

LandsCare: A system of payments for environmental services based on the beauty of the landscape

by Pablo MARTINEZ de ANGUIA

LandsCare is a smart-phone guide and a website on rural territories that use a system of payment for environmental services that tries to contribute to preserve and to valorise the natural and cultural local landscape, by facilitating the interrelation of all the agents of a rural territory, including visitors pursuing a common objective, taking care of the common landscape and obtaining added value from it.

*Cleon, true, possesseth acres,
But the landscape, I; Half the charms to me it
yieldeth,
Money cannot buy; Cleon harbors sloth and
dullness,
Freshening vigor, I; He in velvet, I in fustian,
Richer man am I.*
Cleon and I, Poem
by Charles Mackay

Introduction

The World Cultural and Natural Heritage Summit of 16 November 1972 as well as the European Landscape Convention signed on the 12 September 2002, agree on the idea that landscapes are an essential factor of individual and communal wellbeing and an important part of people's quality of life. As Mackay puts it poetically, "*Cleon, true, possesseth acres, But the landscape I*", landscapes are not just the addition of different land properties. Landscapes have a wider public dimension. They contribute to human fulfilment and have an important public interest role in cultural, ecological, environmental and social fields, and constitute a favourable resource to economic activity, particularly tourism (DÉJEANT-PONS 2003).

Landscapes must be considered both in their natural and cultural dimensions as a single unit. As SCAZOSSI (2003) explains: "*it does not make sense, theoretically, to distinguish 'cultural' landscapes (but also 'historic' landscapes, 'anthropic' landscapes, etc.) from 'natural' landscapes, as they all can be read for their cultural and natural meanings: they are all landscapes*". These "total landscapes", especially if we refer to the European countries that have accepted principles and aims of the Convention, must be protected, managed and/or planned through the adoption of a whole series of general and specific measures at national, regional and local levels, in keeping with the subsidiarity principle. The European Landscape Convention also implies that coun-

1 - LandsCare was born in 2014 at the University Rey Juan Carlos as a research spin-off based on the research made on payment for ecosystem services by professor Pablo Martínez de Anguita.

tries must encourage the participation of the public and of the local and regional authorities in the decision-making processes that affect the landscape dimension of their territory (DÉJEANT-PONS 2003). In fact, the Contracting Parties agreed to undertake the implementation of four general measures at national level:

- to recognise landscapes in law as an essential component of people’s surroundings, an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity;

- to establish and implement policies aimed at landscape protection, management and planning;

- to establish procedures for the participation of the general public, local and regional authorities, and other parties with an interest in the definition and implementation of landscape policies;

- to integrate landscape into regional and town planning policies, cultural, environmental, agricultural, social and economic policies, as well as any other policies with possible direct or indirect impact on landscape.

This article explains the use of LandsCare¹ as a tool to create a collaborative framework using new communication technologies to contribute to the first two objectives and help local people to be “citizens of their landscapes”, meaning to use landscapes sustainably and obtaining fair rewards from doing so, according to the basic principle of subsidiarity. In fact, LandsCare is based on the principle of «environmental subsidiarity» (MARTÍNEZ DE ANGUIA *et al* 2014): the responsibility of conserving nature is of all, but the only ones who can make a change in their own territory are the people living in it.

LandsCare is a website and smart-phone application (app) that links this principle with tourism. By showing natural, ecological and cultural information on every valuable location in a rural territory, any traveller can have a better understanding of it and contribute to its preservation. But this would be useless if local inhabitants did not assume their ultimate responsibility for the preservation of their values. LandsCare therefore does not just provide information as many other guides do, but tries to create incentives and encourages the creation of local networks to protect the natural and cultural heritage, to give beautiful places not only

visibility but also funding for its conservation. In order to do so, LandsCare develops its “guide” by interrelating four systems of improvement of the territory: “LandCarers” or “Trustees”, “LandSharers” or local guides, “LandsArt” or art and educational projects to help children in a territory raise awareness on landscapes’ beauty and generate “LandsCare stamps” and “LandsCrafts”, which is the geolocation and direct selling to travellers of sustainable local produce such as fruits or crafts.

