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An evaluation of the remnant vegetation protection scheme 1988-1991 : a report

Department of Agriculture and Food, Western Australia

Soil and Land Conservation Council (W.A.)

AN EVALUATION

OF THE

REMNANT VEGETATION PROTECTION SCHEME

1988–1991

A REPORT OF THE

SOIL AND LAND CONSERVATION COUNCIL OF

WESTERN AUSTRALIA

February, 1992

DEPARTMENT OF AGRICULTURE
WESTERN AUSTRALIA

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FOREWORD

The Soil and Land Conservation Council of Western Australia comprises representatives of farmers, farmers' and pastoralists' organisations, country shires, conservation organisations and government agencies dealing with agriculture, conservation, water and the environment. Its purpose is to advise the Minister for Agriculture and the Commissioner of Soil Conservation on matters relating to the conservation of the soil and land resources of the State, in accordance with the requirements of the Soil and Land Conservation Act 1945 (amended).

The scope of Council's interests and responsibilities include matters relating to the clearing and protection of native vegetation, particularly as this resource affects the productive capacity of the State's soil and land resources.

Since the introduction of the Remnant Vegetation Protection Scheme (RVPS) early in 1989, Council has reviewed guidelines and made funding recommendations on areas nominated for Scheme assistance. Over this period, Council's awareness of the issues related to the conservation of remnant vegetation has increased, as has its ability to make authorative comments and assessments on progress and future needs in this area of resource management.

When Government introduced the RVPS it did so for an initial period of three years, where after the Scheme's achievements, operations and future were to be reviewed.

This review was undertaken by officers involved in the management of the scheme, namely Greg Hamilton, Kathy Hawkins, Greg Mlodawski of the Department of Agriculture, and Ken Wallace of the Department of Conservation and Land Management. Council acknowledges their efforts in producing a comprehensive report for its consideration.

I have much pleasure in submitting Council's report to Government on the review of the first three years of the operation of the Remnant Vegetation Protection Scheme.

I commend the Report to Government. Further, I urge Government to continue its commitment to this important area of conservation by making provision for the Scheme to continue for the Decade of Landcare, complemented by the Recommendations of the Report of the Remnant Vegetation Steering Committee. Together these reports form the basis of a potentially very successful and highly desirable State strategy for the protection of remnant vegetation.

Elton Butcher
Chairman
Soil and Land Conservation Council

Contents

Recommendations

(i) The RVPS should continue with annual reviews by the Soil and Land Conservation Council that ensure an increasingly effective integration with the Remnant Vegetation Steering Committee Report recommendations and the Federal Government's Save the Bush and One Billion Trees Programs.

(ii) The future promotion and management of the Scheme should aim to attract and protect larger areas of remnant vegetation, as well as vegetation in areas identified as warranting priority action for conservation.

(iii) The land user community should be encouraged to increase the effective size of remnant vegetation areas by integrating these into projects for strategic revegetation (e.g. in the development and implementation of catchment management plans).

(iv) Improvements to the operation of the RVPS should be made in respect of its Publicity and Promotion. These should involve closer co–operation with LCDCs to enhance its local promotion amongst land owners.

(v) Land user remnant vegetation monitoring records should be actively promoted and be assessed in the context of the annual Soil and Land Conservation Council review of the scheme.

(vi) Efforts should be made to improve the efficiency and effectiveness of the collection of base–line vegetation data for monitoring purposes.

(vii) The 30 year agreement to reserve RVPS protected remnants should remain.

1. Introduction

On October 3, 1988 Cabinet approved the contents of a minute entitled 'Conservation of Native Vegetation on Private Lands in Rural Areas'. In this minute was a recommendation that Government provide " ... a substantial grant for distribution to farmers as a 50 per cent subsidy for fencing off important remnants". This fencing subsidy became known as the Remnant Vegetation Protection Scheme (RVPS).

Cabinet's approval of funds for this assistance scheme was based on an additional recommendation, that an amount of $500,000 be provided each year for three years, where after the scheme would be reviewed. The scheme was introduced in the financial year 1988/89 and the third year of its operation concluded on June 30, 1991. This report is the review required at the completion of its third year of operation.

The events preceding and succeeding the Cabinet approval are worth recording before examining the details of the Scheme and its operations and achievements.

In the 12 months prior to October 1988, Government had received two reports, 'Conservation of native vegetation in farming areas' by Mulcahy of the Land Resource Policy Council and 'Management of native vegetation on farmland in the wheatbelt of Western Australia' by Coates, sponsored by the Conservation Council of Western Australia and relevant government agencies. These reports made numerous recommendations, but perhaps more importantly, provided data on the state of remnant vegetation in Western Australia. These data, although from only a small number of Shires, confirmed that little native vegetation remained (certainly no more than 20 per cent $\pm$ 10 per cent) in the shires studied. They also highlighted that, unless properly managed, the vegetation would degrade and eventually disappear. At that time some 86 per cent of privately owned areas of native vegetation were unfenced and 70 per cent were subject to regular grazing.

Both reports asserted that assistance for fencing would be the single most effective means of encouraging protection. In this context reference was made to legally binding agreements for financial assistance associated with remnant vegetation protection in South Australia and New South Wales. Such agreements require that any land so protected be maintained in a natural state. To demonstrate the local acceptability of such schemes, Coates produced data of a Western Australian survey that showed 70 per cent of landholders sampled supported the introduction of a financial assistance scheme with a similar agreement.

During 1988, the renewal of the woodchip export licence for Western Australia Chip and Pulp ensured the issue of remnant vegetation protection became a vigorously debated public matter. This debate generated a further recommendation adopted by Cabinet on October 3, 1988, which was to appoint a Remnant Vegetation Steering Committee, to review all the issues concerned with native vegetation protection and provide further recommendations for action and policy initiatives.

The Report of the Remnant Vegetation Steering Committee has recently (July) been presented to Government. It contains some 42 recommendations, one of which supports the extension of the Remnant Vegetation Protection Scheme (RVPS) for the duration of the Decade of Landcare (ending in the year 2000).

The report which follows examines the operations and achievements of the RVPS and explores the need for its extension, either in its present or a modified form.

2. Details and operation

Objective and administration

The objective of the Remnant Vegetation Protection Scheme is to encourage land owners to fence and protect areas of remnant vegetation for the purposes of flora and fauna conservation, land conservation and aesthetics. The means by which land owners are encouraged to protect remnant vegetation is the provision of a grant equal to half the cost of labour and materials to erect a stockproof fence around the vegetation concerned.

The RVPS is jointly administered by the Departments of Conservation and Land Management (CALM) and Agriculture (DAWA), with the latter as the lead agency. CALM contributes substantially to the RVPS through the assessment procedure and general expertise on nature conservation priorities and management advice. DAWA organizes the call and assessment of nominations, the grant approvals and contracts, including the placement of memorials on land titles, the maintenance of financial and geographic data and the monitoring of remnant condition of protected areas.

A number of factors are considered in selecting areas to receive the grants. These factors ensure grants are directed to priority areas for conservation. They include:

- the significance of the vegetation concerned to nature and land conservation objectives;
- the condition of the vegetation;
- the size or robustness of the vegetation to be protected to withstand degradation from the influence of surrounding land use and loss of species; and
- the cost effectiveness of fencing the area.

All these factors are accounted for in the applications forms.

Regions and vegetation classes

The priorities used in the RVPS for protecting various types of vegetation are based largely on how well they are conserved. A number of other factors are considered, including the presence of rare species.

To account for the substantial variation that occurs in vegetation on a landscape scale, the south west province of the State is divided into regions with vegetation that is broadly distinctive. This produces four RVPS Regions, Central Wheatbelt (Region 1), Northern Sandplains (Region 2), Southern Sandplains (Region 3) and Forest (Region 4) (Figure 1).

Within each Region the various types of vegetation are ranked according to their conservation value and representation in conservation areas. This results in four Classes of vegetation. The areas of highest priority are generally those that are poorly represented in existing conservation reserves or otherwise in need of protection. Some vegetation types of significant nature conservation value e.g. shrublands on lateritic uplands, are not given the highest priority because they are comparatively well represented in conservation reserves in some regions.

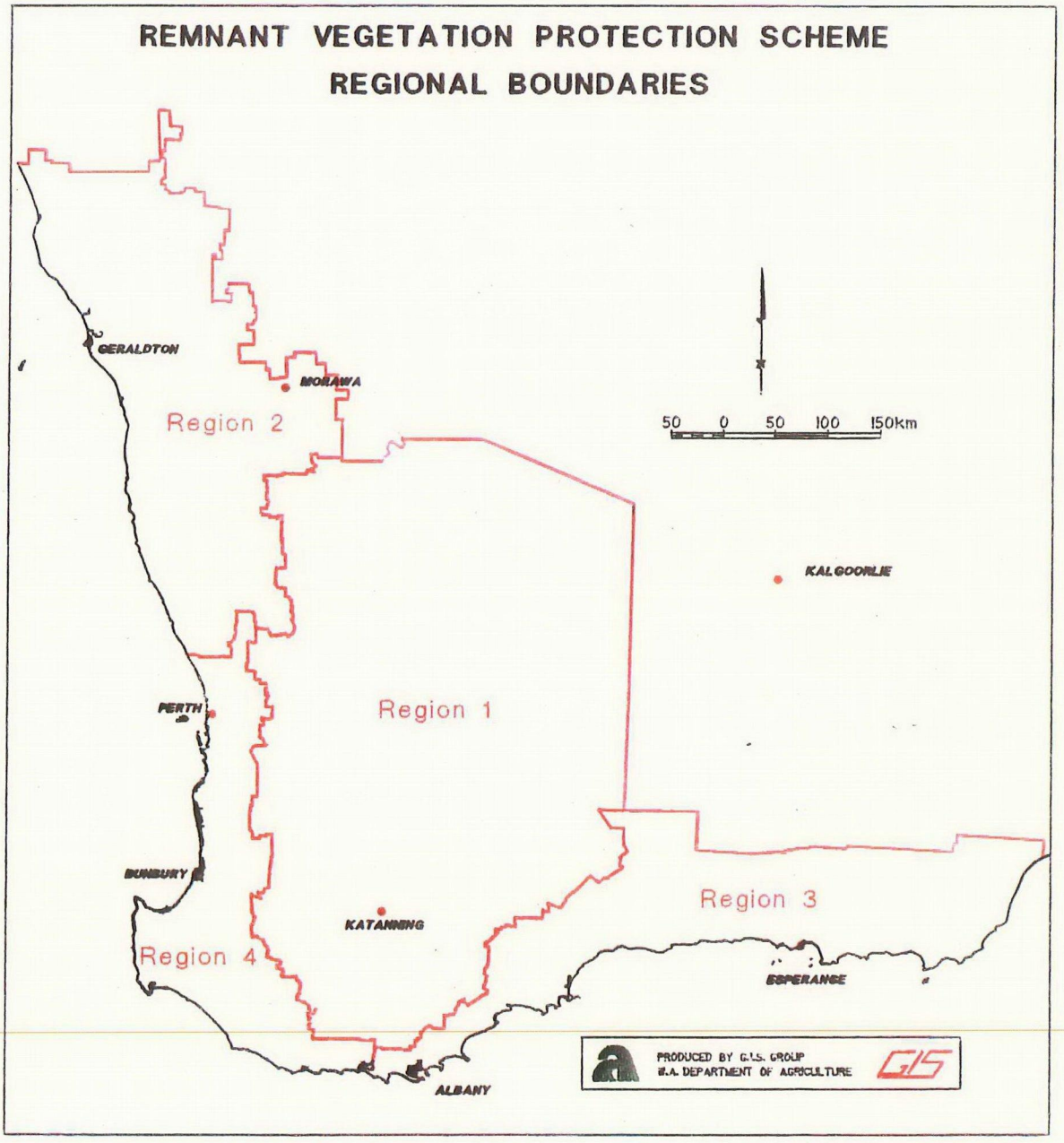

Figure 1. Map of the south west province of Western Australia showing the names and boundaries of the Regions used in the Remnant Vegetation Protection Scheme.

Table 1. Remnant Vegetation Protection Scheme classes of vegetation

Vegetation class	Region 1 Central Wheatbelt	Regions 2 and 3 Northern and Southern Sandplains	Region 4 Forest
Class 1 (very high priority)	° Woodlands of banksia or salmon gum ° Shrublands on sandy soils ° Freshwater wetlands ° Brackish wetlands ° Vegetation on greenstone or quartzite outcrops	° Woodlands of salmon gum ° Freshwater wetlands ° Brackish wetlands ° Vegetation on greenstone or quartzite outcrops	° Woodlands ° Mallee vegetation ° Freshwater wetlands ° Brackish wetlands ° Vegetation on granite outcrops ° Vegetation on greenstone or quartzite outcrops
Class 2 (high priority)	° Woodlands of wandoo or blue mallet ° Mallee on loams and clays ° Shrublands on gravelly soils ° Vegetation on granite outcrops	° Woodlands of powder bark wandoo silver or blue mallet ° Mallee on loams and clays ° Shrublands on gravelly soils ° Vegetation on granite outcrops	° Woodlands of tuart or yate ° Shrublands on gravelly or clay soils
Class 3 (medium priority)	° Woodlands of jarrah, marri, brown mallet and sheoak ° Mallee on sands or gravels ° Shrublands or wodjil, tamma or broombush	° Woodlands or jarrah, marri, banksia, brown mallet or sheoak ° Mallee on sands or gravels ° Shrublands on sandy soils	° Woodlands of powder bark wandoo, marri, wandoo, Albany blackbutt or sheoak ° Shrublands or sedgelands on wet flats ° Shrublands on coastal sand dunes
Class 4 (low priority)	° Wetlands of samphire ° Wetlands of saltpans ° Wetlands of creek lines	° Wetlands of samphire ° Wetlands of salt pans	° Woodland or forest of jarrah ° Wetlands of salt pans ° Wetlands of creek lines

While the Regions generally differ in their combinations of vegetation types and conservation priorities, two Regions are sufficiently similar to be combined. These are the Northern and Southern Sandplains (Regions 2 and 3). The combinations of vegetation types and priority classes for the four Regions are presented in Table 1. These generate three specific Nomination Forms, which are presented in Appendix 1.

In specifying the boundaries for each of the Regions shire boundaries are used because they are readily identified and well known by the land users and by CALM and DAWA officers – respectively the users and operators of the Scheme.

In addition, where shires should perhaps be split on biophysical grounds, the entire shire is included in the RVPS Region which most favours the land users' chances of gaining a grant. Examples are the Shires of Plantagenet and Boyup Brook, which are placed in Region 1 rather than divided between Regions 1 and 4.

Fencing grant and conditions

The financial assistance provided by the RVPS to subsidise the erection of stockproof fencing is 50 per cent of the costs of both labour and materials.

The specifications for stockproof fencing erected under the RVPS have evolved over time from a single 'standard' sheep fence to four types of fencing. The four fence types are:

- standard sheep (RVPS – Type 1);
- standard cattle (RVPS – Type 2);
- suspension fencing (RVPS – Type 3); and
- electric fencing (RVPS – Type 4).

(Detailed specifications of these are provided in Appendix 2.)

This broadening of fence specifications increases the attractiveness of the RVPS to farmers. It allows them to choose the fencing. It also introduces economies (e.g. standard electric fence is cheaper than a standard sheep fence), which allows the RVPS to finance the erection of greater lengths and, thus, greater areas of remnant vegetation.

Before the RVPS is advertised each year the costs for fencing materials and labour are reviewed to ensure the 50 per cent subsidy is based on current figures.

Details of the amount of subsidy provided for fencing in the three years of operation are provided in Table 2.

Table 2. Average RVPS subsidies (per kilometre) for different fence types

Fence type	1988/89 $	1989/90 $	1990/91 $
Type 1 – Standard sheep	800	1050	1050
Type 2 – Standard cattle	-	1150	1150
Type 3 – Suspension	-	1100	1100
Type 4 – Electric	-	700	700

Promotion and publicity

The material produced to promote the RVPS includes nomination forms, pamphlets, posters and instructions for personnel operating the Scheme. Each year the previous year's material is reviewed and amended, if necessary.

Nomination forms (Appendix 1) for appropriate RVPS Regions are sent to all LCDCs and DAWA and CALM District Offices. The distribution of posters and pamphlets includes all Shire Councils and Post Offices throughout the south west land province, in addition to LCDCs and offices of CALM and DAWA.

The publicity of the Scheme involves radio and, where possible, TV interviews, and press releases and articles. In the second and third year of its operation country radio and press were encouraged to interview local recipients of Scheme assistance.

Nomination and assessment

The nomination forms have been designed to obtain reliable information from landowners, and a peer review by local LCDCs or DAWA officers. Section A of the form seeks information on the landholding and the nominated area of remnant vegetation. Section B seeks LCDC or DAWA verification of this information plus some additional information and a ranking of the application alongside others from the district. Full details of the information required can be gained from Appendix 1.

The announcement of a new round of applications allows about two months time for land owners to lodge nominations before the closing date. Over the three years of the Scheme's operation the closing date for nominations has moved from February in 1988/89 to August in 1990/91. This latter date brought the call in line with the State Landcare Programme and the One Billion Trees Program (OBTP) administered by Greening Australia (WA).

The assessment of nominations is thorough and broadly based. There are four levels of assessment. The first occurs at the community level by LCDCs or DAWA staff. The second occurs at the nearest CALM office. The third occurs in CALM, where a statewide collation is made. The fourth assessment is undertaken by the Soil and Land Conservation Council. The combination of criteria used for the statewide ranking is presented in Table 3.

The statewide ranking compiled by CALM is submitted to the State Soil and Land Conservation Council (SLCC), with recommendations as to how many nominations should and could be funded relative to the amount of funds available for grants.

Recommendations from the Soil and Land Conservation Council are forwarded to the Minister for Agriculture for his approval for the funds to be distributed.

Table 3. Combinations of criteria used to rank RVPS nominations into priority categories for assistance

Ranked category	Criteria combinations
A	Areas with > 30 ha of Class 1 vegetation.
B	Areas with between 10 and 30 ha of Class 1 vegetation.
C	Areas with > 30 ha of Class 2 vegetation.
D	Areas with between 4 and 10 ha of Class 1 vegetation **and** total undisturbed area > 15 ha.
E	Areas with between 10 and 30 ha of Class 2 vegetation **and** a total undisturbed area > 30 ha.
F	Areas with > 30 ha of Class 3 vegetation.
G	Areas with between 4 and 30 ha of Class 1 vegetation and some undisturbed area.
H	Areas with between 10 and 30 ha of Class 2 vegetation and some undisturbed area.
I	Areas with between 4 and 10 ha of Class 2 vegetation and a total undisturbed area > 15 ha.
J	Areas with between 10 and 30 ha of Class 3 vegetation and a total undisturbed area > 30 ha.
K	Areas with between 4 and 10 ha of Class 2 vegetation.
L	Areas with between 4 and 30 ha of Class 3 vegetation.
M	Areas with rare flora and/or fauna.
N	Areas with some ha of Class 4B vegetation.
O	Areas with some ha of Class 4A vegetation (but no 4B).
X	Areas rejected.

Footnote: Class 4A is heavily grazed vegetation of any of the classes.

Agreements

Once Ministerial approval is obtained the cadastral details of the ownership of the nominated area of land are checked with the Land Titles Office before drawing up contractual Agreements (Appendix 3).

The offers of fencing funds are then forwarded to land users with a formal Agreement. This Agreement is a legal contract between the land user and the Director General of Agriculture. It formalizes the provision of funds conditional upon land owners putting them toward erecting a specified fence type around the nominated area and undertaking to manage that area according to specified requirements for a period of 30 years.

These management requirements are designed to ensure the condition of the vegetation is maintained or improved. Specifically, they require the land user not to do or cause to be done to the protected area any of the following:

- remove vegetation, soil, stones, sand, rock or gravel;
- engage in activities that may damage or destroy any plants;
- interfere with natural water supplies;
- disturb native fauna;
- graze livestock;
- drain or clear any of the area;
- erect buildings;
- deposit litter.

The land owner signs and returns the Agreement. It is then countersigned by the Director General of Agriculture before the funds are distributed to the land owners with a Certificate of Covenant signed by the Ministers for Agriculture and Environment.

Conservation covenants

Recent amendments to the Soil and Land Conservation Act make possible the registration of a Memorial on land Title Deeds of any arrangement to set aside land for conservation purposes. This provision may be invoked voluntarily by owners or by the Commissioner for Soil and Land Conservation. The RVPS Agreement falls into this latter category.

Grant disbursement

Remnant Vegetation Protection Scheme grants cannot be disbursed until cadastral details, fence type and length specifications, vegetation area and land ownership are verified and all parties have signed and had their signatures witnessed on the Agreement. As soon as is practicable after these matters have been completed a cheque for the required grant is forwarded to the land owner concerned.

Accountability mechanisms

Concurrent with the distribution of funds, the geographic, cadastral and vegetation data of each funded nomination are captured in the Geographic Information System of the Department of Agriculture.

This capture of data serves two main purposes:

- it generates a site map of the size and shape of the area of vegetation, plus its location relative to roads and cadastral boundaries for use by a botanical survey team; and
- it provides an accurate record of the geographic location, area and type of vegetation protected under Scheme for the purposes of future evaluation of the Scheme and comparison of areas of protected vegetation versus unprotected vegetation.

The grant monies are accompanied by an instruction that the specified fence should be erected within six months. The grants are usually distributed in autumn each year, preceding the wet and cool months of the year when most farm fencing is undertaken. If landowners are unable to comply with this requirement they are asked to inform the Department so that alternative arrangements can be negotiated.

In the spring and summer months succeeding the distribution of RVPS grants a survey team visits each site. This team undertakes a number of tasks, which include:

- checking the shape, area and perimeter length of the protected remnant;
- checking that the fence financed by the grant has been erected and that the length and type of fence are as specified in the Agreement; and
- photographing the location of the remnant, permanently marking a representative transect of the vegetation, recording the number, type, size of plants on the transect and photographing the vegetation along the transect.

The decision to develop a monitoring programme was taken early in the life of the RVPS as a means of:

- encouraging land users to become more involved and committed to a form of management that guarantees the conservation of their vegetation; and
- providing a record of a representative sample of the type and amount of vegetation protected so that the value of the scheme in protecting and improving the condition of native vegetation can be assessed in the longer term.

In order to ensure good quality base-line data and to minimize the cost of such a monitoring programme University graduate or post-graduate Botany students are employed to collect the initial data (in the year of funding), followed at regular intervals (every two years) by land owner inspections which photographically record the type, size and condition of vegetation within the protected area.

The Curtin University School of Environmental Biology each year supplies qualified survey teams, expert supervision and a list of vegetation species, position and size along each site's transect, as well as a botanical description of the vegetation association(s) on the transect.

The Department of Agriculture supports the survey by providing the cost of labour, location maps, photographs, fence posts, vehicles and GIS capture of the data.

A copy of the vegetation survey field sheets used in the monitoring exercise is shown in Appendix 4.

On-going land user monitoring is facilitated by the supply of a field monitoring record folder which includes instructions on how to monitor and record the vegetation along the representative transect, plus some advice on how to manage the area to ensure its conservation. (An example of a monitoring record folder and contents can be obtained from DAWA.)

Land users are asked to inspect and photographically record the vegetation on the transect at least once every two years. In addition, they are asked to describe the seasonal conditions and management practices affecting the area since its last survey. The first round of land user monitoring records are being collected this year (1991) and a copy of these is to be retained by the Department of Agriculture.

From time to time DAWA and CALM will, in addition to farmer records, undertake random inspections of the areas of protected vegetation to check whether vegetation conservation is being achieved and assist land users to retain a high commitment to its conservation.

3. Expenditure review

The administration of the RVPS is supported by existing staff and operational budgets of the Departments of Agriculture and CALM. Other than fencing grants, only the direct costs associated with the preparation and distribution of brochures, posters, covenant certificates and the cost of botanical surveys have been funded by the Government's allocation of $1.3 million over the three years of the RVPS operation.

The percentages of the RVPS funds allocated to fencing grants over the three years have been 99% in 1988/89, 92% in 1989/90 and 86% in 1990/91. A summary of RVPS expenditure for these three years is presented in Table 4. More detailed records for each year are presented in Appendix 5 a,b,c.

The Department of Agriculture employs one full-time professional (Level 2) officer and provides this person with supervision and an operational budget. This officer attends to the publicity and promotion, distribution and collation of nominations after assessment, organization of title searches, contracts (Agreements) and memorials on Title Deeds, distribution of grants, financial, geographical and monitoring data bases and general enquiries. A time line of the sequence of operations involved in managing the RVPS is presented in Appendix 6.

A part-time professional (Level 6) is employed by CALM to help check, collate and rank all nominations. This officer is also provided with supervision. The collation and ranking of nominations involves considerable liaison with LCDCs and some travel by CALM staff to check certain areas nominated for an RVPS grant.

Table 4. Summary of total expenditure from all sources for various components of the operation of RVPS (RVPS contribution in brackets)

Operational components	1988/89 $	1989/90 $	1990/91 $
• Publicity and promotion	5,152 (1,944)	12,132 (4,262)	8,661 (4,298)
• Assessments and administration	28,335 (0)	34,206 (0)	35,843 (0)
• Grant contracts and memorials	9,033 (123)	8,515 (705)	8,575 (560)
• Monitoring	Nil	45,813 (33,615)	77,177 (64,678)
• Grants (RVPS only)	285,880	445,350	425,799
Totals - RVPS CRF Total - Other CRF Total - Grand Total	287,947 40,453 328,400	483,932 62,084 546,016	495,335 60,720 556,055
Actual RVPS allocation	300,000	500,000	500,000

The summary of RVPS expenditure (Table 4) requires some explanation.

- **Publicity and promotion:** These figures show the greatest variation from year to year. The first operational year of the RVPS was short – only 4 months of the 1988/89 financial year. The RVPS was announced in the State Election in February 1989 and the first allocation had to be spent by June 30 of that year. The publicity and promotion was hurried and short.

  The 1989/90 RVPS round was better organized and considerable effort was put into the publicity and promotion. CALM and DAWA officers spent time in the country explaining the scheme to land users, LCDCs and DAWA and CALM officers. This extra effort more than doubled expenditure on publicity and promotion in 1989/90 compared to 1988/89.

  In 1990/91 good awareness of the RVPS existed in the community and a less costly campaign was mounted. This involved making good use of the information networks into the land user community (e.g. regular newsletters for LCDCs, Greening Australia (WA) and the Save the Bush Program). In addition, rural radio networks were used and these were given names and addresses of local RVPS funded land users for case-study interviews.

- **Assessments and administration:** These figures show a per annum cost that is effectively constant after the 1988/89 financial year. When inflation is considered, this expenditure reflects increasing efficiency as administrative procedures and systems were established.

- **Grant distribution:** The same comment as above applies to the process of grant distribution (contracts and memorials). The slightly lower costs in 1989/90 and 1990/91 compared to 1988/89 were achieved despite greater numbers of grants in these years compared to the first (185 and 174 cf 111, respectively).

- **Monitoring:** The monitoring programme runs one year out of phase. The 1988/89 protected areas were monitored in 1989/90 and those of 1989/90 in 1990/91. The total expenditure on the monitoring survey increased from 1989/90 to 1990/91 in direct proportion to the increase in the number of protected areas – 111 remnants in the 1988/89 round and 185 in the 1989/90 round. In both years it represented 17% of the actual grant expenditure of the previous year.

