

Local ecological knowledge also 'comes from books': Cultural change, landscape transformation and conservation of biodiversity in two protected areas in Portugal

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ABSTRACT

The study of social and economic change and the consequent landscape transformation in Parque Natural de Montesinho and Parque Natural de Douro Internacional (in the northeast of Portugal) allows us to discuss the ambivalent relation between the political aims of biodiversity preservation and the social reality in protected rural areas. Ethnographic research on plant use and nature discourses, together with an analysis of social differentiation (in terms of age, gender and schooling) of ethnobotanical knowledge show us how local people dynamically combine traditional and orally-transmitted knowledge with popular or then scientific exogenous ecological knowledge, especially that learned from the media and books. This data also makes possible a reflection on what way local culture is transformed into heritage within the context of protected areas.

KEYWORDS: local ecological knowledge, natural parks, heritage, ethnobotany

Introduction

Knowing is not a matter of being in possession of information handed down from the past, but rather indistinguishable from the life-activity of the organism-person in an environment that has itself been, and continues to be, fashioned through the activities of predecessors and contemporaries. It follows that knowledge is perpetually generated, rather than applied, in practice.
(Ingold 2003: 302)

In this article, we want to examine how the perspective of ‘perpetually-generated’ local ecological knowledge equates with the political aims of biodiversity and cultural preservation in rural contexts.

The basis of our work is data collected in two case studies undertaken in two protected areas in northeastern Portugal (the Montesinho Natural Park and the Douro International Natural Park, Figure 1). Research was carried out within the scope of the *Ethnobotany of the Northeastern Region of Portugal: Local Knowledge, Plants and Uses* project¹ with the aim of discovering how the social appropriation of the plant world is processed and updated in rural contexts that are undergoing social and economic changes. We used ethnographic methodology and carried out structured ethnobotanical interviews (Alexiades 1996).



Figure 1: Map of Portugal showing locations of Montesinho Natural Park and Douro International Natural Park

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There are 14 natural parks, nine natural reserves and six protected landscapes areas in Portugal, which amounts to a total of nearly 7,500 km²; i.e. 8% of the country. The Montesinho Natural Park was set up in 1979. It stretches across almost 750 km² along the Montesinho and Coroa hills on the border with Spain and contains 91 villages with a total of 8,000 inhabitants. It is a highly diverse mountainous landscape. The Douro International Natural Park was set up in 1998. It covers an area of about 860 km², with 35 villages and nearly 14,300 inhabitants, along the border with Spain between the Douro River and the Águeda River to the south (about 120km long). The landscape is marked by the valleys of the two rivers and the adjacent plateaus. These parks, as other areas in the interior of Portugal, have seen enormous changes since the 1960s. Emigration abroad and rural migration to local and coastal towns have led to demographic decline and socio-economic transformations that have altered landscape management.

Social and economic change and conservation of biodiversity

The village of our first research case is an example of economic, cultural and landscape changes. Quintanilha (Figure 2), in the Montesinho Natural Park, is a village with a history of farming and a future as a dormitory town for Bragança.



Figure 2: The villages of Quintanilha (Montesinho Natural Park) and Póvoa (Douro International Natural Park)

Nowadays, only a few old people, some of them pensioners, do any farming. The village is 20 km outside Bragança, which can be reached in a mere 15 minutes on the motorway. This means that some of the population can work in shops and services or study in Bragança. This peripheral urban environment becomes obvious at weekends when families that have moved to Bragança or other towns return to their rural homes to enjoy the weekend.

The second case study was carried out in Póvoa (Figure 2) in the Douro International Natural Park. Agriculture and livestock rearing are still important here. Although most of the younger inhabitants have jobs in the service industry in Miranda

do Douro, a significant number of families still derive their main income from livestock, especially cattle and sheep. A rural lifestyle still exists in a geographic area that has grown old and devitalised with their relatively traditional agricultural activities.

Socio-economic systems based on family-run agriculture and livestock farming are in full transformation. Agricultural activities have shrunk or even disappeared and the traditional farming systems have changed. In Quintanilha, farming was mostly cattle breeding and growing corn and fodder for cattle, and in Póvoa corn, pastureland, vineyards, and olive trees. In general, cattle breeding has declined and, with it, the use and management of woodlands declined as well (pasture and gathering food for cattle, for instance). Resources in woods and forests, such as wild edible plants and firewood, are no longer collected and hay is not harvested. The words of a 65-year old man from Póvoa, speaking about the yellow-brush plant (*escova-amarela*; common broom; *Cytisus scoparius*), illustrate how things have changed: 'This is to light fires, it's what old people once used, nowadays we have fire-lighters!'

