



What to do with mushroom pickers in my forest? Policy tools from the landowners' perspective



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ABSTRACT

Wild mushroom picking is a growing recreational and commercial activity. In Spain, wild mushrooms legally belong to the landowner, who seldom benefits from trade in mushrooms or from their recreational value. Cultural aspects (tradition, picker-related harms) and economic aspects (costly forestry works, income opportunities) constitute elements of the debate on how to deal with mushroom picking. Through a survey of private forest owners in Catalonia (north-eastern Spain), this paper examines their experiences with mushroom pickers, the factors shaping their related policy preferences and their willingness to engage in mushroom reserves.

The results show broad support for introducing mushroom picking norms. A regulation would allow outsider pickers to enter private land, but only under certain conditions, i.e. to comply with socio-ecological rules of the area. Among respondents who support the regulation, active land owners who report instances of picker-related harm (both tangible and intangible) tend to support the establishment of a fee system which could be reinvested into forest management. That is also the position of the respondents who perceive mushrooms as a private right, i.e. they believe to have a legitimate right to exclude outsider pickers and, eventually, to raise revenues from that asset. On the contrary, forest owners who conceive mushroom picking as a free-access activity prefer neither to regulate it nor to charge fees. The option to establish a mushroom picking reserve depends on the landholder being a fee-supporter and perceiving instances of harm. Harm, instead, is mainly determined by the perception of congestion of pickers, which in turn is determined by the mushroom productivity of their forest, their level of privacy protection and their involvement to the primary sector. These findings help policymakers to better understand the logic and sensitivities of forest owners in view of designing mushroom picking policies that can effectively solve picker-landowner conflicts.

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1. Introduction

Wild forest products¹ (WFP) are gaining attention in Europe for their capability to provide tangible goods and recreational experiences (Reyes-García et al., 2015; Schulp et al., 2014). The benefits related to wild mushroom picking can be captured either by traders involved in commercial picking (Cai et al., 2011; de Román and

Boa, 2006) or recreationists who pick mushrooms for their own consumption (Frutos et al., 2009; Martínez de Aragón et al., 2011), while also generating revenues in rural areas through mycotourism (de Frutos Madrazo et al., 2012). Landowners rarely benefit from this activity, though. Hence, a mismatch between WFP rights and the benefits derived is observed.

WFP-related property rights and their enforcement have increased the academic and political interest to potentially retain greater value of WFP in rural communities and to ensure the ecological dynamics, as shown by studies in Europe and North America (Bouriaud and Schmithüsen, 2005; Ginger et al., 2012; Sténs and Sandström, 2013; Tedder et al., 2002). The same parcel of land can include a diverse array of rights holders across the different

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¹ Hereinafter we use WFPs as synonym for Non-Wood Forest Products (NWFP).

dimensions of access, use (i.e. picking), management, exclusion and alienation (Schlager and Ostrom, 1992). Formally or informally, gatherers often collect WFP on non-fenced private and public land that they do not own (Laird et al., 2010), acting as *de-facto* free access and *res nullius* use rights. In sparsely populated areas with low WFP scarcity, policies guaranteeing open access may incentivise rural economies, such as the Finnish everyman's right (Rekola, 1998). However, in areas which experience high resource pressure and instances of rivalry, conflicts may emerge among pickers, or between pickers and landowners.

Limiting the people who can pick, where, how and how much they can pick –i.e. establishing clear usage rights– would lessen those conflicts. For example, picking permits or mushroom reserves such as that in Borgotaro, Italy (Gatto et al., 2009) have emerged to help to control the activity and raise revenues for local populations. Permits and licenses constitute rights-based governance mechanisms beyond property ownership (Ribot and Peluso, 2003). Moreover, there is evidence that open access systems without additional norms might lead to a “tragedy of the commons” of mushrooms (Pandit and Thapa, 2003), while governance arrangements show positive sustainable harvesting results both in private mushroom picking systems (e.g. Yang et al., 2009) or community systems (e.g. Brooks, 2010). Questioning the legitimacy of picking restrictions arises after traditional uses, actual fungal ecology (Arora, 2008) or potential rent-seeking behaviour of landowners.

Besides harvest rights and practices, mushroom production is driven by weather variables (mainly precipitation and temperature), on local site conditions and forest stand composition (De-Miguel et al., 2014). Hence, certain forest management interventions can enhance mushroom production, i.e. mycosilviculture (Bonet et al., 2012a; De-Miguel et al., 2014). Nevertheless, when making decisions, landowners will probably not take mushroom production into account insofar as they do not internalise its value (Palahí et al., 2009). It has been found that earmarking funds raised from paid mushroom picking permits to forestry is fundamental for long-term income generation, alongside the efficacy of field control (Vidale, 2012).

