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Prepared by

DAVID MCKINNA et al PTY LTD
REAR 131 VICTORIA AVENUE ALBERT PARK 3206
TELEPHONE (03) 9696 1966 FACSIMILE (03) 9696 1965
EMAIL dmckinna@labyrinth.net.au ACN 006 169 786

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Executive summary

This study is confined to native food, i.e. edible plant material. It is also recognised that there are many native plants that have therapeutic and health benefits. These have been excluded from the study.

The commercialisation of the native food industry was started about 20 years ago with the key commercial players being Vic Cherikoff, Peter Handundt, Andrew Fielke and Peter Latz. It began with the harvesting of wild fruit and berries but later extended into seed and foliage. Initially the industry was totally reliant on wild harvest or collection but, in recent years, there have been attempts to commercially cultivate native species. This was done in recognition of the fact that if the industry was to grow it must get reliable supplies in commercial quantities.

It is difficult to make a true estimate of the value of the industry because of its informal structure and the fact that much of it does not enter commercial channels.

Our best estimate puts the wholesale value of the industry at \$20-30 million.

Despite the large number of edible species, the vast majority of the volume is in a handful of species:

- Bush tomato
- Quandong
- Muntries
- Riberry
- Acacia
- Lemon Aspen
- Mountain pepper
- Kakadu plum

- Illawarra plum
- Native Citrus
- Lemon Myrtle
- Native Currant
- Warrigal Greens
- Native Raspberries

From what we have been able to ascertain, there are four major companies currently marketing processed native foods:

- Red Ochre
- Robins Bush Food
- Taylors Food
- Cherikoff

There are also a number of other companies using native food ingredients in some of their products including Beerenberg jam and Casalare Speciality Pasta.

In addition, there is some produce being sold directly from growers/collectors in unprocessed form directly to restaurants. Despite the low volumes there appears to be a lot of interest in these products in the United Kingdom in supermarkets/department stores such as Sainsburys and Tesco.

The native food industry has a huge potential. A native Australian cuisine could be developed similar in size to the Asian, Mexican and other ethnic categories. Native species are also suited for use in a diverse range of products across many categories.

There are seemingly endless numbers native species; the challenge is for the industry to select the ones with the most potential. The other issue is the multiplicity of categories that native foods are suited too. The best markets and products need to be identified so that the industry can focus on them.

There are several factors driving the interest in native foods. These include Australians' passion for food, the world's

fascination with Australia, the developing culinary tourism market and the agriculture diversity that native species offer.

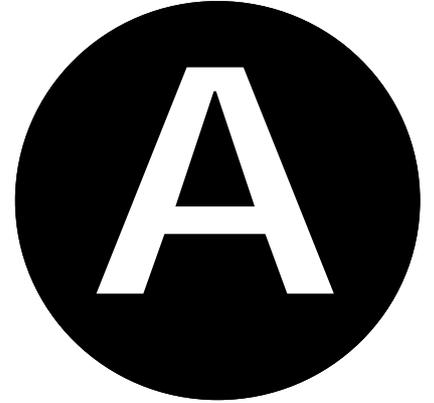
The industry is constrained by a lack of critical mass, which is, largely due to a lack of commercial supplies of raw material being supplied. This in turn is due to a number of factors including low and variable yield, high labour costs relative to the prices being received and the absence of a formal supply chain to get wild harvest products, particularly by Indigenous communities, to market.

The two main marketing issues affecting the industry are the large number of brands relative to the size of the industry and an unclear market positioning relative to the mainstream food categories.

There are a number of issues that need to be addressed including product integrity, the intellectual property of the Indigenous community, whether to market foods or ingredients and whether to include native animals in this category.

There needs to be a large amount of research and development undertaken into agricultural practices for native species with the best commercial potential and product development.

Part



**Assessment of the
native foods
industry**

Section

1

Introduction

1.1 Introduction

The South Australian State Food Program has for some time recognised the potential of the Australian native food industry.

Various individual companies have been marketing native products with mixed success for many years. However, the industry has not realised its true potential because of the lack of a co-ordinated approach.

Recognising this, Food South Australia and Tourism Training SA commissioned David McKinna et al to develop an industry strategy to develop the native foods industry of South Australia.

This three-part report documents the findings and recommendations from the study. Part A presents the findings from the assessment of the Australian native food industry. Part B presents a strategic situation analysis of the issues as a foundation for the development of strategic recommendations, which are presented in Part C.

1.2 Project objectives

The central objective of the project was to prepare a native food strategy that will position and develop South Australia as the leading state for the new and emerging native food industry.

In particular, the strategy must address the following issues:

- Defining and addressing structural impediments to the development of the native food industry
- Commercialising this industry
- Developing differentiated and value added products
- Sustainable development of the raw material supply base
- Providing opportunities for the regions and indigenous people.

1.3 Methodology

The situation analysis was developed through extensive desk research utilising both the web and written reports, phone and personal in-depth interviews with numerous key industry players and a workshop involving Indigenous communities.

In developing this report, the consultants have applied their extensive experience in strategy, marketing and business development to identify the relevant issues that need to be addressed and then put forward recommended strategies.

It should be noted that whilst this report includes input from an Indigenous workshop, the report does not necessarily represent a consensus strategy agreed to by Indigenous organizations or individuals. That was not the purpose of the brief provided by the joint clients.

Section

2

Overview of the Native food industry

2.1 The definition and evolution of the native food industry

Since its inception, the “native food industry” has carried various labels including Bush Tucker, Bush Food, Indigenous Food and Australian native food. To a large extent, this reflects the evolution of the industry.

Indigenous communities have been utilising native species for food and therapeutic uses for thousands of years.