- **Grants:** Over the three years of operation the proportion of RVPS funds actually allocated to fencing grants has been, 99%, 92% and 86% in 1988/89, 1989/90 and 1990/91, respectively. This trend in grant allocation is a consequence of the expenditure on the monitoring survey. With a reasonably constant number of areas protected each year the future costs of monitoring should remain fairly static.

4. Review of achievements and effectiveness

In this section of the report the detail of RVPS achievements are analysed to examine the scheme's effectiveness in meeting the objective of encouraging land owners to fence and protect areas of remnant vegetation for the purposes of nature conservation, land conservation and aesthetics, particularly in the more extensively cleared agricultural areas.

The actual wording of the Cabinet Recommendations of October 1988 is worth repeating before examining in detail the achievements and effectiveness of the RVPS. Relevant verbatim extracts from this documentary as follows:

- "That ..... the policy of Government will be to ..... encourage preservation and discourage clearing or degradation of native vegetation on private land ..... identified as being of significance to the preservation of flora and fauna."

- "That initial proposals for financial support should come from ..... individual land owners and Soil (now Land) Conservation District Committees who would ..... provide a list ..... of patches of vegetation for which assistance should be provided."

Protected vegetation

The distribution of the areas of native vegetation protected by the RVPS is well spread across the south west land province of the State (Figure 2). Details of the area of RVPS protected vegetation, grant allocations and associated data (Table 5) show that Region 1 attracted 65% of the number of grants which protected 57% of the total RVPS protected areas over the three years of the scheme's operation. The other two agricultural areas, Regions 2 and 3, account for a further 40% of the protected area. Grant allocations to Region 4 accounted for the remaining 3% of the area protected since the scheme's introduction. More details of RVPS grants, on a Shire basis, are provided in Appendices 7, 8 and 9.

The other important component of protection is the type of vegetation (or RVPS Class) that most needs conserving. Analyses of the data in Appendix 11 and the conservation priorities in Table 1 reveal that the RVPS is protecting higher conservation priority vegetation. Approximately 80% of the vegetation described on the transects is Classes 1 and 2 vegetation (Figure 3).

Botanical data of protected areas

The major purpose for undertaking botanical surveys of a transect on each protected remnant is to provide quality base-line data with which to compare the condition of the vegetation over time. The simple technique employed allows repeat surveys at any time. So far these surveys have provided botanical descriptions of native vegetation on 296 transects (1988/89 and 1989/90 grant areas, Figure 3) scattered widely across the south west land province. An example of these data is presented as Appendix 11.

A secondary purpose of the surveys was to provide information to land users on the vegetation in their protected remnant to encourage them to manage the remnant to maintain or improve its condition. Records of the remnants and their vegetation for the 296 surveyed transects have been collated and distributed in a Monitoring Records folder. These folders include photographic records of the representative transect, a list of species on the transect and simple management and monitoring guidelines.

At least amongst government funded land conservation programmes in Western Australia, the monitoring scheme represents a unique method of accountability and self-assessment. Not only does the monitoring provide an excellent, objective measure of the longer term success of the Scheme, it also provides a special opportunity for farmers to improve their management practices by providing them with a measure of the impact of their management actions.

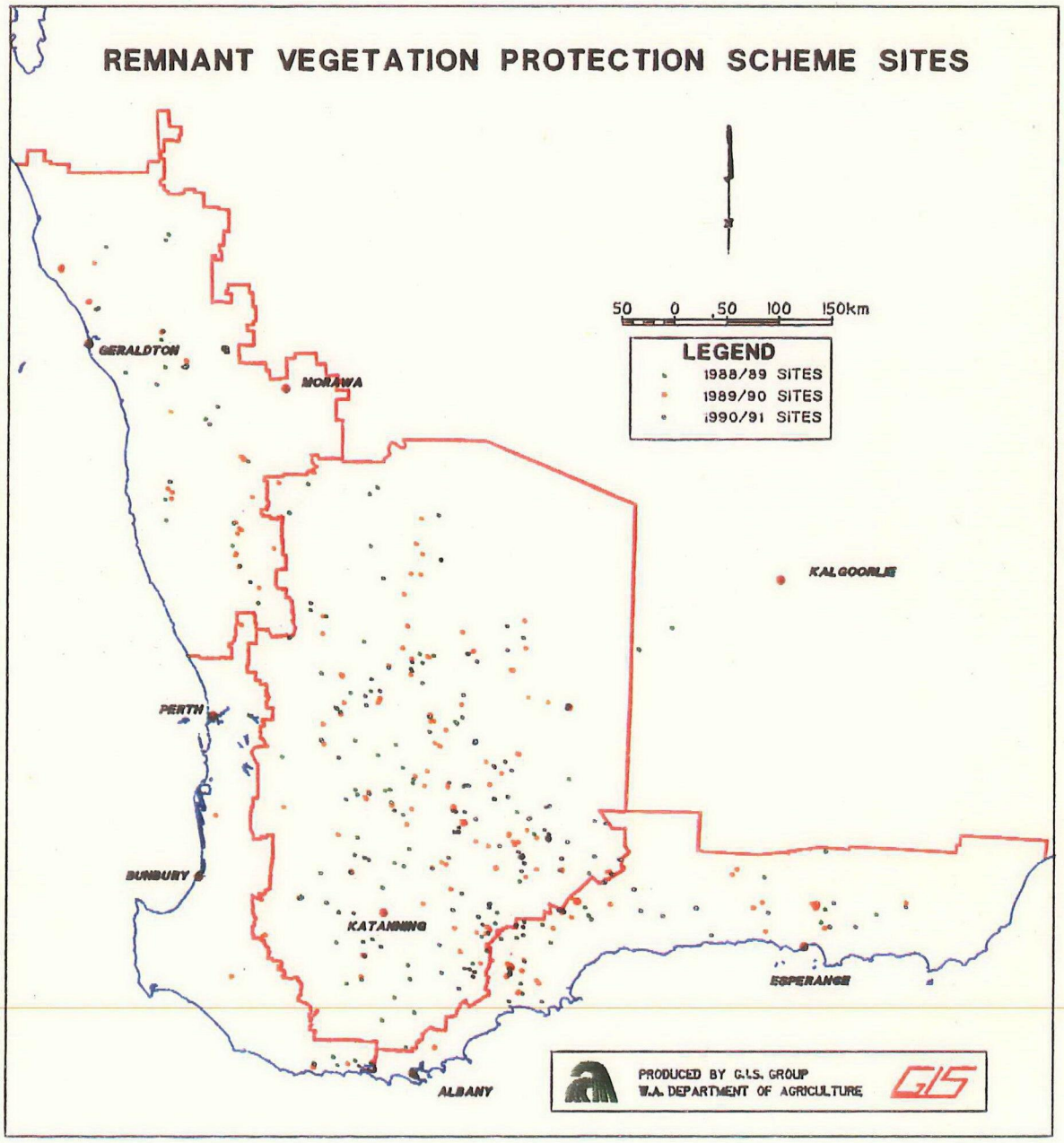

Figure 2. Map showing the distribution of RVPS grants over the three years of its operation.

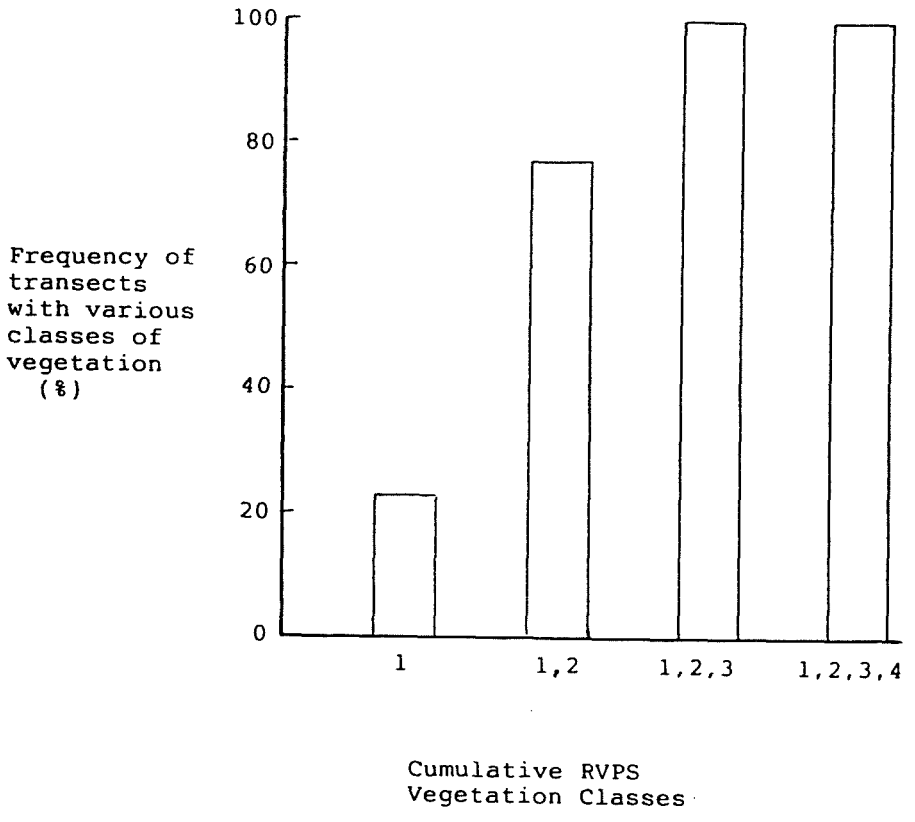

Figure 3. Cumulative percentage of vegetation classes in monitoring transects on RVPS protected areas (1988/89 and '89/90). Note that 77% of the remnant vegetation areas protected in the first two years of operation include vegetation in high protection priority classes 1 and 2.

Fencing

The RVPS has financed the erection of 1,184 km of fencing in its three years of operation. This has protected 470 patches of remnant vegetation comprising a total area of 21,061 ha (Table 5).

The efficiency of the investment in fencing, in terms of the area of vegetation protected per RVPS dollar, is dependent on the size and shape of the patches of vegetation to be protected. Over the years the average size of RVPS protected vegetation has been highly variable, both within and between years and regions (Table 5 shows 3-year averages between Regions).

Both size and shape are important considerations in assessing the ability of nominated areas of vegetation to withstand degradation influences from adjoining land used for agriculture. Long, narrow shapes are particularly prone to such degradation. Hence, a means of reviewing the fencing efficiency of the RVPS dollar is to examine it in terms of the area protected per length of fencing. Figure 4 shows data of the average area and average perimeter length for patches of protected vegetation for each Region compared to a line drawn for square-shaped areas. As the data lie close to the 'square' line, which is the most efficient area:perimeter fencing configuration, the scheme's efficiency in maximising protected area per dollar invested is evident. It should be noted, however, that a significant contribution to this efficiency is the fact that many of the areas protected are already partly fenced.

Table 5. Summary of RVPS grants and areas protected, 1988–1991

Details	Region 1	Region 2	Region 3	Region 4	Grand totals/ averages
Grants ($)	666,087	217,063	230,536	22,265	1,135,951
Areas protected (ha)	12,090	4,528	3,894	549	21,061
Average unit cost ($/ha)	55.90	47.94	59.20	40.56	53.94
Average size of area (ha)	39.4	73.0	44.3	42.2	44.8
Number of grants	307	62	88	13	470

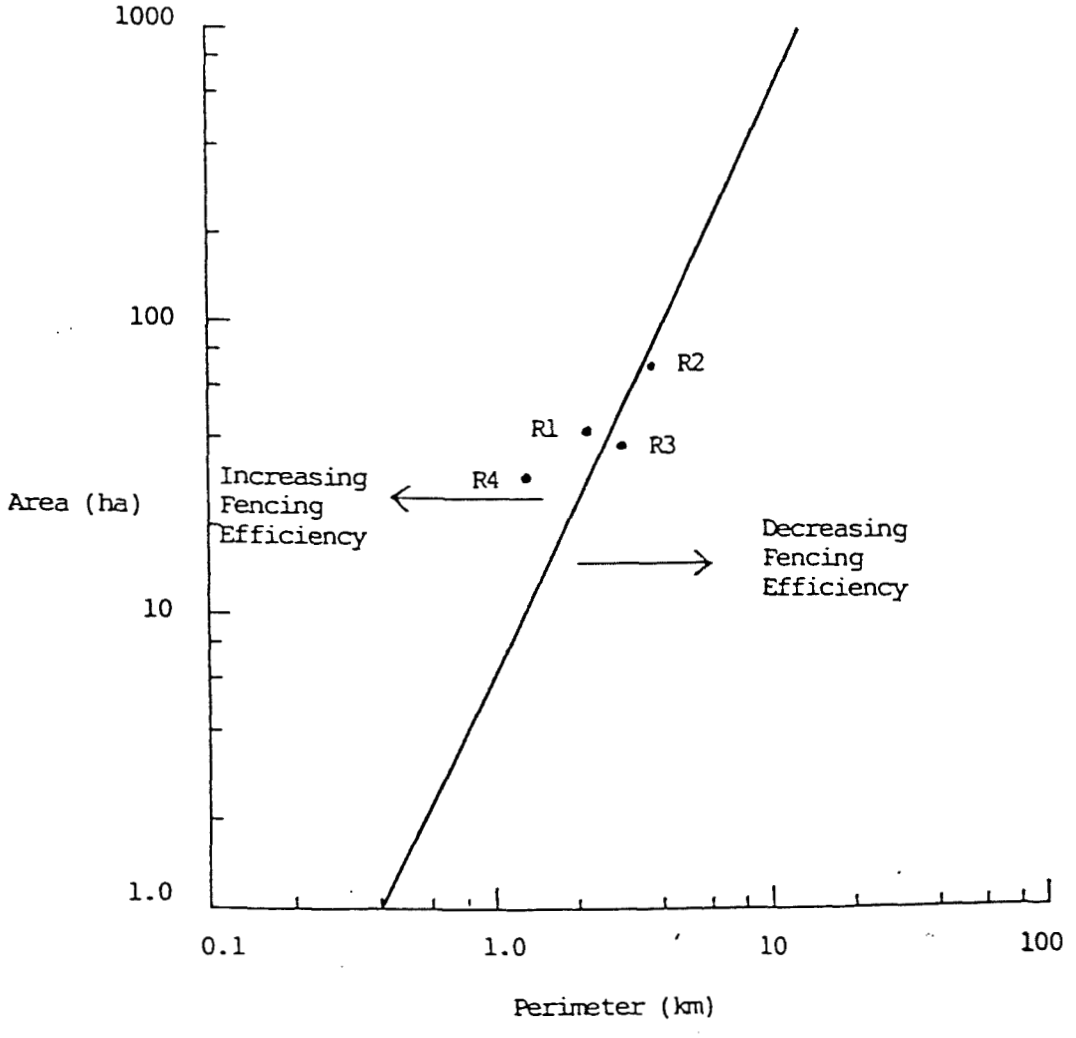

Figure 4. Relationship between fence length and area fenced for square-shapes. Points R1, R2, R3, R4 are average perimeter:area ratios for Regions 1, 2, 3 and 4 over the three years of RVPS operation.

Operational efficiency

In assessing the operational efficiency of the RVPS two questions arise. Could the outputs of the scheme have been achieved or increased for less cost using the same methods and resources, or different methods and resources?

The analysis necessary to answer such questions is limited by the fact that no directly comparable scheme or methods exist. Conclusions are a matter of judgement as to whether or not costs and methods are reasonable and efficient.

The outputs (tangible and intangible) achieved by the RVPS in the three years of its operation are:

- the protection of 21,061 ha of remnant vegetation, at a gross cost of around $54 per hectare;
- the drawing of at least an equivalent investment to the Government's from land users to fence and manage their remnant vegetation;
- the direct involvement of land owners of 470 remnants who have committed themselves to protect their remnant vegetation for at least 30 years;
- the construction of 1,184 km of stock proof fencing around remnant vegetation;
- the involvement of a large number of LCDCs – 50 in 1988/89, 43 in 1989/90, 38 in 1990/91;
- the production and distribution to LCDCs, Shire Councils, Post Offices, CALM officers and DAWA officers of 4,000 pamphlets and 600 posters;
- the production of series of radio interviews and press articles for rural audiences;
- the botanical descriptions of the vegetation on 296 transects on the areas protected in 1988/89 and 1989/90;
- the identification on the 296 transects of 21 species that are on CALM's priority lists of threatened flora.

In addressing the question of whether the same or greater outputs could have been achieved for less cost, a comparison of the amount of funds allocated to grants relative to overhead costs is relevant. This approach of examining the size of 'overheads' expenditure relative to grants shows considerable efficiency in administration of the scheme. The data in Table 4 show that the proportion of the CRF RVPS allocations used for fencing over the three years were 0.99, 0.92 and 0.86. Similar figures for total CRF expenditure are 0.87, 0.82 and 0.89 for the same three years, respectively. These overheads have always been less than 18%, with the major component in any one year, 13%, being the cost of monitoring.

Clearly, the efficiency of running the scheme is considerable and the cost of monitoring is reasonable, given that it guarantees both the proper use of the funds and provides valuable data for ensuring the scheme's objectives will continue to be met over time. In addition, these data are likely to improve the design and implementation of future conservation and remnant management activities by the community at large.

To assess whether or not more could have been achieved with RVPS and other funds, using different methods and resources, is difficult. On the one hand the scheme was over–subscribed – 782 nominations with 470 funded. Demand exceeds the supply of funds. However, to have funded the protection of more areas (at, say, a lower subsidy rate) would have resulted in a larger proportion of vegetation of lower conservation need being protected. On the other hand, if the management conditions on RVPS–protected vegetation were relaxed, a larger number of areas of high conservation need may have been nominated. Without the experience of operating alternative RVPS structures, possible outcomes remain a matter of conjecture. These and other possible improvements to the RVPS are discussed in the section, Future Options.

Other voluntary protection

The amount and trend in voluntary protection of remnant vegetation outside the scheme is worth examining. This allows some assessment of whether there has been an increase in such activity since the RVPS was introduced and whether there is an on-going need for the RVPS.

Data from Greening Australia (WA) reveal that, in both the Alcoa Plants for Conservation and the Community Grants component of the One Billion Trees Program, there has been an increasing trend toward complementing remnant vegetation protection with tree planting, often by way of bush corridors. Out of applications numbering about 400 each year, the inclusion of remnant vegetation protection has increased from about 20 in 1989/90 to 40 in 1990/91 and to about 150 in 1991/92. Clearly, farmers are increasingly practising a more holistic approach to land conservation, such that it now includes remnant vegetation protection.

Consistent with this trend, the Western Australian Farmers' Federation 1990 Survey of Members revealed an apparently very large commitment to protecting remnant vegetation. Their data show 57 per cent of farmers protected on average, 53 ha of remnant vegetation (totalling 715,183 ha (sic)) by way a range of practices that included fencing, grazing management and feral animal control (only 25 per cent actually excluded grazing). Notwithstanding the small sample size of the survey and the probability of a bias towards conservation farmers returning the survey papers, these figures reveal considerable interest in and commitment to remnant vegetation protection.

Two important points emerge from both sets of data.

(i) The Greening Australia (WA) data show an increasing trend in the practice of protecting remnants, and it is probable the RVPS has contributed to this trend. The WAFF data confirm the large interest in and protection of remnant vegetation.

(ii) Because effective conservation of remnant vegetation requires the exclusion of grazing, the WAFF data clearly indicate that such conservation is most unlikely to be achieved without schemes that provide assistance and proper management advice (only 25% of the WAFF-surveyed farmers excluded grazing).

In this context, it must be noted that Greening Australia's schemes do not compete with the RVPS. Their assistance guidelines place an emphasis on strategic tree planting and the supplementation of remnant vegetation areas by natural regeneration or the creation of bush corridors. In addition, their guidelines for fencing provide for a maximum grant of half the cost of materials (i.e. about half that of the RVPS).

A further point of importance, which cannot be over emphasized, is that in the current rural economic climate the present schemes make a very important contribution to sustaining a commitment to revegetation and remnant vegetation protection. Without them the implementation of such works would probably cease.

Survey of RVPS clients and agents

An extensive telephone survey was undertaken in mid-1991 amongst clients (farmers and LCDCs) and agents (DAWA and CALM officers) of the RVPS to ascertain the level of support and understanding of the scheme and to solicit suggestions for improvements in its structure and operation. A total of 70 persons were contacted. A breakdown of the affiliations of those contacted is presented in Appendix 10c. In summary, 41 were clients (farmers and LCDCs) and 29 were agents (DAWA and CALM officers).

All respondents were asked a range of questions covering the operation of the RVPS. Only a few had comments to make on all aspects. The survey questions focused on selection criteria, fencing grants, conditions, management guidelines, monitoring, publicity, promotion and administration. The response patterns are presented in Appendix 10d. The content of responses is summarized in Appendix 10e.

The most common responses to survey questions were as follows:

- RVPS promotion should explain the need (and benefits) of conservation;
- RVPS nomination forms and feedback on grants can be improved;
- selection criteria are too restrictive and all nominated areas should be supported;
- all fencing should be eligible for funding, including retrospective claims and boundary fencing, and the level of support should be 100 per cent of fencing costs;
- restrictions on the use of protected areas are too tight and the duration of the "lock-up" period (30 years) is too long;
- guidelines on how to control vermin, weeds and fires in protected areas are needed.

Overall, there was 100 per cent support from both farmers and LCDCs and Departmental officers that the RVPS was worthwhile and should be continued.

The survey findings indicate both an enhanced interest in remnant vegetation and a lack of clear understanding of the purpose of the RVPS and the rationale for the way in which it is structured and operated. This is illustrated, for example, by the 3rd, and 5th dot points. The RVPS was designed to encourage the conservation of areas of 'significant' remnant vegetation not **all** remnant vegetation. In addition, the period of a commitment to protect (30 years), the exclusion of all stock and the requirement to manage the protected vegetation to maintain or improve its condition are all based on ample research and anecdotal evidence that any grazing causes substantial damage and regeneration is a long, slow process.

The 4th dot point finding regarding retrospective funding of fencing has previously been considered and rejected by SLCC. Fencing requests are considered sympathetically, and 100 per cent funding is neither desirable nor an efficient use of funds.

Appropriate action is in hand to respond to the 1st, 2nd and 6th dot point findings. More information on the need and benefits is being distributed as it becomes available. It will be synthesized and distributed in 1991/92. Feedback on grants has been improved. Guidelines for managing remnants are included in the Monitoring Records Folders, and a comprehensive set are being prepared in a project funded by the Save the Bush Program.

Cost effectiveness

An examination of the cost effectiveness of RVPS involves an analysis of the remnant vegetation protection activities that have occurred beyond those directly funded by the RVPS. Ideally, these activities should be able to be directly linked to the RVPS, but this is not always possible. The reason for this is that the RVPS is only one of a number of conservation programmes directed towards rural land users. Others include the National Soil Conservation Program, the One Billion Trees Program, the Save the Bush Program and the State Landcare Program.

The increasing activity in remnant vegetation protection indicated by the WAFF survey and the Greening Australia (WA) data is no doubt partly attributable to the RVPS. In addition, despite the statistic that only 25% of the 80% of WAFF farmers claiming to protect remnant vegetation by fencing actually exclude grazing, the data indicate considerable awareness that effective conservation must exclude grazing. The example the RVPS sets in this regard is undoubtedly influential in creating this awareness.

The Publicity and Promotion component of the RVPS, costing $10,504 or 0.8% of the RVPS expenditure ($25,945 or 1.8% of total CRF expenditure) has produced the following outcomes:

- 782 nominations, of which 470 have been funded;
- effectively 100% utilization of RVPS funds;
- effectively doubled the RVPS investment on fencing.

Thus, whilst improvements may be possible in the cost-efficiency of the Publicity and Promotion its effectiveness cannot be questioned.

The cost effectiveness of the Monitoring component of the RVPS is difficult to assess because the outcomes are yet to be realized. In principle, the effectiveness of this investment $98,293 or 7.8% of the three years of RVPS expenditure ($122,990 or 8.6% of total CRF expenditure) will only be realized in terms of:

- effective long term conservation of the 21,061 ha of remnant vegetation;
- improved conservation activities (including management) resulting from a better knowledge and understanding of the native vegetation resources.

Letters of support

Similar sentiments to those revealed by the survey (i.e. in favour of retaining or expanding the RVPS) have been expressed in letters to the Minister for Agriculture. Over the past months (March to early August, 1991) there has been a constant and increasing stream of letters seeking the Government's assurance to continue the RVPS.

The significance of this expression of support should not be underestimated. The achievements of the RVPS over its three years of operation have been gained in a period of increasing economic hardship for the rural community. In this environment there has been effectively 100% utilization of the funds allocated, and this has required considerable commitment to conservation by land users, both financially and intellectually.

5. Future options

In considering future options for the RVPS the relevant considerations include the amount of unprotected remnant vegetation remaining on the landscape, the need for its conservation and the resources required to achieve its protection and management.

Remnant vegetation on private land

The Department of Agriculture has recently completed the Geographic Information System (GIS) capture of all the remnant vegetation on privately owned land in the south west land province of Western Australia. These data have been analysed and classified according to the size and number of the patches of vegetation. Table 6 presents total areas and numbers in various size classes for each RVPS Region, and Appendix 8 presents the data for each Shire and compares them with local areas protected by the RVPS.

The proportion of the landscape remaining under native vegetation is a parameter that is crucial to the achievement of both land and nature conservation objectives in Western Australia. When examined from this perspective the data in Table 5 really need to be complemented by data of the area and location of native vegetation on publicly owned land. Unfortunately, the latter information is not yet totally available, and this lack particularly affects the interpretation of the data for all RVPS Regions.

Table 6. Total area and number of vegetation patches remaining on private land in the south west province of Western Australia

Regions and vegetation details		0–5 ha	5–50 ha	50–100 ha	> 100 ha	Total
Region 1	Area	13,875	158,046	68,100	614,389	854,410
	No.	(10,774)	(9,239)	(980)	(1,140)	(22,133)
Region 2	Area	6,524	35,132	17,043	180,745	239,444
	No.	(2,843)	(2,233)	(225)	(722)	(6,023)
Region 3	Area	1,214	23,064	13,557	393,829	431,664
	No.	(1,301)	(1,244)	(192)	(368)	(3,105)
Region 4	Area	10,062	33,785	14,889	84,478	143,214
	No.	(6,146)	(2,297)	(27)	(354)	(8,824)
* Grand totals:	Area	1,668,732				
	Number	(174,475)				
* Percentage of agricultural land covered by remnant vegetation: 10.4%						

A perhaps more reliable, but more general, expression of the proportion of remnant vegetation remaining on agricultural lands is that derived by dividing the total remnant vegetation area for all Regions by the area of agricultural land, approximately 16 million ha (i.e. extensively cleared land which excludes Crown land). This calculation indicates that 10.4% of the agricultural land remains under native vegetation – another disturbingly small amount, especially when the area and landscape location of vegetation that is needed to achieve land and nature conservation is taken into account. Land conservation experts estimate that about 20% of the agricultural landscape needs strategically located deep–rooted perennial vegetation for biophysical stability of the environment. (Note: This is a subjective estimate made in the absence of quantitative data.)

Size distribution and conservation need

As the size of remnant areas of vegetation increases their ability to withstand degradation influences from surrounding lands increases. Similarly, the larger the area of vegetation the greater the likelihood of it containing a wide variety of habitats and native plants and animals. Generally, therefore, larger areas are likely to have a wider range of species and be less susceptible to degradation than smaller areas.

