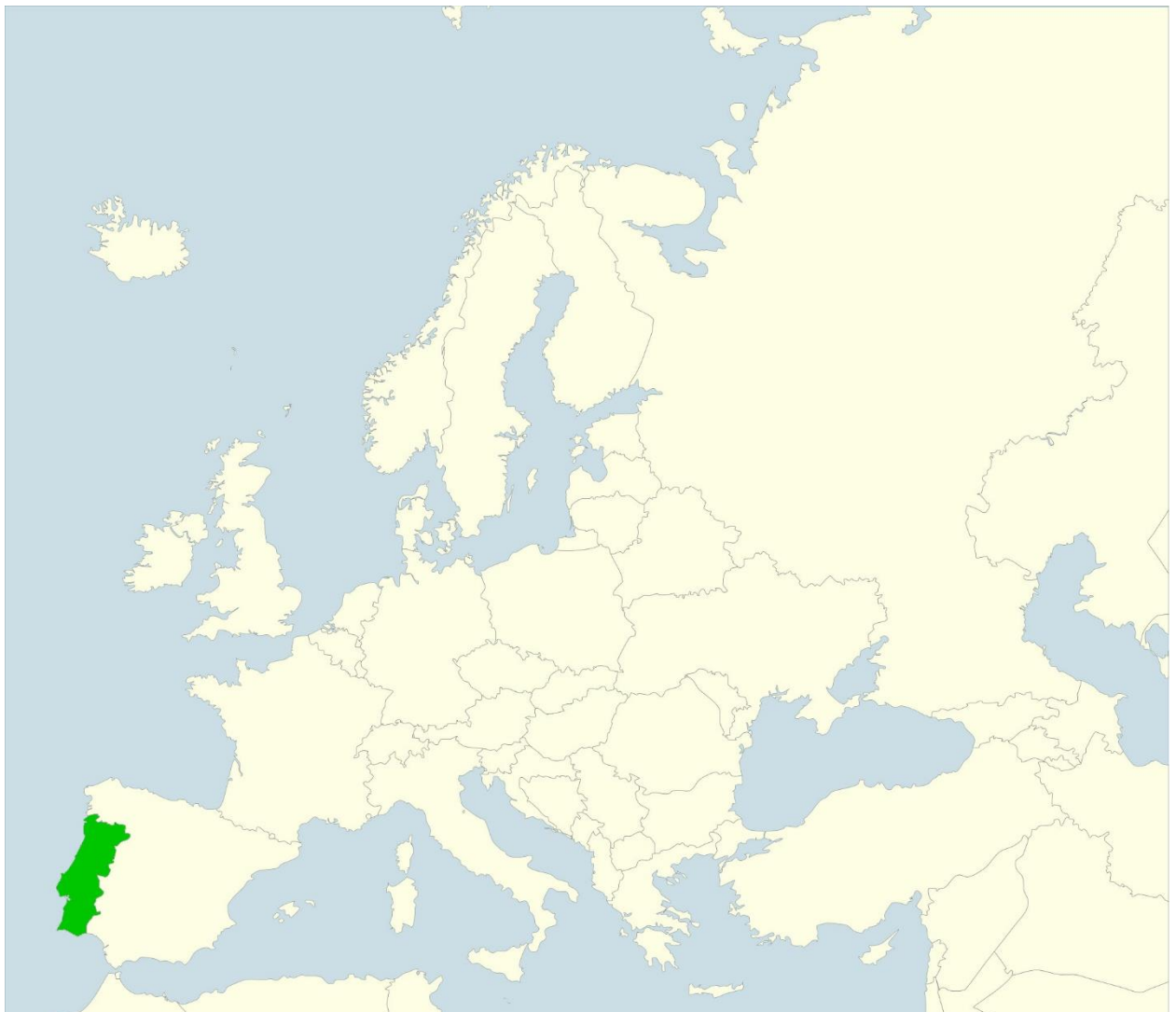


# PERMACULTURE IN PORTUGAL: SOCIAL-ECOLOGICAL INVENTORY OF A RE-RURALIZING GRASSROOTS MOVEMENT

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**Abstract:** Southern European countries face a panorama of rural landscape abandonment, ageing rural population and lack of opportunities for vibrant rural lifestyles. This lead the way for over-exploitative monocultural practices and widespread abandonment of traditional land management practices, intensifying the degradation of rural landscapes, suffering already from the impacts of climate change and global economic pressures. Although policy driven initiatives can scale solutions to have wider impact, if not attuned to local contexts they can also increase the problems felt at the local level. Highlighting local grassroots innovations and locally appropriate solutions can support such attunement. Community-led grassroots initiatives have been sprouting, wishing to regenerate their landscapes grounded on ecocentric ethical approaches to Neo-rural lifestyles. Within Portugal, Permaculture, as a landscape ecological design movement and practice, has been one of those approaches, activated by young citizens wishing to recreate and innovate alternatives for the sustainable management of land, associated with lifestyle choices and local entrepreneurship. With this article, using a socio-ecological inventory as a baseline exploratory study, we are aiming to identify and start characterizing, the Permaculture landscape ecological design movement in Portugal, the motivations and perceptions of such movement, and its contribution towards the transformation of landscape management, societal trends and ecocentric innovations, to create more sustainable socio-ecological rural livelihoods within a Portuguese context.

**Key Words:** Permaculture, Transformation, Neo-rural, Socio-ecological inventory, multifunctional rural transition, grassroots movements

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**Resumo:** O abandono, o envelhecimento da população e a falta de oportunidades presente nas paisagens rurais do sul da Europa, têm levado ao abandono de muitas práticas de gestão da paisagem tradicionalmente sustentáveis e ao aparecimento de monoculturas de sobre-exploração dos recursos que, aliados aos impactos das alterações climáticas e das pressões económicas globais, muito fragilizam e degradam a qualidade e resiliência do meio rural. Apesar das políticas públicas terem o potencial de aumentar a escala do impacto de soluções sustentáveis, se não ajustadas ao contexto local das comunidades podem até gerar padrões insustentáveis. Realçar as inovações e soluções que já acontecem ao nível da sociedade civil que procuram gerar uma reativação do meio rural através da criação de estilos de vida e gestão sustentável da paisagem, pode ajudar-nos a ajustar e informar tais políticas. Várias iniciativas levadas a cabo pelas comunidades, procuram hoje reinventar estilos de vida Neo-rurais, enraizados em éticas ambientais ecocêntricas buscando regenerar as suas paisagens a fim de mitigar os impactos sentidos por práticas de gestão da paisagem insustentáveis. Em Portugal, uma dessas abordagens tem vindo a ser protótipada pelo movimento de Permacultura, um método e prática de design ecológico da paisagem que tem atraído jovens adultos para o meio rural, procurando recrear e inovar alternativas de gestão sustentável da paisagem através de escolhas associadas às alterações dos estilos de vida e ao empreendedorismo local de pequena escala. O nosso objetivo com este artigo, é o de começar a identificar e caracterizar, através de um estudo exploratório baseado num inquérito socio-ecológico, o movimento de Permacultura em Portugal. Quais as suas motivações e auto-percepções, bem como o seu contributo na transformação de práticas de gestão da paisagem, ativação social e inovação ecocêntrica na busca de estilos de vida rurais socio-ecologicamente mais sustentáveis.

**Palavras Chave:** Permacultura, Transformação, Neo-rural, Inquérito Socio-ecológico, Transição rural multifuncional, sociedade-civil

## 1. Introduction

The impact of the collective actions of Humanity reach such a scale and speed today, that Human Beings are considered responsible for the wear of the health, vitality and resilience of biological and ecosystem processes at a planetary scale, to such a degree that we are interfering even with the life supporting systems that sustain us. Human wellbeing and the movement towards a sustainable development depend vitally on the improvement of Earth's ecosystems management in ways that ensure its conservation, regeneration and sustainable use (Millennium Ecosystem Assessment, 2005; Rockström *et al.*, 2009; Steffen *et al.*, 2015).