Native foods were first introduced to the non-indigenous commercial market by the pioneering work of Vic Cherikoff, Andrew Fielke, et al who saw the potential of the unique flavours of native foods in the commercial arena. These pioneers wrote books, gave lectures and experimented with native foods in recipes and restaurants.

The mass market was first exposed to “Bush Foods” by such popular television shows as Les Hiddens’ “Bush Tucker Man” and other such shows.

The commercial native food operators disliked the name feeling that it conveyed a negative connotation of *“people wandering around the bush with pocket knives digging grubs out of the trees”*. Bush Tucker includes animals such as witiwiti grubs, lizards, goanna, kangaroo, etc. They see the title “Bush Food” as being only slightly better.

In official reports the title 'Indigenous Australian Food' tends to be used. This reflects the influence of Indigenous knowledge and heritage.

The term 'Australian native food' is now generally accepted by the industry as the most appropriate term. It is felt that it is a more balanced name that implies native and indigenous food, harvested from the wild, unique flavours, etc.

In the report we make the distinction between native foods and 'Bush Food' or 'Bush Tucker' although we recognise that the distinction is quite arbitrary.

Broadly speaking, the category covers any native species that is edible or has therapeutic properties, which includes plants, leaves, berries, seeds, nuts, herbs, spices, fruit, vegetables, flowers, animals, reptiles and insects.

This report is confined to plant species and excludes native animals. It also excludes native plants with medical and therapeutic value although we recognise that they have great potential.

2.2 Background

Indigenous communities have been eating native foods for 50,000 years. Whilst there is a long history of use, transition into a commercial industry has been very slow. Australia is probably the only country in the world that has not cultivated and commercialised its native foods.¹ The development of Australia's native food industry is unique as few countries can offer such a range of indigenous foods. There are over 1,000 native species used by Indigenous groups, with 207 regularly eaten, compared with the 94 crops commercially grown in the world.²

Commercial interest in this industry has been growing steadily with several producers becoming involved with the growing and marketing of native foods. The pioneers of the modern industry are Vic Cherikoff, Paul James and John-Paul Bruneteau, who established the first modern restaurants and retail outlets in Sydney in the early 1980's. The contemporary native food industry was initiated by Bush Tucker Supply Australia, now known as Cherikoff.

In the eighties a number of food processing companies started to develop products utilising the unique flavours of native foods, with notable companies such as Red Ochre and Robins Foods being the key players in the development of the industry. These companies found that until recently there was far greater interest in their product in Europe and, even today, the UK market for processed native foods is far greater than Australia.

To date most of the native foods supplied to the market have come from wild collection, which has prevented the industry expanding as annual yields are largely

¹ 'Native food,' NRE website, 2001.

² Parliamentary report into the Utilisation of Native Flora and Fauna, www.parliament.vic.gov.au/enrc/unff

determined by climate, causing uncertainty in harvest. There are also implications for the longer-term conservation of collected species.³ In recent years a number of commercial growing operations have been established with others planned.

There is now funding support for native foods from both the industry and the government.⁴ A controversial aspect of the industry involves the debate about the exploitation of traditional knowledge for monetary gain.

³ 'The Bushfoods Industry,' Peter Lister, Bush Tucker Plants website, May 2001.

⁴ 'The Bushfoods Industry,' Peter Lister, Bush Tucker Plants website, May 2001.

2.3 Size of industry

It is impossible to put an accurate figure on the Australian native food industry because of the significant amount of semi or sub-commercial activity. For example, some operations collect produce and sell it to local restaurants. The most recent best available figures indicate the net worth of the Australian native food industry is valued between \$10 and \$16 million per annum at farm gate value (see table).⁵

Table1 Estimated farm gate value of the native food industry pa.

Year	Estimated farm gate value
1995/96	\$10m-\$12m
1997	\$14m
2000	\$10m-\$16m

Sources: 'Marketing the Australian native food industry,' RIRDC May 2000; RIRDC, 1997; Bushfoods – A handbook for farmers and investors," Graham & Hart.

According to a media release by RIRDC in 2001, a native food farm gate value of about \$5 million is being achieved by industry participants, with value adding taking that up to, perhaps, \$10 million per annum.⁶ However, average returns from native foods to individual businesses are considered to be quite low, particularly at the farm gate level, with native foods often being only a small part of the income source.

In 1997, the industry was estimated to have about 500 people on a full time basis and an additional 500 on a part time basis. However, this may be an under estimation because it doesn't fully account for Indigenous organisations, restaurants, seasonally employed native food harvesters, research and other organisations with an interest in native foods.⁷

⁵ 'Marketing the Australian native food industry,' RIRDC May 2000.

⁶ 'Native foods R&D plan,' RIRDC media release, March 2001.

⁷ 'Improving access to bushfood production and marketing information,' RIRDC November 1999.

There is no accurate data on the wholesale value. Based on our research we would estimate the wholesale value of manufacturing product to be somewhere between \$20-\$30m. Added to this must be the value of product sold directly to restaurants and distributors. The export value is in excess of \$10 million, mainly to the UK.

Based on this research, it would appear that the industry has huge growth potential, which is presently being constrained, to a large extent, by limitations on the quantity of raw materials available.

Section

3

Edible native species

3.1 Edible native species

On the surface the potential for native foods seems to be unlimited. Over the centuries the Indigenous community has amassed a large amount of knowledge and intellectual property about edible and therapeutic native species.

There is reputed to be 5,000 native species that have either food or therapeutic value. A comprehensive list of edible species is presented in the Appendix. In fact this plethora of species has been one of the barriers standing in the way of the commercial development of the industry. Much time was lost experimenting with species that did not have potential to be commercialised.

Anthony Hele⁸, Industry Development Consultant on native foods, provided some insightful guidelines for selection of varieties that have potential for commercialisation.