Using this reasoning, the data in Figure 5 provide some important leads as to the most effective targets for future conservation efforts, namely:

- The smallest size class 0–5 ha, which is most under threat of degradation, contributes less than 7 per cent of the remnant vegetation area in each Region, yet the proportion of patches of this size class is between 42 and 70 per cent of the total in each Region. Hence, the average size is very small (1.5 ha) and the probability is great, that they are suffering substantial degradation. The cost of protecting them would therefore be very large and the benefits small and a long time in coming.
- The largest size class, > 100 ha, contributes between 60 and 92% of the total area of native vegetation in the Regions. This area derives from between 5 and 12 %of the number of patches. The average size of individual patches of vegetation in this class is quite large (493 ha). It is important to realise that this vegetation probably represents uncleared agricultural land which, by virtue of it size, is comparatively less susceptible to degradation, particularly if it is fenced.

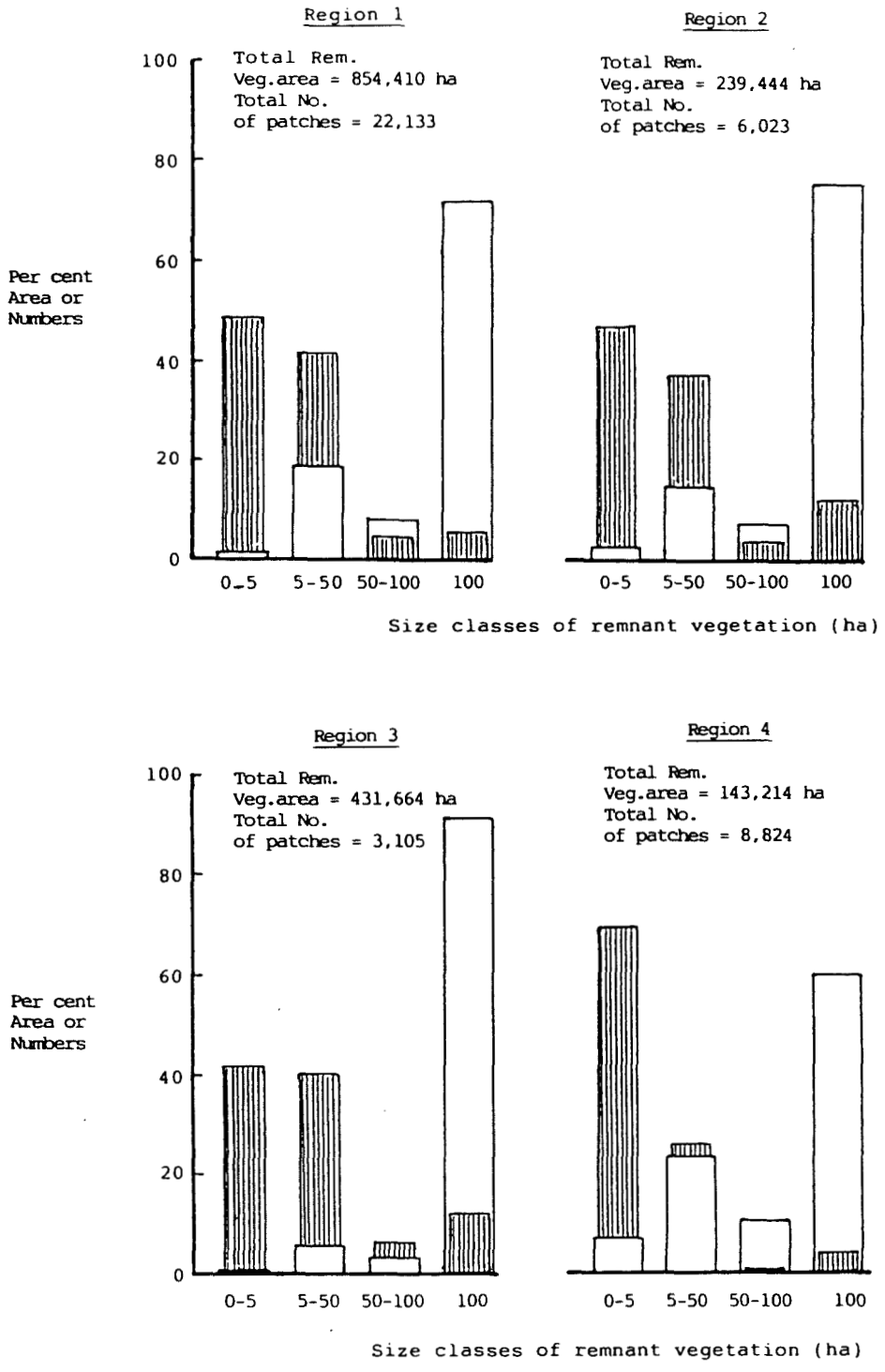

Figure 5. **Frequency distributions of the total area and number of patches of remnant vegetation in various size categories for each RVPS Region. Data are illustrated as percentage of total area (open columns) and of total number of patches (shaded columns). Absolute data are presented in text above each histogram.**

- The 5–50 ha and 50–100 ha size classes contribute between 8 and 33 per cent of the area of remnant vegetation in the RVPS Regions. These areas are made up of between 27 and 46 per cent of the number of patches of vegetation, respectively. The average size of these patches is about 22 ha. They represent a resource that is worth protecting because their size and number ensure they make a significant contribution to bio–diversity and land conservation.

Resources required for conservation

An analysis of the resources required to achieve protection for remnant vegetation is an essential pre–requisite for planning future action.

Notwithstanding the fact that the > 100 ha patches of remnant vegetation contribute between 60% to 92% of the total area of remnant vegetation on private land in the RVPS regions, the following analysis uses the area of vegetation in patches of between 5 ha and 100 ha in size. The reasons for this are:

(i) the analysis is intended to indicate only the general magnitude of the investment needed to properly conserve the vegetation, plus the need to adopt strategies to multiply the effects of such an investment;

(ii) there are options other than the RVPS that are well suited to protect remnant vegetation in patches > 100 ha area (e.g. voluntary conservation Covenants; Crown purchase and management);

(iii) the 5 ha–100 ha sized patches are more susceptible to degradation, are less likely to be fenced and are more likely to occur in extensively cleared sections of the landscape in which native vegetation species are quite scarce.

The analysis of the resources required to fence the total area of the 5 ha–100 ha patches of remnant vegetation (363, 616 ha), using the average size of 22 ha and assuming the patches are square–shaped reveals that some 30,300 km is required. At a cost of $1,100/km for fencing, the total investment required for fencing alone amounts to $33.3 million.

On the other hand, using the 1988–91 average RVPS area of 45 ha/patch (Table 5), the comparable figures are 21,400 km of fencing and a total investment of $23.5 million.

Assuming the present rate of RVPS funding ($500,000 pa) and strategies of using it that effectively catalyse voluntary protection of 2 times or 5 times the area of RVPS–funded protection, the time needed to protect this area of remnant vegetation is as follows:

- Multiplier of 1: – 66 years or 47 years)
- Multiplier of 2: – 33 years or 23 years) using 22 ha and 45 ha averages, respectively
- Multiplier of 5: – 13 years or 9 years)

Adopting a time span of between 9 and 13 years to achieve the conservation of this size class of remnant vegetation is a reasonable target given the following facts:

- The vegetation target for the RVPS is remnant native bush with significant nature conservation value, not all native vegetation, as is the content of the 5 ha–100 ha data set.

- Other Government agencies have land and nature conservation responsibilities and programmes which can be directed to complement the RVPS and assist in achieving a multiplier effect of at least five.

- The Remnant Vegetation Steering Committee Report (RVSC) recommends the continuation of the RVPS in addition to many complementary actions which various Government agencies are obliged, in principle, to undertake. These activities should ensure the necessary multiplier effect is attained.

RVSC recommendations

When implemented, many of the recommended actions in the RVSC report will greatly assist the RVPS to reach the above target, especially in terms of achieving the protection of the 'significant' remnant vegetation. Specifically, the report includes recommendations to:

- identify native vegetation types and their condition and to initiate monitoring programmes, including the identification of sensitive areas, the setting of priorities for protection, the classification according to a vegetation community's capabilities for various uses, and the development of management guidelines for conservation with and without use;
- stimulate district land use planning (e.g. by LCDCs and Shires) to include remnant vegetation conservation with other conservation planning;
- arrange for the continued support and integration of other State and Federal conservation programmes (e.g. State Landcare Programme, Federal Save the Bush Program);
- improve the co-ordination and consistency of application of regulations in various Acts relating to the clearing of native vegetation; and
- provide and promote information on the need for and benefits of native vegetation conservation.

6. Conclusions

- The RVPS has proved to be a cheap, popular and effective means of protecting areas of 'significant' remnant vegetation.
- During the three years of its operation it has protected 21,061 ha of remnant vegetation at an average cost of around $54/ha. This total is made up of 470 separate grants.
- The Central Wheatbelt Region is the area in which most vegetation has been protected (57%) and to which the majority of grants have been directed.
- During its term there has been a substantial improvement in community attitudes and actions towards conserving remnant native vegetation. The RVPS has probably contributed to this change in attitude.
- Despite the progress made, there is still an enormous amount of remnant vegetation that can and should be protected.
- Increased efficiencies are possible in future if the Scheme declares a preference for larger areas of remnant vegetation.
- Land conservation values of remnants may be improved by increasing their effective size through revegetation, or by increasing their linkage with other remnant areas. Means of achieving these improvements, such as catchment and other planning, should be encouraged.
- The demand for assistance from the RVPS remains high and a large number of requests for the continuation of the RVPS have been received in recent months by the Minister for Agriculture.
- Despite some demands for alterations to the RVPS, there is insufficient justification to warrant substantial changes.

- There is now a real need to sustain and build on the progress made over the past three years. The number of land owners assisted and the size of the area protected are minuscule in terms of the total number of land users and total area that needs protection. Although illustrative of changed attitudes, the WAFF survey and Greening Australia data are neither firm enough nor substantial enough for real confidence to be placed on the permanence and extent of attitude changes. This is particularly so in a difficult rural economy where financial imperatives will tend to reduce the investment in remnant protection.

- The RVPS needs to be complemented by other Government and community action, such as that recommended by the RVSC report, for effective, lasting conservation of the State's important remnant native vegetation.

List of Appendices

NOMINATION FORM - REGION NO. 1 CENTRAL WHEATBELT

Remnant Vegetation Protection Scheme

GENERAL INFORMATION

Completed applications must be submitted to the local Land Conservation District Committee or, where there is no Land Conservation District, the nearest office of the Department of Agriculture.

Vegetation remnants less than 5 hectares in area will not be accepted unless they contain declared rare flora or fauna

Only one remnant area is to be nominated per nomination form

You may submit as many applications as you wish provided only one remnant is described on each form

Successful applicants under the Scheme will enter into a Heritage Agreement to manage protected remnants as native vegetation for 30 years. The Heritage Agreement will be registered on the land title for that period.

Descriptions of the four Regions used for the Remnant Vegetation Protection Scheme are provided in Appendix 1.

Section A

This section is to be completed by the land owner.

Name(s): _____

Postal address: _____

Telephone No.: _____

Location of vegetation remnant: attach a plan showing location of remnant, fenced boundaries (if any), and boundaries proposed for fencing. Please include a recognized land mark, such as a road, in your plan if this is possible.

Distance and direction from nearest town: _____

Location No.(s) of remnant: _____

Land District: _____

Local Authority: _____

Land Conservation District: _____

Area of remnant vegetation (hectares): _____

Length of fencing required to isolate remnant vegetation (km): _____

Type of fencing to be used (specify type 1, 2, 3 or 4 from Appendix 3): _____

Signature of land owner(s): Name _____ Date _____

QUESTION 1:

Have plants or animals declared as rare and endangered been recorded (contact nearest CALM office if unsure) in the remnant area? Yes/No
Circle the appropriate answer.

QUESTION 2:

Is the area, or part of it, seriously degraded - for example by grazing, mining, timber cutting, rubbish dumping? Yes/No
Circle the appropriate answer

If "Yes", specify which of the following apply, and estimate the area falling into each of the categories.

Area of:

2.1 Woodland with less than 5 species of native plants under the tree canopy (grased or salt-affected vegetation). ___ ha

2.2 Rubbish dump, gravel mine, or sand mine. ___ ha

2.3 Shrublands with a canopy cover less than 20%, and a ground cover of native herbs, sedges and mosses less than 30% (grased or salt-affected vegetation). ___ ha

2.4 Granite rock which has been grased and/or for which there is less than 10 metres of fringing vegetation. ___ ha

2.5 Cleared land, or land which has been cleared. ___ ha

2.6 Other (specify): _____ ___ ha

The aim of the following Questions (3 to 6 inclusive) is to describe the vegetation types growing on your remnant area. Vegetation types are described according to the tallest layer of vegetation. *For example*, vegetation consisting of trees growing over shrubs is defined as woodland; shrub country, with no or very scattered trees, is called shrubland. *Read through the attached glossary for more details.*

For each of the vegetation types you have in your remnant, please estimate their area in hectares and write this in the space provided.

Areas of degraded vegetation given in Question 2 should not be included in Questions 3 to 6.

QUESTION 3: *(This defines Class 4 Vegetation)*

Does the remnant area contain:

3.1 Wetlands consisting of samphire flats? ___ ha

3.2 Wetlands consisting of unvegetated salt pans? ___ ha

3.3 Wetlands consisting of creek lines with fewer than five species of native plants? ___ ha

QUESTION 4: *(This defines Class 3 Vegetation)*

Does the remnant area contain:

4.1 Woodlands or forests of jarrah, marri, brown mallet or sheoak? ___ ha

4.2 Mallee on poor soils, such as sand or gravel? ___ ha

4.3 Shrublands of wodjil, tamma or broombush? ___ ha

QUESTION 5: *(This defines Class 2 Vegetation)*

Does the remnant area contain:

5.1 Woodlands of wandoo, powder bark wandoo, silver mallet or blue mallet? ___ ha

5.2 Mallee on fertile soils such as clay or loam? ___ ha

5.3 Shrublands on gravel soils (excluding those listed under 4.3)? ___ ha

5.4 Vegetation on granite outcrops? ___ ha

QUESTION 6: *(This defines Class 1 Vegetation)*

Does the remnant area contain:

6.1 Woodlands or forests other than those listed above, such as banksia or salmon gum woodland? ___ ha

List the main tree species _____

_____

6.2 Shrublands on sandy soils? ___ ha

6.3 Freshwater wetlands with fringing vegetation greater than *20 metres* wide? ___ ha

6.4 Brackish wetlands with fringing, undegraded vegetation more than 100 metres wide? ___ ha

6.5 Vegetation on greenstone or quartzite outcrops? ___ ha

QUESTION 7:

Describe in your own words the value of this remnant in preventing *land* degradation (for example salinization, erosion and waterlogging). Is there any other relevant information not given under Questions 1-6 above?

_____

_____

_____

_____

Section B

This section is to be completed by the Land Conservation District Committee, or, where such a Committee does not exist, by the Officer in Charge of the District Office of the Department of Agriculture.

1. *The Land Conservation District* Committee or the Officer in Charge (strike out whichever does not apply), has reviewed the application by:

   Name(s) _____ *Location No(s)* _____

2. In this remnant, what is the total area of:

   (a) Class 1 vegetation? ___ ha

   (b) Class 2 vegetation? ___ ha

   (c) Class 3 vegetation? ___ ha

   (d) Class 4 vegetation? ___ ha

   (e) Degraded land? ___ ha

3. What is the total area of the remnant? ___ ha

Questions 2 to 3 enable you to assess the nature conservation value of the remnant. The better the class of vegetation, and the larger the undisturbed area of the remnant, the higher its nature conservation value. If other remnants are of equivalent nature conservation value, then rank them on the basis of the following two questions.

4. In comparison with other nominations from your District, is the area of high, medium or low soil conservation value? (Circle the most appropriate answer) high/medium/low

5. Divide the length (in kilometres) of required fencing, by the area (in hectares) of the remnant. What is the answer you get? _____

   Note The smaller the answer the more cost-effective the fencing.

For areas of equal nature conservation value, rank them according to soil conservation value and the cost-effectiveness of fencing.

6. The local rank for this remnant is _____ out of a total of _____.

7. Special comments by the Committee or the Officer in Charge.

   _____

   _____

Signed _____

Position _____

NOMINATION FORM - REGION NOS 2 AND 3, NORTHERN AND SOUTHERN SANDPLAINS

Remnant Vegetation Protection Scheme

GENERAL INFORMATION

Completed applications must be submitted to the local Land Conservation District Committee or, where there is no Land Conservation District, the nearest office of the Department of Agriculture

Vegetation remnants less than 5 hectares in area will not be accepted unless they contain declared rare flora or fauna

Only one remnant area is to be nominated per nomination form.

You may submit as many applications as you wish provided only one remnant is described on each form

Successful applicants under the Scheme will enter into a Heritage Agreement to manage protected remnants as native vegetation for 30 years. The Heritage Agreement will be registered on the land title for that period

Descriptions of the four Regions used for the Remnant Vegetation Protection Scheme are provided in Appendix 1

Section A

This section is to be completed by the land owner.

Name(s): _____

Postal address: _____

Telephone No.: _____

Location of vegetation remnant: attach a plan showing location of remnant, fenced boundaries (if any), and boundaries proposed for fencing. Please include a recognised land mark, such as a road, in your plan if this is possible.

Distance and direction from nearest town: _____

Location No.(s) of remnant: _____

Land District: _____

Local Authority: _____

Land Conservation District: _____

Area of remnant vegetation (hectares): _____

Length of fencing required to isolate remnant vegetation (km): _____

Type of fencing to be used (specify type 1, 2, 3 or 4 from Appendix 3): _____

Signature of land owner(s): *Name* _____ Date _____

QUESTION 1:

Have plants or animals declared as rare and endangered been recorded (contact nearest CALM office if unsure) in the remnant area? Yes/No
Circle the appropriate answer.

QUESTION 2:

Is the area, or part of it, seriously degraded - for example by grazing, mining, timber cutting, rubbish dumping? Yes/No
Circle the appropriate answer.

If "Yes", specify which of the following apply, and estimate the area falling into each of the categories.

Area of:

2.1 Woodland with less than 5 species of native plants under the tree canopy (grazed or salt-affected vegetation). ___ ha

2.2 Rubbish dump, gravel mine, or sand mine. ___ ha

2.3 Shrublands with a canopy cover less than 20%, and a ground cover of native herbs, sedges and mosses less than 30% (grazed or salt-affected vegetation). ___ ha

2.4 Granite rock which has been grazed and/or for which there is less than 10 metres of fringing vegetation. ___ ha

2.5 Cleared land, or land which has been cleared. ___ ha

2.6 Other (specify): _____ ___ ha

The aim of the following Questions (3 to 6 inclusive) is to describe the vegetation types growing on your remnant area. Vegetation types are described according to the tallest layer of vegetation. For example, vegetation consisting of trees growing over shrubs is defined as woodland; shrub country, with no or very scattered trees, is called shrubland. Read through the attached glossary for more details.

For each of the vegetation types you have in your remnant, please estimate their area in hectares and write this in the space provided.

Areas of degraded vegetation given in Question 2 should not be included in Questions 3 to 6.

QUESTION 3: *(This defines Class 4 Vegetation)*

Does the remnant area contain:

3.1 Wetlands consisting of samphire flats? ___ ha

3.2 Wetlands consisting of unvegetated salt pans? ___ ha

3.3 Wetlands consisting of creek lines with fewer than five species of native plants? ___ ha

Appendix 1. (continued)

QUESTION 4: *(This defines Class 3 Vegetation)*

Does the remnant area contain:

4.1 Woodlands or forests of jarrah, marri, banksia, woody pear, brown mallet or sheoak? ___ ha

4.2 Mallee on poor soils such as sand or gravel? ___ ha

4.3 Shrublands of wodjil, tamma or broombush? ___ ha

4.4 Shrublands on sandy soils? ___ ha

QUESTION 5: *(This defines Class 2 Vegetation)*

Does the remnant area contain:

5.1 Woodlands of powder bark wandoo, silver mallet, blue mallet or wandoo? ___ ha

5.2 Mallee on fertile soils such as clay or loam? ___ ha

5.3 Shrublands on gravel soils (excluding those listed under 4.3)? ___ ha

5.4 Vegetation on granite outcrops? ___ ha

QUESTION 6: *(This defines Class 1 Vegetation)*

Does the remnant area contain:

6.1 Woodlands or forests <u>other than those</u> listed above, such as salmon gum woodland? ___ ha

List the main tree species _____

_____

6.2 Freshwater wetlands with fringing vegetation greater than 20 metres wide? ___ ha

6.3 Brackish wetlands with fringing, undegraded vegetation more than 100 metres wide? ___ ha

6.4 Vegetation on greenstone or quartzite outcrops? ___ ha

QUESTION 7:

Describe in your own words the value of this remnant in preventing land degradation (for example salinization, erosion and waterlogging). Is there any other relevant information not given under Questions 1-6 above?

_____

_____

_____

_____

Section B

This section is to be completed by the Land Conservation District Committee, or, where such a Committee does not exist, by the Officer in Charge of the District Office of the Department of Agriculture.

1. The Land Conservation District Committee or the Officer in Charge (strike out whichever does not apply), has reviewed the application by:

   Name(s) _____ Location No(s) _____

2. *In this remnant*, what is the total area of:

   (a) Class 1 vegetation? ___ ha

   (b) Class 2 vegetation? ___ ha

   (c) Class 3 vegetation? ___ ha

   (d) Class 4 vegetation? ___ ha

   (e) Degraded land? ___ ha

3. What is the total area of the remnant? ___ ha

Questions 2 to 3 enable you to *assess* the nature conservation value of the remnant. The better the class of vegetation, and the larger the undisturbed area of the *remnant*, the higher its nature conservation value. If other remnants are of equivalent nature conservation value, then rank them on the basis of the following two questions.

4. In comparison with other nominations from your District, is the area of high, medium or low soil conservation value? (Circle the most appropriate answer) high/medium/low

5. Divide the length (in kilometres) of required fencing, by the area (in hectares) of the remnant. What is the answer you get? _____

   <u>Note</u> The smaller the answer the more cost-effective the fencing.

For areas of equal nature conservation value, rank them according to soil conservation value and the cost-effectiveness of fencing.

6. The local rank for this remnant is _____ out of a total of _____.

7. *Special comments* by the Committee or the Officer in Charge.

   _____

   _____

Signed _____

Position _____

Appendix 1. (continued)

NOMINATION FORM - REGION NO. 4, FOREST

Remnant Vegetation Protection Scheme

GENERAL INFORMATION

Completed applications must be submitted to the local Land Conservation District Committee or, where there is no Land Conservation District, the nearest office of the Department of Agriculture.

Vegetation remnants less than 5 hectares in area will not be accepted unless they contain declared rare flora or fauna

Only one remnant area is to be nominated per nomination form

You may submit as many applications as you wish provided only one remnant is described on each form.

Successful applicants under the Scheme will enter into a Heritage Agreement to manage protected remnants as native vegetation for 30 years. The Heritage Agreement will be registered on the land title for that period.

Descriptions of the four Regions used for the Remnant Vegetation Protection Scheme are provided in Appendix 1

Section A

This section is to be completed by the land owner.

Name(s): _____

Postal address: _____

Telephone No.: _____

Location of vegetation remnant: attach a plan showing location of remnant, fenced boundaries (if any), and boundaries proposed for fencing. Please include a recognized land mark, such as a road, in your plan if this is possible.

Distance and direction from nearest town: _____

Location No.(s) of remnant: _____

Land District: _____

Local Authority: _____

Land Conservation District: _____

Area of remnant vegetation (hectares): _____

Length of fencing required to isolate remnant vegetation (km): _____

Type of fencing to be used (specify type 1, 2, 3 or 4 from Appendix 3): _____

Signature of land owner(s): Name _____ Date _____

QUESTION 1:

Have plants or animals declared as rare and endangered been recorded (contact nearest CALM office if unsure) in the remnant area? Yes/No
Circle the appropriate answer

QUESTION 2:

Is the area, or part of it, seriously degraded - for example by grazing, mining, timber cutting, rubbish dumping? Yes/No
Circle the appropriate answer.

If "Yes", specify which of the following apply, and estimate the area falling into each of the categories.

Area of:

2.1 Woodland with less than 5 species of native plants under the tree canopy (grazed or salt-affected vegetation). ___ ha

2.2 Rubbish dump, gravel mine, or sand mine. ___ ha

2.3 Shrublands with a canopy cover less than 20%, and a ground cover of native herbs, sedges and mosses less than 30% (grazed or salt-affected vegetation). ___ ha

2.4 Granite rock which has been grazed and/or for which there is less than 10 metres of fringing vegetation. ___ ha

2.5 Cleared land, or land which has been cleared. ___ ha

2.6 Other (specify): _____ ___ ha

The aim of the following Questions (3 to 6 inclusive) is to describe the vegetation types growing on your remnant area. Vegetation types are described according to the tallest layer of vegetation. For example, vegetation consisting of trees growing over shrubs is defined as woodland; shrub country, with no or very scattered trees, is called shrubland. Read through the attached glossary for more details.

For each of the vegetation types you have in your remnant, please estimate their area in hectares and write this in the space provided.

Areas of degraded vegetation given in Question 2 should not be included in Questions 3 to 6.

QUESTION 3: *(This defines Class 4 Vegetation)*

Does the remnant area contain:

3.1 Woodland or forest of jarrah? ___ ha

3.2 Wetlands consisting of unvegetated salt pans? ___ ha

3.3 Wetlands consisting of creek lines with fewer than five species of native plants? ___ ha

Appendix 1. (continued)

QUESTION 4: *(This defines Class 3 Vegetation)*

Does the remnant area contain:

4.1 Woodlands of forest of powder bark wandoo, marri, wandoo, Albany blackbutt (*Eucalyptus staeri*), or sheoak? ___ ha

4.2 Shrublands or sedgelands on wet flats? ___ ha

4.3 Shrublands on coastal sand dunes? ___ ha

QUESTION 5: *(This defines Class 2 Vegetation)*

Does the remnant area contain:

5.1 Woodlands or forest of karri, tuart or yate? ___ ha

5.2 Shrublands on gravel or clay soils ___ ha

QUESTION 6: *(This defines Class 1 Vegetation)*

Does the remnant area contain:

6.1 Woodlands or forests other than those listed above? ___ha

List the main tree species _____

_____

6.2 Mallee vegetation (except for *mallee form of jarrah*)? ___ ha

6.3 Freshwater wetlands with fringing vegetation greater than 20 metres wide? ___ ha

6.4 Brackish wetlands with fringing, undegraded vegetation more than 100 metres wide? ___ ha

6.5 Vegetation on granite outcrops? ___ ha

6.6 Vegetation on greenstone or quartzite outcrops? ___ ha

QUESTION 7:

Describe in your own words the value of this remnant in preventing land degradation (for example salinization, erosion and waterlogging). Is there any other relevant information not given under *Questions* 1-6 above?

_____

_____

_____

_____

Section B

This section is to be completed by the Land Conservation District Committee, or, where such a Committee does not exist, by the Officer in Charge of the District Office of the Department of Agriculture.

1. The Land Conservation District Committee or the Officer in Charge (strike out whichever does not apply), has reviewed the application by:

   Name(s) _____ Location No(s) _____

2. In this remnant, what is the total area of:

   (a) Class 1 vegetation? ___ ha

   (b) Class 2 vegetation? ___ ha

   (c) Class 3 vegetation? ___ ha

   (d) Class 4 vegetation? ___ ha

   (e) Degraded land? ___ ha

3. What is the total area of the remnant? ___ ha

Questions 2 to 3 enable you to assess the nature conservation value of the remnant. The better the class of vegetation, and the larger the undisturbed area of the remnant, the higher its nature conservation value. If other remnants are of equivalent nature conservation value, then rank them on the basis of the following two questions.

