



# Beekeepers' Use of Honey and Pollen Flora Resources in Victoria

A report for the Rural Industries Research  
and Development Corporation

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# FOREWORD

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In 1989, a national workshop of apiary industry personnel and scientists was convened in Canberra to discuss issues relating to commercially managed honeybees (*Apis mellifera*) in the Australian environment. One of the key recommendations of the workshop was that each State should conduct a survey to determine the value and use of apiary sites and then establish a comprehensive database to record this information.

The nectar and pollen flora is a major resource required by the honeybee industry. In Victoria, the majority of beekeepers rely mostly on native flora growing on public lands (land managed by government agencies) for honey crops. Erosion of this valuable flora resource base will severely impact on the capacity of industry to produce honey and remain economically viable.

This publication provides detailed information on apiary sites, their use and significance, honey production, pollination and important nectar and pollen flora targeted by apiarists. The data will be useful to relevant government departments and industry when considering a range of issues relating to industry's future access to apiary sites.

This project was funded from industry revenue which is matched by funds provided by the Federal Government.

This report, a new addition to RIRDC's diverse range of 700 research publications, forms part of our Honeybee R&D program, that aims to support innovative and focused research and development projects which will contribute to the productivity and profitability of the Australian beekeeping industry.

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**Peter Core**

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I also thank the Victorian Apiarists' Association Executive Council for their support and encouragement throughout the project. The Council provided valuable comment and suggestions on the design of the questionnaires.

David Moran, formerly of the Institute for Horticultural Development, Knoxfield, developed the data base program and entered data into the database. His painstaking effort is acknowledged.

The questionnaires used in this project were, to a large degree, modelled on the questionnaires developed by the Queensland Department of Primary Industries (QDPI) for a similar survey in that State. I thank John Rhodes, former QDPI Apiary Officer, for assistance in this area.

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# DEFINITIONS

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*Apiarist* – a person keeping bees.

*Apiary* – land used for the keeping of bees in hives.

*Apiary site* – see apiary.

*Hive* – a receptacle housing a honeybee colony; usually one or more boxes containing 8 or 10 beeswax combs each held within a wooden or plastic frame.

*Honeybee* – a member of the genus *Apis mellifera*.

*Honeybee colony* – a honeybee community consisting of a queen, drones, workers and brood.

*Honeyflow* – the secretion of nectar by flowers and gathering of nectar from flora by honeybees.

*Nucleus hive* – a small hive containing usually 3 or 4 beeswax combs and a small honeybee colony that is often used to start new honey producing colonies.

*Pollination* – the transfer of pollen from the anthers to stigmas of flowers; the first step in fertilisation leading to fruit and seed set.

# EXECUTIVE SUMMARY

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## Project Title

A study of beekeepers' use of honey and pollen flora resources in Victoria.

## Objectives

- To identify apiary sites on public land in Victoria
- To list nectar and pollen resources at each site and link these to the production of honey and other apiary products
- To develop a database of information obtained in the survey
- To identify those sites which are currently under-utilised by apiarists and identify areas which may have a potential for beekeeping

## Method

Survey questionnaires seeking information on public land and private apiary site usage were designed in cooperation with the Victorian Apiarists' Association Inc. and mailed to all apiarists owning 50 or more beehives registered with the Department of Natural Resources and Environment. Information supplied by respondents was entered in a Microsoft Access computer database specially designed for the purpose. Apiarists supplied information about important honey and pollen flora, apiary site location, frequency of site use, crop pollination, production of honey, pollen and queen honeybees.

## Results

- A total of 170 (40.5%) of 420 apiarists mailed survey forms responded to the survey. Of the respondents, 155 apiarists (91%) provided useful data. The remainder had retired from the industry or only recently commenced beekeeping and were unable to provide useful information.
- Some sites had been used by individual apiarists (and family enterprises) for periods of up to 88 years.
- The greatest occupation of apiary sites was at the time of the year when honey flows are known to be most abundant in Victoria. The highest occupation of sites occurred in January, February and March (794, 781 and 734 sites respectively) and the lowest occupation of sites occurred during July (398 sites) when beekeeping activity is at its lowest level during the winter.
- The overall frequency of apiary site use ranged from one to ten years (1-10 years for public land sites; 1-6 years for private sites). The average frequency of use for public land and private sites was 2.6 years and 1.7 years respectively.
- Intervals between major honey flows occurring at a particular site ranged from 9 months to 35 years. Sixty-two percent of major flows occurred at intervals greater than two years.
- The average number of hives located on public land and private apiary sites was 149 and 93 respectively. The average number of nucleus hives on public land and private sites was 5 and 7 respectively.

- Respondents ranked Grey box, Red gum, Yellow gum, Red ironbark, Yellow box and Messmate as the six most important nectar plants in Victoria. Similarly, respondents ranked Capeweed, Red gum, Grey box, assorted shrubs, Clover and Wild turnip as the six important pollen plants.
- Average honey production per year was greater from public land apiary sites than from private sites.
- Improved apiary management practices and more productive lines or bees were the two most important factors causing increased honey production at an individual site. Drought or rainfall deficiency was given as the major reason for decreased honey production.
- Harvesting of honeybee collected pollen, shaking of bees to form packages or small colonies of bees for sale and rearing queen honeybees were not commonly practised in Victoria.
- The survey confirmed the importance of apiary sites for build-up of honeybee colonies. Over 46% of build-up sites were required to ensure colonies had good populations of bees prior to their location on honey production sites.
- Honeybee colonies placed near flowering crops but targeting other nectar producing flora provided incidental crop pollination. During 1995/96, 26 (17%) of all respondents supplied hives for contractual crop pollination. A high proportion of all respondents (79%) indicated that during the occupation of their sites their bees had provided some incidental pollination to crops within 1.5 km of the apiary site.
- A few apiarists (7%) indicated that agricultural chemicals had caused significant losses of bees on private apiary sites.
- Respondents were unable to identify areas of the State for expansion of the apiary industry in Victoria.

## Outcomes

- A database was developed to record information obtained in the survey.
- The database provides comprehensive information on all species of nectar and pollen producing flora targeted by respondents throughout Victoria. The data includes a ranking as supplied by individual respondents for each species targeted and growing within an area corresponding to a specific Victorian Mapsheet number (grid).
- The database also includes detailed information on apiary sites, their use and significance, pollination plus production of honey, pollen package bees and queen bees.
- The information will be useful to the Victorian apiary industry and government agencies when considering use of public land for beekeeping.



# 1. INTRODUCTION

The viability of the apiary industry depends largely on apiarists' continued access to areas of nectar and pollen yielding flora. The commercial industry is somewhat unique because apiarists do not own the land on which the nectar and pollen resource grows nor the apiary sites on which they place their hives. Consequently, the future of the industry may be somewhat uncertain because access to the flora resource can be determined by individuals or agencies not directly involved in beekeeping.

Eucalypts represent the bulk of honey and pollen resources in Australia (Keith and Briggs 1987) and in Victoria, the apiary industry derives at least 75% of the annual honey crop from these species. The remainder of the crop is derived from other native flora and introduced species including canola, lucerne, clovers, citrus and a variety of weeds.

The commercial apiary industry is migratory. Beehives are moved from district to district, perhaps up to 6-7 times per year and at various times to take advantage of flowering plants. Hives are placed on one or more apiary sites (also known as apiaries) in different areas. Alternatively, the sites may be within the one district but spaced apart, to avoid overstocking and to ensure each honeybee colony has sufficient nectar resource to produce an economic crop.

The number of sites required by an individual apiarist in any one year depends on the number of hives kept. Commercial apiarists generally manage between 400 to 800 hives, while sideline enterprises keep 50 or more hives. Keith and Briggs (1987) stated that the average commercial apiarist occupies on an occasional basis about 20 apiary sites per annum. For the larger enterprises, the number of sites required per year will far exceed the number indicated by Keith and Briggs.

The total number of apiary sites held by an apiarist will far exceed the number required on a per annum basis. This is because many Eucalypt species do not flower every year and some sites may only be used periodically. Generally, about half of the sites used by an apiarist will be located on public land and the remainder on land privately owned by persons or organisations other than the apiarist.

The apiary industry is heavily dependant on public land because it contains the majority of remaining native forest on which the industry is so reliant (Gibbs and Muirhead, 1998).

In Victoria, beekeeping is permitted in designated public land apiary sites located in State forests, parks and reserves including selected National Parks, and other public land provided the appropriate licence or permit fee is paid. Beekeeping is not permitted in Reference and Wilderness areas.

Over the years, the establishment of Reference and Wilderness areas and a number of National Parks have resulted in some areas of native flora being excluded from beekeeping. Elsewhere in the State, a number of public land sites historically used by industry from time to time have been withdrawn from beekeepers' use. These circumstances are not peculiar to Victoria as similar scenarios exist in other Australian States (Rhodes, 1999).

In 1989, the then Honeybee Research and Development Committee convened a national workshop to discuss the effects of honeybees on the Australian environment and industry's continued access to nectar and pollen resources. One major recommendation of the workshop was that each State should conduct a survey to determine industry's use and value of apiary sites. Each survey would also identify the important nectar and pollen flora targeted by apiarists at each site and record production of honey, pollen and queen bees. It was suggested that surveys be conducted using a similar format to that being used in

Western Australia by Manning (1992). At the time of writing the present report, most States had completed their surveys.

The retention of apiary sites on public land is essential for the survival of the industry in its present form. Loss of apiary sites and a subsequent decline of the apiary industry could have a major impact on the availability and vitality of honeybee colonies for crop pollination. This is because a number of apiary sites are used by apiarists to build-up their colonies to optimum numbers of foraging bees for maximum pollination and for the maintenance of colonies throughout the year. Such build-up sites generally produce little honey, but the small quantities of nectar together with good supplies of pollen provide excellent nutrition for build-up and restoration of colonies.

The completed survey provides, for the first time, detailed information that industry may use in submissions to agencies involved in determining the future availability of particular apiary sites.

## **2. OBJECTIVES**

- To identify apiary sites on public land in Victoria
- To list nectar and pollen resources at each site and link these to the production of honey and other apiary products
- To develop a database of information obtained in the survey
- To identify those sites which are currently under-utilised by apiarists and identify areas which may have a potential for beekeeping

# 3. METHODOLOGY

## Background concerns

During the early developmental stage of the project, a number of apiarists expressed reservations about the proposed survey and flora resource database. The paramount concern was that individual apiarists and specific apiary sites should not be identifiable in the final report. This matter was later discussed with the Executive Council of the Victorian Apiarists' Association Inc. (VAA) and an undertaking to respect these concerns was given by the principal investigator. To further alleviate any concerns relating to these issues, it was agreed that the final draft of the report should be checked by the VAA to ensure that confidentiality had been maintained and that this should occur before the final report was forwarded to RIRDC.

## Advice to apiarists

In April, 1996, a letter was sent to 410 registered Victorian apiarists who owned 50 or more hives to advise them of the aims of the proposed survey and the benefits that industry could expect from the project. The letter encouraged the apiarists to participate in the survey and answer the questionnaires during the winter months before the ensuing active beekeeping season began. A copy of a letter of endorsement of the project from the president of the VAA was included in this mail out.

To further inform beekeepers of the project aims and anticipated benefits for industry, the principal investigator also addressed the following conferences:

- Victorian Apiarists' Association Inc. annual conference
- North-East Apiarists' Association Victoria Inc. annual conference
- Gippsland Apiarists' Association Victoria Inc. annual conference
- Central Apiarists' Association Victoria Inc. annual conference.

## List of public land apiary sites

A list of public land apiary sites (annual or temporary licences) was obtained from the Department of Natural Resources and Environment.

## Questionnaires

Two types of questionnaires were designed, one for apiary sites on public/government land and the other for sites on private property. The questionnaires were based on questionnaires developed by Rhodes (1998) for a similar project entitled 'A natural resource database for the Queensland apiary industry. The Queensland forms were in turn based on the Western Australian resource questionnaire (Manning, 1992).

The draft questionnaire for apiary sites on public/government land was trialed by mailing a copy to twelve commercial apiarists chosen at random. Eight questionnaires were returned. The respondent's answers were reviewed and a number of questions were altered to ensure the intent of the question was clear.

Both questionnaires were then reviewed by the Executive Council of the Victorian Apiarists' Association Inc. in July and October 1995 and modified in line with the suggestions received. These changes included removal of some questions that were present in the Queensland questionnaires and the addition of some new questions pertinent to Victorian conditions.

The questionnaires (Appendix 1) were mailed to 420 apiarists on 11 July, 1996. The mail out included the following papers:

- an explanatory letter
- questionnaires for each apiary public land apiary site held by the apiarist
- questionnaires for private land apiary sites; the actual number of forms mailed was based on an estimation of sites held according to the number of hives kept by the apiarist
- advice notes on how to answer the questions
- a list of public land sites currently licensed to the individual
- a copy of Mapsheets of Victoria (scale 1:100,000) (Appendix 2)
- a replied paid envelope.

Apiarists were asked to identify the location of each apiary site by either stating the nearest town and/or providing a map grid reference number obtained from the enclosed Mapsheets of Victoria.

In instances where apiarists had a number of sites, each with similar flora, in a particular parcel of public land (eg State forest, National Park), the details for all these sites could be entered on the one form provided the site numbers were indicated.

Apiarists for whom no record of current use of apiary sites on public land could be found were sent questionnaires for sites on privately owned land plus one or two public land questionnaires in case they had previously used the latter type of site.

The quantity of forms to be mailed to a number of apiarists operating some of the largest apiary enterprises in Victoria was considered to be somewhat excessive in terms of the workload required from the individual respondent. In an attempt to ease the paper workload for these beekeepers, it was decided to only forward the questionnaires for public land apiary sites in the first instance. When these had been returned, the questionnaires for private land apiary sites were then mailed to these respondents.

The project leader attended all Victorian State and regional apiarist conferences and encouraged beekeepers to participate in the survey. A number of apiarists were also contacted by telephone to remind them to forward completed questionnaires.

We decided to conduct a second mail out of questionnaires to apiarists who had not responded to the first mail out. This was done in June 1997. A number of apiarists had indicated that they did not respond to the initial mail out because of concerns about confidentiality of the information they would provide. For this reason, questionnaires (for both public land and private sites) were reprinted to include the words "Commercial in Confidence". This was done to give assurance to apiarists that any information given by them would be incorporated into the final report in such a manner that an individual could not be identified.

Data supplied on the questionnaire forms by apiarists was entered into a Microsoft Access database developed specifically for this project.

## 4. RESULTS

### 4.1 Number of respondents

A total of 155 apiarists (37%) responded favourably to the survey by returning completed questionnaires. Another 15 people responded, but indicated that they no longer kept bees or had only recently commenced beekeeping and therefore could not provide useful information. These 15 people are therefore not included as respondents in the following notes.

One hundred and eleven (27%) apiarists responded to the initial invitation by returning 590 individual questionnaires, many of which related to multiple apiary sites. A further 44 apiarists responded to the survey when questionnaires marked "Commercial in Confidence" were mailed in June 1997. The number of respondents according to the number of hives owned are detailed in Table 1.

**Table 1. Number of respondents according to number of hives owned.**

Number of hives owned	Number of respondents	Percent of total
50 - 100	70	45.2
101 - 150	14	9.1
151 - 200	13	8.4
201 - 300	17	10.7
301 - 400	7	4.6
401 - 500	12	7.7
501 - 600	8	5.2
601 +	14	9.1

### 4.2 Public land apiary sites licences and permits

In Victoria, there are two types of apiary sites on public land available for long or short term tenure.

Long term tenure sites are subject to an annual licence and are known by apiarists as permanent sites. Annual licences are renewable every 12 months and are issued for apiary sites on land administered under the *Land Act 1958* and the *Forests Act 1958*. It should be noted that although apiarists hold permanent (annual) sites on a continuing long term basis, the flora may not flower every year and therefore the site may only be used on an infrequent basis for honey production. The variable nature of apiary site occupation varies mostly with the erratic and indeterminable flowering cycles.

Short term sites are subject to the issuing of a permit and are known by apiarists as temporary sites. Permits are issued for a period of 3 or 6 months for apiary sites administered under the *Land Act 1958*, *Forests Act 1958* and the *National Parks Act 1975*. Permits may be renewed.

The number of apiary sites according to the type of licence or permit issued for which information is provided in this survey is presented in Table 2. Many respondents will hold more than one of these licences and permits.

**Table 2. Type of licence and number of sites held by survey respondents.**

Type of licence or permit	Number of sites by respondents
Annual licence	232
Temporary permit	544

### 4.3 Number of apiary sites

The number and distribution of apiary sites on public and private land for which respondents supplied information is provided in Table 3. Information on the approximate location of sites throughout Victoria is represented by the appropriate Victorian Mapsheet number (Refer to Appendix 2).

**Table 3. Number of public land and private apiary sites used by respondents according to Victorian Mapsheet number**

Victorian Mapsheet number	Number of apiary sites		Victorian Mapsheet number	Number of apiary sites	
	Public land	Private		Public land	Private
3	6	0	62	9	2
4	12	14	65	18	9
6	2	0	66	3	2
7	33	1	67	12	0
8	13	0	68	8	1
9	13	1	69	8	0
10	0	1	70	3	0
11	2	24	71	35	13
13	10	5	73	15	9
14	18	2	74	21	20
15	19	1	75	9	7
16	18	1	77	37	9
17	0	1	78	4	1
19	2	1	81	2	1
20	6	1	82	0	1
21	8	1	83	6	6
23	22	85	85	1	9
24	2	13	86	7	14
29	16	1	87	4	2
30	5	13	90	9	5
31	21	12	91	3	0
32	4	1	92	3	3
34	2	3	93	1	0
35	4	0	94	1	0
36	0	1	95	1	2
39	8	7	96	0	3
40	2	3	97	0	3
41	12	7	98	3	2

**Table 3.** (Continued from previous page)

Victorian Mapsheet number	Number of apiary sites		Victorian Mapsheet number	Number of apiary sites	
	Public land	Private		Public land	Private
42	2	8	99	4	0
43	5	2	100	0	4
44	3	1	102	7	0
45	15	8	104	1	1
47	6	4	105	0	3
49	15	2	106	3	5
51	9	5	107	7	1
53	28	21	108	0	1
54	14	9	109	0	10
55	62	19	110	0	1
56	22	21	112	0	1
57	47	39	114	0	2
58	5	8	115	0	3
59	57	37	116	0	1
60	13	5	117	0	2
61	12	1			

#### 4.4 Number of apiary sites by calender month

Apiarists were asked to indicate the months of the year that apiary sites were in use. Respondents used more sites (794) in January than in any other month. To a large degree, this pattern of apiary site occupation coincides with the variety and number of honey flows (flowering) and frequent migration of hives from site to site that occurs at that time of the year.

The lowest number of sites (398) occupied by respondents in any one month occurred in July and was approximately half the number of sites that were in use during January. Generally, honeybees are quiescent in winter and most apiarists choose not work the very few Victorian winter honey flows for various management reasons or, do not have sites to access them. The hives usually remain on the one site for all of winter and in some cases, hives from a number of sites (or apiaries) may be brought together on the one site to minimise the apiarist's travel and apiary management costs. The number of public land and private apiary sites used by respondents are presented in Table 4.

**Table 4 Total number of apiary sites (public land and private) on which respondents had hives according to a particular calender month.**

Month	Number of apiary sites	Month	Number of apiary sites
January	794	July	398
February	781	August	425
March	734	September	474
April	648	October	580
May	496	November	611
June	430	December	696



#### 4.5 Length of time apiary site held by an apiarist

Apiarists using apiary sites on public and/or private land were asked to indicate when they first used each site. Data supplied by the respondents is shown in full detail in Table 5 and as a frequency table (Table 6).

The information supplied indicates that some sites had been held by family businesses for more than one generation. It should also be noted that an apiary site may be held by an individual apiarist on a continuing basis, however the actual period of occupation by hives may only be several weeks or months every one or more years depending on the cyclic flowering of the nearby flora.

**Table 5. Number of years apiary site held and number of sites held for that period.**

No. of years site held	Number of sites	No. of years site held	Number of sites
1	25	30	49
2	56	31	17
3	50	32	5
4	63	33	4
5	23	34	5
6	79	36	33
7	12	38	7
8	45	39	5
9	31	40	17
10	47	41	6
11	65	42	20
12	27	43	1
13	21	46	11
14	33	47	13
15	5	48	58
16	63	50	22
17	24	51	19
18	18	53	40
19	6	54	2
20	21	56	1
21	20	57	1
22	41	61	11
23	4	64	1
24	18	66	1
25	9	71	5
26	47	80	1
28	16	88	2
29	8		

**Table 6. Number of years apiary site held and number of sites held for that period by frequency distribution.**

No. of years site held	Number of sites	No. of years site held	Number of sites
1 - 5	217	26 - 30	121
6 - 10	214	31 - 40	93
11 - 15	151	41 - 50	131
16 - 20	132	50 - 80	85
21 - 25	92		

#### 4.6 Years between major honey flows

Generally, apiarists only use apiary sites when there is a likelihood of an adequate flowering that will provide suitable nectar and/or pollen resources for honey production or build-up of colonies that may have low numbers of bees.

Some sites may only be used infrequently although they are held by an apiarist and the licence or permit fee paid on a continual basis. This is due to the fact that not all species of Eucalypt flower every year. Some species may flower every second year while others flower at greater intervals of time. The cyclic budding and flowering of Eucalypts is not only dependant on the individual species but may also be affected by other factors such as drought, fire and devastation by pests and disease. Sometimes budding at a site will be light and apiarists will choose to place hives on other sites where nectar and pollen resources are greater.

Apiary sites used to service pollination contracts, and sites where ground flora (eg clover, weeds) is targeted, will often be used annually provided the latter is not greatly affected by drought.

Survey respondents indicated the approximate number of years between major honey flows on each site and this information is summarised in Table 7. The data is also presented by frequency distribution in Table 8.

**Table 7. Years between honey flows and number of apiary sites for that period.**

Number of years between honey flows	Number of apiary sites	Percent of total
0.75	1	0.2
1	106	9.5
1.5	17	1.5
2	296	26.5
2.5	61	5.5
3	231	20.7
3.5	31	2.8
4	170	15.2
4.5	5	0.4
5	85	7.6

5.5	2	0.1
6	18	1.6
6.5	25	2.2
7	8	0.7
7.5	4	0.3
8	15	1.3
10	30	2.7
12	2	0.2
15	1	0.2
20	4	0.3
25	1	0.2
35	2	0.2

**Table 8. Number of years between honey flows and number of apiary sites for that period by frequency distribution.**

Number of years between honey flows	Number of sites	Number of years between honey flows	Number of sites
<1 - 1	107	5.5 - 6	20
1.5 - 2	313	6.5 - 7	33
2.5 - 3	292	7.5 - 8	19
3.5 - 4	201	8.5 - 15	33
4.5 - 5	90	15.5 -35	7

#### 4.7 Number of hives per site

Apiarists were asked to indicate how many hives and nucleus hives they placed on their public land and private apiary sites. Respondents were also asked to provide information on how often the site was used and the average period of time the hives were located on the site. The responses are summarised in Tables 9 and 10.

**Table 9. Number of hives placed on public land and private apiary sites; and frequency of apiary site use.**

Type of site	Total no of hives placed on all sites (includes nucleus hives)	Minimum no. of hives per site (including nucleus hives)	Maximum no. of hives per site (including nucleus hives)	Average no. of hives per site (including nucleus hives)	Average frequency of use (years)
Private	56,808	8	302	100	1.7
Public land	125,537	6	600	154	2.6

**Table 10. Summary of data of hives placed on public land and private apiary sites; average number of months sites used per year and total number of hives and nucleus hives kept by all respondents.**

Type of site	Total no. of sites	Total no. of hives <sup>1</sup>	Min no. of hives per site	Max no. of hives per site	Average no. of hives per site	Total no. of nucleus hives	Max no. of nucleus hives/site	Average no. of nucleus hives/site	Average no. of months site used
Private	566	52,899	8	302	93	3,909	200	7	4.16
Public	814	121,555	6	600	149	3,982	200	5	5.88

Note:

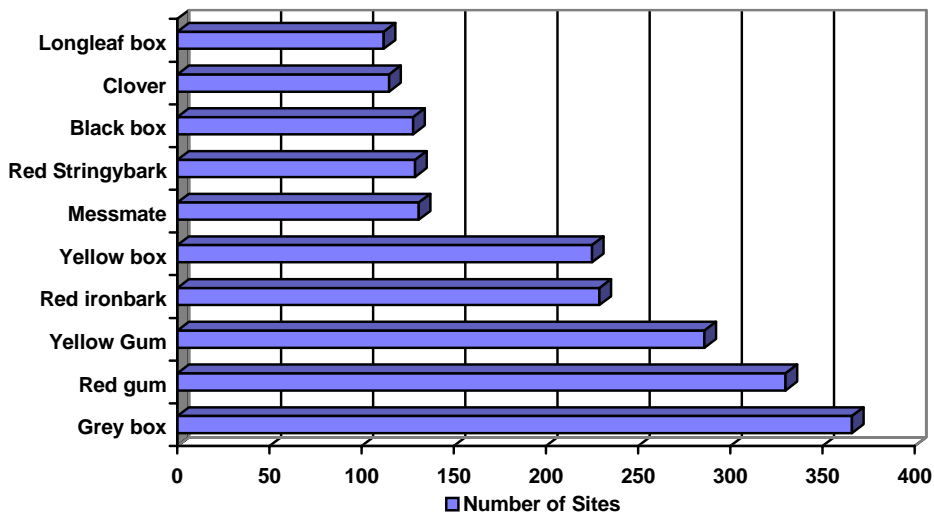
1. In Table 10. the total number of hives excludes nucleus hives.

## 4.8 Nectar and pollen flora

### 4.8.1 Nectar plants targeted by apiarists

Apiarists were asked to list up to six nectar producing plants, in order of importance, that were being targeted at each apiary site. From this information (using all rankings), the 10 most important nectar producing plants in Victoria were determined and are presented in Figure 1.

**Figure 1. The 10 most important nectar plants in Victoria**



The first 20 nectar plants ranked number 1 by respondents together with the number of apiary sites used to target each individual species are presented in Table 11. Similarly, the first 20 nectar plants ranked number 2 and number 3 are presented Tables 12 and 13 respectively.