The underlying objective of this tool is always to create relationships and links of all kinds between those living in the same territory towards a shared project: to add value to the territory together. Our philosophy, as the motto of LandsCare is “to share our Land”, is to care for common landscapes in a joint way, preserving its natural and cultural heritage in shared projects by all stakeholders.

Landscapes and Payment for ecosystem services

A payment for environmental or ecosystem services (PES) is a voluntary transaction in which a buyer pays for a service from a provider, as long as the latter secures a service provision. (WUNDER, 2005). Throughout the last years numerous schemes of payment for environmental services have been developed. They always try “to capture and to revert” the economic value of the ecosystems services and pay for the conservation costs through the benefits that these generate to the society. These mechanisms focus especially on the services that nature gives us and are not exploited through the market. The most traditional example is the conservation of watersheds. Water users pay for the conservation of the forest (specially the cloud forests) that captures and favours water storage through their water consumption bills.

Payments for environmental services have been developed mainly based on water and carbon fixation ecosystem functions. The beauty of a landscape is also an ecosystem service; however, this is not normally captured in economics terms even though it is valuable for those who enjoy it directly, such as tourists that visit beautiful places, or indi-

rectly, such as restaurants that have clients because of the beauty surrounding them. In the first case, landscapes provide great personal satisfaction, and in the second one, they increase the revenues for some businesses. Therefore, they have economic value although they do not have a market price. Furthermore, they require in many cases to expend maintenance costs to avoid being degraded or transformed into other uses with less “beauty” and higher direct economic returns. LandsCare is a system that tries to capture this economic value of natural or cultural landscapes and use it to fund local owners, organizations and public administrations that are committed to the conservancy of their heritage. The PES and additional tools included in LandsCare are designed to reduce the “opportunity cost” of degrading landscapes in economic terms, as well as to create other type of incentives and emotional links that must enhance the conservancy of a territory. These other parts of LandsCare are also essential. Landscapes represent a “common good” greater than the addition of singular properties —as it has been recognized by the above mentioned international agreements. Therefore opportunity cost tools must be complemented with other ones that can work at this “common good” level.

What is LandsCare?

LandsCare is a free smart-phone app available for IOs and Android that provides a communication system between local rural population and travellers in such a way that some of the ecosystem and cultural externalities of a territory can be captured and their value reverted into local groups in charge of the maintenance of those services (they are called “LandCarers” in the system). The core of the app is a system of payment for ecosystem services that shows geolocated different natural and cultural assets and describes them to travellers. But this tool is complemented with other possibilities such as finding “local rural guides” defined as people that can share their territory with travellers (tell them stories, interpret the landscape, go for a walk together...) called “LandSharers” in the system, as well as with local providers of sustainable products. These are called “LandsCratfs”. All these mechanisms are

geolocated, allowing a traveller to find them on the Google map of the app. The final aim of the app is to help travellers in any rural place to integrate themselves in a territory, to discover it, to get in touch with its inhabitants, and to do all this in such a way that interrelationships can contribute to conserve the local natural and cultural heritage. At the same time, LandsCare tries to promote sustainable local rural initiatives by integrating local populations in shared projects that provide added value to the territory, dealing most of them with its conservation.

LandsCare allows travellers (See Fig. 1):

- To have geolocated information in real time (as well as in advance when planning the travel online) on the beautiful and valuable places that they will be able to find when travelling.
- To collaborate with micropayments to the support of these cultural and natural values through the app and, doing so, to obtain commercial offers and discounts in establishments linked to LandCarers that take care of these natural and cultural values.
- To find information on the organizations and people linked to the conservation of the places that can be visited in such a way that they can support them in different ways.
- To find local guides (LandSharers) that can spend time with travellers by accompanying them through the territory.
- To find natural and local products and buy them directly from the producers.