4. In comparison with other *nominations from* your District, is the area of high, medium or low soil conservation value? (Circle the most appropriate answer) high/medium/low

5. Divide the length (in kilometres) of required fencing, by the area (in hectares) of the remnant. What is the answer you get? _____

   Note The smaller the answer the more cost-effective the fencing.

For areas of equal nature conservation value, rank them according to soil conservation value and the cost-effectiveness of fencing.

6. The local rank for this remnant is _____ out of a total of _____.

7. Special comments by the Committee or the Officer in Charge.

   _____

   _____

Signed _____

Position _____

Appendix 2.

RVPS Fence Type Specifications

Type 1 – Standard sheep

- At least six or seven line hinged joint/ringlock.
- Plus one line of barb at top (optional).
- Steel posts at ten metre spacings.
- Strainers at corners.
- Minimum fence height one metre.

Type 2 – Standard cattle

- Six line hinged joint/ringlock.
- Plus one line high tensile barb at top.
- Steel droppers at five metre spacings.
- Steel posts at ten metre spacings.
- Strainers at corners.
- Minimum fence height one metre.

Type 3 – Suspension fencing

- Six line hinged joint/ringlock.
- Plus one line high tensile barb at top.
- Steel droppers at five metre spacings.
- Steel posts at twenty metre spacings.
- Strainers at corners.
- Minimum fence height one metre.

Type 4 – Electric fencing

- Four or five wire (Tyeasy/permelec); alternate earth/live from bottom to top wires.
- Droppers at ten metre spacings.
- Post at thirty metre spacings.
- Strainers at corners.
- Minimum fence height one metre.

AGREEMENT TO FENCE REMNANT VEGETATION

THIS AGREEMENT is made the day of , 1991

BETWEEN

THE DIRECTOR GENERAL OF AGRICULTURE acting in his capacity as THE CHIEF EXECUTIVE OFFICER OF THE DEPARTMENT OF AGRICULTURE (the "Director General"), a body corporate duly authorised under the provisions of the Agriculture Act 1988, having its office situated at 3 Baron-Hay Court, South Perth, in the State of Western Australia, on the one part

and

The person whose name and address and, if a natural person, occupation, appears in Item 1 of the First Schedule (in this context referred to as the "Agent") of the other part.

FOR THE PURPOSE OF erecting or causing to be erected sufficient fencing of a type nominated in the First Schedule (Item 3) and specified in the Second Schedule to protect the remnant vegetation on land situated in the State of Western Australia as specified in the Third Schedule.

NOW THIS DEED WITNESSES AS FOLLOWS:

1.0 Payment of Fencing Subsidy

The Director General shall, on or before the twenty first day of June, 1991, pay to the Agent a sum of money in Australian dollars calculated by multiplying the length of fencing to be erected as specified in Item 2 of the First Schedule to this Agreement,
by a factor of $1,050/km for fence type 1,
by a factor of $1,150/km for fence type 2,
by a factor of $1,100/km for fence type 3,
by a factor of $ 700 /km for fence type 4,
for the fence type specified in Item 3 of the First Schedule to this Agreement.

2.0 Responsibility of the Agent

2.1 The Agent shall before November 30, 1991 erect or cause to be erected a stockproof fence of a standard equal, or deemed by the Director General to be equivalent to the fence type nominated in Item 3 of the First Schedule and specified in the Second Schedule to this Agreement, such a fence to be erected at locations nominated in Item 1 of the First Schedule and specified in the Third Schedule to this Agreement.

2.2 The Agent shall maintain or cause to be maintained the said fencing in a condition equivalent to that when it was installed, for a minimum period of thirty years from the date of this Agreement.

2.3 In the event that the Agent sells, leases or otherwise relinquishes occupation rights to the land upon which the said fence has been erected, the Agent shall advise the incoming occupier in writing of all the obligations under this Agreement.

2.4 If for any reason whatsoever the Agent is unable to erect the said fence in accordance with the Schedules, he shall so advise the Director General and shall forthwith return to the Director General all moneys received in accordance with Clause 1.0 of this Agreement.

3.0 Recovery of Uncommitted Moneys

Where the Agent has failed to erect or cause to have erected the said fence and has failed to return the required moneys in accordance with Clause 2.4, the Director General may recover such moneys in a competent Court of Jurisdiction in and under the laws of the State of Western Australia.

4.0 Inspection of Fencing

The Director General may at any reasonable time inspect the fencing required to be erected under this Agreement to determine its condition and may cause repair and maintenance action to be taken if necessary and such action is to be at the expense of the agent.

5.0 Delegation

The Director General is hereby authorised to delegate all or any of his powers and responsibilities under this Agreement to an officer or to officers of the Western Australian Department of Agriculture or to any other person.

EXECUTED BY THE PARTIES:

The DIRECTOR GENERAL to sign

THE COMMON SEAL of THE CHIEF EXECUTIVE OFFICER of THE DEPARTMENT OF AGRICULTURE was affixed to this contract by the current Director General of Agriculture in the presence of:)

WITNESS _____

ADDRESS _____

The AGENT to sign in one of the sections below:

SIGNED by The Agent in the presence of:)

WITNESS _____

ADDRESS _____

OCCUPATION _____

Or, if The AGENT is a company

THE COMMON SEAL of The Agent was affixed to this contract by authority of the Directors in the presence of:)

WITNESS _____

ADDRESS _____

Appendix 3. (continued)

Appendix 4.

Remnant Vegetation Protection Scheme

Survey Data Collection

Contract No.: _____ Date of Survey: _____

Recorder: _____

Fence Type: _____

Stockproof Fence?: Yes/No (Strike out inapplicable)

Corrections to Remnant Map:

If no fence present continue with survey regardless.

Transect details: Select a reference point which is permanent. This may be a fence corner or some other feature.

Reference Point (Description) _____

_____

(Marked on Map): Yes/No (Strike out inapplicable)

From the reference point give both Distance in metres and compass bearing to starting point of transect: _____

For the transect give bearing and length from first post: _____ (m)

Vegetation Community Classification: _____

Film No.: _____ Exposure Nos. _____

General Condition of Remnant

- Activity of fauna (Strike out inapplicable)
  - Does remnant show evidence of grazing Yes/No
  - If "Yes"
  - Is faecal pattern indicative of activity by: (Tick)

Kangaroos	☐
Rabbits	☐
Sheep	☐
Cattle	☐
Other fauna	☐

- Are faeces recent? Yes/No
- Are burrows present Yes/No

  and showing signs of recent activity? Yes/No

- Other land condition information
  - Is there evidence of fire in last five years? Yes/No

    If yes, how much covered? _____
  - Has rubbish been dumped on remnant in last five years and/or since last inspection? Yes/No
  - Has timber been cut from the remnant in last five years and/or since last inspection? Yes/No
  - Has gravel been extracted from the remnant in last five years and/or since last inspection? Yes/No

Is there invasion of grasses or weeds? Yes/No

If "Yes", _____ (degrees) _____ (m)
bearing and distance from transect.

Brief Comments on grasses and/or weeds _____

_____

Is there evidence of salinity? Yes/No

If "Yes", _____ (degrees) _____ (m)
bearing and distance from transect.

Brief Comments on salinity _____

_____

Is there evidence of water erosion? Yes/No

If "Yes", _____ (degrees) _____ (m)
bearing and distance from transect.

Brief Comments on water erosion _____

_____

Any other observations on the condition of the remnant not covered above, e.g. trees with dead tops (dieback); patches of dead trees etc.: _____

_____

Appendix 5.

5(a) Financial Statement of RVPS and Related Expenditure 1988/89

Activity	Source of funds			
	Agriculture	CALM	Curtin University	RVPS
1. Publicity and promotion				
° Printing (nomination forms, pamphlets, posters, Certificates of Covenant, postage)	1,267	–	–	180
– salaries	–	–	–	1,764
– materials				
° Publicity and promotion (advertisements, press articles, radio interviews)	1,131	–	–	–
– salaries	810	–	–	–
– travelling				
2. Assessment and administration				
– salaries	5,492	20,000	–	–
– travelling	280	2,563	–	–
3. Grant contracts and memorials				
– salaries	8,913	–	–	–
– materials	–	–	–	123
4. Monitoring	–	–	–	–
(Survey maps, data collection, data analysis, data capture)				
5. Fencing grants	–	–	–	285,880
Totals	17,893	22,563	–	287,947

Appendix 5. (continued)

5(b) Financial Statement of RVPS and Related Expenditure 1989/90

Activity	Source of funds			
	Agriculture	CALM	Curtin University	RVPS
1. Publicity and promotion				
° Printing (nomination forms, pamphlets, posters, Certificates of Covenant, postage)				
– salaries	2,000	–	–	160
– materials	–	–	–	4,102
° Publicity and promotion (advertisements, press articles, radio interviews)				
– salaries	1,727	–	–	–
– travelling	810	–	–	3,333
2. Assessment and administration				
– salaries	10,276	21,000	–	–
– travelling	280	2,650	–	–
3. Grant contracts and memorials				
– salaries	7,810	–	–	–
– materials	–	–	–	705

Appendix 5. (continued)

5(b) Financial Statement of RVPS and Related Expenditure 1989/90 (continued)

Activity	Source of funds			
	Agriculture	CALM	Curtin University	RVPS
4. Monitoring				
(Survey maps, data collection, data analysis, data capture)				
° Initial survey				
– Data collection analysis				
– salaries			28,500	23,897
– Supply of maps, data capture, materials, vehicle				
– salaries				
– travelling (vehicle hire, fuel)	10,518	–	2,000	1,603
– materials (film, fence posts)	1,680	–	–	880
– capital (computer software, maintenance)	–	–	–	1,290
	–	–	–	5,945
5. Fencing grants	–	–	–	445,350
Totals	35,110	23,750	30,500	487,265

Appendix 5. (continued)

5(c) Financial statement of RVPS and Related Expenditure 1990/91

Activity	Source of funds			
	Agriculture	CALM	Curtin University	RVPS
1. Publicity and promotion				
° Printing (nomination forms, pamphlets, posters, Certificates of Covenant, postage)				
– salaries	2,049	–	–	800
– materials	–	–	–	3,498
° Publicity and promotion (advertisements, press articles, radio interviews)				
– salaries				
– travelling	1,769	–	–	–
	545	–	–	–
2. Assessment and administration				
– salaries	10,533	22,155	–	–
– travelling	310	2,845	–	–
3. Grant contracts and memorials				
– salaries	8,015	–	–	–
– materials	–	–	–	560

Appendix 5. (continued)

5(c) Financial statement of RVPS and Related Expenditure 1990/91 (continued)

Activity	Funds			
	Agriculture	CALM	Curtin University	RVPS
4. Monitoring				
(Survey maps, data collection, data analysis, data capture)				
° Initial survey				
– Data collection analysis				
– salaries			29,925	55,615
– Supply of maps, data capture, materials, vehicle				
– salaries	10,162	–	2,300	3,611
– travelling (vehicle hire, fuel)	1,745	–	–	3,074
– materials (film, fence posts)	–	–	–	1,594
° Land user monitoring records (supply)				
– labour (Design administration)				
– materials (folders, inserts, photographs)	592	–	–	–
	–	–	–	784
5. Fencing grants	–	–	–	425,799
Totals	35,720	25,000	32,225	495,335

Appendix 6.

Timeline of RVPS Administration

Task	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
• Publicity and Promotion												
– Printing (nomination forms, pamphlets, posters, certificates)					———							
– Publicity and promotion (press releases, advertising, interviews, seminars)							———					
• Administration and Assessments												
– Correspondence, database and financial control	----	———		----	----	----------	----------	----------	----------	----------	----------	----------
	--			--	-	----------	----------	----------	----------	----------		
– Agreements (printing, maps, signatures of both parties, drawing and distribution of cheques)		———	———									
– Memorials/Covenants (printing, GIS maps, title deeds)				———								
• Monitoring												
– Monitoring records (photos, survey data, guidelines, folder supply, collation, distribution)								———	———			
– Field survey (contract, survey requisites, vehicle supply, site maps, database records, correspondence)								———	———			
– Survey (Curtin Uni–data collection, analysis)	———								———	———	———	———
• Assessments (LCDCs CALM, SLCC, Ministerial approval)	———									———	———	———

Appendix 7.

7(a) Region 1. Summary of RVPS Areas, Fence Length and Grants in each Shire

Shire	Totals				Averages		
	Grants (No.)	Area (ha)	Fence length (km)	Grants ($)	Area (ha) [± SD]	Fence length (km) [± SD]	Grant ($) [± SD]
Beverley	5	280	13.9	13,420	56.0 [± 91.9]	2.8 [± 1.4]	2,684 [± 1,157]
Boddington	1	46	3.1	3,565	46.0 [na]	3.1 [na]	3,565 [na]
Boyup Brook	2	23	3.7	3,885	11.5 [na]	1.9 [na]	1,943 [na]
Brookton	1	16	0.7	560	16.0 [na]	0.7 [na]	560 [na]
Broomehill	3	51	4.6	4,180	17.0 [± 12.1]	1.5 [± 0.9]	1,393 [± 886]
Bruce Rock	13	467	19.3	18,690	35.9 [± 40.9]	1.5 [± 0.9]	1,438 [± 897]
Corrigin	9	567	14.1	13,231	63.0 [± 100.8]	1.6 [± 1.0]	1,470 [± 1,060]
Cranbrook	4	592	15.0	12,250	148.0 [± 136.0]	3.8 [± 1.9]	3,063 [± 1,431]
Cuballing	3	85	3.2	2,910	28.3 [± 21.7]	1.1 [± 0.3]	970 [± 286]
Cunderdin	5	89	6.5	6,758	17.7 [± 13.1]	1.3 [± 0.9]	1,352 [± 945]
Dalwallinu	3	35	4.1	3,830	11.7 [± 3.8]	1.4 [± 0.8]	1,277 [± 917]
Dowerin	1	40	2.5	2,760	40.0 [na]	2.5 [na]	2,760 [na]
Dumbleyung	10	307	23.0	22,808	30.7 [± 23.7]	2.3 [± 1.6]	2,281 [± 1,679]
Gnowangerup	18	4,652	43.8	44,688	25.8 [± 29.1]	2.4 [± 2.0]	2,483 [± 2,109]
Goomalling	4	234	15.3	14,815	58.5 [± 21.1]	3.8 [± 1.3]	3,704 [± 726]

Appendix 7. (continued)

7(a) Continued

Shire	Totals				Averages		
	Grants (No.)	Area (ha)	Fence length (km)	Grants ($)	Area (ha) [± SD]	Fence length (km) [± SD]	Grant ($) [± SD]
Katanning	1	50	0.5	550	50.0 [na]	0.5 [na]	550 [na]
Kellerberrin	14	398	29.0	27,224	28.4 [± 28.5]	2.1 [± 1.6]	1,945 [± 1,501]
Kent	15	775	48.2	45,715	51.7 [± 46.2]	3.2 [± 1.8]	3,048 [± 1,469]
Kojonup	2	45	7.2	5,760	22.5 [na]	3.6 [na]	2,880 [na]
Kondinin	15	902	36.8	37,525	60.1 [± 33.9]	2.5 [± 33.9]	2,502 [± 33.9]
Koorda	4	624	14.3	11,890	156.0 [± 101.0]	3.6 [± 1.2]	2,973 [± 746]
Kulin	24	633	44.9	47,375	26.4 [± 42.1]	1.9 [± 1.8]	1,974 [± 1,883[
Lake Grace	61	1,609	124.9	128,365	26.4 [± 24.7]	2.1 [± 1.6]	2,104 [± 1,563]
Merredin	6	128	12.4	12,545	21.3 [± 12.5]	2.1 [± 0.8]	2,091 [± 883]
Mt Marshall	8	730	21.3	22,365	9.1 [± 128.3]	2.7 [± 1.1]	2,796 [± 1,156]
Mukinbudin	2	65	8.0	8,400	32.5 [na]	4.0 [na]	4,200 [na]
Narembeen	2	57	5.1	5,355	28.5 [na]	2.6 [na]	2,678 [na]
Narrogin	3	125	7.7	6,535	41.7 [± 23.1]	2.6 [± 1.4]	2,178 [± 1,023]
Northam	2	45	4.5	4,650	22.5 [na]	2.3 [na]	2,325 [na]

Appendix 7. (continued)

7(a) Continued

	Totals				Averages		
Shire	Grants (No.)	Area (ha)	Fence length (km)	Grants ($)	Area (ha) [± SD]	Fence length (km) [± SD]	Grant ($) [± SD]
Plantagenet	4	167	13.8	11,000	41.8 [± 52.3]	3.4 [± 2.5]	2,750 [± 2,020]
Quairading	5	203	10.9	11,095	40.6 [± 55.9]	2.2 [± 1.6]	2,219 [± 1,725]
Teumbellup	5	367	14.3	13,265	73.4 [± 101.2]	2.9 [± 2.0]	2,653 [± 1,978]
Tammin	6	99	10.4	10,563	16.5 [± 7.2]	1.7 [± 0.8]	1,761 [± 837]
Trayning	1	45	1.9	1,995	45.0 [na]	1.9 [na]	1,995 [na]
Wagin	6	290	4.2	4,170	48.3 [± 101.4]	0.7 [± 0.2]	695 [± 184]
West Arthur	7	285	16.6	17,103	40.7 [± 29.6]	2.4 [± 2.0]	2,443 [± 2,310]
Westonia	1	28	2.0	2,100	28.0 [na]	2.0 [na]	2,100 [na]
Wickepin	13	350	27.4	24,841	26.9 [± 17.4]	2.1 [± 2.1]	1,911 [± 1,832]
Wongan-Ballidu	1	25	2.0	1,592	25.0 [na]	2.0 [na]	1,592 [na]
Woodanilling	1	24	2.0	1,600	24.0 [na]	2.0 [na]	1,600 [na]
Wyalkatchem	1	40	1.3	1,000	40.0 [± 0]	1.3 [± 0]	1,000 [± 0]
York	5	302	13.3	13,400	60.3 [± 34.3]	2.7 [± 1.8]	2,680 [± 1,990]
Grand totals and RVPS averages [± SE]	310	16,341	687.5	673,344	42.1 [± 30.0]	2.3 [± 0.8]	2,155 [± 815]

Appendix 7. (continued)

7(b) Region 2. Summary of RVPS Areas, Fence Length and Grants in each Shire

Shire	Totals				Averages		
	Grants (No.)	Area (ha)	Fence length (km)	Grants ($)	Area (ha) [± SD]	Fence length (km) [± SD]	Grant ($) [± SD]
Carnamah	4	68	5.0	5,219	17.0 [± 10.3]	1.2 [± 0.7]	1,305 [± 758]
Chapman Valley	1	25	4.0	4,200	25.0 [na]	4.0 [na]	4,200 [na]
Coorow	6	458	27.3	2,734	76.3 [± 49.5]	4.6 [± 3.7]	4,557 [± 3,982]
Dandaragan	3	166	5.9	5,570	55.3 [± 43.9]	2.0 [± 0.8]	1,857 [± 642]
Gingin	1	10	1.0	1,050	10.0 [na]	1.0 [na]	1,050 [na]
Greenough	1	40	1.3	1,040	40.0 [na]	1.3 [na]	1,040 [na]
Irwin	1	80	3.8	3,990	80.0 [na]	3.8 [na]	3,990 [na]
Mingenew	5	545	37.1	35,330	109.0 [± 86.0]	7.4 [± 4.1]	7,066 [± 2,712]
Moora	14	308	27.9	25,880	22.0 [± 13.6]	2.0 [± 1.1]	1,849 [± 830]
Morawa	8	1,110	20.8	21,663	138.8 [± 251.5]	2.6 [± 2.5]	2,708
Mullewa	4	294	14.5	14,350	73.5 [± 117.7]	3.6 [± 3.6]	3,588 [± 3,926]
Northampton	7	633	37.4	34,553	90.4 [± 141.9]	5.3 [± 6.1]	4,936 [± 5,734]
Three Springs	4	116	9.0	9,000	29.0 [± 14.6]	2.3 [± 1.0]	2,250 [± 1,162]
Victoria Plains	3	675	25.0	20,000	225.0 [± 325.2]	10.8 [± 12.4]	9,290 [± 9,436]
Grand totals and RVPS averages [± SE]	62	4,528	220.0	184,579	70.8 [± 58.4]	3.7 [± 2.7]	3,549 [± 2,396]

Appendix 7. (continued)

7(c) Region 3. Summary of RVPS Areas, Fence Length and Grants in each Shire

Shire	Totals				Averages		
	Grants (No.)	Area (ha)	Fence length (km)	Grants ($)	Area (ha) [± SD]	Fence length (km) [± SD]	Grant ($) [± SD]
Albany	3	39	6.2	7,011	13.0 [± 3.0]	2.1 [± 2.5]	2,337 [± 2,960]
Esperance	25	1,435	86.5	76,202	57.4 [± 62.5]	3.5 [± 3.2]	3,048 [± 2,490]
Jerramungup	39	1,619	117.5	101,358	41.5 [± 40.1]	3.0 [± 1.8]	2,599 [± 1,690]
Ravensthorpe	19	725	45.3	39,875	38.2 [± 37.4]	2.4 [± 1.0]	2,099 [± 835]
Grand totals and RVPS averages [± SE]	86	3,818	255.5	224,446	37.5 [± 18.4]	2.8 [± 0.6]	2,521 [± 407]

Appendix 7. (continued)

7(d) Region 4. Summary of RVPS Areas, Fence Length and Grants in each Shire

Shire	Totals				Averages		
	Grants (No.)	Area (ha)	Fence length (km)	Grants ($)	Area (ha) [± SD]	Fence length (km) [± SD]	Grant ($) [± SD]
Denmark	9	493	19.7	16,994	54.8 [± 56.3]	2.2 [± 1.7]	1,883 [± 1,329]
Manjimup	1	24	0.6	736	24.0 [na]	0.6 [na]	736 [na]
Waroona	1	9	1.0	700	9.0 [na]	1.0 [na]	700 [na]
Grand totals and RVPS averages [± SE]	11	526	21.3	18,430	29.3 [± 23.3]	1.3 [± 0.8]	1,106 [± 673]

Appendix 8.

Comparison of the Area and Size Distribution of Existing Remnant Vegetation and RVPS Protected Vegetation in the Shires of each RVPS Region

(a) Region 1

Shire	Area (ha) and number of patches of remnant vegetation [No.]				Area (ha) and number of RVPS grants [SD]		
	0–5 ha	5–50 ha	> 50 ha	Total	Total	Average	No.
Beverley	170 [144]	2,341 [136]	2,120 [20]	4,631 [300]	280	56.0 [± 91.9]	5
Boddington	n.a.	n.a	n.a	n.a.	46	46.0 [na]	1
Boyup Brook	1,965 [1,204]	5,630 [423]	7,913 [55]	15,508 [1,682]	23	11.5 [na]	2
Brookton	130 [56]	2,085 [124]	3,294 [20]	5,509 [200]	16	16.0 [na]	1
Broomehill	1,935 [2,357]	3,196 [255]	2,399 [23]	7,529 [2,635]	51	17.0 [± 12.1]	3
Bruce Rock	244 [199]	4,544 [310]	6,390 [31]	11,178 [540]	467	35.9 [± 40.9]	13
Corrigin	30 [32]	3,327 [240]	2,899 [19]	6,256 [291]	567	63.0 [± 100.8]	9
Cranbrook	1,400 [526]	12,445 [800]	41,032 [192]	54,877 [1,528]	592	148.0 [± 136.0]	4
Cuballing	499 [224]	3,054 [206]	2,381 [25]	5,925 [555]	85	28.3 [±21.7]	3
Cunderdin	77 [19]	1,903 [105]	1,504 [17]	3,514 [141]	89	17.7 [± 13.1]	5
Dalwallinu	n.a.	n.a.	n.a.	n.a.	35	11.7 [± 3.8]	3
Dowerin	266 [130]	2,488 [177]	2,182 [14]	4,936 [321]	40	40.0 [na]	1
Dumbleyung	220 [76]	6,817 [395]	19,545 [96]	26,582 [567]	307	30.7 [±23.7]	10

Appendix 8. (continued)

(a) Continued

Shire	Area (ha) and number of patches of remnant vegetation [No.]				Area (ha) and number of RVPS grants [SD]		
	0–5 ha	5–50 ha	> 50 ha	Total	Total	Average	No.
Gnowangerup	93 [216]	5,357 [342]	18,627 [81]	24,076 [639]	4,652	25.8 [± 29.1]	18
Goomalling	38 [20]	3,179 [153]	7,171 [39]	10,388 [212]	234	58.5 [± 21.1]	4
Katanning	114 [149]	3,483 [260]	2,296 [23]	5,894 [432]	50	50.0 [na]	1
Kellerberrin	342 [223]	4,760 [274]	8,630 [60]	13,732 [557]	398	28.4 [± 28.5]	14
Kent	84 [105]	4,852 [309]	61,086 [77]	66,022 [491]	775	51.7 [± 46.2]	15
Kojonup	3,350 [3,224]	10,671 [734]	13,195 [103]	27,216 [4,061]	45	22.56 [na]	2
Kondinin	1,219 [818]	7,262 [486]	22,831 [125]	31,312 [1,429]	902	60.1 [± 33.9]	15
Koorda	423 [641]	4,114 [233]	11,481 [65]	16,018 [939]	624	156.0 [± 101.0]	4
Kulin	99 [34]	2,297 [148]	4,529 [32]	6,925 [214]	633	26.4 [± 42.1]	24
Lake Grace	576 [209]	14,837 [820]	302,775 [363]	318,188 [1,392]	1,609	26.4 [±24.7]	61
Merredin	279 [127]	5,592 [339]	17,814 [105]	23,685 [571]	128	21.3 [± 12.5]	6
Mt Marshall	290 [194]	5,711 [301]	21,397 [130]	27,398 [525]	730	9.1 [± 128.3]	8
Mukinbudin	39 [24]	2,829 [143]	27,413 [98]	30,281 [265]	65	32.5 [na]	2
Narembeen	687 [456]	5,628 [375]	16,057 [101]	22,372 [932]	57	28.5 [na]	2

Appendix 8. (continued)

(a) Continued

Shire	Area (ha) and number of patches of remnant vegetation [No.]				Area (ha) and number of RVPS grants [SD]		
	0–5 ha	5–50 ha	> 50 ha	Total	Total	Average	No.
Narrogin	271 [119]	3,553 [201]	5,873 [33]	9,697 [363]	125	41.7[± 23.1]	3
Northam	n.a.	n.a.	n.a.	n.a.	45	22.5 [na]	2
Nungarin	93 [50]	1,726 [83]	4,931 [30]	6,750 [163]	–	–	–
Pingelly	302 [131]	3,304 [211]	1,430 [16]	5,036 [458]	–	–	–
Plantagenet	1,004 [398]	13,469 [853]	35,035 [211]	49,508 [1,462]	167	41.8 [± 52.3]	4
Quairading	131 [68]	2,037 [133]	1,438 [15]	3,606 [216]	203	40.6 [± 55.9]	5
Tambellup	446 [315]	5,637 [354]	9,804 [65]	16,187 [734]	367	73.4 [± 101.2]	5
Tammin	98 [32]	1,360 [85]	455 [6]	1,912 [123]	99	16.5 [± 7.2]	6
Trayning	308 [223]	3,428 [198]	6,376 [53]	10,107 [474]	45	45.0 [na]	1
Wagin	46 [30]	1,367 [77]	1,369 [12]	2,784 [119]	290	48.3 [± 101.4]	6
West Arthur	n.a.	n.a.	n.a.	n.a.	285	40.7 [± 29.6]	7
Westonia	181 [66]	15,781 [322]	42,269 [133]	48,231 [521]	28	28.0 [na]	1
Wickepin	357 [123]	5,835 [367]	5,639 [44]	11,831 [534]	350	26.9 [± 17.4]	13
Wongan–Ballidu	993 [602]	4,324 [303]	3,967 [33]	9,284 [938]	25	25.0 [na]	1

Appendix 8. (continued)

(a) Continued

Shire	Area (ha) and number of patches of remnant vegetation [No.]				Area (ha) and number of RVPS grants [SD]		
	0–5 ha	5–50 ha	> 50 ha	Total	Total	Average	No.
Woodanilling	184 [164]	4,422 [370]	5,058 [38]	9,665 [522]	24	24.0 [na]	1
Wyalkatchem	193 [144]	2,141 [138]	4,974 [15]	7,308 [297]	40	40.0 [na]	1
Yilgarn	n.a.	n.a.	n.a.	n.a.	446	34.3 [± 14.5]	13
York	n.a.	n.a.	n.a.	n.a.	302	60.3 [± 34.3]	5
Totals (area) (No.)	19,176 (13,872)	196,786 (11,783)	755,579 (2,618)	961,858 (28,343)	16,341		310

n.a. – not available.

