

For info	YES
Decision	

ITEM 8: Research Strategy

1. PURPOSE

To review the contents of the Research Strategy.

2. ISSUES

The following briefing papers contain the first version of the research statements for each of the areas:

1. Bandicoots - **David Nicholls**
2. Energy/Greenhouse (including Net Balance)– **Peter/Woodgate Ian Stevenson**
3. Database of reference material – **Simon Jones:** including reference reports, existing research activities and relevant geospatial datasets (at least to metadata level).
4. Basic inventory of biodiversity – **Jeff Yugovic:** to include flora and fauna by conservation status, by local government area with a focus for conservation management.
5. Modelling scenarios for key species – **Graham Hemson:** including consideration of global climate change and human induced land use.
6. Indicators – **Peter Woodgate/Ian Stevenson:** designed to develop a core suite of holistic indicators that will measure progress towards environmentally sustainable development.
7. Accreditation – **Peter Woodgate**
8. Shapiro Study Revisited – **Peter Woodgate/Jack Krohn**
9. Social Research – **Sharron Pfueller**

The Research Committee should also consider the process of consultation with stakeholders that should be undertaken.

The Research Committee should note that at its meeting on 31 January 2008, the Foundation Board has approved this strategy with the inclusion of the accreditation issue.

3. RECOMMENDATIONS

Research Committee consider the process by which the Research Strategy is developed.

Prepared by: Peter Woodgate, Convenor

6 March 2008

RESEARCH STRATEGY SUMMARIES

Basic inventory of biodiversity – Jeff Yugovic

The biosphere reserve should have an inventory of its biodiversity (flora, fauna, vegetation) as a basis for planning and management. Lists of flora and fauna can be compiled from the state databases (Atlas of Victorian Wildlife, Flora Information System). Each species can be assigned a conservation status rating of endangered, vulnerable, rare etc using the state criteria but applied to the geographic context of the biosphere reserve (not Victoria as a whole). An expert panel can undertake the analysis which may take two to five days. Data would need to be assembled for the panel's consideration and this may take five to ten person days.

This comprehensive assessment of conservation status can be repeated every 5 or 10 years rather than every year, but individual species may have their status changed at other times. In order to make the inventory more institutional I would suggest that the inventory be reviewed in 2010, 2015, 2020 etc. The first inventory may be conducted in 2007 or preparation for the 2010 inventory may be carried out in advance. Let's not leave it until 2010.

Bandicoots – David Nicholls

The conservation of the Southern Brown Bandicoot

The southern brown bandicoot is a 1 kg-sized marsupial mammal and was once common in heathy woodlands. It occurred widely in Victoria and was common (till the 1970s) in a continuous swath from southern Clayton to Frankston and Cranbourne and beyond. Today, it is a nationally listed threatened species with only one population in the Biosphere in a secure reserve. Today from Seaford - Frankston to Cranbourne - Langwarrin, and parts of Koo Wee Rup, Cardinia and Bass Coast, where it was abundant, there are isolated remnants of habitat with none or just a few surviving bandicoots.

The Biosphere Research Committee selected the Southern Brown Bandicoot, to start the actions that would improve sustainable living in the Biosphere. This single species, the Bandicoot, is seen as an aid to focus the Biosphere community on biodiversity. A pilot program modelled on the Wildlife Conservation Society Living Landscape Program was initiated with the Chisholm Institute and Frankston Roundtable; a project that aims to extend the benefits of single flagship species to a suite of complementary landscape species to achieve conservation of the biodiversity.

A Recovery Team was established for the Southern Brown Bandicoot. The Research Committee made two applications to National Heritage Trust *envirofund* and to

Threatened Species Network programs. In preparation of these applications, the Recovery Team was surprised and encouraged by the strength of the substantial support the community, business and government agencies. There is a draft recovery plan for the Biosphere which localises the National Recovery Plan (draft) and many community resources have been identified.

Broadly, the Biosphere SBB Recovery Plan calls for three major field of activity:

- immediate on-ground actions needed to protect the extant biodiversity;
- inventory, survey, baseline and research studies to provide a scientific input for management; and
- establishing and, where appropriate, changing community attitudes with a systematic environmental education program.

Rebuilding the native vegetation particularly in the Koo Wee Rup is a major project of the Cardinia Environment Coalition, a partner to our conservation effort.

It is recognised that adaptive management will be a major part of the conservation management. There are a number of reserves that differ in their management, and this gives an opportunity to test various methods to ensure survival of the SBB.

The Biosphere is developing a Public Meeting for all interested parties on 14 November 2006 to consider how we can implement a conservation program. This a major initiative and is seen as a solution to the very difficult but not impossible challenge of conserving very fragmented populations with multiple threats on land that is owned or managed by many private land holders and multiple land management agencies.

Reports and Papers.

MP&WP Biosphere. 2005. Application to NCC National Heritage Trust.