**Table 11. Top 20 nectar plants given a number 1 ranking by respondents**

Number	Plant	Number of apiary sites	Number	Plant	Number of apiary sites
1	Grey box	135	11	Red stringybark	43
2	Red gum	126	12	Paterson's curse	38
3	Red ironbark	121	13	Wild turnip	32
4	Yellow box	95	14	White clover	30
5	Clover	88	15	Tea tree	26
6	Banksia	75	15	Blue gum	26
7	Messmate	73	17	Peppermint	19
8	White mallee	70	18	Brown stringybark	19
9	Yellow gum	62	19	Blue mallee	19
10	Canola	55	20	Stringybark species	19

**Table 12. Top 20 nectar plants given a number 2 ranking by respondents**

Number	Plant	Number of apiary sites	Number	Plant	Number of apiary sites
1	Red gum	136	11	Manna gum	34
2	Grey box	131	12	Longleaf box patersons	32
3	Yellow gum	84	13	Blue mallee	30
4	Yellow box	67	14	Cape weed	28
5	Black box	55	15	Stringybark species	25
6	Red ironbark	47	16	Xmas mallee	24
7	Red stringybark	40	17	Blue gum	24
8	Giant angular mallee	37	18	Messmate	22
9	Paterson's curse	37	19	Giant mallee	22
10	Onion weed	34	20	Red box	17

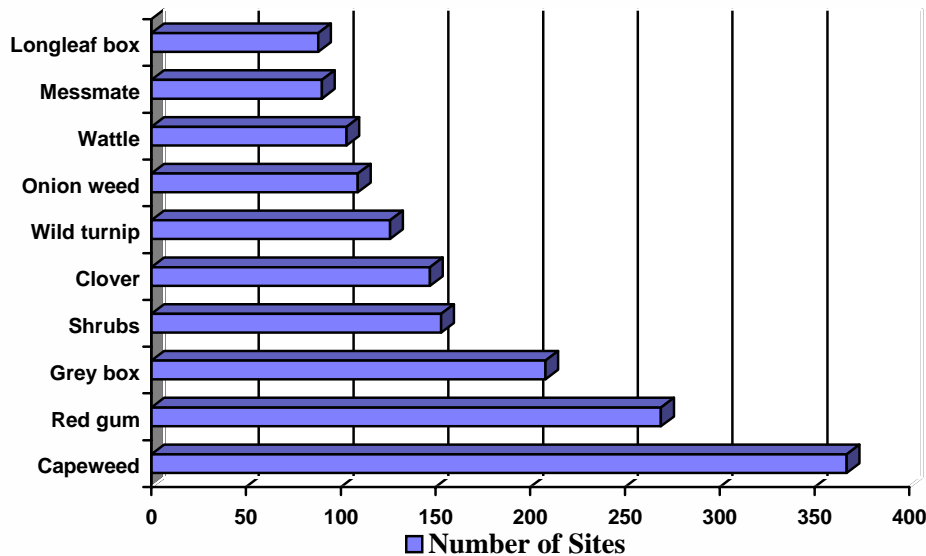
**Table 13. Top 20 nectar plants given a number 3 ranking by respondents**

Number	Plant	Number of apiary sites	Number	Plant	Number of apiary sites
1	Yellow gum	103	11	Yellow box	21
2	Grey box	69	12	Yellow mallee	21
3	Black box	68	13	Messmate	20
4	Capeweed	44	14	Red stringybark	20
5	Red gum	36	15	Xmas mallee	15
6	Mallee	35	16	Oil mallee	14
7	Stringybark species	32	17	Blue gum	13
8	Longleaf box	28	18	Giant angular mallee	22
9	Red box	26	19	White box	11
10	Manna gum	23	20	Shrubs	11

#### 4.8.2 Pollen plants targeted by apiarists

Apiarists were asked to list up to six pollen producing plants, in order of importance, that were being targeted at each apiary site. From this information (using all rankings), the 10 most important pollen producing plants in Victoria were determined and are presented in Figure 2.

**Figure 2. The 10 most important pollen plants in Victoria**



The first 20 pollen plants ranked number 1 by respondents together with the number of apiary sites used to target each individual species are presented in Table 14. Similarly, the first 20 pollen plants ranked number 2 and number 3 are presented Tables 15 and 16 respectively.

**Table 14. Top 20 pollen plants given a number 1 ranking by respondents**

Number	Plant	Number of apiary sites	Number	Plant	Number of apiary sites
1	Capeweed	126	11	Shrubs	35
2	Red gum	125	12	Paterson's curse	35
3	Grey box	107	13	Stringybark species	29
4	Wild turnip	95	14	White clover	26
5	Clover	85	15	Blue gum	25
6	Banksia	76	16	Giant angular mallee	22
7	Messmate	52	17	Tea tree	15
8	Wattle	50	18	Brown stringybark	12
9	Canola	47	19	Desert banksia	10
10	Red stringybark	38	20	Longleaf box	9

**Table 15. Top 20 pollen plants given a number 2 ranking by respondents**

Number	Plant	Number of apiary sites	Number	Plant	Number of apiary sites
1	Capeweed	139	11	Red stringybark	20
2	Red gum	99	12	Giant mallee	17
3	Onion weed	78	13	Messmate	17
4	Grey box	52	14	Black box	16
5	Shrubs	50	15	Canola	16
6	Longleaf box	48	16	Tea tree	16
7	Manna gum	44	17	Brown stringybark	14
8	Stringybark	28	18	Paterson's curse	12
9	Wattle	25	19	Xmas mallee	11
10	Clover	21	20	Wild turnip	11

**Table 16. Top 20 pollen plants given a number 3 ranking by respondents**

Number	Plant	Number of apiary sites	Number	Plant	Number of apiary sites
1	Capeweed	75	11	Longleaf box	17
2	Shrubs	41	12	Messmate	14
3	Red gum	39	13	Stringybark species	14
4	Paterson's curse	28	14	Medic clover	12
5	Grey box	25	15	Onion weed	12
6	Clover	25	16	Yellow mallee	11
7	Tea tree	24	17	White box	10
8	Flatweed	22	18	Blue gum	9
9	Red stringybark	21	19	Wattle	8
10	Manna gum	18	20	Mallee	7

Comprehensive lists of nectar and pollen plants targeted by respondents are presented in Appendices 3 and 4 respectively. The ranking of importance of individual plant species and the months apiary sites were occupied by hives is provided for each Victorian Mapsheet grid.

## 4.9 Honey production from apiary sites

### 4.9.1 Honey production according to type of apiary site

Respondents supplied data on the yearly honey production for public land and private apiary sites. A summary of the data for all apiary sites regardless of the frequency of use is presented in Table 17.

**Table 17. A summary of honey production according to type of apiary site** (value calculated at \$1.50/kg).

Type of apiary site	Number of apiary sites	Total production of honey in a calendar year (kg)	Average production of honey per site in a calendar year (kg)	Total value of honey produced by respondents (\$)
Private	424	1,083,975	2,557	1,625,963
Public	573	3,184,950	5,558	4,777,425

### 4.9.2 Honey production according to frequency of apiary site use

Tables 18, 19, 20, 21, 22, 23 and 24 provide summaries of honey production from apiary sites used annually; once every 2, 3, 4, 5 and greater than 6 years respectively. Table 25 provides a comparative summary of honey production for all apiary site use frequencies.

**Table 18. A summary of honey production from apiary sites used on an annual basis.**

Type of apiary site	Number of apiary sites	Total honey production for all sites (kg)	Average honey production per site (kg)
Private	258	601,425	2,331
Public	184	1,309,350	7,116

**Table 19. A summary of honey production from apiary sites used on a 2 year frequency.**

Type of apiary site	Number of apiary sites	Total honey production for all sites (kg)	Average honey production per site (kg)
Private	79	201,150	2,546
Public	148	551,700	3,728

**Table 20 A summary of honey production from apiary sites used on a 3 year frequency.**

Type of apiary site	Number of apiary sites	Total honey production for all sites (kg)	Average honey production per site (kg)
Private	28	76,650	2,738
Public	97	556,575	5,738



**Table 21 A summary of honey production from apiary sites used on a 4 year frequency.**

Type of apiary site	Number of apiary sites	Total honey production for all sites (kg)	Average honey production per site (kg)
Private	30	115,200	3,840
Public	30	214,500	7,150

**Table 22 A summary of honey production from apiary sites used on a 5 year frequency.**

Type of apiary site	Number of apiary sites	Total honey production for all sites (kg)	Average honey production per site (kg)
Private	8	35,400	4,425
Public	51	246,900	4,841

**Table 23 A summary of honey production from apiary sites used on a 6 year frequency.**

Type of apiary site	Number of apiary sites	Total honey production for all sites (kg)	Average honey production per site (kg)
Private	3	8,100	2,700
Public	3	11,250	3,750

**Table 24 A summary of honey production from apiary sites used on a frequency greater than 6 years.**

Type of apiary site	Number of apiary sites	Total honey production for all sites (kg)	Average honey production per site (kg)
Public	7	48,750	6,964

**Table 25 A comparative summary of honey production from private and public land apiary sites according to frequency of use.**

Type of apiary site	Frequency cycle (years)	Number of apiary sites	Total honey production (kg)	Average honey production per site (kg)
Private	1	258	601,425	2,331
Private	1.5	1	3,600	3,600
Private	2	79	201,150	2,546
Private	2.5	5	8,400	1,680
Private	3	28	76,650	2,738
Private	3.5	2	3,900	1,950
Private	4	30	115,200	3,840
Private	5	8	35,400	4,425
Private	6	3	8,100	2,700
Public land	1	184	1,309,350	7,116
Public land	1.5	6	66,750	11,125
Public land	2	148	551,700	3,728
Public land	2.5	14	59,700	4,264
Public land	3	97	556,575	5,738
Public land	3.5	6	14,100	2,350
Public land	4	30	214,500	7,150
Public land	5	51	246,900	4,841
Public land	6	3	11,250	3,750
Public land	10	7	48,750	6,964

### 4.9.3 Variations in honey production

Apiarists were asked to indicate reasons why they believed honey production had increased or decreased for specific apiary sites. They were asked to write responses or tick the box adjacent to the appropriate multiple choice answers printed on the questionnaire.

#### 4.9 3.1 Increased honey production

**Table 26. Reasons for increased honey production and number of sites affected by those changes.**

Reason for increased production	Number of sites	Percent of total
Favourable changes in agricultural cropping practices	52	4.4
Apiary management practices	251	21.4
Favourable forestry management practices	24	2.1
Increase in number of colonies on this site	129	11.0
Less apiaries working the flow	39	3.3
More productive line of bees	196	16.7
Natural floods (eg for Red Gum)	68	5.8
Natural regeneration of flora	48	4.1
Improved weather	366	31.2

#### 4.9.3.2 Decreased honey production

**Table 27. Reasons for decreased honey production and number of sites affected by those changes.**

Reason for decreased production	Number of sites	Percent of total
Adverse apiary management practices	9	0.5
Adverse forestry management practices	50	2.9
Biological control measures for weeds	19	1.2
Adverse changes in agricultural cropping	106	6.2
Change in flora growing in the area	23	1.4
Decrease in number of colonies	21	1.3
Dieback of eucalypts and other flora	84	4.9
Drought or rainfall deficiency	470	27.6
Effects of agricultural chemicals	118	6.9
Fire	121	7.1
Insect damage to flora	166	9.8
Land clearing	148	8.7
Less productive line of bees	22	1.3
Lower number of colonies on this site	22	1.3
More apiaries working the flow	103	6.1
Salinity and land degradation	49	2.9
Urban development	31	1.8
Deteriorating weather	22	1.3
Wet season	116	6.8

#### 4.10 Pollen harvesting

A number of apiarists collect pollen for human consumption or sale to apiarists as feed-back food to honeybee colonies in times of pollen deficiencies. The pollen is collected by use of a pollen trap incorporating a wire mesh grid. When pollen-gathering bees enter the hive through the wire grid, the pellets of pollen on their hind legs are removed and collected in a tray for later harvest by the apiarist.

Apiarists were asked to indicate the number of traps used and the average yearly yield for each apiary site used for pollen production. The highest average amount of pollen produced per apiary site was 225 kg.

**Table 28. Number of apiary sites, number of pollen traps and average yield of pollen per trap.**

Number of apiarists	Number of apiary sites used for pollen collection	Total number of pollen traps	Average yield of pollen per trap (kg)	Total amount of pollen produced per year (Kg)
4	15	313	3.43	1,073

#### 4.11 Queen honeybees

#### 4.11.1 Queen bee production

Removal and replacement of queen bees with new queens in honeybee colonies is a normal apiary management procedure. When honeybee queens age or become diseased, their egg-laying ability diminishes and this results in reduced numbers of worker bees and lower honey production. Requeening of colonies generally occurs on a two year cycle.

In Victoria, only a few apiarists raise queens for sale to other apiarists. Generally, apiarists raise queen bees for requeening their own colonies.

**Table 29 Number of apiarists producing queens, number of apiary sites used, number of queens produced and their estimated value.**

<b>Number of apiarists producing queens</b>	<b>Number of apiary sites where queens were produced</b>	<b>Number of queens produced</b>	<b>Total Value (calculated at \$9.00 per queen)</b>
47	106	16,710	\$150,390

#### 4.11.2 Queen bee production by Victorian Mapsheet Grid

Areas of Victoria in which queen bees were raised together with the number of apiarists raising queens and number of apiary sites used for queen production are detailed in Table 30.

**Table 30 Queen bee production according to Victorian Mapsheet number, number of apiarists and number of apiary sites.**

<b>Mapsheet number</b>	<b>Number of apiarists raising queens</b>	<b>Number of apiary sites used</b>
7	2	9
10	1	1
14	1	1
15	1	1
16	1	1
30	3	3
31	4	7
32	1	2
34	1	1
39	2	2
40	1	1
41	1	1
42	2	2
45	1	1
53	1	5
55	1	1
56	2	11

57	3	3
59	6	9
60	3	3
62	1	1
65	1	2
66	2	2
67	1	1
71	3	6
74	3	7
75	2	2
77	2	4
80	1	1
86	1	1
90	1	1
92	1	1
95	1	1
96	2	3
100	1	1
104	1	1
107	1	5
117	1	1

#### 4.12 Package bees

Package bees are sometimes used to start new honeybee colonies. Each package constructed of light timber and insect screen usually contains 1-1½ kg bees, a queen and her escorts in a smaller cage plus a container of food for the bees in transit. Adult worker bees are shaken from normal production hives into the packages. In Victoria, the package bee industry has not developed to the degree that it has in New South Wales and Queensland.

The number of respondents shaking packages, plus the number of apiary sites, number of packages and the area of Victoria by Mapsheet in which the packages were shaken are detailed in Table 31.

**Table 31. Production of packages by apiarists according to number apiary sites and Victorian Mapsheet number.**

<b>Year</b>	<b>Number of apiarists</b>	<b>Number of apiary sites</b>	<b>Number of packages</b>	<b>Mapsheet number</b>
<b>1994</b>	1	2	25	104
	2	1	30	75
<b>1994 total</b>		<b>3</b>	<b>55</b>	
<b>1995</b>	1	2	50	45
	2	2	4	104
	3	4	1000	15
	4	16	6000	56
	5	5	1740	49
<b>1995 total</b>		<b>29</b>	<b>8794</b>	
<b>1996</b>	1	1	150	56
	2	2	54	104
	3	5	1520	49
<b>1996 total</b>		<b>8</b>	<b>1724</b>	

### **4.13 Use of apiary sites for build-up of honeybee colonies**

Apiary sites are generally used for two main purposes, namely, honey production and build-up of honeybee colonies. For optimum honey production, colonies should have at least 40,000 adult worker bees but preferably around 60,000 bees.

The population of adult bees in a colony may sometimes decline due to factors such as disease, failing queens, long periods of inclement weather, poor nutrition or lack of pollen, and heavy colony stocking rates used for crop pollination. Often, the quantity of brood (immature stages of the honeybee life cycle) has also declined. These colonies fail to reach their maximum honey production or pollinating potential and require building-up in order to reach the desired vitality and adult bee population levels (or strength).

Build-up apiary sites are chosen on the basis of good pollen resources of high nutritional value (protein) and high yields. Additionally, build-up sites will also have some nectar available to satisfy the carbohydrate requirements of the colony. The availability and collection of these two foods stimulates brood production and in turn increases the numbers of adult bees and improves colony vitality and health.

Apiarists were asked (question 16) to indicate the reason why a particular site was used to build-up their honeybee colonies. A summary of the responses provided in the returned questionnaires are provided below in Table 32 and Figure 3.

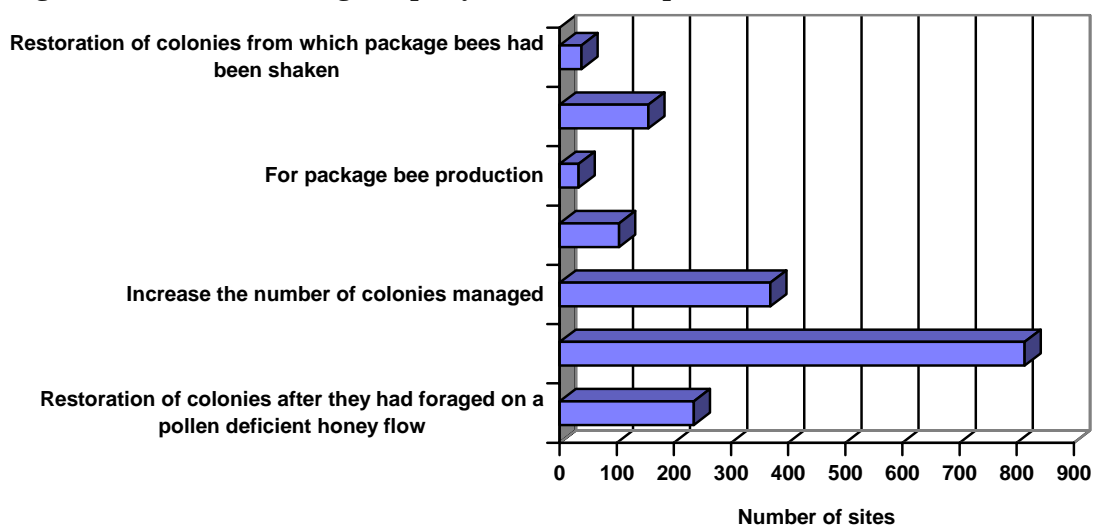
**Table 32. Reasons for using an apiary site for build-up of honeybee colonies and number of sites used by respondents.**

Reason for using apiary site	Number of apiary sites	Percent of total
Build up colonies for honey production	814	46.6
Increase of numbers of colonies managed	369	21.1
For package bee production	33	1.9
Build up colonies for crop pollination	155	8.9
Restoration of colonies from which package bees had been shaken	38	2.2
Restoration of colonies after an outbreak of Nosema disease or European Foulbrood disease	104	5.9
Restoration of colonies after they had foraged on a pollen-deficient honey flow	235	13.4

The value of a build-up site is indicated by the data in the above table. Of the total number of sites used for build-up of colonies, over 46% were required for ensuring that colonies had good populations of bees prior to location on honey production sites.

A number of apiarists responded to question 16 and indicated that build-up sites were used to restore colonies after an outbreak of the adult bee disease, Nosema (*Nosema apis*). The districts where this type of site was located are indicated in Table 33.

**Figure 3. Reasons for using an apiary site for build up of colonies**



**Table 33. Districts used for restoration of colonies recovering from Nosema disease and number of apiary sites used**

District	Number of apiary sites	District	Number of apiary sites
Manangatang	23	Benalla	1
Kerang	20	Ararat	1
St Arnaud	6	Daylesford	1
Annuello	6	Robinvale	1
Beaufort	5	Underbool	1
Hattah	4	Tatong	1
Dunkeld	3	Tarwin	1
Yaapeet	2	Stawell	1
Stanhope	2	Muckleford	1
Graytown	2	Huntley	1
Sea lake	2	Rochester	1
Goroke	2	Karingul	1
Harrow	1	Natimuk	1
Glenrowan	1	Murrayville	1
Echuca	1	Moyhu	1
Heathcote	1	Moonambel	1
Dartmoor	1	Walpeup	1
Casterton	1	Wonthaggi	1
Bendigo	1	Rushworth	1

#### 4.14 Use of apiary sites for overwintering honeybee colonies

Apiarists were asked to indicate why they used sites for overwintering honeybee colonies. A summary of the responses is provided below in Table 34.

**Table 34. Reasons for using an apiary site for overwintering honeybee colonies and number of sites used by respondents.**

Reason for using overwintering site	Number of apiary sites	Percent of total
Absence of flowering flora	43	4.8
To take advantage of suitable climatic conditions	259	29.1
For honey production	229	25.7
To maintain colonies without producing surplus honey	218	24.4
To avoid Nosema disease	143	16.0



## **4.15 Honeybee pollination of horticultural and agricultural crops**

### **4.15.1 Introduction**

A large number of fruit or seed crops require honeybee pollination for an economic crop to be set. Where there are inadequate numbers of bees, honeybee colonies can be moved into a crop at flowering to provide adequate numbers of honeybees for optimum pollination. Some apiarists have diversified from honey production to a greater or lesser degree and provide honeybee crop pollination services to growers on a fee-for-service basis.

Growers may also receive pollination when apiarists place hives near flowering crops without entering into a contractual pollination arrangement. The hives may be placed in the vicinity to enable the bees to access nectar and/or pollen from nearby flora or to enable them to forage on the crop. The pollination provided in this manner is referred to by industry as incidental pollination.

Respondents supplied details of horticultural and agricultural crops that were growing within a radius of 1.5 km of the occupied apiary site and which might benefit from honeybee pollination (Tables 35 and 36 respectively). The respondents were not asked to differentiate between crops for which a pollination fee was charged and crops that were receiving incidental pollination as a result of hives being placed nearby.

**Table 35. Pollination of horticultural crops which may benefit from planned or incidental (unpaid) pollination by managed hives situated within a radius of 1.5 km of the crop.**

Crop	Number of apiarists	Number of apiary sites	Number of hives	Period apiary site used per year (months)	
				Average	Range
Domestic garden flora	1	2	40	12.0	
Pears	5	9	280	6.8	3-12
Pumpkin	4	5	1,050	4.5	3-8
Almonds	4	4	350	2.5	2-3
Apples	8	11	494	5.2	1-12
Plums	4	5	590	2.3	0.5-4
Blueberries	2	2	80	7.0	2-12
Olive trees	2	2	122	5.5	5-6
Hazelnut	1	1	26	3.0	
Cherry	4	6	396	2.9	0.5-5.5
Stone fruit	1	1	120	8.0	
Melons	1	1	120	8.0	
Berries	2	2	180	2.5	2-3
Rock melons	2	3	430	3.0	
Zucchini	1	2	200	3.0	
Strawberries	2	4	420	7.5	1-12
Broccoli	1	1	60	12.0	
Nectarines	1	2	200	1.3	0.5-2
Kiwi fruit	2	2	80	2.0	
Fruit trees	4	14	1,226	6.9	3-12
Apricots	3	6	352	9.3	4-12
Grapes	2	2	64	2.5	
Peaches	2	5	332	8.0	
Citrus	10	19	2,304	4.0	1.25-12
Avocado	1	6	720	1.5	1.5
<b>Totals</b>	<b>69</b>	<b>114</b>	<b>10,094</b>		

**Table 36. Pollination of agricultural, seed and pasture crops which may benefit from planned or incidental (unpaid) pollination by managed hives situated within a radius of 1.5 km of the crop.**

Crop	Number of apiarists	Number of apiary sites	Number of hives	Period apiary site used per year (months)	
				Average	Range
Canola	33	98	11,629	4.2	1-12
Clover	68	166	16,160	4.3	1-12
Medic clover	1	6	730	2.0	1-2
Lucerne	38	127	14,844	4.3	1.5-12
Balansa clover	4	8	940	4.8	3-6
Lupins	19	54	6,510	4.1	1.25-12
Strawberry clover	3	5	630	3.3	2-5
White clover	6	7	706	4.5	2-6
Barrell clover	1	2	450	2.75	1.5-4
Shaftall clover	1	1	180	5.0	
Sunflower	3	5	760	2.0	1-3
Peas	6	8	1,156	3.71	1.25-6
Flax	1	1	40	2.0	
Chick peas	2	5	830	2.7	1.25-4
Faba beans	9	40	4,178	2.7	1.25-6
Vetch	4	5	430	3.81	2-6
Safflower	3	6	720	4.25	1.75-6
Pastures	2	5	225	9.25	6.5-12
<b>Totals</b>	<b>205</b>	<b>570</b>	<b>63,003</b>		

The total number of respondents who indicated that they placed honeybee colonies within 1.5 km of an agricultural, pasture or horticultural is presented in Table 37 together with the number of apiary sites and number of hives.

**Table 37. Total number of respondents who had hives near agricultural, seed, pasture and horticultural crops.**

Type of crop	Number of respondents	Number of apiary sites	Number of hives
Agricultural	90	550	61,218
Horticultural	32	114	10,094
<b>Total</b>	<b>122</b>	<b>664</b>	<b>71,312</b>

#### 4.15.2 Contractual (fee-for-service) honeybee crop pollination

Apiarists were asked to indicate if they supplied honeybee crop pollination services on a fee for service basis and provide details about the number of apiary sites and hives supplied, together with the percentage income obtained from this activity. This data is presented in Table 38 and Table 39.

**Table 38. Honeybee crop pollination services supplied to growers of horticultural and agricultural crops on a fee-for service basis.**

Year	Number of respondents	Number of apiary sites	Number of hives supplied for pollination	Average fee charged per hive (\$)	Total fees received by all apiarists (\$)
1993/1994	19	52	10,888	18.18	197,980
1994/1995	21	58	14,314	20.23	289,580
1995/1996	26	56	12,918	18.79	242,785

**Table 39. Percentage income derived by individual apiarists supplying honeybee crop pollination services to growers.**

Year	Minimum percent income	Maximum percent income	Average percent income
1993/1994	4	60	18.0
1994/1995	3	30	14.5
1995/1996	5	30	15.6

#### 4.16 Effect of agricultural chemicals

Respondents to the questionnaires for private property apiary sites were asked to indicate if agricultural chemicals had caused significant losses of bees. The respondents' answers are summarised in Table 40. It is not known if instances of losses of bees by application of agricultural chemicals were in fact confirmed by chemical analysis.

**Table 40. Number of apiarists with apiary sites affected by agricultural chemicals.**

Number of apiarists	Number of apiary sites affected by agricultural chemicals
11	25

## 4.17 Effect of fire and timber harvesting on honey production

### 4.17.1 Effect of controlled burns and wild fire

Public land and private property apiary site questionnaires asked apiarists to supply information about the effect of wild fire and controlled burns (fuel reduction burns) at each site. Apiary sites that were subjected to controlled burns (which are generally cooler than wild fires) took less time to regenerate to full honey production than did sites damaged by hotter wild fires.

During the period 1956-96, 6.5% of all public land apiary sites and private property apiary sites used or held by respondents were subjected to controlled burns and 7.0% of all sites experienced a wild fire.

The data supplied by respondents on the average number of years for regeneration of flora to full nectar secretion (honey production) for both controlled burns and wild fire is presented in Table 41.

**Table 41. Effect of fire on honey production and the average number of years for sites to regenerate.**

Type of fire	Number of apiary sites affected	Average number of years site has taken to regenerate to full honey production <sup>(1)</sup>	Earliest recording of fire	Latest recording of fire
Controlled burn	93	3.9	1956	1996
Wild fire	99	9.2	1960	1994

<sup>1</sup>The data supplied for the number of years that a site takes to regenerate has not permitted a reliable analysis and the figures presented should be used as guide only.

### 4.17.2 Effect of timber harvesting on honey production

Respondents to the public land apiary site questionnaires were asked to supply details about timber harvesting and the effect that this activity had on honey production. Ninety-two respondents provided details of timber harvesting that had occurred since 1945. Forty-four respondents indicated that thinning of the trees had helped to increase honey production. It is likely that this affect was not immediate but took place over a period of time as the remaining trees developed and matured. Apiarists have known that the best honey production is obtained from mature trees (often referred to as 'habitat trees' presumably because they have aged to the degree that one or more hollows may be suitable for occupation by fauna). Table 42 indicates the type of timber harvesting and the number of apiary sites affected by this activity.

**Table 42. Type of timber harvesting and number of sites affected.**

Type of timber harvesting	Number of public land apiary sites
Regular or ongoing	21
Selective	55
Clear fell	19

## 5. DISCUSSION

The data supplied by respondents confirmed industry knowledge of the most important nectar and pollen plants growing in Victoria. Many of the Eucalypt species (eg Grey box, Red gum, Yellow gum, Red ironbark and Yellow box) growing in Victoria's Box-ironbark belt were identified in the top 10 most important plants. Capeweed, Red gum and Grey box were identified as important pollen yielding plants.

Of the reasons given for increased honey production from an individual apiary site, improved apiary management practices and more productive lines of bees were given as the two most important factors. Drought or rainfall deficiency was given as the major reason for decreased honey production from a site. This was followed by insect damage to flora, land clearing, fire and effects of agricultural chemicals.

