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Human ecology, ethnobotany and traditional practices in rural populations inhabiting the Monte region: Resilience and ecological knowledge

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ABSTRACT

In this study, we looked for insights on how human populations inhabiting the Monte, interact with arid environments and how they use ecological knowledge on wild plants for their subsistence. Rural communities living in the Monte region have been undergoing extreme changes in both social and ecological scenarios. Most of them are agro-pastoral societies living under precarious conditions, and whose land shows marked signs of degradation. Wild plants represent an important part of their dietary components; i.e. these resources probably act as a sustenance buffer in periods of seasonal scarcity. In the present study, we analyzed some ethno-ecological strategies undertaken by these rural communities. The ethnobotanical knowledge of greatest cultural and nutritional significance includes the use of many wild plants such as *Prosopis* spp., *Schinus* spp., *Ephedra* spp., *Condalia* and *Larrea* spp., among others. Since ancestral times, these xeric species have been utilized as edible, medicinal, tinctorial, fodder and fuel resources. Many rural populations not only maintain wild plant use, but they also practice cattle transhumance, a tradition which tends to reduce over-grazing, allowing for the recovery of most palatable plants. Cattle transhumance, also an ancient practice, is based on landscape patchiness use. Both practices appear to be associated with an adaptive and resilient natural resource management. We refer to resilience as the capacity to cope with disturbances and changes, prevalent features in populations inhabiting this arid region. We also explore, through a study case in Patagonia, the present use of wild edible plants, its relationship with summer-cattle-transhumance, and the most salient socio-cultural factors affecting these practices. Summer-transhumance contributes to the utilization of a greater richness and quantity of wild edible plants. This activity, which used to be a family tradition, seems to be changing given that nowadays it is mainly carried out by single family members. Wild plant gathering and summer-transhumance traditions tend to be diminishing at present, probably caused by acculturation processes and socio-economic pressures. Consequently, by abandoning these ancestral customs, a negative impact on the resilience capacity of these rural communities might be occurring. This erosion process leads to a decrease in their long-term wellbeing as well as an increase in their socio-ecological vulnerability.

1. Introduction

Human communities inhabiting the dry Monte region share similar living experiences while enduring harsh desert conditions. Different populations with diverse cultural identities have settled in this region from north to south. Over the years these people have overcome extreme ecological conditions, allowing for the development of several strategies, which have helped them to cope with this hostile arid land.

Throughout the years, this region has experienced conspicuous changes in both social and ecological scenarios. The ecological transformation of the land through irrigation has been one of the main conversion factors in northern-central Monte. Since the end of the 19th century, in Mendoza and San Juan provinces important hydric infra-structural constructions have been built, using old ditch networks made by pre-historic dwellers (Bárcena, 2001). This landscape transformation also occurred in the provinces of Salta, La Rioja, Neuquén and the Río Negro valley (Fig. 1). These improvements favored fruit and wine industries, which became crucial for the economic bases of these settlements, and so the majority of the population tended to concentrate around these areas. For example, at present, irrigated oases sustain 98.5% of Mendoza's inhabitants and in fact, Mendoza's landscape is regarded as bountiful vineyards or roads flanked by trees and irrigation ditches (Montaña et al., 2005).

However, irrigated oases make up only a restricted part of the-Monte territory, forming islands in an immense matrix of

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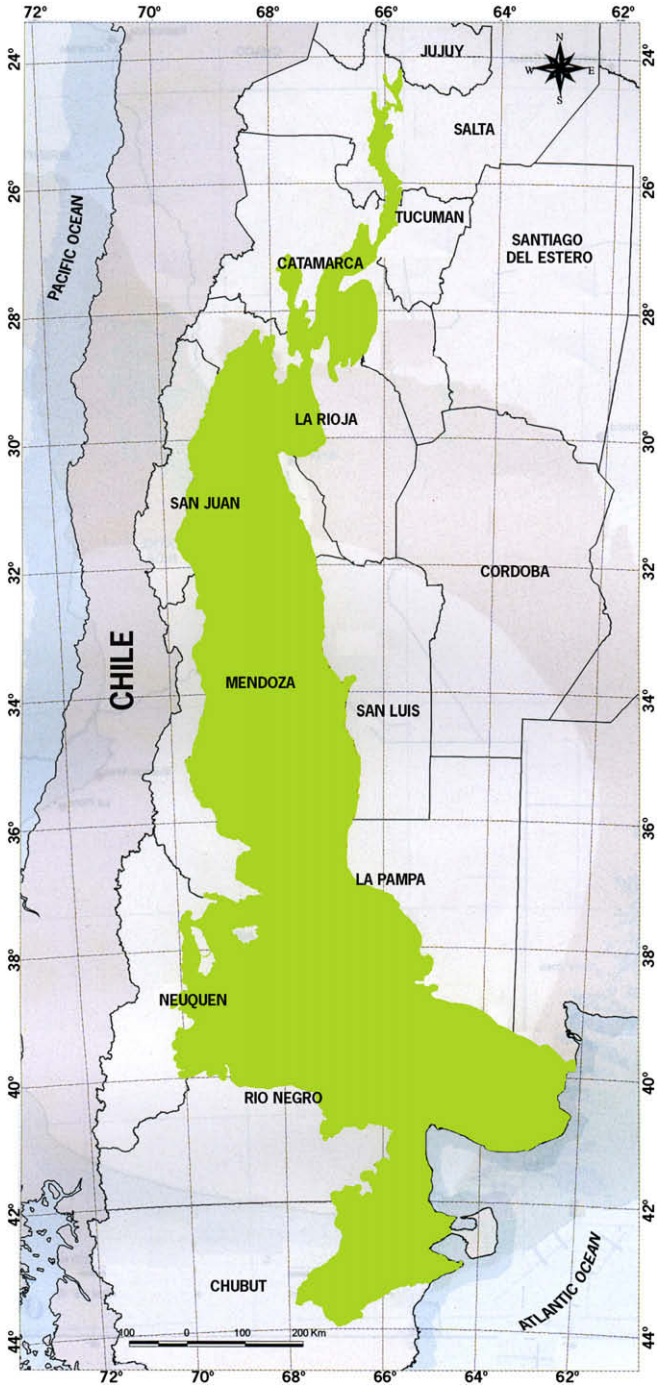

