

Cultural Pre-Adaptation to Climate Change

NCCARF

Brisbane 2009

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Cultural Pre-adaptation to Climate Change in a Resilient Region

Abstract

The Cape to Cape region in SW WA is a cultural, biodiversity and climate change hotspot that offers a potentially informative case study in the concept of cultural pre-adaptation to climate change. Despite the twin pressures of development and climate change, the region remains relatively resilient to internal and external shocks. It is also better positioned than most areas in Australia to make necessary transitions in the face of a warming and changing climate. This presentation will discuss the reasons why the Cape to Cape Bioregion can be seen as an exemplar of a resilient region where personal values, eco-entrepreneurial activity and community-driven conservation have delivered a diverse cultural and natural landscape, but one still reflective and respectful of regional distinctiveness. Human values sensitive to such diversity have perhaps unintentionally created a situation where some eco-entrepreneurial activities will be favoured under future change regimes while others will not. Activities favoured by the change process then become the basis of an ongoing resilient economy. In areas where monocultures of the mind and economy prevail, incapacity to deal with negative change will have devastating social and economic consequences. In addition to unintentional pre-adaptive capacity, some individuals within the region are anticipating change and are actively planning in ways they hope will prove advantageous in the face of perturbations. Individuals are intentionally experimenting with new approaches to emergent problems and this creativity, combined with sharing of results with multiple common interest groups, is increasing the resilience of the social-ecological system taken as a whole. The foundations of cultural pre-adaptation; unity- in-diversity, resilience, protection of ecosystem services and health and respect for endemism (regionality) have important relevance for other regions and the nation as a whole in the face of relentless climate change pressures.

Darwin on Pre-adaption

- A Darwinian pre-adaption is a property in an organism that has no selection value in a given environment, its value is emergent, manifesting itself only in another later and different context.

Biological Pre-adaptation

- features that perform a function but were not produced by natural selection for their current use
- the fortuitous possession of a **characteristic** that allows an organism to exploit a new situation.
- In many cases, the characteristic evolves to solve a particular problem that a species encounters in its preferred habitat, but once evolved may allow the organism to exploit an entirely different situation.

Kauffman on the Adjacent Possible

“The idea of the “adjacent possible” is about the possibility space of all the things that might happen as some new biological trait, technology feature, molecule ... have pathways that might one day be taken”.

Can this idea be applied to cultural evolution?

Formal Resilience

- **Ecosystem resilience** is the capacity of an ecosystem to rebound from disturbance
- A resilient ecosystem can withstand change and rebuild itself when necessary.
- **Resilience in Social Systems** has the added capacity of humans to anticipate, plan and manage for the future
- Resilience is a property of **linked social-ecological systems** (SES).

(See; The Resilience Alliance <http://www.resalliance.org/576.php>)

The key to resilience in social-ecological systems is ... **diversity**

Resilience as Stable Identity?

“The capacity to respond to change while **maintaining identity** has been called “resilience”” (Cork ed 2009)

Beyond Resilience = a new identity in response to radical change?

Radical Change = Emergent Radical Identity?

Emergent Radical Identity = Creativity?

Resilience and ‘Spare Capacity’

*“Requires the systems to have **spare capacity**, a diversity of ideas and resources, and the ability to self-organise in response to challenges and opportunities.” (Cork 2009)*

<http://www.communitybuilders.nsw.gov.au/download/australia21resiliencereport.pdf>)

Not ‘spare’ of existing capacity, but new ‘creative capacity’ ... producing novel ideas and enterprise ... but not necessarily useful in the here and now! (like Art and Artistic endeavour)

Steve Hopper: YODFELS

- Conventional theory for ecology and evolutionary and conservation biology has developed primarily from data on species and communities from young, often disturbed, fertile landscapes (YODFELs), mainly in the Northern Hemisphere.
- YODFEL ecosystems = YODFEL people and culture?

Steve Hopper: OCBILS

- very **O**ld, **C**limatically **B**uffered, **I**nfertile **L**andscapes

“It is evident that mainstream agricultural practice on OCBILs leads to desertification, salinization, soil acidification, non-native weed invasion and extensive loss of valuable topsoil through erosion and wind storms.” (Hopper 2009 forthcoming)

- OCBIL Ecosystems = OCBIL people, culture and values?

Cultural Preadaptation

- We know with hindsight that Biological pre-adaptation is the fortuitous possession of a characteristic that allows an organism to exploit a new situation
- the question is: can we react with foresight in the cultural environment and have risk-taking resilient people in OCBIL ecosystems pre-adaptively creating total landscape, cultural and technological resilience?
- A case study.....

The Cape to Cape Region



The Bordeaux of the South West?

SDAY, JULY 14, 1966.

VINE INDUSTRY FOR SOUTH-WEST

LETTERS

DR. J. S. Gladstones, senior lecturer in agronomy at the University of W.A., and who will address a public meeting in the Esplanade Hotel at 8.30 p.m. on July 21, writes:

A vine industry at Busseton or Margaret River?

The thought will probably come as a surprise to most people in the district. Backyard vines are known to grow quite well, but as far as I have been able to find nobody has previously suggested the area seriously as a possible site for a commercial vine industry.

Why, then, do I suggest it now? My interest goes back to 1966, when Professor H. P. Olson, professor of viticulture at the University of California and a world authority on vine-growing, spent six months in W.A. investigating problems of vine-growing in the Swan Valley.

He concluded that while the climate on the Swan was eminently suited to production of currants, table grapes and sweet dessert wines, it was too hot for reliable production of light table wines.

He suggested that for this we should look to cooler areas further south, and singled out the Mt. Barker-Rocky Gully area as being probably very suitable.