Some apiary sites had been used by a number of apiarists for many years (range 1-88). It is presumed that those respondents who stated that the site had been held for a period nearing the upper levels of the range are actually indicating that the site had been held by other family members and had passed from one generation to the next.

The interval of years between major honey flows on an individual site ranged from 9 months to 35 years. Sixty-two percent of major flows occurred at intervals greater than two years. Although licence and permit fees are paid on a continual basis to ensure continuity of use by the individual apiarist, production and therefore revenue is not achievable every year. This important fact must be considered by agencies who from time to time determine licence and permit fees.

The survey confirmed the importance of apiary sites for build-up of honeybee colonies. Little, if any, surplus (extractable) honey is produced on the majority of build-up sites and no immediate production and therefore financial gain is achieved by apiarists using these sites (Rhodes 1998). However, Rhodes suggested that the value of these sites in dollar terms could be considered to be in the vicinity of half the value of profits obtained from the sale honey originating from similar sites.

The average number of hives (excluding nucleus hives) placed on public land and private sites was 149 and 93 respectively. The difference in the numbers of hives placed on the two types of sites may be explained by the fact that the smaller operators (apiarist owning 50 100 hives) had few if any public land sites and also kept fewer hives than the larger operators. Additionally, some private sites may have less flora than sites on public land and would therefore be unable to support large numbers of hives.

The survey has identified that the harvesting of honeybee collected pollen, shaking of packages of bees and the rearing of honeybee queens are not important sectors of the industry in Victoria.

A number of respondents indicated that they placed hives on sites within 1.5 km of a flowering crop. The data should be used with caution because it was not possible to determine how many hives had been deliberately placed in or near these crops for purposes of providing a contractual (fee-for-service) pollination service. Unfortunately, it was not possible to provide an indication of the economic value of increased crop production resulting from this service.

Apiarists were asked to suggest or identify areas of Victoria that they considered could have a potential for establishing new and additional apiary sites. Much of the land not used by apiarists is either inaccessible due to the terrain or lack of suitable vehicle access, or is part of a public land park where beekeeping is largely restricted. Consequently, it appears that in Victoria, there is little scope for opening up new and large areas for beekeeping under current land management policy. There may be

opportunities to identify a potential for the odd new site here and there. It is suggested that industry should negotiate with the relevant land management agency to achieve this outcome.

The database has been developed in a form that will allow additional information to be added at a later time.

A number of apiarists were reluctant to participate in the survey and a number of reasons were given for non-participation. Some were fearful that individuals, their sites and financial status would be identified.

## 6. REFERENCES

Gibbs, D. M. H. and Muirhead, I. F. (1998). The economic value and environmental impact of the Australian beekeeping industry. A report prepared for the Australian beekeeping industry (Australian Honey Bee Industry Council). Page 37.

Keith, D. G. and Briggs, J. L. (1987). Honey bees in Australian conserved forests. A policy document of the Federal Council of Australian Apiarists' Associations.

Manning, R. (1992). Honey production, economic value and geographical significance of apiary sites in Western Australia. A Final Report prepared for the Honeybee research and Development Council. Project DAW 3H.

Rhodes, J. W. (1999). A natural resource database for the Queensland apiary industry. A Final Report prepared for the Honeybee Research and Development Committee, Rural Industries Research and Development Corporation. Project DAQ 199A.



## 7. APPENDICES

The following documents are appendices to this report:

<b>Appendix 1</b> Questionnaires for public land and private apiary sites	<b>p 34</b>
<b>Appendix 2</b> Mapsheets of Victoria	<b>p 42</b>
<b>Appendix 3</b> Nectar plants targeted by apiarists according to Victorian map grid, ranking of importance and months apiary site used	<b>p 43</b>
<b>Appendix 4</b> Pollen plants targeted by apiarists according to Victorian map grid, ranking of importance and months apiary site used	<b>p 76</b>

**FLORA RESOURCE SURVEY**  
**PUBLIC/GOVERNMENT LAND LEASED APIARY SITES**  
*(To be completed for Victorian apiary sites)*

**Site Details** *(These will be kept confidential but are required to identify the district or forest on which the site is located. Refer to the list or mapsheet supplied).*

**Apiary Site Number:** ..... **AGM Code:** .....

**Mapsheet Number:** ..... **Nearest town:** .....

**1. In what months of the year do you use this site?** *(Please circle appropriate letter)*

J F M A M J J A S O N D42

**2. In what year did you first use this site for beekeeping?** 19 .....

**3. In the years that you have used the site, what is the average period of time the hives are located on the site?**

..... weeks **OR** .....months.

**4. How often have you used this site?** *(Please circle appropriate choice)*

Annually          every 2nd year          every 3rd year          every 4th year  
 every 5th year          other (please specify) .....

**5. What is the approximate number of hives you usually place on this site.**

..... hives          ..... nucleus hives

**6. Over the period of time that you have used this site, what has been your:**

- a. minimum yearly honey production at this site ..... drums
- b. maximum yearly honey production at this site ..... drums
- c. average yearly honey production during normal seasonal conditions at this site  
 ..... drums

**7. What nectar plants are you targeting at this site?** *(please list plants in order of importance beginning with the most important plants first)*

1.	4.
2.	5.
3.	6.

**8. What pollen plants are you targeting at this site?** *(please list plants in order of importance beginning with the most important plants first)*

1.	4.
2.	5.
3.	6.

9. **What is the approximate number of years between major honey flows on this site?**

..... years

10. **What type of site is this?** *(please tick one box)*

annual licence  temporary permit

11. **If honey production has increased or decreased over the period of time you have worked this site, by what amount has this occurred?**

From ..... drums per flow initially, to how many drums now .....

12. **Please indicate, by ticking the appropriate boxes in the table below, any reason(s) for changes in your honey production from this site.**

<b>PRODUCTION OF HONEY</b>	
<b>Increased production</b>	<b>Decreased production</b>
<input type="checkbox"/> increase in no. of colonies on this site	<input type="checkbox"/> decrease in no. of colonies on this site
<input type="checkbox"/> natural regeneration	<input type="checkbox"/> land clearing
<input type="checkbox"/> less apiaries working the flow	<input type="checkbox"/> more apiaries working the flow
<input type="checkbox"/> favourable apiary management practices	<input type="checkbox"/> adverse apiary management practices
<input type="checkbox"/> favourable forestry management practices	<input type="checkbox"/> adverse forestry management practices
<input type="checkbox"/> more productive lines of bees	<input type="checkbox"/> less productive lines of bees
<input type="checkbox"/> change in agricultural cropping practices	<input type="checkbox"/> change in agricultural cropping practices
<input type="checkbox"/> weather	<input type="checkbox"/> dieback of eucalypts and other flora
<input type="checkbox"/> natural floods (eg for Red Gum)	<input type="checkbox"/> insect damage to flora
<input type="checkbox"/> other, please specify by using space below:	<input type="checkbox"/> biological control measures for weeds
	<input type="checkbox"/> salinity and land degradation
	<input type="checkbox"/> urban development
	<input type="checkbox"/> effects of agricultural chemicals
	<input type="checkbox"/> drought or rainfall deficiency
	<input type="checkbox"/> fire
	<input type="checkbox"/> change in flora growing in the area
	<input type="checkbox"/> wet season
	<input type="checkbox"/> other, please specify: .....

13. **If you trap pollen on this site what is the average yearly production?**

..... kg from ..... (number) of pollen traps.

14. **If you raise queen bees on this site how many do you usually produce each year?**

..... queens/year

**15. If you have shaken package bees on this site, how many packages have you produced in each of the last 3 years?**

1996 .....; 1995 .....; 1994 .....

**16. If the site was used for build up, was your aim to build colonies for:**

*(you may tick more than one box)*

- pollination
- honey production
- package bee production
- increase of numbers of colonies
- restoring colonies after shaking them for package bee production
- restoring them after working a pollen-deficient honey flow
- restoring them after an outbreak of Nosema disease or European Foulbrood
- other, please specify: .....

**17. If you used the site for overwintering was your aim to take advantage of any of the following?**

*(You may tick more than one box)*

- honey production
- climatic conditions
- to avoid Nosema disease
- absence of flowering flora
- maintain colonies without producing a honey surplus
- other, please specify: .....

**18. Within 1.5 km of the site are there any agricultural crops or pastures that may benefit from honeybee pollination?** (eg. faba beans, lupins, clover or lucerne).

- No
- Unsure
- Yes. Please specify crop(s) .....

**19. Within 1.5 km of the site are there any horticultural crops that may benefit from honeybee pollination?** (eg. apples, cherries, plums, kiwifruit, berries, melons).

- No
- Unsure
- Yes. Please specify crop(s) .....

- 20 **If you supplied pollination services to growers, please indicate the percentage income you derived from this activity and the number of hives supplied for each of the following years:**

	1995/96	1994/95	1993/94
Percent income (%)			
Average fee charged per hive (\$)			
Number of hives used for pollination			

21. **Has the site been affected by wild fire or controlled burn?**

Type of fire	Year(s) site was burnt (eg 1995)	Number of years site has taken to regenerate to full honey production
Wild fire		
Controlled burn		

22. **Has timber been harvested from this site?**

No                       Yes, When? Please specify year: 19. ....

23. **If you answered "YES", please indicate the type of harvesting used on the site.**

- regular, or, ongoing harvesting  
 selective harvesting  
 clear fell harvesting  
 unsure  
 other. (Please specify) .....

24. **After harvesting, how many years did the site take to regenerate to full honey production?**

..... years

25. **Has thinning of the trees helped to increase honey production?**

Yes                       No

26. **Please fill in your name and telephone number**

Name: ..... Telephone .....

**END OF QUESTIONNAIRE. Thank you for completing this survey.**

I appreciate the time that you have spent in answering the questions. The information that you have given will be kept strictly confidential. Survey forms will be destroyed after preparation of the final report. The report will also be subject to scrutiny by the Victorian Apiarists' Association Inc. Executive Council before it is released.

**Please post the completed survey in the envelope provided as soon as possible.**

Postage is prepaid if you use the envelope provided.

<p><b>FLORA RESOURCE SURVEY</b></p> <p><b>PRIVATE PROPERTY APIARY SITES</b></p> <p><i>(To be completed for Victorian apiary sites)</i></p>
--------------------------------------------------------------------------------------------------------------------------------------------

**Site Details** *(Please complete)*

Municipality: .....

Nearest Town: ..... Postcode of nearest town: .....

**1. At this private site, are your bees utilising flora from any areas that are adjacent to your site?***(Please circle appropriate choice)*National Park; State Park; State forest; Crown Land; Nature or Conservation Reserve;  
other land managed by government agency (eg Melbourne Water);

Other, Please specify: .....

**2. In what months of the year do you use this site?** *(Please circle appropriate letter)*

J F M A M J J A S O N D

**3. In what year did you first use this site for beekeeping?** 19 .....**4. In the years that you have used the site, what is the average period of time the hives are located on the site?**..... weeks **OR** ..... months.**5. How often have you used this site?** *(Please circle appropriate choice)*Annually      every 2nd year      every 3rd year      every 4th year  
every 5th year      other (please specify) .....**6. What is the approximate number of hives you usually place on this site.**

..... hives      ..... nucleus hives

**7. Over the period of time that you have used this site, what has been your:**

a. minimum yearly honey production at this site ..... drums

b. maximum yearly honey production at this site ..... drums

c. average yearly honey production during normal seasonal conditions at this site  
..... drums**8. What nectar plants are you targeting at this site?** *(please list plants in order of importance beginning with the most important plants first)*

1.	4.
2.	5.
3.	6.

9. **What pollen plants are you targeting at this site?** (please list plants in order of importance beginning with the most important plants first)

1.	4.
2.	5.
3.	6.

10. **What is the approximate number of years between major honey flows on this site?**

..... years

11. **If honey production has increased or decreased over the period of time you have worked this site, by what amount has this occurred?**

From ..... drums per flow initially, to how many drums now .....

12. **Please indicate, by ticking the appropriate boxes in the table below, any reason(s) for changes in your honey production from this site.**

<b>PRODUCTION OF HONEY</b>	
<b>Increased production</b>	<b>Decreased production</b>
<input type="checkbox"/> increase in no. of colonies on this site	<input type="checkbox"/> decrease in no. of colonies on this site
<input type="checkbox"/> natural regeneration	<input type="checkbox"/> land clearing
<input type="checkbox"/> less apiaries working the flow	<input type="checkbox"/> more apiaries working the flow
<input type="checkbox"/> favourable apiary management practices	<input type="checkbox"/> adverse apiary management practices
<input type="checkbox"/> more productive lines of bees	<input type="checkbox"/> less productive lines of bees
<input type="checkbox"/> change in agricultural cropping practices	<input type="checkbox"/> change in agricultural cropping practices
<input type="checkbox"/> weather	<input type="checkbox"/> dieback of eucalypts and other flora
<input type="checkbox"/> natural floods (eg for Red Gum)	<input type="checkbox"/> insect damage to flora
<input type="checkbox"/> other, please specify by using space below:	<input type="checkbox"/> biological control measures for weeds
	<input type="checkbox"/> salinity and land degradation
	<input type="checkbox"/> urban development
	<input type="checkbox"/> effects of agricultural chemicals
	<input type="checkbox"/> drought or rainfall deficiency
	<input type="checkbox"/> fire
	<input type="checkbox"/> change in flora growing in the area
	<input type="checkbox"/> wet season
	<input type="checkbox"/> other, please specify: .....

13. **If you trap pollen on this site what is the average yearly production?**

..... kg from ..... (number) of pollen traps.

14. **If you raise queen bees on this site how many do you usually produce each year?**  
 ..... queens/year
15. **If you have shaken package bees on this site, how many packages have you produced in each of the last 3 years?**  
 1996 .....; 1995 .....; 1994 .....
16. **If the site was used for build up, was your aim to build colonies for:**  
*(you may tick more than one box)*
- pollination
  - honey production
  - package bee production
  - increase of numbers of colonies
  - restoring colonies after shaking them for package bee production
  - restoring them after working a pollen-deficient honey flow
  - restoring them after an outbreak of Nosema disease or European Foulbrood
  - other, please specify: .....
17. **If you used the site for overwintering was your aim to take advantage of any of the following?**  
*(You may tick more than one box)*
- honey production
  - climatic conditions
  - to avoid Nosema disease
  - absence of flowering flora
  - maintain colonies without producing a honey surplus
  - other, please specify: .....
18. **Within 1.5 km of the site are there any agricultural crops or pastures that may benefit from honeybee pollination?** (eg. faba beans, lupins, clover or lucerne).
- No
  - Unsure
  - Yes. Please specify crop(s) .....
19. **Within 1.5 km of the site are there any horticultural crops that may benefit from honeybee pollination?** (eg. apples, cherries, plums, kiwifruit, berries, melons).
- No
  - Unsure
  - Yes. Please specify crop(s) .....



20. If you supplied pollination services to growers, please indicate the percentage income you derived from this activity and the number of hives supplied for each of the following years:

	1995/96	1994/95	1993/94
Percent income (%)			
Average fee charged per hive (\$)			
Number of hives used for pollination			

21. Have agricultural chemicals caused significant losses of bees at this site?

- No
- Unsure
- Yes. Please specify type of pesticide if known .....

22. Has the site been affected by wild fire or controlled burn?

Type of fire	Year(s) site was burnt (eg 1995)	Number of years site has taken to regenerate to full honey production
Wild fire		
Controlled burn		

23. Please fill in your name and telephone number

Name: ..... Telephone .....

**END OF QUESTIONNAIRE. Thank you for completing this survey.**

I appreciate the time that you have spent in answering the questions. The information that you have given will be kept strictly confidential. Survey forms will be destroyed after preparation of the final report. The report will also be subject to scrutiny by the Victorian Apiarists' Association Inc. Executive Council before it is released.

**Please post the completed survey in the envelope provided as soon as possible.**

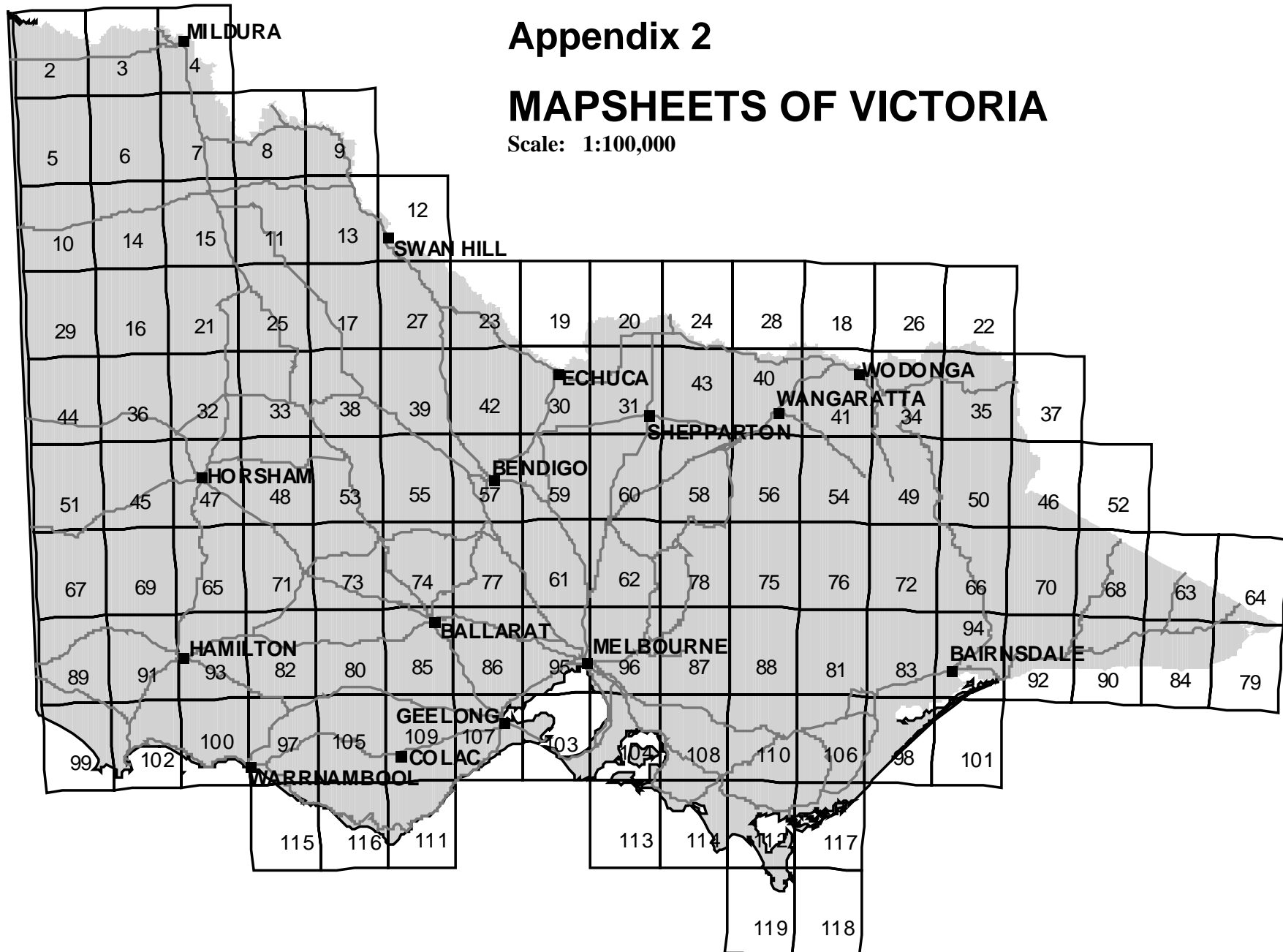
Postage is prepaid if you use the envelope provided.

# Appendix 2

## MAPSHEETS OF VICTORIA

Scale: 1:100,000

42



## Appendix 3

### **Nectar plants targeted by apiarists according to Victorian map grid, ranking of importance and months apiary site used.**

#### **Introduction to Appendix 3**

The plants targeted by apiarists within a particular Victorian map grid are listed in accordance to the ranking provided by the respondents. An individual plant species may be listed more than once for a particular map grid because individual apiarists may have applied a different ranking to the importance of an individual plant. Respondents were invited to list up to 6 plants for each apiary site in the order of importance beginning with the most important plants first (ie. number one).

The figures in the columns for each month indicate the number of apiary sites occupied by hives.

**Note:** The length of time that a site was occupied does not necessarily indicate the length of the flowering period of an individual plant species. The period that a site was occupied by hives may have been determined by the flowering of other plant species.

**Nectar plant usage by Victorian Mapsheet Number; ranking and number of apiary sites occupied each month**

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3	Red gum	1	6	6									4	4
3	Black box	2	6	6									4	4
4	Citrus	1						1	1	1	1	7	6	
4	Onion weed	1								6	6			
4	Tea tree	1	2	2	2	1					2	2	2	2
4	Wild turnip	1					6	6	9	9	9	3		
4	Xmas mallee	1	2	2	2							2	2	2
4	Giant mallee	2	1	1	1						1	1	1	1
4	Onion weed	2					6	6	9	9	9	3		
4	White mallee	2	1	1	1	1		1	1	1	2	2	1	1
4	Wild turnip	2								6	6			
4	Yellow mallee	2	2	2	2							2	2	2
4	Acorn mallee	3	2	2	2			1	1	1	1	3	2	2
4	Capeweed	3					6	6	6	6	6			
4	Medic clover	3								6	6			
4	White mallee	3							3	3	3	3		
4	Xmas mallee	3	2	2	2	1					2	2	2	2
4	Acorn mallee	4	1	1	1	1					1	1	1	1
4	Capeweed	4							3	3	3	3		
4	Mustard weed	4					6	6	6	6	6			
4	White mallee	4	2	2	2							2	2	2
4	Yellow mallee	4	1	1	1						1	1	1	1
4	Giant mallee	5	1	1	1	1					1	1	1	1
4	Ice plant	5							3	3	3	3		
4	Red mallee	5	3	3	3						1	3	3	3
4	Giant mallee	6	2	2	2							2	2	2
4	White mallee	6	1	1	1						1	1	1	1
4	Yellow mallee	6	1	1	1	1					1	1	1	1
7	Desert banksia	1					1	1	1	1				
7	Giant angular	1	1	1	1	1	1					1	1	1
7	Mallee	1	1	1	1	1	1	1	1	1	1	1	1	1
7	Red gum	1	3	1								2		2
7	Tea tree	1									3	3	3	
7	White mallee	1	19	23	19	9	8		4	17	22	23	23	23
7	Black box	2	2									2		2
7	Citrus	2	1	1										
7	Giant angular	2	1	5	5	1				1	8	8	8	5
7	Giant mallee	2	1	1	1						1	1	1	1
7	Tea tree	2	1	1	1							1	1	1
7	Xmas mallee	2	9	9	5	1	1		4	8	8	9	9	9
7	Yellow mallee	2	8	8	8	8	8			8	8	8	8	8
7	Acorn mallee	3	1	1	1						1	1	1	1
7	Black box	3	1	1										

## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7	Citrus	3	2									2		2
7	Giant angular	3	8	8	8	8	8			8	8	8	8	8
7	Red mallee	3	5	5	5	1				5	5	5	5	5
7	Yellow mallee	3	6	10	6	1	1		4	4	8	10	10	10
7	Acorn mallee	4	8	8	4				4	8	8	8	8	8
7	Giant mallee	4	1	1	1							1	1	1
7	Red mallee	4	1	1	1	1	1					1	1	1
7	Tea tree	4	1	1	1						1	1	1	1
7	Xmas mallee	4	9	9	9	9	8			9	9	9	9	9
7	Acorn mallee	5	9	9	9	8	8			8	8	9	9	9
7	Giant mallee	5	4	4	4					4	4	4	4	4
7	Tea tree	5	4	4					4	4	4	4	4	4
7	White mallee	5	1	1	1	1	1					1	1	1
7	Yellow mallee	5	2	2	2	1				1	2	2	2	2
7	Acorn mallee	6	1	1	1	1	1					1	1	1
7	Red mallee	6	8	8	8	8	8			8	8	8	8	8
7	Skeleton weed	6	4	4					4	4	4	4	4	4
7	Yellow mallee	6	4	4	4					4	4	4	4	4
7	Tea tree	7	8	8	8	8	8			8	8	8	8	8
8	Red gum	1	1											1
8	White mallee	1	10	2	2			10	10	10	10	12	10	10
8	Black box	2	1											1
8	Giant angular	2	8					10	10	10	10	10	8	8
8	Giant mallee	2	2	2	2							2	2	2
8	Oil mallee	3	8					10	10	10	10	10	8	8
8	Xmas mallee	3	2	2	2							2	2	2
8	Medic clover	4						2	2	2	2	2		
8	Red mallee	4	8					8	8	8	8	8	8	8
8	Yellow mallee	4	2	2	2							2	2	2
8	Tea tree	5	2	2	2							2	2	2
9	Giant angular	1									2	2	2	
9	Red gum	1	6	2								2	6	8
9	White mallee	1							1	1				
9	Black box	2	6	2								2	6	8
9	White mallee	2									2	2	2	
9	Xmas mallee	2							1	1				
9	Giant angular	3							1	1				
9	Red mallee	3									2	2	2	
9	Acorn mallee	4									2	2	2	
9	Yellow mallee	5									2	2	2	
10	Giant mallee	1						1	1	1	1	1	1	
10	Xmas mallee	2						1	1	1	1	1	1	
10	Red mallee	3						1	1	1	1	1	1	
10	Acorn mallee	4						1	1	1	1	1	1	
10	Capeweed	5						1	1	1	1	1	1	

## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10	Clover	6						1	1	1	1	1	1	
11	Capeweed	1							1	1	1	1		
11	Onion weed	1							3	3	3			
11	White mallee	1						2	2	2	2	2		
11	Wild turnip	1						19	19	19	19	19	19	19
11	Giant angular	2						2	2	2	2	2		
11	Onion weed	2						19	19	19	19	19	19	19
11	White mallee	2							1	1	1	1		
11	Mallee	3						19	19	19	19	19	19	19
11	Oil mallee	3						2	2	2	2	2		
11	Onion weed	3							1	1	1	1		
11	Medic clover	4						2	2	2	2	2		
13	Citrus	1								2	2	2		
13	Red gum	1	6	6									1	7
13	White mallee	1						2	2	2	2	2		
13	Wild turnip	1						4	4	4	3	1	1	1
13	Black box	2	6	6									1	7
13	Giant angular	2						2	2	2	2	2		
13	Medic clover	2						1	1	1				
13	Onion weed	2						3	3	3	3	1	1	1
13	White mallee	2								2	2	2		
13	Mallee	3						1	1	1	1	1	1	1
13	Oil mallee	3						2	2	2	2	2		
13	Onion weed	3								2	2	2		
13	White mallee	3						1	1	1				
13	Clover	4								2	2	2		
13	Medic clover	4						2	2	2	2	2		
13	Onion weed	4						1	1	1				
13	Wild turnip	5								2	2	2		
14	Banksia	1				11	11	11	11	11	11			
14	Onion weed	1							1	1	1	1	1	1
14	Red gum	1	1	1	1	1	1	1	1	1	1	1	1	1
14	White mallee	1	6	6	6	1					6	6	6	6
14	Black box	2	1	1	1	1	1	1	1	1	1	1	1	1
14	Giant angular	2	1	1	1	1					1	1	1	1
14	Giant mallee	2				11	11	11	11	11	11			
14	Mallee	2							1	1	1	1	1	1
14	Xmas mallee	2	5	5	5						5	5	5	5
14	Mallee	3				11	11	11	11	11	11			
14	Xmas mallee	3	1	1	1	1					1	1	1	1
14	Yellow mallee	3	5	5	5						5	5	5	5
14	Acorn mallee	4	5	5	5						5	5	5	5
14	Yellow mallee	4	1	1	1	1					1	1	1	1

## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
15	Giant angular	1	2	2	1			2	2	2	3	4	4	3
15	Giant mallee	1	4	4				4	4	4	4	4	4	4
15	Tea tree	1	2	1							1	2	2	2
15	White mallee	1	9	9	6	4	4				6	10	10	10
15	Giant angular	2	2	1							1	3	3	3
15	Giant mallee	2	3	3								3	3	3
15	Little red	2										1	1	1
15	Xmas mallee	2	7	7	2			5	5	5	7	7	7	7
15	Yellow mallee	2	5	5	5	4	4	1	1	1	5	5	5	5
15	Acorn mallee	3	4	4	4	4	4				4	4	4	4
15	Tea tree	3	2	2	2						2	2	2	2
15	White mallee	3	1									1	1	1
15	Xmas mallee	3	4	4	1			1	1	1	1	5	5	5
15	Yellow box	3	1	1				1	1	1	1	1	1	1
15	Yellow mallee	3	5	5				4	4	4	5	5	5	5
15	Giant mallee	4	2	2	2						2	2	2	2
15	Red mallee	4	8	8	5	4	4	1	1	1	5	8	8	8
15	White mallee	4	4	4				4	4	4	4	4	4	4
15	Xmas mallee	4	2	1							1	2	2	2
15	Yellow mallee	4										1	1	1
15	Blue leaf daisy	5	2	2	2						2	2	2	2
15	Giant angular	5	3	3	3	3	3				3	3	3	3
15	Giant mallee	5	1	1	1	1	1				1	1	1	1
15	White mallee	5	1	1							1	1	1	1
15	Yellow mallee	5	4	3								4	4	4
15	Little red	6	1	1							1	1	1	1
15	Xmas mallee	6	4	4	4	4	4				4	4	4	4
15	Onion weed	7	4	4	4	4	4				4	4	4	4
16	Banksia	1				1	16	16	16	15				
16	Black box	1						1	1	1	1	1	1	
16	White mallee	1	2	2	2	2					2	2	2	2
16	Giant angular	2	2	2	2	2	3	3	3	3	2	2	2	2
16	Giant mallee	2						1	1	1	1	1	1	
16	Styphelia	2					3	3	3	3				
16	Black mallee	3	2	2	2	2					2	2	2	2
16	Red mallee	3						1	1	1	1	1	1	
16	Xmas mallee	4	2	2	2	2					2	2	2	2
16	Yellow mallee	4						1	1	1	1	1	1	
16	Potato weed	5	1	1	1	1					1	1	1	1
16	Tea tree	5						1	1	1	1	1	1	
16	Yellow mallee	5	1	1	1	1					1	1	1	1
16	Red gum	6						1	1	1	1	1	1	
16	Yellow mallee	6	1	1	1	1					1	1	1	1
17	Bull mallee	1	1	1										1
17	Heliotrope	2	1	1										1

## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
19	Banksia	1					1	1	1					
19	Paterson's curse	1										1	1	1
19	Red gum	1	1											1
19	Red gum	2										1	1	1
19	Black box	3										1	1	1
20	Red gum	1	7	2										6
20	Grey box	2	4											4
20	Yellow box	3	4											4
21	Banksia	1					5	5	2	2	2	5	5	2
21	Giant angular	1	1	1	1				1	1	1	2	2	1
21	White mallee	1								2	2	2	2	2
21	Giant angular	2					5	5	2	2	2	5	5	2
21	Red mallee	2	1	1	1							1	1	1
21	Square fruited mallee	2								2	2	2	2	2
21	Xmas mallee	2							1	1	1	1	1	
21	Giant angular	3								2	2	2	2	2
21	Mallee	3					3	3				3	3	
21	White mallee	3							1	1	1	1	1	
21	Xmas mallee	3					2	2	2	2	2	2	2	2
21	Yellow mallee	3	1	1	1							1	1	1
21	Tea tree	4							1	1	1	1	1	
21	Xmas mallee	4								2	2	2	2	2
21	Yellow mallee	4					2	2	2	2	2	2	2	2
21	Oil mallee	5								2	2	2	2	2
23	Canola	1								20	21	21	20	
23	Clover	1	40									42	42	42
23	Eucalypt species	1	1	1	1									1
23	Paterson's curse	1									20	20	20	20
23	Red gum	1	23	15	12	12							15	23
23	River red gum	1	1	1										1
23	Black box	2	19	16	12	12							14	19
23	Clover	2										2	2	2
23	Grey box	2	1	1	1	1							1	1
23	Paterson's curse	2	1							20	20	20	21	1
23	Red gum	2	40								20	60	60	60
23	Black box	3	40								20	60	60	60
23	Capeweed	3								20	20	20	20	
23	Grey box	3	11	11	11	11							11	11
24	Paterson's curse	1	5	5	5	5	5	5	5	5	5	5	5	5
24	White clover	1	10									10	10	10
24	Capeweed	2	5	5	5	5	5	5	5	5	5	5	5	5
24	Paterson's curse	2	10									10	10	10
24	Flat weed	3	10									10	10	10



## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
29	Banksia	1				11	14	14	14	13	12	1	1	
29	Desert banksia	1					3	3	3	3				
29	Mallee	2					1	1	1	1	1	1	1	
29	Tea tree	3					1	1	1	1	1	1	1	
30	Blue mallee	1				1	1	1	1	1				
30	Canola	1	1	1									1	1
30	Clover	1	2	1				1	1	1		2	3	3
30	Grey box	1		1	1						1	1		
30	Paterson's curse	1	1	1								1	1	1
30	Red gum	1	3	1			1	1	1					4
30	River red gum	1	2	2										2
30	White clover	1	1									5	5	4
30	Yellow box	1	1										1	1
30	Beans	2	1	1									1	1
30	Black box	2	6	4			1	2	2	1		1	1	7
30	Clover	2		1	1						1	1		
30	Green mallee	2				1	1	1	1	1				
30	Lucerne	2											1	1
30	Red gum	2	1										1	1
30	White clover	2	1	1								1	1	1
30	Yellow box	2										1	1	
30	Clover	3	1										1	1
30	Grey box	3	1	1		1	1	1	1	1				1
30	Lupins	3	1	1									1	1
30	Red gum	3	1	1				1	1	1		1	1	1
30	Strawberry clover	3	1	1								1	1	1
30	Bull mallee	4				1	1	1	1	1				
30	Red gum	4	1	1								1	1	1
30	Wattle	4	1	1				1	1	1		1	1	1
30	Canola	5	1	1								1	1	1
30	Capeweed	5	1	1				1	1	1		1	1	1
31	Apples	1									1			
31	Canola	1									1	1	1	
31	Clover	1	13	12	2	1	1	1	1	1	5	6	5	14
31	Grey box	1		1	4	4	4	3	3	3	3			
31	Red gum	1	6	4	2	2	2	2	2	2	1	1	1	6
31	River red gum	1					1	1	1	1	1			
31	Canola	2				1	1	1	1	1	1			
31	Clover	2	1									1	1	1
31	Grey box	2	3	4	3	1	1	1	1	1	2	2	2	3
31	Lucerne	2	2	2	1	1	1	1	1	1	1	1	1	2
31	Pasture	2									1	1	1	1
31	Paterson's curse	2	1	1	1	1	1	1	1	1	1	1	1	1
31	Red gum	2	6	6	1	1	1							6
31	Thistle	2	1	1							1	1		

## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
31	Yellow box	2	2	2										2
31	Clover	3	1	1	2	2	2	2	2	2	1	1	1	1
31	Grey box	3	7	7	1	1	1	1	1	1	1	1	1	7
31	Lucerne	3	1	1							1	1		
31	Red gum	3	3	3	1									3
31	Thistle	3									1	1	1	
31	Linseed	4	1	1	1	1	1	1	1	1	1	1	1	1
31	Paterson's curse	4	1	1	1	1	1	1	1	1	1	1	1	1
31	Soy beans	5	1	1	1	1	1	1	1	1	1	1	1	1
32	Banksia	1	2			3	3	3	3	1				2
32	Desert banksia	1				1	1	1	1	1				
32	Yellow gum	1										1	1	
32	Red gum	2	2			2	2	2	2					2
32	Tea tree	2				1	1	1	1	1				
32	Capeweed	3				1	1	1	1	1				
32	Tea tree	3	2			2	2	2	2					2
32	Faba beans	4				1	1	1	1	1				
34	Narrow leaf peppermint	1	2	2	2	2								
34	Paterson's curse	1	1	1	1	1	1	1	1	1	1	2	2	2
34	Red box	1			1	1					1	1	1	1
34	Apple box	2	1	1	1	1	1	1	1	1	1	1	1	1
34	Manna gum	2	2	2	2	2								
34	Paterson's curse	2										1	1	1
34	Yellow box	2			1	1					1	1	1	1
34	Red box	3	1	1	1	1	1	1	1	1	1	1	1	1
34	Red gum	3			1	1					1	1	1	1
34	White gum	3	2	2	2	2								
34	Blue gum	4	2	2	2	2								
34	Long leaf box	4			1	1					1	1	1	1
34	Red stringy bark	4	1	1	1	1	1	1	1	1	1	1	1	1
34	Apple box	5	2	2	2	2								
34	Blackberry	5	1	1	1	1	1	1	1	1	1	1	1	1
34	Red stringy bark	5			1	1					1	1	1	1
34	Stringy bark	6	2	2	2	2								
35	Stringy bark	1	4	4	4	4								
35	Peppermint	2	4	4	4	4								
35	Manna gum	3	4	4	4	4								
35	Long leaf box	4	4	4	4	4								
35	Flat weed	5	4	4	4	4								
35	Thistle	6	4	4	4	4								
36	Desert banksia	1						1	1	1	1			
36	Giant mallee	2						1	1	1	1			
39	Blue mallee	1	1	1	3	3	2	2					2	2

## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
39	Canola	1									1	1		
39	Clover	1									1	1	1	1
39	Grey box	1		1	1									
39	Lucerne	1	4	4								1	1	2
39	River red gum	1	1	1										1
39	Yellow box	1	1	1	1	1	1	1	1	1	1	1	1	1
39	Yellow gum	1	3	3	3	3	3	3						
39	Canola	2									1	1	1	1
39	Green mallee	2	1	1	1	1	1	1	1	1	1	1	1	1
39	Grey box	2	3	3	5	5	5	5					2	2
39	Kamarooka mallee	2	1	1	1	1								
39	Lucerne	2	1	1										1
39	Paterson's curse	2	1	1								1	1	1
39	River red gum	2	1	1										1
39	Yellow gum	2		1	1									
39	Blue mallee	3	1	1	1	1	1	1	1	1	1	1	1	1
39	Red ironbark	3	3	3	3	3	3	3						
39	Strawberry	3	1	1										1
39	Blue mallee	4	3	3	3	3	3	3						
39	Grey box	4	1	1	1	1	1	1	1	1	1	1	1	1
39	Broadleaf mallee	5	3	3	3	3	3	3						
39	Red ironbark	5	1	1	1	1	1	1	1	1	1	1	1	1
40	Apple box	1								1	1	1	1	1
40	Peppermint	1	1	1										1
40	Red ironbark	1	1	1	2	2	2	1	1	1	2	2	1	1
40	Red stringybark	1	1	1										1
40	Grey box	2	1	1	2	2	2	1	1	1	2	2	1	1
40	Hill gum	2								1	1	1	1	1
40	Messmate	2	1	1										1
40	Narrow leaf peppermint	2	1	1										1
40	Long leaf box	3	1	1										1
40	Red stringybark	3								1	1	1	1	1
40	Stringy bark	3	1	1	1	1	1	1	1	1	1	1	1	1
40	White gum	3	1	1										1
40	Hill gum	4	1	1	1	1	1	1	1	1	1	1	1	1
40	Manna gum	4	1	1										1
41	Apple box	1			1	1	1	1	1	1				
41	Blue gum	1	1	1	1									
41	Canola	1								1	1	1		
41	Capeweed	1	1	1	1	1					1	1	1	1
41	Narrow leaf	1	2	2	2									1
41	Paterson's curse	1	1									2	2	2
41	Red ironbark	1				5	5	5	4					
41	Red stringybark	1	3	3	2	2	2							1
41	River red gum	1	2											2
41	Shrubs	1	1	1	1	1	1	1	1	1	1	1	1	1

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
41	Stringybark	1	1	1	1	1	1	1	1	1				
41	Blue apple box	2	2	2	2	2	2							
41	Blue gum	2	2	2	2	1					1	1	1	2
41	Clover	2								1	1	1		
41	Grey box	2				1	1	1	1					
41	Long leafbox	2	1	1	2	2	2	2	2	2				
41	Manna gum	2	1	1	1									
41	Red box	2	1	1	1	1	1	1	1	1	1	1	1	1
41	Red gum	2	1									1	1	1
41	Swamp gum	2	1	1	1									
41	White box	2	1	1										1
41	Apple box	3	1	1	1	1	1	1	1	1				
41	Brittle gum	3	1	1	1									
41	Green apple box	3	2	2	2	2	2							
41	Paterson's curse	3								1	1	1		
41	Red box	3	1	1	1	1					1	1	1	1
41	Stringybark	3	2	2	2	1	1	1	1	1	1	1	1	2
41	White gum	3	1	1	1									
41	Capeweed	4								1	1	1		
41	Hill gum	4	2	2	2	2	2	2	2	2	1	1	1	1
41	Manna gum	4	1	1	1									1
41	Stringybark	4	1	1	1	1					1	1	1	1
41	Swamp gum	4	1	1	1									
41	Blue gum	5	1	1	1									
41	Long leafbox	5	1	1	1	1	1	1	1	1	1	1	1	1
41	Red box	5	1	1	1	1	1	1	1	1				
41	White gum	5	1	1	1									1
42	Clover	1									1	1	2	2
42	Red gum	1	1										1	1
42	River red gum	1	1	1										1
42	White clover	1	5	2	2	2	2	2	2	2	2	2	5	5
42	Black box	2	2	1									1	2
42	Canola	2	1	1	1	1	1	1	1	1	1	1	1	1
42	Lucerne	2									1	1	1	1
42	Shaftall clover	2	2	1	1	1	1	1	1	1	1	1	2	2
42	Canola	3	1	1	1	1	1	1	1	1	1	1	1	1
42	Lucerne	3	1										1	1
42	Ox tongue	3	1										1	1
42	Shaftall clover	3	1	1	1	1	1	1	1	1	1	1	1	1
42	Lucerne	4	2	1	1	1	1	1	1	1	1	1	2	2
42	Heliotrope	5	1										1	1
43	Clover	1	2	2	2	2	2	2	2	2	2			
43	Grey box	1				1	1	1	1	1	1			
43	Red gum	1	4	2										4
43	Canola	2				1	1	1	1	1	1			
43	Grey box	2	2	2	2	2	2	2	2	2	2			

## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
43	White clover	2	2	2										2
43	Yellow box	3	1	1	1	1	1	1	1	1	1			
44	Banksia	1					1	1	1	1				
44	Honey suckle	1	1	1	1	1	1	1	1	1	1	1	1	1
44	Yellow gum	1										2	2	2
44	Mallee	2	1	1	1	1	1	1	1	1	1	1	1	1
44	Red gum	2										2	2	2
44	Stringybark	3	1	1	1	1	1	1	1	1	1	1	1	1
45	Banksia	1	1		1	10	11	12	12	6	3	1	2	2
45	Brown stringybark	1		1	2	2	1							
45	Canola	1									1	1		
45	Giant mallee	1											1	1
45	Red gum	1	2	2		1	1	1	1					1
45	Shrubs	1	2	2	2	2	2	2	2	2	2	2	2	2
45	Yellow gum	1	1		2	2	2	2	2		3	3	3	3
45	Banksia	2	1	1		1	2	2	2					1
45	Red gum	2	3	1	3	4	4	4	4	1	4	4	4	5
45	Shrubs	2				1	1	1	1	1	1		1	1
45	Stringybark	2				1	1	1	1	1				
45	Tea tree	2				1	1	1	1	1				
45	Yellow gum	2			2	3	3	3	3	3	3	2	1	
45	Balansa clover	3	1								1	1	1	1
45	Banksia	3			2	2	2	2	2		2	2	2	2
45	Black box	3	1	1	1	1	1	1	1	1	1	1	1	1
45	Canola	3				1	1	1	1	1	1	1	1	
45	Capeweed	3				1	1	1	1	1				
45	Giant angular	3				1	1	1	1	1	1		1	1
45	Tea tree	3	1			1	1	1	1					1
45	Brown stringybark	4			2	2	2	2	2		2	2	2	2
45	Faba beans	4				1	1	1	1	1				
47	Red gum	1	1	1										1
47	Shrubs	1	1	1	1	1	1	1	1	1	1	1	1	1
47	Yellow box	1	5	4	3	2	1	1	1	1	1	5	6	7
47	Red gum	2	2	1	1	1	1	1	1	1	1	3	3	4
47	Sugar gum	2	1	1	1	1	1	1	1	1	1	1	1	1
47	White gum	2	1	1								1	1	1
47	Yellow gum	2	2	2	2	1						1	2	2
47	Capeweed	3	1	1	1	1	1	1	1	1	1	1	1	1
47	Pink gum	3	1	1								1	1	1
47	Red gum	3	1	1	1	1						1	1	1
47	Clover	4	1	1	1	1	1	1	1	1	1	1	1	1
47	Shrubs	5	1	1	1	1	1	1	1	1	1	1	1	1
47	Stringybark	6	1	1	1	1	1	1	1	1	1	1	1	1
48	Canola	1									1	1	1	
48	Clover	2									1	1	1	

## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
48	Capeweed	3									1	1	1	
48	Thistle	4									1	1	1	
49	Apple box	1	2	2	2	2								2
49	Blue gum	1	2	2	2	1	1	1	1					
49	Messmate	1	3	3	3									
49	Mountain ash	1		1	1	1								
49	Snow gum	1	9	9										9
49	Alpine ash	2	9	9										9
49	Apple box	2		1	1	1								
49	Long leafbox	2	1	1	1	1	1	1	1					
49	Mountain ash	2	2	2	2	2								2
49	Stringybark	2	3	3	3									
49	Blue gum	3	2	3	3	3								2
49	But but	3	1	1	1	1	1	1	1					
49	Candlebark	3	5	5										5
49	Long leaf box	3	1	1	1									
49	Blackberry	4	2	2	2	2								2
49	But but	4	1	1	1									
49	Shrubs	4		1	1	1								
49	Snow gum	4	1	1	1	1	1	1	1					
49	Manna gum	5	1	1	1	1	1	1	1					
49	Peppermint	5	1	1	1									
49	White clover	5	2	2	2	2								2
49	Brittle gum	6	1	1	1	1	1	1	1					
49	Narrow leaf peppermint	6	2	2	2	2								2
51	Brown stringybark	1			1	1	1	1	1	1				
51	Clover	1	1											1
51	Desert banksia	1					1	1	1	1	1			
51	Red gum	1	2	2		2	2	2	2					2
51	Shrubs	1	1	1	1	1	1	1	1	1	1	1	1	1
51	Yellow gum	1	6	6	7	8	6	7	7	6	8	8	8	6
51	Banksia	2	2	2		2	2	2	2					2
51	Blackberry	2	1											1
51	Desert banksia	2			3	3	3	3	3	3	2	2	2	
51	Red gum	2	6	6	5	6	4	5	5	4	6	6	6	6
51	Stringy bark	2	1	1	1	1	1	1	1	1	1	1	1	1
51	Brown stringybark	3	4	4	6	6	5	5	5	5	6	6	6	4
51	Messmate	3	1											1
51	Red gum	3	1	1	1	1	1	1	1	1	1	1	1	1
51	Shrubs	3	1	1	1	1	1	1	1	1	1	1	1	1
51	Stringy bark	3	1	1		1		1	1		1	1	1	1
51	Yellow gum	3			1	1	1	1	1	1				
51	Balansa clover	4	1	1	1	1					1	1	1	1
51	Banksia	4	4	4	3	4	3	4	4	3	4	4	4	4
51	Domestic garden flora	4			2	2	2	2	2	2	2	2	2	
51	Peppermint	4	1	1	1	1	1	1	1	1	1	1	1	1

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
51	Peppermint box	4	1	1	1	1	1	1	1	1	1	1	1	1
51	Safflower	5	1	1	1	1					1	1	1	1
51	Tea tree	5	3	3	3	3	3	3	3	3	3	3	3	3
53	Canola	1								6	7	7	5	
53	Grey box	1	8	13	19	19	14	11	11	10	11	13	13	7
53	Longleaf box	1				1	1							
53	Messmate	1		1	1	1	1							
53	Red gum	1	2	2	2							2	2	2
53	Red ironbark	1	1	1	1								1	1
53	Red stringybark	1	2	3	3	3	1	1	1					
53	Tea tree	1	3	3										
53	Yellow box	1	9	9	9	6	2	1	1	1	1	3	10	10
53	Yellow gum	1	1	1	1	1	1	1	1	1	1	1	1	1
53	Blue gum	2	2	2	2								2	2
53	Clover	2									1	1		
53	Grey box	2	1	1	1								1	1
53	Longleaf box	2	3	4	4	4	1	1	1				3	3
53	Messmate	2	3	3										
53	Red box	2	3	3	3	3	1	1	1	1	1	1	1	1
53	Red gum	2	2	2	2	1	1	1	1	1	1	3	3	3
53	Red ironbark	2			2	2								
53	Stringybark	2	2	3	3	3	2						2	2
53	Veitch	2								1	1	1		
53	Yellow box	2	8	8	8	6	6	6	6	6	6	8	8	8
53	Yellow gum	2	2	6	10	10	7	5	5	4	5	7	7	1
53	Blue gum	3	2	2	2	2	1	1	1	1	1	1	2	2
53	Capeweed	3	1	1	1						1	2	1	1
53	Grey box	3	1	1	1	1	1	1	1	1	1	1	1	1
53	Long leaf box	3	3	3	3	3	1						1	1
53	Red gum	3		1	1	1	1							
53	Red ironbark	3			4	4	1				1	1	1	
53	Red stringybark	3	2	6	6	4	4	4	4	4	4	4	6	2
53	Stringybark	3	9	9	9	9	6	6	6	6	6	6	9	9
53	Yellow box	3	1	1	1	1	1					1	1	1
53	Yellow gum	3	3	3	5	2						2	3	3
53	Banksia	4		1	1	1	1							
53	Longleaf box	4	10	10	10	8	7	6	6	6	6	7	10	10
53	Red box	4	3	3	3	3							3	3
53	Red gum	4	1	1	1	1	1	1	1	1	1	1	1	1
53	Red ironbark	4		4	4	4	4	4	4	4	4	4	4	
53	Red stringybark	4	3	3	3							3	3	3
53	Yellow box	4	4	4	4	3	1	1	1	1	1	1	2	2
53	Cabbage box	5	1	1	1	1	1	1	1	1	1	1	1	1
53	Longleaf box	5		4	4	4	4	4	4	4	4	4	4	
53	Red box	5	2	2	2								2	2
53	Red gum	5	3	3	3	3							3	3
53	Red ironbark	5	1	1	1	1	1					1	1	1

## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
53	Stringybark	5	1	1	1	1	1	1	1	1	1	1	1	1
53	Tea tree	5		1	1	1	1							
53	Yellow box	5	6	6	6	6	6	6	6	6	6	6	6	6
53	Grey box	6	3	3	3	3							3	3
53	Red box	6	1	5	5	5	5	4	4	4	4	5	5	1
53	Red gum	6	6	6	6	6	6	6	6	6	6	6	6	6
53	Stringybark	6	1	1	1	1	1	1	1	1	1	1	1	1
54	Apple box	1	1	2	2	2	1							
54	Blue gum	1		2	2	2								
54	Grey box	1			4	4						2		
54	Narrow leaf peppermint	1	1	1										1
54	Peppermint	1	6	6	6									
54	Red stringybark	1	2	6	6	2								
54	Apple box	2	1	1	1	1								
54	Blue gum	2	7	7	6									1
54	Longleaf box	2	1	4	4									
54	Manna gum	2		2	2	2								
54	Red ironbark	2			2	2								
54	String bark	2	1	2	2	2	1							
54	Yellow box	2			2	2						2		
54	Blackberry	3	1	1										1
54	<b>Dalriplyana</b>	3	6	6	6									
54	Red box	3	1	4	4									
54	Red ironbark	3			2	2						2		
54	Blue apple box	4		3	3									
54	Manna gum	4	6	6	6									
54	Messmate	4	1	1										1
54	Manna gum	5	1	1										1
54	Ribbon gum	5	6	6	6									
54	Red stringybark	6	1	1										1
54	Woolly butt	6	6	6	6									
55	Blue mallee	1	1	1	9	10	9	1	1	1	1	1	1	
55	Bull mallee	1	1	1								1	1	1
55	Canola	1	1	1	1	1	1	1	1	1	1	1	1	1
55	Green mallee	1	17	15	16	17	10					14	15	16
55	Grey box	1	2	8	20	19	11	7	7	6	9	5	3	2
55	Red gum	1	1	1									3	4
55	Red ironbark	1	7	13	16	12	10	4	2	1	1	3	2	
55	Yellow box	1	7	6	6	5						2	5	7
55	Yellow gum	1			3	3	3	3	3	3	3			
55	Blue mallee	2	18	16	24	25	18	3	3	2	2	17	17	18
55	Bull mallee	2	1	1	1	2	2	1	1	1	1	1	1	
55	Capeweed	2	1	1	1	1	1	1	1	1	1	1	1	1
55	Clover	2	1	1	1	1	1	1	1	1	1	1	1	1
55	Grey box	2	7	10	16	12	11	6	4	4	4	2	1	



## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
55	Hill gum	2		1	1	1	1	1	1	1				
55	Red gum	2	3	3	3	2						2	3	3
55	Red ironbark	2	2	4	5	5	5	2	2	2	2	1	2	1
55	Red stringybark	2	4	4	4	4							2	4
55	Yellow box	2			1	1	1						3	3
55	Yellow gum	2		4	7	6	3	2	2	1	5	3	1	
55	Blue gum	3	2	2	2	2							2	2
55	Capeweed	3	2	2	4	2	2	2	2	2	3	3	2	2
55	Green mallee	3	2	2	2	3	3	1	1	1	1	2	2	1
55	Grey box	3	17	17	17	18	10	1	1			16	18	17
55	Longleaf box	3	1											1
55	Red gum	3		1	1	1	1	1	1	1	1			
55	Red ironbark	3	1	1	5	5	4	3	3	3	3		1	1
55	Shrubs	3	1	1								1	1	1
55	White gum	3		1	1	1	1	1	1	1	1			
55	Yellow box	3		3	3	3	1	1	1	1	3	1		
55	Yellow gum	3	6	8	14	11	11	5	3	2	2	3	3	1
55	Bull mallee	4	1	1	1	1	1					1	1	1
55	Capeweed	4		1	2	2	2	2	2	2	2	2	1	
55	Grey box	4	1	1	1	1							1	1
55	Hill gum	4			1	1	1							
55	Longleaf box	4	1	1	1	1								1
55	Lucerne	4	1	1	1	1	1	1	1	1	1	1	1	1
55	Red box	4	1	1	1	1								1
55	Red gum	4	3	3	4	2	2	1	1	1	1	2	1	
55	Red ironbark	4		2	2	2					2			
55	Red stringybark	4	1	1	1							1	1	1
55	Yellow box	4		1	1	1	1	1	1			1	1	
55	Yellow gum	4	16	16	16	16	8					15	17	16
55	Blue mallee	5	2	2	2	2	2					1	2	
55	Bull mallee	5			1	1	1	1	1	1	1	1	1	
55	Green mallee	5	2	2	2									
55	Red box	5		1	1	1	1	1	1			1	2	1
55	Red ironbark	5	14	14	14	14	7					14	14	14
55	Yellow box	5			1	1	1	1	1	1	1	1		
55	Yellow gum	5	2	2	2	2	1					1	2	2
55	Green mallee	6			1	1	1	1	1	1	1	1	1	
55	Longleaf box	6			1	1	1	1	1	1	1	1	1	1
55	Paterson's curse	6	1	1	1	1	1					1	1	1
55	Red gum	6		1	1	1	1	1	1			1	1	
55	Capeweed	7	1	1	1	1	1					1	1	1
55	Sugar gum	7			1	1	1	1	1	1	1	1		
56	Blackberry	1	3	2	2	2						1	1	3
56	Canola	1	10	10	10	10	10	10	10	10	10	10	10	10
56	Grey box	1		1	2	1								
56	Paterson's curse	1	1	1	1									1
56	Peppermint	1	3	3	3	2	1							1

## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
56	Red ironbark	1	12	12	12	12	12	12						
56	Red stringybark	1	11	11	12	5							6	6
56	Blackberry	2	1	1	1									1
56	Blue gum	2	1	1	1	1								1
56	Capeweed	2	10	10	10	10	10	10	10	10	10	10	10	10
56	Grey box	2	12	12	12	12	12	12						
56	Longleaf box	2	7	7	7								6	6
56	Manna gum	2	3	3	3	2	1							1
56	Paterson's curse	2	1	1	1	1								1
56	Peppermint	2	4	4	4	4								
56	Red ironbark	2		1	1	1								
56	Red stringybark	2			1	1								
56	Yellow box	2	1									1	1	1
56	Yellow gum	2			1									
56	Blue gum	3	2	2	2	2	1							
56	Eucalypt species	3	1	1	1									1
56	Longleaf box	3	3	3	3	3								
56	Manna gum	3	1	1	1	1								1
56	Messmate	3	1	1	1	1								
56	Paterson's curse	3	1									1	1	1
56	Peppermint	3	1	1	1									
56	Red ironbark	3			1									
56	Shrubs	3	6	6	6								6	6
56	Swamp gum	3	1	1	1									1
56	White box	3	10	10	10	10	10	10	10	10	10	10	10	10
56	Yellow gum	3	12	12	12	12	12	12						
56	Apple box	4	3	2	2	2						1	1	1
56	Blackberry	4	1	1	1									1
56	Blue gum	4	1	1	1	1								
56	Grey box	4	10	10	10	10	10	10	10	10	10	10	10	10
56	Longleaf box	4	1	1	1	1								1
56	Messmate	4	1	1	1	1								
56	Narrow leaf peppermint	4	6	6	6								6	6
56	Swamp gum	4	1	1	1	1								
56	Blue gum	5	1	1	1	1								1
56	Capeweed	5	1									1	1	1
56	Manna gum	5	1	1	1	1								
56	Messmate	5	1	1	1	1								
57	Black mallee	1	2	2										1
57	Blue mallee	1	2	2	3	4	5	4	2	2	3	4	3	3
57	Grey box	1	1	12	15	14	7	2	2	2	7	6	2	1
57	Kamarooka mallee	1	2	2	2									
57	Mallee	1									1	1		
57	Messmate	1		1	1	1								
57	Paterson's curse	1									1	1	1	
57	Red gum	1	2	2	1	1	2	1	1	1	1	1	1	3

## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
57	Red ironbark	1	30	32	33	36	33	19	15	15	11	7	6	8
57	Red stringybark	1	1	1	1	1	1							
57	Yellow box	1	2	2	2									
57	Yellow gum	1	3	4	10	9	6	6	6	8	7	7	4	3
57	Blue mallee	2	4	4	4	2	1	1	1	1	1	1		1
57	Bull mallee	2	1	1										1
57	Green mallee	2				1	1	1			1	1		
57	Grey box	2	21	23	27	30	28	16	12	13	9	5	2	3
57	Kamarooka mallee	2	2	3	3	3	2	2	2	2	2	2	2	2
57	Red box	2								1	1	1	1	
57	Red ironbark	2	1	1	3	2	2	1	1	1	1	2	2	2
57	Red stringybark	2		1	1	1								
57	Shrubs	2									1	1		
57	Stringybark	2	2	2	2									
57	White gum	2	1	1	1	1	1	1	1	1				
57	Yellow box	2	3	4	3	3	1	1	1	2	2	4	3	4
57	Yellow gum	2	8	12	15	14	11	8	8	7	12	9	6	6
57	Blue mallee	3				1	1	1	1	1	1	1	1	
57	Bull mallee	3	2	2	2									
57	Green mallee	3	1	1	2	2	1					1	1	2
57	Grey box	3	7	7	9	8	6	5	5	5	5	7	7	7
57	Kamarooka mallee	3	1	1										1
57	Red box	3	1	1	2	2	2	2	2	2	2	1		1
57	Red gum	3	3	3	3	1	1							
57	Red ironbark	3	1		3	3	2	2	2	2	3			1
57	Yellow box	3		1	1	1								
57	Yellow gum	3	18	19	17	20	21	12	8	8	5	3	3	3
57	Blue gum	4	2	2	2									
57	Blue mallee	4	10	10	10	10	10							
57	Bull mallee	4	1	1	1	1								1
57	Capeweed	4				1	1	1	1	1	1	1	1	
57	Grey box	4	1	1	1	1	2	2	2	2	2	1	1	2
57	Kamarooka mallee	4			1	1	1					1	1	1
57	Long leaf box	4	1	2	2	2	1							
57	Red gum	4	5	5	5	5	3	3	3	3	3	5	5	5
57	Winter ironbark	4	3	3	3	3	3	3						
57	Bull mallee	5			1	1	1					1	1	1
57	Capeweed	5					1	1	1	1	1	1	1	1
57	Melaleuca	5	1	1	1	1								1
57	Red box	5	2	2	2	2						2	2	2
57	Red gum	5	1	1	1	1	1	1	1	1	1			1
57	Yellow box	5	3	3	3	3	3	3	3	3	3	3	3	3
57	Green mallee	6	3	3	3	3	3	3	3	3	3	3	3	3
57	Grey box	6	1	1	1	1								1
58	Blue gum	1	5	7	3	3						1	1	5
58	Canola	1									1	1	1	
58	Grey box	1		2	2	2	1	1	1	1	1	1		

## Appendix 3

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
58	Red box	1					1	1	1	1				
58	Red ironbark	1	1	1	1							1	1	1
58	Capeweed	2					1	1	1	1				
58	Green mallee	2	1	1	1							1	1	1
58	Manna gum	2		2	2	2								
58	Paterson's curse	2									1	1	1	
58	Red box	2					1	1	1	1	1	1		
58	Red stringybark	2	5	5	1	1						1	1	5
58	Longleaf box	3	1	1	1	1						1	1	1
58	Narrow leaf peppermint	3	4	5	1	1								4
58	Longleaf box	4	4	4										4
58	Narrow leaf peppermint	4	1	1	1	1						1	1	1
58	Manna gum	5	5	5	1	1						1	1	5
58	Shrubs	6	1	1	1	1						1	1	1
59	Canola	1									1	2	1	1
59	Capeweed	1								1	1	1	1	
59	Clover	1								1	1	1		
59	Eucalypt species	1		2	4	4	4	3	3	3	3	3		
59	Grey box	1	4	13	30	29	27	25	17	15	11	8	4	3
59	Messmate	1	10	10	10									
59	Paterson's curse	1	1								1	1	2	1
59	Red gum	1	4	4	4	4	4	4	4	4	4	4	4	4
59	Red ironbark	1	4	12	17	21	24	21	16	10	6	4	2	2
59	Red stringybark	1	3	3	3	3	3	3						
59	Stringybark	1	1	1	1									
59	Yellow box	1	4	1	1	1	1				1	1	4	4
59	Yellow gum	1						1	1	2	2	2	1	
59	Canola	2		1	1	1	1	1	1	1	1	1		
59	Capeweed	2						1	1	2	2	2		
59	Green mallee	2	1	1	1	1	1	1	1	1	1	1	1	1
59	Grey box	2	7	14	19	24	25	22	19	12	8	7	5	5
59	Longleaf box	2		1	1	1	1	1	1	1	1			
59	Manna gum	2	10	10	10									
59	Onion weed	2								1	1	1	1	
59	Red box	2						1	1	1	1			
59	Red gum	2	4	1	1	1	1				1	1	4	4
59	Red ironbark	2	1	5	19	19	20	19	11	10	7	6	2	2
59	Red stringybark	2		3	3	3	2				1	1	1	
59	Yellow box	2	4	5	6	6	7	7	3	4	3	3	3	2
59	Yellow gum	2			4	4	5	4	3	3	2	2		
59	Balansa clover	3								1	1	1	1	
59	Bull mallee	3	1	1	1	1	1	1	1	1	1	1	1	1
59	Canola	3								1	1	1		
59	Capeweed	3		1	1	1	1	1	1	1	1	1		
59	Grey box	3	1	2	2	2	2				1	1	1	1

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
59	Lignum	3	1	1	1	1	1	1						
59	Longleaf box	3	2	3	3	3	3	2						
59	Lucerne	3										1	1	1
59	Mallee	3			1	1	1	1	1					
59	Onion weed	3						1	1	1	1	1		
59	Red box	3	1	3	6	7	6	7	6	6	7	6	3	2
59	Red gum	3								1	1	1	1	
59	Red ironbark	3		2	3	3	4	3	3	2	2	1		
59	Red stringybark	3	1	1	1	1	1	1	1	1	1	1	1	1
59	Wattle	3					1	1	1	1				
59	White ironbark	3	1	1	1	1	1	1	1	1	1	1	1	1
59	Yellow gum	3	6	14	28	28	28	26	17	14	10	8	4	4
59	Capeweed	4		1	1	1					1	1	1	
59	Clover	4										1	1	1
59	Golden wattle	4			1	1	1	1	1	1				
59	Grey box	4	1	3	6	6	6	6	5	5	5	4	1	1
59	Lucerne	4								1	1	1	1	
59	Mallee	4			1	1	1	1	1	1	1	1		
59	Melaleuca	4	4	4	4	4	4	4	4	4	4	4	4	4
59	Paterson's curse	4	1	1	1	1	1				1	1	1	1
59	Red box	4	1	1	2	2	2	2	2	2	1	1	1	1
59	Stringybark	4			1	1	1	1	1					
59	Yellow box	4		1	1	1	1	1	1	1	1	1		
59	Yellow gum	4	2	4	4	5	5	5	5	5	5	5	3	3
59	Golden wattle	5		1	1	1					1	1	1	
59	Longleaf box	5	1	1	1	1	1	1	1	1	1	1	1	1
59	Mallee	5		1	1	1	1	1	1	1	1	1		
59	Prickly moses	5			1	1	1	1	1	1				
59	Red box	5	3	4	4	4	4	2	2	2	3	3	3	3
59	Red gum	5		1	1	1	1	1	1	1	1	1		
59	Red stringybark	5			3	3	3	3	2	2	2	2		
59	Stringy bark	5		1	1	1	1	1	1	1	1			
59	Yellow box	5	4	5	5	5	5	4	4	5	5	5	5	4
59	Yellow gum	5			1	1	1	1	1					
59	Mallee	6		1	1	1	1	1	1	1	1	1		
59	Red box	6	4	5	5	5	5	4	4	4	4	4	4	4
59	Red gum	6	1	1	1	1	1	1	1	1	1	1	1	1
59	Red ironbark	6	1	1	1	1	1				1	1	1	1
59	Sugar gum	6	1	1	1	1	1	1	1	1	1	1	1	1
59	Yellow box	6			1	1	1	1						
59	Yellow gum	6	1	1	1	1	1	1	1	1	1	1	1	1
59	Clover	7	1	1	1	1	1	1	1	1	1	1	1	1
59	White box	7	1	1	1	1	1				1	1	1	1
59	Yellow gum	7			1	1	1	1						
59	Capeweed	8	1	1	1	1	1	1	1	1	1	1	1	1
59	Red stringybark	8	1	1	1	1	1				1	1	1	1
59	Sugar gum	9	1	1	1	1	1				1	1	1	1

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Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
60	Banksia	1				1	1	1	1	1				
60	Grey box	1	1	1	4	3	2	2	2	2				
60	Paterson's curse	1	1									1	2	2
60	Red gum	1	2											2
60	Red ironbark	1	5	6	8	8	6	3	3	2				
60	Yellow gum	1									1	1		
60	Clover	2	1											1
60	Grey box	2	3	4	5	5	5	3	3	2				
60	Red gum	2									1	1		
60	Red ironbark	2	2	2	5	5	3	2	2	2				
60	Thistle	2										1	1	1
60	Grey box	3	2	2	3	3	1				1	1		
60	Yellow box	3										1	1	1
60	Yellow gum	3	1	1	3	3	3	3	3	2				
60	Blue mallee	4	1	1	1	1	1	1	1					
60	Red box	4			1	1	1	1	1	1				
60	River red gum	4										1	1	1
61	Grey box	1	1	2	2	2	1	1			1	1		
61	Messmate	1	3	5	3									
61	Onion weed	1		2	2	2					2	2	2	
61	Red stringybark	1		2	2	2								
61	Yellow box	1	2	2	2									2
61	Capeweed	2		2	2	2					2	2	2	
61	Grey box	2		2	2	2								
61	Manna gum	2	1	1	1									
61	Peppermint	2		2	2									
61	Red gum	2	1	1	1	1	1	1						
61	Stringybark	2	2	2	2									2
61	Yellow gum	2		1	1	1					1	1		
61	Clover	3		2	2	2					2	2	2	
61	Longleaf box	3	2	2	2									2
61	Yellow gum	3	1	1	1	1	1	1						
61	Grey box	4		2	2	2					2	2	2	
61	Red box	4	1	1	1	1	1	1						
61	Longleaf box	5	1	1	1	1	1	1						
61	Red box	5		2	2	2					2	2	2	
62	Blue gum	1	2	2	2									
62	Messmate	1	3	3	3	2	1							
62	Red stringybark	1		2	2	2								
62	Stringybark	1		2	2	2								
62	Grey box	2		1	1	1								
62	Manna gum	2			1	1								
62	Messmate	2	2	5	5	4	1							
62	Manna gum	3		3	3	3								
62	Red box	3		1	1	1								

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
62	Stringybark	3	2	2	2									
62	Manna gum	4	2	2	2									
65	Banksia	1	1					1	1	1	1	1	1	1
65	Canola	1				1	1	1	1	1	1	1		
65	Capeweed	1	1	1								1	1	1
65	Needle bush	1	1	1	1	1	1	1	1	1	1	1	1	1
65	Red gum	1	10	10	7	1						1	6	10
65	Yellow box	1	12	9	5						3	3	10	12
65	Canola	2	1	1									1	1
65	Capeweed	2				1	1	1	1	1	1	1		
65	Longleaf box	2	3	3	3								3	3
65	Red gum	2	7	5	3							1	5	7
65	Tea tree	2	1	1										1
65	Yellow box	2	6	5	5	2	1	2	2	2	2	3	4	6
65	Yellow gum	2	6	5	2						3	3	6	6
65	Blackberry	3	1	1	1	1	1	1	1	1	1	1	1	1
65	Melaleuca	3	2											2
65	Messmate	3	2	2	2						2	2	2	2
65	Prickly tea tree	3	3	3	3								3	3
65	Red gum	3	4	3		1	1	1	1	1	2	2	4	4
65	Scent gum	3	1	1										1
65	Tea tree	3	3	3	3								3	3
65	Yellow box	3	2	2								1	2	2
65	Yellow gum	3	5	4	3	1		1	1	1	1	2	4	5
65	Brown stringybark	4	1											1
65	Canola	4	1	1								1	1	1
65	Capeweed	4	1	1	1							1	1	1
65	Messmate	4	3	3	3								3	3
65	Red gum	4	1					1	1	1	1	1	1	1
65	Scent bark	4	2	2	2						2	2	2	2
65	Yellow box	4	3	3	3	1	1	1	1	1	1	1	3	3
65	Yellow gum	4	2	2	1	1	1	1	1	1	1	1	2	2
65	Capeweed	5	1	1									1	1
65	Melaleuca	5	3	3	3								3	3
65	Red gum	5	3	3	3	1	1	1	1	1	3	3	3	3
65	Stringybark	5	4	3	3			1	1	1	1	1	4	4
65	Yellow gum	5				1	1	1	1	1	1	1		
65	Longleaf box	6	1	1	1	1	1	1	1	1	1	1	1	1
65	Wattle	6				1	1	1	1	1	1	1		
66	Red box	1	2	2	2	2	2	2	2	2	2	2	2	2
66	Red stringybark	1	1	1	1									1
66	White box	1	1	1									1	1
66	Yellow box	1	1	1										1
66	Grey box	2	2	2	2	2	2	2	2	2	2	2	2	2
66	Longleaf box	2	2	2	1									2
66	Yellow box	2	1	1									1	1

Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
66	Manna gum	3	2	2									1	2
66	Red box	3	1	1	1									1
66	White box	3	1	1	1	1	1	1	1	1	1	1	1	1
66	White stringybark	3	1	1	1	1	1	1	1	1	1	1	1	1
66	Blue gum	4	2	2	1									2
66	Red stringyark	4	2	2	2	2	2	2	2	2	2	2	2	2
66	Manna gum	5	1	1	1									1
66	White box	5	1	1										1
67	Brown stringybark	1	4	8	8	8								
67	Stringybark	1		1	1	1								
67	Yellow gum	1	1									1	1	1
67	Manna gum	2		1	1	1								
67	Red gum	2	1									1	1	1
67	Silver banksia	2	4	8	8	8								
67	Banksia	3		1	1	1								
67	Brown stringybark	3	1									1	1	1
67	Scent bark	3		4	4	4								
68	Blue box	1	1	1	1									1
68	But but	1	1	1	1	1	1	1	1	1	1	1	1	1
68	Red ironbark	1	2	2	2	2	2	2	2	2	2	2	2	2
68	Red stringybark	2	1	1	1	1	1	1	1	1	1	1	1	1
68	Silvertop	2	2	2	2	2	2	2	2	2	2	2	2	2
68	Round leaf box	3	2	2	2	2	2	2	2	2	2	2	2	2
68	Yellow box	3	1	1	1	1	1	1	1	1	1	1	1	1
68	Stringybark	4	2	2	2	2	2	2	2	2	2	2	2	2
68	White box	4	1	1	1	1	1	1	1	1	1	1	1	1
69	Banksia	1				3	3	3	3	3	3	3	1	1
69	Brown stringybark	1		1	1	1								
69	Red gum	1	1	1	1	1	1	1	1	1	1			1
69	Yellow box	1	1	1										
69	Yellow gum	1				1	1	1	1	1	1	1	1	1
69	Banksia	2				1	1	1	1	1	1	1	1	1
69	Brown stringybark	2	1	1	1	1	1	1	1	1	1			1
69	Red gum	2	1	1		1	1	1	1	1	1	1	1	1
69	Yellow gum	2				2	2	2	2	2	2	2		
69	Banksia	3	1	1	1	1	1	1	1	1	1			1
69	Brown stringybark	3	1	1										
69	Red gum	3				2	2	2	2	2	2	2	1	1
69	Stringybark	3				2	2	2	2	2	2	2	1	1
69	Black box	4				1	1	1	1	1	1	1	1	1
69	Canola	4				1	1	1	1	1	1	1	1	1
69	Domestic garden flora	4				1	1	1	1	1	1	1		
69	Stringybark	4				1	1	1	1	1	1	1		
69	Balansa clover	5				1	1	1	1	1	1	1	1	1



Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
69	Domestic garden flora	5				2	2	2	2	2	2	2	1	1
69	Grey box	5				1	1	1	1	1	1	1		
69	Balansa clover	6				1	1	1	1	1	1	1		
69	Black box	6				1	1	1	1	1	1	1		
69	Domestic garden flora	6				1	1	1	1	1	1	1	1	1
69	Needle bush	6				1	1	1	1	1	1	1	1	1
70	Blue box	1	2	2	2	2	2	2	2	2	2	2	2	2
70	Silvertop	1										1	1	
70	Bull mallee	2	2	2	2	2	2	2	2	2	2	2	2	2
70	Round leaf box	2										1	1	
70	Stringybark	3	2	2	2	2	2	2	2	2	2	2	2	2
71	Blue gum	1			1	1				1	1	1		
71	Capeweed	1									2	3	3	1
71	Domestic garden flora	1	1	1						1	1	1	1	1
71	Grey box	1	1		1	2	2	1	1	1	1	1	1	1
71	Messmate	1	2	4	3	2	2	1	1	1	1			1
71	Red gum	1	3	1	1	1	1						1	3
71	Red ironbark	1	2	1	2	1		1	1	1	1	1	2	2
71	Stringybark	1	1	1	1	1								
71	Tea tree	1	9	11	9	5		3	3					4
71	Yellow box	1	14	12	5	3	3	2	2	2	4	7	10	14
71	Yellow gum	1	4	3	1	1	2	1	2	2	3	4	3	4
71	Apple box	2	1	1	1									
71	Brown stringybark	2	1	1										1
71	Cabbage box	2	1	1	1	1								
71	Capeweed	2	2	2			1	1	1	1	2	3	2	2
71	Grey box	2			1	1	1							
71	Messmate	2	4	4										
71	Onion weed	2										1	1	1
71	Pink gum	2			1	1				1	1	1		
71	Red box	2	1			1	1	1	1	1	1	1	1	1
71	Red gum	2	6	5	3	2	1	2	2	2	2	2	3	6
71	Red ironbark	2	1	1	1	1	1							1
71	Red stringybark	2	2	1	2	2	2						1	2
71	Scent bark	2		1	1									
71	Shrubs	2	1	1	1	1	1	1	1	1	1	1	1	1
71	Stringybark	2	3	5	8	5	1	3	3					3
71	Tea tree	2	1	2	1	1	1	1	1	1	1			1
71	White gum	2	1	1								1	1	1
71	Yellow box	2	5	2					1	2	2	3	5	5
71	Yellow gum	2	4	4	2						4	5	6	4
71	Brown stringybark	3		1	1									
71	Cabbage box	3	1										1	1

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Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
71	Grevillea species	3									1	1	1	
71	Honey suckle	3		1	1	1	1	1	1	1	1			
71	Melaleuca	3		1	1	1	1							
71	Mountain grey gum	3		1	1	1								
71	Narrow leaf peppermint	3	1						1	1	1	1	1	1
71	Pink gum	3	1	1						1	1	1	1	1
71	Red gum	3	8	8	3	2	2	1	1	1	3	5	5	7
71	Red stringybark	3	1	1	1								1	1
71	Scent bark	3	1	1										1
71	Shrubs	3	1	1	2	2	1	1	1	2	2	2	1	1
71	Swamp gum	3	1	1										1
71	Thistle	3										1	1	1
71	Yellow box	3	3	3	3	2	1	1	1	1	1	1	1	3
71	Yellow gum	3	4	1		1	1	1	1	1	1	1	3	4
71	Brown stringybark	4	1											1
71	Heaths	4	1						1	1	1	1	1	1
71	Long leaf box	4	1	1	1	1	1							1
71	Manna gum	4	1	1	1	1								
71	Messmate	4		1	1	1								
71	Red stringybark	4	3	3	1						2	3	3	3
71	Tea tree	4	1	2	1	1	1							1
71	Yellow box	4	1	1	1	1	1	1	1	2	2	2		1
71	Yellow gum	4	3	3	3	2	1	1	1	1	1	1	2	3
71	Banksia	5		1	1	1	1							
71	Black box	5		1	1	1								
71	Longleaf box	5	1	1	1	1	1						1	1
71	Pink gum	5	1	1	2	1		1	1	1	1	1	1	1
71	Red stringybark	5	1	1										1
71	Round leaf box	5	1	1	1							1	1	1
71	Longleaf box	6	1	1	1							1	1	1
71	Messmate	6	1	1										1
71	Shrubs	6	1	1	2	1		1	1	1	1	1	1	1
71	Apple box	7	1	1	1							1	1	1
73	Blue gum	1	3										3	3
73	Grey box	1	1	1	1	1	1							
73	Messmate	1	1	6	5	5								
73	Red gum	1	5	5								4	4	5
73	Red stringybark	1			1	1						1	1	
73	Yellow box	1	6	4	4	3	2							6
73	Yellow gum	1	1	1		1	1	1	1	1	1	2	2	1
73	Blue gum	2	1	1										
73	Grey box	2			1	2	1	1	1	1	1	2	2	
73	Red gum	2	2	2	1							1	1	2
73	Red ironbark	2	1	1	1	1	1							
73	Red stringybark	2	2	7	7	7	2							2

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73	Stringybark	2	1	1	1	1								1
Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
73	Yellow box	2	7	4								4	7	7
73	Blue gum	3	1	1	1									1
73	Longleaf box	3	1	1	1	1	1							1
73	Red gum	3	1	1	1	1	1							1
73	Red stringybark	3	3										3	3
73	Stringybark	3	4	4								4	4	4
73	Yellow box	3	1	1	1	1	1							
73	Yellow gum	3			1	1						1	1	
73	Blue gum	4	4	4								4	4	4
73	Longleaf box	4	1	1	1	1	1							1
73	Red box	4	1	1	1	1	1							1
73	Red stringybark	4	1	1	1									1
73	Candlebark	5	1	1	1	1	1							1
73	Longleaf box	5	1	1	1									1
73	Red box	5	1	1	1	1	1							1
73	Candlebark	6	1	1	1	1	1							1
73	Scent bark	6	1	1	1									1
74	Blue gum	1	1	1										1
74	Canola	1										1		
74	Capeweed	1	1	1	1	1	1	1	1	1	1	1	1	1
74	Grey box	1	1	1	5	5	4	4	4	4	6	6	3	1
74	Messmate	1	5	5	5									
74	Red gum	1	4	4								3	3	4
74	Red stringybark	1	1	1	1	1								
74	Scent bark	1		5	5	5								
74	Yellow box	1	6	6	2	2	1			1	1	2	2	6
74	Yellow gum	1	4	4	3	4	5	4	4	4	3	8	7	6
74	Blue gum	2	3	3										3
74	Candlebark	2	1	1										1
74	Capeweed	2	1	1										1
74	Grey box	2	3	3	1	2	2	2	2	2	2	5	4	3
74	Longleaf box	2		5	5	5								
74	Red gum	2	3	3	4	4	3	1	1	2	2	4	4	4
74	Red stringybark	2	4	4	4									
74	Yellow box	2	5	5	1		1	1	1	1		4	4	5
74	Yellow gum	2	2	2	6	6	5	5	5	5	7	8	4	2
74	Capeweed	3	1	1	4	4	4	3	3	3	3	4	1	1
74	Grey box	3	3	3	4	4	3	2	2	3	3	4	4	4
74	Longleaf box	3			1	1								
74	Messmate	3	1	1										1
74	Red gum	3	1	1	1	1	1	1	1	1	1	1	1	1
74	Red ironbark	3			1	1	1	1	1	1	1	1		
74	Red stringybark	3	5	5	1							3	3	4
74	Stringybark	3	7	7								3	3	7
74	Wattle	3									2	2	2	
74	Apple box	4	1	1										1