Angela Clarkson 2004. GIS Study of Bandicoot habitat in the Cranbourne area. Report, Chisholm Institute, Student Project.

Ingrid S 2005. Hons Thesis Monash University. Home ranges of Southern Brown Bandicoots in the Royal Botanic Garden, Cranbourne.

Terry Coates. 2004. A review of the distribution and abundance status of the Southern Brown Bandicoot.

Conservation and Land Management, Chisholm Institute. 2004. Recovery Plan for the Southern Brown Bandicoot. Report of CLM Chisholm Institute, Dandenong.

DG Nicholls Distribution of the Southern Brown Bandicoot in the MP&WP Biosphere Reserve. Map Poster

A Evers. 2005. The Living Landscape Program – a trial study of a wildlife management program. Chisholm Institute, Student Project.

CLM, Chisholm Institute. 2005. GIS Project of the Southern Brown Bandicoot.

CLM, Chisholm Institute. 2006. GIS Projects of the Southern Brown Bandicoot – a set of maps illustrating aspects of the bandicoot distribution. (In prep.)

Darren Southwell. Phy D Thesis Melbourne University.

Biosphere 2006a. Application to *envirofund* Round 7.

Biosphere 2006b. WWF-Threatened Species Network community Grant application

A concept for research in the Mornington-Westernport Biosphere - Dr Graham Hemson, Earthwatch Institute

Climate is a key determinant of ecosystem and species distribution and attributes. In a fragmented landscape where movement of wildlife is limited the impacts of climate change may be profound. Globally, average temperatures have already risen by approximately 0.6 °C over mid-term averages and are continuing to increase. It is widely accepted that over the remainder of this century we will experience an increase in average temperatures between 1.4 – 5.8 °C and significant changes in rainfall patterns. However conservation planning generally does not account for these potentially significant changes and how they may influence species and ecosystem distribution and abundance.

If the Biosphere Research Committee is going to support proposals to create an inventory of the major ecosystems and significant species in the biosphere then it may be appropriate to utilise this dataset to establish climatic correlates of biodiversity distribution. Once the climatic correlates are understood it may then be possible to begin to model the distributions of key ecosystems and species into the future. These models may be useful in evaluating whether current management actions are sufficient going forward.

The goal of the project is to provide management authorities, NGOs and community groups with predictions of biodiversity distributions based upon the best available data. This information can form the basis of a holistic forward thinking planning process which accommodates the future as well as present.

The outputs of this project would be:-

- Climatic envelopes for key species and/or ecological communities.
- Predictions of distributions of these species and communities based upon climate models.

The projects success is based on the assumption that adequate climate change data for the area will become available.

Energy and Greenhouse – Peter Woodgate and Ian Stevenson

The consumption of fossil fuels for the generation of energy produces the most serious source of greenhouse gases. The biosphere would like to change the behaviour of people to encourage them to use sources of energy that are sustainable and that serves to mitigate

the greenhouse effect. We therefore propose doing an 'energy balance' of all energy usage in the biosphere and to then identify aspects of usage that could be changed to address the greenhouse problem. For example what proportion of household energy consumption comes from coal fired power stations and from renewable sources? What then can the Biosphere do to encourage, for example, more households to move to locally generated solar power. What working examples can we find that demonstrate the benefits of doing so?

There are numerous ways in which energy can be conserved in our daily activities. The Biosphere wishes to work with groups active in energy conservation.

Moreover, greenhouse gases can be sequestered (taken out the atmosphere) by tree planting. What can the biosphere do to encourage tree planting? Can we play a part in carbon credit trading if and when it is sanctioned in Australia?

Indicators – Peter Woodgate

The Biosphere will develop a small number of indicators that it can measure and monitor on a regular basis to determine success of its activities in achieving the objectives set out in our Charter. These indicators should be simple, relatively cheap to measure, be as representative as possible of our entire activities and convey to our stakeholders a sense of our contribution to society.

The Research Committee will work with the Foundation Board and the Roundtable to develop these indicators. The Biosphere has applied for funding from the Victorian governments Sustainability Fund to help with this project.

Accreditation – Peter Woodgate

The Biosphere is keen to explore the benefits of an accreditation scheme and have asked the Research Committee to address this issue.

Revisiting the Shapiro Study – Peter Woodgate/Jack Krohn

The Shapiro study of the 1970's undertook a comprehensive analysis of the health of Westernport. There is great merit in revisiting this study with another comprehensive study of Westernport's marine and terrestrial environment. A second study would establish an enormously informative baseline of data over 30 years that will be invaluable for future planning.

Social Research – Sharron Pfueller

The Biosphere has a strong role to play in strengthening the processes of consultation and collaboration amongst the community, industry and government interests. This project proposes to undertake research that would seek ways to improve the mechanisms for consultation on the key issues that face the biosphere