There is a new concept of backyard and home gardens where several aromatic and medicinal plants (in former times these species were only gathered in the wild, in the woods), as well as an impressive set of ornamentals, have replaced food and fodder species. Some examples of species once growing in home gardens (*hortas* and *cortinhas*) are staple crops (e.g. turnips, beetroots, rye, wheat and barley) mainly consumed fresh (*ferranhas* or *ferrejos*) as fodder. These crops were sown in several plots with a delay of some weeks and harvested on a day-to-day basis, according to need. Moreover, breeders always had to cultivate other supplementary plants for feed, such as cabbages, pumpkins, maize, and potatoes, that were also used for human consumption. Nowadays, households without cows or pigs do not grow or use anymore approximately 25% of the cultivated species they used to grow before and 40% of plants that used to be commonly found in home gardens (Carvalho, 2005). As a middle age woman commented, 'These plants used to be gathered to feed cattle and pigs, but there are no animals in the village any more...'

Paradoxically, the floral composition of a few prevalent home gardens has increased with the introduction (registered in the last three decades) of a wide range of greens, spices and ornamental species, a phenomenon also observed in other European regions (Vogl-Lukasser and Vogl 2001; Vogl and Vogl-Lukasser 2003, 2004; Pardo de Santayana 2003; San Miguel 2004) and all over the world (e.g. Zaldivar et al. 2002; Shrestha et al. 2004; Trinh 2004; Heckler 2004). Most of these introduced species are used as food and as ornamentals. These plants or propagation materials (seeds, bulbs or cuttings) have been brought from remote areas, exchanged between relatives and neighbours or bought from retailers at the local markets.

A 58 year-old woman gave us a reason: 'Nowadays, one works in the arable fields much less, so there is more time left for other activities! Besides, here it is best to eat our food.' This corresponds to a new idea of health food, which is closely related to local produce and a new rural lifestyle.

For those who still maintain home gardens, this perspective has also influenced the exchange and adoption of new species. We have reported that mass media and relatives

or neighbours who have migrated to urban areas are also important sources of new species which are introduced into home gardens. During their time outside the community, emigrants, for instance, gradually develop different nutritional behaviours and acquire new aesthetics. When they move back or visit, they enjoy sharing their new lifestyle, and are proud of the novelties they can introduce into gardens.

These changes have resulted in substantial changes in local agro-ecosystems, which in turn have affected the landscape and maintenance of flora and fauna habitats as well as the biodiversity for whose conservation the parks were created.

Legislation on natural parks is very clear about the connection between protecting natural diversity and preserving cultural heritage. The plan to set up of the Montesinho Natural Park in 1979 says:

The richness of the natural world and landscape in the Montesinho-Coroa mountain range and the precious cultural features of communities that have settled there justify that urgent measures be taken to protect these peoples' heritage and socio-cultural life (Decree-law No. 355/79, 30th August).

In the case of the Douro International Natural Park, it was argued, for instance:

[The region] enjoys unique geological and climatic characteristics that affect its flora and fauna, especially avifauna, as well as human activities. The purpose of classifying this area as a Natural Park is that measures should be adopted that will develop its more outstanding natural, landscaping, socio-economic and cultural features (Decree-law no. 8/98, 11th May).

The political and hegemonic decision to preserve nature in human areas thus also implies preserving economic systems and local cultural heritage.

Local ecological knowledge can be also exogenous?

Central to the local cultural heritage is the 'traditional ecological knowledge' (TEK).

(Ellen and Harris 2000; Hunn 1999; Laird 2002)

Ethnobotanical knowledge, on which our research is focused, lies within this knowledge. We have identified and described the social practices in which plants are used as well as memories of practices no longer in use. Throughout our fieldwork, we recorded different uses and knowledge of about 200 species of plants in both contexts.

The collection of social differentiation (in terms of age, gender and schooling) of ethnobotanical knowledge was carried out through structured ethnobotanical interviews. We interviewed people (42 in Quintanilha and 37 in Póvoa) of different sexes, ages (between the ages of 10 and 89), schooling and life experiences. We presented each informant with 11 plants selected on the basis of a previous collection carried out by means of participant

observation and informal interviews (Table 1). The plants were selected so that their different uses, habitats, morphologies and classifications could be easily associated; that is to say, that they should have a locally diversified social meaning. On the basis of this criterion, we changed the samples in the second case study (Póvoa) and replaced some of the plants from the first study with others with the same characteristics and potential uses.