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74	Blue gum	4	1	1										1
Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
74	Capeweed	4			1	1	1					1	1	1
74	Lucerne	4			3	3	3	3	3	3	3	3		
74	Red box	4	4	4	1	1	1	1	1	1	1	4	4	4
74	Red stringybark	4	1	1	1	1	1					1	1	1
74	Yellow box	4	2	2	2	2	2	2	2	2	2	2	2	2
74	Yellow gum	4	1	1	1	1				1	1	1	1	1
74	Longleaf box	5	1	1	1	1				1	1	1	1	1
74	Yellow box	5	4	4								3	3	4
75	Blue gum	1	3	3	1	1	1						1	2
75	Peppermint	1	8	8	8	8								
75	Red box	1	1	1	1	1	1	1	1	1	1	1	1	1
75	Red stringybark	1		1	1									
75	Stringybark	1	1	1										1
75	Tea tree	1	1	1									1	1
75	Blue gum	2	8	8	8	8								
75	Capeweed	2	1	1	1	1	1	1	1	1	1	1	1	1
75	Messmate	2	1	1	1	1	1							
75	Narrow leaf peppermint	2	1	1									1	1
75	Peppermint	2	1	1										1
75	Red gum	2	1	1									1	1
75	Yellow box	2	1	1										1
75	Clover	3	1	1	1	1	1	1	1	1	1	1	1	1
75	Manna gum	3	1	1	1	1	1							
75	Messmate	3	9	9	8	8								1
75	Red gum	3	1	1										1
75	White gum	3	1	1									1	1
75	Yellow box	3	1	1									1	1
75	Blue gum	4	2	2									1	2
75	Manna gum	4	1	1										1
75	Messmate	4	1	1									1	1
75	Mountain grey gum	4	8	8	8	8								
75	White gum	4	1	1	1	1	1							
75	Cabbage box	5	1	1										1
75	Longleaf box	5	9	9	8	8							1	1
75	Swamp gum	5	1	1	1	1	1							
75	White clover	5	1	1										1
75	Manna gum	6	8	8	8	8								
75	Thistle	6	1	1										1
75	Mountain ash	7	8	8	8	8								
75	Snow gum	8	8	8	8	8								
77	Blackberry	1	3	2	1	1	1	1	1	1	1	1	2	3
77	Capeweed	1	2	2	3	3	3	3	3	3	3	3	2	2
77	Grey box	1			4	4	3	3	3	1	1	2	2	

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77	Messmate	1	14	16	16	14								
Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
77	Red stringybark	1		1	1									
77	Stringybark	1		1	1	2								
77	Yellow box	1	11	11	11	10	6	2	2	2	1	1	1	10
77	Yellow gum	1			4	4					1	5	5	4
77	Brown stringybark	2		1	1									
77	Grey box	2	2	2	3	3	3	1	1	1	1	1	1	3
77	Longleaf box	2		1	1	1								
77	Manna gum	2		1	1	1								
77	Messmate	2		1	1									
77	Onion weed	2									1	1	1	
77	Peppermint	2	1	1	1									
77	Red box	2			4	4						4	4	4
77	Red gum	2	1										1	1
77	Red ironbark	2			2	2	1	1	1	1	1			
77	Red stringybark	2	9	9	8	7	3	1	1	1				7
77	Stringybark	2				1								
77	Yellow box	2	2	2	1	1	1	1	1	1	1	1	1	2
77	Yellow gum	2	2	2	5	5	5	5	5	3	3	5	4	2
77	Blackberry	3	1	1	1									
77	Candlebark	3	1	1	1									1
77	Capeweed	3									1	1	1	
77	Grey box	3	3	3	8	8	3	3	3	3	3	7	6	7
77	Longleaf box	3	6	6	8	8	5	3	3	1		2	2	4
77	Manna gum	3	1	2	1									1
77	Pears	3	1										1	1
77	Red gum	3	2	2	2	2	2							2
77	Red stringybark	3	1	1	1	1	1	1	1	1	1	1	1	1
77	Yellow gum	3			2	2	2	2	2	2	2	1	1	1
77	Clover	4									1	1	1	
77	Longleaf box	4	2	2	2	2	1	1	1	1	1	1	1	2
77	Messmate	4	2	2	1	1	1	1	1	1				2
77	Red box	4	5	5	7	7	4	4	4	2	2	4	4	5
77	Yellow box	4			4	4						4	4	4
77	Yellow gum	4	2	2	2	2	2							2
77	Grey box	5	1	1	1	1	1	1	1	1	1	1	1	1
77	Manna gum	5	1	1	1	1	1	1	1	1				1
77	Red box	5	3	3	3	3	2							3
77	Red stringybark	5	1	1	2	2	2	2	2			2	2	1
77	Stringybark	5			4	4						4	4	4
77	Swamp gum	6	1	1	1	1	1	1	1	1				1
77	Blackberry	7	1	1	1	1	1	1	1	1				1
78	Blue gum	1		1	1	1								
78	Longleaf box	1					1	1	1	1				
78	Stringy bark	1	3	3	3	3	3							

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78	Apple box	2	3	3	3	3	3							
78	Manna gum	2		1	1	1								
Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
78	Red box	2					1	1	1	1				
78	Manna gum	3	1	1	1	1	1							
80	Canola	1									1	1	1	
81	Clover	1	1	1										1
81	Red gum	1	1	1										1
81	Red stringybark	1		1	1	1	1							
81	Yellow box	1									1	1	1	1
81	Red gum	2	1	1										1
82	Canola	1									1	1		
82	Canola	2									1	1		
83	Grey gum	1			1	1	1	1	1	1				
83	Red box	1	2	2	1	1	1	1	1	1	2	3	3	3
83	Red stringybark	1	2	2	2	2	2							
83	White stringybark	1	5	5	5	5	1	1	1	1	1	4	4	4
83	Yellow box	1	1	1										1
83	Grey gum	2	5	5	5	5	2					3	3	3
83	Messmate	2	1	1	1	1	1	1	1	1	1	1	1	1
83	Peppermint	2	1	1	1	1								
83	Red box	2	1	1	1	1	1	1	1	1	1	1	1	1
83	Red stringybark	2	1	1										1
83	White stringybark	2	1	1								1	1	1
83	Blue gum	3	1	1	1	1	1	1	1	1	1	1	1	1
83	Grey gum	3	2	2	1	1	1	1	1	1	1	2	2	2
83	Red box	3	1	1	1	1								
83	Red ironbark	3	5	5	5	5	2					3	3	3
83	Messmate	4	2	2	2	2	2							
83	Red box	4	3	3	3	3						3	3	3
83	Red ironbark	4	1	1								1	1	1
83	Red stringybark	4	1	1	1	1	1	1	1	1	1	1	1	1
83	Silvertop	4	1	1	1	1	1	1	1	1	1	1	1	1
83	Red box	5	2	2	2	2	2							
83	Red ironbark	5	2	2	2	2	2	2	2	2	2	2	2	2
83	Red stringybark	5	3	3	3	3						3	3	3
83	Apple box	6	1	1	1	1	1	1	1	1	1	1	1	1
83	Tea tree	6	1	1	1	1	1	1	1	1	1	1	1	1
83	Manna gum	7	1	1	1	1	1	1	1	1	1	1	1	1
85	Messmate	1	1	1	1									
85	Sugar gum	1		1	7	6	4							
85	Yellow gum	1			1	1	1				1	1	1	
85	Blackberry	2	1	1	1									
85	Grey box	2			1	1	1				1	1	1	
85	Sugar gum	2			4	4	4							

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85	Capeweed	3			1	1	1				1	1	1	
85	Clover	3	1	1	1									
Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
86	Clover	1										1	1	
86	Messmate	1		4	4	4								
86	Red stringybark	1		1	1	1	1							
86	Stringybark	1	1	1	1									
86	Sugar gum	1	2	4	3	3	1	1	1	1	1	1	1	1
86	Yellow box	1									1	1	1	1
86	Manna gum	2		2	2	2								
86	Messmate	2	1	2	2	1	1							
86	Stringybark	2										1	1	
86	Yellow gum	2	1	3	3	3	1	1	1	1	2	2	2	2
86	Grey box	3									1	1	1	1
86	Manna gum	3		1	1	1	1							
86	Messmate	3										1	1	
86	Red box	3		2	2	2								
86	Red gum	3	1	1	1	1	1	1	1	1	1	1	1	1
86	Bull mallee	4									1	1	1	1
86	Bursaria	4		1	1	1	1							
86	Capeweed	4	1	1	1	1	1	1	1	1	1	1	1	1
86	Hogweed	4		2	2	2								
86	Brown malleet	5		2	2	2								
87	Cherry	1									1	1		1
87	Eucalypt species	1	1	1	1	1	1	1	1	1	1	1	1	1
87	Grey box	1		2	2	1	1				1	1	1	
87	Messmate	1		1	1	1								
87	Fruit trees	2	1	1	1	1	1	1	1	1	1	1	1	1
87	Plums	2									1	1		1
87	Red ironbark	2		1	1									
87	Silver leaf stringybark	2		1	1	1								
87	Yellow gum	2		1	1	1	1				1	1	1	
87	Berries	3	1	1	1	1	1	1	1	1	1	1	1	1
87	Nectarines	3									1	1		1
87	Red box	3		1	1	1	1				1	1	1	
87	Red stringy bark	3		1	1	1								
87	Apple box	4									1	1		1
87	Shrubs	4	1	1	1	1	1	1	1	1	1	1	1	1
87	Kiwi fruit	5									1	1		1
90	Banksia	1	1	1										1
90	Capeweed	1						1	1	1	1	1		
90	Red ironbark	1	2	2	2	2	3	3	3	3	3	2	2	2
90	Round leaf box	1	3	2	3	3	3	3	3	3	4	4	5	3
90	Silvertop	1	1	1	1					1	1	1	1	1
90	Yellow	1	1	1	1									
90	Grey gum	2	2	1	2	1	1	1	1	2	1	1	2	2
90	Mahogany	2	2	2	2	2	2	2	2	2	2	2	2	2

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90	Manna gum	2	1	1										1
90	Round leaf box	2	1	1	1	1	2	2	2	2	2	1	1	1
Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
90	Silvertop	2	1	1	1	1	1	1	1	1	1	1	1	1
90	Tea tree	2						1	1	1	1	1		
90	White stringybark	2									1	1	1	
90	Banksia	3					1	1	1	1	1			
90	Mahogany	3	1										1	1
90	Red gum	3						1	1	1	1	1		
90	Round leaf box	3	1	1	1	1	1	1	1	1	1	1	1	1
90	Silvertop	3	1	1	1	1	1	1	1	1	1	1	1	1
90	Stringy bark	3	1	1	1					1	1	1	1	1
90	White stringybark	3	2	2	3	3	3	3	3	3	2	2	2	2
90	Banksia	4	2	2	2	2	2	2	2	2	2	2	2	2
90	Stringy bark	4	1	1	1	1	1	1	1	1	1	1	1	1
90	Tea tree	4					1	1	1	1	1			
90	Red ironbark	5	2	2	2	2	2	2	2	2	2	2	2	2
91	Brown stringybark	1	1	1	1									
91	Messmate	1	2	2										2
91	Brown stringybark	2	2	2										2
91	Manna gum	2	1	1	1									
91	Manna gum	3	2	2										2
91	Silver banksia	4	2	2										2
92	Peppermint	1	1	1	1	1	1	1	1	1	1	1	1	1
92	Red box	1										1	1	1
92	Round leaf box	1	1	1	1	1	1	1	1	1	1	1	1	1
92	Silvertop	1								1	1	1	1	1
92	Stringy bark	1	1	1	1									
92	Box	2	1	1	1									
92	Brown stringybark	2										1	1	1
92	Grey box	2	1	1	1	1	1	1	1	1	1	1	1	1
92	Round leaf box	2	1	1	1	1	1	1	1	2	2	2	2	2
92	Grey box	3								1	1	1	1	1
92	Red ironbark	3	1	1	1	1	1	1	1	1	1	1	1	1
92	Red stringybark	3										1	1	1
92	Silvertop	3	1	1	1	1	1	1	1	1	1	1	1	1
92	Stringy bark	4	1	1	1	1	1	1	1	1	1	1	1	1
92	White stringybark	4	1	1	1	1	1	1	1	1	1	1	1	1
92	Banksia	5	1	1	1	1	1	1	1	1	1	1	1	1
92	Mahogany	6	1	1	1	1	1	1	1	1	1	1	1	1
93	White clover	1											1	1
94	Yellow box	1										1	1	1
94	White box	2										1	1	1
95	Clover	1	1	1	1	1					1	1	1	1
95	Red gum	1	1											1



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95	Yellow gum	1									1	1	1	1
95	Sugar gum	2	1	1	1	1					1	1	1	1
<b>May</b>	<b>Nectar plant</b>	<b>Rank</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>
95	Yellow box	2									1	1	1	1
95	Red box	3									1	1	1	1
96	Red box	1	2	2	2	2	2	2	2	2	2	2	2	2
96	Yellow box	1								1	1	1	1	
96	Red box	2								1	1	1	1	
96	Yellow box	2	2	2	2	2	2	2	2	2	2	2	2	2
96	Bursaria	3	2	2	2	2	2	2	2	2	2	2	2	2
96	Long leaf box	3								1	1	1	1	
96	Manna gum	4	2	2	2	2	2	2	2	2	2	2	2	2
96	Blackberry	5	2	2	2	2	2	2	2	2	2	2	2	2
97	Strawberry clover	1	2	2	2									
97	White clover	1	1	1								1	1	1
97	Strawberry clover	2	1	1								1	1	1
98	Banksia	1	1	1	1									
98	Red gum	1										1	1	
98	Saw banksia	1	1	1	1	1	1	1	1	1	1	1	1	1
98	Yellow	1	2	2	1									1
98	Banksia	2	1	1										1
98	Clover	2										1	1	
98	Messmate	2	1	1	1									
98	River red gum	2	1	1	1	1	1	1	1	1	1	1	1	1
98	Banksia	3	1	1	1									
98	Manna gum	3	1	1	1	1	1	1	1	1	1	1	1	1
98	Messmate	3	1	1										1
98	Shrubs	4	1	1	1	1	1	1	1	1	1	1	1	1
99	Clover	1	1	1	1									1
99	Messmate	1	1											1
99	Strawberry clover	1	2	2	2									
99	Brown stringybark	2	2	2	2									
99	Silver banksia	2	1											1
99	Stringy bark	2	1	1	1									1
99	Manna gum	3	1	1	1									1
99	Swamp gum	3	1											1
100	Strawberry clover	1	3	3	3	2	2	2	2	2	2	2	2	2
100	White clover	1	1											1
100	Strawberry clover	2	1											1
100	Thistle	2	2	2	2	2	2	2	2	2	2	2	2	2
102	Messmate	1	7	1										7
102	Brown stringybark	2	1	1										1
102	Bursaria	2	6											6



Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
104	Wattle	1								1	1	1	1	1
104	Red gum	2								1	1	1	1	1
105	Clover	1	1	1										1
105	Strawberry clover	1	2	2	1									
106	Banksia	1		1	1	1								
106	Capeweed	1										1	1	1
106	Clover	1										2	2	2
106	Red box	1					1							
106	Red ironbark	1	1	3	2	2	1						1	1
106	Red box	2		1	1	1								
106	Red ironbark	2					1							
106	White stringybark	2	1	1									1	1
106	Yellow	2										1	1	1
106	Clover	3										1	1	1
106	Red box	3	1	1									1	1
106	White stringybark	3					1							
106	Messmate	4										1	1	1
107	Brown stringybark	1	1	4	4	4	4	2	2	2				
107	Red gum	1	2	2	2	2								2
107	Red ironbark	1					1	1	1	1				
107	Longleaf box	2		2	2	2	2							
107	Manna gum	2	2	2	2	2								2
107	Messmate	2	1	2	2	2	2	2	2	2				
107	Swamp gum	2					1	1	1	1				
107	Longleaf box	3		1	1	1	1	1	1	1				
107	Manna gum	3					1	1	1	1				
107	Red ironbark	3		2	2	2	2							
107	Swamp gum	3	1	1	1	1	1	1	1	1				
107	Silver banksia	4		2	2	2	2							
107	Swamp gum	4		1	1	1	1	1	1	1				
107	Manna gum	5		1	1	1	1	1	1	1				
107	Melaleuca	6		1	1	1	1	1	1	1				
107	Banksia	7		1	1	1	1	1	1	1				
108	White clover	1	1	1										1
108	Balansa clover	2	1	1										1
109	Canola	1											1	1
109	Capeweed	1	1	1	1	1								
109	Clover	1	5	5	4								1	1
109	Strawberry clover	1	1	1	1	1	1	1	1	1	1	1	1	1
109	Sugar gum	1	1	1	1									
109	Capeweed	2	1	1	1	1	1	1	1	1	1	1	1	1
109	Clover	2	1	1	1	1								
109	Shrubs	3	1	1	1	1	1	1	1	1	1	1	1	1

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Map	Nectar plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
109	Thistle	4	1	1	1	1	1	1	1	1	1	1	1	1
112	Saw banksia	1	1	1	1									
112	Manna gum	2	1	1	1									
112	Strawberry clover	3	1	1	1									
114	White clover	1	1	1										1
115	White clover	1	3	3									3	3
115	Strawberry clover	2	3	3									3	3
115	Messmate	3	3	3									3	3
115	Capeweed	4	3	3									3	3
115	Blackberry	5	3	3									3	3
116	Stringy bark	1		1	1									
116	Clover	2		1	1									
117	Clover	1	1									1	1	1
117	White clover	1	1	1	1							1	1	1
117	Manna gum	2	1	1	1							1	1	1
117	Strawberry clover	2	1									1	1	1
117	Banksia	3	1									1	1	1
117	Strawberry clover	3	1	1	1							1	1	1
117	Banksia	4	1	1	1							1	1	1
117	Manna gum	4	1									1	1	1

## Appendix 4

### **Pollen plants targeted by apiarists according to Victorian map grid, ranking of importance and months apiary site used**

#### **Introduction to Appendix 4**

The plants targeted by apiarists within a particular Victorian map grid are listed in accordance to the ranking provided by the respondents. An individual plant species may be listed more than once for a particular map grid because individual apiarists may have applied a different ranking to the importance of an individual plant. Respondents were invited to list up to 6 plants for each apiary site in the order of importance beginning with the most important plants first (ie. number one).

The figures in the columns for each month indicate the number of apiary sites occupied by hives.

**Note:** The length of time that a site was occupied does not necessarily indicate the length of the flowering period of an individual plant species. The period that a site was occupied by hives may have been determined by the flowering of other plant species.

**Pollen plant usage by Victorian Mapsheet Number; ranking and number of apiary sites occupied each month**

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3	Lignum	1	2	2										
3	Red gum	1	4	4									4	4
3	Black box	2	4	4									4	4
3	Red gum	2	2	2										
4	Blue leaf daisy	1	1	1	1	1					1	1	1	1
4	Onion weed	1						1	1	1	1	1		
4	Wild turnip	1	3	3	3		6	6	9	15	16	6	3	3
4	Cabbage bush	2	1	1	1	1					1	1	1	1
4	Capeweed	2						1	1	1	1	1		
4	Citrus	2										6	6	
4	Giant mallee	2	1	1	1						1	1	1	1
4	Mallee clover	2	2	2	2							2	2	2
4	Onion weed	2					6	6	9	15	15	3		
4	Capeweed	3					6	6	6	6	6			
4	Mallee	3	2	2	2							2	2	2
4	Medic clover	3								6	6			
4	Paterson's curse	3						1	1	1	1	1		
4	Xmas mallee	3	2	2	2	1					2	2	2	2
4	Mustard weed	4					6	6	6	6	6			
4	Tea tree	4	2	2	2							2	2	2
4	Wild turnip	4						1	1	1	1	1		
4	Yellow mallee	4	2	2	2	1					2	2	2	2
4	Giant mallee	5	1	1	1	1					1	1	1	1
4	Onion weed	5	2	2	2							2	2	2
4	Wild flowers	5						1	1	1	1	1		
4	Faba beans	6						1	1	1	1	1		
4	Skeleton weed	6	2	2	2							2	2	2
4	Peas	7						1	1	1	1	1		
7	Capeweed	1	7	5	4					4	4	6	4	6
7	Desert banksia	1					1	1	1	1				
7	Giant angular	1	2	6	6	2	1			1	8	9	9	6
7	Giant mallee	1	1	1	1						1	1	1	1
7	Wild turnip	1	13	13	9	8	8		4	12	12	13	13	13
7	Citrus	2	2									2		2
7	Eggs and bacon	2	1	1	1						1	1	1	1
7	Giant mallee	2	1	1	1							1	1	1
7	Mustard weed	2	4	4					4	4	4	4	4	4
7	Onion weed	2	8	8	8	8	8			8	8	8	8	8
7	Wild turnip	2	5	5	4					4	4	4	4	4
7	Xmas mallee	2	2	2	2	2	1			1	1	2	2	2
7	Capeweed	3	8	8	8	8	8			8	8	8	8	8
7	Dillon bush	3	4	4	4					4	4	4	4	4

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7	Evening primrose	3	1	1	1							1	1	1
7	Lignum	3	1	1										
7	Onion weed	3	1	1	1	1	1					1	1	1
7	Red gum	3	2									2		2
7	Skeleton weed	3	4	4					4	4	4	4	4	4
7	Wild turnip	3	2	2	2	1				1	2	2	2	2
7	Dillon bush	4	8	8	8	8	8			8	8	8	8	8
7	Onion weed	4	1	1										
7	Skeleton weed	4	4	4	4					4	4	4	4	4
7	Yellow mallee	4	5	5	1	1	1		4	4	4	5	5	5
7	Acorn mallee	5	1	1	1	1	1					1	1	1
7	Xmas mallee	5	4	4					4	4	4	4	4	4
7	Acorn mallee	6	4	4					4	4	4	4	4	4
8	Giant angular	1	8					8	8	8	8	8	8	8
8	Red gum	1	1											1
8	Wild turnip	1	2	2	2			2	2	2	2	4	2	2
8	Black box	2	1											1
8	Giant mallee	2	2	2	2							2	2	2
8	Onion weed	2						2	2	2	2	2		
8	Tea tree	2	8					8	8	8	8	8	8	8
8	Wild turnip	2	1					1	1	1	1	1	1	1
8	Medic clover	3						2	2	2	2	2		
8	Onion weed	3	2	2	2							2	2	2
8	Shrubs	3	8					8	8	8	8	8	8	8
8	Capeweed	4						2	2	2	2	2		
8	Daisy	4	2	2	2							2	2	2
8	Twin leaf	4	1					1	1	1	1	1	1	1
8	Wild turnip	4	7					7	7	7	7	7	7	7
8	Clover	5	2	2	2							2	2	2
8	Twin leaf	5	7					7	7	7	7	7	7	7
9	Red gum	1	4	2								2	4	6
9	Wild turnip	1					1	3	4	4	3			
9	Black box	2	1											1
9	Blackberry	2	2	2								2	2	2
9	Capeweed	2					1	3	3	3	3			
9	Onion weed	2							1	1				
9	Faba beans	3					1	1	1	1	1			
9	Onion weed	4					1	1	1	1	1			
9	Weeds	5					1	1	1	1	1			
10	Wild turnip	1						1	1	1	1	1	1	
10	Capeweed	2						1	1	1	1	1	1	
10	Clover	3						1	1	1	1	1	1	
10	Giant mallee	4						1	1	1	1	1	1	

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10	Tea tree	5						1	1	1	1	1	1	
11	Wild turnip	1						22	26	26	26	22	19	19
11	Capeweed	2							1	1	1	1		
11	Onion weed	2						21	24	24	24	21	19	19
11	Capeweed	3						19	19	19	19	19	19	19
11	Medic clover	3						2	2	2	2	2		
11	Onion weed	3							1	1	1	1		
11	Capeweed	4						2	2	2	2	2		
11	Clover	4							1	1	1	1		
13	Onion weed	1								2	2	2		
13	Red gum	1	5	5									1	6
13	Wild turnip	1						6	6	6	5	3	1	1
13	Onion weed	2						6	6	6	5	3	1	1
13	Wild turnip	2								2	2	2		
13	Capeweed	3						1	1	1	1	1	1	1
13	Mallee	3						1	1	1				
13	Medic clover	3						2	2	2	2	2		
13	Red gum	3	1	1										1
13	Capeweed	4						2	2	2	2	2		
13	Clover	4						1	1	1				
14	Banksia	1				11	11	11	11	11	11			
14	Paper daisy	1	5	5	5						5	5	5	5
14	Red gum	1	1	1	1	1	1	1	1	1	1	1	1	1
14	Shrubs	1	1	1	1	1					1	1	1	1
14	Wild turnip	1							1	1	1	1	1	1
14	Black box	2	1	1	1	1	1	1	1	1	1	1	1	1
14	Giant mallee	2				11	11	11	11	11	11			
14	Onion weed	2	1	1	1	1			1	1	2	2	2	2
14	Xmas mallee	2	5	5	5						5	5	5	5
14	Lignum	3	1	1	1	1	1	1	1	1	1	1	1	1
14	Mallee	3							1	1	1	1	1	1
14	Shrubs	3				11	11	11	11	11	11			
14	Wild turnip	3	1	1	1	1					1	1	1	1
14	Yellow mallee	3	5	5	5						5	5	5	5
14	Acorn mallee	4	5	5	5						5	5	5	5
14	Capeweed	4	1	1	1	1					1	1	1	1
14	Wild turnip	4	1	1	1	1	1	1	1	1	1	1	1	1
14	Skeleton weed	5	1	1	1	1	1	1	1	1	1	1	1	1
14	Wild flowers	5	1	1	1	1					1	1	1	1
14	Wild turnip	5	5	5	5						5	5	5	5
14	Giant angular	6	1	1	1	1					1	1	1	1
14	Tea tree	6	1	1	1	1	1	1	1	1	1	1	1	1
14	Xmas mallee	7	1	1	1	1					1	1	1	1
14	Yellow mallee	8	1	1	1	1					1	1	1	1



Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
15	Giant angular	1									1	2	2	1
15	Giant mallee	1	3	3								3	3	3
15	Tea tree	1	1	1							1	1	1	1
15	Wild turnip	1	13	12	7	4	4	6	6	6	12	14	14	14
15	Blue leaf daisy	2	2	2	2						2	2	2	2
15	Capeweed	2	5	5				5	5	5	5	5	5	5
15	Giant angular	2	1	1							1	1	1	1
15	Mallee	2										1	1	1
15	Onion weed	2	5	5	5	4	4	1	1	1	5	6	6	6
15	Tea tree	2	1									1	1	1
15	Xmas mallee	2	3	3								3	3	3
15	Capeweed	3	4	4	4	4	4				4	4	4	4
15	Giant angular	3	2	1	1			1	1	1	1	2	2	2
15	Pig face	3	2	2	2						2	2	2	2
15	Shrubs	3										1	1	1
15	Yellow mallee	3	4	4							1	4	4	4
15	Mallee	4	4	4	4	4	4				4	4	4	4
15	White mallee	4	1									1	1	1
15	Xmas mallee	4	3	3	2						3	3	3	3
15	Giant mallee	5	2	2	2						2	2	2	2
15	White mallee	5	1	1							1	1	1	1
15	Xmas mallee	5	1									1	1	1
15	Little red mallee	6	1	1							1	1	1	1
15	Yellow mallee	6	1									1	1	1
16	Banksia	1				1	12	12	12	11				
16	Gee-bung	1					4	4	4	4				
16	Tea tree	1						1	1	1	1	1	1	
16	Wild turnip	1	2	2	2	2					2	2	2	2
16	Capeweed	2	2	2	2	2					2	2	2	2
16	Domestic flora	2						2	2	2	2			
16	Giant angular	2						1	1	1	1			
16	Wild flowers	2				1	1	1	1					
16	Wild turnip	2						1	1	1	1	1	1	
16	Capeweed	3						1	1	1	1	1	1	
16	Giant angular	3	2	2	2	2					2	2	2	2
16	Styphelia	3						4	4	4	4			
16	Tea tree	3						3	3	3	3			
16	Correa	4						4	4	4	4			
16	Onion weed	4						1	1	1	1	1	1	
16	Xmas mallee	4	2	2	2	2					2	2	2	2
16	Giant mallee	5						1	1	1	1	1	1	
16	Potato weed	5	2	2	2	2					2	2	2	2
16	Black box	6						1	1	1	1	1	1	
16	Yellow mallee	6	2	2	2	2					2	2	2	2