Native species with the greatest potential for commercialisation are likely to possess some, or all, of the following characteristics:

- They taste good
- They are easy to harvest, handle, transport and store, or at least do not present any major difficulties in these areas
- They have existing, likely, or potential market demand
- They are relatively easy to propagate

⁸ Anthony Hele has a jointly funded project by ANPI and PIRSA

- Their agronomy is reasonably well understood and does not appear to pose any major obstacles to successful cultivation.

The following factors are often cited, as reasons for cultivating species, however, are not enough in themselves to warrant commercialisation.

- High vitamin, protein or other nutritional factor contents
- Having staple food status within indigenous communities
- Having drought or salinity tolerance
- Growing well in the local area.

3.2 'Best bets' for further development

Recognising the massive research and development work required to assess the various options, the general consensus is to focus on the dozen or so 'best bets'.

In accepting this premise, it is recognised that the industry could be excluding itself from species with great commercial potential. As the industry grows and evolves, it will undoubtedly broaden the scope and experiment with other varieties.

The general consensus is that the best prospects in the near future are the following species:

- Native citrus
- Quandong
- Acacia
- Muntries
- Bush tomato
- Mountain pepper
- Lemon myrtle
- Lemon aspen
- Riberry
- Native raspberries
- Illawarra plum
- Kakadu plum
- Native currant
- Warrigal greens

More details on these species are provided below.

Several efforts have been made over recent years to identify for the industry those crops with the most potential. Today, the concept of around a dozen 'best bet' crops is widely accepted by many industry participants, although the exact composition of the dozen may vary somewhat from person to person, with the variation often due to geographical bias. For South Australia, the 'best bets' are likely to be –

Native Citrus (principally *Citrus glauca* and *Citrus australasica* hybrids): Australia has six species of true native citrus. Fruit (to-date primarily from wild-harvested Desert Lime – *Citrus glauca*) is used in a range of sweet and savoury processed products, such as marmalades and sauces, and is in demand by restaurants. Commercial orchard production has also commenced and, because of quality and reliability of supply factors as well as environmental concerns, will eventually replace wild harvested fruit.

Three cultivars of wholly or partly Australian native citrus parentage have been developed by the CSIRO at their Merbein research facility and released to commercial growers – the Australian Outback Lime, the Australian Blood Lime and the Australian Sunrise Lime.

To-date around 16,000 trees or almost 30 hectares of these three cultivars have been planted in South Australia, Victoria, New South Wales, Queensland and Western Australia.

Quandong (*Santalum acuminatum*): The quandong tree has a wide native distribution in semi-arid Australia. The tart-tasting fruit can be eaten fresh or, more commonly, halved and dried and then reconstituted and used in a range of sweet and savoury products, such as preserves, sauces and chutneys, as pie filling or in cordials and liqueur. The kernel is also edible.

Limited supplies of quandong fruit are available from wild-harvest and orchard production. Recent estimates of quandong tree numbers in commercial planting in Australia range from a low of around 26,000 trees to a high of around 40-50,000 trees. Most orchards consist of seedling trees (although improved cultivars are available) and are relatively small scale, with around one-third of the total number of trees planted being grown on orchards of less than 500 trees. The largest single planting in Australia (at Tumby Bay in South Australia) is reputed to be around 7,000 trees.

Acacia (principally *Acacia victoriae*): There is a growing food industry demand for wattleseed, particularly for seed from the Elegant Wattle (*Acacia victoriae*), which is roasted and milled to produce a highly palatable and nutritious flour. It is a very versatile ingredient, excellent in a broad range of sweet and savoury applications such as casseroles, curries, breads, dampers, cakes, biscuits, pastries, scones and pancakes, dessert sauces, ice cream and cream. Wild-harvested Elegant Wattle seed from areas such as Alice Springs, Hawker-Port Augusta and Broken Hill has largely supplied the food industry to-date. It is estimated that approximately 10 tonnes of seed was harvested from the wild in the 1997/98 season and sold at a wholesale price of around \$10.00 to \$12.00 per kilogram.

Wild harvest poses some environmental and food safety concerns and the erratic supply and price of wild product have acted as a constraint to market growth. These factors have stimulated interest in commercial cultivation and although the industry is still small and many production questions remain unanswered, expansion is likely.

Other factors may also contribute to the further development of wattle seed production, including the potential for the use of Acacias in soil rehabilitation, dry land salinity mitigation, as a source of fodder, for windbreaks and as a host plant in quandong plantations.

Muntries (*Kunzea pomifera*): In the wild the muntries plant occurs as a prostrate or occasionally semi-upright shrub along the southern coast of Australia, with inland extensions, from Portland in Victoria to the Eyre Peninsula and Kangaroo Island in South Australia. It produces clusters of berries which can be used fresh in desserts and fruit salads, or cooked in pies, chutneys, jams and sweet or savoury sauces.

Most fruit that reaches processors and restaurants (the main markets at present) is harvested from the wild. Some

plantations have been established in the Adelaide Hills and there is potential for further expansion in areas such as Kangaroo Island and the far south east of South Australia. Market demand for consistent supplies, combined with concerns over the environmental impact of wild harvesting in the often fragile coastal dune systems, means that cultivated plantings are increasing in importance. As cultivated supplies increase a fresh market outlet should also develop for higher quality fruit.

Bush Tomato (*Solanum centrale*): The bush tomato is a perennial evergreen shrub that occurs naturally in central Australia (SA, WA & NT). Fruits ripen any time of the year and may be eaten fresh or dried. Unripe fruits contain the toxin “Solanine” and must be fully ripened before consumption. This toxin is the same one present in green potatoes. Upon ripening the fruit changes colour from green to yellow, at which stage the Solanine is fully metabolised.

Prior to use, ripe fruits are usually dried to “chip-dry” in the sun (on or off the bush) and the product is used whole or in a coarse-ground granular form. It has an intense, earthy-tomato flavour of great piquancy and pungency. It is added sparingly as a condiment to spice up sauces, marinades, chutneys, soups, stews, casseroles and salads.

