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Towards a land management approach to ecological restoration to encourage stakeholder participation

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ABSTRACT

In the field of ecological restoration, many authors call for more stakeholder participation in the process of restoration. In their opinion, when a restoration project is planned, the range of points of view and the knowledge of local stakeholders need to be taken into account to limit the risk of failure. Although effective stakeholder involvement is often cited as a factor of success, in practice, it is far from systematic. To understand the ways in which the stakeholders actually participate in projects and their opinion of the projects, we analysed three restoration projects. We interviewed the people who would be affected by the projects in the French Pyrenean Mountains: inhabitants, livestock farmers, and other users of the territory, site managers, locally elected officials, experts, and development agents. Our results revealed that how interviewees viewed the outcome and the success of a restoration project depended on their own activity, which also influenced the way they viewed and defined the territory concerned by restoration. Two different perceptions of ecological restoration objectives and approaches coexist in the Pyrenees. The first is highly technical and the aim is simply to restore the original plant cover. In this case, the 'territory' is limited to the area to be restored and its immediate surroundings. The second perception of restoration takes into account both past and other possible land uses and consequently concerns a larger territory and the users of the site to be restored. If the participation of local actors in the restoration process is desired, we recommend a comprehensive land management approach to ecological restoration, as this approach is more likely to arouse the interest of the stakeholders.

Introduction

Population growth, urban sprawl, industrialisation, and the development of agriculture and more generally of human activities can contribute not only to land degradation but also to the destruction of natural ecosystems. Growing environmental concerns and the desire to conserve biodiversity have led to ecological restoration projects for damaged sites that enjoy varying rates of success. Since the 1990s, many authors have recommended that stakeholders should be more involved in environmental conservation projects (Chan et al., 2007; Robertson and Hull, 2000; Stenseke, 2009; Wesselink et al., 2011; Robinson and Berkes, 2011; Comerford, 2013), for species reintroduction (O'Rourke, 2014), and for the restoration of degraded areas (Cairns, 1995; Higgs, 1997, 2005; Gobster and Hull, 2000; Shackelford et al., 2013; Hallett et al., 2013). In the opinion of these authors, the wide range of points of view of the stakeholders needs to be taken into account to prevent the projects from failing.

Stringer et al. (2006) summarised the advantages of involving stakeholders:

- obtaining a better understanding of the situation and of the problem through a range of different of points of view;
- integrating local knowledge in addition to scientific knowledge;
- preventing top-down approaches and enabling the empowerment of local population;
- enabling social learning to favour new modes of collective work.

In agricultural development, land use planning, and the management of renewable resources, such preoccupations are not new and many authors have reported on participatory approaches. However, "participation" cane be interpreted in different ways (Pretty, 1995; Stringer et al., 2006; Benson et al., 2014). A gradient of approaches to "*systems of learning and action*" ranges from "*manipulative participation*" to "*self-mobilization*" (Pretty, 1995). As discussed by Gonzalo-Turpin et al. (2008), Couix (2002), Pahl-Wostl (2006), Ison et al. (2007), among these participatory approaches,

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those focused on collective learning processes are the most likely to facilitate the incorporation of the points of view of the different actors, as well as of different forms of knowledge.

Several approaches have been developed for natural resources management in the last 30 years. According to the current "community-based conservation" approach (Western et al., 1994; Twyman, 2000; DeCaro and Stokes, 2008), in particular, responsibility for resources management should be in the hands of the local population, since they are the first concerned by the sustainability of the resources. The idea is that, if conservation and development can be achieved jointly, the interests of both could be served (Berkes, 2004). Co-management approaches have been developed based on Orstrom's concept of the commons (Orstrom, 1990). These approaches aim to share responsibility and power between the state and the local resource users and to take the local, regional, national levels of resources management into consideration. In parallel, adaptive management approaches have been widely developed in the environmental field. These approaches are based on "learning by doing" (Holling, 1978; Schreiber et al., 2004; Jiggins and Röling, 2000; van der Brugge and van Raak, 2007; Johnson, 1999). Given the lack of knowledge on ecosystem functioning, "ongoing" learning is important when concrete management actions are being implemented. Recently, the concepts of co-management and adaptive management have tended to converge and have led to the emergence of the concept of 'adaptive co-management' in which the general principle is to allow interactions between actors of the same level and between actors of different levels and to favour iterative learning (Berkes, 2009). In the same vein, Robinson and Berkes (2011) show that multi-level participation contributes to the adaptive capacity of social-ecological systems.

