

Social representations of an alpine grassland landscape and socio-political discourses on rural development

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Received: 20 April 2009 / Accepted: 16 June 2009 / Published online: 16 September 2009
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Abstract Understanding how changes in ecosystem properties feedback into land-use decisions remains relatively uncharted territory for land science in general and for ecosystem service science in particular. In Europe, debates on rural development can be framed in terms of opposing socio-political discourses. These include formulations of desirable, acceptable and unacceptable changes that contribute to changing the planning- and policy-based drivers of land-use decisions. We explored the relationships between such discourses and local descriptions of a mountain grassland area in the central French Alps documented using semi-structured interviews. We found that descriptions focused on either the (1) productive functions of the local grasslands, (2) the aesthetic qualities of the surrounding landscape or (3) its cultural heritage value (testimony to past land-use patterns and practices). We interpreted these descriptions as social representations and found that they were unequally repre-

sented in existing socio-political discourses identified at the European level, thus illustrating some strong political barriers between local perceptions of landscape changes and the policy drivers of those changes.

Keywords Rural landscape evaluation/preferences · Socio-political discourses · Ideal type · Canonical correspondence analysis · Landscape · Ecosystem services · Grasslands · French Alps

Introduction

Public policies interact with other factors such as the globalization of commodity markets in driving land-use decisions (Lambin et al. 2001; Strijker 2005; Penker 2005). It is now widely acknowledged that human well-being can

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be directly and indirectly affected by these decisions through the modification of ecosystem service provision (Chapin et al. 2000; Foley et al. 2005; Millennium Ecosystem Assessment 2005; Zhang et al. 2007; Daily and Matson 2008).

While many studies have strived to quantify how land-use affects ecosystem service provision (e.g. Kleijn and Sutherland 2003; Primdahl et al. 2003; Souchère et al. 2003; Núñez et al. 2005; Quétier et al. 2007; Lawrence et al. 2007; Stafford Smith et al. 2007; Reyers et al. 2009; Lara et al. 2009), understanding how changes in ecosystem properties feedback into land-use decisions remains relatively uncharted territory for ecosystem service science (Daily and Matson 2008; Turner and Daily 2008). Thus, understanding how different social actors perceive ecosystem services and incorporate them into their individual behaviour as well as into collective social, economic and political decision-making remains an important challenge for land science (Carpenter et al. 2009). Several well-developed schools of thought offer insights from which land-use decisions can be understood and the decision-making process described (Turner et al. 2009).

As an example, political scientists often analyse the development of public policies regulating land-use or access to natural resources using the concept of socio-political discourses (e.g. Frouws 1998; Elands and Wiersum 2000). Natural resource use, land-use and rural development policies incorporate visions of appropriate, inappropriate acceptable and unacceptable landscape changes that are formulated through socio-political discourses and debated amongst publicly involved participants such as politicians, government, institutions or interest groups, at various decision levels ranging from local communities (e.g. Liepins 2000; Purdon 2003) to national governments (e.g. Luginbühl 2001; van Dam et al. 2002; Svendsen 2004). In Western Europe, as changing land-use patterns and practices continue to alter rural landscapes, land-use policy has shifted its emphasis from agricultural production to the provision of wider rural amenities (Bazin 2003; Penker 2005).

Peoples' differing preferences concerning ecosystem services give political weight to competing socio-political discourses that address issues of rural development, natural resource management and nature conservation (Soliva et al. 2008). These preferences could thus offer a feedback mechanism from changes in ecosystem service delivery perceived by those who are directly affected to the establishment of public policies that in turn contribute to driving land management (Selby et al. 2007). Assessing the strength and scope of such feedback mechanisms is a key priority in ecosystem service research (Carpenter et al. 2009). We contributed to filling this gap by exploring the relationships between interviewees' perception of ecosystems in a mountain grassland landscape of the central

French Alps and the socio-political discourses mentioned earlier.

Materials and methods

Frame of reference

We classified the way people describe semi-natural grasslands into a set of social representations. Social representations are understood as the collective elaboration "of a social object by the community for the purpose of behaving and communicating" (Moscovici 1963). In this study, we considered the shared understanding of the terms *prairie* (grassland in French) and *paysage* (landscape or scenery in French) as social representations.

