



## **Great South Land Minerals Ltd**

# **ONSHORE SEISMIC SURVEY ENVIRONMENTAL MANAGEMENT PLAN**

February 2006  
Project No. 1377.001



**GREAT SOUTH LAND  
MINERALS**  
LIMITED



**SCIENTISTS  
ENGINEERS  
MANAGERS &  
FACILITATORS**



SEMF Ref 1377.001  
10 March 2006

SCIENTISTS  
ENGINEERS  
MANAGERS &  
FACILITATORS

Nicole Chesterman  
Company Secretary  
Great Southland Minerals  
Level 3, 65 Murray Street  
HOBART TAS 7000

Dear Nicole,

**ADDENDUM TO ONSHORE SEISMIC SURVEY TRAFFIC MANAGEMENT PLAN**

The information below is provided as an addendum to the Traffic Management Plan subsequent to the review undertaken by the Department of Industry Environment and Resources.

***Section 3 - Traffic Management Plan, Clause 3.9 - Traffic Control Equipment***  
*2<sup>nd</sup> last paragraph –to read as follows*

All Terrex vehicles involved in the works will be fitted with a pair of flashing yellow lights mounted in such a way to ensure at least one light is visible to traffic approaching from any direction.

***Section 3 - Traffic Management Plan, Clause 3.12 – Terrex Site Supervisors***  
*Insert the following paragraph*

The site supervisor will be responsible for establishing the work site in consideration of the specific condition of each section of road, including physical condition and sight distance constraints, and the recommended distances between lead vehicles and tail vehicles as stated in AS1742.3 Part 4.9.3(e). Refer also to Clause 3.21.

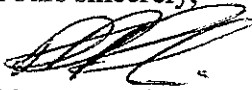
***Section 3 - Traffic Management Plan, Clause 3.21 – Traffic Management Signage Layout***  
*Insert the following paragraph*

The signage layouts will need to be modified by the site supervisor as required in accordance with AS1742.3 and Tasmania's Traffic Control at Work Sites Code of Practice for those road sections where the shoulder of the road is of inadequate width for plant to occupy the shoulder, irrespective of road category.

***Appendix G - Traffic Management Plan Risk Assessment***  
***Amendment to table of required signage – pg6***

- Delete 'Reduce Speed' sign ('Speed Restriction' and 'Workers' signs will be used to control speed and advise motorists of workers ahead).
- Delete 'Temporary Hazard' sign (the 'SURVEY' sign will be used to advise motorists of the nature of work being undertaken).

Yours sincerely,



Dino DePaoli

**Civil Engineer - Environmental Infrastructure Solutions**



## PREFACE

### LIMITATIONS STATEMENT

This Environmental Management Plan (EMP) has been prepared in accordance with the scope of services agreed upon between SEMF Pty Ltd (SEMF) and Great South Land Minerals Ltd (GSLM) (the client). To the best of SEMF's knowledge, the report presented herein represents the Client's intentions at the time of printing of the report. However, the passage of time, manifestation of latent conditions or impacts of future events may result in the actual project and its impact differing from that described in this report.

In preparing this report SEMF has relied upon data, surveys, analysis, designs, plans and other information provided by the client, and other individuals and organisations referenced herein. Except as otherwise stated in this report, SEMF has not verified the accuracy or completeness of such data, surveys, analysis, designs, plans and other information.

No responsibility is accepted for use of any part of this report in any other context or for any other purpose by third parties.

This report does not purport to provide legal advice. Readers should engage professional legal advisers for this purpose.

### DOCUMENT CONTROL

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## FOREWORD

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### Function of the Environmental Management Plan

The Environmental Management Plan (EMP) has been prepared to support Great South Land Minerals (GSLM) in their application for approval to the Department of Primary Industries, Water, and Environment (DPIWE) and the Department of Infrastructure, Energy and Resources (DIER), to undertake an onshore seismic survey over southeastern Tasmania.

The seismic survey will be the largest onshore seismic survey ever conducted in Tasmania. GSLM is committed to ensuring that there are no detrimental impacts on the natural environment resulting from survey operations. The EMP aims to provide information that will allow GSLM to achieve their commitment to environmental protection and address the concerns of DPIWE and DIER regarding survey operations.

The proposed seismic survey and associated activities fall under the jurisdiction of Mineral Resources Tasmania (MRT) and the *Mineral Resources Development Act 1995*.

### Role in the Approval Process

The EMP will support GSLM's applications for approval to the DPIWE, DIER, and MRT to undertake a comprehensive seismic survey in Tasmania.



## EXECUTIVE SUMMARY

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GSLM is planning to undertake an extensive seismic survey in Tasmania utilising approximately 1,446km of existing roads. The seismic survey will use vibroseis trucks to assist in the exploration for onshore oil and gas deposits within the untested Tasmania Basin. A similar survey on a smaller scale was carried out by GSLM in 2001, which indicated the presence of large geological structures that could contain oil and gas. One of the objectives of the proposed 2006 survey is to undertake further research on the these geological structures previously identified.

Roadside vegetation communities can provide important habitat for threatened species. The Threatened Species Unit (TSU) of DPIWE has granted GSLM with approval in principal for the undertaking of the seismic survey in the State Road reservation areas, with the requirement for GSLM to identify areas where threatened species could be adversely impacted by the seismic survey. A further requirement of TSU is to identify if there are any Wedge-tailed eagle nests present within 1km of the seismic traverses, and how they are to be managed if nests are present. DIER also required environmental screening reports to be completed prior to work permits being issued.

This EMP reviews the known records of threatened species that occur along the proposed seismic lines and provides management techniques to ensure that the seismic survey will not have an adverse impact on threatened species.



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**Onshore Seismic Survey Environmental Management Plan**  
**Great South Land Minerals Ltd**



**ABBREVIATIONS**

DIER	Department of Infrastructure, Energy and Resources
DPIWE	Department of Primary Industries, Water and Environment
EMP	Environmental Management Plan
GSLM	Great South Land Minerals Ltd
km	kilometre
MRT	Mineral Resources Tasmania
RPT	Roads and Public Transport Division of DIER
SEMF	SEMF Pty Ltd
TSU	Threatened Species Unit





## 1 INTRODUCTION

### 1.1 THE PROPONENT

The proponent is Great South Land Minerals Ltd (GSLM). GSLM is a fully owned subsidiary company of Empire Energy Corporation International (Empire Energy). GSLM is a Tasmanian onshore oil and gas exploration company, and holds Special Exploration Licence 13/98 (SEL 13/98), comprising of 15,035 square kilometres. The exploration licence may be partially relinquished or converted to a retention or mining lease at any time during the period it remains in force.

Great South Land Minerals Ltd  
GPO Box 1603  
Hobart, Tasmania 7001

Project Manager: Nicole Chesterman

Terrex Seismic Pty Ltd (Terrex) will be contracted by GSLM to undertake the seismic survey.

### 1.2 HISTORY OF THE PROJECT

The Tasmania Basin is an untested petroliferous (oil and gas producing) basin. The use of seismic surveys to identify prospective geological structures that could contain oil or gas is an established technique.

In 2001, GSLM and Terrex completed an onshore seismic survey covering 660km over the Central Highlands, Northern Midlands, and southeastern Tasmania. The initial interpretation, coupled with prior studies by GSLM, established that large geological structures exist south of Launceston and under the Central Highlands region. These structures are believed to have the potential to be petroleum traps.

