



# Analogue forestry in practice in Sri Lanka

BY GIB WETTENHALL  
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Perhaps not surprisingly, Ballarat Region Treegrowers found that our biorich plantation concept, as explained in the AFG published book *Recreating the Country*, was a 'reinvention of the wheel'. We discovered that our biorich model was a type of analogue forest and subsequently joined the International Analog Forestry Network, the first Australian organisation to do so.

An analogue forest (AF) is basically a human-created, tree-dominated ecosystem that is analogous in structure and function to a site's original climax or sub-climax forests. An analogue forest might be planted with species expected to be found in the forests of that area, or grown through 'seral stages' to reach a climax/sub-climax equivalent. Crucially, however, an AF is also created to provide short and long term commercial and environmental value, so may use species exotic to the site or even nation.

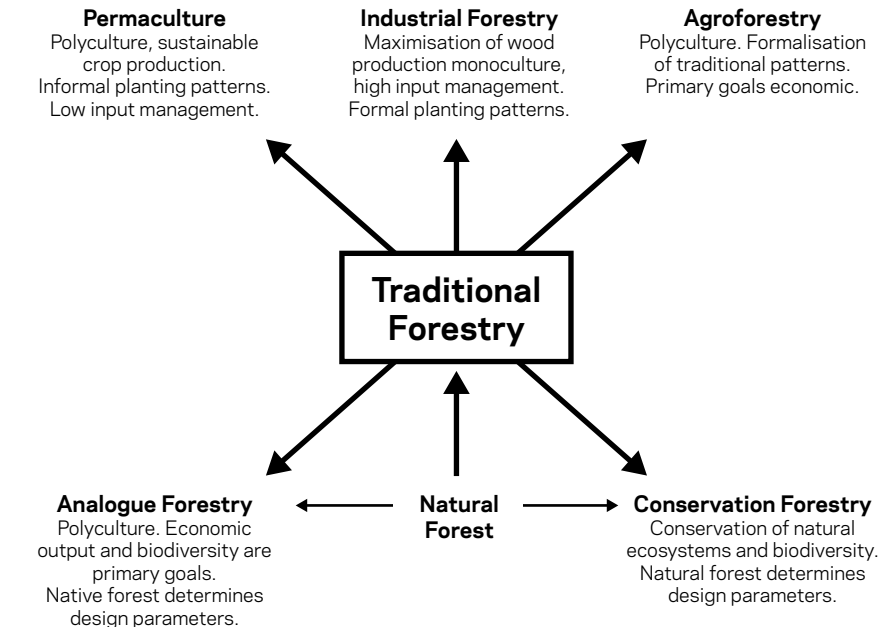
In an extraordinary coincidence, it was the local shire environmental planner, Victoria Mack, who pointed out that analogue forestry was flourishing within our region. As a director of the Secretariat for International Landcare, she had been supporting analogue forestry at its source in Sri Lanka. No need to look to Scandinavia for inspiration.

## Over our horizon

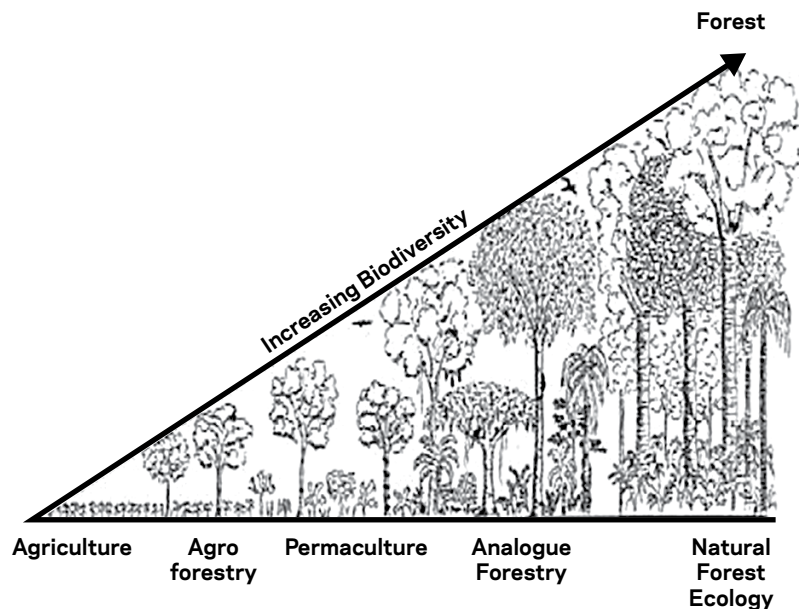
Analogue forestry practitioners among our Asia-Pacific neighbours have much broader economic and social agendas than we envisaged.

Ravil Senanayake first developed the concept in Sri Lanka by modifying traditional village gardens. He explains that, "Analogue forestry is a response that seeks to address both the genetic and cultural issues of biological loss."