LandsCare also allows local populations:

- To show their territory in a personal way, modifiable and updated by the own local agents
- To integrate commerce, forest owners and public and private institutions in small conservation microprojects based on networks of mutual benefit.
- To sell sustainable local products through LandsCare as well as to gain extra income as local guides.
- To integrate different educative organizations in the conservation of the local natural, historical and cultural heritage providing young students and children with a more participative understanding of their own local patrimony.

LandsCare operates on international and national scale. At international scale, in each country that wants to adhere to LandsCare,

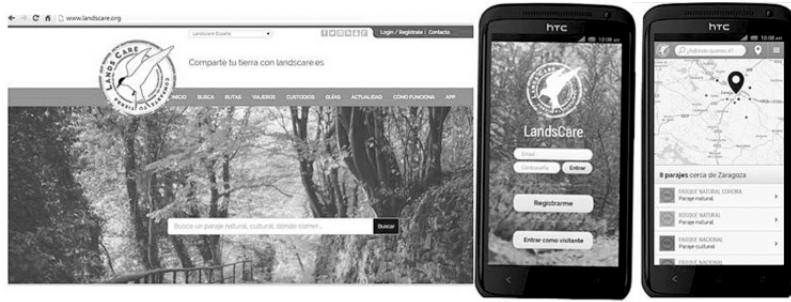


Fig. 1: LandsCare guide of nature, culture, services and paths.

there must be a final national responsible (an agency, business or NGO) to whom the system is given through a licensed agreement. This national responsible, can “sell” the control over some parts of the system to regional or national entities or propose and sell new LandsCare adaptations to new clients. For example, LandsCare Spain sold a specific adapted LandsCare app to a regional government and is developing a new app for a regional town hall and a national park.

At national scale, in a basic LandsCare system the information can be provided by many actors (volunteers, entities, schools, universities, the responsible team...) and remains open, unless a local or regional entity has bought its own territory in LandsCare. But if a territory is bought by an entity, it can introduce new rules on its territory. For example: once a territory is bought by a local development agency, local guides or LandsSharers must be accredited by the agency in order to ensure the quality of the service. Another example can be related to the quality of local services: LandsCare can include all the environmentally sustainable restaurants of the area on the map of a bought territory, if in line with the standards of the buying agency.

Fig. 2: LandsCare System of payment for ecosystem services.



With these mechanisms, LandsCare is able to adapt itself to different levels of management in different countries. At the same time, it is able to provide a way of making money for the different national responsible offices by providing a tool that can help many rural organisms offering a better quality of services in their region.

LandsCare as a payment for ecosystem services mechanism: The “LandCarers”

LandsCare as a payment for ecosystem services, in opposition to other mechanisms that require different intermediate agents who increase transaction costs, is direct: the payment goes from buyer to seller. The mechanism is simple and creates a win-win situation. LandsCare benefits those who take care of the landscape in different ways; provides a valuable service to visitors coming to a rural area and increases local sales linked to conservation.

A tourist will find information for free in the LandsCare app on every valuable place (natural, historical or cultural) in a territory. Also, every place has different bits of information (vegetation, fauna, landscape, history, architecture...), as well as a stamp. Those bits of information are provided by different stakeholders, but the valuable stamps are just provided by the LandCarers. The stamp can be bought, and the visitor can decide to pay for it an amount between 1 and 10 € (or dollars in US) via Paypal. This stamp is included in an app window that provides an explanation of what this LandsCarer will do with this money in order to increase the level of environmental conservation and protection of the land she or he is “guarding”. This is the Payment for the ecosystem services that can be used for new reforestations, to increase surveillance over endangered species or to preserve and old monument. However, to increase the incentives of the sale of the stamps, LandsCarers are linked to local services. When a visitor buys one stamp he can benefit from local offers. Restaurants, bars or shops are previously contacted by the LandsCarer and invited to join the LandsCare system. If they agree, they can announce their establishment for free in the app and propose offers to

those who have bought the stamp. Some examples can be: third beer free, free coffee after the menu or simply a 20% off the sale (See Fig. 2). This generates a triple win situation. The visitor wins, as she or he finds information to interpret the territory, the owners or LandCarers sell their “Ecosystem services” and get funding to continue preserving natural and cultural heritage, and the local retailers can attract new additional clients to their businesses who obtain offers and, at the same time, feel they are contributing to the preservation of local ecosystems in an integrated way.