In 2006, GSLM will undertake a larger onshore seismic survey, covering approximately 1,446km, which will be based on public roads. Approximately 1,100km of the survey will expand the regional coverage of seismic data, and 300km is aimed at more closely defining geological structures previously identified from the 2001 survey.

### 1.3 PROJECT TIMEFRAMES

The seismic survey will be undertaken in early in 2006, starting in April. The survey will take approximately 4 months to complete. Data interpretation will occur throughout the survey. A provisional timetable for the survey is outlined in Table 1. The seismic survey is proposed to start in the north of Tasmania, however the order in which the seismic lines are surveyed is subject to several factors e.g. the occurrence of public events such as Targa Tasmania and weather conditions.

Table 1: Proposed seismic survey timetable.

Activity	Duration	Timing
Preparatory works	1 month	Early March 2006
Seismic acquisition	3-4 months	April – July 2006
Demobilisation	2 weeks	July 2006



#### 1.4 APPROVALS

The main legislation that applies to the approval of this activity is the *Mineral Resources Development Act 1995*. All operations fall under the jurisdiction of MRT, and will follow the Mineral Exploration Code of Practice and Special Exploration Licence conditions. Furthermore, MRT has indicated that GSLM must liaise with all other relevant authorities, including DPIWE and DIER.

#### 1.5 CONSULTATION

A proactive consultation approach has been adopted by GSLM with briefings regarding the seismic survey and operations being regularly undertaken with key stakeholders. The major stakeholder groups are as follows:

- State Government Agencies;
- Local Government; and
- The general public.

##### 1.5.1 State Government Consultation

Several State Government departments have been consulted regarding the proposed GSLM seismic survey. The departments, which have provided comments include but are not limited to:

- Mineral Resources Tasmania;
- Department of Primary Industries, Water, and Environment;
- Department of Infrastructure, Energy and Resources; and
- Department of Tourism, Parks, Heritage and the Arts.

##### 1.5.2 Local Government Consultation

GSLM has undergone extensive consultation with local Councils, in order to ensure that the Councils are informed about the regional seismic survey planned for April 2006. Each Council has been briefed regarding: the seismic survey, how the survey will be carried out, and the possible impacts of the survey. Councils have also been provided with information booklets to be distributed to the general public.

##### 1.5.3 Community Consultation

GSLM acknowledges the value of community input into carrying out an extensive exploration program such as a seismic survey.

Wherever practical, GSLM has aligned seismic lines along public roads. In cases where this is not possible, GSLM will consult with private landowners prior to and during the survey.

#### 1.6 STRUCTURE OF THIS REPORT

A brief description of the structure of this report is provided in Table 2 below.



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**Table 2: Brief Description of the EMP Report Structure.**

<b>Section Heading</b>	<b>Brief Description of the Information Provided</b>
Foreword	A brief description of the function of the EMP and the information it contains.
Executive Summary	A summary of the proposed seismic survey and information provided in the report in support of the environmental and planning approvals.
1.0 Introduction	Description of the proponent, the project history, project timeframes, approvals required, and consultation undertaken by the proponent.
2.0 Seismic Survey Logistics	Description of the seismic survey logistics.
3.0 Environmental Management Plan	Description of the existing environment, with identification of significant features, potential impacts arising from the survey, and addresses the concerns of DPIWE.
4.0 Conclusion and Commitments	Summing up of the EMP, and how the requirements of DPIWE have been addressed.



## 2 ENVIRONMENTAL MANAGEMENT PLAN

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### 2.1 INTRODUCTION

The Threatened Species Unit (TSU) of DPIWE has granted GSLM with approval in principal to undertake the seismic survey within the road reservation areas, with the requirement for GSLM to identify areas where threatened species could be adversely impacted by the seismic survey. A further requirement of TSU is to identify if there are any Wedge-tailed eagle nests present within 1km of the seismic traverses, and how they are to be managed if nests are present. DIER also requires environmental screening reports to be completed prior to work permits being issued.

This EMP is aimed at addressing the requirements of TSU and DIER, and facilitating the issuing of a permit from MRT to allow GSLM to undertake the seismic survey (in an environmentally conscious manner).

A summary of the action required for each seismic line to ensure protection of threatened species is provided in Section 2.6.

### 2.2 SEISMIC SURVEY METHODOLOGY

Onshore seismic surveys use seismic energy generated through dropping or vibrating a heavy mass on the earth's surface or through detonation of explosive charges. GSLM will use vibroseis trucks, whereby a vibrating baseplate is lowered to the ground and the weight of the truck is then placed over the vibrating baseplate. No explosive charges will be used during the proposed 2006 seismic survey.

The energy from the vibration radiates outwards in all directions from the vibrating baseplate. When the seismic waves reach geological formations with different structural properties the seismic waves are reflected or refracted. The seismic waves are recorded at the surface by geophones placed on the ground. The structure of subsurface geological structures are mapped by interpreting the variations in the times taken for the seismic waves to return to different points along the surface after reflection from the geological structures.

Seismic lines can be easily deviated to avoid affecting environmental values such as threatened species of plants or animals, or significant native vegetation. Prior to the surveying and pegging out of seismic lines, an environmental screening report of the Roads and Public Transport Division (RPT) environmental database has been undertaken to identify any threatened species or archaeological sites that the seismic lines could impact upon. The results of this screening report are presented in Section 2.5. Furthermore, to satisfy the requirements of the DPIWE regarding threatened flora, a botanist has reviewed the seismic lines and this is discussed in detail in Section 2.4. TSU has also been consulted with regarding the protection of Wedge-tail eagles during the survey.

### 2.3 WEDGE-TAILED EAGLES

The Tasmania Wedge-tailed eagle, *Aquila audax fleayi*, is listed as vulnerable under the Tasmanian *Threatened Species Protection Act 1995*, and endangered under the *Commonwealth Endangered Species Protection Act 1992*. This unique subspecies of Wedge-tailed eagle only occurs throughout Tasmania, including its large near offshore islands. Wedge-tailed eagles nest only in old-growth trees in native forest, with approximately 80% of eagle nests occurring on private land or State forest, and few being protected in formal reserves. Eagles are very timid while breeding and are likely to desert



a nest if disturbed. They breed from August to January and are particularly sensitive to disturbance early in this period (Bryant and Jackson, 1999).

To address the concerns of the TSU regarding the seismic survey and Wedge-tailed eagles, the co-location of known eagle nest sites with the proposed seismic lines was investigated by Bill Brown (Project Officer - Threatened Eagles, DPIWE) in 2006. Two nests within 500m of one of the proposed seismic lines were identified and reported as being active during the recent breeding season (Brown 2006, pers. comm). The nests are located on Bermuda Road, south of Judbury (Brown 2006, pers. comm). The seismic line TB02-BF is proposed to pass along Bermuda Road.

GSLM and Terrex are committed to avoiding any impacts on the breeding success of the Wedge-tailed eagles resulting from the seismic survey. The preparatory works for the seismic lines is not planned to start until early March, and the actual seismic survey will commence in April. As a result, there will be no overlap between the breeding times of Wedge-tailed eagles and the proposed seismic survey.

## 2.4 THREATENED FLORA

Tasmania is home to numerous unique plant species, and roadsides can provide important habitat for threatened plant species.