Appendix 8. (continued)

(b) Region 2

Shire	Area (ha) and number of patches of remnant vegetation [No.]				Area (ha) and number of RVPS grants [SD]		
	0–5 ha	5–50 ha	> 50 ha	Total	Total	Average	No.
Carnamah	1,047 [516]	4,109 [276]	24,867 [24]	30,013 [816]	68	17.0 [± 10.3]	4
Chapman Valley	n.a.	n.a.	n.a.	n.a.	25	25.0 [na]	1
Coorow	1,014 [46]	6,295 [414]	35,977 [110]	43,286 [984]	458	76.3 [± 49.5]	6
Dandaragan	n.a.	n.a.	n.a.	n.a.	166	55.3 [± 43.9]	3
Gingin	1,424 [865]	4,718 [333]	52,057 [96]	58,199 [1,294]	10	10.0 [na]	1
Greenough	35 [18]	2,162 [104]	11,559 [41]	13,756 [163]	40	40.0 [na]	1
Irwin	750 [284]	4,544 [277]	28,515 [73]	33,089 [634]	80	8.0 [na]	1
Mingenew	229 [139]	1,954 [115]	6,922 [43]	9,105 [297]	545	109.0 [± 86.0]	5
Moora	2,234 [1,234]	5,427 [409]	11,399 [31]	19,060 [1,674]	308	22.0 [± 13.6]	14
Morawa	993 [523]	5,545 [351]	14,899 [79]	21,437 [953]	1,110	138.8 [± 251.5]	8
Mullewa	n.a.	n.a.	n.a.	n.a.	294	73.5 [± 117.7]	4
Northampton	n.a.	n.a.	n.a.	n.a.	633	90.4 [± 141.9]	7
Three Springs	1,032 [452]	5,805 [363]	22,992 [67]	29,829 [882]	116	29.0 [± 14.6]	4
Victoria Plains	n.a.	n.a.	n.a.	n.a.	675	225.0 [± 325.2]	3
Totals (area) (No.)	8,758 (4,077)	40,559 (2,642)	209,187 (564)	257,774 (7,697)	4,528		62

n.a. – not available.

Appendix 8. (continued)

(c) Region 3

Shire	Area (ha) and number of patches of remnant vegetation [No.]				Area (ha) and number of RVPS grants [SD]		
	0–5 ha	5–50 ha	> 50 ha	Total	Total	Average	No.
Albany	276 [208]	6,625 [348]	42,631 [151]	49,532 [707]	39	13.0 [± 3.0]	3
Esperance	1,003 [898]	18,386 [1,017]	286,661 [420]	306,050 [2,344]	1,435	57.4 [± 62.5]	25
Jerramungup	211 [403]	4,678 [227]	120,725 [131]	125,614 [761]	1,619	41.5 [± 40.1]	39
Ravensthorpe	n.a.	n.a.	n.a.	n.a.	725	38.2 [± 37.4]	19
Totals (area) (No.)	1,490 (1,509)	29,689 (1,592)	450,017 (702)	481,196 (3,812)	3,818		86

n.a. – not available.

Appendix 8. (continued)

(d) Region 4

Shire	Area (ha) and number of patches of remnant vegetation [No.]				Area (ha) and number of RVPS grants [SD]		
	0–5 ha	5–50 ha	> 50 ha	Total	Total	Average	No.
Augusta–Margaret River	2,590 [1,660]	6,773 [456]	25,883 [104]	35,236 [2,220]	–	–	–
Bridgetown Greenbushes	718 [399]	2,908 [189]	3,929 [27]	7,556 [615]	–	–	–
Busselton	2,404 [1,439]	6,307 [448]	12,066 [53]	20,777 [1,940]	–	–	–
Collie	734 [462]	2,363 [258]	14,199 [41]	17,296[66 [661]	–	–	–
Dardanup	116 [43]	999 [59]	1,648 [13]	2,763 [115]	–	–	–
Denmark	n.a.	n.a	n.a.	n.a.	493	54.8 [± 56.3]	9
Donnybrook–Balingup	1,640 [968]	4,816 [348]	6,678 [58]	13,134 [1,374]	–	–	–
Manjimup	732 [426]	6,303 [338]	19,804 [109]	26,838 [897]	24	24.0 [na]	1
Nannup	1,128 [749]	3,316 [201]	15,160 [52]	19,604 [1,002]	–	–	–
Waroona	n.a.	n.a.	n.a.	n.a.	9	9.0 [na]	1
Totals (area) (No.)	10,062 (6,146)	33,785 (2,297)	99,367 (457)	143,204 (8,824)	526		11

n.a. – not available.

Appendix 9.

RVPS Grant Disbursements

9(a) General Summary of RVPS Grant Disbursements

Details	1988/89	1989/90	1990/91	Three year totals/averages
RVPS outlay ($)	290,080	435,730	410,141	1,135,951
Area protected (ha)	7,948	6,694	6,419	21,061
Cost per unit area ($/ha)	36.50	65.09	63.89	53.94
Average grant ($)	2,613	2,355	2,357	2,417
Average size (ha)	71.6	36.2	36.9	44.8
Number grants	111	185	174	470

9(b) Regional Summaries of RVPS Grant Disbursements (Standard deviations are shown in brackets)

Region and Details	1988/89	1989/90	1990/91	Three year totals/averages
Region 1				
RVPS outlay ($)	148,240	243,127	274,720	660,087
Area protected (ha)	4,215	4,296	3,579	12,090
Cost/unit area ($/ha)	35.2	56.6	76.8	56.2
Average grant ($)	2,088	2,231	2,163	2,161
	[± 1,487]	[± 1,526]	[± 1,582]	
Average size (ha)	59.4	39.4	28.2	42.3
	[± 68.5]	[± 56.7]	[± 26.4]	
Number	71	109	127	307
Region 2				
RVPS outlay ($)	71,840	74,710	70,513	217,063
Area protected (ha)	1,932	941	1,655	4,528
Cost/unit area ($/ha)	37.2	79.4	42.6	53.1
Average grant ($)	4,266	2,688	4,148	3,701
	[± 5,220]	[± 2,452]	[± 3,816]	
Average size (ha)	113.6	33.6	97.4	81.5
	[± 162.3]	[± 36.3]	[± 177.6]	
Number	17	28	17	62
Region 3				
RVPS outlay ($)	57,280	109,398	63,858	230,536
Area protected (ha)	1,413	1,313	1,168	3,894
Cost/unit area ($/ha)	40.5	83.3	54.7	59.4
Average grant ($)	3,369	2,605	2,202	2,725
	[± 2,262]	[± 1,787]	[± 1,701]	
Average size (ha)	83.1	31.3	40.3	51.6
	[± 69.9]	[± 29.0]	[± 40.0]	
Number	17	42	29	88
Region 4				
RVPS outlay ($)	12,720	8,495	1,050	22,265
Area protected (ha)	388	144	17	549
Cost/unit area ($ha)	32.8	59.0	61.8	51.2
Average grant ($)	2,120	1.416	1,050	1,529
	[± 1,543]	[± 781]	[na]	
Average size (ha)	64.7	24.0	17.0	33.9
	[± 67.6]	[± 17.8]	[na]	
Number	6	6	1	13

Appendix 10.

RVPS Telephone Survey –

(a) Localities of Respondents

Department of Agriculture	Busselton	Albany
	Pinjarra	Geraldton
	Metropolitan	Moora
	Manjimup	Merredin
	Esperance	Lake Grace
CALM:	Merredin	Geraldton
	Narrogin	Moora
	Bunbury	Esperance
	Albany	Manjimup
LCDCs	Katanning	Chapman Valley
	Boyup Brook	Ninan
	Kellerberrin	Ravensthorpe
	Kalannie	Many Peaks
	Bruce Rock	Esperance
	Wagin	Jerramungup
	Yilgarn	Manjimup
	Bibby Springs	Serpentine/Jarrahdale
	Irwin	Collie
Farmers	Beacon	Corrigin
	South Yilgarn	Jerramungup
	Newdegate	Jerdacuttup
	Woodanilling	Many Peaks
	Mingenew	Gairdner
	Coorow	Waroona
	Canna	Denmark
	Moora	Northcliffe
	Wickepin	Watheroo
	Quairading	

Appendix 10 (continued)

(b) Survey Questions

1. What do you know about the Scheme? For example,

   - 50% of total cost of fencing;
   - set aside for 30 years;
   - memorial on title;
   - various fence types;
   - annual allocation;
   - monitoring survey and management requirements.

2. Do you know where you can get applications from?

3. Do you know if any of your neighbours have applied?

   - successfully?
   - unsuccessfully?

4. Will you and your neighbours apply in the future?

5. Do you think the Scheme encourages you and your district to protect remnant vegetation? If so, why? If not, why not?

6. Do you think the Scheme has any shortcomings? If so, please name them?

7. Do you think the Scheme could do more to help land owners protect remnant vegetation? If so, please elaborate?

8. Would you like to see the Scheme continued?

10(c) Affiliations of Persons Responding to the RVPS Telephone Survey

Application	Region 1	Region 2	Region 3	Region 4	Totals
• DAWA					
– Officers in charge	2	–	1	2)	
– Advisers	3	1	1	2) –	21
– NSCP Project Officers	3	4	2	–)	
• CALM	2	2	2	2	8
• LCDC	6	4	4	4	18
• Farmer					
– Successful RVPS	5	4	3	3)	23
– Unsuccessful RVPS	2	2	2	2)	
Totals	23	17	15	15	70

10(d) RVPS Client and Agent Survey Response Patterns

Survey subject area	Number of responses (percentages)		
	DAWA	CALM	Farmers and LCDCs
• Selection criteria and assessment	5 (24%)	5 (13%)	5 (22%)
• Fencing grants	7 (33%)	1 (13%)	10 (43%)
• Management conditions and memorial	13 (62%)	1 (13%)	13 (57%)
• Management guidelines	6 (29%)	1 (13%)	3 (9%)
• Monitoring surveys	0 (0%)	1 (13%)	2 (9%)
• Publicity and promotion	12 (57%)	1 (13%)	17 (74%)
• Administration	5 (24%)	3 (38%)	8 (35%)

10(e) Summary of Responses to the RVPS Telephone Survey

Subject area and respondents' affiliation	Content of responses
• **Selection criteria and assessment**	
– Farmers and LCDCs	– minimum size of 5 ha eliminates protection of corridors; – all nominated areas should received a grant; – belief that grazed areas are ineligible; – salt lakes and other degraded areas should receive some assistance, perhaps at a lower level; – large areas to be traversed for assessments in some LCDCs is of concern; – Boyup Brook suggests inclusion in Region 1 limits successful applications from the area; prefer inclusion in Region 4.
– DAWA AND CALM officers	– selection and assessment criteria are too restrictive to interest most farmers.
• **Fencing grants**	
– Farmers and LCDCs	– more funds should be available so that a larger number of land users can be assisted; – assistance should be available retrospectively and should include replacement fencing; – grants should cover 100 per cent of materials and labour; – variations in fence type are well received.
– DAWA and CALM officers	– more funds should be available so a larger number can participate; – boundary fencing should be included; – grants should cover 100 per cent of materials and labour.
• **Management conditions and memorial**	
– Farmers and LCDCs	– restrictions on use are too severe – access during severe weather events would be helpful; – 30 year duration of agreement to "lock–up" protected areas is too long; – management of protected areas should be subject to local LCDC guidelines and inspections.

10(e) Continued

Subject area and respondents' affiliation	Content of responses
– DAWA and CALM officers	– restrictions on use are too severe – unlimited access is desired; – 30 year duration of "lock-up" is too long; – conditions (restrictions) on use of protected areas not well understood.
• **Management guidelines**	
– Farmers and LCDCs	– guidelines wanted on the management of remnants to enhance their conservation; – guidelines on what vermin control methods can be used in protected vegetation; – need to graze at all questioned.
– DAWA and CALM officers	– guidelines needed on management of weeds, vermin and fire control in protected remnants; – photographs – standards/points needed for reference/evaluation of management; – advice needed on shelter strips of trees and shrubs outside remnants; – Government agencies with land (e.g. DOLA, DPUD) need to manage their vegetation better and in same manner.
• **Monitoring surveys**	
– Farmers and LCDCs	– more than one transect is required in large patches of protected vegetation.
– DAWA and CALM officers	– photographs of vegetation needed for self monitoring by farmers/LCDCs.
• **Publicity and promotion**	
– Farmers and LCDCs	– promotion of RVPS could be done better and cheaper by co-opting and assisting LCDCs;

10(e) Continued

Subject area and respondents' affiliation	Content of responses
	– more incentives are needed to encourage land users to erect fences, e.g. tree seedlings for associated revegetation or low interest loans are needed for revegetation projects and waterways;
	– rate rebates are desirable for protected areas which are "unproductive" in terms of income;
	– poor feedback on whether conditions are being met or management is good;
	– poor feedback on successful and unsuccessful nominations; unsuccessful nominees have lost interest;
	– RVPS has achieved much and should be extended.
– DAWA and CALM officers	– publicity and promotion should better explain reasons why protection is important;
	– more information on RVPS objectives and operations required; perceived as relevant only to wheatbelt;
	– other incentives are required, e.g. tree seedlings for stock protection outside protected areas;
	– grants for fencing could cover larger distances if local conservation groups helped with fence erection;
	– promotional material should show fenced and unfenced bush;
	– poor feedback on RVPS results;
	– rate rebates should be available to land owners for protected areas.
• **Administration**	
– Farmers and LCDCs	– nomination forms are too complex;
	– district offices should have aerial photographs so LCDCs and farmers can better identify areas for RVPS;
	– forms should have a contact name and telephone number.
– DAWA and CALM officers	– prior warning of RVPS opening and closing dates would be appreciated.

Appendix 11

Monitoring Survey Botanical Data

(a) 1988/89 Protected Areas

REMNANT VEGETATION PROTECTION SCHEME 1989

BLOCK: Owners Name: Nearest Town:	DESCRIPTION	BEARD/MUIR Formula*	CANOPY LAYERS	MAIN SPECIES[%Cover/M^2]
6/89 Trans. Aust. Badgingarra	Myrtaceous Thicket (with acacia understory and ground cover of sedges)	xSc/aZr/xGi	C1:Myrtaceae 2m;Hakea 1.5m C2: Acacia 0.5m C3: Cyperaceae 0.3m	Calothamnus quadrifidus (18) Hakea costata (11) Acacia trigonophylla (5) Caustis dioica (11)
7/89 A. Tonkin Moora	Banksia Low Woodland (with myrtaceous understory and ground cover of restios)	bLc/xZr	C1: Banksia 5m C2:Myrtaceae 0.5m C3:Restionaceae 0.1m	Banksia menziesii (2) and B prionotes (19) Verticordia densiflora (20) Loxocarya flexuosa (1)
8/89 Clappin Frankland	Eucalypt Woodland (over Melaleuca thicket and annual grass understory)	eMi/eKi/mSi	C1: Eucalyptus (tree) 10m C2: Eucalyptus (mallee) C3: Melaleuca 6m C4: Poaceae etc	Eucalyptus sp #C42 (6) Eucalyptus sp #C3 (2) Melaleuca lanceolata (5) grass and annuals ground cover
9/89 Mattner Ongerup	Open Mallee Woodland (with incomplete cover, over melaleuca understory and ground cover of sedges and grasses	e_{70}Ki/mSi/xGi	C1:Eucalyptus(mallee)2m C2:Melaleuca 1.5m C3: Cyperaceae 0.3m	Eucalyptus spathulata (10) Melaleuca sparsiflora (5) Lepidosperma angustatum (6) grass ground cover
10/89 Sloan Kondinin	Salmon Gum Woodland (over Melaleuca thicket)	e_8Mi/mSr	C1: Eucalyptus 12m C2:Melaleuca 3m	Eucalyptus salmonophoia (11) Melaleuca uncinata (2)
11/89 Barber Condingup	Low Eucalypt Woodland with mixed low understory	eMi/xZi	C1:Eucalyptus 10m C2:Mixed ground cover (Myrtacceae etc) 0.1m - 0.3m	Eucalyptus sp (present in block but not recorded in th transect) Baeckia latens (2) and Goodenia spp #E78 (2) & Micrcorys spp#E82 (2)
12/89 Hall Aldersyde	Wandoo Woodland (with sedge understory)	e_5Mi/xGi	C1: Eucalyptus 10m C2: Cyperaceae 0.3m	Eucalyptus wandoo (21) Gahnia drummondii (13)
13/89 Carter Cunderdin	Wandoo Woodland (with rush understory)	e_5Mi/xGr	C1: Eucalyptus 12m C2: Restionaceae 0.2m	Eucalyptus wandoo (24) Loxocarya aspera (0.5)
14/89 Vanzetti Moora	Powder-Bark Wandoo Medium height Forest (with sparse understory)	e_{45}Mc/xGr	C1: Eucalyptus 13m C2: Low herbaceous cover 0.12m	Eucalyptus accedens (50) unknown dicot sp#71 (0.5)
15/89 Karriview Wine Denmark	Jarrah-Marri Open Woodland (with peppermint understory and sedge ground cover)	$e_{2,3}$Mi/xSi/xGi	C1: Eucalyptus 13m C2: Myrtaceae 1.2m C3: Cyperaceae 0.5m	Eucalyptus marginata (0.5), E. calophylla (0.5) and E. megacarpa (0.5) Agonis parviceps (20) Gahnia sp#d63 (8)
16/89 Leake Doodlakine	Open Scrub of Sandalwood and Tan Wattle (with ressurrection plant ground cover)	axSi/xGi	C1: Santalaceae 7m C2: Acacia 1.0m C3: Liliaceae 0.1m	Santalum spicatum (5) Acacia hemiteles (21) Borya nitida (33)10cm
17/89 Richards Kauring	Wandoo Low Woodland	e_5Mc	C1: Eucalyptus 10m	Eucalyptus wandoo (1), E. sp#A18(49)
18/89 Strahan Ongerup	Wandoo Low Woodland	e_{10}Mc	C1: Eucalyptus 10m	Eucalyptus transcontinentalis (17) and E. spathulata (3)
19/90 Cochrane Darken	Lake King Mallee (with Melaleuca thicket)	eKi/mSi	C1: Eucalyptus C2: Melaleuca <1.5m	Eucalyptus deflexa Melaleuca uncinata
20/89 AR + JA Allen Lake King	Lake King Mallee (with Melaleuca scrub over grass and sedges)	eKi/mSc	C1: Eucalyptus 15m C2: Melaleuca 1.2m C3: Poaceae/Cyperaceae	Eucalyptus deflexa (9) Melaleuca uncinata (19) Grass and sedge ground cover
21/89 Hutchins Cranbrook	Jarrah Forest (with Banksia understory)	e_2Mi/bLi	C1: Eucalyptus 22m C2: Banksia 5m C3: Poaceae/Cyperaceae	Eucalyptus marginata (20) Banksia attenuata (6) Grass and sedge ground cover
22/89 Walsh Bandee	Eucalyptus Woodland (over Tan Wattle scrub)	eMi/aSi	C1: Eucalyptus 18m C2: Acacia 2m C3: Poaceae	Eucalyptus spp#A30 (30) Acacia hemeteles (10) grass ground cover

Appendix 11a (continued)

23/89 Porter Kalbarri	Herb field (with scattered Hop Bush scrub)	xSr/xFi	C1: Sapindaceae 1.5m C2: Poaceae/Asteraceae	Dodonea inaequefolia (2) Grass ground cover and Podolepis *capillaris* (12)
24/89 Palomar Estate Frankland	Swamp Yate Woodland (over Melaleuca thicket)	e_7Mi/mSi/xGi	C1: Eucalyptus 15m C2: Melaleuca 9m C3: Acacia 0.4m C4: Restionaceae 0.1m	Eucalyptus occidentalis (10) Melaleuca cuticularis (4) and M. pentagonia (5) Acacia pulchella var glaberrima (1) Restio chaunocoleus (7) Grass and annual ground cover
25/89 Jennings Doodlakine	Redwood LowWoodland (over grass and ressurrection plant)	e_{10}Li/xGi	C1: Eucalyptus 8m C2: Poaceae 0.6m C3: Liliaceae	Eucalyptus transcontinentalis (24) Spartochloa scirpoidea (5) Borya nitida (4)
26/89 Robb Cadoux	Gimlet-OpenWoodland (over Melaleuca thicket)	e_{43}Lr/mSc/xFr	C1: Eucalyptus 6m C2: Melaleuca <3m C3: Chenopodaceae C4: Poaceae	Eucalyptus salubris(5) and E. baudinia (6) Melaleuca adnata (8), M. cardiophylla (13), M. acuminata (5) and M. uncinata (3) Sclerolaena diacantha (5) grass ground cover
27/89 Andersons Corrigin	Wandoo Woodland	e_5Mc/xGi	C1: Eucalyptus 25m C2: Cyperaceae/ Restionaceae <0.5m C3: Poaceae	Eucalyptus wandoo (59) and E. spp#B8 (4) Mesomelaena stygia (15) and Lepyrodia sp #B5 (2) Grass and annual ground cover
28/89 Butler Yearlering	Casuarina Woodland with Jam sparse Scrub	c_2Mi/a_{19}Sr	C1: Casuarina 12m C2: Acacia 5m C3: Poaceae	Casuarina cristata (5) Acacia acuminata (1) Grass and annual ground cover
29/89 Pierres Wyalketchem	Jam Scrub	a_{19}Si/xGi	C1: Acacia 7m C2: Liliaceae	Acacia acuminata (14) Borya nitida (9)
31/89 Williams Dumbleyung	York Gum woodland (over Melaeuca thickets over Dryandra scrub)	e_6Mi/mMi/dSr	C1: Eucalyptus 10m C2: Melaleuca 10m C3: Proteaceae 1.5m	Eucalyptus loxophleba (19) Melaleuca uncinata (9) Dryandra armata (3)
32/89 Rhodes Narrogin	Dead York Gum woodland (with grass ground cover)	(e_6)/xGi	C1: Eucalyptus dead C2: Poaceae	Eucalyptus loxophleba (all trees dead) grass ground cover

33/89 T+D Pedro Denmark	Albany Blackbutt (over Casuarina understory over Agonis thickets over with Blackboy and sedges)	e_{65}Mi/cMi/xSc	C1: Eucalyptus 10m C2: Allocasuarina 13m C3: Myrtaceae 1.5m C4: Cyperaceae 0.8m C5: Xanthorrhoeaceae 0.6m	Eucalyptus staeri (22) Allocaseurina fraseriana (14) Agonis hypericifolia (26) and A. parviceps (10) Cyathochaeta clandestina (9) Xanthorrhoea preissii (6) Grass and annual ground cover
34/89 Crossly Wagin	Wandoo Woodland (over Casuarina understory)	e_5Mi/cMr	C1:Eucalyptus 20m C2: Casuarina 15m C3: Poaceae	Eucalyptus sp#B56 (18) and E. wandoo (19) Casuarina cristata (8) Grass and annual ground cover
35/89 White Miling	York Gum Woodland (over Melaeuca thickets over Dryandra scrub)	e_6Mi/cSc	C1: Eucalyptus 15m C2: Allocasuarina/Acacia 2m C3: Poaceae	Eucalyptus loxophleba (16) Allocasuarina campestris (27) Acacia hemiteles (2) and A. lineolata (3) 2m grass ground cover
36/89 Blewitt Hopetoun	Kangaroo Island Malle (over sedges and restios)	eKi/xGi	C1: Eucalyptus 9m C2: Cyperaceae/ Restionaceae	Eucalyptus utilis (5) and E. anceps (6) Lepidosperma smetti (5) and Loxocarya fasciculata (7)
37/89 Campbell + Sons Jerdacuttup	Open Mallee (over Melaleuca) or Melaleuca scrub (with sparse mallee)	mSi/eKr/xZi or eKr/mSi/xZi	C1: Melaleuca 4m C2: Eucalyptus 1m C3: Epacridaceae/ Dilliniaceae <1m	Melaleuca pentagona (14) Eucalyptus kesseilii (5) Leucopogon opponens (3) Hibbertia gracilipes (3) grass and sedge gound cover
38/89 Price Ongerup	Open low Woodland of York Gum (over Melaleuca)	e_6Lr/mSr	C1: Eucalyptus 5m C2: Melaleuca 2m C3: Cyperaceae 0.3m	Eucalyptus loxophleba (2) Melaleuca accuminata (9) Lepidosperma tenue (5) grass and annual ground cover
39/89 Jorgenson Kojonup	Marri Forest (with largely annual ground cover)	e_3Mc	C1: Eucalyptus 13m C2: Juncaceae 1m C3: Poaceae/Asteraceae	Eucalyptus callophylla (31) Juncus pallidus (25) Hypochaeris glabra (19) and grass ground cover

Appendix 11a (continued)