The time has come to gain awareness that the environmental crises we are facing is basically a cultural crisis in our relationship with Nature. The clashes between the biosphere and the technosphere can only be resolved by generating new ecocentric symbiotic relationships between human societies and wider Nature. Looking at these urgent post-modern symbioses would lead to a structural and functional integration of the ecotopes of the biosphere and technosphere roaming towards a regenerative and coherent ecosphere, in which the evolution of both natural systems (biological) and human systems (cultural) would be supported and ensured (Naveh, 2000; Salmón, 2000; Allen, Cunliffe and Easterby-Smith, 2017).

To reach such a vision, adapting to the impacts (accepting changing conditions, the context and paradigm from which these impacts emerge) will not be sufficient and alternatives towards an active transition or transformation to sustainability need to be found. These need to happen at multiple levels from policy making to grassroots citizen-led innovation. Such threats invite us to rethink and reimagine the needed shift in societal and behavioral trends towards regenerative practices counteracting the effects of climate change at the root cause and envision a better world for the future generations (O'Hara, 2013; Henfrey and Penha-Lopes, 2015; Wahl, 2016).

According to the IPCC (Barros *et al.*, 2012) glossary, Transformation is "the altering of fundamental attributes of a system (including value systems; regulatory, legislative, or bureaucratic regimes; financial institutions; and technological or biological systems). This transformation asks for active engagement by all spheres of society (Future Earth, 2018). It is in this direction that this article wishes to explore the active engagement of a citizen-led movement that through a common ecocentric ethical frame and practical application of landscape and system's design strategies and tools aims for a transformation towards more regenerative livelihoods, the Permaculture Movement (McManus, 2010; Brawner, 2015; Ferguson and Lovell, 2015), more specifically their characterization within the context of Portugal's rural landscapes of abandonment and recent, slowly increasing, reactivation (Pinto-Correia, Almeida and Gonzalez, 2017).

## 2. Grassroots permaculture movements: a socio-technological niche

The literature in the field of sustainability transitions historically shows how changes in the sociotechnical regimes had, most of the times, origin on radical alternatives developed through the accumulation of projects in a "socio-technological niche" space (Geels, 2002, 2012, 2014; Smith, Stirling and Berkhout, 2005; Geels and Schot, 2007; Seyfang *et al.*, 2014; Raven *et al.*, 2016; Geels *et al.*, 2017; Smith, 2017). A "socio-technological niche" is a somehow protected space where the use of a particular social-technological innovation gets tested and prototyped, aiming for learning to happen on how the innovation is relevant and applicable to diverse contexts as well as enhancing, by experimentation, the further development and rate of application of such "technology" (Kemp, Schot and Hoogma, 1998). "Technology" here is seen as a much broader concept than just an artefact or technique; it includes the cultural, social, economic, ecological and systems of belief where they are embedded. They are perceived as "socially shaped and society shaping" (Winner, 1978; Hughes, 1993; Kemp, Schot and Hoogma, 1998; Elzen, Geels and Green, 2004; Stirling, Berkhout and Smith, 2004).

New grassroots landscape management practices are aiming to recreate alternatives for the transformation of societal norms and regeneration of environmental conditions while providing the resources needed for human wellbeing (Ecolise, 2016). These practices are being tested and put into action by several grassroots environmental movements that create and

participate in alternative circulations of power and materiality. Through their formal and informal collectives, they become examples of reconstruction in addition to resistance. They emphasize a new type of sustainable materialism, one that focuses on providing the basic needs of “everyday life” by being embodied by and embedded in collective practices and institutions that support the self-organizing emergence of regenerative cultures. Acknowledging, as a crucial challenge, the disconnection and degenerative relationship between the predominant human society and the other-than-human world, these movements are prototyping through daily transformative practices and knowledge sharing platforms, new ways to relate to their landscapes and their bioregions, as beings immersed in a deep relationship with the other-than-human realm (Abram, 1996; Veteto and Lockyer, 2013; Schlosberg and Coles, 2016; Wahl, 2016).

Permaculture has been one of such grassroots landscape management approaches, one that, through a holistic system of ecological landscape design for the transition to multifunctional and sustainable human settlements, has inspired environmentalist of the “everyday life” to create and share practices to increase an embedded relationship with the natural world and between people (Ferguson and Lovell, 2014, 2015; Sobral, 2014; Maye, 2018).

According to Holmgren (2003), one of the founders of the concept, permaculture is presented as an ecological design system of consciously designed landscapes trying to replicate patterns and relationships found in nature that simultaneously, produce abundance of food, fibre and fuel sufficiently providing local communities their own needs, without depleting natural resources. Permaculture can be seen as the application of systems thinking of principles of design, by providing the conceptual framework for the planning and implementation of human settlements and ecosystems, aiming to provide their inhabitants with their needs, while increasing the natural capital for future generations.

Permaculture is based on three ethical foundations that work as primal support for all permaculture design considerations: Care for the Earth as the first one reinforcing its ecocentric tendency; care for the people, emphasising social justice and community wellbeing; and redistribution of surplus, or fair share, an ethical ground that aims for a re-investment on the collective towards generating a healthy legacy for future generations (Mollison, Slay and Jeeves, 1991). This holistic ethical ground where, ecocentric values are of central motivations, that guides perception and action within the permaculture movement, could provide a transformational approach, contributing for a change in the sustainable development paradigm by focussing Human’s role in Nature as more of a steward, than a user, of ecosystems (Chapin *et al.*, 2010), emphasising the importance of community and promoting sharing more than accumulation of goods and services.

Holmgren (2003) includes in his definition of permaculture a worldwide movement and network of groups and individuals, working in diverse socio-political situations all over the world demonstrating and spreading permaculture design solutions. Although the changes created by permaculturists tend to be expressed as small local interactions, they directly or indirectly aim to influence transformation in areas such as organic farming, appropriate technology, community living, environmental restoration, and on other movements.

### **3. The Portuguese case study, a southern European reality**

Portugal has been suffering from rural land abandonment and land desertification for the last decades, a result of land degradation by subsidized degenerative land management practices that resulted in deforestation, massive soil erosion leading to unproductive livelihoods and a decrease on household income derived from farming, unemployment and migration towards urban areas, especially within the younger generations, many leaving and finding no viable way to return to their rural communities, due to land speculation, absence of jobs, worldview tendencies and other reasons (Pinto-Correia, Barroso and Menezes, 2010; Figueiredo and Pereira, 2011; Campos, 2016; Campos *et al.*, 2016) The rural population in most of the interior areas of Portugal is becoming older and in this scenario of ageing, rural population alternatives are needed. This aging and low-density population, resulting from land abandonment, is present in other south-European countries and tend to lead towards desertification, intensifying the risks

associated to the expected impacts of climate change for such regions, decrease in precipitation, increase in temperatures and heat waves, and more climatic unpredictability (Kosmas *et al.*, 2015; Füssel *et al.*, 2017).

Although, this has been the trend in the last decades, slowly a new countryside is beginning to shift, towards more diverse neo-rural expressions. This transition occurring in the rural areas is a multifunctional one, and new societal expectations emerge for the rural areas, which includes countryside consumption and protection as well as the production aspect normally associated. An inflow of *urbanites*, is now stimulating the emergence of novel ways of managing the land, bringing diverse values systems into dialogue. This is transforming the rural landscape and diversifying the approaches applied by land managers, resulting in more diversified and heterogeneous land practices. One of this approaches is what can be called “Lifestyle farming”, a more holistic perspective on rural lifestyle grounded in the quest for healthier ways of living more connected with Nature that include food production as a Human-Nature linkage, but where the rural landholders diversify their income making activities, looking for a more sustainable and diversified livelihood, where farming is part of that lifestyle, and farm management is a dedicated activity (Pinto-Correia, Barroso and Menezes, 2010; Almeida *et al.*, 2016; Pinto-Correia, Almeida and Gonzalez, 2017).