The requirements of TSU regarding the protection of threatened flora during the seismic survey are as follows:

- That a botanist be present during exploration where the traverse is within areas of native vegetation known to contain significant threatened flora sites or where the traverse will go through areas or native vegetation types identified as potential habitat for threatened species;
- That a botanist is not required during the exploration where the traverse is restricted to the sealed/gravel section of the road or where the traverse goes through cleared land that contains improved pastures.

To ensure that the planned seismic survey will not impact on any threatened species, a botanist was engaged to undertake a desktop review of vegetation community types to determine areas of high environmental sensitivity, or risk, based on the likely presence of threatened plant species or potential habitat along the proposed seismic lines.

It should be noted that the accuracy of the threatened species location data obtained from the TSU used varies from 10m to 5,000m, and therefore the location of the records is somewhat indicative. Furthermore, it is possible that the threatened species database is not currently up to date and therefore there may be relevant threatened species records yet to be entered into the database.

Given the extent of the seismic survey, it is possible that more threatened species occur along or near the proposed seismic survey lines that are yet to be identified. However, the length and high resolution of the seismic survey means it would be impractical to have a botanist on site during the survey.

Twenty-nine of the proposed thirty-five seismic survey lines were found to have records of threatened species adjacent to the roadside or within 100m of the proposed seismic line. The number of records along each line varies from single records to more than 100 records. The species identified as occurring along the seismic route and their status under the *Tasmanian Threatened Species Protection Act 1995* (TSPA) and the *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999* (EPBCA) is provided in Appendix A.



Maps were generated indicating the proposed seismic survey route and the location of threatened species along that route (Appendix A). Where there were clusters of records, the coordinates for each cluster as start and stop points were identified. These are provided in Appendix A (AG66 format). Coordinates are not provided for individual records due to their varying degrees of accuracy and the large number of records. Their approximate location can be determined from the maps provided.

In order to protect the known threatened species from the seismic survey, the following recommendations are made (Welling 2006):

1. The start and end point of clusters of threatened species be flagged by surveyors;
2. All flagging tape that signifies the presence of threatened species should be removed immediately after the survey in that area has been completed;
3. Within the flagged areas a 200m buffer zone should be established either side of the road, as threatened species may be present nearby that have not yet been recorded;
4. No trucks or vehicles should leave the formed roads within the flagged areas and only essential light foot traffic should be allowed;
5. In the event that it is deemed necessary for vehicles to go off the formed road surface (which includes gravel shoulders) in the flagged sections or close to where individual record of threatened species are indicated, a botanist will be required to be present to check for threatened species;
6. In the event that it is essential for vehicles to go off the formed road surface (which includes gravel shoulders) in areas where threatened species are not known to occur, GSLM will consult with TSU regarding the need for a botanist to be present;
7. All seismic crew should be aware of the maps showing the location of threatened species and the significance of threatened species; and
8. All seismic survey vehicles only pull over for rest breaks etc in established areas such as graveled pull off areas. These will be identified by the surveyors during the line pegging process.

GSLM will ensure that during surveying and pegging out the seismic lines, any areas that have been identified by the environmental screening reports (Section 2.5) or the botanical review, as requiring protection will be clearly marked and the seismic crew informed of their location and the appropriate action to take when working near these areas.

## **2.5 ENVIRONMENTAL SCREENING REPORTS**

To assist GSLM in identifying areas that need to be protected during the seismic survey with regard to threatened species and archaeological sites, an environmental screening reports from RPT's environmental database have been produced by Camille Boxall (Environmental Planner, DIER), for the relevant sections of the State roads that the survey is passing over. The environmental screening reports provide information regarding threatened species, archaeological sites, habitat values, and environmental threats for the land within the road reserve. The reports also clearly identify any vegetation communities that are managed by DIER.

DIER is responsible for the management of large areas of land incorporated in its roadside reserve system. Roadside reserves vary due to factors including their shape and size, variety of users and impacts, tenure and primary use as a transport corridor. Many of DIER's roadsides contain patches of remnant vegetation that represent valuable populations of rare and threatened plant species, priority vegetation communities, corridors for wildlife movement, wildlife habitat, and old growth or heritage trees. DIER is



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obliged to protect and conserve plant and animal species listed under state and federal legislation as threatened species or critical habitat. A number of critical species and habitats have been identified as being a priority for pro-active management in the State roadside reserve network. These occur where roadside populations are important to the conservation of the species, where the adjacent vegetation has been destroyed or is vulnerable to farming practices.

The environmental screening reports indicated that there are 7 sites of high conservation priority that are managed by DIER along the State roads on which GSLM propose to conduct the seismic survey. A summary of these sites and the required management approaches is provided in Table 3. Maps showing the location of these sites, detailed information, and the GPS coordinates are provided in Appendix B.

Table 3: DIER managed conservation sites.

State Road	Location on State Road	Proposed Seismic Line	Conservation Site	DIER Requirements
Midlands Hwy	Link 57 (2.95-2.98)	TB02-EB	14	No operations to occur within this area without consulting DIER Environmental Planner
Tasman Hwy	Link 36 (8.2-9.13)	TB02-FE	39, 40, 41	No operations to occur within this area without consulting DIER Environmental Planner
Tasman Hwy	Link 38 (0.00-0.45)	TB02-FB	42, 43	No operations to occur within this area without consulting DIER Environmental Planner
Tunnack MR	Link 57 (2.67-2.77)	TB02-BG	Population of <i>Lepidium hyssopifolium</i> *	No operations to occur within this area without consulting DIER Environmental Planner

\*Note: This site does not have a DIER conservation site number.

Greening Australia has developed a series of markers called 'Enviromark' (Figure 1). These markers have been installed at the start and end of each of the DIER conservation sites. The conservation sites are generally the area from the back of the table drain to the fence boundary, not including any areas maintained for road safety.



Figure 1: Greening Australia 'Enviromark' sign.

During surveying and pegging out the seismic lines by Terrex, the conservation areas managed by DIER will be clearly marked using a specific flagging tape. Surveyors will identify these areas from the Enviromark signs and the information provided in Appendix B.

GSLM will ensure that all Terrex personnel are aware of the significance of these areas and follow the required DIER management measures indicated in Appendix B.

## 2.6 ENVIRONMENTAL MANAGEMENT OF SEISMIC LINES

To assist GSLM in planning and thereby facilitating the protection of threatened species during all seismic survey related operations, a reference table has been generated that provides an indication of whether there are any threatened species present for each of the seismic lines, the action required, and a contact person should any vehicles need to leave the road surface for any reason (Table 4).

It is the responsibility of GSLM to ensure that the management measures provided in this report are followed during the seismic survey to ensure that there are no detrimental impacts on threatened species. Furthermore, it is the responsibility of GSLM to make certain that all people involved with the seismic survey are familiar with this document and significance of threatened species.

Table 4: Summary of threatened species issues for each seismic line.