Commercial production, which in several cases incorporates mechanical harvesting that utilises converted conventional cereal headers, has commenced in South Australia.

Mountain Pepper (*Tasmannia lanceolata*): A shrub or small tree, native to moist temperate forest areas in Tasmania, Victoria, Southern NSW and the ACT. The plant’s fruit and foliage contain a hot chilli/pepper-like factor (polygodial), with a unique aroma and flavour. The peppercorn-like fruits, produced only on female plants, may be dried, ground or preserved in brine and leaves of both male or female plants are dried and milled and used to flavour sauces, chutneys, meats,

cheeses, pate, breads, dampers, pastas etc. Extracts from the plant are added to chewing gum in Japan and are being examined for their anti-microbial activities.

Virtually all Mountain Pepper leaves and berries currently used are harvested from the wild from forestry concessions in Tasmania, though there is potential for cultivated production and some trial plantings have been established in the Adelaide Hills. Other cooler areas in South Australia may also have potential.

Lemon Myrtle (*Backhausia citriodora*): Occurs naturally in sub-tropical and tropical rainforest areas of Qld, but, under irrigation, may have potential in South Australia. The strongly lemon flavoured leaves are becoming highly sought after by the restaurant and food processing industries. Fresh leaves, dried leaves, and essential oil are used to flavour seafoods, salads, savoury sauces, hot and cold beverages, desserts, dairy products and chocolates. Sizable plantations of this species have been established on the east coast.

Lemon Aspen (*Acronychia acidula*): Trees occur naturally in highland rainforests from central to north Queensland, which are the source of current primarily wild-harvested supply. The fruit has a spicy citrus aroma and a strong, acidic lemon flavour. It is used by restaurants and food processors in savoury products, such as sauces, chutneys and salad dressings, and in sweet products such as pie and tart fillings, ice-creams and confectionary. Despite its rainforest origin, Lemon Aspen adapts to warm dry climates if supplied with irrigation and protected from frost when young.

Riberry (*Syzygium luehmanii*): Occurs naturally in sub-tropical and tropical Qld and NSW and used as a street tree in Melbourne, Sydney and Brisbane. Fruit is strongly flavoured, tasting of cloves and spice. Used in jams, relishes, glazes, sorbets, ice cream etc. Increasing demand for restaurant and food processing uses. Although a sub-tropical to tropical

species, it may be cultivated in temperate climates if irrigated and protected from severe frosts when young.

In addition to the above core group of crops, several others may also have some potential in South Australia or on the east coast and may appear on some individuals' 'best bet' lists -

Native Raspberries (particularly *Rubus muelleri*): A true native raspberry, which, although having attractive flavour and appearance, is currently under exploited. While their similarity to Northern Hemisphere raspberries minimises a potential point-of-difference, their lower chilling requirement means that production could occur in areas that are too warm for traditional raspberries. Like all raspberries, harvesting and handling poses difficulties.

Illawarra Plum (*Podocarpus elatus*) and **Davidson Plum** (*Davidsonia pruriens*): Of some commercial interest, particularly on the east coast, where limited plantings have occurred. Both trees produce fruit that have applications in sweet and savoury processed products.

Kakadu Plum (*Terminalia ferdinandiana*): Tree native to northern Australia, that produces fruit with taste described as 'subtle'. No commercial plantings known.

Native Currant (*Acrotriche depressa*): Native to South Australia. Although produces exceptional flavoured fruit that is used in some processed products, propagation, harvesting and handling difficulties currently limit its commercial cultivation potential.

Warrigal Greens (*Tetragonia tetragonioides*): An English Spinach-like vegetable that is produced in limited quantities, particularly on the east coast for the restaurant trade.

While there may be plants with commercial potential outside these 'best bet' groups, repetitive examination of potential

native crop species is likely to result in a dilution of research, production and marketing effort and resources; market confusion and production stagnation.⁹

⁹ Anthony Hele, Industry Development Consultant – native foods, May 2001

3.3 Detailed list of native food species

There are several authoritative books which have documented the native food information including *A Companion Guide to Bush Food* by Jennifer Isaacs, *Wild Food Plants of Australia* and *Bush Tucker: Australian's Wild Food Harvest* by Tim Low and *Wild Medicine in Australia* by Cribb and Cribb. These books have been used to develop a table, which includes a detailed list of native species and their potential. The list is far from exhaustive and is included in the Appendix.

As part of the evaluation process, we asked Dr Maarten Ryder, Steve Ross and Yvonne Latham to identify the species that they believe have some potential for commercialisation, and make comment.

The following species have been identified as having the greatest potential for either food or therapeutic purposes.

- Midyim
- Coast Beard Heath
- Bush Raisin
- Davidson's Plum
- Green Plum
- Lady Apple
- Quandong
- Muntries
- Burdekin Plum
- Desert Lime
- Lemon Aspen
- Riberry
- Bunya Pine
- Sandlewood
- Macadamia Nut
- Candlenut
- Elegant Wattle
- Native Mint
- Sacred Lotus

- New Zealand Spinach
- Old Man Saltbush
- Waterlilly
- Wiry Wattle
- Witchetty Bush
- Sea Celery
- Native Rosella
- Lemon-scented Tee-tree
- Burdekin Plum
- Grass Tree
- Desert Kurrajong
- Black Kurrajong
- Lilly Pilly
- Pepper Tree
- Mountain Pepper
- Lemon Myrtle
- Peanut Tree
- Brown Pine
- Eucalyptus Gunnii
- Eucalyptus
- Australian Bungle
- Red Ash
- White Ash
- Yakooro
- Silky-heads
- Cooktown Ironwood
- Gum Tree
- Toothache Tree
- River Mint
- Sacred Basil
- Native Pepper
- An Emu-Bush
- Charleville Turkey Bush
- Berrigan, Native Plum-tree
- Meemei, Weeping Pittosporum
- Native Coleus, Cockspur Flower
- Toothed Ragweed
- Stinging Nettle

- Nipan, Split Jack

Section

4

Production / collection

4.1 Overview

The native food industry has its origins in the harvesting of wild grown native species. Native species occurring naturally in the wild allows for the harvesting of crops with little or no investment in production. Bush harvesting, as it is known, allowed for the native food industry to develop with the minimal of investment. The downside to bush harvesting is that the quality, quantity and consistency are not controlled.