Quintanilha		Póvoa	
Local name (English name)	Main local uses reported	Local name (English name)	Main local uses reported
<i>Scientific name</i> arçã or arçenha (lavender) <i>Lavandula stoechas</i>	medicinal, condiment, fodder	<i>romeiro</i> (rosemary) or arçã (lavender) <i>Lavandula stoechas</i>	medicinal, condiment, fodder
agrião (watercress) <i>Rorippa nasturtium-aquaticum</i>	food	norça (bryony) <i>Bryonia dioica</i>	food
agrião-real <i>Centranthus calcitrapae</i>	medicinal, food	mangerico-do-monte (oregano) <i>Origanum virens</i>	medicinal, condiment
ruda or arruda (fringed rue) <i>Ruta chalepensis</i>	ritual	ruda or arruda (fringed rue) <i>Ruta chalepensis</i>	ritual
carqueja (broom-like Iberian fabaceae) <i>Pterospartum tridentatum</i>	fuel, medicinal, condiment, fodder	escova-amarela (common broom) <i>Cytisus scoparius</i>	fuel, medicinal, handicraft, fodder
carrasco, azinheira (holm oak) <i>Quercus ilex</i> subsp. <i>ballota</i>	fodder, medicinal, fuel handicraft	freixo (narrow-leaved ash) <i>Fraxinus angustifolia</i>	fodder, medicinal, fuel, handicraft
cheirosinha (thyme sp.) <i>Thymus zizis</i>	medicinal, condiment	tomilho-branco (other thyme sp.) <i>Thymus mastichina</i>	medicinal, condiment
espinheiro (common hawthorn) <i>Crataegus monogyna</i>	ornamental, medicinal	espinheiro (common hawthorn) <i>Crataegus monogyna</i>	ornamental, medicinal
erva-prata or prata (nailwort) <i>Paronychia argentea</i>	medicinal	ervas-lobas (like spotted rockrose) <i>Xolantha tuberaria</i>	medicinal
fiolho (fennel) <i>Foeniculum vulgare</i>	medicinal, condiment	fiolho (fennel) <i>Foeniculum vulgare</i>	medicinal, condiment
tremoceiro bravo (blue lupine) <i>Lupinus angustifolius</i>	no defined use	grama (stonecrop sp.) <i>Sedum</i> sp.	no defined use

Table 1: Synthesis of the plants selected for the interviews in both case studies

At the outset of the interviews, we asked each informant to give us the names of the plants and describe what they knew about them. We then used the free pile sort task (Bertrand 2002; Martin 1995; Molina and Bertrán 2008) and asked our informants to group plants according to a categorisation criterion they were free to choose.

We would like to highlight two points in the results.² First, we found that generally younger people (below the age of 40) did not know the names of plants and could not easily recognise them. Older people with different schooling experiences revealed no great differences in their knowledge, and gender differences were found only with regard to some of the uses attributed to plants. Recognition of their use in medicine, or as condiments, aromatics, ornamentals and for ritual uses seemed higher in women than men. More specialised medicinal uses of plants were recognised by a group of adults, not just the elderly, who are locally seen to be people with knowledge about plants (specialists), most of whom are women.

² Pile sort data were statistically analysed in the first case study only. The results presented here are a synthesis of the qualitative analysis of the two case studies and the quantitative analysis of data collected in Quintanilha.

In short, there is general agreement among women and men about plant knowledge although they differ as to the specific use of plants, which reflects a gender-based division of labour and women's and men's traditional social practices. In contrast, within the framework of economic and cultural transition, younger people, who are nowadays removed from agricultural activities, do not have the same knowledge of plants as the older generation. It would be interesting to do further research into their understanding of nature and the environment.

An episode during our fieldwork can introduce the second point that we wish to highlight in our research results and that has given a title to this article: local ecological knowledge also comes from books. The inhabitants of Quintanilha usually take a stroll around the village at the end of the day. It is a recently-introduced practice here but it has for long been a daily habit among their Spanish neighbours across the border. We obtained a great deal of our ethnobotanic information during these walks.

It would have been difficult to get information from an individual, because people stroll in a group of friends and family members, also because the routes are short and strollers are constantly meeting up with each other. We heard informants argue briefly about the names of plants, their morphologies and uses. One day, a woman who was known locally as someone who knew about plants (we will call her Amália) was walking with a neighbour (Bernarda) when they began to argue about a plant (*Rosa canina*; Dog Rose). According to Amália, the correct name was the local one: *grabanceira*. Bernarda insisted that the plant was called *roseira brava* or *roseira canina* because '...that's what they call it in books!'

