

Analog forestry – a system to promote biodiversity in agriculture

By Anthony Dufty, January 2014

In October 2013, I received the Heather Mitchell Fellowship (as part of the Victorian Landcare Awards) to travel overseas and understand the process of Analog Forestry in Costa Rica. As a farmer in the west of Melbourne, I have been following the development of Analog Forestry overseas with interest for many years. In my professional role as Sustainable Land Management Coordinator for Port Phillip & Westernport Catchment Management Authority, I wanted to evaluate if the technique could be applied to agriculture in south-eastern Australia to create more resilient agro-ecosystems.

So what is Analog Forestry?

Analog Forestry is a system of planned, managed forests that are designed to be analogous to the indigenous forest of an area whilst also including some productive species that provide economic benefits.

These quasi-natural forests are designed to mimic the structure and functioning of an indigenous forest ecosystem. However, whilst the structural elements are mirrored, the species are not (with some layers replaced using analogous species). The selection of these replacement species can be based on a range of ecological factors as well as the farmer's interests, skill set and to complement the existing enterprise.



Left: Analog Forestry 2-3 years after planting with epiphytes, ferns, banana palm, cocoa and timber.

Analog Forestry has been primarily employed in tropical or subtropical areas, but can be used in temperate areas too. In Australia, for example, shelterbelts could be designed on a farm to mimic native forest structure and include various native forest species whilst also including some species that provide furniture timbers, bush tucker or botanicals.

One of the strengths of Analog Forestry is its prerequisite for biodiversity whilst balancing social and economic needs of the farmer. In this way, each design is unique and incorporates the specific characteristics of the site and the objectives of the land manager.

Analog Forestry is practised in many countries around the world including Cameroon, Canada, Colombia and Cuba. In Costa Rica, Analog Forestry has been practised by one farmer for around 25 years. The Fellowship allowed me to visit this farmer and immerse myself in Analog Forestry for over a week. Each morning I would visit the jungle with machete in hand, and learn the theory with the farmer in the afternoon.

The farm I visited covered 94 hectares and was developed on a greatly disturbed ecosystem (grazing farmland). Sections of the property were converted to forestry 40 years ago before a transition to Analog Forestry. It now produces cut flowers, herbs, spices, essential oils and timber as well as various environmental services (such as clean water, carbon sequestration and soil fertility).



Left: The homemade distillation setup on the farm, used to manufacture essential oils such as Petuli, Ylang Ylang, Citronella, Cinnamon, and Mint (Londres, Costa Rica).



*Above left: Analog Forest after 15 years showing teak trees and the structural complexity of system
Above right: Nutmeg (mace is made from the red exocarp) from the Analog Forest*

To better understand Analog Forestry, I wanted to compare and contrast similar systems. Therefore, following my time in Costa Rica, I also travelled to Indonesia to compare the design parameters of tropical Permaculture with what I learnt from Costa Rica. In a nutshell, the two systems are close

cousins, excepting that Permaculture designs focus on cultural elements (incorporating social and religious needs), are utilitarian, and work from the house and garden outwards.



Left: Permaculture system in Ubud, Bali showing part of the vegetable garden in a Mandela design.

To expand the knowledge gained during my fellowship, Mr Milo Faires the Co-Chair of the International Analog Forestry Network has been invited by the Moorabool Landcare Network to conduct a workshop on the design of Analog Forests in April 2014. A project is also being formulated to see if the technique can be tested in the area to the west of Melbourne.

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