

This article is updated from a paper which was included in the proceedings of a Greening Australian seminar held in Melbourne in August 1996. The seminar was titled Is There a Role for Indigenous Permaculture: Integrating the Goals of Ecological Restoration and Permaculture and had been organised to facilitate dialog between two environmental movements which were seen to be at loggerheads over the issue of use of exotic vegetation and weeds.

As well as putting the weeds debate in the wider context of Landcare, this article outlines the concept of ecosynthesis which is the theme of a book I am researching on the subject of naturalise plants and animals. (tentatively titled Migrant Plants and Animals: Ecological Imperialism or Evolution) The seeds of this concept can be seen in Impressions of New Zealand (1978). A shorter article on this subject "Weeds Or Wild Nature" was published in the International Permaculture Journal issue 61 Feb 1997.

PERMACULTURE AND REVEGETATION: Conflict or Synthesis

The permaculture movement's development from its conceptual origins¹ in the 1970's has been closely connected to revegetation and Landcare.

The primary agenda of the permaculture movement was to assist people to become more self reliant through well designed garden agriculture. The design principles used were derived from study of both the science of systems ecology and pre-industrial examples of sustainable landuse. They suggested agricultural systems needed fundamental redesign rather than fine tuning. A much greater role for trees and other perennial plants to stabilise the landscape and provide for human needs was one of the cornerstones of the permaculture strategy. From one perspective, permaculture is a revegetation strategy.

RURAL LANDCARE

The Landcare movement emerged in the early 1980's from diverse local rural groups concerned with land degradation, most notably salinity and tree decline² Revegetation with perennial and in particular woody vegetation has been an almost universal element in the response to the diverse symptoms of rural land degradation. With this has come widespread recognition that locally indigenous species have an important role for utilitarian, environmental and cultural reasons. Many government extension workers and funding groups have gone further in suggesting only indigenous species are appropriate.

¹ Mollison, B & Holmgren, D. Permaculture One Corgi Melbourne 1978.

² Holmgren D. The Landcare Movement in Burgess, G. Building Community in press 1995 RAIA

Practical farmers with more experience in revegetation who are driving the Landcare push recognise that new resource values must be generated by revegetation if it to become an economically viable part of farming. Farm forestry and fodder trees are the dynamic expanding edge of Landcare which is promising to generate wealth.

In this context restriction to indigenous species is akin to try to plant a tree with one hand tied behind ones back.

The initial permaculture vision involved forests of useful species planted in arrays to mimic natural systems. Food species dominate the strategy for intensive (permaculture zone 1&2 systems) but in more broad acre areas, fibre, animal fodder and timber along with passive environment functions such as shade, shelter, erosion and salinity control, wildlife habitat etc are the appropriate uses of revegetation. My volcanic plains revegetation manual³ concentrates on these broad acre landscapes and functions of revegetation. What identifies this work as permaculture is the design system approach and the integration of the productive and environmental functions of farm landscapes.

URBAN REVEGETATION

In urban areas people have been more protected from the direct effects of land degradation but increasing awareness of both the loss of indigenous species and their underestimated values has become a central issue for many urban environmentalists. While the loss of bush land to inappropriate development was a focus for early urban environmental campaigns such as the Sydney "green bans", in the last decade the passive destruction of indigenous ecologies by environmental weeds has become a primary target for environmental action

This shift can be partly attributed to the success in preventing active destruction of remnant urban bush land. On the other hand, the general failure of environmental activism to make significant impact on the structural basis of unsustainable urban development and consumption, despite gains in environmental awareness and industrial efficiency.

This focus on the new concept of environmental weeds (invasion of non indigenous biota into bush land) has expanded on the back of public support and official recognition into an urban Landcare model of recreating indigenous ecosystems in public open space and urban wasteland. Relatively generous state and federal funding has seen the rapid growth in both number and scale of projects involving the community as well as spawning a urban revegetation industry.