Seismic Line	Wedge-Tailed Eagles	Threatened Flora	DIER Conservation Area	Action Required	Contact Person
TB02-AA	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-BA	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables	Stephen Casey (DPIWE)





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Seismic Line	Wedge-Tailed Eagles	Threatened Flora	DIER Conservation Area	Action Required	Contact Person
				provided in Appendix A.	
TB02-BB	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-BD	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-BF	Yes	Yes	-	Seismic line not to be surveyed prior to the end of February. Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-BG	-	Yes	Yes	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A. Follow DIER management measures outlined in Section 2.5.	Stephen Casey (DPIWE) Stephanus Vermaak (DIER)
TB02-BH	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-BI	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-CD	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-CF	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-CG	-	-	-	No threatened flora	-



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Seismic Line	Wedge-Tailed Eagles	Threatened Flora	DIER Conservation Area	Action Required	Contact Person
				records exist	
TB02-CH	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-CI	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-EA	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-EB	-	Yes	Yes	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A. Follow DIER management measures outlined in Section 2.5.	Stephen Casey (DPIWE) Stephanus Vermaak (DIER)
TB02-EC	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-ED	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-EE	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-EF	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-EG	-	-	-	No threatened flora records exist	-
TB02-EH	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use	Stephen Casey (DPIWE)



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Seismic Line	Wedge-Tailed Eagles	Threatened Flora	DIER Conservation Area	Action Required	Contact Person
				maps and tables provided in Appendix A.	
TB02-EI	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-EJ	-	-	-	No threatened flora records exist	-
TB02-EK	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-EL	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-EM	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-EO	-	-	-	No threatened flora records exist	Stephen Casey (DPIWE)
TB02-EP	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-EZ	-	-	-	No threatened flora records exist	-
TB02-FA	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-FB	-	Yes	Yes	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A. Follow DIER management measures outlined in Section 2.5.	Stephen Casey (DPIWE) Stephanus Vermaak (DIER)
TB02-FC	-	Yes	-	Follow management measures 1-7 outlined	Stephen Casey



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Seismic Line	Wedge-Tailed Eagles	Threatened Flora	DIER Conservation Area	Action Required	Contact Person
				in Section 2.4. Use maps and tables provided in Appendix A.	(DPIWE)
TB02-FD	-	Yes	-	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A.	Stephen Casey (DPIWE)
TB02-FE	-	Yes	Yes	Follow management measures 1-7 outlined in Section 2.4. Use maps and tables provided in Appendix A. Follow DIER management measures outlined in Section 2.5.	Stephen Casey (DPIWE) Stephanus Vermaak (DIER)



### 3 CONCLUSIONS AND COMMITMENTS

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The seismic survey proposed by GSLM has the potential to impact on threatened species present within roadside communities. In order to avoid detrimental impacts on threatened species, GSLM will therefore undertake the following measures:

1. Seismic trucks and associated vehicles will operate within the road formation (road surface and gravel shoulders);
2. Seismic trucks and associated vehicles will only use existing gravelled or sealed pull off areas. These areas will be identified by the surveyors and used to plan each seismic line;
3. Should the seismic trucks or associated vehicles need to leave the road formation at any time, including during surveying of seismic lines that pass over private property, the relevant authorities will be notified prior to survey operations commencing;
4. Areas containing threatened species identified in this report will be flagged by surveyors prior to the seismic crew entering the area (and the flagging tape will be promptly removed on completion of the survey in the local area);
5. GSLM will inform the relevant authorities of any issues regarding threatened species if they arise during the seismic survey;
6. The management measures listed within this report and associated documents will be followed;
7. The relevant authorities will be notified of any changes to the proposed seismic lines prior to the survey commencing or of any changes made during the survey; and
8. All personnel associated with the seismic operation will be familiar with the contents of this report and the importance of protecting threatened species.



#### **4 REFERENCES**

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- Bryant, S and J. Jackson (1999). Tasmania's Threatened Fauna Handbook. Threatened Species Unit, Parks and Wildlife Services.
- Welling, A (2006). Desktop Threatened Flora Species Assessment of Seismic Survey Lines for Great South Land Minerals Ltd.

#### **5 PERSONAL COMMUNICATIONS**

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- Bill Brown (09/01/2006); Threatened Species Section, Biodiversity Conservation Branch, Department of Primary Industry, Water and Environment.



## APPENDICES

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## **Appendix A: Desktop Threatened Flora Species Assessment**

**Note:** All coordinates supplied in this Appendix are in AG66 format.



Desktop Threatened Flora  
Species Assessment of  
Seismic Survey Lines

For

*Great Southern Land Minerals  
Limited*

FEBRUARY 2006

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## 1. INTRODUCTION

Great South Land Minerals Limited (GSLM) holds a Special Exploration Licence (SEL) to explore for oil and gas reserves over the Tasmania Basin. Under this SEL seismic surveying will be undertaken along 1400km of roadways across a wide area of central and southern Tasmania.

As part of the permit process for this survey work, Mineral Resources Tasmania (MRT) requires that the potential impact of seismic surveying on threatened flora species be assessed.

Upon referral to the Threatened Species Unit (TSU) of DPIWE, a report was required which identified any important threatened species sites, which occur along the road traverses.

In addition the TSU required the following;

- *that a botanist be present during exploration where the traverse:*
  - *is within areas of native vegetation known to contain significant threatened flora sites identified by the consultant botanist.*
  - *will go through areas of native vegetation types identified as potential habitat for threatened species by the consultant botanist.*

*The presence of a botanist will not be required during the exploration where*

- *the traverse is restricted to sealed/gravel section of road.*
- *the traverse goes through cleared land which contains improved pastures.*

The TSU also requested that any impact on Wedge-tailed Eagle nest sites be considered as part of this report. The surveys are to be carried out outside the breeding season (August – January) and therefore it will have no impact on this species. If the surveying was delayed for any reason and then coincided with the breeding season, known nest sites would need to be identified and measures taken to avoid these areas.

The following report is a desktop survey of the all threatened flora records in the vicinity of the survey lines. It identifies the location of threatened species records in relation to the traverse lines and provides recommendations to minimise any impact of the surveying.

## 2. METHODOLOGY

Threatened species records were obtained from the Threatened Species Unit (DPIWE) (as shapefiles) for all areas traversed by the seismic survey lines. Records included all flora species listed under the Tasmanian *Threatened Species Protection Act 1995* (TSPA) and the Commonwealth *Environmental Protection and Biodiversity Act 1999* (EPBCA).

The threatened flora records were overlayed across the proposed seismic survey lines using Arcview mapping software and any records that occur nearby to the traverse lines were plotted on maps (Appendix 1).

Where multiple threatened species records occur in close proximity to each other they were marked on the maps as clusters. The coordinates for each cluster along the survey lines (start and stop points) are provided in the Tables (Appendix 2). All coordinates are mapped in AGD66. Given the large number of individual records and their varying accuracy, coordinates have not been provided for these records. The approximate location of individual records can be determined from the maps.

### Limitations of the data.

The accuracy of the threatened species locations utilised in this report varies from 10m to 5000m and therefore the location of the records shown on the maps are indicative only. The data used in this report does not include recent records, as many have not been added to the database.

No active surveying was undertaken and the accuracy of the existing records were not checked in the field. Given the extent of seismic survey it is likely that more threatened species occur along or nearby to the survey lines.

### 3. DESKTOP SURVEY RESULTS

Twenty-nine of the proposed seismic survey lines were found to have recorded threatened species records adjacent to the roadside or within 100 m of the lines.

Records from each seismic line are recorded in Tables 1 – 27. These records include the species name, common name their status under the TSPA or EPBCA (Appendix 2). The coordinates for individual records and clusters of records are also provided.