40/90 Burgess Kalbarri	Proteaceous/ Myrtaceous Heath (with Acacia and sedge understory)	xSi/aZr/xGi	C1: Melaleuca 1.5m C2: Proteaceae 1m C3: Acacia 0.5m C4: Cyperaceae/ Restionaceae <1m	*Melaleuca megacephala* (1) Dryandra sessilis (5) Acacia spathulifolia (22) Mesomelaena pseudostygia (6) Ecdeiocolea monostachya (8)
41/89 Rutherford Narembeen	Open Woodland of Salmon Gum	e_8Mr/xGi	C1: Eucalyptus 25m C2: Cyperaceae 0.1m	Eucalyptus salmonophloia (4) Gahnia trifida (8) and grass and annual ground cover
42/89 Friend Darken	Wandoo Woodland	e_5Mi/xZi	C1: Eucalyptus 17m C2: Fabaceae 0.3m C3: Poaceae	Eucalyptus wandoo (22) Bossiaea eriocarpa (16) grass ground cover
43/89 Verrall Three Springs	York Gum Open Low Woodland	e_6Li/a,hSr	C1: Eucalyptus C2: Acacia/ Hakea <3 C3: Poaceae etc	Eucalyptus loxophleba (15) Acacia hemiteles (2) and Hakea presseii (8) 1.5m grass ground cover
44/89 Tidow Gibson	Mixed Open Low Woodland	xLr/xSr	C1: Loranthaceae 4m C2: Allocasuarina/ Myrtaceae <2m C3: Cyperaceae	Nuytsia floribunda (2) Allocasuarina humilis (4) Lepidosperma tenue (2) grass and annual ground cover
45/89 Weatherhead Popanyinning	Wandoo Forest (with grass ground cover)	e_5Mc	C1: Eucalyptus 22m C2: Poaceae	Eucalyptus wandoo (62) grass ground cover
46/89 G+P Davis Ongerup	Swamp Yate Woodland (with Melaleuca understory)	e_7Mi/mSr	C1: Eucalyptus 17m C2: Melaleuca C3: Cyperaceae 0.3m	Eucalyptus occidentalis (11) and E. incrassata (4) Melaleuca cuticularis (1) and M. acuminata (2) Gahnia sp #E61a (3) with grass and annual ground cover
47/89 Hewitt 1+2 Jerramungup	Swamp Yate Woodland (over Kangaroo Island Mallee and Melaleuca scrub)	e_7Mr/e_{10}Ki/mSi	C1: Eucalyptus 12m C2: Eucalyptus 5m C3: Melaleuca 1m	Eucalyptus occidentalis (4) Eucalyptus anceps (4) and E. transcontinentalis (4) Melaleuca undulata (7) grass and annual ground cover
48/89 Bergin Yealering	York Gum Woodland	e_6Mc/xGi/kCr	C1: Eucalyptus 18m C2: Cyperaceae 0.7m C3: Chenopodaceae 0.2m	Eucalyptus loxophleba (30) Gahnia trifida (8) Atriplex bunburyana (1) grass ground cover
49/89 O'Connell Darken	Eucalyptus Woodland	eMi/dSr/xZr	C1: Eucalyptus 16m C2: Proteaceae 5m C3: Dilleniaceae <1m	Eucalyptus spp#B67 (5) Hibbertia spp#B69 (2) and H. quadricolor (1) Dryandra sessilis (2)
50/89 Michael Mingenew	Acacia Woodland	axSi/xZr	C1: Acacia 2m C2: Caesalpinaceae 1m C3: Poaceae	Acacia accuminata (1) Acacia andrewsii (4) Labichea lanceolata (6) grass ground cover
51/89 Carr Mt Barker	Jarrah / Marri Woodland	$e_{2,5}$Mi/xZr	C1: Eucalyptus 20m C2: Dilleniaceae <1m	Eucalyptus calophylla (9) and E. marginata (16) Hibbertia commutata (2) grass ground cover
52/89 Hams Cranbrook	Wandoo / Yate Tall Woodland	$e_{5,7}$Ti	C1: Eucalyptus 30m C2: Poaceae	Eucalyptus occidentalis (8) 30m Eucalyptus wandoo (19) 25m grass ground cover
53/89 Manners Geraldton	Dryandra Heath	dZi	C1: Proteaceae <1m	Dryandra sessilis (5), D. nivea (7) and D. tridenta (6) Banksia scabrella (5)
54/89 Davey Wagin	York Gum / Wandoo Woodland	$e_{5,6}$Mc/aSr	C1: Eucalyptus 15m C2: Acacia 2m C3: Poaceae	Eucalyptus wandoo (16) and E. loxophleba (22) Acacia saligna (3) grass ground cover
55/89 Fisher Hines Hill	Salmon Gum Open Tall Woodland (over Redwood Mallee)	e_8Tr/e_{10}Kc	C1: Eucalyptus 30m C2: Eucalyptus 9m C3: Proteaceae 1m	*Eucalyptus salmonophoia* (8) Eucalyptus transcontinentalis (64) Grevillea huegelli (1) grass ground cover
56/89 Bventon Bow Bridge	Karri Tall Forest	e_1Tc/cMi	C1: Eucalyptus 25m C2: Allocasuarina 9m C3: Tremandraceae/ Rhamnaceae <1m	Eucalyptus diversicolor (46) Allocasuarina decussata (7) Tremandra stelligera (11) and Trymalium spathulatium (7) grass ground cover

Appendix 11a (continued)

58/89 D+G Hare Hyden	Open Salmon Gum Woodland (with Mallee and Melaleuca understory)	e_8Mi/eKr/mSr	C1: Eucalyptus 25m C2: Melaleuca 10m	Eucalyptus salmonophloa (9) 25m Eucalyptus cylindrocarpa (5) 10m Melaleuca uncinata (4) 2m grass ground cover
59/89 Lee Wubin	Oil Mallee over Melaleuca over Acacia Thicket	eKr/mSi/axSi	C1: Eucalyptus 15m C2: Melaleuca 3m C3: Acacia <3m	Eucalyptus kochii (3) and E. cylindriflora (1) Melaleuca nematophyla (16) Acacia coolgardiensii (9) and A. acuaria (6)
61/89 A. Duncan Fitzgerald	Red Capped Mallee over Myrtaceous scrub over Epacrids	eKr/mSi/xZi	C1: Eucalyptus 2m C2: Myrtaceae <1m C3: Epacridaceae <0.3m C4: Cyperaceae	Eucalyptus dissimulata (5) Leptospermum erubescens (14) and Melaleuca glaberrina (5) Leucopogon fimbriatus (6) and L. conostephioides (6) sedge ground cover
62/89 A+P de Grussa Esperence	Kangaroo Island Mallee (with mixed understory)	eKr/xLr/mSi	C1: Eucalyptus 4m C2: Loranthaceae 3m C3: Myrtaceae 1.6m C4: Melaleuca 1m	Eucalyptus anceps (3) Nuytsia floribunda (5) Calothamnus asper (4) Melaleuca fulgens (2) Leptospermum incanum (3) grass and annual ground cover
63/89 Tomlinson Gairdner River	*Hook Leaf Mallee*	eKi/mSi	C1: Eucalyptus 5m C2: Melaleuca 3m C3: Cyperaceae	Eucalyptus uncinata (3) and E. occidentalis (7) Melaleuca cuticularis (7) and M. subtalcata (4) sedge ground cover
64/89 Van Driel Dalwallinu	Mallee over Melaleuca thicket	eKc/mSi	C1: Eucalyptus 10m C2: Melaleuca <2m	Eucalyptus subangusta (15) and E. erythronema var. marginata (9) and E. gardneri (15) Melaleuca uncinata (15) and M. cardiophylla (9)
65/89 FE Gray Salmon Gums	Very Open Sparce Heath	eKr/xzr	C1: Eucalyptus <1m C2: *miscellaneous <0.5m* C3: Cyperaceae/ Poaceae	Eucalyptus kesselii (1) *Banksia media (0.5) and Glischrocaryon* aurem (1) and Pimelia angustifolia (1) sedge and grass ground cover

66/89 Brown Needilup	Swamp Yate Open Woodland	e_7Mi/hSr	C1: Eucalyptus 25m C2: Hakea 8m C3: Chenopodiaceae <1m C4: Cyperaceae/ Poaceae	Eucalyptus occidentalis (10) Hakea laurina (4) Rhagodia preissii (<1) sedges and grass ground cover
67/89 HF Proud Hyden	Salmon Gum Woodland (with Mallee and succulent herb layer)	e_8Ti/eKi/kCr	C1: Eucalyptus 30m C2: Eucalyptus 16m C3: Chenopodiaceae 0.4m	Eucalyptus salmonophylla (12) Eucalyptus myriadina (8) Atriplex padulosa (3) and grass ground cover
69/89 Benedict. Comm New Norcia	Wandoo / Marri Forest	$e_{3,5}$Md	C1: Eucalyptus 25m C2: Poaceae	Eucalyptus wandoo (76) 25m Eucalyptus calophylla (4) 14m grass ground cover
70/89 West Badgingarra	Banksia Low Woodland	$b_{1,2}$Li	C1: Banksia 3m C2: Myrtaceae 0.4m C3: Haloragaceae 0.1m	Banksia menzesii (5) and B. attenuata (14) 3m Myrtaceae sp#75 (3) Gonocarpus pithyoides (3)
71/89 Schilling Brookton	Jarrah/Marlock Forest	$e3_{,5}$Md	C1: Eucalyptus 28m C2: Hakea 0.4m C3: Zamiaceae 0.4m	Eucalyptus marginata (10) Eucalyptus redunca (21) Hakea erinaca (2) Macrozamia reidlei (1)
72/89 Ling Kunjin	Wandoo Woodland (over Melaleuca thicket)	e_5Mi/mSi	C1: Eucalyptus 11m C2: Melaleuca <2m C3: Poaceae	Eucalyptus wandoo (15) Melaleuca aff. spicigera (2) Melaleuca uncinata (13) Gastrolobium trilobium (1) grass ground cover
73/89 Carruthers Bullaring	York Gum dense Woodland	e_6Md	C1: Eucalyptus 20m C2: Poaceae	Eucalyptus loxophleba (62) grass and annual ground cover
74/89 Sattadowns Tambellup	Coastal Moort Low Woodland (with Melaleuca thicket)	e_{33}Li/mSc	C1: Eucalyptus 3m C2: Melaleuca/ Santalaceae <1m C3: Cyperaceae 0.2m	Eucalyptus platypus (13) Melaleuca cardiophylla (37) Exocarpus aphyllus (10) and Lepidosperma sp#C18 (3) grass ground cover
75/89 Grant- Williams Newdigate	Open Low Woodland	eLi/mSc	C1: Eucalyptus 12m C2: Melaleuca 1m C3: Poaceae	Eucalyptus sp #E259 (21) Melaleuca adnata (5) grass ground cover

Appendix 11a (continued)

76/89 Hudson Kalannie	Low Woodland of York Gum	e_6Mi/aSi/kCr	C1: Eucalyptus 10m C2: Acacia 2.5m C3: Chenopodiaceae 0.4m	Eucalyptus loxophleba (12) Acacia rammulosa (9) and A. enerva (4) Atriplex sp#32 (4) and A. aff. vesicara (1) grass ground cover
77/89 Fulwood Meckering	Low Open Wandoo Woodland	e_5Mi	C1: Eucalyptus 12m C2: Liliaceae 0.1m C3: Poaceae	Eucalyptus wandoo (9) Borya nitida (5) grass and annual ground cover
78/89 Scholz Kalannie	Acacia / Melaleuca thicket	a,cSc	C1: Acacia 2m C2: Melaleuca 1.5m C3: Allocasuarina 1m	Acacia acuminata (15) Melaleuca uncinata (13) Allocasuarina campestris (11) Borya nitida (1)
79/89 Polkinghorne Grass Patch	Open Dwarf Scrub	xZr	C1: Proteaceae 0.6m C2: Acacia 0.3m C3: Poaceae etc	Grevillia plurijuga (2) Acacia sp#E160 (3) grass, annual and sedge ground cover
80/89 Murdock Pingerup	Swamp Mallee-Open Woodland (with Melaleuca scrub)	e_{70}Mr/mSXi	C1: Eucalyptus 25m C2: Melaleuca 1.2m C3: Melaleuca 0.2m	Eucalyptus spathulata (<1) and E. annulata (2) Melaleuca pauperiflora (2) Melaleuca thyiodes (2) grass ground cover
81/90 Benn + Co. Kojonup	Wandoo Low Woodland	e_5	C1: Eucalyptus 12m C2: Fabaceae 0.4m	Eucalyptus sp#C17 (32) and E. wandoo (2) Bossiaea spinescens (4) grass ground cover
82/90 Shelton Gairdner River	Very Open Mallee (Myrtaceous heath understory	eKr/xZi	C1: Eucalyptus 2m C2: Acacia/ Myrtaceae 0.6m	Eucalyptus uncinata (2) Acacia saligna (6) Kunzea sp#D149 (9) grass and sedge ground cover
83/89 Whittington Bullaring	Wandoo Forest (with Jam understory)	e_5Mc/a_{13}Lr	C1: Eucalyptus 15m C2: Acacia 5m C3: Poaceae	Eucalyptus wandoo (54) Acacia acuminata (1) grass ground cover
84/89 Burges Broomehill	York Gum Mid Dense Woodland	e_6Mc	C1: Eucalyptus 20m	Eucalyptus loxophleba (38) grass ground cover

85/89 Spencer Watheroo	Wandoo Forest (with Casuarina understory	e_5Mc/cSi	C1: Eucalyptus 20m C2: Allocasuarina 1.2m C3: Hakea 0.4m	Eucalyptus wandoo (52) Allocasuarina drummondiana (12) Hakea lissocarpa (3) grass ground cover
86/89 Lynch Gairdner River	Heath/Dwarf Shrubs	xZc	C1: very mixed C2: Poaceae	Acacia harveyi (4) and A. cupularis (2) with Thomasia angustifolia (5) and Grevilia paniculata (4) and Daviesia sp#D176 (3) grass ground cover
87/89 Dunkeld Newdigate	Melaleuca Heath	mZc	C1: Melaleuca 1m C2: Poaceae	Atriplex sp#E258 (4) Melaleuca uncinata (7) Acacia sp#E153 (3) grass ground cover
88/89 Rogers Tammin	Wandoo/ York Gum Woodland	$e_{5,6}$Mc	C1: Eucalyptus 25m C2: Pittosporaceae/ Asteraceae <1m	Eucalyptus wandoo (24) Eucalyptus loxophleba (4) Billiardiera candida (3), Olearia muelleri (7)
89/89 Bynon Konongorring	York Gum/ Jam Woodland (resurrection plant and grass groundcover)	e_6Mi/a_{19}Li	C1: Eucalyptus 22m C2: Acacia 8m C3: Liliaceae	Eucalyptus loxophleba (16) Acacia acuminata (13) Borya nitida (13) grass ground cover
90/89 Sutherland Dumbleyung		eMi/a_{19}Lc	C1: sp#B44 C2: Acacia	unknown sp #B44 (10) 25m Acacia acuminata (26) 5m grass ground cover
91/89 Frazer Northhampton	Mid Dense Heath Myrtaceae/ Proteaceae	xZc	C1: Proteaceae/ Myrtaceae 1m C2: Epacridaceae <1m C3: Poaceae	Grevillea pilosa subsp pinaster (8), Melaleuca radula (23) Gastrolobium oxylobioides (8), Styphelia melaleucoides (9) grass ground cover
92/89 Corke Yearlering	York Gum Woodland	e_6Mc	C1: Eucalyptus 20m C2: Poaceae	Eucalyptus loxophleba (37) grass ground cover
93/89 O' Brien Pingelly	Mixed Wandoo York Gum Woodland	$e5_{,6}$Mi	C1: Eucalyptus 25m C2: Poaceae	Eucalyptus loxophleba (5) Eucalyptus wandoo (15) grass ground cover

Appendix 11a (continued)

94/89 Biddulph Jerramungup	Open Melaleuca Scrub (over mid-dense heath)	mLi/xZc	C1: Melaleuca 7m C2: Chenopodaceae 0.5m C3: Myrtaceae 0.1m	Melaleuca cuticularis (5) Halosarcia sp#E73 (21) Myrtaceae sp#E251 (29)
96/89 Kuiper Jerramungup	Low Mallee	eKi	C1: Eucalyptus 4m C2: Poaceae	Eucalyptus sporadica (25) grass and sedge ground cover
97/89 Yaralla Past Co. Mt. Barker	Flooded Gum Woodland (with Melaleuca understory)	e_{18}Mi/mLr	C1: Eucalyptus 22m C2: Melaleuca 4m C3: Juncaceae 0.8m	Eucalyptus rudis (29) Melaleuca cuticularis (6) Juncus krausii (3) and grass ground cover
98/89 Martin Koorda	Tannin Mallee with Melaleuca Open Scrub	eKr/mSi/cSi	C1: Melaleuca/ Eucalyptus 3m C2: Allocasuarina 2m C3: Acacia/ Melaleuca <2m	Melaleuca uncinata (12) Eucalyptus leptopoda (5) Allocasuarina corniculata (13) Acacia longispinea (7) Melaleuca aff. holosericia (2)
99/89 R. Pedro Walpole	Karri/ Triple Dense Tall Forest	$e_{1,68}$Td	C1: Eucalyptus 40m C2: Cyperaceae <1m C3: Dennstaedtiaceae <1m	Eucalyptus diversicolor (44) and E. jacksonia (34) Lepidospermum effusum (10) Pteridium esculentum (8) with grass and annual ground cover
100/89 R. Pedro Walpole	Karri/ Triple Dense Tall Forest (with Casuarina understory)	$e_{1,68}$Td/cMi	C1: Eucalyptus 31m C2: Allocasuarina 12m C3: Cyperaceae <1m	Eucalyptus diversicolor (32) Eucalyptus jacksonii (20) Allocasuarina decussata (13) Lepidospermum effusum (12)
101/89 Sasse Morawa	York Gum Woodland	e_{6}Mc/aZi	C1: Eucalyptus 12m C2: Acacia <1m	Eucalyptus loxophleba (33) Acacia colletioides (5) and A. acuaria (2) with grass ground cover
102/89 Heffernan Harrismith	Red Morrel Woodland (with little or no understory)	e_{5}Mi	C1: Eucalyptus 27m C2: Poaceae	Eucalyptus longicornis (15) and E. sp#C3 (12) grass ground cover
103/89 Woodward Narikup	Albany Blackbutt Low Woodland	e_{65}Mi/bcLr	C1: Eucalyptus 11m C2: Banksia/ Allocasuarina 8m C3: Myrtaceae <2m	Eucalyptus staeri (22) Allocasuarina fraseriana (3) and Banksia littoralis (6) Agonis parviceps (14) and A. hypericifolia (18)

104/89 PJ Morgan Jerramungup	Sparce Mallee	eKi/xZr	C1: Eucalyptus 1.5m C2: Myrtaceae 0.4m C3: Poaceae/ Cyperaceae	Eucalyptus perangusta (10) Verticordia densiflora (3) grass and sedge ground cover
105/89 J+E Nottle Narrogin	Wandoo Woodland		C1: Eucalyptus 17m C2: Proteaceae 4m C3: Poaceae	Eucalyptus wandoo (24) Dryandra sessilis (4) grass ground cover
106/89 Waite Coorow	Sparce Mallee (with casuarina and Proteaceae understory) Heath	eKi/cSi/xZi	C1: Eucalyptus 18m C2: Allocasuarina 2m C3: Proteaceae <1m	Eucalyptus arachnea (4) Allocasuarina campestris (22) Petrophile macrostachya (11) and Hakea scopiana (5)
107/89 Thomas Dowerin	Sparce Mallee	eKi/kCl	C1: Eucalyptus <8m C2: Aizioaceae 0.2m C3: Poaceae	Eucalyptus dongarriensis (6) and E. transcontientalis (4) Trianthema pilosa (10) grass ground cover
108/89 English Mt Barker	Marri Forest	$e_{5,6}$Mc/aLi	C1: Eucalyptus 25m C2: Dilleniaceae 0.3m C3: Poaceae	Eucalyptus calophylla (33) Hibbertia commutata (2) grass and annual ground cover
109/89 Smith Harrismith	Wandoo/ York Gum Forest (with Jam understory)	$e_{5,6}$Mc/aLi	C1: Eucalyptus 30m C2: Acacia 4m C3: Poaceae	Eucalyptus wandoo (35) and E. loxophleba (19) Acacia acuminata (7) grass and annual ground cover
110/89 Chamberlain Jerramungup	Open Mallee	eki	C1: Eucalyptus 11m C2: Melaleuca <2m C3: Poaceae/ Cyperaceae	Eucalyptus phaenophylla subsp phaenophylla (12) and E. uncinata (3) Melaleuca uncinata (4) grass and sedge ground cover
111/89 J+E Nottle Corrigin	Mid Dense Eucalypt Woodland	eMc	C1: Eucalyptus 15m C2: Fabaceae 0.5m C3: Cyperaceae	Eucalyptus sp#E303 (33) Gastrolobium trilobium (2) sedge ground cover
139/89 Edmondson Jerramungup	Swamp Yate Woodland	e_{7}Mi/cMi/mSr	C1: Eucalyptus 18m C2: Allocasuarina 12m C3: Melaleuca 2m	Eucalyptus occidentalis (15) Allocasuarina huegeliana (7) Melaleuca sp#E2 (4) and M. uncinata (3) grass, annual and sedge ground cover

Appendix 11a (continued)

140/89 White Jerramungup	Low Woodland of Moort and Mallet	e_{33}Li/mSr	C1: Eucalyptus 9m C2: Melaleuca <2m C3: Cyperaceae 0.3m	Eucalyptus platypus (19) and E. densa (5) Melaleuca accuminata (2) Lepidospermum angustatum (2) grass ground cover
155/89 Greaves Mingenew	Tall Red Gum Woodland	e_{18}Ti	C1: Eucalyptus 30m C2: Poaceae	Eucalyptus aff. camaldulensis (25) grass ground cover
156/89 Faulkner Ongerup	Swamp Yate Sparce open low Woodland (over Mallee and Melaleuca)	e_{7}Lr/ekr/mSi	C1: Eucalyptus 9m C2: Eucalyptus <2m C3: Myrtaceae <2m	Eucalyptus occidentalis (2) Eucalyptus anceps (3) Melaleuca hamulosa (5) and Lepidospermum erubescens (2) grass and sedge ground cover
187/89 West Lake King	Low Mallee (with Melaleuca thicket)	eKi/mSi	C1: Eucalyptus <1m C2: Melaleuca 0.5m C3: Poaceae/Cyperaceae	Eucalyptus quadrans (15) and E. anceps (3) Melaleuca uncinata (6) and M.laterifolia (4) grass, annual and sedge ground cover
192/89 Critch Mullewa	Mrytaceous Heath	xZi	C1: Myrtaceae 2m C2: Dasypogonaceae/ Liliaceae 0.4m C3: Poaceae	Scholtzia sp#187 (16) Acanthocarpus preisii (2) Dianella revolta (2) grass ground cover
220/89	*low Sparce Mallee* (overmelaleuca scrub)	eKr/mSi	C1: Eucalyptus 2m C2: Melaleuca 1.2m C3: Euphorbiaceae 1.2m C4: Cyperaceae 0.4m	*Eucalyptus phaenophylla subsp* phaenophylla (2) and E. sporadica (2) Melaleuca uncinata (10) Beyria brevifolia (7) Gahnia aff. aristata (3) grass and sedge ground cover
261/89	Sparce Sand Mallee (over Melaleuca thicket over Proteaceae Myrtaceous heath)	e_{15}Lr/mSi/xZi	C1: Eucalyptus 1.5m C2: Melaleuca 0.9m C3: Cyperaceae 0.9m C4: Proteaceae/ Myrtaceae <0.5m	Eucalyptus eremophilla (7) Melaleuca verminea (24) Chorizandra enodis (6) Grevillea paniculata (4) Leptospermum oligandrum (4) grass ground cover

287/89	Sparce Low Woodland of York Gum (over Myrtaceous heath)	e_{6}Lb/mSr/xZi	C1: Eucalyptus 3m C2: Melaleuca <1m C3: Myrtaceae/ Proteaceae	Eucalyptus loxophleba (1) Melaleuca undulata (9) Leptospermum drummondii (3) and Grevillea acerosa (4) Sparochla scirpoidea (9) grass and sedge ground cover

Appendix 11

Monitoring Survey Botanical Data

(b) 1989/90 Protected Areas

REMNANT VEGETATION PROTECTION SCHEME 1990

BLOCK: Owners name: Nearest town:	DESCRIPTION	BEARD/MUIR Formula*	CANOPY LAYERS	MAIN SPECIES[%Cover/M^2]
43/90 Cake Ravensthorpe	Sparse Low Mallee (over Melaleuca scrub)	eKb/mSi	C1: Eucalyptus 5m C2: Melaleuca 1.2m C3: Poaceae/ Cyperaceae	Eucalyptus sp#A305 (2) and E. hypochlamdea (2) and E. pileata (2) Melaleuca aff. pentagona (11) Melaleuca glaberrima (5) grass and sedge ground cover
44/90 Cake Ravensthorpe	Sparse Low Mallee (over Melaleuca scrub)	eKr/xZr	C1: Eucalyptus <2m C2: Myrtaceae 0.3m C3: Cyperaceae	Eucalyptus sp#A305 (6) and E. hypochlamdea (2) Myrtaceae sp #A301 (2) Lepidosperma aff. gracile (1) Numerous small plants
45/90 Cake Ravensthorpe	Sparse Low Yate (over Myrtaceous scrub)	e_7Lr/mSr	C1: Eucalyptus 2m C2: Myrtaceae <1m C3: Cyperaceae	Eucalyptus occidentalis (3) and E. hypochlamdea (2) Melaleuca pentagonia (4) Numerous small plants Sedge ground cover
46/90 Cake G,G,D,T Ravensthorpe	Sparse Low Yate (over Myrtaceous/ Proteaceae scrub)	e_7Lr/mSr	C1: Eucalyptus 6m C2: Myrtaceae/ Proteaceae <1.5m C3: Cyperaceae	Eucalyptus occidentalis (2) and E. hypochlamdea (2) and E. flocktoniae, E. scyphcalyx Melaleuca uncinata (3), Grevillia tetragonolobia (3) and Westringia cephalantha (7) Numerous small plants Sedge ground cover
47/90 Sheridan Grazing Co. Tambellup	Yate and Marri Woodland/ Forest	$e_{7,3}$Mc	C1: Eucalyptus 16m C2: Poaceae	Eucalyptus occidentalis (22) Eucalyptus calophylla (10) grass ground cover
48/90 Sheridan Grazing Co. Tambellup	Flooded Gum Low Woodland	e_{18}Li/aSi	C1: Eucalyptus 6m C2: Acacia 5m C3: Poaceae	Eucalyptus rudis (26), E. occidentalis, E. capillosa and E. sp #A440 Acacia saligna (5) grass ground cover
49/90 Rochester, N & Co. King River	Marri Forest	e_3Mc	C1: Eucalyptus 17m C2: Myrtaceae 0.7m C3: Restionaceae	Eucalyptus calophylla (36) and E marginata (12) Agonis hypericiflora (7) Loxocarya fasciculata (3) Numerous small plants grass (weed) ground cover
50/90 Rochester, N & Co. King River	Albany Blackbutt Low Woodland	e_{65}Li/bLi	C1: Eucalyptus 8m C2: Banksia 6m C3: Restionaceae	Eucalyptus staeri (21) and E. bupretium (12) Banksia grandis (6) Agonis hypericiflora (20) Lindsaea linearis (4) grass and weed ground cover
51/90 Williams, Donald & Jo Badgingarra	Open Low Mallee (over sparse Melaleuca)	eKi/xSr	C1: Eucalyptus 4m C2: Myrtaceae <1m	Eucalyptus leprophloia (8) E. johnsoniana (<1) and E. tetragonia (<1) Melaleuca sp#B303#2 (4) and Myrtaceae sp#B323 (1)
52/91 Williams, Donald & Jo Badgingarra	Open Low Mallee	eKr	C1: Eucalyptus 2.5m C2: Hakea <1m C3: Cyperaceae	Eucalyptus suberea (7) E. leptophylla (<1) E. sp #B310 (1) and E. accedens Hakea erinacea (1) and H. neurophylla (1) Numerous small plants sedge ground cover
53/90 Sedgewick, Stan & Co. Bruce Rock	Sparse Low Woodland	eLr/aSi	C1: Eucalyptus 3m C2: Acacia 2m	Eucalyptus oldfieldii (3) Acacia signata (13)
54/90 Perpetual Trustees Balkuling	Wheatbelt Wandoo Woodland	eMc/cSr	C1: Eucalyptus 16m C2: Allocasuarina 5m C3: Poaceae	Eucalyptus capillosa (29) Allocasuarina acutivalvis (4) grass ground cover