The vision involves reestablishment of indigenous ecosystems as the backbone of productive rural and urban landscapes. However the inherit contradictions of actually destroying healthy non indigenous vegetation systems with existing (if unrecognised) values, to recreate systems with no potential to exist in isolation from the surrounding land uses have never been properly addressed. The adverse environmental impacts of these schemes are not properly assessed.

PHILOSOPHICAL CONFLICT

Much of the criticism of permaculture has revolved around its potential to spread environmental weeds⁴ The depth and intensity of criticism by some environmentalists may reflect active promotion of the values of so called environmental weeds by permaculturalists. The valuing of

³ Holmgren, D. Trees On The Treeless Plains: A Revegetation Manual For The Volcanic Landscapes Of Central Victoria Holmgren Design Services 1994

⁴ Robin J. Unpublished paper (1980?) John Robin has been one the strongest critics of permaculture although a public debate at the Tasmanian University in 1990 involving us both as well as Terry White and John Rankin demonstrated less differences than rhetoric suggested.

weeds in permaculture is part of an older tradition within the wider organic agriculture movement which saw value in plants despised by farmers and gardeners rather than the demonising which has become standard in public discourse on environmental weeds.

Mainstream urban and rural revegetation activities are major contributors to the spread of past and future environmental weeds but do not draw such vociferous condemnation because this process is not an intentional outcome. In other words it is the "bad" intentions rather than bad results of permaculture which have attracted such negative attention.

An increasing amount of government and community resources are now being devoted to attempts to the destruction of naturalised non-indigenous species. This destruction of vigorous and healthy vegetation is very similar to the war by farmers against introduced weeds and native regeneration which preceded the revegetation of salted and degraded rural land which started the Landcare movement.

In general, permaculture has made little impact on urban public land management because efforts to introduce food producing and other productive species have not been very successful. Proposed and actual plantings in permaculture inspired projects tend to divide into species which require too much care and attention for public land or successful species which (given the right conditions) naturalise and are thus automatically deemed environmental weeds. Most permaculturalists have focused on getting their own house in order, leaving the public land to others, or have themselves adopting a segmented view of land use where small scale food gardens on private land would be surrounded by indigenous systems on public land.

However, the logical extension of indigenous revegetation to control the sources of environmental weeds on private land via regulation or legislation, has produced a very strong reaction from permaculturalists specifically and gardeners and horticulturalist generally. In Victoria the proposed pest plant law of the old Eltham shire⁵ effectively expanded the Noxious weeds list many fold, and became the flash point for conflict between environmentalists of the permaculture and indigenous persuasions.

Leading proponents of indigenous revegetation⁶ acknowledge that a legislated approach to environmental weeds will be ineffective and unenforceable but feel that the public education value override any adverse effects on people's land use rights.

The productive result from this conflict is that the fundamentals of the respective conceptual frameworks need to be articulated. Unaddressed contradictions in both positions need to be worked through and practical strategies developed which can be applied by both private landholders and managers of public land who find themselves in an understandable state of confusion.

From my perspective however, the positive view taken in permaculture to many plants which naturalise is widely misunderstood by environmentalists as simply selfish utilitarianism. The ecological reasoning behind the permaculture view has not been fully articulated. Here all I can do is sketch the larger context for the permaculture approach to environmental weeds.

⁵ Pest Plant Law no. 10 (1994) failed because of strong public opposition. It required the destruction of 54 species (in addition to species listed in the state Noxious weeds legislation) and required control of propagation of a further 29 species. The amalgamated Nillumbik shire has since attempted to use planning controls to the same effect based on much larger lists (216 species) included in the Pest Plant Management Strategy 1992 and based on a plant survey (McMahon 1989) which identified half the flora of Eltham as weeds. The current Inquiry into Pest Plants in Victoria by the Environment and Natural resources Committee of the parliament sees this attempt at control moving to a state wide stage.

