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Research report

Trends in wild food plants uses in Gorbeialdea (Basque Country)

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ABSTRACT

Despite wild food plants' potential nutritional and economic value, their knowledge and consumption is quickly decreasing throughout the world. We examine how the consideration that a wild plant use is within the cultural tradition of a given area relates to its consumption by analysing 1) current perception and 2) past and present use of six wild plants' food-uses, of which only three are locally perceived as being part of the local tradition. Research was conducted in Gorbeialdea, an area in the Basque Country with a clearly marked Basque identity opposed to the Spanish identity. Overall, there is a clear decrease in the knowledge and consumption of the selected uses and especially of the three uses acquired from local sources (i.e., the consumption of the raw leaves of *Fagus sylvatica* and *Rumex acetosa* and of the fruits of *Pyrus cordata*). The trend is likely driven by the disappearance of the traditional agrarian lifestyle. Among the uses not acquired from local sources, the use recently adopted from another Basque-speaking area (i.e., macerating the fruits of *Prunus spinosa* to elaborate a liqueur) is now considered part of the local tradition by young generations, whereas the use acquired from southern Spanish migrants (i.e., using *Laurus nobilis* leaves as condiments) is not. While lifestyle changes largely explain overall trends in wild edibles consumption, other cultural aspects —in our case study the stigmatization of a given source of information associated to cultural identity— might help shape which new uses of wild plants become embedded in local traditions.

1. Introduction

Wild food plants, including semi-wild and naturalized taxa, have provided a key source of food to humans since prehistoric times, although their relevance in human diet diminished first with agricultural expansion and then, more dramatically, in the aftermath of the industrial revolution (Łuczaj, 2010; Łuczaj, Zovko Končić, Miličević, Dolina, & Pandža, 2013). Nowadays, because of their relative low presence in contemporary urban diets, wild food plants are often undervalued from a macroeconomic point of view (Croitoru, 2007; Delang, 2006). However, recent research has highlighted that wild food plants i) continue to contribute to food security and sovereignty, especially in non-industrialized countries (Bharucha & Pretty, 2010; Nolan & Pieroni, 2014; Sunderland, 2011; Vinceti et al., 2013); ii) largely contribute to subsistence economies (Quave & Pieroni, 2015; Shackleton, 2003); iii) hold potential to reactivate rural economies (Łuczaj et al., 2012; Miele & Murdoch, 2002; Pieroni, Nebel, Santoro, & Heinrich, 2005); and iv) help maintain local identities (Hummer, 2013), with likely effects on biodiversity conservation (Pardo-de-Santayana & Macia, 2015).

Despite the potential contribution of wild food plants to local livelihoods and economies, researchers agree that —overall— knowledge and consumption of wild food plants is being quickly lost (Bhattarai, Chaudhary, & Taylor, 2009; Cruz-García, 2014; Reyes-García et al., 2013), especially in industrialized countries (Abbet et al., 2014; Reyes-García et al., 2015; Sõukand, 2016). Such trend, however, is not homogenous across territories (Kalle & Soukand, 2013), species (Łuczaj et al., 2012; Serrasolses et al., 2016), and uses (Menendez-Baceta, Aceituno-Mata, Tardío, Reyes-García, & Pardo-de-Santayana, 2012), with some —sporadic— wild

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food uses seemingly increasing in popularity (at least with regards to a recent past) (Pieroni et al., 2005). Moreover, some research suggests that the motivations for gathering seem to be shifting from the extrinsic motivation linked to consumption needs towards the intrinsic motivation of gathering for the pleasure of the activity itself (Schunko, Grasser, & Vogl, 2015). While such heterogeneity fits well with the idea that local knowledge systems and practices are dynamic, evolving, and adapting (Gómez-Baggethun & Reyes-García, 2013), it raises the question of what factors drive differences in wild plant consumption.

Economic and environmental factors help explain different trends in the consumption of wild food plants (Alfranca, Voces, & Díaz-Balteiro, 2015; Łuczaj et al., 2012, 2013; Stryamets, Elbakidze, Ceuterick, Angelstam, & Axelsson, 2015), but recent research also underscores the critical role of sociocultural factors in explaining such process. Some sociocultural factors such as changes in livelihoods and lifestyles (e.g., agricultural mechanization, urbanization) (Ju, Zhuo, Liu, & Long, 2013; Ladio, 2001), legal restrictions to collect wild plants (Gómez-Baggethun, Mingorria, Reyes-García, Calvet-Mir, & Montes, 2010; Ladio, 2001; Shumsky, Hickey, Johns, Pelletier, & Galaty, 2014; Turner & Turner, 2008), or cultural stigmatization (e.g., considering wild plants famine foods or hunger quenchers) (Aceituno-Mata, 2010; Cruz-García, 2006; Cruz-García & Howard, 2013; Reyes-García et al., 2015) can help explain the decrease of wild food plants' consumption, whereas other sociocultural factors, such as the local appreciation of taste and flavour (Grasser, Schunko, & Vogl, 2012) or the search for natural and healthy foods (Schunko & Vogl, 2010) seem to increase in popularity of other wild food plants (Grasser et al., 2012; Reyes-García et al., 2015; Schulp, Thuiller, & Verburg, 2014; Serrasolses et al., 2016).