### 4. SUMMARY AND RECOMMENDATIONS

Threatened flora records occur along the majority of the survey lines. The number of records along each line varies from single to over 100 records.

Under the TSU requirements a botanist would need to be present when the seismic surveying was occurring in areas that contain threatened species. The proposed seismic survey is to be carried out on formed roads or through cleared land (containing improved pasture) and therefore a botanist should only be required if the survey vehicles need to leave the formed roads.

The following recommendations should ensure that threatened flora species (from known records) are not impacted upon by the surveying.

- The start and end point of threatened species clusters should be flagged by surveyors.

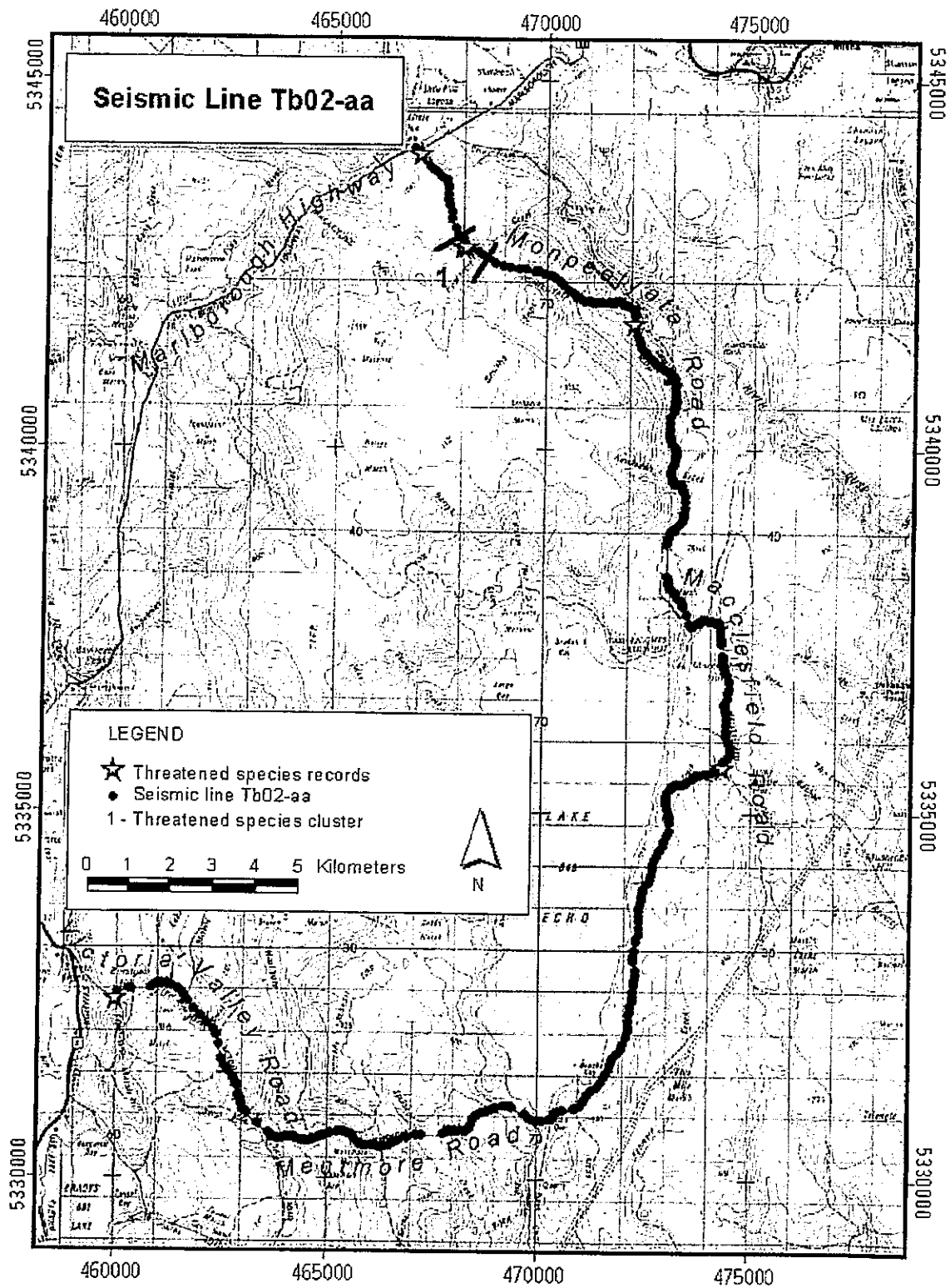
*Desktop survey of threatened flora species along proposed seismic survey lines*

- All flagging tape that signifies the presence of threatened species should be removed immediately after the survey has been completed.
- Within the flagged areas a 200m buffer zone should be established either side of the road.
- No trucks or vehicles should leave the formed roads (even on the verge) within the flagged areas and only essential foot traffic should be allowed.
- In the event that it is essential for vehicles to go off the formed road surface in the flagged sections or close to where individual records are indicated, a botanist should be present to check for threatened species.
- All seismic crew should be familiar with the maps provided and the significance of threatened species.

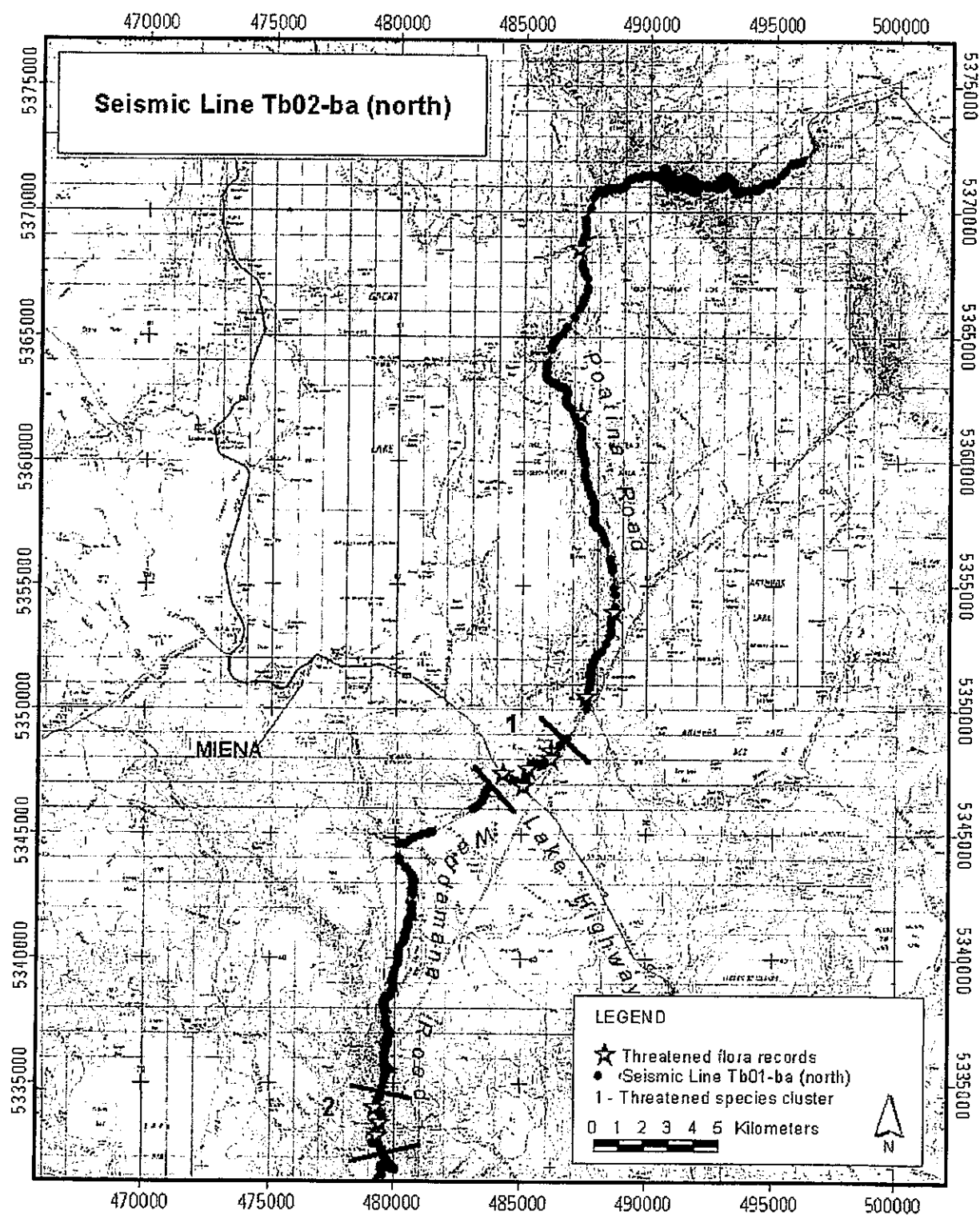
## APPENDIX 1 – Maps of Seismic Survey Lines.