Fig. 1. Location map showing the Monte region and the different provinces discussed in the text that comprised the North, Central and South region. Color shading indicates the biogeographical area.

unproductive and uncultivated land. Due to insufficient levels of precipitation, cattle raising has been the principal means of survival in the desert (Ladio and Lozada, 2004a; Morelo, 1958; Ojeda et al., 1998; UNC, 1986). Moreover, "pastoral" societies in these dry areas endure severe conditions, in terms of scarcity of both socio-economical and physical resources. Consequently, away from irrigated oases, the land suffers from rigorous pressure factors, showing different levels of degradation and even severe signs of desertification (Ojeda et al., 1998; Portal, 1996).

As mentioned above, smallholders from the North and central Monte survive in precarious conditions. This also occurs in the Southern Monte region of Río Negro and Neuquén provinces (Fig. 1), where many are settled on fiscal lands of scarce productivity and noticeable geographic isolation (Menni, 1999; UNC, 1986). Livestock is difficult to commercialize, so some of the Monte inhabitants simply exchange it for basic goods with local salesmen, while others must bear exploitation by a long chain of middlemen, which contributes to the marginalization of their families. Furthermore, most Monte dwellers lack property titles. This fact induces other people to illegally occupy their land and, in some cases, even become owners by moving fence lines. This chronic insecurity, in addition to a pronounced desertification process and the widespread impoverishment of the Monte people, promotes high levels of emigration towards urban centers (Menni, 1999).

However, many populations remaining in this desert, known as "travesía", could survive by diversifying their activities and by practicing ancestral and culturally important customs, such as vegetable gardens, and wild plant gathering and hunting (Bárcena, 2001; Ladio, 2006; Ladio and Lozada, 2004a). The Monte dwellers build wells, known as "jahueles", from where they obtain water from great depths with buckets, as their ancestors did to resist extreme conditions of water scarcity and shortage of natural springs. Nevertheless, this precarious infra-structure, as well as the depletion of water sources, hampers maintenance of vegetable gardens and cattle raising at present. Moreover, many shepherds work in temporary jobs (as day laborers) or permanently in other cities, sell handcrafts or receive funding from national assistance programs. These activities impede their carrying out improvements on the land, their productive systems and therefore, in their quality of life (Grünwaldt et al., 1995).

In the following sections, background information on past and present human ecology and ethnobotany of rural communities living in the Monte region are described. We also analyze some ethno-ecological strategies undertaken by these communities considering a study case conducted in the Patagonian Monte.

2. Ancient indigenous people living in the Monte

Due to the vastness of the Argentinean Monte, this region has been inhabited by diverse aboriginal groups since 10,000 BC (Bárcena, 2001). Hunter-gatherer groups such as: Huarpes and Calchaquíes (from the Northern Monte) and Puelches, Pehuenches, Ranqueles and Tehuelches (from the Center and South Monte, respectively), represent a small part of the Monte cultural richness at the time the Spaniards arrived. From pre-historic times, hunting was associated with transhumance practices, given that human populations followed seasonal animal migrations (Bárcena, 2001; Musters, 1964). They hunted different animals such as guanacos (*Lama guanicoe*), rhea or ñandú (*Pterocnemia pennata*), vizcachas (*Lagostomus maximus*), piche (*Chaetophractus vellerosus*), chinchillón (*Lagidium viscasia*), hares, and fish from lakes and lagoons (Bárcena, 2001; Ladio, 2006; Ladio and Lozada, 2004a; Steibel, 1997). Their settlements were always close to water courses, or to permanent or transient lagoons (Bárcena, 2001; Mandrini, 1997).

Aboriginal groups from the provinces of Salta, Catamarca, La Rioja, Mendoza and San Juan (Fig. 1) had been totally conquered by the second half of the 16th century, whilst the Mapuche people began to inhabit the Monte areas in the 17th century. They were described as horticulturist-gatherers, of great cultural influence in the central and southern Monte region. In the Southern Monte in particular, within the provinces of La Pampa, Neuquén, Río Negro and Chubut (Fig. 1), the colonization process took longer and became definitive only after the "Desert campaign", a violent military offensive which took place at the end of the 19th century. As in the North, most aboriginal populations have been decimated and practically extinguished. Their lands were expropriated and redistributed, forcing them to settle in confined and unproductive areas (Falaschi, 1996).