

## BIO-PROSPECTING - SUMMARY

The current global trends and emphasis towards '**green/natural/renewable**' industries is moving forward at an ever increasing rate, with Australia in an enviable position. However, Australia must be commercially pro-active to ensure the retention of IP and the opportunity to value add its unique flora and fauna.

### **The Need**

In order to capitalise on the bio-diversity of regions within Australia, a series of selected sites should be quarantined to provide a 'natural classroom' for ongoing research, production, education and promotion.

These sites need to be isolated, either through controlled buffer zones or by natural geographic land/sea forms, to ensure ongoing integrity.

The sites should be accessible and or in close proximity to a region that has the necessary infrastructure, skills and capacity to become involved in production, processing and value adding.

### **The Location**

Kangaroo Island has a perfect Mediterranean climate and sufficient infrastructure to support a large project, it is isolated, has finite boundaries, an intact small community and skilled commercial farming and tourism industries.

The Island already excludes certain plant and animal varieties - and is about to exclude more - which offers potential for use as a test/trial centre and an easily managed, and quantifiable, quarantine site.

### **The Vehicle**

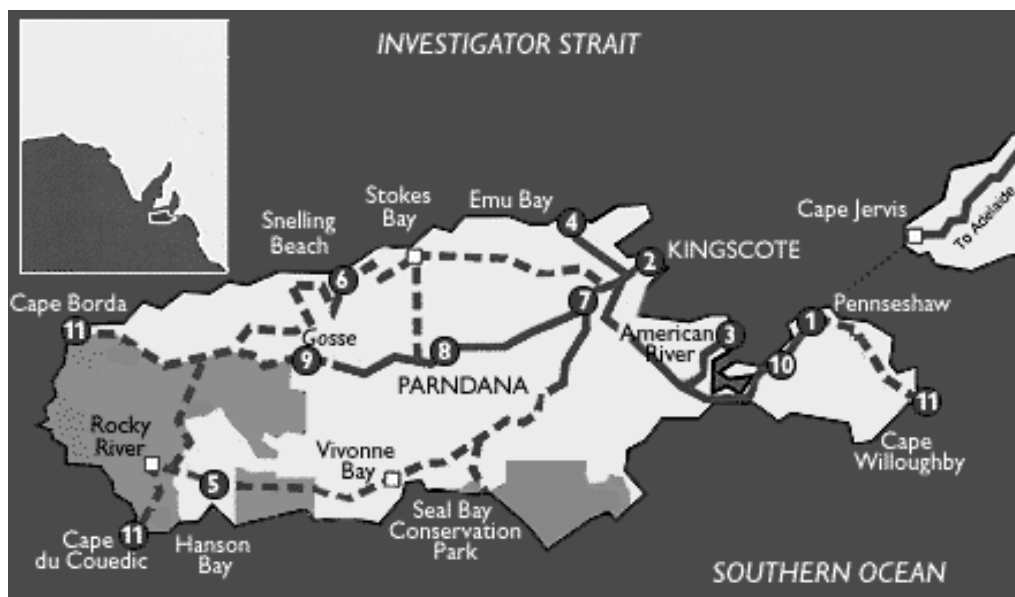
Kangaroo Island Nature-Lab (KINL) is an entity primarily combining an environmental research laboratory, education facilities, participative and demonstration projects in revegetation, sustainable agriculture and resource conservation, supplemented by staff and visitor accommodation facilities.

Commercial production will be based on developing a structure that co-ordinates markets, supports 'contract growers' and encourages local participation, to achieve consistent quality, continuity of supply and value adding.

## WHY KANGAROO ISLAND ?

At 4,500 square kilometres, with 450 kilometres of coastline and just sixteen kilometres off the coastline of South Australia, Kangaroo Island is Australia's third largest island, after Tasmania and Melville Island, and contains some of the world's last unspoilt wildernesses.

Although extensively modified for agriculture, it retains significant natural areas with one third of the Island protected through 21 National Conservation Parks and private Reserves. The absence of foxes and rabbits makes it of great conservation significance.



### **Climate**

Classified as a Mediterranean climate, with four clear seasons, Kangaroo Island is more temperate than the mainland, with cooler summers and warmer winters.

### **Flora and Fauna**

The Island reflects one of the most intact examples of natural Australian wilderness with less introduced flora and fauna than the mainland. The following recent survey provides evidence of its bio-diversity.

## The Field Survey

In November 1989, 341 vegetation quadrats were sampled across the range of habitats on Kangaroo Island. The total number of records contributed to the Biological Survey Database as a result of this survey were: 10 370 plants, 255 amphibians, 967 reptiles, 4 804 birds and 1 463 mammals.

Kangaroo Island supports 1 179 distinct plant taxa, with 10 species being added as a result of this survey. A total of 652 taxa or 55% of the total species now known from the island were recorded during the survey. Of the taxa recorded on the survey, 89 (15.8 %) are alien. Kangaroo Island supports a surprisingly rich and diverse flora for its size. There are currently 45 vascular plant taxa recognised as being endemic to Kangaroo Island. A further 11 taxa are 'almost endemic', having only a minor part of their distribution in an adjoining region.

There are six species of amphibians recorded from the island, all appear to be widespread and common and no endemic island forms are currently recognised.

Of the twenty species of reptiles known from the island, two (the Eastern Bearded Dragon and Common Long-necked Tortoise) have been introduced since European settlement. No endemic island forms are recognised, but populations of the Heath Goanna and the Pygmy Copperhead are significant for the overall conservation of these species.