Far fewer studies have been conducted in the field of ecological restoration. Light (2000; Light and Higgs, 1996; in O'Neill et al., 2008) and Higgs (1997, 2003) are the main contributors. They conceptualised stakeholder participation in actions to be carried out. Although in the literature, including the stakeholders' points of view is frequently reported to play an important role in the success of restoration projects, in practice, their inclusion is far from systematic. Few publications explore the stakeholders' views and their diversity. In this field, like in the more general field of natural resources management (Booth and Halseth, 2011), few authors question the public's opinion of restoration projects. In ecological restoration, few authors have made concrete proposals for modes of management capable of incorporating these diverse points of view, even though such information needs to be included in guidelines for practionners (Hallett et al., 2013).

The work presented here tackles these subjects in the field of ecological restoration. Based on three case studies, we analysed the range of stakeholders' points of view, although we do not claim to be exhaustive. To understand how ecological restoration actions are managed, we also analysed to what extent the different points of view were taken into consideration during the actual implementation of the projects.

Material and methods

We conducted an analysis of three cases of restoration using a collective case study approach (Stake, 2000). Case studies, which "have become one of the most common ways to do qualitative inquiry" (Stake, 2000) enable the analysis of any entity in its specific context (Langley and Royer, 2006). In proceeding by inferences from similarities or difference between cases, a multiple case study can favour a first level of theorisation (Langley and Royer, 2006). Another advantage of the collective case study approach is its heuristic power (Dumez, 2013). Finding differences between cases can lead to a new point of view and reveal aspects of cases which otherwise might not have been disclosed. This approach enabled us to understand the unique aspects of each case, to compare the stakeholders' points of view and the management of each project, and, as a result, to reach the first level of abstraction called "*middle range theory*" (Richards, 2009), i.e. "*apparently local and contextual, while implicitly supporting wider questioning*" (David, 2004).

Characterisation of the three restoration projects studied

In the French Pyrenees (south-western France), one project, whose aim is to use local plants to restore degraded alpine grasslands to restore has mainly been driven by the Pyrenean Botanical Conservation association (CBP, *Conservatoire Botanique Pyreneen*) since 2000, in partnership with territorial collectivities, state services, locally elected officials, the forestry department, and scientific research departments. Until recently, only zones subject to regulations in favour of the protection of nature were concerned by the use of local plants. The aim of the restoration project discussed here is to scale up from limited revegetation projects to genuine ecological restoration, even in areas which are home to traditional occupations such as livestock raising and hunting, or more recent activities such as skiing, and cross country SUV rallies. Our study is part of this project. One outcome of a previous study conducted by the CBP on the range of revegetation practices in the Pyrenees (Dutrillaux, 2005) was an inventory of the main restoration projects. With this inventory as a starting point, we selected the three cases we studied, not because they were 'representative', but because the inventory revealed the diversity of the restoration projects, and diversity is important in achieving the first level of abstraction (Mitchell, 1983; Dumez, 2013). In addition, these three case studies fitted our objectives. To be sure of identifying the whole range of stakeholders' points of view, and of identifying possibly different ways to manage restoration projects, we chose sites where:

- different uses were made of the territory, particularly traditional activities such as livestock breeding, plus more recent activites such as skiing, hiking or cross-country rallies in sports utility vehicles (SUVs);
- the site managers belonged in different organisations and therefore had different mandates and objectives;
- the site was subject to environmental protection regulations (or not), and if so, whether specific rules had to be respected (or not);
- with reference to the aims of the global project driven by the CBP, consideration was given to the recommendations concerning the use of local plants.

The three case studies we used (Fig. 1 and Table 1) were:

- the high altitude plateau of Pla Guillem;
- Peyragudes ski resort;
- the La Pierre St Martin cross-country skiing area.

Choice of the people to be interviewed

Based on the above-mentioned sociological study by Dutrillaux (2005), we identified the main local actors to interview (site managers, the project manager, local elected representatives, experts, etc.). Then, thanks to a "snowball sampling" strategy (Berg and Lune, 2012), the people we met at each site gave us the names of other useful contacts, in particular the users of the site or their representatives. In this way, we managed to meet most of the stakeholders involved at each site. We conducted