Modifying picking rights in private forest properties imply a governance reform entailing multiple components, namely the supply of mushrooms, an economic reward, as well as the ecological, social and market control of the picking activity. When designing environmental policy interventions in private land, landowners' preferences regarding natural resources management are crucial for their later involvement (Janota and Broussard, 2008; Moon and Cocklin, 2011). Scholars have identified different typologies of forest owners according to their management decisions (e.g. Marey-Pérez and Rodríguez-Vicente, 2011; Novais and Canadas, 2010) and the factors driving their management decisions (e.g. Domínguez and Shannon, 2011). However, little is known about the views of private landowners regarding external mushroom pickers on their properties. From an exploratory, qualitative approach, Górriz-Mifsud et al. (2015) found that landowners' policy preferences derived from their perceptions both of picking rights and of damages caused by pickers. That study showed that forest owners who express annoyance –often linked to overcrowding– are more likely to support the regulation of mushroom picking. In addition, those who claim private rights are more inclined to support picking permits. Respondents in this group who see mushrooms as an asset also tend to support permit fees. On the contrary, those who complain less and conceive of mushrooms as *res nullius* advocate for free access or just awareness campaigns. Using these propositions as a guide, in this paper we aim to test the factors that dictate forest owners' preferences through a quantitative analysis. Our specific research questions include:

1. What factors determine the willingness of owners to establish a picking fee system?
2. What factors determine the willingness of owners to participate in a mushroom reserve?
3. What factors determine the perception of picking-related damage and congestion?

To answer them we conducted a survey in Catalonia (Spain), a mycophilic region where forest owners hold the legal right over mushrooms, but pickers have traditionally gathered without landowners' authorisation.

2. Methodology

2.1. Case study area

This study focuses on Catalonia (north-eastern Spain), a region with 64% of its territory covered by woodlands (including open forest, scrublands and grasslands). Some 80% of the forest area is owned by non-industrial private owners, mainly of small property sizes (Fletas et al., 2012) and with a low level of management (Farriol, 2006). The region is characterized by a Mediterranean climate near the coastal area, whilst a continental climate is characteristic of central and western Catalonia, being the alpine climate typical of the Pyrenean areas of the northern zone. The forest area is dominated by conifer species (60%), being (in order) *Pinus halepensis*, *P. sylvestris* and *Quercus ilex* the most abundant tree species (Gracia et al., 2001). Mushroom yields follow the abovementioned geo-climatic patterns (Fig. 1), with *P. sylvestris* in the Pre-Pyrenees constituting the most productive habitat for the mushroom species with the largest socio-economic impact in Catalonia, i.e. *Lactarius deliciosus* (Bonet et al., 2014).

Catalonia is considered one of the most mycophilic regions in Spain (de Román and Boa, 2004). A recent large survey demonstrates that 23% of the adult Catalan population (i.e. 1.2 million people) pick mushrooms at least once a year (CEO, 2014). Moreover, Catalonia's capital Barcelona hosts Mercabarna, the wholesale market which concentrates approximately 50% of the Spanish mushroom trade (Voces et al., 2012). Still, most people pick mushrooms for their own consumption and conceive mushroom picking as a traditional recreational activity.

The Spanish Civil Code and the Forest Act stipulate that mushroom ownership is a landholders' right. The enforcement of such a right relies on formal civil rights law procedures, which are restricted by unclear control competency (e.g. private guards), difficulties in proving guilty and low fines. Moreover, the forest property fragmentation hinders informing pickers on property boundaries and picking limitation. For these reasons, formal mushroom ownership rights are rarely enforced. Some autonomous communities provide an exception, where mushroom permit systems are established at municipal or county-level, and usually comprise public forests (Górriz-Mifsud and Bonet, 2016). Moreover, most of those permits relate to specific regional norms on mushroom picking rights, which often standardise categories of picking activities and specifications for mushroom reserve signposting. These norms provide the basis for administrative rights procedures which facilitate the enforcement of control and penalties. The introduction of a specific law for mushroom picking is an ongoing debate in Catalonia.

Previous studies on Catalan citizen views show that most people would accept the introduction of picking fees, so that pickers contribute to the forest management for improving mushroom production (Prokofieva et al., 2016). Still, the implementation of such mycosilvicultural practices is in its infancy. Some manuals have been edited for forest owners –e.g. Bonet et al. (2012b)– but

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