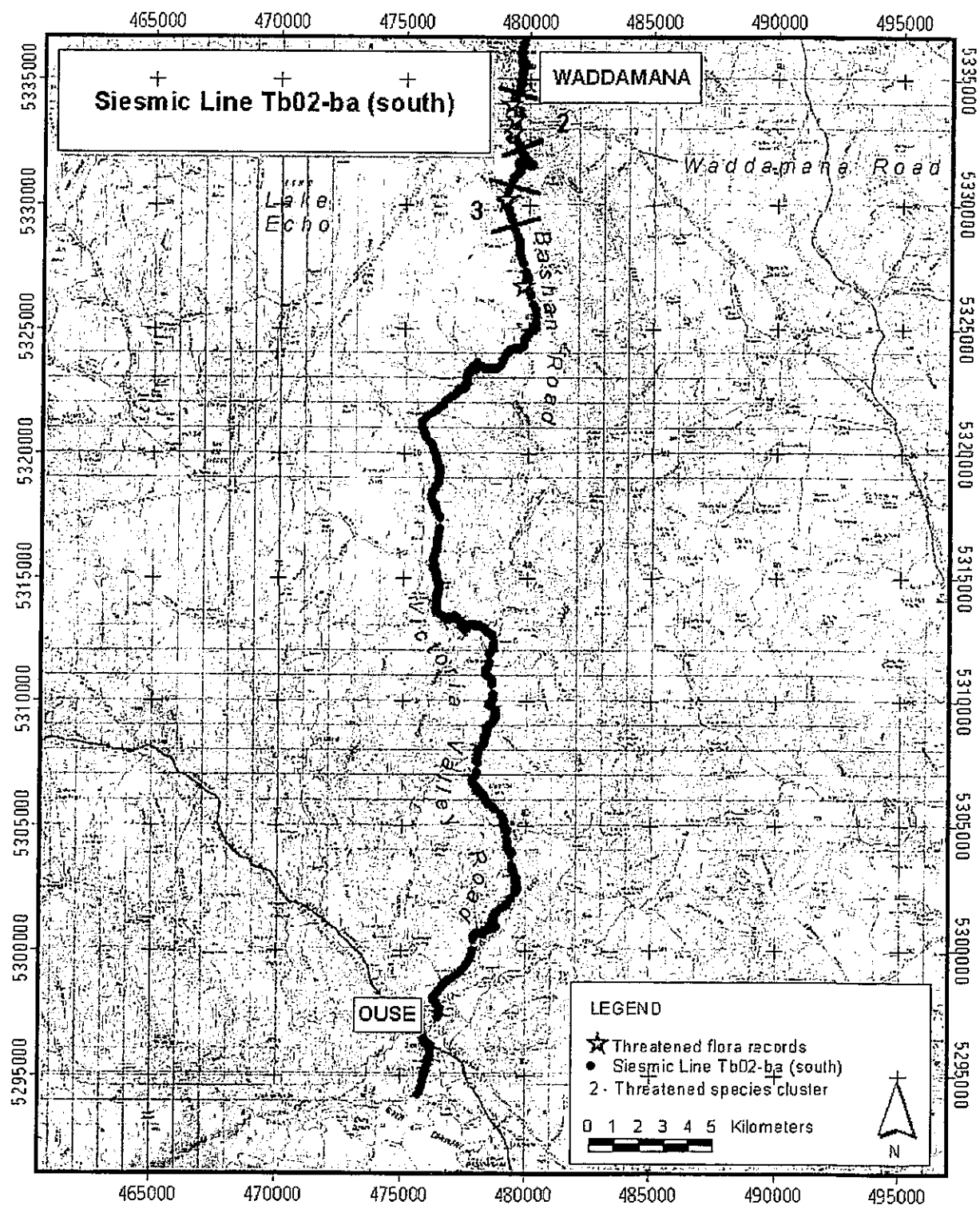
### List of Maps

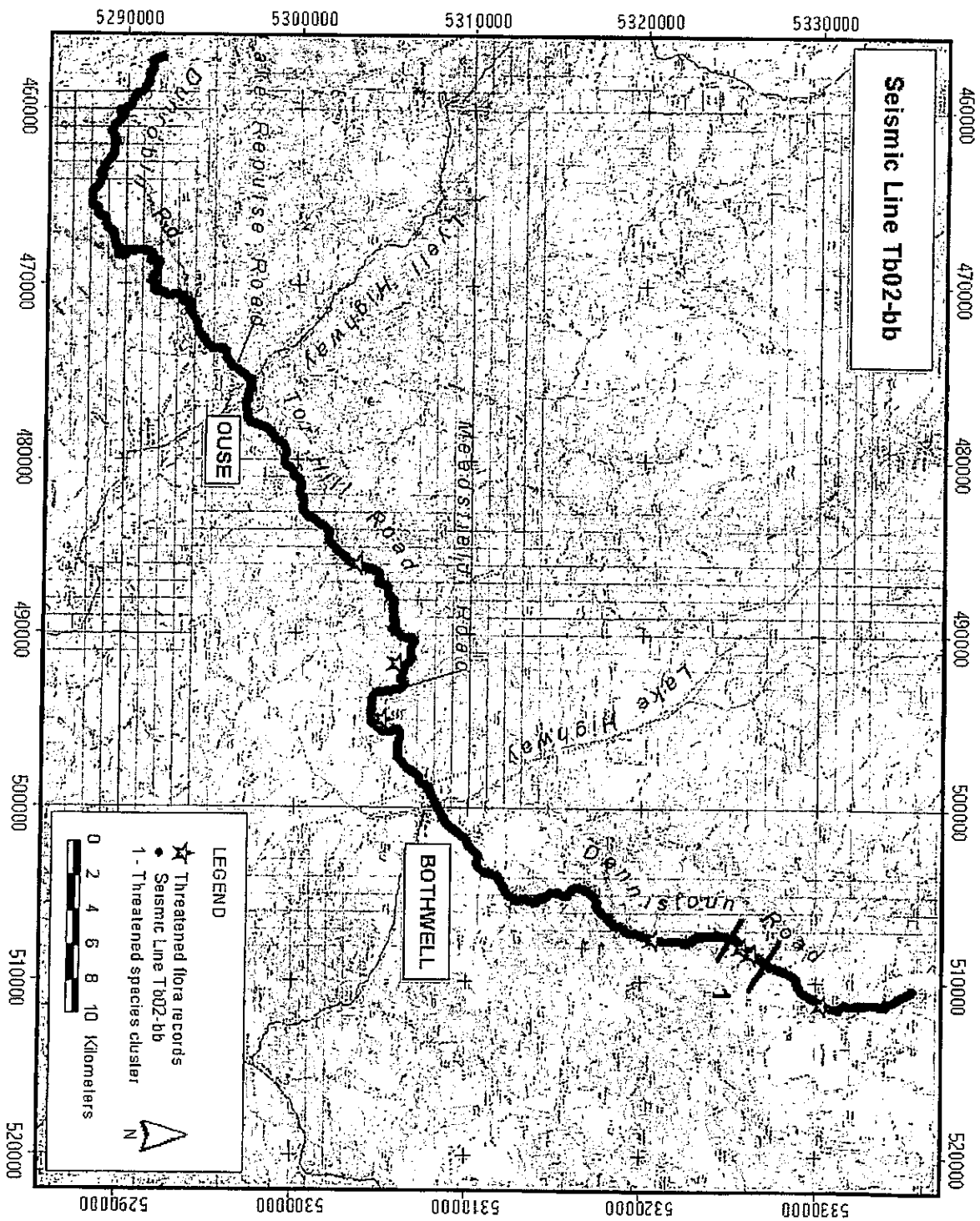
Map Tb02-aa	Map Tb02-eb (north)
Map Tb02-ba (north)	Map Tb02-eb (south)
Map Tb02-ba (south)	Map Tb02-ec
Map Tb02-bb	Map Tb02-ed
Map Tb02-bd (south)	Map Tb02-ee
Map Tb02-bd (north)	Map Tb02-ef
Map Tb02-bf (north)	Map Tb02-eh & Map Tb02-ei
Map Tb02-bf (central)	Map Tb02-ek
Map Tb02-bf (south)	Map Tb02-el (north)
Map Tb02-bg (north)	Map Tb02-el (south)
Map Tb02-bg (south)	Map Tb02-em
Map Tb02-bh	Map Tb02-ep
Map Tb02-bi	Map Tb02-fa
Map Tb02-cd	Map Tb02-fb
Map Tb02-cf & Map Tb02-cg	Map Tb02-fd
Map Tb02-ch & Map Tb02-ci	Map Tb02-fe (south)
Map Tb02-ea	Map Tb02-fe (north) & Tb02-fc (south)