According to Sobral (2014), a new back-to-the-land movement looking to develop new forms of Human habitat with values and lifestyles wishing to recreate community in contact with Nature and responsible consumption aiming for sustainable futures, is emerging within the Portuguese rural landscapes, what he calls Neo-rural settlements. Permaculture has been used by several of this neo-rural land managers to design their lands and land-based livelihoods.

Other community-led initiatives that, in Portugal, have been closely linked with Permaculture have been highlighted in the 2019 status Report of the European Network for Community-led Initiatives on Climate Change and Sustainability – Ecolise. Permaculture in Portugal is closely linked to the following movements: Transition Towns, Ecovillages, Community Energy, Solidarity Economy and others (Penha-Lopes *et al.*, 2019).

In 2015 in the Worldwide Permaculture Network<sup>2</sup>, a social media reference within international permaculture practitioners, Portugal was the 5<sup>th</sup> country with more permaculture projects (43 projects) and as a network the 1<sup>st</sup> with more projects per country's area. With this minor data, and no systematized research information on the possible innovations that could be coming out of such community-led initiatives in Portugal, we have found the need for a baseline survey as a way to start mapping the possible climate change adaptation and transformational solutions, being innovated by such grassroots movement. In 2018 in the same network's database, Portugal was the European country with more projects (67 projects) followed by UK (66), Spain (65), France (45), Italy (37), showing an increase in number of projects, not only in Portugal but in Europe as a whole. With the exception of the UK (possibly because of the Australian origin with English being the language of the first dissemination of the concept), in Europe there is a wider presence of Permaculture projects in southern European countries.

With this article, we are aiming to identify and start characterizing the Permaculture landscape ecological design movement in Portugal, the motivations and perceptions of such movement, and its contribution towards the transformation of societal trends and ecocentric innovations to create more sustainable socio-ecological rural livelihoods within a Portuguese context.

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<sup>2</sup> <http://permacultureglobal.org/>

## 4. Methodology

To be able to start characterizing the “socio-technological niche” created by the Portuguese permaculture movement, we have used a social-ecological inventory, as a way to find the key actors (permaculturists) and engage them in the process. Social-ecological inventories bridges stakeholder analysis with conventional ecological inventories, creating the ground for participation (Schultz, Folke and Olsson, 2007; Baird, Plummer and Pickering, 2014). We see the value of this methodology in supporting the identification of biophysical landscapes that are serving as inspiration to the Portuguese permaculture movement, matching the ecological impact emerging from such interaction with the land with the value systems and characteristics of the permaculture practitioners.

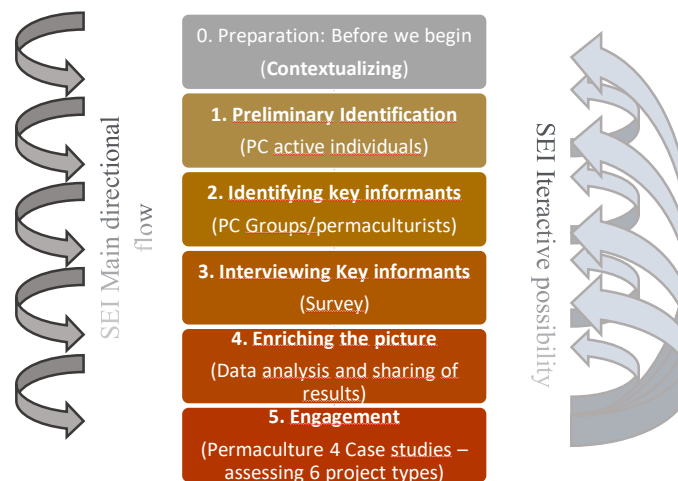


Fig 1. Social-Ecological Inventory (SEI) framework stages adapted from Shultz, Plummer and Purdy, 2011.

We began with this framework by looking to map permaculturists, their values, motivations, activities, knowledge and experiences over time, as well as identifying their networks of inspiration and reference. To start engaging and preparing the way for participation, we needed to identify and then select the most appropriate groups of actors to work with and form common trust. (Shultz, Plummer and Purdy, 2011)

Social-Ecological Inventories (SEI) are iterative processes and although they are framed presenting six phases, they are continuously incorporating the feedback loops that emerge from the process (Fig. 1). We have started with a Preparation (0) phase by contextualizing. Here, clear goals are defined, and expectations framed. It was a time dedicated to review available data on the permaculture movement in Portugal. No public census or other published statistical data showed the number of permaculturists in Portugal. So we accessed several non-official national and international permaculture networking webpages (Rede Convergir<sup>3</sup>, Rede Transição e Permacultura Portugal<sup>4</sup>). From a number of 5,268 members, we calculated a sample of 150 permaculturist (Confidence level = 95%; confidence interval = 8). We have defined, for this survey, a permaculturists as someone who has attended a 72 hours Permaculture Design Certificate (PDC), considered by many as a basic introduction to permaculture design practices.

Subsequently, it was the Preliminary (1) phase. For this stage, we identified groups and individuals actively involved in permaculture in Portugal, approaching different dynamic individuals, asking them to identify key actors of the movement (permaculture teachers, managers of permaculture projects, permaculture practitioners...), and networking groups, following a Peer Esteem Snowball sampling methodology (Goodman, 1961; Christopoulos, 2009).

<sup>3</sup> <http://www.redeconvergir.net/>

<sup>4</sup> <http://permaculturaportugal.ning.com>

The phase (2) Identifying Key Informants, was done almost in parallel with phase 1. They were mutually inclusive and one led to the other. As a key permaculturist was identified and pre-interviewed, more actors, networks and groups unfolded.

The Interviewing Key Informants (3) phase was catalysed by a simple closed questions 4 pages exploratory survey (see Attachment I). One page on survey data (place, date and contacts), followed by one on personal data (name, gender, age, nationality, profession, education and type of residency) ending with two pages on permaculture related data (motivation for attending a PDC, general information on the PDC, application of skills and knowledge gathered, perceptions and participation on the permaculture movement in Portugal, percentage of income derived from permaculture activities, and the nomination of a reference permaculture project in Portugal for 6 typologies). One third of the respondents were interviewed in person and two thirds answered via internet. We visited permaculture projects and contacted groups in different regions of the country in order to have wider representation of the movement (NUTS/nº of survey answered – North/20; Centre/22; Lisbon Metropolitan Area/40; Alentejo/14; Algarve/27; Azores/2; Madeira/2). At the 1<sup>st</sup> Portuguese Permaculture Convergence (2014) at Fundação (Centre), many surveys were answered and permaculturists directed to the survey's website. We used SurveyMonkey.com and shared the survey within permaculture relevant internet groups, and through personalized emails and messages on social media to key permaculturist, asking them to share it with their networks.

Our sample of 150 permaculturist was reached by mid-2015. Leading to the 4<sup>th</sup> phase of the SEI, Enriching the Picture. A time for data analysis and sharing of results. This was followed by the Engagement (5) phase, where the researcher visited the respondent's most referenced Permaculture projects for the 6 different categories, interviewing representatives of such projects for a simple introduction to the specifications of each project, their main aims and characteristics and regenerative innovations applied to land management and rural activation. These innovations will then be the focus of future studies to access their viability as adaptation measures and innovations towards more regenerative modes of relating, managing and stewarding rural land.

## 5. Results

The survey showed us a movement comprised predominantly of young adults (mid-30s), with twice more men than women (Fig. 2). The level of scholarity was high, with many having attended 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> level of higher education (Fig. 3). In a scenario of rural aging population this young ruralisation movement aiming to return to more permanent land-based farming lifestyles, could contribute to a reactivating of the countryside, bringing an ecological landscape design and managed toolkit to rethink rural livelihoods. In terms of gender expression, it presents a contrary expression to the global trend of the permaculture movement worldwide that shows a higher female representation (Ferguson and Lovell, 2015).

