Esperance Shire and owners of private land that occurs in close proximity to Subpopulation 1b is required to help ensure that it is not inadvertently damaged.

Action: Liaise with landowners and land managers
Responsibility: DEC (Esperance District) through the EDTFRT
Cost: $1000 per year.

8. Collect seed

Seed will continue to be obtained from as wide a range of plants as possible, to maximise the genetic variation in collected material.

Action: Collect further seed from *Eremophila lactea*
Responsibility: DEC (Esperance District, Science Division) through the EDTFRT
Cost: $1000 per year (for three years).

9. Promote awareness

The importance of biodiversity conservation and the need for long-term protection of wild populations of this species will be promoted to the community through poster displays and the local print and electronic media. Formal links with local naturalist groups and interested individuals will also be encouraged.

A reply paid postal drop of a pamphlet that illustrates *Eremophila lactea* and describes its distinctive features and habitat will be developed and distributed to residents in the Esperance Shire who live close to known populations. Postal drops aim to stimulate interest, provide information about threatened species and provide a name and contact if new populations are located by members of the local community. An information sheet that includes a description of the plant, its habitat type, threats, management actions and photos will also be distributed.

Action: Promote awareness

Responsibility: DEC (Esperance District) through the EDTFRT
Cost: $1000 in the first year, and $500 in subsequent years.

10. Obtain biological and ecological information

Improved knowledge of the biology and ecology of *Eremophila lactea* will provide a better scientific basis for management of wild populations. Research will include:

- Defining the species' habitat requirements.
- Determining the species' reproductive methodology, phenology and seasonal growth.
- Investigating the genetic structure of populations, levels of genetic diversity and minimum viable population size.
- Longevity of plants, and time taken to reach maturity.

Action: Obtain biological and ecological information
Responsibility: DEC (Esperance District, Science Division) through the EDTFRT
Cost: $500 per year.

11. Review the IRP and assess the need for further recovery actions

If *Eremophila lactea* is still ranked as Critically Endangered near the end of the five-year term of this IRP, the plan will be reviewed and the need for further recovery actions assessed

Action: Review the IRP and assess the need for further recovery actions
Responsibility: DEC (Species and Communities Branch, Esperance District) through the EDTFRT
Cost: $4,000 in the fifth year (if required).

Table 3. Summary of recovery actions

Recovery Actions	Priority	Responsibility	Completion date
Coordinate recovery actions	High	DEC (Esperance District) through EDTRFT	Ongoing
Map habitat critical to the survival of *Eremophila lactea*	High	DEC (Esperance District) through EDTFRT	2011
Monitor populations	High	DEC (Esperance District) through EDTFRT	Ongoing. Annually if possible
Conduct further surveys	Medium	DEC (Esperance District) through EDTFRT	Annually
Conduct further fire and soil disturbance trials	Medium	DEC (Esperance District) through the EDTFRT	2010
Develop and implement a fire management strategy	Medium	DEC (Esperance District) through the EDTFRT	2011
Liaise with land managers and landowners	Medium	DEC (Esperance District) through the EDTFRT	Ongoing.
Collect Seed	Medium	DEC (Esperance District, Science Division) through EDTFRT	2013
Promote awareness	Medium	DEC (Esperance District) through the EDTFRT	Ongoing
Obtain biological and ecological information	Medium	DEC (Esperance District, Science Division) through the EDTFRT	Ongoing
Review the IRP and assess the need for further recovery actions	Low	DEC (Esperance District, Species and Communities Branch) through the EDTFRT	2013

4. TERM OF PLAN

Western Australia

This Interim Recovery Plan will operate from April 2008 to March 2013 but will remain in force until withdrawn or replaced. If the taxon is still ranked as Endangered after five years, this IRP will be reviewed and if necessary, further recovery actions put in place.

Commonwealth

In accordance with the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) this adopted recovery plan will remain in force until revoked.

The recovery plan must be reviewed at intervals of not longer than 5 years.

5. REFERENCES

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6. TAXONOMIC DESCRIPTION

Eremophila lactea is an erect compact or spindly shrub 1 – 3.5 m high, often weeping when old. *Branches* erect, subterete and ribbed towards apex, terete in older parts, green becoming light brown in woody parts, non-tuberculate, glabrous, obscurely glandular-papillose, prominently white-blotched at least in upper parts, the blotches consisting of dried exudate. *Leaves* sessile, alternate, erect, overlapping and normally obscuring branch, (7)10-31(44) x 2-6(11) mm, elliptic to oblanceolate, acute, margins entire, surfaces smooth or obscurely glandular-papillose, glabrous, viscid when immature, white-blotched at least towards branch tips, somewhat shiny. *Flowers* 3 or 4 per axil; pedicel 2-3 mm long, flattened, sparsely glandular-pubescent in upper part, often white-blotched. *Sepals* 5, valvate, green, oblong to oblanceolate, 3-5.5(8) x 0.5-1.5 mm, acute often broadly so, veins prominent after flowering, sparely glandular pubescent on both surfaces. *Corolla* 8-13.5 mm long, very pale lilac outside, deeper lilac and faintly purple spotted inside tube, 2-lipped, densely glandular-pubescent on the outside, inside of tube villous and lobes glabrous; lobes obtuse, similar in shape. *Stamens* 4, included, glabrous. *Ovary* ovoid c. 1.5 x 0.8 mm, pale greenish yellow, bilocular with one ovule per loculus, densely villous except for swollen glabrous base; style glabrous except for a few scattered eglandular hairs towards base. *Fruit* dry, ovoid-cylindrical, 3-3.5 x 1.5-2 mm, acute, crustaceous, villous, hairs eglandular. *Seed* unknown.

Affinities. Allied to *Eremophila psilocalyx* F. Muell. (syn. *E. pachyphylla* Diels) but differing in having thinner, broader leaves, a milky exudate on the branches and leaves, smaller sepals and a smaller, glandular-pubescent corolla.

Appendix One: Associated species

MYRTACEAE	LAMIACEAE	MIMOSACEAE
Eucalyptus dolichorhyncha	*Westringia rigida*	*Acacia profusa*
Eucalyptus forrestiana		
Melaleuca bromelioides	MYOPORACEAE	BORAGINACEAE
	Eremophila chamaephila	*Halgania andromedifolia*