LandsCare as a rural guides finder system: the “LandSharers”

Being able to interpret a territory is a basic premise in order to capture the highest possible value of its landscape. LandsCare introduces in the app a free system of geolocated “human guides”. These LandSharers are local people ready to share some time with visitors and explain to them their vision of their land. They can tell old local stories, open the doors of a closed ancient chapel or go with the visitors for a walk along the local river while describing the local fauna or flora. Using any of these local guides or LandSharers does not imply a commercial relationship but tips are welcomed. They can also recommend and accompany visitors to a special place for lunch or shopping. LandSharers can register for free in LandsCare and, unless the local LandsCare system is handled by a local development agency, they do not need to accredit any special license to do so (See Fig. 3).

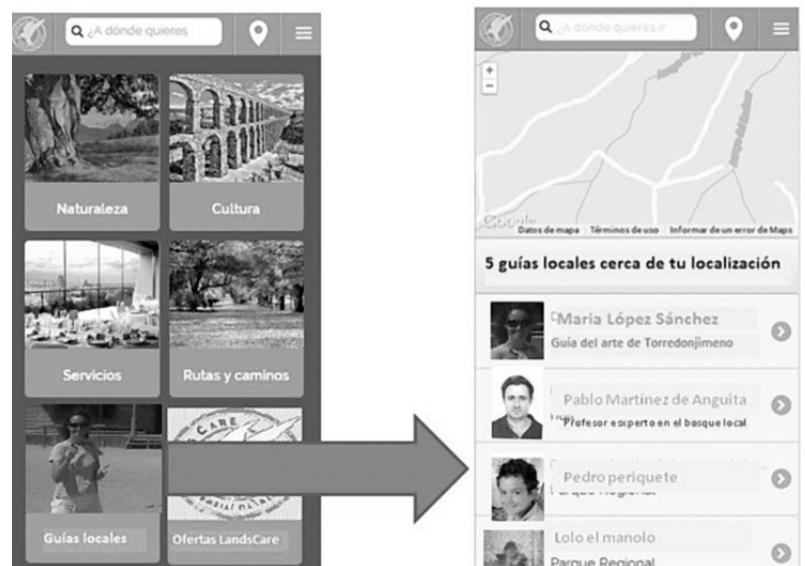
LandsCare as an integrative system between education, rural development and conservation: LandsArt

The payment for ecosystem services mechanism is based on the stamps that are sold through the app. These stamps can be made out of images or artistic pictures of the territory. In LandsCare we believe that arts are

essential to preserve nature. Conservation cannot be only an economic or political effort, it has to be born from a special sensibility that has to be cultivated since early childhood. This sensibility must be based on both a sense of wonder (CARSON 1965) and a sense of place (MEASHEM 2006). Young people and children need to observe and love their territory to understand it and to establish a personal and affective relationship with it. With this solid relationship in childhood, they will have more chances of developing their creativity and knowledge of their local territory for continuing to live sustainably in their own territory. This type of education must start with the recognition of the local beauty. This requires contemplation, and contemplation requires time, peace and the ability to pay attention to the details. Without a careful view of our own land, we are not able to establish any of these relationships and our landscape can seem a stranger to us. But arts can provide a mean to pay attention. In fact, we believe that painting is a relevant component for environmental education. When painting a landscape, an old tower, a castle or a sunset, we need to take time to contemplate it and to pay attention to the small details that provide the “magic” of a place and a moment. Then, at the same time we capture the landscape, somehow the landscape “captures” us.