⁶ Lincoln Kern, Randal Roberson and others at Greening Australia forum August 96

ECOSYNTHESIS

Implicit in permaculture strategy is the acceptance that nature is an active designer herself and that it will be the co-evolutionary development of wild systems which may be the real keys to sustainability. Wild nature is evolving new ecosystems from a mix of self-reproducing species at an ever-increasing speed. This co-evolutionary process is a self-organisational response to the disturbances since European settlement and follows patterns described by the science of systems ecology as developed by Howard Odum and colleagues.⁷

In some areas especially along streams this ecosynthesis process is advanced to the point where forests of mixed native and exotic species are beginning to show systemic characteristics. Reaction from indigenous revegetation folk to these areas ranges from the same disinterest they have in a weedy paddock through to fear and loathing and renewed trust in Roundup. In a low energy future (which I and others have argued is inevitable) ecosynthesis is likely to be more important in both stabilising resource degradation (erosion, salinity, acidification, eutrophication etc) and at generating economically harvestable resources (timber, fodder, food etc) than either our chosen crop systems or indigenous revegetation.

Attempts at working with the ecological succession processes towards closed canopy forest in these riparian weedscapes is conspicuous by its absence apart from a few informal permaculture inspired projects.⁸ Recognition of the amenity values of these areas is thwarted by being labelled as "weed infested" and "alien" draw on ancient phobias about wild nature. Scientific study of these advanced examples of ecosynthesis noticeable by its absence⁹. Any discussion of current or future resource values is dismissed as something irrelevant to economic wellbeing in a high energy affluent society.

Observation of weedscape succession in southern Australia and New Zealand over twenty years leads me to the conclusion that ecosynthesis of indigenous and migrant systems is likely to provide the most effective solutions to land and water degradation problems at the lowest cost. In addition to these critically important functions, ecosynthesis will yield the information on which to base more deliberate design based approaches (permaculture) to productive rural and urban land use.

Ecosynthesis is a reality which few ecologists would deny. In the process of dealing with both technical uncertainty and a range of environmental values and agendas, we need to accept that a diversity of approaches to understanding and managing land will provide the most useful

⁷ Odum, H.T. Environmental Accounting: Energy and Environmental Decision Making. Wiley 1996 is the definitive and up to date text about the application of systems ecology.

Odum, H.T & E.C. Energy Basis For Man and Nature McGraw Hill 1981 provides an earlier overview of the concepts.

⁸ Spring Ck community forest project in Hepburn central Victoria is a good example of permaculture principles applied to public land weedscape management. We make extensive use of this extensive site in teaching ecologic succession, reading landscape and a permaculture approach to environmental monitoring and revegetation in our residential Permaculture Design courses.

⁹ Two recent local research projects

Sniderman, J. M. (Kale) Successional Dynamics In A Mixed Native/Introduced Riparian Forest In Central Victoria Uni of Ballarat 1998 AND

Wilson, Michael Post gold rush Stream regeneration: implications for managing exotic and native vegetation Centre for Environmental Management, University of Ballarat (presented at the Second Australian Stream Management Conference in February 1999)

have provided documentation and interpretation of some aspects of ecological processes in Spring Ck. This work stands out in the sea of repetitive documentation on environmental weeds invasion in the scientific literature as pointing the way to a new field of research in ecosynthesis.

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results for the next generation to evaluate and use. Inevitably these will all be real ecological experiments on the edges of the gigantic experiment we call modern industrial society. Whether we like it or not future choices are foreclosing all the time and a herculean effort to prevent the spread of environmental weeds will close at least as many future ecological options as it maintains. We should not delude ourselves that a war against weeds is reasonable or winnable.

Wild nature may turn out to be a critical fall-back resource for society in crisis and even contribute to new biodiversity adaptive to a planet changed forever by the mining of 750 million years worth of stored solar energy in fossil fuels and a probable peak human population of 8 billion .

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