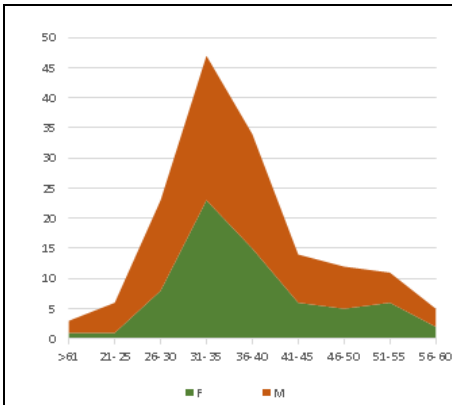


Fig 2. Age and gender of respondents.

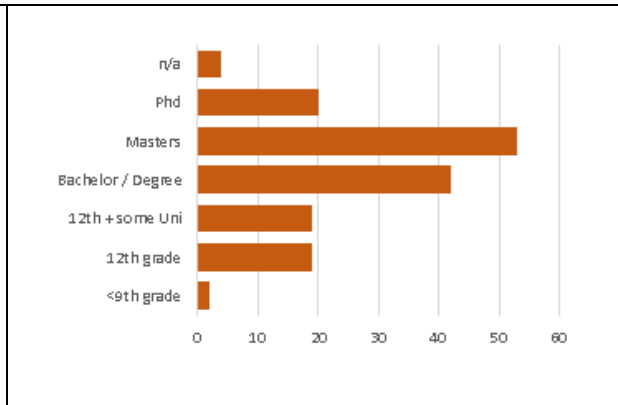


Fig 3. Formal education of respondents.







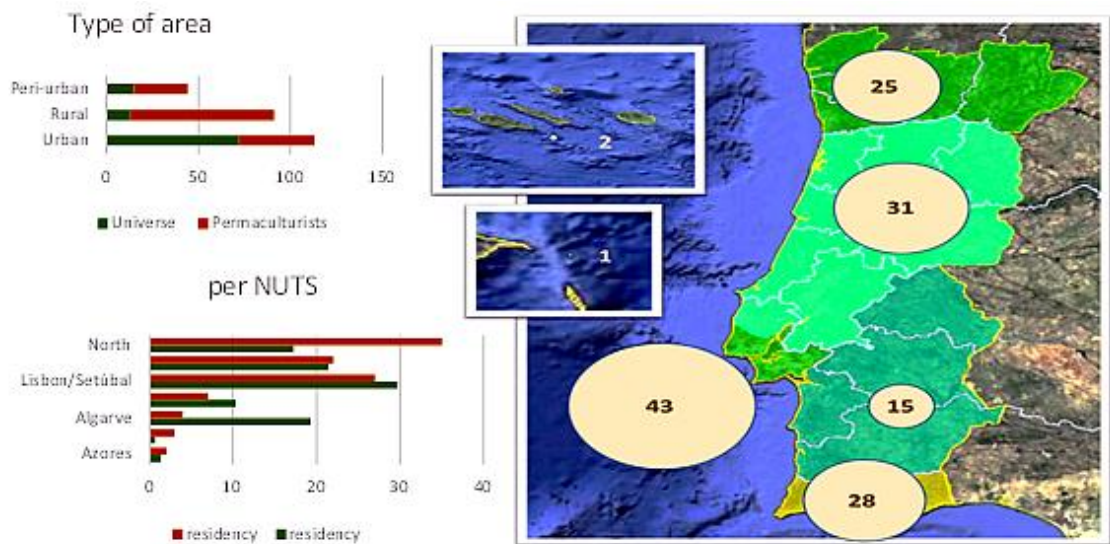


Fig 5. Residency distribution per NUTS and type of area.

Although the rural presence is highlighted, respondents tend to live in small households. With 58% of the respondents living in properties with an area of less than 2.5ht and within these, 38% of all respondents, were living in properties with less than half a hectare. Although, clearly there was a predominant presence of small households, we still had 24% of these permaculturists living in properties with more than 10ht, several living communally, followed by 17% on properties between 2.5 to 5ht, 5% on 5 to 7.5ht and 6% on 7.5 to 10ht.

After inquiring the demographic characteristics of the respondents as well as their landscape presence in the territory, we followed the survey with inquiries more closely related to the character of the Permaculture practice and expression, in order to understand when did the movement started having considerable representation in Portugal, what motivated permaculturists to engage in such practices and how they perceive the movement as experts/stakeholders within such movement.

Considering, for this study, the Permaculture Design Certificate (PDC) training courses as the entrance point to begin being active in the movement in Portugal, the results showed quite a recent movement. Most of the respondents attended their PDC within the 7 years prior to the survey (2008 to 2014). The great majority attended their PDC's in Portugal, followed by others that attended their PDC's in the United Kingdom, and few other countries (Fig. 6).

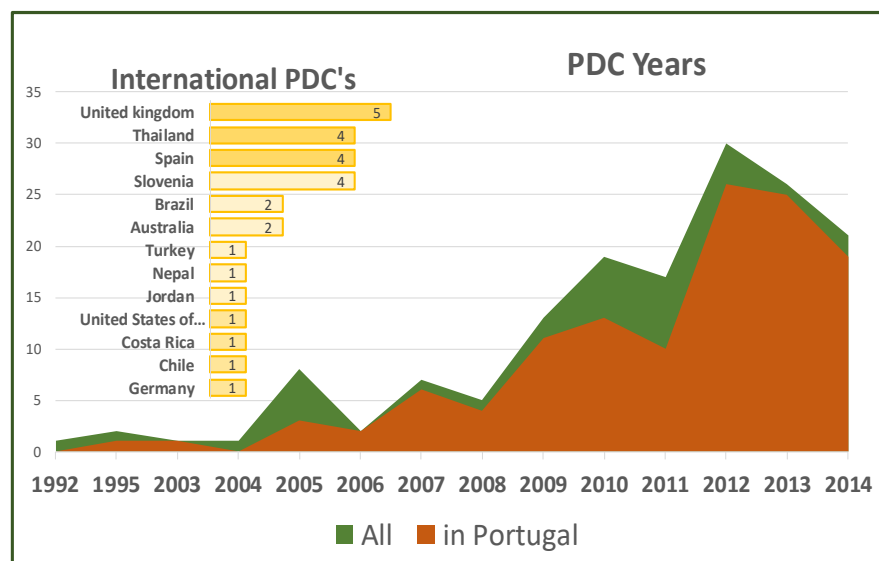


Fig 6. Data and country of the 1<sup>st</sup> Permaculture Design Certificate taken by respondents.

As a concept, Permaculture originated in Australia in the mid-70s, so for us it was also interesting to understand who was teaching and sharing the concept and design skillset, as well as understand where the practitioners were getting their inspiration from. For that, we asked also the nationality of the Permaculture main trainers as well as the secondary or assistant ones to see if a transmission of the concept was becoming more localized. What we observed was that most of the main teachers from whom the respondents received their learning were of English spoken countries with again a predominant British presence, although a relevant number of Portuguese teachers were already teaching as main teachers. On the secondary and assistant teachers' side, we then saw that most of them were Portuguese, showing a possible transmission of training skills to and by local teachers (Fig. 7).