A parliamentary report developed for the Victorian government¹⁰ identified four phases in the development of the collection process. They are:

1. Wild harvest;
2. Ranching and/or transitional. (Being the transitional stage between wild harvesting and basic cultivation, where the planted crop is not yielding full crops so wild harvesting is still needed as a supplement.);
3. Basic cultivation or farming (including selective breeding); and
4. 'high tech' and/or genetic engineering-based production, "polyculture".¹¹

With commercial production the entire growing and collection stage is controlled.

¹⁰ Utilising Victoria's Native Flora and Fauna

¹¹ www.parliament.vic.gov.au/enrc

For the purpose of this report we have focussed on bush harvesting and commercial growing. Commercial growing involves both basic cultivation and high-tech, genetic engineering-based production.

4.2 Bush harvesting

Until now the vast majority of the raw material comes from bush harvest, although in recent years a number of individuals have established commercial growing operations.

With bush harvesting the yield, size and quality are totally determined by nature.

There is a degree of expertise in bush harvesting including knowing which species to pick, where to find them, when they are suitable for harvesting, etc. Also the quality and performance varies depending on the terrain, the product, the type of plants in the area and so on. The Indigenous community have immense knowledge in this area.

The collection of native foods from the wild is restricted as many of the species are protected. The National Parks and Wildlife South Australia issues permits to people who wish to collect native plant material, including seeds and fruits. The issuing of permits started in 1995 and last year 224 were issued.

Bush collectors need two permits before they can harvest native plants from the wild; a National Parks permit as well as a permit from local council. The state government issues the National Parks permit and have control of the plants within the park. The second permit is issued by the local council, who own the land. National Park permits specify exactly what can be collected and where. Permits are free. Many people don't realise that they need permits to collect plants.

Many people still collect without a permit but this is illegal and punishable by a fine. The fine typically ranges from \$1,000 to as much as \$10,000 for an endangered species.

Each application is assessed on its own merits covering factors such as the species to be collected and their levels of experience. Almost all applicants are successful. The permit specifies exactly what people can collect, where from, etc. The quantity limits applied depend largely on the species being collected.

There has been a tightening up in the last year or so. People have to list exactly what and where they are going to wild harvest. They also have to lodge returns at the end of each year, providing specific information about what they actually took, etc. Those who fail to lodge a return will not be granted a permit the following year.

The collecting of native plants occurs at two levels – commercial and non-commercial. Commercial groups typically harvest bush food for consumption, whereas non-commercial involves land care, revegetation, community groups, personal usage, etc. So far commercial groups who want to harvest native plants for pharmaceutical or similar purposes have made no applications. Of all permits issued, a much larger percentage are to those with non-commercial interests.¹²

Much of the wild harvesting activity is being conducted by Indigenous communities. Details of this activity are presented in Section 9.

¹² Information gathered through a telephone interview with the senior wildlife officer Fiona Fuhlbohn from the National Parks and Wildlife SA.

4.3 Commercial growing

The production of commercially grown native food has increased steadily over the last five years. The increased interest in commercial growing is due to number of factors, including an increase in demand for consistent quality produce, better technology and a greater understanding of the native species, but the production volumes are still relatively small.

The negative aspects of bush harvesting, particularly the inability to control the quality and supply of produce, as well as the food safety issue, have also been a key driver in the development of commercially grown crops.

A number of companies such as Australian Native Produce Industries (ANPI) supply plants for propagation for sale to commercial growers.

Improvements in propagation and hydroponic techniques are making the cultivation of many more species possible.¹³ For example, hydroponic trials at the University of Sydney are helping to turn two native plants, warrigals greens and bush tomatoes, into fast growing, reliable and consumer friendly farm crops.¹⁴ This breakthrough technique will help commercial growers produce crops of sufficient quality and quantity to make them a viable product option for major supermarket chains.

Commercial quality native limes are now harvested from orchards, reducing the need to collect them from the wild and minimising the impact on natural supplies.¹⁵ More

¹³ 'Contemporary use and commercial prospects of indigenous foods,' Geocities website, May 2001.

¹⁴ 'Bush tucker headed for the supermarket,' UTS, May 1999.

¹⁵ 'Native citrus hits the limelight,' CSIRO media release, January 2001.

importantly commercial production has the potential to generate commercially viable processing volumes and reduce variability in supply.

A joint venture by the CSIRO and ANPI is currently underway to assess how to increase production and sustainability of Australia's native plants.¹⁶

Cultivation of native foods provides the opportunity to diversify food production systems and benefits the environment because they are not prone to pests and diseases and are drought resistant.¹⁷ Current research confirms that a concentration of native crops and animals reduces the damage to our soil and water resources.¹⁸

There is much interest in using natural ecosystems based on a mixed species inter-cropping model, aimed particularly at avoiding the need for synthetic chemicals. This model mimics natural ecosystems and has many benefits, including greater land utilisation, increased productivity, reduced disease/pest risk and lower maintenance.¹⁹ However, it is highly probable that this model will produce lower yields.