Appendix 11b (continued)

55/90 Pedro, Tony & Dawn Denmark	Jarrah/ Marri Forest	$e_{2,3}Mc$	C1: Eucalyptus 15m C2: Xanthorreaceae 1.5m C3: Fabaceae/ Myrtaceae <1.5m C4: Cyperaceae	Eucalyptus marginata (44) Eucalyptus calophylla (12) Xanthorrhea sp#A485 (5) Hovea elliptica (5) and Bossiaea *linophylla* (2) Agonis hypericiflora (3) Numerous small plants Sedge ground cover
56/90 Edwards, N & S Candlelight	Sparse Low Woodland of Casuaurina	cLb/eLb	C1: Allocasuarina 5m C2: Eucalyptus 2m	Allocasuarina lehmanniana (1) Eucalyptus capillosa (2)
57/90 Murray, JH & WM Gilgering	Powder-Bark Wandoo/ Brown Mallet Woodland	$e_{45}Mi$	C1: Eucalyptus 16m C2: Melaleuca 1m C3: Fabaceae <1m	Eucalyptus accedens (6) and E. astringens (5) 16m Melaleuca aff. glaberrima (1) Bossiaea errocarpa (3)
58/90 AK Brambley Pty Ltd Denmark	Marri/ Jarrah Forest	$e_{2,3}Mc$	C1: Eucalyptus 10m C2: Myrtaceae 5m C3: Cyperaceae/ Asteraceae	Eucalyptus calophylla (35), E. marginata (5) Agonis aff. linearifolia (3) and Astartea fascularis (3) Trymalium floribundum (2) weed and sedge ground cover
59/90 Penny & Neville Charle Greenhills	Wheatbelt Wandoo Open Low Woodland	eMi/aSr	C1: Eucalyptus C2: Allocasuarina 5m C3: Myrtaceae 0.5m	Eucalyptus capillosa (1) Allocasuarina acutivalvis (1) Leptospermum erubescens (<1)
60/90 Boase, Peter Frederic Goomaling	Wheatbelt Wandoo with York Gum Mallee	eLr/eKb/cLb/xZr	C1: Eucalyptus 6m C2: Eucalyptus 4m C3: Cyperaceae	Eucalyptus wandoo/capillosa (1) Eucalyptus loxophleba (1) mallee E. subangusta Lepidosperma longitudinale (1)
61/90 Broun WA & MF Carnamah	York Gum Open Low Woodland (over Melaleuca and Jam Woodland	e_6Lr	C1: Eucalyptus 10m C2: Melaleuca/ Rutaceae 2m C3: Acacia 1m	Eucalyptus loxophleba (3) Melaleuca radula (2) and Phebalium sp#B14 (3) Acacia accuminata (4)

62/90 Broun WA & MF Carnamah	York Gum Open Low Woodland	e_6Lr	C1: Eucalyptus 6m C2: Sapindaceae 3m C3: Melaleuca 2m	Eucalyptus loxophleba (3) *Dodonaea inaequilolia* (1) Melaleuca cardiophylla (2)
63/90 Broun WA & MF Carnamah	Sparse Sandplain Mallee Wondoo and Gimlet	$e_{34}L(K)r$	C1: Eucalyptus 10m C2: Melaleuca	Eucalyptus subangusta (2) Eucalyptus salubris (1) *Melaleuca adnata* (<1) Numerous small plants
64/90 Broun WA & MF Carnamah	Open Jam Low Woodland	$a_{19}S(L)r$	C1: Acacia 2m C2: Melaleuca1.5m	Acacia acuminata (3) 2m Melaleuca radula (1) 1.5m
65/90 Shaw, J & V Bodallin	Open Mallee (over Casuarina/ Acacia Melaleuca Thicket)	eKr/cSr/axSi	C1: Eucalyptus 8m C2: Allocasuarina 4m C3: Acacia/ Myrtaceae 2m C4: Cyperaceae	Eucalyptus hypochlamdea (3) and E. crucis and sheathiana Allocasuarina acutivalvis (3) Acacia aff leptoneura (16) *Malleostemon tuberculatus* (3) sedge and annual ground cover
66/90 Norman, K & M Ravensthorpe	Low Open Marlock (over Myrtaceous heath)	$e_{27}Lr/xZSc$	C1: Eucalyptus 2m C2: Myrtaceae <1m	Eucalyptus redunca (4) E. occidentalis Melaleuca urceolaris (14), M. sp#A612 (15) *Baeckea astarteoides* (5) Numerous small plants
67/90 Wahlsten & Sons Bodallin	Sparse Low Open Woodland (York Gum)	e_6Lr/aSi	C1: Eucalyptus 5m C2: Acacia 4m C3: Myrtaceae 3m C4: Poaceae	Eucalyptus loxophleba (6) Acacia leptoneura (9) and A. acuminata (9) *Malleostemon tuberculatus* (6) and Thryptomene sp#A162 (3) grass and annual ground cover
68/90 Mulchay, EM & ID Yelbeni	Open Scrub Acacia (over Westingia dwarf heath)	aSr/xZi	C1: Acacia 1.5m C2: Lamiaceae 0.6m C3: Myrtaceae 0.6m	Acacia signata(3) and A. sp#A115 (3) Westringia cephalantha (13) *Thryptomene kochii* (4)

Appendix 11b (continued)

69/90 Hester, AL & CA Boyup Brook	Jarrah/ Marri Open Woodland	$e_{2,3}Mi$	C1: Eucalyptus 17m C2: Hakea <1m C3: Cyperaceae/ Poaceae	Eucalyptus calophylla (3) and E. marginata (3) Hakea erinacea (1) Numerous small plants sedge and grass ground cover
70/90 Hester, AL & CA Boyup Brook	Wandoo/ Flooded Gum Woodland	e_5Mi	C1: Eucalyptus 12m C2: Xanthhorroeaceae 2m C3: Poaceae	Eucalyptus capillosa (19) and E. rudis (1) E. calophylla (<1) Xanthorrhoea sp#A451 (1) grass and weed ground cover
71/90 Stacey, C Waroona	Marri Open Low Woodland (with Proteaceae understory)	e_3Mi/xLi	C1: Eucalyptus 10m C2: Allocasuarina 10m C3: Proteaceae <10m C4: Restionaceae	Allocasuarina sp#A555 (11) Eucalyptus calophylla (8) Banksia grandis (3) Xylomelum occidentale (6) Loxocarya fasciculata (<1) grass, weed and sedge ground cover
72/90 Gault, Trevor Edward Balkuling	Very Open Low Woodland of Wheatbelt Wandoo	eLr	C1: Eucalyptus 9m	Eucalyptus capillosa (3) E. subangusta (1)
73/90 Jasper, Rosemary Ravensthorpe	Sparse Low Mallee (over Heath)	ekr	C1: Eucalyptus 3m C2: Papilionaceae 1m C3: Acacia <1m C5: Proteaceae/ Goodeniaceae	Eucalyptus sp#B700 (1) Acacia sp #B698 (2) Daviesia aff. incrassata (1) Coopernookia sp #B690 (2) Grevillia pectinata (2) Numerous small plants
74/90 Adams, RJ & NE Mount Kokeby	Low Open Wheatbelt Wandoo Woodland	eLi/bLi	C1: Eucalyptus 8m C2: Banksia/ Myrtaceae 7m	Eucalyptus capillosa (7) Banksia prionotes (9) Kunzea ericifolia (3) grass ground cover
75/90 Anderson, Christopher Cranbrook	Yate Woodland	e_7Mc	C1: Eucalyptus 20m C2: Poaceae	Eucalyptus occidentalis (31), E. capillosa (3) grass and annual ground cover

76/90 Michael, Frank & Chris Mingenew	Casuarina Sparse Low Woodland	cLb	C1: Eucalyptus C2: Allocasuarina 4m C3: Acacia <4m C4: Melaleuca <1m	Eucalyptus ebbanoensis (<0.1) height unknown Allocasuarina acutivalvis (1) Acacia erinaca (<1) Melaleuca cordata (<1)
77/90 Michael, Frank & Chris Booran	Wheatbelt Wandoo Woodland	eMc	C1: Eucalyptus 11m C2: Allocasuarina 2m C3: Melaleuca 1.2m C4: Fabaceae <1m	Eucalyptus capillosa (23) E. eremophila Allocasuarina acutivalvis (1) Melaleuca uncinata (7) Gastrolobium spinosum (1)
78/90 MacPherson, Walpole	Marri Woodland	e_3Mi	C1: Eucalyptus <21m C2: Allocasuarina 12m C3: Rhamnaceae 5m C4: Cyperaceae	Eucalyptus calophylla (28) and E. guilfoylei (24) Allocasuarina decussata (6) Trymalium floribundum (16) Numerous small plants sedges ground cover
79/90 Whitlington, B & M Bullaring	Salmon/ York Gum Woodland	$e_{6,8}Mi$	C1: Eucalyptus 17m C2: Poaceae	Eucalyptus salomonophoia (11) and E. loxophleba (7) annual ground cover
80/90 Hall, RG Jerramungup	Mallee Sparse Over Scrub	eKr/mSi	C1: Eucalyptus 2m C2: Melaleuca/ Santalaceae 1m C3: Fabaceae 0.8m C4: Hakea 0.7m	Eucalyptus dissimulata (5) E. xanthonema (3) Melaleuca uncinata (5) and Santalum acuminatum (5) Gastrolobium parvifolium (16) Hakea erinacea (6)
81/90 Spark, DE Botherling	York Gum Open Woodland	e_6Mr/hLi	C1: Eucalyptus C2: Hakea 6m C3: Acacia 5m	Eucalyptus loxophleba (1) Hakea preissii (2) Acacia signata (<1)
82/90 Quicke, D & Co. Kulin	Cypress Pine over Heath	xLi/mSi	C1: Cupressaceae 2.5m C2: Melaleuca 1.6m C3: Myrtaceae 1m	Callitris drummondii (5) Melaleuca uncinata (7) Baekea aff. pressiana (16)
83/90 Leake, FH Doodlakine	Wheatbelt Wandoo Woodland	eMi	C1: Eucalyptus 17m C2: Dasypogonaceae 0.2m C3:Poaceae	Eucalyptus capillosa (25) E. loxophleba E. salmonophloia E. salubris E. sp #AH1 Lomandra effusa (1) Grass ground cover

Appendix 11b (continued)

84/90 Kielman, Bruce & Sons Boddington	Marri Open Woodland	e_3Mr/c_3Lr	C1: Eucalyptus C2: Allocasuarina 6m C3: Xanthorrhoeaceae <1m	Eucalyptus calophylla (2) Allocasuarina campestris (2) Xanthorrhoea preissii (5)
85/90 Quicke, D & Co. Kulin	Casuarina Woodland	$c_{4,5}Mi$	C1: Allocasuarina 12m	Allocasuarina huegeliana/acutivalvis (13)
86/90 Spurr, Mrs H Williams	Mallet Woodland	$e_{64}Mi$	C1: Eucalyptus 19m	Eucalyptus astringens (25) E. longicornis
87/90 Rasmussen EM & B Lake Biddy	Acacia Open Scrub(over Proteaceous Heath)	aSr/xZi	C1: Acacia 2m C2: Proteaceae 0.7m	Acacia sp#BH306 (<1) Dryandra cirsioides (1)
88/90 Richardson, TG Gnorangerup	Open Sparse Mallee (over Proteaceae /Acacia Heath)	$eKr/xSi/xZi$	C1: Eucalyptus 3m C2: Proteaceae/ Acacia 0.9m C3: Dilleniaceae 0.5m C4: Iridaceae	Eucalyptus sp #A287 (7) Grevillea tridentifera (12) Acacia acanthoclada (8) Hibbertia sp#A63 (6) Pattersonia occidentalis (4) Grass and sedge ground cover
89/90 Kirby, Gerald R Beacon	Gimlet Woodland	$e_{34}Mi/xZr$	C1: Eucalyptus 15m C2: Fabaceae 0.5m C3: Chenopodiaceae0.1m/ Poaceae <0.3m	Eucalyptus salubris (12) E. salmonophloia (<1) E. subangusta, E. oleosa group Bossiaea walkeri (2) Sclerolaena diacantha (1) with grass ground cover
90/90 Marshall L & M Lake Grace	Myrtaceous Scrub	xSr	C1: Myrtaceae 2m	Leptospermum erubescens (4) Eucalyptus sp #B318, E. spathulata
91/90 Ballard RM & D Harrismith	Salmon and York Gum Woodland	$e_{8,6}Mc/mSr$	C1: Eucalyptus 18m C2: Melaleuca 3m C3:Cyperaceae	Eucalyptus salmonophloa (18) and E. loxophleba (6) Melaleuca acuminata (1) 3m annual ground cover with some sedge

92/90 Dougherty, Michael J Ravensthorpe	Low Moort Woodland	$e_{33}Li$	C1: Eucalyptus 8m C2: Epacridaceae/ Santalaceae <2m C3: Myrtaceae <1m	Eucalyptus platypus (11) E. densa (4) E. sp #A305 (2) E. spathulata Leucopogon sp#A351 (2) Exocarpus sp #A349 (3) Baeckea aff blacketii (3)
93/90 Smithson T & J Jerramungup	Melaleuca Scrub (over Eucalyptus sparse scrub)	m_xSi/eSi	C1: Melaleuca 3m C2: Eucalyptus 0.4m	Melaleuca acuminata (7) M. cuticularis (3) Eucalyptus tomentosa (<0.1)E. occidentalis (1) E. sp #B616 E. conglobata, E. occidentalis
94/90 Bishop N & E Buniche	Open Low York Gum Woodland(over Casuarina)	e_6Lr	C1: Eucalyptus 6m C2: Allocasuarina 4m C3:Cyperaceae	Eucalyptus loxophleba (1) Allocasuarina lehmanniana (2) sedge ground cover
95/90 Bishop Buniche	Open Low York Gum Woodland(over Melaleuca)	e_6Lr	C1: Eucalyptus 6m C2: Melaleuca 4 m C3: Poaceae	Eucalyptus loxophleba (1) Melaleuca spicigera (1) grass ground cover
96/90 Cake, RL Jerramungup	Open Low Yate Woodland(over mallee and melaleuca)	$e_7Li/eKr/mSr$	C1: Eucalyptus 7m C2: Eucalyptus 4m C3: Melaleuca 3m	Eucalyptus occidentalis (4) Eucalyptus angustissima (4), E. sp #B733 (1) Melaleuca acuminata (4)
97/90 Cake, RL & Co Jerramungup	Low Woodland of Red Morrell and Yate	$e_{9,7}Li/xSr$	C1: Eucalyptus <7m C2: Myrtaceae 3m	Eucalyptus occidentalis (8) E. longicornis(7) E. macranda (1), E. uncinata (<0.5) Callistemon sp #BH369 (1)
98/90 Tillbrook Ravensthorpe	Salmon Gum Woodland(with Gimlet)	$e_{8,34}Mi$	C1: Eucalyptus 15m C2: Acacia 0.3m	Eucalyptus salmonophloia (6) E.salubris (10) E. anceps (3) E. platypus (3) Acacia sp #A562 (4)
99/90 Tillbrook, SJ & WA Ravensthorpe	Redwood and Mallet Low Woodland (over melaleuca thicket).	$e10Si/e_{33}Ki/mSi$	C1: Eucalyptus <6m C2:Eucalyptus 3m C3: Melaleuca 1.2m	Eucalyptus transcontinentalis (9), E. platypus (14) E. kondininensis (9) Melaleuca cardiophylla (14)
100/90 Gilmore Jerramungup	Dwarf Scrub.	xZi	C1: Myrtaceae <0.7m	Beaufortia sp#B596 (2) , Melaleuca pentagona (<1) and numerous small plants

Appendix 11b (continued)

101/90 Gilmore, G & M Jerramungup	Open Low Mallee (over Proteaceous scrub)	eKr/b,i,Si	C1: Eucalyptus 4m C2: *Proteaceae <3m*	Eucalyptus sp #B581 (3) E. conglobata (1) E. *densa* (2) Banksia lehmanniana (4) and Hakea laurina (1) numerous small plants
102/90 Gilmore Jerramungup	Sparse Mallee (over Myrtaceous scrub)	eKb/xZi	C1: Eucalyptus <1m C2: Melaleuca <0.5m	Eucalyptus annulata (1) Melaleuca sp #B632 (1) numerous small plants
103/90 Tidow Scadden	Yate Low Woodland (over Melaleuca thicket)	e7Li/mSi	C1: Eucalyptus 5m C2: Melaleuca 3m C3: Poaceae	Eucalyptus occidentalis (17) Melaleuca cuticularis (8) grass and weed ground cover
104/90 Tidow, R & N Scadden	Yate Low Woodland (over Melaleuca scrub)	e7Li/mSr	C1: Eucalyptus 4m C2: Melaleuca 2m C3: Poaceae	Eucalyptus occidentalis (23) E. densa, E. uncinata Melaleuca elliptica (1) grass ground cover
105/90 Tidow Scadden	Yate Low Woodland (over Melaleuca scrub)	e7Li/mSr	C1: Eucalyptus 9m C2: Melaleuca 2m	Eucalyptus occidentalis (27) E. conglobata, E. densa, E. stoatei, E. uncinata Melaleuca undulata (3) and M. elliptica (2)
106/90 Tidow Scadden	Yate Low Woodland (over Mallee and Hakea scrub)	e7Li/eKi-hSi	C1: Eucalyptus 9m C2: Eucalyptus/ Hakea 4m C3: Poaceae	Eucalyptus occidentalis (2)E. sp #A652 (11)E. densa (1) Eucalyptus uncinata (6) E. kesselii, Hakea laurina (2) grass and weed ground cover
107/90 Tidow Scadden	Open Low Banksia Woodland (over Melaleuca Thicket)	bLr/mSi	C1: Proteaceae 3m C2: Melaleuca 1.2m	Banksia speciosa (5) Lambertia inermis (8) Melaleuca subfalcata (14)
108/90 Tidow Scadden	Yate Woodland (over Melaleuca Scrub)	e_7Mi	C1: Eucalyptus 10m C2: Melaleuca 2m C3: Poaceae	Eucalyptus occidentalis (15) Melaleuca elliptica (1) grass and weed ground cover
109/90 Tenseldham, John & H Bremer Bay	Sparse Open Mallee and Dwarf Scrub	eKr/xZi	C1: Eucalyptus 0.8m C2: Melaleuca 0.3m	*Eucalyptus sp #BH366 (<1)* Melaleuca pentagona (4) , Dryandra nivea (2) ,Xanthorrhoea preissii (2) plus other numerous small plants

110/90 Tenseldham *Bremer Bay*	Low Yate Woodland (over Proteaceae /Myrtaceae)	e_7Li/xZi	C1: Eucalyptus 7m C2: Hakea/ Melaleuca *<0.6m*	Eucalyptus occidentalis (10), E. conglobata (<1)E. redunca *Hakea nitida ,Melaleuca cuticularis (<1)*
111/90 Dunbar, P Marvel Loch	York Gum Woodland (over Tan Wattle)	e_6Mi/aSi	C1: Eucalyptus C2: Acacia 1.2m C3: Myoporaceae 0.9m	Eucalyptus loxophleba (2) Acacia hemiteles (3) Eremophila drummondii (3)
112/90 Dunbar, Peter Marvel Loch	York Gum Mallee (over Melaleuca Thicket)	e_6Kr/mSi	C1: *Eucalyptus 4m* C2: Myrtaceae 2.5m	*Eucalyptus loxophleba mallee (1)* Melaleuca adnata (1) ,Leptospermum erubescens (5) Santalum acuminatum (3) numerous small plants
115/90 Hogan, KP & Co Mandiga	Mallee-AcaciaThicket (over Sedgeland)	eKLi-aSi	C1: Eucalyptus/ Acacia <8m C2: Cyperaceae 0.5m	Eucalyptus yilgarnensis (16)Acacia leptoneura (10) Gahnia sp #A141 (5) grass and annual ground cover
116/90 Hogan, KP Bencubbin	Eucalypt Woodland (over Mallee)	eMi/eKLr	C1: Eucalyptus 17m C2: Eucalyptus 6m C3: Poaceae	Eucalyptus sp #A 111 (13), Eucalyptus yilgarnensis (2), E. oleosa (3) numerous other small plants with grass ground cover
117/90 Ellis Kulin	Mirret Woodland (over Mallee)	e_{11}Mi/eKi	C1: *Eucalyptus 20m* C2: Eucalyptus 3m C3: Poaceae	*Eucalyptus flocktoniae (7)* Eucalyptus eremophila (4) dried annual ground cover
118/90 Ellis, PJ Kulin	Low Salmon Gum Woodland	e_8Li	C1: Eucalyptus 3m C2: Poaceae	Eucalyptus salmonophioa (14) dried annual ground cover
119/90 Ellis, PJ Kulin	Salmon Gum Woodland (over Melaleuca Thicket)	e_8Ti/mSi	C1: Eucalyptus 30m C2: Melaleuca 3m	Eucalyptus salmonophioa (9) E. loxophleba (2) Melaleuca halmaturorum subsp cymbifolia (16)
120/90 Ellis Kulin	Gimlet Woodland	e_{34}Mi/a_xSr	C1: Eucalyptus 17m C2: Acacia 8m	Eucalyptus salubris (14) Acacia sp#A51 (<1)
121/90 Ellis, Perter John Kulin	Swamp Mallet Low Woodland	eLi/mSr	C1: *Eucalyptus 4m* C2: Melaleuca 2m	*Eucalyptus spathulata (12)* Melaleuca urceolaris (2)

Appendix 11b (continued)

122/90 Browne, George Lindsey Nukarni	Casuarina Thicket (over sparse Eucalyptus scrub)	c_4Sc/eSb	C1: Allocasuarina <3m C2: Eucalyptus 2m	Allocasuarina corniculata (24) and A. acutivalvis (14) Eucalyptus burracoppinensis (2) numerous other small plants
123/90 Dixon WA & JA Kellerberrin	Open York Gum Woodland	e_6Mr	C1: Eucalyptus C2: Pittosporaceae 3m	Eucalyptus loxophleba (3) Pittosporum phylliraeoides (2) numerous other small plants
124/90 Wilson, JS Kulin	Salmon Gum Woodland (over Tan Wattle Scrub)	e_8Mi/aSi	C1: Eucalyptus 16m C2: Eucalyptus <7m C2: Acacia 3m C3: Proteaceae <0.3m C4: Poaceae	Eucalyptus salmonophloia (6) Eucalyptus sp #A87 (5), E. sp #A87 (2) Acacia hemiteles (2) Grevillea huegelii (2) dried annual ground cover
125/90 Wilson, JS Kulin	Dwarf Scrub of Proteaceae/Myrtaceae	dZi	C1: Proteaceae/ Melaleuca <0.6m	Dryandra horrida (7) ,D.erythrocephala (5) ,Melaleuca seriata/scabra #A64 (6) numerous other small plants
126/90 Wilson, JS Kulin	Gimlet/Salmon Gum Woodland (over Melaleuca Scrub)	$e_{34,8}$Mc/mSi	C1: Eucalyptus 18m C2: Melaleuca 3m C3: Poaceae	Eucalyptus salubris (24) and E. salmonophloia (3) Melaleuca acuminata (5) dried annual ground cover
127/90 Cooper JE & JC Badgingarra	Dwarf Proteaceous Scrub	hZr	C1: Hakea <1m	Hakea sp#B277 (2)and H. sp#B282 (1) numerous other small plants
128/90 Dunkeld M & J Newdegate	Sparse Mallee (over Open Dwarf Scrub)	eKr/xZi	C1: Eucalyptus 3m C2: Proteaceae <1m C3: Acacia 0.3m	Eucalyptus subangusta (<1) Dryandra cirsioides (1) Acacia sp #B493 (2) numerous other small plants
129/90 Carpenter S & R Borden	Low York Gum Woodland (over Jam understorey	e_6Li/a_xSr	C1: Eucalyptus 9m C2: Acacia <6m C3: Poaceae	Eucalyptus loxophleba (15) Acacia acuminata (1),A. erinacea (1) grass and annual ground cover
130/90 Dodd, JE & JK Buntine	Open York Gum Woodland (over Melaleuca Scrub)	e_6Li/mSr	C1: Eucalyptus 10m C2: Melaleuca 1.5m	Eucalyptus loxophleba (2) Melaleuca uncinata (3) other small plants

131/90 Hobley R & C Nyabing	Low Mallee Wandoo (over Proteaceous Scrub)	eKi/xSi/xZi	C1: Eucalyptus 3m C2: Proteaceae 1.2m C3: Proteaceae 0.9m	Eucalyptus capillosa (10), E. incrassata, E. sp #A238 Dryandra cirsioides (8) Isopogon buxifolius (5) numerous other small plants
132/90 Straghan, K & R Ongerup	Low Woodland of Moort and Mallet	e_{33}Lc	C1: Eucalyptus 6m C2: Poaceae	Eucalyptus platypus (19),E. densa (18) grass ground cover
133/90 Vanzetti Gunyidi	Open Low York Gum Woodland	e_6Lr	C1: Eucalyptus 5m C2: Sapindaceae 2m	Eucalyptus loxophleba (2) Dodonaea inaequifolia (<1) other small plants
134/90 McBeath, A & G Bilbarin	Melaleuca Open Scrub with Sparse Eucalypt Scrub	mSi/eSb	C1: Melaleuca 5m C2: Eucalyptus	Melaleuca lateriflora (3) Eucalyptus loxophleba (<1)
135/90 Jones G & J Buniche	Open Low Casuarina Scrub (over sparse Eucalyptus scrub)	cLr/xSr/eZb	C1: Allocasuarina C2: Myrtaceae 2m C3: Eucalyptus	Allocasuarina lehmanniana (3) Leptospermum erubescens (2) Eucalyptus loxophleba (<0.5)
136/90 Vaux KS & Co. Ongerup	Open Yate Woodland (over Melaleuca Thicket)	e_7Mi/mSc	C1: Eucalyptus 18m C2: Melaleuca 2m	Eucalyptus occidentalis (5), E. conglobata (1), E. spathulata (2) Melaleuca acuminata (24)
137/90 Taywood Watheroo	Open Low York Gum Woodland	e_6Lr	C1: Eucalyptus 5m	Eucalyptus loxophleba (4)
138/90 Taywood Watheroo	Wheatbelt Wandoo Open Woodland.	eMi	C1: Eucalyptus 17m C2: Acacia 0.4m	Eucalyptus capillosa (4) Acacia sp #B175 (<1)
139/90 Taywood Watheroo	Open York Gum Woodland	e_6Mi	C1: Eucalyptus 12m	Eucalyptus loxophleba (8)
140/90 Cugley GW & RJ Newdegate	Sparse Open Mallee (Over Casuarina Scrub)	eKr/c_4Zi	C1: Eucalyptus 2m C2: Allocasuarina 0.7m	Eucalyptus rigidula (2) Allocasuarina acutivalvis (1) numerous other small plants

Appendix 11b (continued)