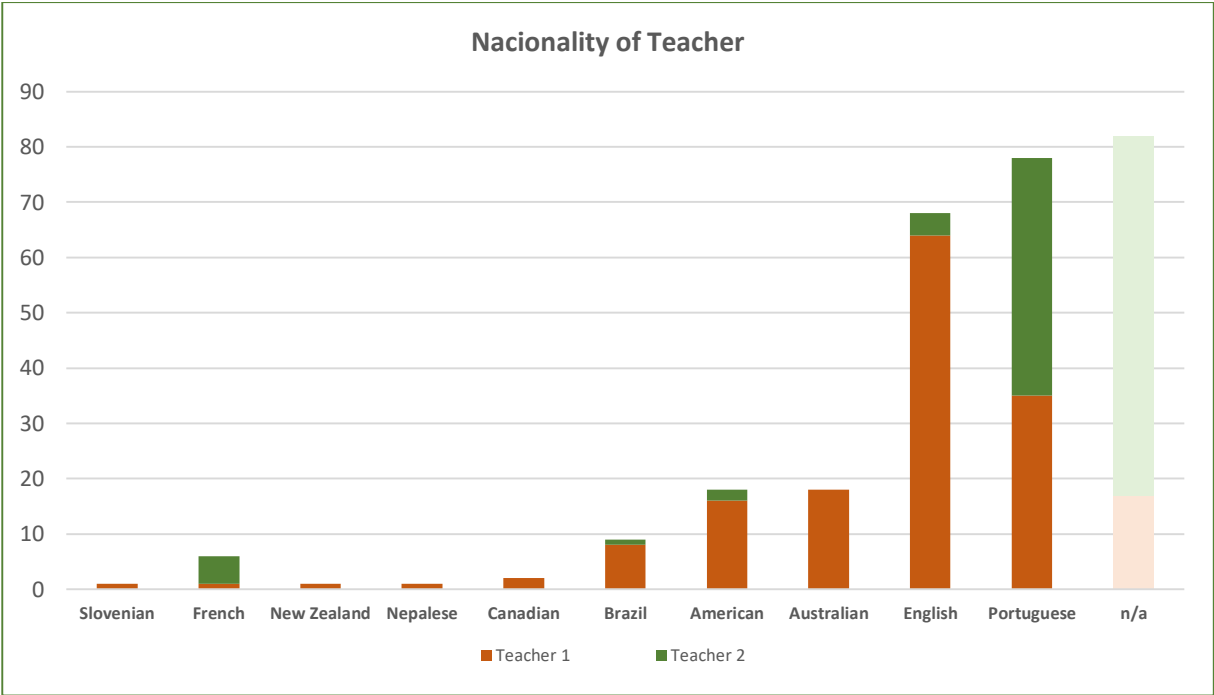


Fig 7. Nationality of the main and secondary teachers within PDC's taken by the respondents.

We have also asked, if respondents were applying the skills they've learned during their PDC's in order to analyse the practicability of the learning and the dissemination level of such trainings. The answers showed a wide relevance in the skills shared and many still were applying what they have learned through multiple pathways. 97% of the respondents still apply the skills and knowledge they've learned during their PDC, especially the ones relating to lifestyle skills, but also on a more professional level as designers, gardeners and farmers, and some have also started sharing those skills with others through trainings and courses (Fig. 8).

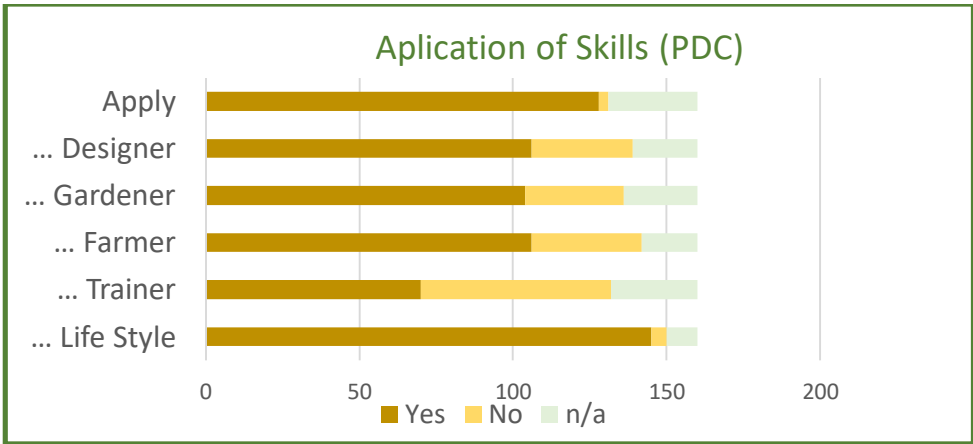


Fig 8. Post-course application of skills learned during respondent's PDCs.

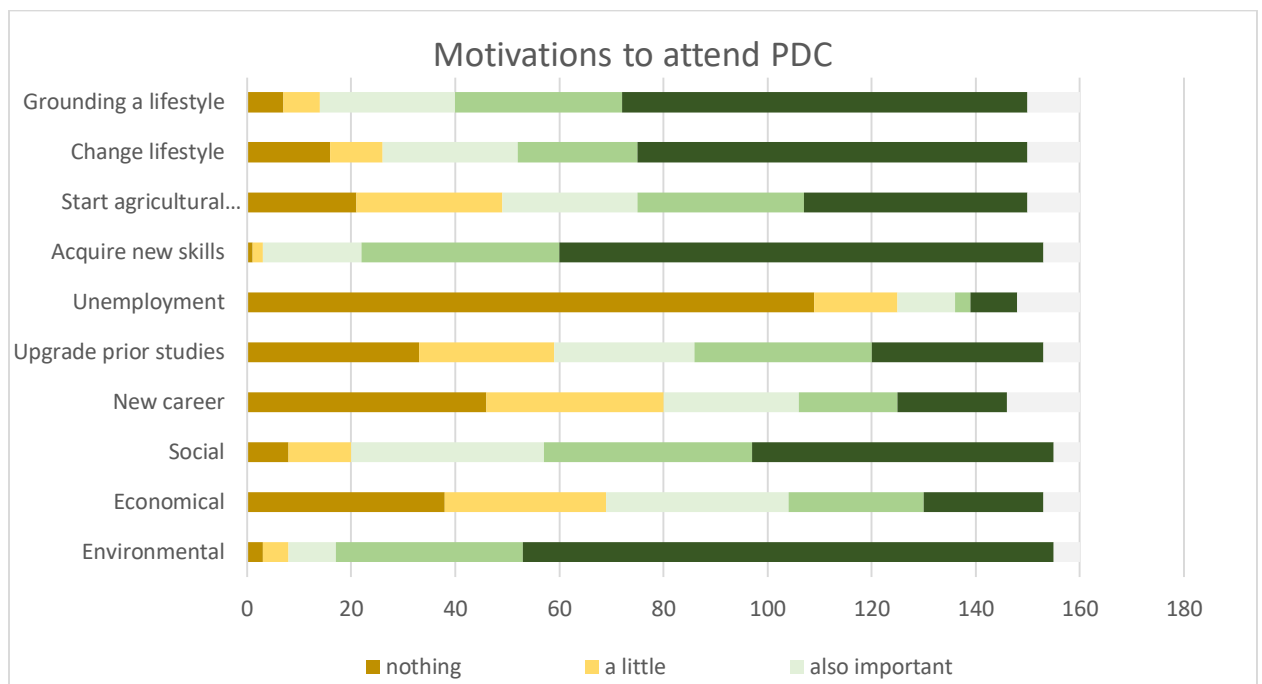


Fig 9. Motivations to attend a Permaculture Design Certificate (PDC) training course.

To understand the root motivations behind the respondent's choices to attend such educational venture (PDC), we've asked them to grade several aspects according to the level of importance as reasons why they choose to attend such trainings (Fig. 9). In the interviews, many permaculturists showed a widely ecocentric ethical tendency towards the motives for their actions, this was greatly confirmed by the weight given to environmental reasons to attend such educational program. Within the triple bottom line, the environmental reasons were the main motivation, followed by social concerns and less weight to economic reasons. Although the level of formal education was high many were motivated to acquire new practical skills and ground or change their lifestyles to more Nature connected livelihoods. In contrast, being unemployed, or finding a new career were of less importance.