Our methodology aimed to illustrate the variety of social representations found within the local stakeholder population (as in Selby et al. 2007), rather than searching for a dominant social representation in the case-study area (as did Hovardas and Stamou 2006). To identify social representations, we first explored the various notions that people used to describe the landscape that surrounds them (labelled as overall landscape hereafter) and the grasslands that are found in that landscape (labelled as local grasslands hereafter) and investigated the existence and nature of possible associations between these notions. We then identified these associations without referring to predefined social categories or personal histories and interpreted them as social representations (Jodelet 2003).

We then sought to identify which elements of these representations could also be found in the conception of the rural landscape advocated by the socio-political discourses described by Elands and Wiersum (2001). Following Hoggart et al. (1995), Frouws (1998) and Elands and Wiersum (2001) described five (ideal-typical) socio-political discourses for rural development in Europe: the Agri-ruralist, the Hedonist, the Utilitarian, the Community Sustainability and the Nature Conservation discourses (Appendix).

Although the 'Utilitarian' and 'Agri-ruralist' socio-political discourses were the most influential in current debates on recent reforms of the Common Agricultural Policy of the European Union (Bazin 2003; Delorme 2004; Penker 2005; see also Mariola 2005 for the USA), all five socio-political discourses have been represented in policies such as agri-environmental schemes (MacDonald et al. 2000; Caraveli 2000) and rural development programmes (Buller 2000).

If social representations identified in the case-study area are reflected in a discourse's conception of the "rural", then their beholders will more readily accept how problems are defined in this discourse, as well as the solutions it has to offer (Selby et al. 2007). The social representations

formulated here were not expressed publicly in any *fora*, or built by groups seeking political influence such as farmers' unions or conservation NGOs. As such, they are not socio-political discourses (Elands and Wiersum 2001). Our aim was to uncover possible relationships between social representations at a local level and socio-political discourses previously identified at the national and European level by Elands and Wiersum (2001). We did not aim to establish equivalences between social representations and socio-political discourses.

Case-study area

The study site is the 1,292 ha south-facing slope above Villar d'Arène (VA hereafter) a village of less than 300 inhabitants in the central French Alps (45.04°N, 6.34°E). Altitude ranges from 1,650 to ca 3,000 m above sea level with a mean annual rainfall of about 956 mm year⁻¹ and mean monthly temperatures ranging between -4.6°C in February and 11°C in July (at 2,050 m). The area was selected for our study, as it is representative of marginal agricultural regions in Europe, where traditional farming systems are in decline. The area also has recognized aesthetic, cultural and conservation value and is included within the boundaries of a national park.

The area is located in the upper catchment of the Romanche River in the buffer zone of the Ecrins National Park and receives many thousands of visitors annually (Parc National des Ecrins 2004). Opportunities for outdoor recreation, the grandiose mountain setting, its abundant and diverse fauna and flora, and the contrast between the wilderness of the glaciated Meije massif and the gentle grass-covered slopes opposite them are the main attractions to VA. Indeed, tourism has taken over agriculture as the dominant economic activity (Edmond Chancel, mayor of VA in 2004, personal communication).

Despite this focus on its aesthetic and conservation values, the area can still be described as agricultural as farmers (and their flocks) remain the strongest force shaping vegetation dynamics. When the local population was at its peak around 1,830 (Rousset 1977), arable fields used to cover the lower slopes (1,650–2,000 m) and large expanses of natural grasslands were cut for hay between 1,800 and 2,500 m. As mountain agriculture lost ground to

more profitable activities and rural exodus drained the population away to the cities (from the 1830s until present), former arable fields were abandoned and subsequently converted to grasslands used for hay or grazing. The area is thus dominated by grassland ecosystems that are still used by a small, but active farming community based on sheep and cattle rearing for lamb and steer production.

Former arable land has given the area a unique distinctiveness in the form of terraced slopes extending up to an altitude of 2,000 m. This heritage of the former land-use system makes underpins numerous preservation efforts including subsidies to the remaining farmers (Parc National des Ecrins 2004).

Data collection and analysis

Semi-structured interviews

In order to document the diversity of current individual opinions on the overall landscape and the local grasslands, forty-five semi-structured interviews were carried out with both locals and visitors during the spring and summer of 2004 (Table 1). Interviews lasted between an hour and an hour and a half on average. An interview guide was used to lead the interview from a description of the overall landscape through to a discussion of more detailed descriptions of the local grasslands.