A “community” can be defined as a social group whose members are directly or indirectly linked by a network of common feelings and responsibilities that are developed

Fig. 3: LandsCare as a system to find local rural guides or LandSharers.



through shared experiences and common social beliefs (SMITH & PINEDO 2002). Painting can have a special impact on the youngest ones that can feel wondered by thousands of details, however, if they pay a little attention to what they have in front of them, in their inner conscience they will be creating a relationship with that land that will in the future provide them with values such as the local pride or a sense of belonging and that will contribute to strengthen the local communities. These common perceptions will be at the base of many of the common and shared values. If this is the case, the sense of responsibility for the land and the own community will easily flourish.

This is the reason why LandsCare invites schools and other local educational institutions to participate in what we call "LandsArt". LandsArt is our attempt to incorporate these institutions to LandsCare projects in three steps. The first one is about offering schools the possibility to create the local stamps based on the children artworks in a game process where children transform their paintings into the official LandsCare stamps by a system of votes, the one most voted of each place becomes the official

stamp of that place until another stamp gets more votes or "I like". A second step LandsCare offers through the LandsArt program is to invite these centres to find new valuable places in their territory (beautiful places to contemplate sunset, old mills...) and create a complete LandsArt project. This implies to find these new places that can be put into value through the LandsCare app, and to work with the children in different subjects such as sciences or history: they must research about the places they choose, document them, and finally write in the LandsCare bits about aspects such as vegetation, fauna, landscape, uses, water or geology if it is a natural place or about aspects such as local stories, traditions, architecture, art etc., if it is a cultural place. Teachers of sciences and literature can use this project to teach students how to do this process properly in such a way that becomes interesting for a visitor. This second step takes the students further than the simple observation and painting. It requires them to research and learn about their land. Excursions to these places can be used to help students to understand the value of their land and to "capture" its beauty. The third possible step goes even beyond. Students and teachers can find the legal responsible of these natural and cultural places and establish a relationship with them, especially when dealing with public local heritage. They can try to obtain a permit from the town-hall, for example to assume a commitment of caring for a given public place (or statue or monument). If they obtain some kind or permit and show it to LandsCare they can be nominated as the assigned LandsCarers of that place and receive the money collected through the stamps and invest it in the maintenance of that place. Then, the school becomes an official LandsCarer and is ready to receive the payments. This third step closes the potential circle by which young students led by their teachers learn to assume responsibilities over their territory developing a wider sense of place. If students arrive just to step two they will be supporting some LandsCarer else proving their information of the places they know. And if they only create the stamps they will be also contributing to give added value to their territory and at the same time they deepen their relationship with their land in a simple but effective way: by paying attention and painting it.

See Fig. 4.

Fig. 4:
LandsArt: Different artistic stamps.



LandsCare as a platform of sustainable rural commerce: LandsCrafts

One of the main problems small rural producers have to face is the commercialization of their products. Despite local producers can offer products with a higher environmental quality through different systems of certifications (certified food, green labels, fair trade etc.), these quality labels do not necessarily provide local adequate channels linked to the local tourism visiting their territory. LandsCare geolocates producers and rural products in order to offer travellers mapped information in real time on the different products and producers that they will find in the region they visit according to different standards of ecological quality. In the window of the app called "LandsCraft", users will be able to locate different sustainable local products with their quality credentials around them and decide whether they want to go to the place they are produced or sold or buy them on-line through the smart-phone using Paypal.

Also, if the producer agrees, products sold through LandsCraft could have discounts or special offers if travellers have previously bought any stamp linked with the conservation of their territory.