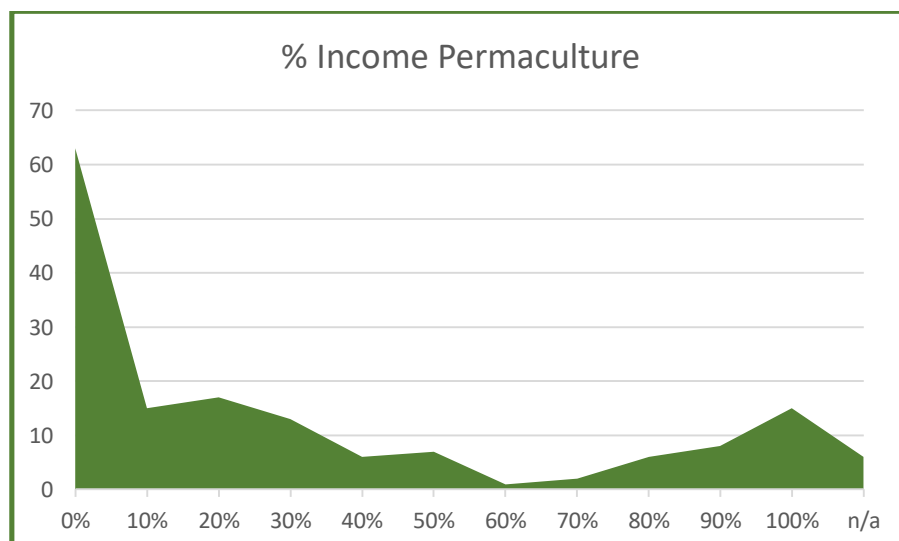


Fig 10. Income from permaculture activity per respondent.

In terms of creating an economical viable livelihood, we were interested in inquiring how much of their personal income was generated within Permaculture related activities. And only 10% had their full income generated by Permaculture activities and for 42% permaculture provided no income. To 48% though, permaculture activities acted as a poli-income supplement. This

characteristic is present in many of the lifestyle farmers mentioned before, with the neo-rural expression of such lifestyle farmers having to, or wishing to, generate their income in other activities other than Permaculture related practices (Fig. 10).

When asked about their participation in the permaculture movement in Portugal, the majority considered themselves, totally or partly, part of the movement and identify themselves with the movement's actions to a certain degree. The majority of the respondents perceive the movement as having a predominant "bottom up" (grassroots) approach, while transforming landscapes towards higher levels of resilience and creating more resilient social alternatives. And although the concept and many of the strategies were created in other parts of the globe, the respondents found that most were being adapted to the biogeographical reality of Portugal (Fig. 11).

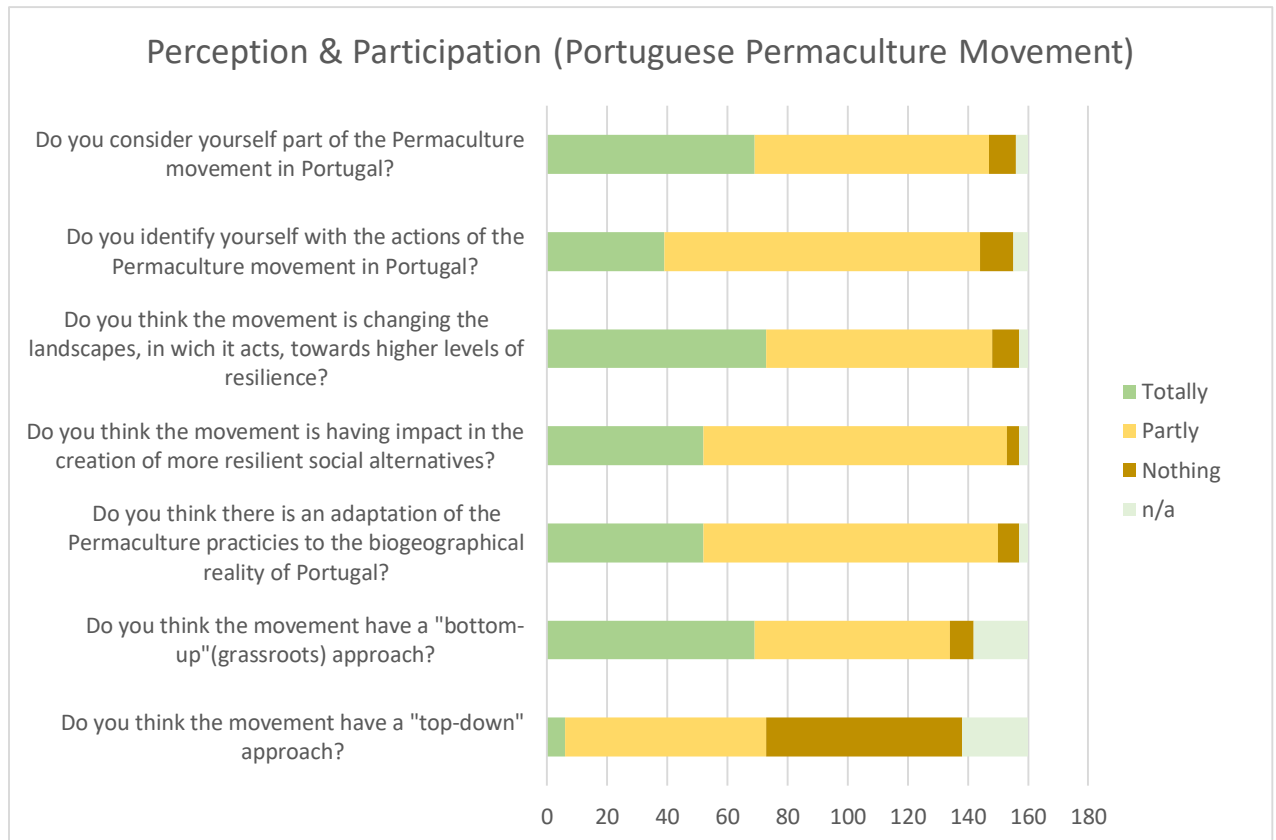


Fig 11. Respondent's perception and participation on the Portuguese permaculture movement.

To assess the biophysical implications of permaculture design practices, and relate to transformational tendencies towards sustainability at the landscape level, we asked the respondents to choose 6 reference and demonstrative permaculture projects in Portugal that would be good representations on 6 different typologies:

- **Ecological:** a Permaculture project that in their opinion focusses more on environmental regeneration and ecological alternatives to land management:
- **Social:** a Permaculture project that would showcase good practical examples of community engagement and resilience on the social level, with reference decision making processes, organizational skills and community's participation.
- **Economic:** a Permaculture project that has a viable and productive model that is focussed on food and other multifunctional services that allow for sustainable livelihoods creation.
- **Educational:** a Permaculture learning centre, that can showcase quality training and dissemination of Permaculture skills and learning through valuable pedagogical processes.

- **Ecovillage:** a Permaculture co-housing and co-living community, that focusses on sustainable living and collaborative forms of manifesting the Permaculture principles as an intentional community.
- **Single family farm:** a unifamilial Permaculture project, a farm that focusses on production and habitation at the household level and the Permaculture lifestyle within a family unit.

The result of such nomination by the respondents was as follows:

Tab 1. Case study nomination by category.

Type of PC Project	1 <sup>st</sup>	n. of answers	2 <sup>nd</sup>	n. of answers	3 <sup>rd</sup>	n. of answers
<b>ECOLOGICAL</b> Environmental Regeneration	Tamera Healing Biotope I (Odemira)	37	Quinta do Vale da Lama (Lagos)	14	Terramada (Tavira)	7
<b>SOCIAL</b> Community Project	Tamera Healing Biotope I (Odemira)	24	Centro de Convergência, Aldeia das Amoreiras (Odemira)	19	Quinta do Vale da Lama (Lagos)	14
<b>ECONOMICAL</b> Productive Farm	Herdade do Freixo do Meio (Montemor-o- Novo)	35	Quinta dos Sete Nomes (Sintra)	10	Quinta do Vale da Lama (Lagos)	10
<b>EDUCATIONAL</b> Permaculture Learning Centre	Quinta do Vale da Lama (Lagos)	72	Quinta dos Sete Nomes (Sintra)	11	O Fojo (Alvaiázere)	10
<b>ECOVILLAGE</b> Co-housing & Community	Tamera Healing Biotope I (Odemira)	55	Quinta do Luzio – Ecoaldeia de Janas (Sintra)	7	Quinta do Vale da Lama (Lagos)	6
<b>SELF- SUFFICIENCY</b> Single-family	Quinta do Boiço (Tábua)	10	Quinta Cabeça do Mato (Tábua)	8	Herdade do Freixo do Meio (Montemor-o- Novo)	5

Within the 5<sup>th</sup> phase of the SEI (the Engagement Phase), we visited the projects ranked higher for each category and were introduced to the character of each project. We walked the landscape and interviewed representatives that guided us through the biophysical and social characteristics of each farm/project. The results of such engagement phase were as following.