On another occasion, Amália was walking with a different neighbour, Clara, and her husband, when she saw a plant and said that it was herb (*Urtica dioica*; stinging nettle) that helped control blood pressure because that is what the books say, '...this is the herb for blood pressure! It says in books that it's good for blood pressure...' When we asked if this plant used to be collected in the past, it was Clara who replied ironically that yes, it was, 'to feed the pigs!' So on one occasion Amália bases herself on local traditional knowledge (of which she is recognised as knowledgeable) and on another occasion, she bases herself on exogenous and more recent knowledge from books.

In Quintanilha, where economic and cultural change is more noticeable, ethnobotanic knowledge that has been handed down orally for generations merges with recently-acquired knowledge. We do not present a list of examples of one or the other here as it would take too long and become rather tedious. However, it becomes clear that these social actors are not bothered with the distinction between kinds of knowledge. Reference to the origin of knowledge only emerged unexpectedly in their conversation when at certain occasions they wanted to argue the greater truth of their own knowledge. The need to discern what is traditional/local from what is erudite/exogenous is a task for the researchers, and it is far from achieved or completed.

This takes us to the debate about what is 'local ecological knowledge' and what it is to preserve culture and make it our cultural heritage within the framework of protected areas. In the first part of our research, a great deal of knowledge of the better-informed villagers in Quintanilha, especially with regard to medicinal plants, comes from reading

books on the subject (Figure 3), TV programmes as well as information given directly by specialists in both conventional medicine and alternative therapies.



Figure 3: Medicinal plant publications

We were told by a 63-year-old farmer who had received only a basic education:

If someone tells me something (about a plant), I go home and look it up in a book, it doesn't cost me anything; I have nothing to do all winter and I look things up in the book nearly every day.

So, his knowledge that was learned with older people and in his work practices is blending with new knowledge. This even allows him to give advice to sick neighbours and friends and become accepted as someone who knows about plants. This farmer as well as other men and women of the same age (50/65-year olds) are very keen to widen their knowledge of the local flora by obtaining any kind of information. They learn things that then became certainties: scientific information and information that is not scientific but is a systematisation of exogenous traditional knowledge that was recorded and transmitted in written form. In their search for more knowledge about the natural elements surrounding them, are they not, in the end, adhering to the process of enriching local ecological knowledge, part of the plan for the preservation of protected areas?

Conclusion

As Ingold (2003) suggests, the conceptualisation of traditional ecological knowledge in administrative policies (and many ethno-biological studies) is different from the local perception of traditional knowledge. Ingold distinguishes the 'traditional knowledge in modern conception' (MTK) from that of 'traditional knowledge in local conception' (LTK):

[The modernist conceptualisation] is based on the idea that elements that go together to constitute a person are *passed down*, along one or several lines of descent, from that person's ancestors, independently and in advance of his or her life on the land, in an environment (ibid: 307).

The idea persists that knowledge consists of items 'that are stored in memory' to which people can access and express in practice. In the local conceptualisation, however, traditional knowledge '...is continually generated within the contexts of people's skilled, practical involvement with significant components of the environment' (ibid: 307). That is to say, it is not understood as 'a kind of substance' but rather as 'a kind of process.'

Most of our informants' knowledge of plants was formed from interactions with the environment within the context of a system of survival that was extremely dependant on existing natural resources. Nowadays, 'local specialists' create knowledge with a vigour that ends up enriching local ecological knowledge, bringing together knowledge from independent sources, seeing that the strict separation between local traditional knowledge and that which 'comes from books' has no meaning at a local level. This distinction is indeed indicative of the politically dominant process of the patrimonialisation of knowledge and practices that only exist in a crystallised cultural memory.

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POVZETEK

Študija o družbenih in gospodarskih spremembah ter posledičnega preoblikovanja parkov Parque Natural de Montesinho in Parque Natural de Douro Internacional (na severovzhodu Portugalske) nam omogoča razpravo o ambivalentnem razmerju med političnimi cilji ohranjanja biotske raznovrstnosti in družbene realnosti v zaščitenih podeželskih območjih. Etnografske raziskave o diskurzih uporabe rastlin in narave, skupaj z analizo socialne diferenciacije (glede na starost, spol in izobrazbo) etno-botaničnega znanja kažejo, kako lokalno prebivalstvo dinamično združuje tradicionalno, ustno preneseno znanje s popularnim oziroma znanstveno eksogenim ekološkim znanjem, zlasti tistim, ki so se ga naučili iz medijev in knjig. Ti podatki so omogočajo tudi razmislek o tem, na kakšen način se lokalna kultura preoblikuje v dediščino v kontekstu zavarovanih območij.

KLJUČNE BESEDE: lokalno ekološko znanje, naravni parki, dediščina, etno-botanika

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