

A social learning organisation evolves a research capability in order to study itself

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1 Introduction

Given the risks from human impacts on the earth system, there is an urgent need for globally scalable solutions for transitioning to a sustainable way of life (Future Earth 2013). One available tool is permaculture: 'the conscious design and maintenance of agriculturally productive ecosystems which have the diversity, stability and resilience of natural ecosystems' (Mollison 1990).

Scope

This poster describes activities over the last three years to evolve a research capability within permaculture. The 'social learning organisation' is the permaculture network as a whole (Reed et al 2010).

2 Research question

Is permaculture a useful tool in the global transition to sustainability? A central criticism of permaculture is that it lacks a published evidence base, so this project aims to test claims within permaculture by developing, assembling, analysing and publishing the evidence (see figure 1).

COMPONENTS OF THE RESEARCH PROCESS

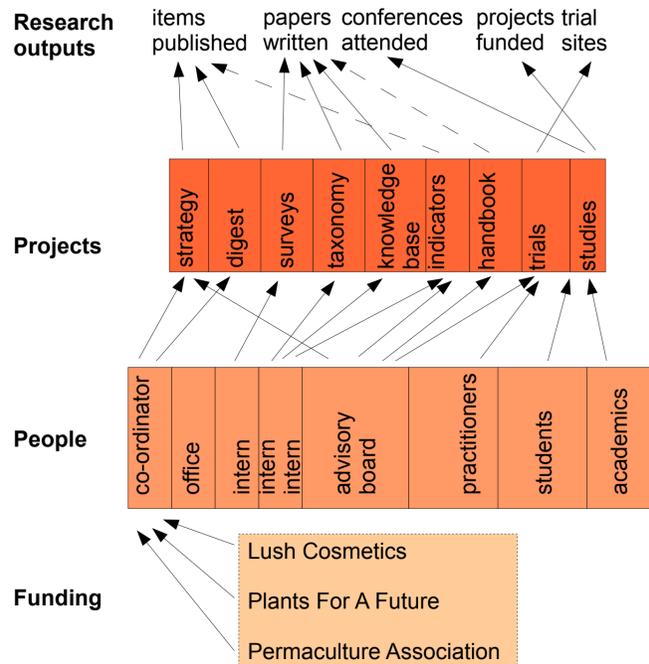


Figure 1: Components of the research process

3 Results

The results from running the model research process for three years (2010-2013) are that 22 components are operational or funded. Time spent on permaculture research includes one co-ordinator (3 days/week), 6 interns (average 3 days/week), Research Advisory Board (14 people, occasional), students and academics (350+ studying diploma in UK, and permaculture research at BA/MSc/PhD/Post-doc level).

4 Conclusion

Permaculture is developing fast as a practice and as an academic field. This project is an example of how to do systematic work in a non-hierarchical network, using a distinctive 'grow your own data' and 'eat your own results' approach to scientific experimentation, giving a strong connection between real-world personal survival strategies and a community design process for transitioning to sustainability.

3a EVIDENCE EMBEDDED IN DISTRIBUTED ECOSYSTEMS

Physical yields

Annual vegetable polycultures (trial run)
 • Field trial: one year Permaculture Association member's trial with 50 recipients of seed packets, 24 respondents, comparing 12-species mixture to 3-species mixture on side-by-side 1-square-metre plots (Van der Velden 2011).

Perennial polycultures – forest gardens monitoring project
 • Baseline survey: 110 sites, 18 countries – mostly Europe, N. America. Age: 1 site 33 years, 10 sites 20-30 years, 14 sites 10-20 years, 24 sites 5-10 years.
 • Information gathered on goals, performance against goals, species and documentation.
 • Field trials: started in 2010, as a 10-year trial. 10 sites, gathering information on planting, yields and management. First round evaluation after three years, written up now.

Biodiversity

Species distribution and prevalence in mature (20+ years) permaculture site. Botanical survey of the Field, Plants For A Future site at Penpol, Cornwall, UK (Wellwood 2010).

Soil indicators

Biological and Soil indicators project. Assemble, test and roll out to 20 countries, indicators of biological and soil health in permaculture systems, suitable for use in the field (2013-14).

Constructed systems: WET Systems

• Integrated, multi-species constructed wetlands for waste water treatment, biodiversity enhancement and resource production.
 • Sites include 400 people living full-time, cider mills, 350-head dairy, festival and outdoor education sites. Subject of PhD study 2013-2016.

Sites and case studies: Rapid energy descent and decarbonisation in Cuba

Cuban government and society employed agroecological techniques, permaculture designers and urban community farms to provide food for the population after the sudden reduction in oil supplies after the fall of the Soviet Union. This case study highlights the transplantation of permaculture from rural Australia to an urbanised tropical island, a crisis triggered by fossil fuel dependency, and a challenge to the colonial distribution of permaculture knowledge.