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
17	Bull mallee	1	1	1										1
17	Heliotrope	2	1	1										1
19	Banksia	1					1	1	1					
19	Paterson's curse	1										1	1	1
19	Red gum	1	1											1
19	Red gum	2										1	1	1
20	Red gum	1	6	1										5
20	Grey box	2	4											4
21	Banksia	1					5	5	2	2	2	5	5	2
21	Giant angular	1	1	1	1				1	1	1	2	2	1
21	Wild turnip	1								2	2	2	2	2
21	Capeweed	2								2	2	2	2	2
21	Giant angular	2					3	3				3	3	
21	Red mallee	2	1	1	1							1	1	1
21	Tea tree	2					2	2	2	2	2	2	2	2
21	Wild turnip	2							1	1	1	1	1	
21	Clover	3							1	1	1	1	1	
21	Giant mallee	3					2	2	2	2	2	2	2	2
21	Mallee	3					3	3				3	3	
21	Mealy wattle	3								2	2	2	2	2
21	Yellow mallee	3	1	1	1							1	1	1
21	Tea tree	4								2	2	2	2	2
21	Xmas mallee	4							1	1	1	1	1	
21	Giant angular	5								2	2	2	2	2
21	Domestic garden flora	6								2	2	2	2	2
21	Horehound	7								2	2	2	2	2
21	Paterson' curse	8								2	2	2	2	2
23	Canola	1								20	21	21	20	
23	Capeweed	1	1										1	1
23	Clover	1	40									40	40	40
23	Paterson' curse	1									20	20	20	20
23	Red gum	1	17	15	12	12							14	17
23	River red gum	1	1	1										1
23	Black box	2	6	4									2	6
23	Capeweed	2								20	40	40	40	20
23	Citrus	2	1										1	1
23	Red gum	2	40									40	40	40
23	Paterson' curse	3								20	20	20	20	
23	Red gum	3									20	20	20	20
24	Paterson' curse	1	5	5	5	5	5	5	5	5	5	5	5	5
24	White clover	1	10									10	10	10
24	Capeweed	2	5	5	5	5	5	5	5	5	5	5	5	5

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
24	Paterson' curse	2	10									10	10	10
24	Flatweed	3	10									10	10	10
29	Banksia	1				11	14	14	14	13	12	1	1	
29	Desert banksia	1					3	3	3	3				
29	Mallee	2					1	1	1	1	1	1	1	
29	Tea tree	3					1	1	1	1	1	1	1	
29	Capeweed	4					1	1	1	1	1	1	1	
29	Evening primrose	5					1	1	1	1	1	1	1	
30	Blue mallee	1				1	1	1	1	1				
30	Capeweed	1		1	1						1	1		
30	Clover	1	2	1				1	1	1		2	3	3
30	Flatweed	1	1	1								1	1	1
30	Lupin	1	1	1									1	1
30	Red gum	1	4	1			1	1	1				1	5
30	River red gum	1	2	2										2
30	White clover	1	1									5	5	4
30	Balansa clover	2										1	1	
30	Beans	2	1	1									1	1
30	Black box	2	2	2										2
30	Canola	2		1	1						1	1		
30	Capeweed	2	3	1				1	1	1		3	3	3
30	Clover	2	2	1								1	2	2
30	Flatweed	2	1											1
30	Grey box	2				1	1	1	1	1				
30	Lucerne	2											1	1
30	Strawberry clover	2										3	3	3
30	Wattle	2	1	1			1	1	1					2
30	Capeweed	3				1	1	1	1	1				
30	Clover	3	1	2	1						1	1		1
30	Flatweed	3	1									1	1	1
30	Grey box	3	1	1										1
30	Lucerne	3										1	1	
30	Red gum	3										3	3	3
30	Wattle	3	1	1				1	1	1		1	1	1
30	Wild turnip	3	1									1	1	1
30	Canola	4	1	1									1	1
30	Chicory	4	1									1	1	1
30	Clover	4	1	1										1
30	Red gum	4	1	1				1	1	1		1	1	1
30	Thistle	4	1									4	4	4
30	Flatweed	5										3	3	3
31	Canola	1									1	1	1	
31	Capeweed	1			2	3	3	3	3	3	3			

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
31	Clover	1	11	11	1						4	4	3	11
31	Flatweed	1												1
31	Fruit trees	1	1	1	1	1	1	1	1	1	1	1	1	1
31	Grey box	1			1	1	1							
31	Pears	1									1			
31	Red gum	1	4	3										4
31	Thistle	1	1									1	1	1
31	Wattle	1	1	1	1	1	2	2	2	2	2	1	1	1
31	Apples	2									1			
31	Canola	2			2	3	3	3	3	3	3			
31	Capeweed	2	1	1							1	1	1	1
31	Clover	2	1	1	1	1	1	1	1	1	1	1	1	2
31	Grey box	2	1	1	1									1
31	Pastures	2	1								1	2	2	2
31	Red gum	2	8	8	1	1	1							8
31	Soy beans	2	1	1	1	1	1	1	1	1	1	1	1	1
31	Thistle	2	1	1							2	2	1	
31	Capeweed	3	1	1	1	1	1	1	1	1	1	1	1	1
31	Grey box	3	6	6	2	3	3	3	3	3	3			6
31	Linseed	3	1	1	1	1	1	1	1	1	1	1	1	1
31	Lucerne	3	1	1							2	2	1	
31	Onion weed	3	1	1							1	1	1	1
31	Red gum	3	1	1	1									1
31	Clover	4				1	1	1	1	1	1			
31	Shrubs	4	1	1	1	1	1	1	1	1	1	1	1	1
31	Wattle	5	1	1	1	1	1	1	1	1	1	1	1	1
32	Banksia	1	2			2	2	2	2					2
32	Canola	1										1	1	
32	Desert banksia	1				1	1	1	1	1				
32	Red gum	2	2			2	2	2	2					2
32	Tea tree	3	2			2	2	2	2					2
34	Capeweed	1	1	1	1	1	1	1	1	1	1	1	1	1
34	Paterson' curse	2	1	1	1	1	1	1	1	1	1	1	1	1
34	Stringybark	3	1	1	1	1	1	1	1	1	1	1	1	1
35	Stringybark	1	4	4	4	4								
35	Peppermint	2	4	4	4	4								
35	Manna gum	3	4	4	4	4								
35	Longleaf box	4	4	4	4	4								
35	Flatweed	5	4	4	4	4								
35	Thistle	6	4	4	4	4								
39	Apple box	1	1	1	1	1	1	1	1	1	1	1	1	1
39	Blue mallee	1			2	2	2	2					2	2

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
39	Capeweed	1	1	1								1	1	1
39	Faba beans	1									1	1		
39	Grey box	1	3	3	3	3	3	3						
39	Lucerne	1	2	2										
39	Red gum	1	2	2										2
39	Blue mallee	2	3	3	3	3	3	3						
39	Canola	2									1	1		
39	Grey box	2			2	2	2	2					2	2
39	Lucerne	2	1	1										1
39	Paterson' curse	2	1	1								1	1	1
39	Prickly moses	2	1	1	1	1	1	1	1	1	1	1	1	1
39	Strawberry clover	2	1	1										1
39	Grey box	3	1	1	1	1	1	1	1	1	1	1	1	1
39	Lucerne	3	2	2								1	1	2
39	Shrubs	4	1	1	1	1	1	1	1	1	1	1	1	1
39	Wild turnip	4	1	1								1	1	1
40	Capeweed	1								1	1	1	1	1
40	Red stringybark	1	1	1										1
40	Wattle	1	1	1	1	1	1	1	1	1	1	1	1	1
40	Almonds	2								1	1	1	1	1
40	Capeweed	2	1	1	1	1	1	1	1	1	1	1	1	1
40	Narrow leaf peppermint	2	1	1										1
40	Longleaf box	3	1	1										1
40	Onion weed	3	1	1	1	1	1	1	1	1	1	1	1	1
40	Manna gum	4	1	1										1
41	Canola	1								1	1	1		
41	Capeweed	1	2	2	2	2	1	1	1	1	2	3	3	3
41	Paterson's curse	1	1									2	2	2
41	Red stringybark	1	2	2	2	2	2							
41	Shrubs	1				2	2	2	2					
41	Wattle	1	1	1	1	3	3	3	2	1				
41	Clover	2	2	2	2	2	1	1	1	2	3	3	2	2
41	Long leaf box	2	2	2	2	2	2							
41	Red gum	2	1									1	1	1
41	Shrubs	2				2	2	2	1					
41	Wattle	2				2	2	2	2					
41	Paterson's curse	3								1	1	1		
41	Capeweed	4								1	1	1		
42	Clover	1	2								1	1	4	4
42	Red gum	1	1	1										1
42	White clover	1	1									1	2	1
42	Black box	2	1	1										1
42	Flatweed	2	1										1	1

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
42	Lucerne	2									1	1	1	1
42	Ox tongue	2	1										1	1
42	Lucerne	3	1										1	1
42	Scotch thistle	3	1										1	1
42	Box thorn	4	1										1	1
43	Capeweed	1				1	1	1	1	1	1			
43	Red gum	1	2											2
43	White clover	1	2	2										2
43	Canola	2				1	1	1	1	1	1			
43	Grey box	3				1	1	1	1	1	1			
43	Clover	4				1	1	1	1	1	1			
44	Primrose	1	1	1	1	1	1	1	1	1	1	1	1	1
44	Red gum	1										2	2	2
44	Capeweed	2										2	2	2
44	Shrubs	2	1	1	1	1	1	1	1	1	1	1	1	1
44	Capeweed	3	1	1	1	1	1	1	1	1	1	1	1	1
45	Banksia	1	2	1		9	9	10	10	4	3	1	2	3
45	Brown stringy bark	1			1	1	1							
45	Canola	1									1	1		
45	Capeweed	1	1		1	1	1	1	1	1	1	1	1	1
45	Desert banksia	1		1	1	1								
45	Giant mallee	1											1	1
45	Red gum	1	1	1										
45	Shrubs	1	2	2	2	2	2	2	2	2	2	2	2	2
45	Wild flowers	1			2	2	2	2	2		2	2	2	2
45	Calytrix trigona	2			2	2	2	2	2		2	2	2	2
45	Canola	2				1	1	1	1	1	1	1	1	
45	Capeweed	2			1	2	2	1	1	1	1	1		
45	Mallee	2				1	1	1	1	1	1		1	1
45	Primrose	2											1	1
45	Red gum	2	4	2	1	3	3	3	3	1	2	2	2	4
45	Silver banksia	2		1	1	1								
45	Balansa clover	3	1			1	1	1	1	1	2	2	2	1
45	Banksia	3			2	2	2	2	2		2	2	2	2
45	Black box	3	1	1	1	1	1	1	1	1	1	1	1	1
45	Capeweed	3											1	1
45	Tea tree	3	1			1	1	1	1					1
45	Canola	4	1								1	1	1	1
45	Capeweed	4			2	2	2	2	2		2	2	2	2
45	Faba beans	4				1	1	1	1	1	1	1	1	
45	Brown stringybark	5			2	2	2	2	2		2	2	2	2
45	Safflower	5	1								1	1	1	1

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
47	Capeweed	1	1	1	1	1	1	1	1	1	1	1	1	1
47	Red gum	1	3	2	2	1						3	4	5
47	Shrubs	1	1	1	1	1	1	1	1	1	1	1	1	1
47	Red gum	2	2	2	1	1	1	1	1	1	1	1	1	2
47	Sugar gum	2	1	1	1	1	1	1	1	1	1	1	1	1
47	Shrubs	3	1	1	1	1	1	1	1	1	1	1	1	1
47	Clover	4	1	1	1	1	1	1	1	1	1	1	1	1
48	Canola	1									1	1	1	
48	Clover	2									1	1	1	
48	Capeweed	3									1	1	1	
48	Thistle	4									1	1	1	
49	Apple box	1	2	2	2	2								2
49	Eucalypt species	1	3	3	3									
49	Mountain ash	1		1	1	1								
49	Shrubs	1	7	7	2	1	1	1	1					5
49	Apple box	2		1	1	1								
49	Blue gum	2	2	2	2	1	1	1	1					
49	Mountain ash	2	2	2	2	2								2
49	Blue gum	3	2	3	3	3								2
49	But-but	3	1	1	1	1	1	1	1					
49	Red stringybark	3	1	1	1									
49	Blackberry	4	2	2	2	2								2
49	Longleaf box	4	1	1	1									
49	Shrubs	4		1	1	1								
49	Snow gum	4	1	1	1	1	1	1	1					
49	Bull mallee	5	1	1	1									
49	Manna gum	5	1	1	1	1	1	1	1					
49	White clover	5	2	2	2	2								2
49	Mountain ash	6	1	1	1	1	1	1	1					
49	Narrow-leaf peppermint	6	2	2	2	2								2
51	Banksia	1	5	5	3	5	5	5	5	3	3	3	3	5
51	Brown stringybark	1			1	1	1	1	1	1				
51	Capeweed	1	1	1	1	1					1	1	1	1
51	Clover	1	1											1
51	Desert banksia	1			2	2	3	3	3	3	3	2	2	
51	Red gum	1	1	1		1		1	1		1	1	1	1
51	Shrubs	1	2	2	2	2	2	2	2	2	2	2	2	2
51	Balansa clover	2	1	1	1	1					1	1	1	1
51	Blackberry	2	1											1
51	Brown stringybark	2	3	3	5	5	5	5	5	5	5	5	5	3
51	Desert banksia	2			1	1	1	1	1	1				
51	Red gum	2	4	4	2	4	4	4	4	2	2	2	2	4
51	Stringybark	2	1	1		1		1	1		1	1	1	1

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
51	Banksia	3	1	1		1		1	1		1	1	1	1
51	Domestic garden flora	3			2	2	2	2	2	2	2	2	2	
51	Faba beans	3	1	1	1	1					1	1	1	1
51	Messmate	3	1											1
51	Peppermint	3	1	1	1	1	1	1	1	1	1	1	1	1
51	Peppermint box	3	1	1	1	1	1	1	1	1	1	1	1	1
51	Red gum	3	3	3	3	3	3	3	3	3	3	3	3	3
51	Shrubs	3			1	1	1	1	1	1				
51	Canola	4	1	1	1	1					1	1	1	1
51	Capeweed	4	3	3	5	5	5	5	5	5	5	5	5	3
51	Stringybark	4	1	1	1	1	1	1	1	1	1	1	1	1
51	Balansa clover	5			2	2	2	2	2	2	2	2	2	
51	Dandelions	5	3	3	3	3	3	3	3	3	3	3	3	3
51	Red gum	5	1	1	1	1					1	1	1	1
51	Brown stringybark	6	1	1	1	1					1	1	1	1
51	Candlebark	6			2	2	2	2	2	2	2	2	2	
51	Clover	6	3	3	3	3	3	3	3	3	3	3	3	3
51	Safflower	7	1	1	1	1					1	1	1	1
53	Canola	1								1	2	2		
53	Capeweed	1	3	3	3							2	3	3
53	Grey box	1	1	6	7	7	7	5	5	4	5	6	6	
53	Longleaf box	1	4	4	4	3	1						2	2
53	Messmate	1	1	2	1	1	1							
53	Prickly moses	1			2	2								
53	Red gum	1	10	10	10	9	6	6	6	6	6	8	11	11
53	Stringybark	1	2	2	2	2	1						2	2
53	Tea tree	1	2	2										
53	Wattle	1	3	3	6	6	3	2	2	2	2	3	3	3
53	Blue gum	2	1	1	1	1							1	1
53	Canola	2								5	5	5	5	
53	Capeweed	2	7	7	11	10	4	2	2	2	3	6	9	8
53	Clover	2	2	2	2							2	2	2
53	Faba beans	2								5	6	6	5	
53	Longleaf box	2	7	11	11	11	11	10	10	10	10	10	11	7
53	Messmate	2	2	2										
53	Red stringybark	2	2	2	2								2	2
53	Shrubs	2	1	1										
53	Stringybark	2		1	1	1	1							
53	Vetch	2								1	1	1		
53	Wattle	2		1	3	3	1							
53	Blue gum	3	2	2	2								2	2
53	Capeweed	3	1	1	1	1	1						1	1
53	Clover	3									1	1		
53	Grey box	3	1	1	1	1	1	1	1	1	1	1	1	1
53	Longleaf box	3	4	4	4	4							4	4



Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
53	Red gum	3	3	3	3	1	1	1	1	1	1	3	3	3
53	Red stringybark	3	1	5	5	4	4	4	4	4	4	5	5	1
53	Stringybark	3	6	6	6	6	6	6	6	6	6	6	6	6
53	Wattle	3			1	1	1				1	1	1	
53	Blue gum	4	1	1	1	1	1	1	1	1	1	1	1	1
53	Golden wattle	4	1	1	1	1	1						1	1
53	Grey box	4	3	3	3	3							3	3
53	Mistletoe	4			1	1	1				1	1	1	
53	Red stringybark	4	2	2	2							2	2	2
53	Stringybark	4	1	1	1	1	1	1	1	1	1	1	1	1
53	Stringybark	5	4	4	4	4	1	1	1	1	1	1	4	4
54	Apple box	1	1	2	2	2	1							
54	Blue gum	1		2	2	2								
54	Grey box	1			2	2								
54	Narrow leaf peppermint	1	1	1										1
54	Red stringybark	1	1	2	2	1								
54	Blue gum	2	1	1										1
54	Long leaf box	2	1	1	1									
54	Manna gum	2		2	2	2								
54	Stringybark	2	1	2	2	2	1							
54	Blackberry	3	1	1										1
54	Messmate	4	1	1										1
54	Manna gum	5	1	1										1
54	Red stringybark	6	1	1										1
55	Blue gum	1	2	2	2	2							2	2
55	Blue mallee	1			2	2	1							
55	Bull mallee	1	1			1	1							1
55	Capeweed	1	17	20	25	25	15	8	8	8	12	20	19	17
55	Cherry	1										1	1	1
55	Clover	1			1	1	1	1	1	1	1	1		
55	Grey box	1	6	13	21	18	17	8	6	4	3	3	3	
55	Mallee	1	1	1								1	1	1
55	Paterson's curse	1	1	1	1	1	1					1	1	1
55	Prickly moses	1		1	1	1	1							
55	Red gum	1	4	4	3	2						2	6	7
55	Red stringybark	1	2	1	1	1								2
55	Shrubs	1			6	6	6							
55	Blue mallee	2	1			1	1							1
55	Canola	2	1	1	1	1	1	1	1	1	1	1	1	1
55	Capeweed	2	2	3	5	4	4	2	2	2	2	5	3	3
55	Green mallee	2	1	1	1	2	2	1	1	1	1	1	2	
55	Grey box	2	3	5	11	11	4	4	4	4	6	3	5	4
55	Hill gum	2		1	1	1	1	1	1	1				
55	Longleaf box	2	1	1	1	1								1

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
55	Red gum	2	3	5	5	3	3	2	2	1	1	2	2	
55	Shrubs	2	1	4	10	10	9	2	1	1	1			
55	Stringybark	2	3	3	3	2	1	1					2	2
55	Blue mallee	3	1	1	2	2	2	1	1	1	1	2	2	
55	Bull mallee	3				1	1	1	1	1	1	1	1	
55	Capeweed	3		4	9	9	8	3	3	2	2	1	2	1
55	Clover	3	1	1	1	1	1	1	1	1	1	2	2	2
55	Eggs and bacon	3	1	1	1	1	1	1	1	1	1	2	1	1
55	Green mallee	3	2	2	2									
55	Grey box	3	2	1	1	2	2					1	1	2
55	Longleaf box	3	2	2	2	2							2	2
55	Red stringybark	3	1	1	1							1	1	1
55	Shrubs	3		1	2	2	2	1	1	1	1	1		
55	Wattle	3		2	2	2					2			
55	Wild turnip	3	1	1	1	1	1	1	1	1	1	1	1	1
55	Capeweed	4	1	1	1	1	1					1	1	
55	Green mallee	4	1	1	1	1	1					1	1	1
55	Grey box	4			1	1	1	1	1	1	1	1		
55	Hill gum	4			1	1	1							
55	Melaleuca	4	1			1	1							1
55	Onion weed	4											1	1
55	Shrubs	4	3	4	4	2	2	2	2	1	1	3	3	1
55	Bull mallee	5	1	1	1	1	1					1	1	1
55	Golden pennants	5	1			1	1							1
55	Red gum	5			1	1	1	1	1	1	1	1		
55	Shrubs	5	1	1	1	1	1					1	1	
55	Longleaf box	6			1	1	1	1	1	1	1	1		
56	Blackberry	1	2	1	1	1						1	1	2
56	Canola	1	10	10	10	10	10	10	10	10	10	10	10	10
56	Grey box	1	12	12	13	12	12	12						
56	Longleaf box	1	1	1	1	1								1
56	Pears	1	1	1	1	1								
56	Peppermint	1	1	1	1	1	1							
56	Red stringybark	1	10	10	10	4							6	6
56	Blue gum	2	1	1	1	1								1
56	Capeweed	2	10	10	10	10	10	10	10	10	10	10	10	10
56	Longleaf box	2	6	6	6								6	6
56	Manna gum	2	3	3	3	3	1							1
56	Paterson's curse	2	1									1	1	1
56	Peppermint	2	4	4	4	4								
56	Shrubs	2	12	12	12	12	12	12						
56	Apple box	3	1									1	1	1
56	Blackberry	3	1	1	1	1								1
56	Blue gum	3	2	2	2	2	1							
56	Longleaf box	3	2	2	2	2								

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
56	Messmate	3	2	2	2	2								
56	Shrubs	3	6	6	6								6	6
56	White box	3	10	10	10	10	10	10	10	10	10	10	10	10
56	Apple box	4	2	2	2	2								
56	Blue gum	4	1	1	1	1								
56	Grevillea species	4	1									1	1	1
56	Grey box	4	10	10	10	10	10	10	10	10	10	10	10	10
56	Messmate	4	2	2	2	2	1							
56	Narrow leaf peppermint	4	6	6	6								6	6
56	Swamp gum	4	1	1	1	1								
56	Longleaf box	5	1	1	1	1								
56	Manna gum	5	1	1	1	1								
56	Blackberry	6	1	1	1	1								
57	Banksia	1	2	2	2	2	2	2	2	2	2	2	2	2
57	Bull mallee	1	1	1										1
57	Capeweed	1	2	3	8	8	8	8	8	9	9	7	3	2
57	Chinese bush	1	3	3	6	3	1							1
57	Grey box	1	16	21	23	22	20	7	3	3	3	3	2	2
57	Mallee	1	1	1	1	1	1	1	1	1	2	2		
57	Messmate	1		1	1	1								
57	Paterson's curse	1									1	1	1	
57	Peppercorn	1			1	1	1	1	1	1	1			
57	Prickly dumosa	1	1	1	1	1	1							
57	Prickly moses	1					1	1						
57	Red gum	1	3	3	3	3	2	1	1	1	1	3	3	4
57	Shrubs	1	4	4	4	5	5	5	4	4	5	5	4	4
57	Stringybark	1	2	2	2									
57	Wattle	1	3	5	3	5	4	5	5	6	3	1	1	1
57	Yellow gum	1	1		1	1					1			1
57	Black mallee	2	1	1										1
57	Blue gum	2	2	2	2									
57	Capeweed	2	6	7	6	8	6	6	6	6	6	3	3	4
57	Chinese bush	2	10	10	10	10	10							
57	Everlasting	2				1	1	1			1	1		
57	Flat weed	2	1	1	1	1	1							
57	Grey box	2	4	4	10	11	9	8	8	8	7	8	5	5
57	Heath	2	1	1	2	2	2	1	1	1	1	1		
57	Licorice bush	2	1	1	1									
57	Lupins	2		1	1						1	1		
57	Melaleuca species	2	2	2	2	3	2	2	1	2	1	1	1	1
57	Onion weed	2		1	1			1	1	1				
57	Peppercorn	2	1	1				1	1	1	1			
57	Prickly dumosa	2		1	1	1				1	1	1		
57	Prickly mimosa	2			3	2	1							
57	Red stringybark	2		1	1	1								

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
57	Shrubs	2	7	7	8	8	8	8	5	5	6	5	4	4
57	Whirrdkee	2			1	1	1					1	1	1
57	Capeweed	3		1	1	1	2	3	3	3	1	1	1	1
57	Everlasting daisies	3			2	1								
57	Grevillea species	3	1	1	1	1								1
57	Longleaf box	3		1	1	1								
57	Melaleuca species	3	1	2	1	2	2	3	2	1	2	1		
57	Peas	3		1	1						1	1		
57	Prickly moses	3	1	1										1
57	Red stringybark	3	2	2	2	2						2	2	2
57	Shrubs	3				1	1	1	1	2	2	2	2	
57	Tea tree	3	10	10	10	10	10							
57	Wattle	3	1	1	2	2	2	1						
57	Blue mallee	4				1	1	1	1	1	1	1	1	
57	Eggs & bacon	4	2	2	2	2						2	2	2
57	Onion weed	4					1	1	1	1	1	1	1	1
57	Shrubs	4	10	10	10	10	10							
57	Wattle	4	1	1	1	2	1	1			1	1		1
57	Capeweed	5	2	2	2	2						2	2	2
57	Everlasting daisies	5	1	1	1	1								1
57	Heath	5				1	1	1			1	1		
57	Shrubs	5					1	1	1	1	1	1	1	1
57	Grevillea species	6				1	1	1			1	1		
57	Heath	6	1	1	1	1								1
57	Onion weed	6	2	2	2	2						2	2	2
57	Wattle	7	2	2	2	2						2	2	2
58	Blue gum	1	5	7	3	3						1	1	5
58	Canola	1									1	1	1	
58	Grey box	1		2	2	2								
58	Wattle	1					2	2	2	2	1	1		
58	Capeweed	2					1	1	1	1				
58	Longleaf box	2	4	4										4
58	Manna gum	2	1	3	3	3						1	1	1
58	Shrubs	2					1	1	1	1	1	1		
58	Onion weed	3					1	1	1	1				
58	Red stringybark	3	5	5	1	1						1	1	5
58	Longleaf box	4	1	1	1	1						1	1	1
58	Manna gum	4	4	4										4
58	Narrow leaf peppermint	5	1	1	1	1						1	1	1
58	Swamp gum	6	1	1	1	1						1	1	1
59	Canola	1									1	2	1	1
59	Capeweed	1	4	5	5	5	5	4	4	5	6	5	5	4
59	Clover	1								1	1	1		
59	Golden wattle	1		1	3	3	3	2	2	3	2	2	1	