Two hundred and sixty-seven species of birds have now been recorded from Kangaroo Island and its surrounding waters, while reports of a further seven species await confirmation. This includes sixteen Australian species deliberately introduced to the island, of which four have established feral populations. Five species of domestic game fowl have taken advantage of the fox-free environment to establish free-range, possibly self-sustaining populations. Six exotic species have reached the island apparently unaided. Kangaroo Island's one endemic species, the Kangaroo Island Emu was extirpated soon after European settlement. Six endemic subspecies are currently accepted.

Twenty-five species of non-marine mammals (including bats) are now known to occur on Kangaroo Island. Eight of these are introduced. At least two species thought to be present on the island at the time of European settlement (an unknown Quoll species and the Brush-tailed Phascogale) are almost certainly extinct while several of the introductions appear to have failed. There is one endemic species the Kangaroo Island Dunnart, which is known from a limited number of localities and may be threatened.

## REGIONAL OVERVIEW

Kangaroo Island farmers have always suffered from the extra transportation costs of getting product to the mainland. The declining returns of traditional farming has meant that in the last decade tourism has become the more viable industry on the Island. Many farmers, while desperate for alternatives, are cynical of the 'get rich quick' schemes which have been proposed but have either not delivered on their promise or simply not come about. Many are now insufficiently capitalised to be able to consider alternatives without help.

While the stretch of water separating the Island from the mainland might be deemed to be the Island's greatest threat - it is also its greatest opportunity.

Kangaroo Island has a perfect Mediterranean climate and sufficient infrastructure to support a large project, it is isolated, has finite boundaries, an intact small community and skilled commercial farming and tourism industries. The Island already excludes certain plant and animal varieties - and is about to exclude more - which offers potential for use as a test/trial centre and an easily managed, and quantifiable, quarantine site.

Ligurian Honeybees are a case in point. These were sourced from Italy in 1883 and the colony on Kangaroo Island is the only pure strain honeybee left in the world today. It is protected by Government Legislation, and considered scientifically as an irreplaceable asset. Kangaroo Island's Ligurian honey bee "Queens", are exported world wide.

Kangaroo Island offers a clean, green, isolated and natural temperate growing environment equal to the best in the world, for both land and sea based products. KINL will harness these unique assets to target activities from bio-prospecting native plants and organisms to commercial production of nutraceuticals.

Native and natural foods, seeds, essential oils, fibres and bio-active extracts are increasingly in demand worldwide, and so to are the techniques, systems and know-how to produce commercial quantities. The demand for technologies and cultural practices that allow the viability of commercial production integrated within the natural environment may in the future be of greater value than the produce. At the very least it will add significant value to targeted markets.

## THE VEHICLE

Kangaroo Island Nature-Lab (KINL) is a project demonstrating sustainable practices that enhance the natural environment with the integration of responsible commercial ventures.

The project has been supported by Governments and the private sector alike, and is deemed to be important to the people of Kangaroo Island and also a significant 'future business' project for the state.

The Government support has been towards a feasibility study - from the Federal Government (Invest Australia), State Government, (The Business Centre, Food for the Future, South Australian Tourism).

This project will provide a benchmark for future developments on KI and within the State of SA, and be a catalyst for KI to change its commercial image, by building a high value business around its natural assets.

This project will demonstrate practical and viable culture change for farmers, scientists, processors, manufacturers and marketers by integrating commercial production/practices which are in harmony with the environment.

KINL has already begun implementing initiatives in this area, holding many meetings both on and off the island, and involving KI farmers and PIRSA representatives in outcomes. The key integrated components of KINL are: -

### 1. On Site

- Field Station / Laboratory facility associated with universities, government and commercial research / education entities, to provide production support, direction, training (producers) and education in 'eco-tourism',

### 2. Off Site

- Processing / value adding site(s) with a marketing and sales focus for technology and products,
- Network of co-operating 'producers' (across the island) providing critical mass for the commercialisation and market penetration of many products,
- Promotion of Quality Assurance schemes supporting branding and plant protection / exclusion zones with State, National and International recognition.

These components will become integral to assisting the commercial achievement of objectives and outcomes required by the Development Plan, KI Council and bodies such as KIDB, PIKI.

Kangaroo Island can (through KINL) position itself to become a focal point for the planned development of natural /native food, plants and products for the future, with an identified Kangaroo Island branding that will double as an tourism attractor.

Accommodation is necessary for research staff, students and visiting National and International environmental or agricultural experts, but will also offer high-spending tourists worldwide the opportunity to participate in 'earth-watch' type research programs.

The tourism potential of Kangaroo Island is already understood and appreciated as South Australia's greatest attractor - but the Island has suffered for too long with an absence of quality built product to complement its natural attractions.

It is an expensive destination to access but has huge recognition and acceptability internationally. The fast growing eco-traveller as well as the incentive and education industry will be key targets.

This project will provide 4 overwhelming benefits to the island that are identified as consistent with the Development Plan requirements: -

- The first involves providing a showcase and focal point for integrating new products and industries of biotechnology, natural energy and sustainable production into a traditional primary production situation, and commercialising these technologies without compromising the natural environment.
- The second is the targeting of the national and international 'eco' travelers keen to participate in ongoing research projects, as well as experts associated with new technology, education and sustainable production techniques,
- The third is creating a model for application nationally and internationally, to demonstrate the capacity and pragmatism of regional (Australian) communities, that can identify and commercialise their **'unique regional value'**.
- And the fourth is the off site establishment of offices, storage and processing requirements in locations such as Parndana or Kingscote. Associated activities and new business would include collection, processing, packaging and distribution of products.