Many growers are considering using modern agriculture techniques such as fertilisers, chemicals, irrigation and mechanical harvesting to produce higher yields. Whilst they take away the organic stature of the foods this will be offset by the expectation of substantially improving yields and production levels.

¹⁶ 'Bush tucker heads for global menu ,' CSIRO media release, May 2000.

¹⁷ Australian wild herbs and the bushfood Industry," The Australian New Crops Newsletter, Issue No. 4, Jan 1995.

¹⁸ Bush tucker to lift farm profits – a CSIRO vision for the future,' Media release, Sept 1995.

¹⁹ 'Production of bush foods,' Greenwork website, May 2001.

South Australia is the dominant player in native species because of the vast areas of semi-arid land that suits the most popular species. The higher rainfall and irrigation areas are suited to products such as native citrus.

Northern NSW has considerable potential for commercial native food production due to the wide range of species able to be cultivated and optimal climatic conditions of the region. Generally, ex-rainforest areas with high rainfall, low incidence of frost and protection from wind form the best areas for native food production.

There are a lot of potential crops from Central Australia, but according to CSIRO scientist, Jock Morse, plantations need to be established close to the Indigenous communities where they can be better managed.²⁰

The larger native food producers tend to base their inventories on a few well recognised native fruits and seeds which have a history of safe use as Indigenous foods, or which have aromatic or spicy leaves, while ignoring important Indigenous foods from other parts of plants.

Most of the plants that are successfully produced are covered by plant variety rights and are licensed. The industry is very young and it is virtually impossible to quantify production costs. Prices can reach as high as \$50-\$60 per kilogram for in demand items, or \$7-\$12 per kilogram for wattle seed.²¹

It often takes a few years for a crop to yield profitable crops. This can be outlined using an example from a RIRDC report²². Muntries plants cost \$1.50 per plant and 2000 can be planted per hectare. It takes four years for the

²⁰ Jock Morse – CSIRO scientist, 'Bush Tucker Dreaming', CSIRO feature article, May 2001.

²¹ 'Native food,' NRE website, 2001.

²² RIRDC research report No.97/22

plants to yield at full potential; 1.5 kg per plant. The farm gate price for muntries is \$12 per kilogram. Over a five-year period muntries can generate revenue of \$180,000 per hectare at a cost of \$48,270.

Gil Freeman is commercially growing about five or six key plants in the South Gippsland area of Victoria. This list has evolved over the past twelve years through trial and error, research and consultation. He mainly supplies processors such as Robins Foods and found that producing profitable crops is a long and slow process.

Steve Hanish, a muntries grower in South Australia, has been growing for about five years and has devised a way to grow off the ground which is a cleaner and easier. He currently cannot keep up with demand and has supplied ANPI with five tonnes over the past two years.

The Southern Vale Bushfood Inc., located in the McLaren Vale region in South Australia, comprises a group of commercial growers. There are approximately 30 growers in the association, which exchanges information and support. The growers work on an individual basis choosing their own crops and selling to their respective buyers. The group had initial problems with information on which crops suit the climatic conditions of the area and there was a long phase of trial and error. The group conducts research into the best cultivation methods and shares this information amongst its members. These growers have been commercially growing crops for several years and appear to be among the first growers and they have a lot of expertise.

There are several other growers that are experimenting with native species and are having early successes. In terms of the growers, there is a level of uncertainty as to which are the best methods for growing and which crops are the most marketable. They all mention the need for more research into the area. At this stage of the industry development, production

is based on trial and error and disappointments are common place.

These growers are but a few that make up the industry, and it is difficult to compile an exhaustive list of individuals and organisations involved in production/harvesting of native foods.

According to the RIRDC report there are an estimated 500 people involved full-time and another 500 part-time.

The industry operates within a variety of commercial structures including single purpose enterprises, networks, vertically integrated operations and wholesale/merchandising enterprises. Some companies vertically grow, manufacture and sell their own produce.

To the best of our knowledge there are only a handful of solely native food growing operations that are commercially viable. Most of the production is taking place on hobby farms or as a sideline to some other commercial growing operation, eg. Native Citrus. There are a number of reasons for this. Like any other crop there is a five to seven year period before commercial quantities are harvested. Yields are low and variable. Growers are frustrated that some trees flourish and others are poor.

Another reason for low returns is that because of low volumes the cost of getting product to market is high relative to return. A big factor is that, virtually all native foods are currently hand picked which incurs a high labour cost. One grower, Simarloo is currently experimenting with mechanical harvesting of bush tomatoes, which will greatly reduce production costs if it succeeds.

4.4 Area and industry groups

There are a number of area and industry groups that are a collective of growers, which primarily exist as support groups for the exchange of information and support in other areas.

The following provides some details of the groups we know of:

Native Food

<p>Australian Native Food Management (ANFM) PO Box 125, Airlie Beach, Qld 4802, Australia Telephone: 07 4947 3369 Facsimile: 07 4947 3030 Email: whitsunday@anfm.com.au Website: www.anfm.com.au</p>	<p>Australia's leading resource development, processing and product formulation operation in Australia. Manages plantations with more than 1 million Australian native trees and plans to develop a further five million trees by 2003. ANFM undertakes extensive research into plant chemistry, toxicology, and holds provisional patent specifications related to industrial and nutraceutical products. The ANFM food division carries out flavour development of Australian native flora and markets products under the brand names of 'Bushfoods of Australia' and 'Native Tastes'.</p>
<p>The Queensland Bushfood Association Phone: 07 5494 3812 John King: 07 3284 2202 Email: bushfood@hotmail.net.au</p>	<p>Formed in August 1999 with several objectives including updates on research progress, increasing awareness of opportunities in commercial native food production and providing objective information on choice of species for planting and marketing.</p>