141/90 Cataby Cascades	Kangaroo Island Mallee (over dwarf scrub)	eKi/xZi	C1: Eucalyptus 3m C2: Acacia/ Melaleuca <1m	Eucalyptus anceps (4)E. flocktoniae (<0.1)E. phaenophylla (1), E. eremophyla (<1), E. ovularis, E. sp. Q Acacia sp #A732 (4),Melaleuca cardiophylla (6)and M. holosericea (5)
142/90 Cataby Cascades	Low Mallee (over Myrtaceous and Eucalyptus dwarf scrub)	eKi/xZi/eZi	C1: Eucalyptus <4m C2: Myrtaceae/Eucalyptus <0.8m	Eucalyptus phaenophylla (11), E salubris (1) Melaleuca pungens (2),Eucalyptus grossa, Baeckea sp #A753 (2)and also Leucopogon sp#A752 (3)
143/90 Fisher, Neil Hines Hill	Open York Gum Woodland (over Casuarina/Hakea/Melaleuca Thicket)	e_6Mi/h,m,c_3 Si	C1: Eucalyptus 12m C2:Allocasuarina/ Melaleuca/ Hakea <4m C3: Poaceae/ Cyperaceae	Eucalyptus loxophleba (23) Melaleuca uncinata (8),Hakea sp #A127 (4),Allocasuarina campestris (4) grass and annual ground cover
144/90 Fisher, Neil Hines Hill	Gimlet Woodland	e_{34}Mi/mSr/aSi	C1: Eucalyptus 13m C2: Melaleuca 3m C3: Acacia 1.5m C4: Poaceae	Eucalyptus salubris (13), E. loxophleba, E. salmonophloa Melaleuca eleutherostachya (1) Acacia nyssophylla (6) dried grass ground cover
146/90 Barber CV & ME & Co. Ardath	Sparse Low Woodland of York Gum With Melaleuca	e_6Lr/mSr	C1: Eucalyptus /Melaleuca <4m	Eucalyptus loxophleba (1), E. salubris (<1), E. erythronema, E. occidentalis Melaleuca acuminata (1)
147/90 Barber Ardath	Sparse Low Woodland Grevillea (over Wheatbelt Wandoo)	e_6Lr	C1: Eucalyptus 7m C2: Myrtaceae	Eucalyptus loxophleba (2), E. subangusta (1), E. eremophila, E. capillosa Callitris canescens (<1)
148/90 Barber Ardath	York Gum Woodland	e_6Li	C1: Proteaceae 6m C2: Eucalyptus 4m	Grevillea eriostachya (2) Eucalyptus capillosa (1), E. leptopoda (<1) other small plants
149/90 George GE & Co. Bilbarin	York Gum Woodland	e_6Li	C1: Eucalyptus 12m C2: Chenopodiaceae 0.5m	Eucalyptus loxophleba (5) Atriplex sp #B134 (1) other small plants

150/90 Poole, Norm Beacon	Gimlet Woodland (over Yorrell Mallee)	e_{34}Mi/eKi/xZi	C1: Eucalyptus 12m C2: Eucalyptus 9m C3: Acacia/ Chenopodiaceae <0.4m	Eucalyptus salubris (13) Eucalyptus yilgarnensis (10) Acacia nyssophylla (3) , Sclerolaena diacantha (5)
151/90 Leake Trayning	Open Low Woodland of York Gum (over Jam)	e_6Li/a_{19}Sr	C1: Eucalyptus 7m C2: Acacia 6m C3: Poaceae	Eucalyptus loxophleba (7) Acacia acuminata (2) grass and dried annual ground cover
152/90 Leake Trayning	Salmon Gum Woodland (with York Gum and Jam)	e_8Mi/e_6Lr/h, a_{19}Si	C1: Eucalyptus 18m C2: Eucalyptus 8m C3: Hakea/ Acacia 4m C4: Poaceae	Eucalyptus salmonophlioa (7) Eucalyptus loxophleba (2) Hakea sp #A112 (4),Acacia acuminata (2) grass ground cover
153/90 Sasse R & M Canna	Acacia Open Scrub	aSr	C1: Acacia 3m	Acacia sp #B232 (2) other small plants
154/90 Downing, Brian & Grae Avon	Jam Scrub	a_{19}Si	C1: Acacia 7m C2: Poaceae	Acacia acuminata (10) dried annual ground cover
155/90 Walters Cascades	Low Open Woodland of Yate (over Melaleuca Thicket)	e_7Lr/mSc	C1: Eucalyptus 6m C2: Melaleuca 1.5m	Eucalyptus occidentalis (5), E. uncinata Melaleuca undulata (30)
156/90 Grainger, G & J Jerramungup	Low Open Woodland of Yate (over Melaleuca Scrub)	e_7Lr/mZi	C1: Eucalyptus 9m C2: Melaleuca 0.9m C3:Cyperaceae	Eucalyptus occidentalis (8), E. perangusta, E. phaenophylla, E. transcontinentalis Melaleuca sp #A301(17) sedge ground cover
157/90 Cochrane, Donald Capercup	Jarrah Woodland	e_2Mi	C1: Eucalyptus 12m C2: Various < 1m C3: Cyperaceae/Poaceae	Eucalyptus marginata (20) Hakea Hibbertia etc grass sedge and annual ground cover
158/90 Andrew, A & A Cascades	Proteaceous Scrub	b,hSi/xZr/xGi	C1: Banksia/ Hakea 1.4m C2: Myrtaceae 0.6m C3: Restionaceae /Cyperaceae <0.3m	Banksia media (3),Hakea prostrata (6) Conothamnus aureus (2) Restio sp #A677 (6) sedge and grass ground cover

Appendix 11b (continued)

159/90 Andrew, A & A Cascades	Low Open Mallee (over Myrtaceous Thicket)	eKi/xZi	C1: Eucalyptus 3m C2: Myrtaceae 0.9m	Eucalyptus uncinata (8), E. sp. U (1), E. angustissima, E. conglobata, E. densa Melaleuca glaberrima (9) Conothamnus aureus (9) numerous other plants
160/90 Hipper Northampton	Sparse Mallee (over Dwarf Scrub)	eKb/dZi	C1: Eucalyptus 2m C2: Proteaceae 0.7m	Eucalyptus obtusiflora (3), E. gittinsii Dryandra shuttleworthiana (1) other small plants present
163/90 Bruchel, Walter Nelson	Marri Forest	e_3Mc/xSi	C1: Eucalyptus 19m C2: Fabaceae 3m C3: Dennstaedtiaceae 1.1m C4: Cyperaceae/Poaceae	Eucalyptus calophylla (29) Bossiaea webbii (6) Pteridium esculentum (2) Trymalium floribundum (2) grass and sedge ground cover
164/90 Swarbrick, R & M Bremer Bay	Open Low Woodland of Yate	e_7Lr/dZi	C1: Eucalyptus 6m C2: Proteaceae < 1m	Eucalyptus occidentalis (2), E. decipiens (2), E. tetragona (2) Dryandra circioides (4) other small plants
165/90 Swarbrick, RV & M Bremer Bay	Open Low Woodland of Yate	e_7Lr	C1: Eucalyptus 8m	Eucalyptus occidentalis (9), E. decipiens (1)
166/90 Fotheringham, William Karlgarin	Acacia/Casuarina Scrub	a_xSr/cSr	C1: Acacia 2.5m C2: Allocasuarina 1.2m C3: Myrtaceae 0.6m C4:Cyperaceae	Acacia sp #B66, B91 (3) Allocasuarina huegeliana (4) Verticordia densiflora (3) sedge ground cover
167/90 Fotheringham Karlgarin	Sparse Low Eucalypt Woodland and Mallee with Open Dwarf Scrub	eLb/eKb/mZr	C1: Eucalyptus 7m C1: Eucalyptus 3m C2: Melaleuca 1.2m	Eucalyptus salubris (1) Eucalyptus sp #B104 (1),E. loxophleba (<0.1) Melaleuca fulgens (<1) M. adnata (<1) and other small plants
168/90 Walsh, G & S Newdegate	Open Woodland of York Gum	e_6Mr/xZi	C1: Eucalyptus 12m C2: Fabaceae	Eucalyptus loxophleba (3), E. pileata (<0.5) Templetonia sp #B475 (1) and numerous other plants

170/90 Sinclair R & Y Piawaning	Open Low Woodland of York Gum	e_6Lr	C1: Eucalyptus 5m	Eucalyptus loxophleba (5)
171/90 Young, Andrew James Northampton	Open Low Woodland of Banksia (over dwarf scrub)	b_1Lr/cSi	C1: Banksia 2m C2: Allocasuarina 0.9m C3: Antheraceae/ Restionaceae <0.3m	Banksia attenuata (5) Allocasuarina humilis (4) Corynotheca micrantha (5) Loxocarya cinerea (13) and Lyginia barbata (8) with various other plants
172/90 Doyle, Peter & Greg Kulin	Mallee (over Heath)	eKi/hSb/xZi	C1: Eucalyptus 8m C2: Hakea 1.3m C3 Myrtaceae/ Proteaceae/ Dilleniaceae <0.5m	Eucalyptus sp #A6 (<1) Hakea aff. crassifolia (1) Beaufortia interstans (11),Baeckea sp #A13 (3),Dryandra pteridifolia (6) and Hibbertia exasperata (3) with numerous others
173/90 Heitman Holdings Arrino	Mallee (over Heath)	eKi/xZi	C1: Eucalyptus 8m C2: Melaleuca/ Fabaceae <0.9m	Eucalyptus leptophylla (6) Gastrolobium oxylobioides (7) and Melaleuca urceolaris (6)with numerous others
174/90 Heitman Holdings Arrino	Mottlecah Mallee Heath	eKb/xZi	C1: Eucalyptus 1.5m C2: Myrtaceae <0.6m	Eucalyptus macrocarpa (<0.5) Leptospermum erubescens (3)with Melaleuca holosericea (1) and various others
175/90 Clarke, DN Lake Grace	Open Low Woodland of Salmon Gum	e_8Lb/mSr	C1: Eucalyptus 6m C2: Melaleuca 2m	Eucalyptus salmonophloia (1)E. subangusta (1) Melaleuca acuminata (1) numerous other small plants
176/90 Curwood, WB Buniche	Sparse Low Woodland of York Gum	e_6Lb/mSi	C1: Eucalyptus 3m C2: Melaleuca 1.5m C3: Fabaceae 0.9m	Eucalyptus loxophleba (2), E. sp #B520 (<0.5) Melaleuca urceolaris (5) Bossiaea walkeri (1)
177/90 Curwood, WB Buniche	Mallee (over Melaleuca)	eKb/mSi	C1: Eucalyptus 4m C2: Melaleuca 1.5m	Eucalyptus adnata (2), E. eremophylla (1), E. flocktoniae (1), E. loxophleba (2) Melaleuca urceolaris (5)

Appendix 11b (continued)

178/90 Willcocks, WR & CM Lake Grace	Mallee	eKi	C1: Eucalyptus 8m	Eucalyptus falcata (5), E. pluricaulis (1), E. sp #B301 (1) various other small plants
179/90 Willcocks, WR & CM Lake Grace	Mallee	eKb/xSi	C1: Eucalyptus 13m C2: Allocasuarina/ Cupressaceae <3m C3: Melaleuca 1.6m	Eucalyptus falcata (1) Allocasuarina acutivalvis (1) and Callitris drummondii (1) Melaleuca pungens (<1)
180/90 Kerruish, Kevin John Wickepin	York Gum Woodland (over Jam)	$e_6Mi/a_{19}Li$	C1: Eucalyptus 20m C2: Acacia 8m C3:Poaceae	Eucalyptus loxophleba (14) Acacia acuminata (1) dried grass ground cover
181/90 Power, B&B Candlelight	York Gum Low Woodland	e_6Lr/mSi	C1: Eucalyptus 8m C2: Melaleuca 3m	Eucalyptus loxophleba (2), E. rigidula (1), E. yilgarnensis (<0.5) Melaleuca acur. iata (4)
182/90 Greay Karlgarin	Sparse Mallee (over Casuarina scrub)	$eKr/C_4Si/xSi$	C1: Eucalyptus 5m C2: Allocasuarina 3m C3: Hakea 1.2m C4: Rutceae 0.7m	Eucalyptus burracoppinensis (1) Allocasuarina acutivalvis (2) Hakea scoparia (1) Phebalium tuberculosum (<1) numerous small plants
183/90 Beatty, JW	Open Woodland of Jarrah/ Marri (with Wandoo)	$e_{2,3,5}Mi$	C1: Eucalyptus 20m C2: Eucalyptus 12m	Eucalyptus calophylla (2), E. marginata (5) Eucalyptus capillosa (17) grass ground cover
184/90 Fisher Ongerup	Low Woodland of Mirret (over Mallee)	$e_{11}Li/eKi$	C1: Eucalyptus 5m C2: Eucalyptus 3m C3: Myrtaceae 0.5m C4: Poaceae	Eucalyptus flocktoniae (3) Eucalyptus conglobata (4), E. scyphocalyx (1), E. redunca (3)E. pileata (3), E. salubris (<0.1), E. uncinata (1) Astartea heteranthera (3) grass ground cover
185/90 Fisher, TW & SJ Ongerup	Gimlet Low Woodland (over Mallee, over melaleuca thicket)	$e_{34}Li/eKi/mSi$	C1: Eucalyptus 3m C2: Melaleuca <1m C3: Poaceae	Eucalyptus conglobata (5), E. salubris (4) Melaleuca uncinata (3)

186/90 Fisher, TW & SJ Ongerup	Mirret and Mallee	$e_{11}Li$ - eKi	C1: Eucalyptus <6m C2: Poaceae	Eucalyptus sp F (15), E. flocktoniae (1), E. scyphocalyx (4), E. sp #A305 (redunca group) (2), E. salubris (5), E. uncinata (<1) grass ground cover
187/90 Keoringle, P/L Tammin	Sparse Open Low Woodland of York Gum	e_6Lr/aSi	C1: Acacia/ Eucalyptus 6m C2: Acacia 2m	Eucalyptus loxophleba (<1) Acacia signata (3), A. acuminata (1)
188/90 Mills, EA & V Jerramungup	Mallee	eKi	C1: Eucalyptus 2m	Eucalyptus eremophila (2), E. sp #B657 (2), E. sp #B684 (<1), E. conglobata, E. spathulata, E. tetragona numerous other plants with sedge ground cover
189/90 Mills Jerramungup	Sparse Mallee (over Proteaceous dwarf scrub)	ekr/dSi	C1: Eucalyptus 1.7m C2: Proteaceae 0.9m	Eucalyptus preissiana (<1), E. sp #B657 (<1), E. sp #B670 (<1), E. tetragona (<0.5) Dryandra pteridifolia (3) numerous other species
190/90 Mullan Carl & Merela Jitarning	Wandoo Woodland (with Jam understory)	$e_5Mi/a_{19}Li$	C1: Eucalyptus 15m C2: Acacia 7m C3: Anthericaceae 0.1m	Eucalyptus capillosa (5) Acacia acuminata (14) Borya nitida (1) dried annual ground cover
191/90 Grylls, JB Gabbin	Mallee/ Acacia Thicket	eKi-aSc	C1: Eucalyptus/ Acacia <7m	Eucalyptus sp #A123 (3), E. subangusta (7), E. leptopoda, E. yilgarnensis, Acacia aff leptoneura (28)
193/90 Rintoul, J Newdegate	Open Low Woodland of York Gum (with Myrtaceous understory)	e_6Lr	C1: Eucalyptus 7m C2: Myrtaceae/ <0.7m	Eucalyptus loxophleba (<1), E. sp #B472 (<1) Beaufortia micrantha (1), Melaleuca sp #B460 (1) numerous other species with sedge ground cover
194/90 Easton Namban	Low Open Woodland of Wheatbelt Wandoo	eLr	C1: Eucalyptus 9m C2: Melaleuca 0.9m	Eucalyptus capillosa (<1), E. subangusta Melaleuca undulata (<1)

Appendix 11b (continued)

195/90 Easton Namban	Low Open Woodland of York Gum (over Mallee)	e_6Lr/eKr	C1: Eucalyptus 9m C2: Eucalyptus 6m C3: Proteaceae/ Acacia	Eucalyptus loxophleba (1) Eucalyptus subangusta (<1), E. capillosa (1) Grevillea bipinnatifida (1), Acacia signata (<1)
196/90 Easton Namban	Mallee	eKMr	C1: Eucalyptus 10m C2: Eucalyptus 2m	Eucalyptus subangusta (4) Eucalyptus capillosa (<1)E. loxophleba
197/90 Easton Namban	Open Woodland of York Gum	e_6Mr	C1: Eucalyptus 11m C2: Hakea 4m	Eucalyptus loxophleba (2) Hakea recurva (<1)
198/90 Bennier, John & Sons Wickepin	Sparse Low Woodland of Wandoo (Casuarina thicket)	e_5Mr/C_4Sc	C1: Eucalyptus 12m C2: Allocasuarina 10m C3: Cyperaceae 0.9m	Eucalyptus capillosa (1) Allocasuarina acutivalvis (35) Lepidosperma longitudinale (2) dried annual ground cover
199/90 Bennier, John & Sons Wickepin	Casuarina Scrub/ Thicket	c_4Si	C1: Allocasuarina 11m C2: Poaceae	Allocasuarina acutivalvis (19) grass and dried annual ground cover
200/90 Kleeman, C & D Narrogin	Marri Wandoo Woodland	$e_{3,5}Mi$	C1: Eucalyptus 11m C2: Proteaceae 2m C3: Pittosporaceae 0.7m C4: Fabaceae/ Cyperaceae	Eucalyptus calophylla (15), E. wandoo (10) Dryandra sessilis (4) Bossiaea errocarpa (2), Sollya heterophylla (1) sedge ground cover
201/90 Biglin, JL Karlgarin	Low Mallee (with Myrtaceous understory)	$e_{14,6}LKr/xZi$	C1: Eucalyptus 4m mallee C2: Eucalyptus 2m C3: Myrtaceae 0.5m C4: Cyperaceae	Eucalyptus dundasii (<1) Eucalyptus loxophleba (2) Verticordia chrysantha (2) sedge ground cover
202/90 Curtis, B Gibson	Melaleuca Thicket	mSi	C1: Melaleuca 4m	Melaleuca cuticularis (23)
203/90 Simkin D & C Northampton	Mallee over Melaleuca	eKi	C1: Eucalyptus 5m C2: Melaleuca 3m	Eucalyptus obtusiflora (3) Melaleuca adnata (4)

204/90 Ibbotson Hyden	Open Low Woodland of York Gum (over Jam scrub)	e_6Lr/a_6Si	C1: Eucalyptus 4.5m C2: Acacia/ Lamiaceae <0.5m C3: Cyperaceae	Eucalyptus loxophleba (2) Acacia acutata (3) Westringia cephalantha (1) numerous other species with some sedge ground cover
205/90 Ibbotson Hyden	Very Open Low York Gum Woodland (with Acacia/ Casuarina open scrub)	$e_6Lr-aSr/cSi$	C1: Eucalyptus/ Acacia <3m C2: Allocasuarina 1.7m C3: Poaceae 1m	Eucalyptus loxophleba (1) Acacia sp #B66, B91 (1) Allocasuarina sp#B68 (3) Spartochloa scirpoidea (4)
206/90 Dwyer, K & R Esperence	Yate and Tallerack	$e_{7,26}Li$	C1: Eucalyptus <4m C2: Acacia 1.7m C3: Proteaceae/ Myrtaceae 0.9m C4: Poaceae	Eucalyptus occidentalis (12), E. tetragona (2), E. spathulata, E. uncinata Acacia sp #A593 (16) Dryandra circioides (17) with also Calothamnus quadrifidus (3) grass ground cover
207/90 Storer, Bruce James Cunderdin	Low Open Mallee	eKr	C1: Eucalyptus 2m	Eucalyptus subangusta (5), E. loxophleba (1)
208/90 Storer Cunderdin	Sparse York Gum and Sparse Acacia Scrub	$e_6Lr/a_{19}Sr$	C1:Eucalyptus C2: Acacia 3m	Eucalyptus loxophleba Acacia acuminata (1)
209/90 Storer Cunderdin	Open Acacia Scrub	aSi	C1: Acacia 6m	Acacia signata (7)
211/90 Lukins, RG & B Kukerin	Sparse Low Woodland of York Gum and Mallee	$e_6Lr-eKr$	C1: Eucalyptus <10m C2: Melaleuca 1.5m C3: Fabaceae 0.5m	Eucalyptus loxophleba (1), E.pluricaulis (<1) E. yilgarnensis (1), E. subangusta Melaleuca sp #B415 (1) Daviesia sp #B418 (1)
212/90 Lewis, J & J Bindi Bindi	Gimlet Open Low Woodland	e_{34}	C1: Eucalyptus 9m	Eucalyptus salubris (2)
214/90 Millard, R & L Borden	Scrub of Red Heart and Dryandra	$eL - dSi$	C1: Eucalyptus/ Dryandra 5m C2: Banksia 0.3m	Eucalyptus decipens (4) Dryandra aff pteridifolia (5) Banksia repens (1)

Appendix 11b (continued)

227/90 Ivey Bodallin	Acacia/ Proteaceous Thicket	xSc	C1: Acacia/ Hakea 2m C2: Allocasuarina/ Myrtaceae/ Proteaceae <1.5m C3: Melaleuca 0.6m	Acacia sp #A195 (3), Hakea sulcata (5) Allocasuarina corniculata (1),Persoonia sp #A214 (3)Thryptomene kochii (12) Melaleuca conothamnoides (4) Eucalyptus burracoppinensis present
230/90 Ivey, PW & DL Bodallin	Mallee (over mixed Casuarina, Melaleuca, Acacia scrub)	eKi/c,m,aSi	C1: Eucalyptus 3m C2: Allocasuarina Melaleuca/ Acacia/ Proteaceae <2m C3: Rutaceae 0.6m	Eucalyptus subangustum (4) Allocasuarina corniculata (2), Melaleuca conothamnoides (1), M. sp #A193 (1), Acacia sp #A194 (8), Thryptomene kochii (8) Phebalium aff microphyllum (2)
232/90 Corackerup Ongerup	Open Low Woodland of Yate (over Melaleuca scrub)	e_7Mr	C1: Eucalyptus 12m C2: Melaleuca 5m	Eucalyptus occidentalis (1) Melaleuca pauperiflora (<1)
233/90 Corackerup Ongerup	Open Low Woodland of Yate (over Casuarina and Mallee)	e_7Lr	C1: Eucalyptus 8m C2: Allocasuarina 5m C3: Cyperaceae	Eucalyptus occidentalis (1), E. spathulata, E.phaenophylla (<1) Allocasuarina huegeliana (1) sedge ground cover
234/90 Barret, T & J Jerramungup	Dwarf Scrub	xZi	C1: Fabaceae 1.5m C2: Cyperaceae/ Myrtaceae	Daviesia pachyphylla (<1), Gastrolobium spinosum (<1) Lepidosperma angustatum (2), Leptospermum sp #B553 (1) numerous other species (Eucalyptus sp #B557 present)
235/90 Cameron, RJ Wannamal	Open Low Wandoo	e_5Li	C1: Eucalyptus 8m C2: Xanthorrhoeaceae / Proteaceae<1.5m	Eucalyptus capillosa (4) Xanthorrhoea preisii (1)Dryandra polycephala (2) numerous other species
236/90 Smith, Eric & Co. Kwobrup	Open Low Wandoo (with Mallee understory)	e_5Li/eKr/xSi	C1: Eucalyptus 9m C2: Eucalyptus 6m C3: Proteaceae/ Xanthorrhoeaceae <1.5m	Eucalyptus wandoo (25) Eucalyptus sp #A238 (3) Dryandra circioides (9), Xanthorrhoea preisii (2), Hakea erinacea (2) Petrophile trifida (2)

237/90 Cole, EF & Co. Ardath	Melaleuca Scrub	mSr-e_6Lr	C1: Melaleuca 5m C2: Eucalyptus 0.5m	Melaleuca laterita (2) Melaleuca sp #B147 (1) Eucalyptus loxophleba (<1) other species present
238/90 Dunne, John Beacon	Salmon Gum Woodland(with Gimlet and mixed understorey)	$e_{8,34}$Mi/xSi	C1: Eucalyptus 19m C2: Eucalyptus 10m C3:Acacia/Goodeniaceae<2m C4: Chenopodaceae 0.6m C5:Poaceae	Eucalyptus salmonophloa (6) Eucalyptus salubris (3), E. yilgarnensis (6), E. sp #A153 Acacia leptoneura(5)Scaevola spinescens (3) Sclerolaena diacantha (2) grass and dried annual ground cover
239/90 Dring, Gary Badgingarra	Proteaceous Scrub(over Blackboy and Prickle-bark)	h,dSr/xZi	C1: Hakea/ Proteaceae <1.5m C2: Xanthorrhoeaceae/ Eucalyptus/ Lauraceae <0.8m	Hakea trifurcata (1),Dryandra carlinoides (2) Xanthorrhoea preissii (2)Eucalyptus todtiana (2)Cassytha sp #B270 (2) numerous other species
240/90 Fleay Wickepin	Wheatbelt Wandoo/York Gum Low Woodland (overJam)	$e_{5,6}$Li/a_{19}Sr	C1: Eucalyptus 11m C2: Acacia 6m C3:Poaceae	Eucalyptus capillosa (9)E.loxophleba (6) Acacia acuminata (3) grass and annual ground cover
241/90 Fleay Wickepin	Wandoo Woodland	e_5Mi	C1: Eucalyptus 16m C2: Cyperaceae 0.6m	Eucalyptus wandoo (14) Lepidosperma drummondii (1) grass and annual ground cover
242/90 Russell, P & R Gibson	Low Open Swamp Yate Woodland (over Mallee and Dwarf Scrub)	e_7Lr/eKi/xZi	C1: Eucalyptus 6m C2: Eucalyptus 2m C3: Rhamnaceae 0.4m C4:Poaceae	Eucalyptus occidentalis (3) Eucalyptus conglobata (8)E.sp #A624 (4) Spyridium complicatum (5) grass and weed ground cover
244/90 Smith, Brian Wogarl	Mallee/Casuarina Scrub(over Acacia and Melaleuca Dwarf Scrub)	[eKr-c_4Sr-hSr]/a,mZi	C1:Eucalyptus/Allocasuarina/ Hakea<1.5m C2:Acacia / Melaleuca<1m	Eucalyptus burracoppinensis (3)and Allocasuarina acutivalvis (2),Hakea sulcata (4) Acacia signata (1) Melaleuca uncinata (2) numerous other species

Appendix 11b (continued)

245/90 Thompson, B & B Quairading	Low Open Wheatbelt Wandoo Woodland	$eLr/a_{19}Zr$	C1: Eucalyptus 5m C2: Acacia 0.5m	Eucalyptus cap .)sa (5) Acacia acuminata (<1)
247/90 Thompson, B & B Quairading	Open Wandoo Woodland	e_5Mr	C1: Eucalyptus 13m C2: Proteaceae 6m C3: Poaceae	Eucalyptus wandoo (4) Grevillea paniculata (<1) dried annual ground cover
252/90 Ganzer, Frank & Co. Wagin	Mallet Woodland	$e_{64}MKc\text{-}e_5Lr$	C1: Eucalyptus (mallee) 15m C2: Eucalyptus 9m C3: Poaceae	Eucalyptus astringens (23) Eucalyptus wandoo (2) grass ground cover
254/90 Joyce, R Moora	Wheatbelt Wandoo Open Woodland	eMi	C1: Eucalyptus 12m	Eucalyptus capillosa (4)
255/90 Argyle Muntagin	Mallee/Casuarina Scrub (with Hakea etc,over myrtaceous dwarf scrub)	$eKr\text{-}c_4Sr/xZi$	C1: Eucalyptus/ Allocasuarina <2m C2: Myrtaceae 0.6m	Eucalyptus burracoppinensis (5) and Allocasuarina acutivalvis (2)[plus Hakea invaginata (1),Leptomeria sp #B7 (2)] Thryptomene kochii (1)