The goal of this article is to explore cultural factors that might affect trends in the knowledge and consumption of wild plants. We do so by analysing 1) current perception and 2) past and present uses of six wild plants' uses reportedly consumed in the Arratia Valley (Gorbeialdea, Biscay, Basque Country). We start by analysing whether sociodemographic attributes of informants (i.e., sex, age, type of relation to the study area, and type of residence) explain variation in informant's knowledge and consumption of wild food plants. We then explore 1) reported sources of knowledge (i.e., local versus non-local) for the various uses selected and 2) informant's perceptions on consumption trends taking into account age differences among respondents. Specifically, we examine whether there is a relation between the consumption of a wild plant and the fact that such specific way of consuming the wild plant is considered local to the study area or not.

Euskal Herria or the Basque Country, a territory divided between Spain and France where Basque people live, presents an ideal case for our study for two reasons. First, since the 19th century, Basque identity has been constructed around the defence of the Basque language, the opposition to the Spanish and French identity, and the idealization of a traditional farming lifestyle integrated in the natural environment (McNeill, 2000; Montaruli, Bourhis, Azurmendi, & Larranaga, 2011; Peral, 2013). Second, in the 1960's, large numbers of migrants of Andalusian and Extremaduran origin (hereafter southern Spanish migrants) arrived to the Basque country (Zabalo, Mateos, & Iraola, 2013) bringing with them new plant uses not previously known in the area (Menendez-Baceta et al., 2012). Such cultural context is ideal to examine the proposed relation between wild plant consumption and perception of the sources of knowledge.

2. Methods

2.1. Study area

Research was conducted in the Arratia Valley within the Gorbeialdea district, a mountainous region in southern Biscay (Fig. 1). The area corresponds to a Eurosiberian territory with temperate climate and vegetation (Menendez-Baceta et al., 2012). Until 1960's, most inhabitants of the valley were farmers, with a rather scarce dependence of markets for subsistence needs (Naredo, 2004). The unit of production was the family farm, named *baserri* (plural *baserriak*). *Baserriak* were dispersed through the territory or grouped in neighbourhoods of five to 20 *baserriak*. Large fields of cereals (*Zea mays* L., *Triticum aestivum* L.), pulses (*Phaseolus vulgaris* L., *Vicia faba* L.), potatoes (*Solanum tuberosum* L.), or turnips (*Brassica rapa* L.) were common. Livestock, hens, and pigs were raised for household consumption. Such lifestyle entailed a close contact with the physical milieu through tasks such as charcoaling, collecting ferns for livestock bedding, shepherding, gathering hay, or weeding cultivated fields. By mid-20th century, the advent of the first industries in the valley resulted in a shift to industrial activities and a consequent recess of the agrarian activities. The central economic role of the *baserri* disappeared and the farmhouses which remained active converted to cow's milk production, abandoning many of the tasks requiring high labour inputs (e.g., cultivation and harvest of wheat, charcoaling, and fern collection). At present, although small rural neighbourhoods continue to exist along hillsides, the region's economy mostly depends on industrial activities and services which concentrate in expanding urban centres at the valley floors.

2.2. Data collection

The survey draws on information obtained during a previous ethnobotanical study conducted between 2008 and 2010, when we compiled an inventory of wild edible plants using semi-structured interviews (Menendez-Baceta et al., 2012). During 2012 and 2013, we collected survey data on the use and consumption of wild food plants.

2.2.1. Sample selection

We worked in three municipalities of Arratia Valley in Gorbeialdea: Igorre (5176 inhabitants) is the regional capital and represents an urban environment and Zeanuri (1297 inhabitants) and Dima (1306 inhabitants) are two countryside towns with a dispersed settlement pattern (EUSTAT, 2013). We approached people in public places, i.e., streets, parks, garden allotments. After approaching a person, we first explained our study and then requested their oral consent to ask some questions referring to wild edible plants. A total of 124 persons (45.3% of the people approached) refused to participate: 53.2% because of lack of time, 40.3% because of lack of interest, and 6.5% because of reported lack of knowledge. The sample was stratified according to criteria that might affect use and consumption of wild plants: sex, age and type of residency. Specifically, we prepared a grid with the desired number of informants in the different categories. As we were collecting data, we computed the number of completed surveys in each category and then targeted people in the categories that needed more informants. In total, we completed 150 consented interviews with a sample of informants stratified according to sex (73 women), age ($n = 53$ for 18–40 years; $n = 49$ for 41–60 years; and $n = 48$ for >60 years), and type of residency (75 interviews in the urban setting). All people interviewed had lived in the area for at least 5 years, although some of them ($n = 25$) were not born in the study area.