Growers

<p>Southern Bushfood Association (SBA) David Thompson RMB 7390A Wartook Victoria 3401 Phone/fax: 03 5383 6247 Email: dinkumfare@hotmail.com</p>	<p>A non-profit, incorporated body established to serve all sectors of the industry in southern Australia and participate in policy development at a national level. Based in Victoria and represent a wide range of growers in NSW, Victoria, Tasmania and SA.</p>
<p>Southern Vales Bushfood Growers Group Michael Brandwood PO Box 344 Clarendon SA 5157 Tel 08 8383 6481</p>	<p>Represent SA growers. Have about 35 members with general interest in native food, 3 actually supply produce. Have been around for approx. 5 years. Started as a self-help group, to share problems, etc. When a restaurant, etc has an order they ring up the group. The order is then given to the appropriate group member/s. Mainly supply to restaurants, especially Red Ochre, and local value adders who make sauces, etc. Trying to encourage growers and discourage wild harvesting. Hard to build up markets with small quantities and inconsistent supplies. Currently producing small quantities but hope to increase production. Main issues are selecting and growing viable species. It is very experimental at this stage and there is a lot to learn. Demand fluctuates but there is shortage of supply for many species, eg wattleseed, muntries.</p>
<p>Mudgee Native Food Growers Group Inc. PO Box 28, Mt Victoria, NSW 2786 Telephone: 02 6355 2414 Email: louise@lisp.com.au</p>	<p>A recently formed rural group that have raised their own funding and are planning to trial quantities of native food plants in 5 different regions west of the Hunter district in NSW.</p>

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<p>Arid Land Growers Association (AGA) Graham Herde, Nectar Brooks Station via Port Augusta South Australia 5700 Ph: 08 8634 7077 Danny Matthews: 08 8642 2525</p>	<p>An association of growers in South Australia involved in issues relating to arid and semi-arid regions.</p>
<p>Department of Conservation and Land Management (CALM) WA Ph (08) 9334 0333 info@calm.wa.gov.au Head Office: Hackett Drive CRAWLEY 6009 Tel: (08) 9442 0300 Fax: (08) 9386 1578</p>	<p>Currently involved in the commercialisation of native resources in WA and the publication of a series of 'Bush Books'.</p>
<p>Northern Rivers Regional Cuisine Network 02 9338 6722 02 6642 6511</p>	<p>Represent growers on the NSW north coast.</p>

Indigenous Groups/Involvement

<p>ATSIC Head Office PO Box 17 WODEN ACT 2606 Canberra. Tel 02 6121 4000</p>	<p>A possible source for database information on education and training. This includes Indigenous involvement, particularly in many parts of rural Australia, and projects related to native foods.</p>
<p>Bureau of Resource Sciences Canberra ACT Helen Desmond Tel 02 6272 5273</p>	<p>Currently compiling a report on Indigenous involvement in the native foods industry funded by ATSIC.</p>
<p>Centre for Aboriginal Studies Canberra ACT (08) 9266 7091.</p>	<p>Involved in publications such as 'Tables of Composition of Australian Aboriginal Foods.'</p>
<p>Central Lands Council (CLC) Jock Morse PO Box 3321 Alice Springs NT 0871 or 75 Hartley Street Alice Springs NT 0870 Tel 08 8952 9413 Fax 08 8952 9429 Email: jmorse@clc.org.au</p>	<p>Collating information on potential of commercial production of plants used by Central Australian Aboriginals.</p>

Quandongs

<p>Australian Quandong Industry Association (AQIA) Robin Schaefer PO Box 236 Upper Sturt SA 5156 Telephone/facsimile: 08 8634 7077</p>	<p>Formed in 1983 with the aim of being recognised as the governing body that unites and assists quandong growers with research and development, quality assurance, marketing, other growers and customers. The value of primary sourced Quandong product in 1999 was \$1,365,000. AQIA members believe that quandong production will grow into a multi-million dollar industry over the next 2-3 decades.</p>
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Research

<p>Australian Food Plants Study Group (S.G.A.P.) Lenore Lindsay 323 Philip Avenue Frenchville Qld 4701</p>	<p>Have a series of publications going back to 1983 on the uses of native plants and people who have been researching various species and their potential throughout the country.</p>
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Regional Development Boards

<p>Murray lands Regional Development Board Mr David Altmann CEO PO Box 134 MURRAY BRIDGE SA 5253 19 Seventh Street MURRAY BRIDGE SA 5253 Phone 8532 1202 Fax: 8532 1768 Email: mrdbi@lm.net.au www.murraylands.org.au</p>	<p>The board assists farmers in the area with alternate agriculture sustainability. They are finding it difficult to convince farmers due to the lack of guaranteed demand for the produce and the lack of research and information.</p>
<p>Fleurieu Regional Development Board Ms Karen Kaak CEO 1 Colman Terrace STRATHALBYN SA 5255 Phone: 8536 4848 Fax: 8536 4855 Email: info@frd.org.au Website: www.frd.org.au</p>	<p>Assist farmers in the area with horticulture and agriculture. Olives is the main crop. Very little native food activity is happening in the area, but they will work on developing the industry if there is significant interest and scales of economy.</p>
<p>Kangaroo Island Development Board 2 Kingscote Terrace (PO Box 471) KINGSCOTE South Australia 5223 Tel: 08 8553 3211 Fax: 08 8553 3158 Email: kidb@kin.on.net www.kangarooisland.org</p>	<p>Currently working with the CSIRO and ANPI on a research trial with nine native species. The island is in the early stages of development, but it is ideally suited to the native food industry due to climate, etc.</p>

Section

5

South Australian Activities

5.1 South Australian Activities

There are a number of native food organizations operating within South Australia at present. The following section briefly outlines the interests of some of the key organizations. Larger organizations such as ANPI and Cherikoff have interests within South Australia, but they have been discussed in detail in other sections. It is recognised that the list is far from exhaustive

Cottage Box Chocolates

Cottage Box Chocolates of Hahndorf is primarily a retail store. They manufacture three native food products – chocolate coated quandongs, chocolate-coated native currants and native honey. Cottage Box Chocolates manufactures quandong product for Shoalmarra and the other products are manufactured for Emu Ridge in Kangaroo Island.