LandsCare's social and environmental impact

LandsCare has a social and environmental final mission: to contribute to preserve all our natural and cultural landscapes through new technologies that allow community participation. And it also has a vision: environmental subsidiarity, which implies the support of those who can preserve this heritage in an effective and local way. These vision and mission focus the objective of LandsCare into four specific stakeholders creating links among them that ultimately enhance the care for local rural landscapes into common and shared projects. Concerning users or travellers, we want to increase the general awareness and knowledge in general for both our natural and cultural heritage and for those who preserve and protect it. Concerning the local guardians of the land-

scape, we want to give more visibility to the LandsCarers or those who effectively take care of nature and culture and especially allow them to obtain revenues for the work they do, a work that increases common goods. We want to provide more visibility for the local rural population and their local business which are linked to common regional goals (LandsCrafts and linked commerce). In addition, we want to stimulate the creation of new groups of LandsCarers through education (LandsArt) and provide local people with additional incomes through the sharing of the landscapes (LandSharers). Finally, with regards to biodiversity, nature and culture, we expect to be able to stimulate and increase the provision of positive externalities of ecosystem functions by capturing its value and reverting it to continue guarding this provision.

If we are able to stimulate this type of joint local projects we will be contributing to the generation of a small change in the minds of many people. Conservation and care are a final local responsibility, but we can all contribute to it if we find a way to share the costs, and to share the beauty and joy that nature and culture can provide us, especially if we enjoy it together.

Conclusions

LandsCare is not only an app, it is also a new philosophy based on subsidiarity. Natural and cultural heritage conservation is a local task, a task that must be done by the society that is close to the ecosystem and cultural local goods and services, but that requires the recognition by the whole society, and this implies:

- The articulation of a local civil society that values, cares for and shares in different ways what is valuable for the community with the rest of the society, in this case with travellers.

- The support of the rest of the society for this conservation work. LandsCare wants to act as the vehicle that articulates the visibility of this local "custodians" of our common heritage at the same time that provides the means to reward these people and associations that are at the base of the local conservation.

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Fig. 5:
LandsCare Logo: The
Arctic Tern and the moto:
Comparte tu tierra,
"Share your land".

LandsCare is committed to trying to expand this philosophy to the whole world as new technologies can allow what was absolutely impossible a few years ago. Smart-phones and internet can bring this conservation sharing and environmental subsidiarity to any part of the planet. This is the reason why LandsCare is offered to any country or association that wants to develop it in its own territory. The more countries and regions using LandsCare, the more synergic effect we will have. In smart-phones apps, the success of an idea basically depends just on the number of users.

The logo of LandsCare is a demonstration of its global vocation. It is a beautiful migratory bird, the Arctic tern (*Sterna paradisaea*), a seabird that has a circumpolar breeding distribution covering the Arctic and sub-Arctic regions of Europe, Asia, and North America. Every two summers these birds migrate along a convoluted route from the northern breeding grounds to the Antarctic coast with an average annual roundtrip length of about 90,000 km (56,000 mi). They are by far the longest migrations known in the animal kingdom. There are still many of them, perhaps more than a million, even though they suffered a great pressure in the past. If we want to continue preserving this migration that in somehow is a sign of the splendour of this earth and our common responsibility towards it, we need to care for thousands of square miles of landscapes all around the world so that these travellers can still find in them food, shelter and their temporary home. We hope LandsCare can pro-

vide an easy to use and applied tool that can make little changes but a worldwide scale. Sharing the beauty of our landscape can be a way.

P.M.A.

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Summary

LandsCare: a system of payments for environmental services based on the beauty of the landscape

LandsCare is a smart-phone guide and a website on rural territories that use a system of payment for environmental services (PES) that tries to contribute to preserve and to valorise the natural and cultural local landscape. It develops a series of instruments to try to facilitate the interrelation of all the agents of a rural territory, including visitors pursuing a common objective, taking care of the common landscape and obtaining added value from it. LandsCare aspires to be the first global system of conservation and PES operating through smart-phones and based on the beauty of the landscape. LandsCare software is currently used by different NGOs and public administrations from different countries and regions. The present article describes the LandsCare system of rural development and payment for environmental services. It explains its components with the aim of becoming a global instrument facilitating countries' rural development and ecotourism.