### Tamera Healing Biotope I (Ecological, Social & Ecovillage)

Having been chosen by many of the respondents as a reference permaculture project in Portugal for three of the fields described before, namely as an Ecological (environmental regeneration), Social (community project) and Ecovillage (co-housing & community) type project, it makes sense to start describing this ambitious and innovative project.

Located in the deep rural lands of Odemira, Alentejo, “Tamera Healing Biotope I” directly manage 140 hectares of land, housing close to 200 community members of diverse nationalities. Starting with a small group in 1995, they aim to birth “a planetary culture of autonomous and interconnected communities: a post-patriarchal civilization free of violence and war”, what they call *Terra Nova*. To achieve such a vision, they created this project as a possibly replicable model of a Healing Biotope, “decentralized autonomous communities”

functioning as “*experimental research and learning centers*” where “*all beings live together in full cooperation and unreserved trust*” adapting and responding as “*open systems*” to local and global characteristics and needs (Tamera – Peace Research & Education Center, 2018).

The core foundational pillars of Tamera Healing Biotope I are: “*Earth stewardship – restoring nature and reversing climate change by using methods of rainwater retention and permaculture; Sacred alliance of all beings – establishing a culture of deep ecology, and actively cooperating with all creatures without cruelty, even those we call pests; Regenerative Autonomy – creating new reciprocal and gift economies and clean decentralized technologies, where water, energy and food, as basic rights, are abundant and freely available; Healing through community – forming communities based on transparency, empathy and coherence, dissolving fear and struggles for power and attention; Love and sexuality – creating spaces of profound trust, transparency and solidarity that liberate love from fear, and honour sexuality as sacred power of life; Creative sacred power – maintaining a spiritual practice that places the sacredness of life at its centre.*” (Tamera – Peace Research & Education Center, 2018).

Walking through the landscape, one can observe a widely showcased “*Water retention landscape*” a term used in Tamera to describe an interconnected system of water management strategies, comprise of dams, lakes, swales (berm & ditch on contour), vegetation on contour and other innovations, that together aim to slow, spread, sink and store water in the landscape wishing to replenish the aquifers and increase the small water cycles present in the landscape (Holzer, 2011; Pijnappels and Dieltz, 2013; Santos *et al.*, 2018).

The diverse and patchiness character of land-uses, crops and species, it is clearly observed just with a simple stroll, as well as the fluctuation on temperature discontinuity as one enters close canopies, open fields and shores of water bodies. Several sustainable land-uses and management practices are present such as: Agroforestry, from the traditional *Montado* system to more innovated trials on forest gardens and other multi-storey agroforestry; horticulture patches, for food and seed production; Lakes and Dams; forest and shrubland; cultural patches of housing, community use and sacred sites with their surrounding aesthetical qualities; and more.

On the social and cultural level, innovation is present in the co-creation, co-ownership and co-habitation within a renewed cultural model, where a peaceful human existence is prototyped and lived, a proposed new model for rural livelihood re-engagement (Esteves, 1994; Pacheco Coelho, 2014). “Tamera Healing Biotope I” also host educational platforms and a campus, where new ideas and skills are shared. In the field of appropriate technology, research and innovation on diverse decentralized approaches to solar energy, biogas digesters, and others, are tested and showcased within what it’s called the “Solar Village”. Several microbusinesses are present and a flux of visitors is constant during the month that the community is open for interactions with the public.

### **Herdade do Freixo do Meio (Economical)**

Within an ancient 500-hectare farm at the outskirts of Montemor-o-novo, since the 1990s when the land started being managed according to a new vision nurtured by the owner’s wish to honour the legacy, around 30 co-producers collaborated to manage a multifunctional farm re-enlivening the medieval agroecological system of the *Montado*, and rural lifestyle. Grounding their work on the visions of agroecology, permaculture and food sovereignty, the farm produces more than 200 types of organic food products, that are processed at the farm and sold through both a Community Supported Agriculture (CSA) model, online shop, on-farm shop and a shop in Lisbon at the central farmers market. Their products range from diverse meat products; to vegetables, legumes and fruits; to bread, cereals and acorn products; to wine, juices and olive oil; and others. The farm hosts seven micro-agro-industries (bakery, olive press, meat-processing unit, charcuterie, poultry’s slaughterhouse unit, vegetable processing unit and a kitchen) alongside a restaurant and coffee-shop, an eco-hostel, an eco-camping site, a school and other facilities.



The “Herdade do Freixo do Meio” wishes to integrate high levels of biodiversity and landscape character, assuring viable and sustainable livelihoods to the stewards and users of the land. It hosts an Integral Cooperative of Users, wishing to share and ground the farm in community values. Within the farm, there are some plots leased to autonomous projects, increasing in this way the diversity of land uses and livelihoods, as well as decentralizing decision making. These projects range from a key-line designed permaculture fruit orchard and garden, to a medicinal and aromatic plants production unit, to bee-keeping and to a horse-riding school.

Multifunctionality and diversity are present in the character of the *Herdade*, aiming to provide a resilient and self-supporting cooperation and livelihood for the people that interact with the several projects. Honouring old traditional knowledge while looking forward to innovate where possible, this project has a cohesive presence and participation in the region where it is grounded, providing jobs, opportunities and produce to locals, visitors and the region.

### **Quinta do Vale da Lama (Educational)**

Wishing to be an *“oasis of sustainable good living within the touristic region of the Algarve”*, “Quinta do Vale da Lama” manages 43 hectares of costal landscape at the shores of the *Ria do Alvor*, Lagos. It aims to provide *“farm-based experiences which empower individuals of all ages and backgrounds to create positive social and ecological impact by living in a regenerative way”*. Looking to work *“together with Nature”*, the farm is managed as a permaculture and regenerative agroecosystem and *“experiments several ways of growing food, working with biodiversity of plants and animals”* it strives to achieve their aim by *“redesigning the farm to become a resilient landscape”*. It is the owner’s intention to *“establish and maintain permanent systems that bring abundance for this and future generations.”* (Quinta do Vale da Lama, 2018).

Being owned by a family of 4, it hires more or less 15 people to implement and run the diverse sectors of the farm, some of them living on site. It incorporates an Agroturism venture, “Casa Vale da Lama”, that combines a small ecoresort with 9 rooms with regenerative farming operations, that wish to produce sufficient produce to provide for the farm needs as well as distributing the surplus with the local community through a stand in a local organic farmers market, as well as on farm open days. The land is comprised of diverse landscape units, a patchiness that allows for diverse modes of management:

1. Rainfed agrosilvopastoral systems of carob, almond and fig with sheep in a holistic planned grazing strategy, supported by fodder banks with woody, perennial species, for the dryer months. This is accompanied by water retention “swales” to sink, soak and spread the water that falls in the rain season, holding it in the landscape.
2. Rainfed native woodland reforestation with half-moon berms to retain rainwater.
3. Irrigated orange orchards with chicken rotational grazing
4. Rainfed Olive groves with wild asparagus in the understory
5. Flood irrigated Forest garden & Syntropic agroforestry
6. Market garden organic horticulture fields
7. Ornamental waterwise gardens
8. School and pedagogical gardens
9. Other...

On the educational front, the farm hosts *Associação Projecto Novas Descobertas*, an NGO with more than 20 years of experience in the field of youth and adult education, bringing people of diverse socio-economic backgrounds, to experience Nature in diverse ways. It looks to converge, new and creative learning approaches with traditional knowledge through organizing workshops, courses, summercamps, internships, farm open days, as well as partnering with local schools and other organizations. It operates from an area in the farm called “Campo do Vale”, an educational campus that aims to demonstrate and provide a experimentally rich learning environment for connecting with Nature. Although centred in “Campo do Vale”, many of

the learning opportunities are found in the farm, and so, an interdepending and fluid integration is done with, both the practices and the learnings available and implemented in the farm.