A century ago, Sri Lanka's mountainous areas were largely stripped of their protective, moisture-absorbing forest cover and converted to monocultures of tea,



► **Figure 1:** The relationship between different forestry models and natural forest.  
*SOURCE: Senanayake, R. and J. Jack, Analogue Forestry: An Introduction (1998)*



► **Figure 2:** The complexity of analogue forestry in relation to other forestry practices.  
*SOURCE: International Analog Forestry Network (IAFN)*

coffee, rubber and more recently pine, eucalypt and acacia plantations. Less than 8% of natural forests remain. The consequences have been devastating, with severe erosion when the heavy 2,500mm monsoon rains arrive, while in the dry season, springs and stream gullies dry

up. Consequently, traditional farming practices were lost, replaced by those that further stripped the declining forest cover and contributed to accelerating rural impoverishment.

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► A well-established analogue forest in Sri Lanka on a previously bare site, which has a high ratio of tropical food trees. PHOTO: Ranil Senanayake

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The Sri Lankan analogue foresters recognise the value of those lost ecosystems, and seek to restore productive capacity to the land, bring in genetic diversity, establish protective vegetation layers, and give local people more control over their way of life and natural resources – especially food and building materials.

Kamal Melvani of the Neo Synthesis Research Centre (NSRC) is utilising analogue forestry's silvicultural techniques to "empower rural communities both socially and economically through the use of species that provide marketable products." The 'sense of place' inherent in seeking to mimic site-specific natural forest structures is carried through to consulting with landholders about their dreams and desires.

One of the NSRC's first broad scale applications of analogue forestry was to help farmers living on the mountain of Maragalakanda to reverse forest cover decline while increasing their incomes.

The NSRC established a demonstration model on the treeless 8ha plot of a poor farmer, Jane Nona, who was growing just one crop. The plot was high up the mountain and as a preliminary step, the closest natural forest in the area was visited and the structure, species composition and ecological functions of those species were studied.

Over 5,000 trees, shrubs and plants were established as part of the AF design. Native species sourced from nearby forest ringed the perimeter of Jane Nona's plot and all gullies were renovated. Around the homestead, water was diverted from a marsh area for a vast array of tropical tree crops. Rice paddies were established

using traditional rice varieties and applying traditional low impact methods of management. Ornamental trees flanked a walking trail.

After two years, 25% shade over her land allowed Jane Nona to change her cropping pattern from annual to shade loving crops. Using forestry as nurse trees is ideally suited to the tropics, where many valuable food crops grow best under a canopy.

After four years, Jane Nona's income had risen fourfold. Revegetation had built up leaf litter and moisture retention in her soil, even during the dry season. Frogs and skinks, birds and butterflies returned to her plot.

This success allowed the NSRC to recruit 51 farmers at Maragalakanda to implement analogue forestry. After intensive mapping of land features and extensive consultation, it drafted individually specific AF farm plans. Over 2003 and 2004, 155,000 trees and shrubs from 205 species were planted on 4,350 acres. The farmers then formed the Maragalakanda Watershed Restoration Organisation, introduced thrift and savings schemes and are now exploring Forest Garden Product Certification for their 'organic' farm produce.

This model was replicated in four adjoining catchments, and NSRC has since led three other major AF projects:

- Bioremediation of contaminated drinking water in 42 public wells;
- After the 2004 tsunami, the establishment of a 3km long coastal forest of casuarinas and 150 forest-shaded model AF gardens;
- Replanting of cloud rainforest in riparian zones across 23 ravaged tea plantations in Lipton Valley, plus the introduction of diversified tree crops.

## Going global

Across SE Asia, smallholders have collectively established plantation cover over an area three and a half times greater than have corporate growers (2.303 million ha cf 0.636 million ha). These millions of small scale farm foresters in the Asia-Pacific are our neighbours. Like International Landcare, we ought to see it as in our interest, as well as theirs, to support efforts aimed at increasing their food security, improving their access to a prime source of energy and building material (i.e. wood) and lifting them from poverty.

AFG has the potential to reach out and engage with Asia-Pacific's smallholders. AFG's CE Warwick Ragg is a member of the International Family Forestry Alliance, which partners the G3 group of organisations, representing locally controlled forestry worldwide. He has begun the process, but there is a long way to go. Agroforestry is supposedly the cornerstone of many overseas rural aid programs. Why aren't we part of the delivery process?

We need a circuit breaker between the old model of monoculture forestry and new more participatory, bottom up models that deliver the triple whammy of environmental, social and economic services. The biorich and analogue forestry models seem ideally placed for bridging the gap between rural communities and foresters, here and overseas.

**Gib Wettenhall believes we can only carry out truly resilient, large scale landscape restoration where it involves the people who live in those landscapes. He is Treasurer Ballarat AFG Branch, Editor of Australian Forest Grower magazine for the past 12 years, was Convenor of the Ballarat AFG 2004 National Conference, and is the Chairman of environmental trust, the Norman Wettenhall Foundation.**

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