The first part of the interview aimed at getting an unprompted description of the overall landscape by the interviewee. This was done by setting it as the general theme of the interview, and by introductory questions asking how interviewees would describe the local scenery. If needed, additional questions asking for specific landscape elements or the site's specificity were used to prompt the interviewee or help rekindle the discussion. The second part of the interview focused on the local grasslands, as they are the main component ecosystems of the landscape. Discussions were about their vegetation (presence of particular species overall structure, colour...), their variations in space (across the landscape) and time (through the seasons), as well as their uses and the values associated with them. To support these descriptions, sample photographs illustrating different types of grasslands at different seasons and in different landscape contexts were presented

Table 1 Selected data on the interview sample

Time spent annually in Villar d'Arène	Year round (67%), less than 3 months (18%) and less than 1 month (16%)
Time spent in Villar d'Arène	Over 20 years: 51% (incl. 31% born in Villar d'Arène)
Land ownership	Yes: 62%, No: 38%
Professional activity	Farmers (17%), tourism (23%), retired (23%) and other (37%)
Age	Below 40: 31%, over 60: 29%
Education	High school degree: 38%

Table 2 List of notions used to describe the overall landscape and their classification as referring to aesthetic, functional and socio-cultural aspects

Notions used to describe the overall landscape
Authentic
Beautiful
Calm
Changes with the seasons
Diverse
Diverse fauna
Diverse flora
Domesticated (as opposed to wild)
Exceptional (stronger than beautiful)
Exotic (in contrast to their own everyday setting)
Farming
Flowing water
Grasslands
Grasslands that are cut or grazed
Grouped villages
Mountain
My everyday setting (see main text)
Nature (ambiguous term: wild for some, not artificial for most)
Particular climate
Terraced
Testimony to the past
Tourist
Two contrasting slopes (north and south facing)
Vast
Villages with typical architecture
Well kept (i.e. well taken care of stewardship)
With forests

to the interviewees. We used pictures taken from four locations at four to six different times between April and August (available as electronic supplements).

Interviews were recorded and subsequently analysed. The diverse formulations and terms used to describe the overall landscape or the local grasslands were synthesized into ‘notions’ occurring across the interviews. Throughout the text, notions are identified in that they appear between single quotation marks as in ‘habitat for fauna’ (see Tables 2, 3 for other examples). Notions were then interpreted in terms of supporting, provisioning, regulating and cultural ecosystem services following the classification proposed by the Millennium Ecosystem Assessment (2005).

Associating descriptions of the overall landscape and local grasslands

We used multivariate statistics to investigate the relationships between notions used to describe the overall

landscape or the local grasslands. Notions were coded as yes/no for each one of the interviews (‘yes’ if the interviewee used the notion or referred to it and ‘no’ if not) into two tables: notions used by the interviewee to describe the local grasslands and notions used by the interviewee to describe the overall landscape. Notions with low occurrence (less than five) were excluded from the analysis.

We explored patterns in the data set using canonical correspondence analysis (CCA—Ter Braak 1986, 1987; Chessel et al. 1987). CCA summarizes both the table of notions used to describe the overall landscape and the table of those used to describe the local grasslands. It does so by searching for orthogonal axes that maximize the variance of the individual interviews (the statistical units). Results are represented graphically in a similar fashion to principal component analysis (PCA) where the contribution of each notion to the CCA axes determines their coordinates on graph. Identifying which notions contribute most to those axes enables us to draw conclusions on the notions that co-occur across the interviewed sample and differentiate interviews the most. CCA was carried out using the *cca* function of the *ade4* package in the R software (Thioulouse et al. 1997; Chessel et al. 2004).

Relating social representations to the social background of interviewees

CCA results describe how the notions used to describe the overall landscape and the local grasslands were related across interviews (i.e. how likely they are to be mentioned together in a given interview). Co-occurring notions (Fig. 1) form the basis for our formulation of social representations (Fig. 2). Co-occurring notions were identified without referring to the social background of the interviewees. We only analysed the links between these social representations and the interviewees’ social background post hoc in order to explore possible relationships with social groups identifiable on the basis of age, education or origin.