Climate

Looking at all available climatic information, and from some personal knowledge of the district, I have since been struck by the fact that the area around Margaret River and northwards as far as Tallangup and Vasse possesses most of the advantages of Mt. Barker with few of its disadvantages.

In temperature the area should be ideal. Grapes should ripen, but not too much, the tends to happen on the Swan; if delicate dry wines of high quality are to be made, growing season (time of ripening) temperatures between Busseton and Margaret River are almost exactly the same as those districts in France and elsewhere making the world's greatest table wines.

At the same time Busseton-Margaret River is virtually free from the hazards of spring frosts and summer rain and hail, much more so than Mt. Barker. This is almost unique for any area in the world where summer temperatures are low enough for making the highest quality light table wines.

Soil fertility is right, too. It should not be too high if the best quality wines are to be made.

The main possible drawback is high winter rainfall. This could cause drainage problems, or at least make it essential for vines to be grown only on well-drained soils.

Where do we go from here? I am convinced that the district could produce table wines of very high quality indeed, although what these produce characteristics would be, only time, care and experience could show.

At this stage a specialist like myself can add little more. Only practical trials backed by expert advice will be able to give a final answer.

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Farms Farms

BUSSETON
223 Acres

Excellent small grazing property, 4 miles from town on Busseton Road. Pleasant bushland. 3 sheep.



Values and Diversity

- A working hypothesis for the research is that the Cape to Cape Region, in the colonial phase of its environmental history, has attracted humans with identifiable **values and attitudes** that are alternative to the mainstream.
- Further, it is these values and attitudes, particularly centred on a strong **endemic sense of place** and pro-nature-based enterprises (wholesale and retail organic agriculture, ecotourism, health foods (including restaurants) that are vitally linked to the resilience and sustainability outcomes achieved so far.

A Diverse and Resilient Region?

- A biodiversity hotspot
 - ecotourism
- A cultural diversity hotspot
 - Cultural tourism, Food, Art galleries
- An agri-cultural diversity hotspot
 - Viticulture, Horticulture, Niche animal meat markets (Venison, Organic Dairy, Beef etc)
- An enterprise diversity hotspot
 - Alternative energy systems, water recycling systems, etc.



Eco-preneurial Diversity

A regional centre for Organic and Biodynamic agri-culture:

- Wine, Dairy, Olives, Vegetables, Fruit, Beef, Bread
- Organic/biodynamic farmers market
- Organic Restaurants,
Other niche markets
- Venison, Organic farm stays, Organic Butchers
- Regional Forest industries
 - Carbon credits?

Random Valley



- The Random Valley family farm, situated in the Margaret River region produces grapes, beef, snails avocados, and flowers is grown on land certified by the National Association of Sustainable Agriculture Australia Ltd. (NASAA) as ORGANIC and in accordance with the NASAA Standards for Organic Agricultural Production and the National Standard for Organic Produce



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OF WESTERN AUSTRALIA



PROUDLY SUPPORTED BY
RANDOM VALLEY

Olio Bello Estate

- Olio Bello Extra Virgin Olive Oil is grown and pressed at Cowaramup Creek Farm, a 320 acre property situated in the beautiful Margaret River region of Western Australia. Our olives revel in the perfect Mediterranean climate and rich organically-farmed, gravelly loam soils. Our award winning olive oils are the result of a long-term labour of love and commitment to sustainable ethical agriculture combined with organic farming principles.



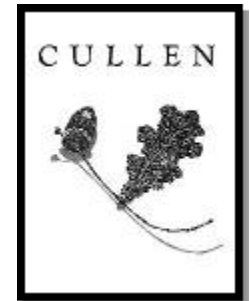
Margaret River Providore

- Come and taste the most delicious food in Margaret River. Each morning our chef and gardener meet in our organic garden to decide on the days menu. We grow all our own vegetables, herbs and many other ingredients organically. Nothing beats the taste of food that's been harvested that day, full of vitamins and minerals. We also have 20 acres of vines, a 1000 tree olive grove and produce organic olive oil for the kitchen and for sale and tasting. You can walk around our garden and talk to our gardeners and then taste 20 different jams and preserves all made in our farm kitchen. You can even see everything being made by hand in small batches through a huge viewing window.



Case Study: Cullen Wines

- Cullen is an interesting case study in **pre-adaption** to climate and other change because they:
- are not using irrigation to water their vines ... the vines must be able to adapt to changing climate conditions
- Are allowing natural evolution of yeast in the vineyard
- Are using endemic pharmacologically active plants for ecosystem services (eg fungicides)
- Are re-vegetating using endemic species
(Emergent endemic biodynamic viticulture?)



Cullen



Emergent Regional Values

- Self-sufficiency
- Decentralisation & Self-governance
 - Water Corp Vs town of M.River
- Unity-in-diversity; Identity-in-Difference
- Respect for the Indigenous and the endemic
- Cooperative conservation politics
 - Opportunistic and issues focussed
- Nationally and globally well connected
 - Information technologies



Resilient People-Resilient Place?

- The Indigenous people are working on their own version of sustainability
 - Wardan Aboriginal Cultural Centre
- The Colonial culture in the Cape to Cape Region is distinctive
 - Doctors/alternative health practitioners
 - Hippies/yippies
 - Surfers/walkers
 - Artists/musicians
- A creative culture with 'unity-in-diversity' pre-adapted to change and threats

Conclusion

- Since the 1950s a colonial culture has created an emergent, creative eco-culture, eco-enterprises and eco-agriculture
- An expression of an unintentional merging of diverse, but compatible values
- Public and private policy that intentionally encourages such emergence will foster greater adaptive capacity and resilience in the face of climate change