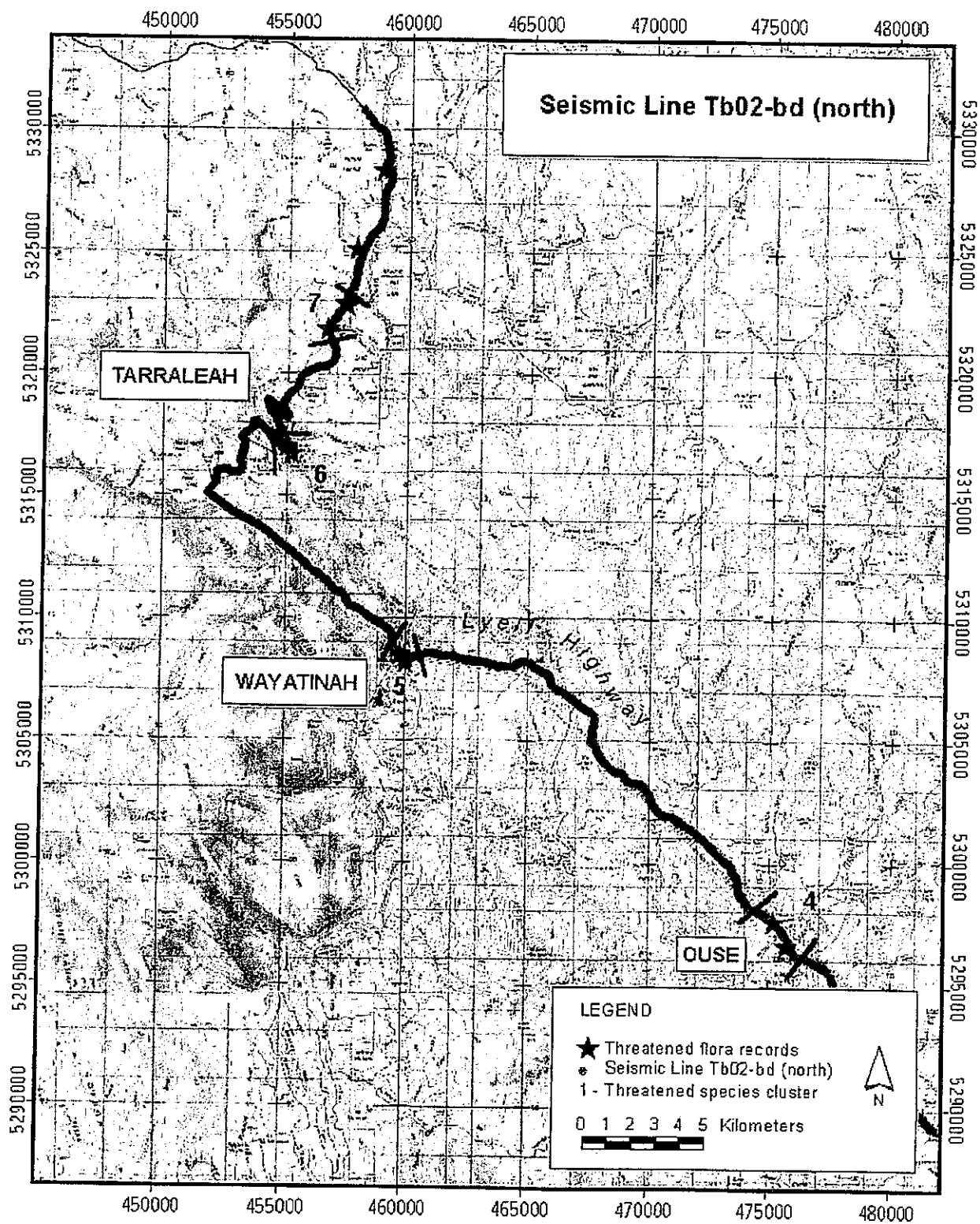




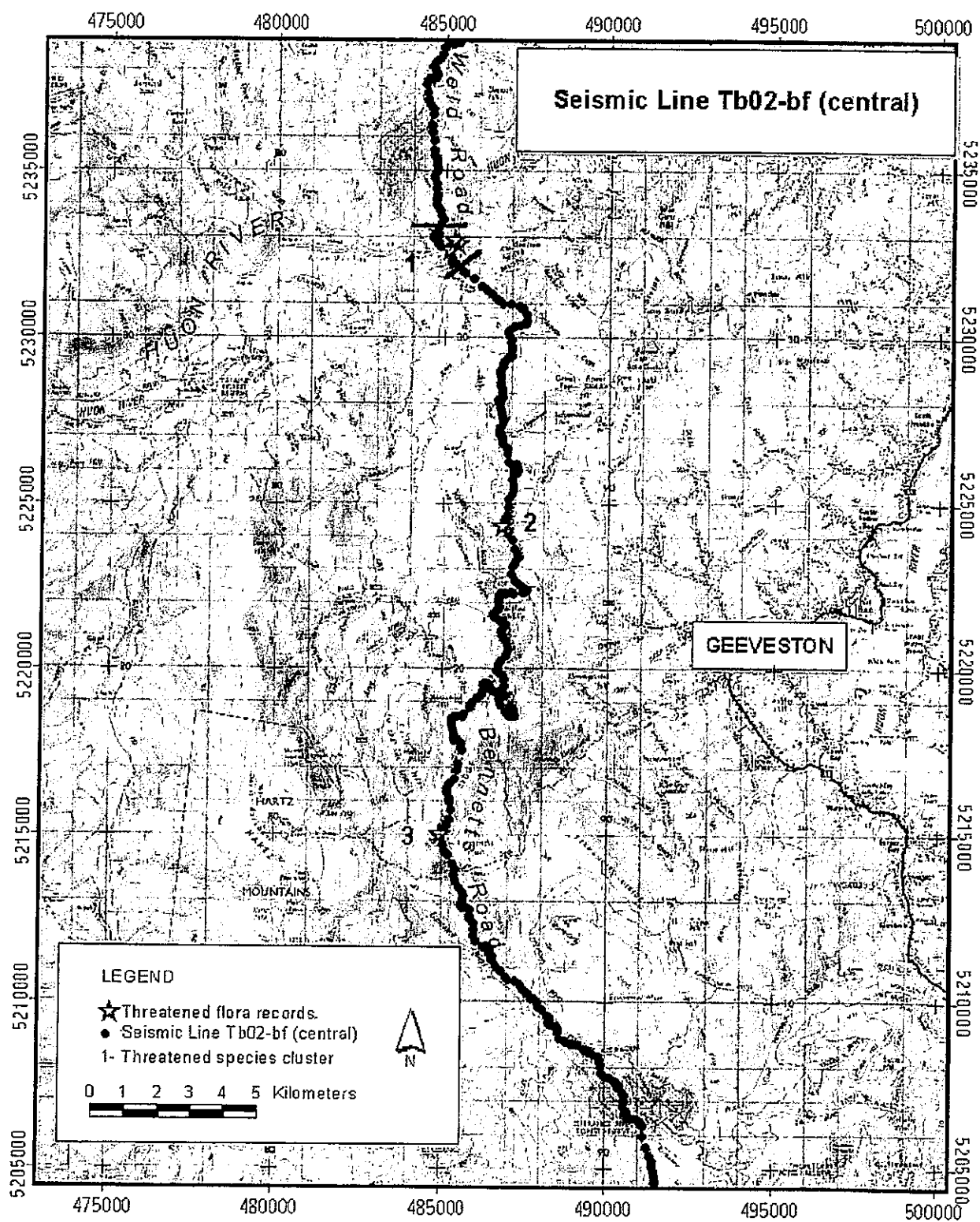






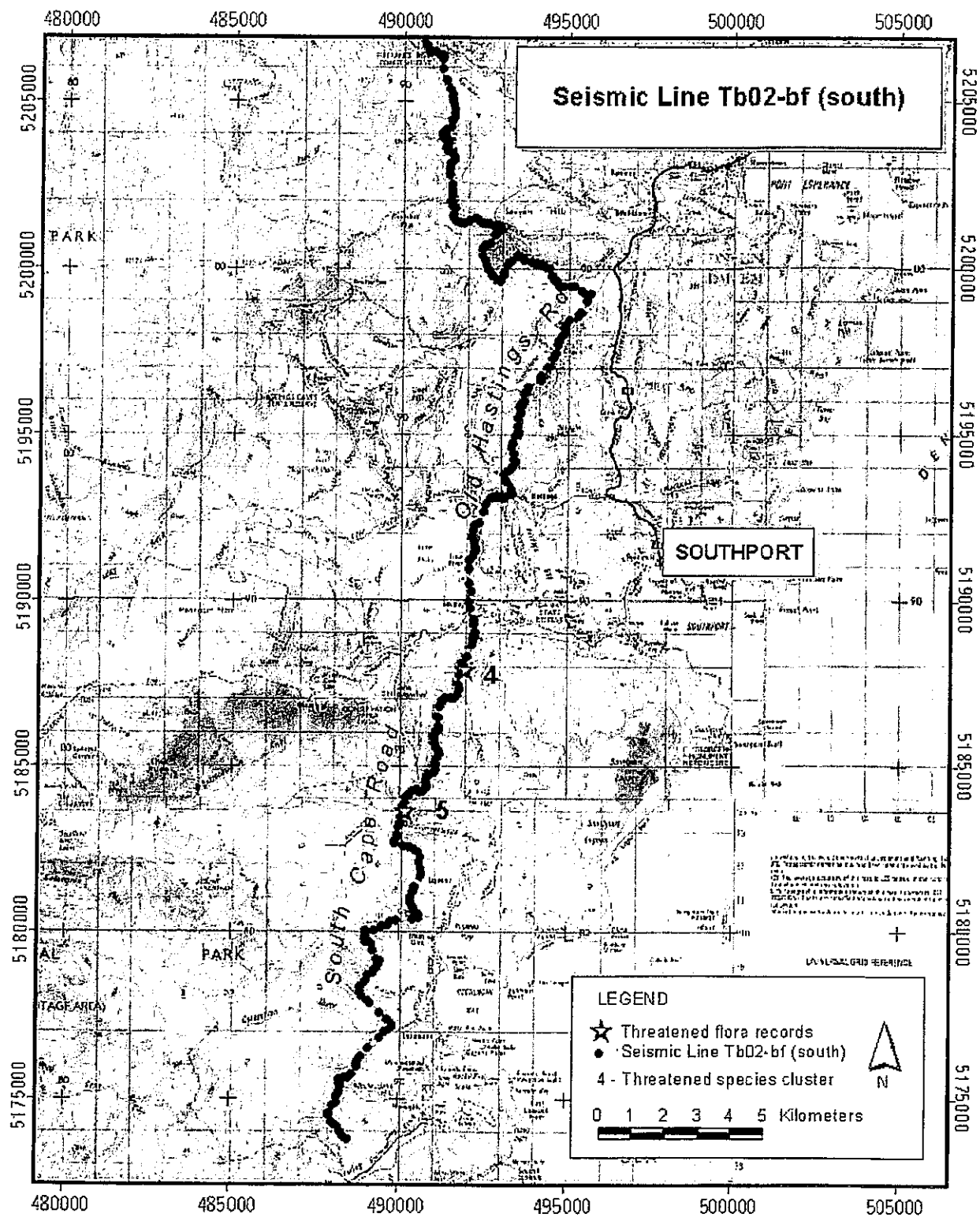












Map of the area around the seismic line Tb02-bf (south) showing threatened flora records and species clusters.