For more than 10 years that the farm offers Permaculture Design Certificates with many permaculturists having passed through, over the years, many starting their permaculture learning journeys here. Permaculture has been one of the ideological inspirations for the design of the land and the development of learning programs.

### **Quinta do Boiço (Self-sufficiency)**

The Sustainable Forest Garden Farm Project, or “Quinta do Boiço”, is a 7-hectare permaculture family smallholding situated in central Portugal, close to Tábua. Aiming to “*live and share a holistic, ecological and self-sufficient lifestyle*”, a family of 4 has settled in a terraced valley to “*observe and learn from the natural ecosystem*” and created a forest garden, or multi-storey agroforest, with high diversity of species aiming to provide abundant and all year-round crops for the family. The family had moved to Portugal from the United Kingdom after having lived in other permaculture projects and sustainable communities. In 1992 after a Permaculture course, where they first heard about forest gardening, they started to materialize a dream of creating one in Portugal where a wider variety of fruit bearing trees could be planted, which motivated them. When they arrive to the land, this already had a great variety of trees (pears, apples, peaches, cherries, plums, apricots, figs, loquats, nectarines, persimmons, kiwis, grapes, chestnuts, walnuts, hazelnuts and olives) and they “*could see the possibility, in [such] place, for coming much closer to [their] ideal of self-sufficiency*”. They have planted many other trees and shrubs, some very unusual fruits, berries and other crops, many as a mode of trial, to see how they would adapt to a different climate than that of their origin. After successes and failures, a forest garden came into being, and supported the needs of the family in food, fodder for a milking goat that in return gave them milk and manure, fibre for crafts, pharmacy as with herbal medicine and fun for the kids. Both kids, when older, moved back to the UK, and when we visited the farm, only one of the family members was living in the farm and not on a regular basis. In conversation with the owner, he mentioned that the years they had lived on the farm, the forest garden provided them most of their needs, and that the surrounding community of neighbours and friends were very active with regular gatherings and events, and that many people visited the farm.

## **6. Discussion**

With this study, we started the characterization of the Permaculture movement in a Southern European country context, of rural land abandonment and aging population, such as Portugal. Framing it as a niche innovation, in development, within transition studies, that has potential to bring back viable and incubating hubs of adaptation/transformation within such rural contexts (Geels, 2002, 2014; Seyfang *et al.*, 2014; Geels *et al.*, 2017). A re-ruralization that is taking place as neo-rural settlers are returning to the countryside, many looking for ecocentric “lifestyle farming” modes of interacting with the land and the communities they are part of (Esteves, 1994; Pinto-Correia, Barroso and Menezes, 2010; Sobral, 2014; Pinto-Correia, Almeida and Gonzalez, 2017). We encountered a movement comprised of young adults, highly skilled academically, looking to ground a rural lifestyle that aims for ecological, social and economic regeneration. A movement based on ecocentric values and ethics, aiming for a just and viable livelihood in close connection with Nature.

The dissemination of the concept tends to follow the non-formal education route through the Permaculture Design Certificates, other related courses and workshops, word of mouth, volunteering and visits to Permaculture farms. Many of the main teachers of the PDC’s taken by the respondents were British, although shifting to more of a Portuguese presence in such role, this could show an historical connection with the movement in the UK. According to Maye (2018), the permaculture movement in the UK “is focused around the [British] Permaculture Association” that developed tools, learning processes and information, as well as organizes the network through events and gathering and social media, and showcases good examples through LAND and FarmLAND initiatives. In Portugal such type of institution or support is not

present and the movement has a less organizational character, with individuals and projects bringing forward initiatives, programs and events on a spontaneous and self-organizing fashion.

The Permaculture reference projects we visited, chosen by 150 permaculture experts/stakeholders, showcased relevant and diverse examples of innovative sustainable landscape management and climate change adaptation & mitigation practices, as well as social and community innovations around modes of shared decision making and community involvement.

All four, implemented strategies aiming to retain rainwater in the landscape, by creating dams, lakes, swales, terraces, Keyline design, vegetation on contour or mulches, aiming to increase the small water cycles and allow for an extended hydration period. With precipitation being expected to decrease in southern European countries, we see the relevance of such strategies as a Climate-change adaptation measurement. (Füssel *et al.*, 2017; Zanden, 2017; Duncan and Krawczyk, 2018; Keesstra *et al.*, 2018)

Diverse Agroforestry practices were also present in all of the projects, from multilayer perennial poly-cropping such as forest gardens, home-gardens to innovations within more extensive and/or traditional agrosilvopastoral systems such as the “Montado” landscape and the “*Pomar misto de sequeiro*” or mixed rainfed orchard, windbreaks, riparian buffers and other agroforestry practices. Agroforestry practices have been seen as a viable and highly relevant agroecological practice to combat climate change by several studies (Verchot *et al.*, 2007; Schoeneberger, 2009; Luedeling *et al.*, 2014; Mbow *et al.*, 2014; Mosquera-Losada *et al.*, 2018).

In all projects visited, high levels of landscape diversity & patchiness are not only present as they were designed into the landscape character of such projects. Several studies relate high levels of landscape diversity & patchiness to ecosystem resilience and broader sets of ecosystem services provided by such landscapes. With climate change scenarios highlighting greater unpredictability, the resilience of agroecological systems are of extreme relevance (Lin, 2011; Mijatović *et al.*, 2013; Schippers *et al.*, 2014).

At the social level, we identified a common wish to experiment with more horizontal and shared decision-making processes, as well as a high level of community involvement. From the creation of integral cooperatives of users, to community supported agriculture schemes or school & pedagogical gardens, all wishing to reduce the distance between producers and consumers, as well as promoting Social farming approaches to integration and proximity. All the 4 projects presented a certain level of shared decision making, from holacracy circles to cooperative assemblies, non-violent conflict resolution, *Forum* circles and operational team meetings, to family intra-household decision making, all trying to include as much as possible the shared voices of the users and stewards of each land. (Robertson, 2007; Ajates Gonzalez, 2017; *Forum – a social technology for transparency in community*, 2018; Hudcová, Chovanec and Moudrý, 2018; Tulla *et al.*, 2018)

We identify the need for further, more in-depth, studies to research the specific innovations that the Permaculture movement in Portugal is prototyping, being them from an ecological or social nature. The cultural basis of rural Portugal presents a canvas that interacting with such innovations can present solutions for the times ahead. Also, being this paper just an exploratory survey, a more objective biophysical analysis of this designed landscapes could offer more clarity on some of the proposed benefits and limitations of Permaculture as a regenerative landscape design practice.

## 7. Conclusion

The Permaculture landscape ecological design movement in Portugal has been, so far, activated by grassroot community led-initiatives of young land stewards, many of which, in areas of rural abandonment and targeting a re-enlivenment of such landscapes. Grounded on a deeply ecocentric ethical paradigm, aiming for social equity and shared decision making, the imprints on the landscape show integrated practices of agroforestry, landscape rainwater harvesting, and high levels of landscape diversity and patchiness. These sustainable landscape practices had been highlighted extensively as appropriate strategies for climate change

adaptation and mitigation in their academic fields, what is lacking is the integration of such practices within appropriate lifestyles and transdisciplinary landscape management approaches relevant, in this case, for a re-activation of rural landscapes in a South-European context. Permaculture practices and associated lifestyles can provide one of the options for such holistic and integrated rural re-activation by bringing young citizens to the rural landscapes wishing to recreate innovative rural livelihoods. More in-depth studies relating these individual practices and the interchangeable strengths, weaknesses, opportunities and challenges present in permaculture managed landscape are needed. We hope this baseline study can serve as a catalyser for such future studies.

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