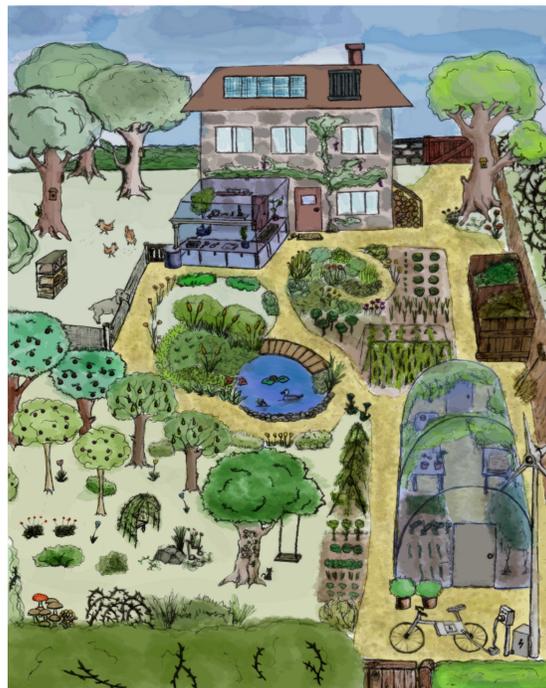


Figure 2: The homegarden. Image: Brendan McDowell 2013

Designs and plans: the diploma portfolio

• The written record of permaculture design lies in personal, commercial, community and student design portfolios.
 • The 300+ UK students currently enrolled on the Diploma in Applied Permaculture Design will each complete ten designs during their coursework.
 • Bane (2002) estimated 100,000+ graduates of 2-week permaculture design courses taught by c.500-1000 tutors (from beginning in 1970s to 2002 worldwide).

Livelihoods and skills: the homegarden

• Reports on completed projects for funders document past achievements.
 • The Instituto de Permacultura de El Salvador trained 256 farmers in diversifying crops and 200 families created organic vegetable gardens (IPES 2009).
 • Homegardens are accessible examples for designing living systems (see figure 2).

Stories and cultures: Transition Culture

The word 'permaculture' is derived from perma-nent agri-culture, and the movement has spawned a new and separate but intimately-linked transition culture: The Transition Network, which was originated by Rob Hopkins while creating an Energy Descent Action Plan for Kinsale, Ireland on a permaculture design course. The Transition Network now extends to >40 countries and hundreds of projects, with its own research approach set out in the Transition Research Primer (Henfrey and Brangwyn 2013). Permaculture also extends around the world (see figure 3).

Ecological footprints of permaculture practitioners

• Steward Community Woodland residents had ecological footprints of 2.06 global hectares (39% of UK average) and carbon footprints of 3.75 tonnes (34% of UK average 10.92 tonnes) (Knight 2008).
 • Pilkington et al (2011) found permaculture practitioners had lower ecological footprints than residents of ecohomes, while comparing the importance of behaviour and technology in reducing energy consumption. 50% of practitioners had footprints <2.5gha. The current earthshare is c.1.8gha (area available for each individual if productive land is shared equally).

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3b EXTENT OF PERMACULTURE

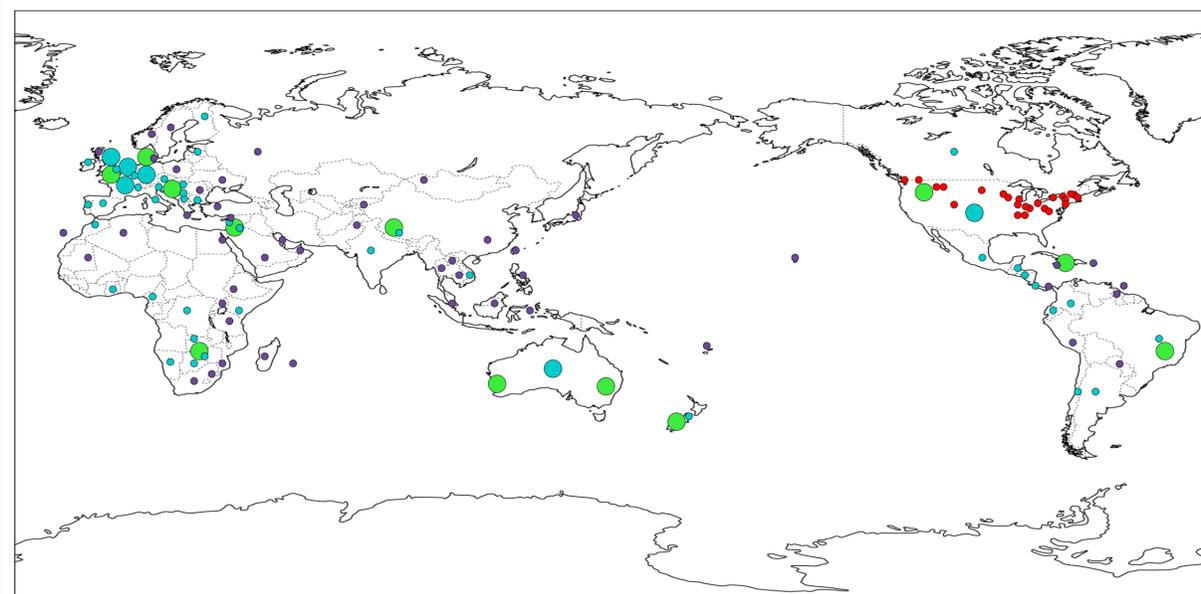


Figure 3: Extent of permaculture around the world. Image: http://english.freemap.jp/

Key to map

- International Permaculture Conference locations ●
- Respondents to international permaculture research survey - Permaculture Association 2013
 - <10 respondents ●
 - >10 respondents ●
- Field surveys of permaculture farms - Ferguson 2013 ●
- Other countries with projects listed on Permaculture Global 2013 ●
 www.permacultureglobal.com
- Extent of permaculture website readership
 - Plants For A Future www.pfaf.org
 - Unique visitors (Nov 2013) 138,724
 - Page views (Nov 2013) 331,258
 - Countries of origin (2012) 210
 - Permaculture Association www.permaculture.org.uk
 - Unique visitors (2012) 164,684
 - Countries of origin (2012) 190
 - Email enquiries (2012) 40,000