Shoalmarra

Shoalmarra of Tumby Bay grow, manufacture and wholesale quandong products. Products include jam, chutneys, pies, liquors, dry fruits and ice-cream. The products are mainly sold to Australian operations.

Outback Orchard International

Outback Orchard of Woolloomooloo in Sydney manufacturer and market three alcoholic native food based beverages – Quandong spirits, Lemon Myrtle spirit and Aniseed Myrtle liquor. The products are sold in bottle shops, pubs and clubs within Australia. They are currently developing international markets.

Sweet and Spicy

Sweet and Spicy manufacturer and market approximately 60 products. They use approximately ten varieties of native food species in a range of products including flavoured water, mustard, salad dressing, sauces, marinades, and salsas. The bulk of the sales are in Australian retail stores such as Coles and gourmet food outlets. The company is currently developing the food service and export side of the business. The company exports to the UK, US, Hong Kong, New Zealand and Scandinavia.

Tandanya Café and Walkabout Foods

Tandanya Café is situated in the Aboriginal Cultural Centre in Adelaide. The company's business is equally split between the café and a catering service. They cater for corporate and government functions. The owner of the café, Dion Dorward, also operates a wholesale business called Walkabout Foods. Walkabout Foods buys raw produce from a number of communities throughout Australia to on-sell to several major commercial operations. Due to an increased workload with the café, the wholesale side of the business is decreasing.

Ildoura Wild Fruits

Ildoura Wild Fruits is a Kangaroo Island manufacturer and distributor of gourmet native food products, such as jams, sauces, chutneys and honey.

Quandong Café

Quandong Café is a small café in Adelaide that sells, amongst a range of mainstream products, a range of quandong products, such as pies, muffins and jams. They source the produce locally and manufacture themselves.

Reedy Creek Nursery

Reedy Creek Nursery on the Limestone Coast of SA are involved in projects with SA and Northern Territory communities that grow native food crops. The harvested crops are purchased and processed / value added by Reedy Creek

Nursery for sale to retail customers, including Coles Supermarkets using the Outback Pride brand.

Southern Vales Bushfood Growers Group

Southern Vales Bush Foods is a group of growers based in the McLaren Vale region. The main task of the group is to share information and support its members.

Lacewood

Lacewood manufacture condiments such as sauces and dips from a variety of native food species. The products are sold through retail outlets within Australia. The company is based in the McLaren Vale region and sources raw produce locally.

Narungga Aboriginal Progress Association

The Narungga community at Maitland on the Yorke Peninsula have grown 10,000 bush tomato plants. The plants have produced crops, but the association has faced difficulties in selling the raw produce for a fair price.

Green Farmhouse

Green Farmhouse at Milliant in the Limestone Coast manufacture native food based, premium priced seasonings, mustards, chutney, sauces and jams. They purchase raw produce from around Australia. The products are sold through gourmet retail outlets and tourist centres throughout Australia. Green Farmhouse also export small quantities of seasonings to the UK.

Section

6

Ecologically sustainable development

6.1 Ecologically sustainable development

A major issue that the various levels of governments need to take into account with regards to the development of the industry is environmental sustainability. There is a growing level of sensitivity in Australia about tampering with the bush.

The impact of commercial cultivation of native species on the environment needs to be understood even though bush harvesting is probably less threatening to the environment than commercial production; this too needs to be fully investigated.

Indigenous communities have been bush harvesting in a sustainable form for thousands of years, but now as the industry develops and grows, the capacity of the naturally grown crops must be considered together with potential harm to the environment.

At current production levels there appears to be little real threat to the environment. However, if the industry expanded rapidly there would be a significant threat.

The species with an increasing demand must be grown commercially to overcome the threat of over harvesting and extinction in the wild.

The benefit of native plants is that they can grow in arid and semi-arid areas where other crops cannot grow, they also do

not have negative side effects such as contributing to salinity, etc. In fact, several species are well suited to rehabilitating degraded land.

Species grown in the wild tend not to involve the use of chemicals or irrigation.

From the point of view of ecological sustainability there are three major issues to be considered. First is whether, with a substantially increased level of bush harvesting there is a danger of extinction of some rare species.

Second is the issue of whether with substantially increased levels of bush harvesting there is a risk of land degradation, erosion, etc.

These two issues are judged to be minimal threats in the short-term, but the long-term consequences of substantial growth in production needs to be considered.

A third issue relates to the commercial breeding programs, which is the risk of cross pollination of modified species with native species which if it occurs could affect the purity of the native species.

It is beyond the scope of this report and the consultant's area of expertise to make comment on these issues. This report merely raises ecological sustainability as an issue that needs to be considered.

6.2 The national strategy for Ecologically Sustainable Development

The Federal Government (Department of the Environment and Heritage) is now attempting to address the issue of ecological sustainability and its views are relevant here. It has developed a national strategy to address the issue of Ecologically Sustainable Development (ESD).

The goal of the strategy is:

- Development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.

The core objectives of the strategy are:

- To enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations;
- To provide for equity within and between generations; and
- To protect biological diversity and maintain essential ecological processes and life-support systems.

The strategy was adopted and agreed upon in 1993 by all Australian states. It was designed to be a guiding tool for the utilisation of native flora and fauna.

In the case of native plants, if they can be bush harvested at a capacity that meets demand, that is sustainable and that has no adverse affects on the ecology, it is acceptable. But with an expanding industry, such native foods, this will be difficult, as demand will outstrip sustainable supply.