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
59	Grey box	1	1	10	20	20	20	18	10	6	8	7	3	2
59	Melaleuca species	1	2	2	2	2	2	2						
59	Messmate	1	10	10	10									
59	Onion weed	1						1	1	1	1	1		
59	Paterson's curse	1	1										1	1
59	Prickly moses	1			1	1	2	1						
59	Prickly wattle	1				1	1	1	1	1	1			
59	Red gum	1	2										2	2
59	Red ironbark	1				1	2	2	2	2				
59	Red stringybark	1	3	3	4	4	4	4						
59	Shrubs	1	4	4	4	4	4	4	4	4	4	4	4	4
59	Wattle	1	1	4	12	12	12	11	11	10	5	3	1	1
59	Capeweed	2	3	1	1	1	1	2	2	4	5	5	4	3
59	Chinese bush	2			1	1	1	1	1	1				
59	Clover	2	1	1	1	1	1	1	1	1	1	1	1	1
59	Flatweed	2		1	1	1	1	1	1	1	1			
59	Golden wattle	2		3	3	4	4	1	1	1	4	3		
59	Grey box	2		3	6	7	5	4	4	3	2	2		
59	Ground flora	2			1	1	1							
59	Longleaf box	2	3	3	3	3	3	3						
59	Lucerne	2										1	1	1
59	Manna gum	2	10	10	10									
59	Onion weed	2	2	1	1	1	1			1	2	2	3	2
59	Prickly moses	2			1	1	1	1	1	1				
59	Prickly wattle	2		1	1			1	1	1	1			
59	Red gum	2	4	4	4	4	4	4	4	4	4	4	4	4
59	Red ironbark	2	1	1	1	2	2	3	3	3	3	3	2	2
59	Red stringybark	2		2	2	2	1				1	1	1	
59	Shrubs	2	1	2	2	2	2	2	2	2	2	1	1	1
59	Silver wattle	2				1	1	1	1	1				
59	Wattle	2	3	6	8	8	9	9	6	3	1	1	1	1
59	White clover	2						1	1	1	1			
59	Yellow box	2					1	1	1	1				
59	Balansa clover	3								1	1	1	1	
59	Canola	3								1	1	1		
59	Capeweed	3	3	6	6	6	6	3	1	1	4	4	1	1
59	Chinese bush	3		2	2	2	2	1	1	1	1			
59	Clover	3										1	1	1
59	Flatweed	3	2										2	2
59	Golden wattle	3		1	1			2	2	2	2	1		
59	Grey box	3	4	5	5	5	5	4	4	4	4	4	4	4
59	Needlewood	3						1	1	1	1			
59	Onion weed	3		1	1	1	1	1	1	2	3	3	1	
59	Paterson's curse	3	1	1	1	1	1				1	1	1	1
59	Prickly dumosa	3	1	1	1	1	1	1						
59	Red box	3	1	1	1	1	1	1	1	1	1	1	1	1

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
59	Red gum	3	1										1	1
59	Red ironbark	3	1	1	1	1	1	1	1	1	1	1	1	1
59	Red stringybark	3		1	3	3	3	3	3	3	3	2		
59	Shrubs	3		1	3	3	3	2	1					
59	Wattle	3					1	1	1	1				
59	Wild flowers	3			1	2	2	2	2	2				
59	Yellow gum	3	1	1	1	2	2	3	3	3	3	3	2	2
59	Capeweed	4		1	1			1	1	1	1			
59	Chinese bush	4	1	1	1	1	1	1	1	1	1	1	1	1
59	Clover	4		1	1	1	1	1	1	1	1	1		
59	Eggs and bacon	4			2	2	2	2	2	2	2	2		
59	Grey box	4	2	3	4	4	4	4	3	3	3	2	2	2
59	Lucerne	4								1	1	1	1	
59	Onion weed	4	2	2	2	2	2	2						
59	Shrubs	4		1	1	1	1	1	1	1	1			
59	Stringybark	4			1	1	1	1	1					
59	Wattle	4	1	1	1	2	2	3	3	3	3	3	2	2
59	White clover	4	1	1	1	1	1				1	1	1	1
59	Blackberry	5	1	1	1	1	1				1	1	1	1
59	Capeweed	5						1	1	1	1			
59	Clover	5			2	2	2	2	2	2	2	2		
59	Longleaf box	5		1	1	1	1	1	1	1	1			
59	Needlewood	5			1	1	1	1						
59	Red stringybark	5		1	1	1	1							
59	White clover	5	1	1	1	1	1	1	1	1	1	1	1	1
59	White ironbark	5	1	1	1	1	1	1	1	1	1	1	1	1
59	Capeweed	6			2	2	2	2	2	2	2	2		
59	Flat weed	6	1	1	1	1	1	1	1	1	1	1	1	1
59	Golden wattle	6	1	1	1	1	1				1	1	1	1
59	Prickly moses	6			1	1	1	1						
59	Red box	6	1	1	1	1	1	1	1	1	1	1	1	1
59	Blackwood	7	1	1	1	1	1				1	1	1	1
59	Longleaf box	7	1	1	1	1	1	1	1	1	1	1	1	1
59	Thistle	7	1	1	1	1	1	1	1	1	1	1	1	1
59	Wattle	7			2	2	2	2	2	2	2	2		
59	Chinese bush	8			2	2	2	2	2	2	2	2		
59	Mistletoe	8	1	1	1	1	1	1	1	1	1	1	1	1
59	Prickly moses	8	1	1	1	1	1				1	1	1	1
59	Sugar gum	8	1	1	1	1	1	1	1	1	1	1	1	1
59	Longleaf box	9	1	1	1	1	1				1	1	1	1
60	Banksia	1				1	1	1	1	1				
60	Capeweed	1									1	1		
60	Chinese bush	1			1	1								
60	Grey box	1	6	6	6	5	4	3	3	2				
60	Paterson's curse	1	1									1	2	2

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
60	Red gum	1	2											2
60	Wattle	1			2	2	2	2	2	2				
60	Chinese bush	2			2	2	2	2	2	2				
60	Clover	2	1											1
60	Prickly wattle	2									1	1		
60	River red gum	2										1	1	1
60	Shrubs	2				1	1	1	1	1				
60	Wattle	2	1	1	2	2	1	1	1					
60	Wild flowers	3			2	2	2	2	2	2				
61	Blackberry	1	2	2	2									2
61	Golden wattle	1		1	1	1					1	1	1	
61	Longleaf box	1	1	1	1	1	1	1						
61	Messmate	1	1	1	1									
61	Onion weed	1		1	1	1					1	1	1	
61	Red stringybark	1		2	2	2								
61	Wattle	1		1	1	1					1	1		
61	Capeweed	2		2	2	2					2	2	1	
61	Grey box	2		2	2	2								
61	Messmate	2	1	1	1									
61	Onion weed	2		1	1	1					1	1	1	
61	Red gum	2	1	1	1	1	1	1						
61	Stringybark	2	2	2	2									2
61	Capeweed	3		1	1	1					1	1	1	
61	Clover	3		1	1	1					1	1	1	
61	Grey box	3	1	1	1	1	1	1						
61	Longleaf box	3	2	2	2									2
61	Clover	4		1	1	1					1	1	1	
62	Blue gum	1	2	2	2									
62	Messmate	1	2	2	3	1								
62	Red stringybark	1		2	2	2								
62	Stringybark	1		2	2	2								
62	Grey box	2		1	1	1								
62	Manna gum	2			1	1								
62	Messmate	2	2	5	5	3								
62	Manna gum	3		2	2	2								
62	Stringybark	3	2	2	2									
62	Manna gum	4	2	2	2									
65	Banksia	1	1					1	1	1	1	1	1	1
65	Capeweed	1	6	5	3	2	2	2	2	2	5	6	6	6
65	Dandelions	1	3	3									3	3
65	Red gum	1	14	12	10	1						1	9	14
65	Canola	2	1	1		1	1	1	1	1	1	2	1	1
65	Capeweed	2	2	2	1							1	2	2

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
65	Flatweed	2	2	2	2						2	2	2	2
65	Ground flora	2	1					1	1	1	1	1	1	1
65	Honey suckle	2	2	2	2	1							1	2
65	Longleaf box	2	3	3	3								3	3
65	Melaleuca species	2	2											2
65	Red gum	2	4	3									3	4
65	Shrubs	2	1	1	1	1	1	1	1	1	1	1	1	1
65	Tea tree	2	1	1										1
65	Thistle	2	1	1									1	1
65	Wild flowers	2	3	3	3								3	3
65	Capeweed	3	1	1	1								1	1
65	Flatweed	3	1										1	1
65	Messmate	3	2	2	2						2	2	2	2
65	Needle bush	3	1	1	1	1	1	1	1	1	1	1	1	1
65	Red gum	3	1	1								1	1	1
65	Scent bark	3	3	3	3								3	3
65	Scent gum	3	1	1										1
65	Shrubs	3	1	1	1	2	1	1	1	1	1	1		1
65	Manna gum	4	3	3	3								3	3
65	Red gum	4				1	1	1	1	1	1	1		
65	Scent bark	4	2	2	2						2	2	2	2
65	Melaleuca	5	3	3	3								3	3
65	Red gum	5	2	2	2						2	2	2	2
66	Blue gum	1	1	1										1
66	Red box	1	2	2	2	2	2	2	2	2	2	2	2	2
66	Red stringybark	1	1	1	1									1
66	Grey box	2	2	2	2	2	2	2	2	2	2	2	2	2
66	Manna gum	2	1	1										1
66	Wattle	2	1	1	1									1
66	Flatweed	3	1	1	1									1
66	Long leaf box	3	1	1										1
66	White stringybark	3	2	2	2	2	2	2	2	2	2	2	2	2
66	Red stringybark	4	2	2	2	2	2	2	2	2	2	2	2	2
67	Brown stringybark	1	4	4	4	4								
67	Capeweed	1	1									1	1	1
67	Stringybark	1		5	5	5								
67	Manna gum	2		1	1	1								
67	Scent bark	2		4	4	4								
67	Silver banksia	2	4	4	4	4								
67	Banksia	3		1	1	1								
67	Silver banksia	3		4	4	4								
68	Banksia	1					2	2	2					
68	Shrubs	1	1	1	1	1	1	1	1	1	1	1	1	1



Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
68	Silvertop	1	2	2	2	2	2	2	2	2	2	2	2	2
68	Wattle	1	1	1	1									1
68	Daisy	2	1	1	1									1
68	Stringybark	2	2	2	2	2	2	2	2	2	2	2	2	2
68	Wattle	2					2	2	2					
68	Willow	2	1	1	1	1	1	1	1	1	1	1	1	1
68	Shrubs	3					2	2	2					
68	Wattle	4	2	2	2	2	2	2	2	2	2	2	2	2
69	Banksia	1				3	3	3	3	3	3	3	1	1
69	Brown stringybark	1	1	1	1	1	1	1	1	1	1			1
69	Desert banksia	1		1	1	1								
69	Stringybark	1	1	1										
69	Balansa clover	2				1	1	1	1	1	1	1	1	1
69	Banksia	2	1	1	1	1	1	1	1	1	1			1
69	Capeweed	2	1	1		1	1	1	1	1	1	1		
69	Domestic garden flora	2				1	1	1	1	1	1	1		
69	Silver banksia	2		1	1	1								
69	Canola	3				2	2	2	2	2	2	2	1	1
69	Capeweed	3				1	1	1	1	1	1	1		
69	Shrubs	3	1	1	1	1	1	1	1	1	1			1
69	Balansa clover	4				1	1	1	1	1	1	1		
69	Clover	4				1	1	1	1	1	1	1		
69	Domestic garden flora	4				1	1	1	1	1	1	1	1	1
69	Capeweed	5				1	1	1	1	1	1	1	1	1
69	Onion weed	5				1	1	1	1	1	1	1		
69	Stringybark	5				1	1	1	1	1	1	1		
69	Domestic garden flora	6				1	1	1	1	1	1	1		
69	Onion weed	6				2	2	2	2	2	2	2	1	1
70	Wattle	1	2	2	2	2	2	2	2	2	2	3	3	2
70	Shrubs	2	2	2	2	2	2	2	2	2	2	2	2	2
70	Silvertop	2										1	1	
71	Black wattle	1	2						1	1	1	1	2	2
71	Brown stringybark	1	1	1										1
71	Capeweed	1	6	5	1	1	1	1	1	2	6	9	8	7
71	Grevillea species	1									1	1	1	
71	Messmate	1	1	3	3	2	2	1	1	1	1			
71	Prickly moses	1	1			1	1	1	1	1	1	1	1	1
71	Red gum	1	8	5	3	2	2					1	3	8
71	Red ironbark	1	1	1	2	1		1	1	1	1	1	1	1
71	Red stringybark	1	1	1	1								1	1
71	Stringybark	1	1	1	1	1								

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
71	Tea tree	1	8	8	6	3		3	3					4
71	Wattle	1		1	1	1								
71	Wild flowers	1	1	1										1
71	Black wattle	2	1	1	1	1								
71	Brown stringybark	2	1											1
71	Capeweed	2	1	1	1						1	2	2	1
71	Dandelions	2	1	1										1
71	Flatweed	2	1	1									1	1
71	Messmate	2	4	4										
71	Onion weed	2										1	1	1
71	Red gum	2	7	7	2	1	1	2	2	2	4	6	5	7
71	Red string bark	2	2	1	2	2	2						1	2
71	Scent bark	2	1	1										1
71	Shrubs	2	2										1	2
71	Stringy bark	2	3	5	8	5	1	3	3					3
71	Tea tree	2		1	1	1	1	1	1	1	1			
71	Wattle	2	1		1	2	1	1	1	2	2	2	1	1
71	Banksia	3		1	1	1	1							
71	Flatweed	3	2	2	2	1						2	2	2
71	Golden wattle	3	3	3							2	3	3	3
71	Longleaf box	3	1	1	1	1	1						1	1
71	Mountain grey gum	3		1	1	1								
71	Onion weed	3			1	1				1	1	1		
71	Red stringybark	3	1	1										1
71	Yellow box	3	1	1	2	1		1	1	1	1	1	1	1
71	Golden wattle	4	1	1	1	1	1						1	1
71	Messmate	4	1	2	1	1								1
71	Red stringybark	4	1	1	1							1	1	1
71	Yellow gum	4	1	1	2	1		1	1	1	1	1	1	1
71	Black box	5		1	1	1								
71	Black wattle	5	1	1	1	1	1						1	1
71	Pink gum	5	1	1	2	1		1	1	1	1	1	1	1
71	Roundleaf box	5	1	1	1							1	1	1
71	Longleaf box	6	1	1	1							1	1	1
71	Shrubs	6	1	1	2	1		1	1	1	1	1	1	1
71	Apple box	7	1	1	1							1	1	1
73	Blue gum	1	3										3	3
73	Capeweed	1	5	4		1	1	1	1	1	1	5	5	5
73	Grey box	1	1	1	1	1	1							
73	Messmate	1	1	1										
73	Red gum	1	3	3	1							1	1	3
73	Stringybark	1		5	5	5								
73	Blue gum	2	1	1										
73	Clover	2	4	4								4	4	4
73	Grey box	2				1	1	1	1	1	1	1	1	

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
73	Red stringybark	2	4	1	1								3	4
73	Thistle	2	1	1								1	1	1
73	Longleaf box	3	1	1	1									1
73	Manna gum	3	1	1										
73	Messmate	3	4	4								4	4	4
73	Thistle	3				1	1	1	1	1	1	1	1	
73	Scent bark	4	1	1	1									1
73	Candlebark	5	1	1	1									1
74	Blue gum	1	3	3										3
74	Candlebark	1	1	1										1
74	Canola	1										1		
74	Capeweed	1	11	11	6	7	7	5	5	5	5	13	12	12
74	Clover	1	1	1										1
74	Lucerne	1			3	3	3	3	3	3	3	3		
74	Messmate	1	5	5	5									
74	Red gum	1	2	2	1	1				1	1	1	1	2
74	Scent bark	1		5	5	5								
74	Wattle	1					1	1	1	1		1	1	1
74	Capeweed	2			3	3	3	3	3	3	3	4		
74	Crows foot	2	2	2	2	2	2	2	2	2	2	2	2	2
74	Grey box	2	1	1	2	3	2	2	2	3	3	3	2	1
74	Longleaf box	2		5	5	5								
74	Onion weed	2	1	1	1	1	1	1	1	1	1	1	1	1
74	Red gum	2	4	4	2	2	2					5	5	5
74	Red stringybark	2	5	5	5									
74	Shrubs	2	3	3			1	1	1	1		4	4	4
74	Stringybark	2	4	4										4
74	Apple box	3	1	1										1
74	Capeweed	3	1	1	1	1				1	1	1	1	1
74	Eggs and bacon	3	1	1	1	1	1	1	1	1	1	1	1	1
74	Grey box	3			4	4	4	3	3	3	3	4	1	1
74	Red gum	3	1	1	1	1	1	1	1	1	1	1	1	1
74	Stringybark	3	4	4	1	1	1					4	4	4
74	Thistle	3				1	1	1	1	1	1	1	1	
74	Willow	3	1	1	1	1	1	1	1	1	1	1	1	1
74	Grey box	4	1	1	1	1	1	1	1	1	1	1	1	1
74	Lucerne	4	2	2	2	2	2	2	2	2	2	2	2	2
74	Shrubs	4	1	1										1
74	Strawberry clover	5	1	1	1	1	1	1	1	1	1	1	1	1
75	Blue gum	1	2	2	1	1	1						1	1
75	Red box	1	1	1	1	1	1	1	1	1	1	1	1	1
75	Stringybark	1	1	1										1
75	Tea tree	1	1	1									1	1
75	Wattle	1	1	1										1

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
75	Blue gum	2	1	1										1
75	Capeweed	2	4	4	1	1	1	1	1	1	1	1	3	4
75	Messmate	2	1	1	1	1	1							
75	Cabbage box	3	1	1										1
75	Clover	3	1	1	1	1	1	1	1	1	1	1	1	1
75	Manna gum	3	1	1	1	1	1							
75	Onion weed	3	1	1									1	1
75	Thistle	3	1	1										1
75	White box	4	1	1										1
75	White gum	4	1	1	1	1	1							
75	Blue gum	5	1	1										1
75	Swamp gum	5	1	1	1	1	1							
75	Messmate	6	1	1										1
77	Blackberry	1	3	2	2	2	2	2	2	2	2	2	3	4
77	Capeweed	1	2	2	2	2	2	2	2	2	2	2	2	2
77	Eggs and bacon	1			1	1	1	1	1	1	1			
77	Flatweed	1	1	1										1
77	Golden wattle	1	2	2	2	2	2							2
77	Grey box	1			2	2	2	2	2			2	2	
77	Messmate	1	14	16	16	14								
77	Red box	1			4	4						4	4	4
77	Red stringybark	1	6	7	7	6	3	1	1	1				4
77	Shrubs	1			1	1	1	1	1	1	1	1		
77	Stringybark	1		1	1	1								
77	Wattle	1	1	1	1									1
77	Brown stringybark	2		1	1									
77	Capeweed	2	2	2	2	2	2							2
77	Clover	2	1		1	1	1	1	1	1	1	1	2	2
77	Longleaf box	2	6	7	9	9	5	3	3	1		2	2	4
77	Manna gum	2	13	14	14	14								
77	Messmate	2		1	1									
77	Onion weed	2	2	2	2	2	2	2	2	2	2	2	2	2
77	Peppermint	2	1	1	1									
77	Red stringybark	2	1	1	1	1	1	1	1	1	1	1	1	1
77	Shrubs	2			1	1	1	1	1	1	1			
77	Stringybark	2			4	4						4	4	4
77	White clover	2	1	1										1
77	Blackberry	3	1	1	1									
77	Capeweed	3			1	1	1	1	1	1	1	1	1	1
77	Clover	3	13	13	13	13								
77	Eggs and bacon	3	2	2	2	2	2	2	2	2	2	2	2	2
77	Flatweed	3	1	1	1	1							1	1
77	Longleaf box	3	1	1	1	1	1	1	1	1	1	1	1	1
77	Manna gum	3	1	2	2	1	1	1	1	1				1
77	Messmate	3	1	1										1

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
77	Red gum	3	2	2	2	2	2							2
77	Red stringybark	3			2	2	2	2	2			2	2	
77	Gorse	4			2	2	2	2	2			2	2	
77	Grey box	4	3	3	4	4	4	4	4	4	4	4	4	4
77	Longleaf box	4	2	2	2	2	2							2
77	Manna gum	4	1	1	1									
77	Narrow leaf peppermint	4	13	13	13	13								
77	Wattle	5			2	2	2	2	2			2	2	
78	Blue gum	1		1	1	1								
78	Longleaf box	1					1	1	1	1				
78	Stringybark	1	3	3	3	3	3							
78	Apple box	2	3	3	3	3	3							
78	Manna gum	2		1	1	1								
78	Manna gum	3	1	1	1	1	1							
80	Canola	1									1	1	1	
81	Clover	1	1	1										1
82	Canola	1									1	1		
82	Canola	2									1	1		
82	Capeweed	3									1	1		
83	Red stringybark	1	2	2	1	1	1	1	1	1	1	1	1	2
83	White stringybark	1	4	4	4	4						3	3	3
83	Apple box	2	1	1	1	1	1	1	1	1	1	1	1	1
83	Golden wattle	2	1	1	1	1								
83	Red stringybark	2	3	3	3	3						3	3	3
83	Blue gum	3	1	1	1	1	1	1	1	1	1	1	1	1
83	Grey gum	3	3	3	3	3						3	3	3
83	Mistletoe	3	1	1	1	1								
83	Manna gum	4	1	1	1	1	1	1	1	1	1	1	1	1
83	Wattle	4	3	3	3	3						3	3	3
85	Grey box	1			1	1	1				1	1	1	
85	Messmate	1	1	1	1									
85	Sugar gum	1		1	2	1								
85	Blackberry	2	1	1	1									
85	Capeweed	2			1	1	1				1	1	1	
85	Clover	3	1	1	1									
86	Apples	1									1	1		
86	Clover	1										1	1	
86	Messmate	1		4	4	4								
86	Red stringybark	1		1	1	1	1							

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
86	Sugar gum	1		2	2	2								
86	Manna gum	2		2	2	2								
86	Messmate	2		1	1	1	1							
86	Plums	2									1	1		
86	Bursaria	3		1	1	1	1							
86	Flatweed	3		2	2	2								
87	Cherry	1									1	1		1
87	Clover	1		1	1	1	1				1	1	1	
87	Eucalypt species	1	1	1	1	1	1	1	1	1	1	1	1	1
87	Grey box	1		1	1									
87	Messmate	1		1	1	1								
87	Capeweed	2									1	1		1
87	Silverleaf stringybark	2		1	1	1								
87	Wattle	2	1	1	1	1	1	1	1	1	1	1	1	1
87	Kiwifruit	3									1	1		1
87	Red stringybark	3		1	1	1								
90	Banksia	1	1	1			1	1	1	1	1			1
90	Capeweed	1						1	1	1	1	1		
90	Clover	1	1	1	1	1	1	1	1	1	1	1	1	1
90	Silvertop	1	2	2	2	2	2	2	2	2	2	2	2	2
90	Wattle	1	3	2	3	1	1	1	1	2	1	1	2	2
90	Clover	2	1										1	1
90	Flatweed	2	2	2	3	2	2	2	2	2	1	1	1	1
90	Stringybark	2	2	2	2	2	2	2	2	2	2	2	2	2
90	Tea tree	2	1	1	1		1	2	2	3	3	2	1	1
90	Capeweed	3	2	1	1					1	1	1	2	2
90	Silvertop	3					1	1	1	1	1			
90	Wattle	3	1	1	1	1	1	1	1	1	1	1	1	1
90	Flat weed	4	1										1	1
90	Peppermint	4	1	1	1	1	1	1	1	1	1	1	1	1
90	Shrubs	4					1	1	1	1	1			
90	Silvertop	4	1	1	1					1	1	1	1	1
90	Wattle	4	1	1	1	1	1	1	1	1	1	1	1	1
90	Peppermint	5	1	1	1					1	1	1	1	1
91	Brown stringybark	1	1	1	1									
91	Messmate	1	2	2										2
91	Brown stringybark	2	2	2										2
91	Manna gum	2	1	1	1									
91	Manna gum	3	2	2										2
91	Silver banksia	3	1	1	1									
91	Silver banksia	4	2	2										2

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
92	Capeweed	1	1	1	1	1	1	1	1	2	2	2	2	2
92	Clover	1	1	1	1									
92	Clover	2	1	1	1	1	1	1	1	1	1	1	1	1
92	Wattle	2								1	1	1	1	1
93	White clover	1											1	1
94	Wattle	1										1	1	1
95	Capeweed	1									1	1	1	1
95	Clover	2									1	1	1	1
96	Capeweed	1	2	2	2	2	2	2	2	3	3	3	3	2
96	Bursaria	2	2	2	2	2	2	2	2	2	2	2	2	2
96	Wattle	2								1	1	1	1	
96	Blackberry	3	2	2	2	2	2	2	2	2	2	2	2	2
96	Manna gum	4	2	2	2	2	2	2	2	2	2	2	2	2
97	Clover	1	1	1								1	1	1
97	Strawberry clover	1	2	2	2									
98	Saw banksia	1	1	1	1	1	1	1	1	1	1	1	1	1
99	Clover	1	1	1	1									1
99	Silver banksia	1	1											1
99	Strawberry clover	1	2	2	2									
99	Brown stringybark	2	2	2	2									
99	Messmate	2	1											1
99	Stringy bark	2	1	1	1									1
99	Manna gum	3	3	3	3									1
99	Tea tree	3	1											1
99	Dandelions	4	1	1	1									1
99	Swamp gum	4	2	2	2									
99	Flatweed	5	2	2	2									
99	Thistle	5	1	1	1									1
99	Scotch thistle	6	2	2	2									
100	Capeweed	1	3	3	3	2	2	2	2	2	2	2	2	2
100	Clover	1	1											1
100	Onion weed	2	2	2	2	2	2	2	2	2	2	2	2	2
100	Clover	3	1	1	1	1	1	1	1	1	1	1	1	1
102	Messmate	1	1	1										1
102	Silver banksia	1	6											6
102	Brown stringybark	2	1	1										1
102	Swamp gum	2	6											6

Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
102	Manna gum	3	1	1										1
102	Tea tree	3	6											6
102	Silver banksia	4	1	1										1
104	Yellow box	1	1	1	1	1	1	1	1	1	1	1	1	1
104	Grey box	2	1	1	1	1	1	1	1	1	1	1	1	1
104	Red gum	3	1	1	1	1	1	1	1	1	1	1	1	1
105	Clover	1	1	1										1
105	Strawberry clover	1	2	2	1									
105	Dandelions	2	1	1										1
105	White clover	2	1	1										
106	Clover	1										2	2	2
106	White stringybark	1	1	1			1						1	1
107	Brown stringybark	1		3	3	3	3	1	1	1				
107	Red gum	1	2	2	2	2								2
107	Swamp gum	1					1	1	1	1				
107	Longleaf box	2		2	2	2	2							
107	Manna gum	2	2	2	2	2	1	1	1	1				2
107	Messmate	2		1	1	1	1	1	1	1				
107	Longleaf box	3		1	1	1	1	1	1	1				
107	Wild flowers	3		2	2	2	2							
107	Silver banksia	4		2	2	2	2							
107	Swamp gum	4		1	1	1	1	1	1	1				
107	Manna gum	5		1	1	1	1	1	1	1				
107	Melaleuca	6		1	1	1	1	1	1	1				
107	Banksia	7		1	1	1	1	1	1	1				
107	Heath	8		1	1	1	1	1	1	1				
107	Wattle	9		1	1	1	1	1	1	1				
107	Eggs and bacon	10		1	1	1	1	1	1	1				
108	White clover	1	1	1										1
108	Balansa clover	2	1	1										1
109	Capeweed	1	1	1	1	1	1	1	1	1	1	1	1	1
109	Clover	1	4	4	4									
109	Shrubs	2	1	1	1	1	1	1	1	1	1	1	1	1
114	Honey suckle	1				1		1	1	1	1	1	1	
114	White clover	1	1	1										1
114	Currant bush	2				1		1	1	1	1	1	1	
114	Clematis	3				1		1	1	1	1	1	1	
114	Hibertia	4				1		1	1	1	1	1	1	
114	Tea tree	5				1		1	1	1	1	1	1	



Map	Pollen plant	Rank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
114	Manna gum	6				1		1	1	1	1	1	1	
115	White clover	1	3	3									3	3
115	Strawberry clover	2	3	3									3	3
115	Messmate	3	3	3									3	3
115	Capeweed	4	3	3									3	3
115	Blackberry	5	3	3									3	3
116	Stringybark	1		1	1									
117	Banksia	1	1									1	1	1
117	Strawberry clover	1	1	1	1							1	1	1
117	Banksia	2	1	1	1							1	1	1
117	Wattle	2	1									1	1	1
117	Manna gum	3	1	1	1							1	1	1
117	Shrubs	3	1									1	1	1