Selected social background variables were time spent annually in the study area (5 classes: passing, 1 or 2 weeks, 1 month, 2–3 months, year round), duration of familiarity with the study area (5 classes: 1, 1–5, 5–20, over 20 years and native), ownership of agricultural land in the study area (5 classes: none, 1–1.9, 2–4.9, 5–14.9 and over 15 ha), age (5 classes: 20–30, 31–40, 41–50, 51–60 and over 61 years old) and education (5 classes depending on the number of years of study). The coordinates of individual interviews on the CCA axes represent the degree to which they fit into the above-mentioned clusters of co-occurring notions. We analysed the relationship between these coordinates and the social background of the interviewees using a classification tree analysis (CTA, using the *rpart* function and library in the R software).

Table 3 List of notions used to describe the local grasslands, their classification as referring to aesthetic, functional and socio-cultural aspects and their reference to categories of ecosystem services as defined in the Millennium Ecosystem Assessment (2005)

Notions used to describe the local grasslands	Ecosystem service type
Biodiversity	Cultural/supporting
Changing with the seasons	Cultural
Diversity within grasslands	Regulating/cultural
Fodder quality	Provisioning
Grass density	Provisioning
Grass height	Provisioning
Grasslands that are cut or grazed	Provisioning
Green (is the dominant colour)	Cultural
Green tones (green from afar, more coloured close up)	Cultural
Greenness (intensity of green)	Cultural
Habitat for fauna	Provisioning/regulating
Human mountain (as opposed to wild)	Cultural
Links between farming practices and well-kept grasslands	Provisioning/cultural
Open	Cultural
Smell of flowers	Cultural
Soft shapes and curves	Cultural
Terraces	Cultural
Testimony to the past	Cultural
Variety (of grasslands)	Cultural
Variety of colours	Cultural
Visual difference between cut and grazed grasslands	Cultural
Well kept (i.e. well taken care of stewardship)	Provisioning/regulating

Results

Notions

Although seemingly understood by all interviewees, the term *paysage* (French term which can mean either landscape or scenery) was not always considered applicable to the study site. Remarks such as “it is not a *paysage*, it’s where I live” or equivalent were commonplace, and we grouped them under the overall notion of ‘my everyday setting’ (see Fig. 1a). As well as scenic beauty (e.g. notions such as ‘beautiful’, ‘exceptional’), notions used by interviewees to describe the overall landscape, include such elements as the shape of villages and buildings (‘clustered villages’), the contrasts between south- and north-facing slopes (‘two contrasting slopes’), historical signs and traces of the past, the human-dominated nature of the landscape (‘domesticated landscape’) and its ‘well-kept’ nature (Table 2). Although some of the above-mentioned notions were also used to describe the local grasslands, overall an almost unique set of notions was used. They included visual (such as ‘colour variety’) and olfactory (such as ‘the smell of flowers’) descriptions, as well as use-based (‘grasslands that are cut or grazed’), agronomical (‘fodder quality’) and ecological (‘habitat for fauna’) descriptions.

Overall, we thus found that given the opportunity, people use many notions that relate to ecological properties

of the grassland landscape (understood as measurable attributes or variables of the ecosystem), concerning its agricultural use or the cultural and natural heritage values associated with local grasslands, as well as to its aesthetic aspects (a ‘beautiful’, ‘exceptional’ landscape) (Table 2). More notions relating to ecological properties were used for describing the local grasslands (e.g. fodder availability). Many of these notions could be interpreted in terms of ecosystem services (Table 3). Fodder availability for cutting and grazing could for example be classified as a provisioning ecosystem service (following the terminology and classification of the Millennium Ecosystem Assessment 2005). Other examples included ‘habitat for fauna’, which is both a provisioning (for hunting) as well as a regulating ecosystem service (for pest-control). The visual and olfactory qualities of the local grasslands could be classified as cultural ecosystem services (Table 3).

Identifying clusters of co-occurring notions’

The first two axes of the CCA explain 34.5% of the total variance in the spread of notions across the interviews (21.9 and 12.7%, respectively). They capture the main structure of the data set as the third axis only explains 10.1% of the total variance.

The first CCA axis (horizontal) opposes a ‘grasslands’ landscape described as ‘my everyday setting’ to a broad

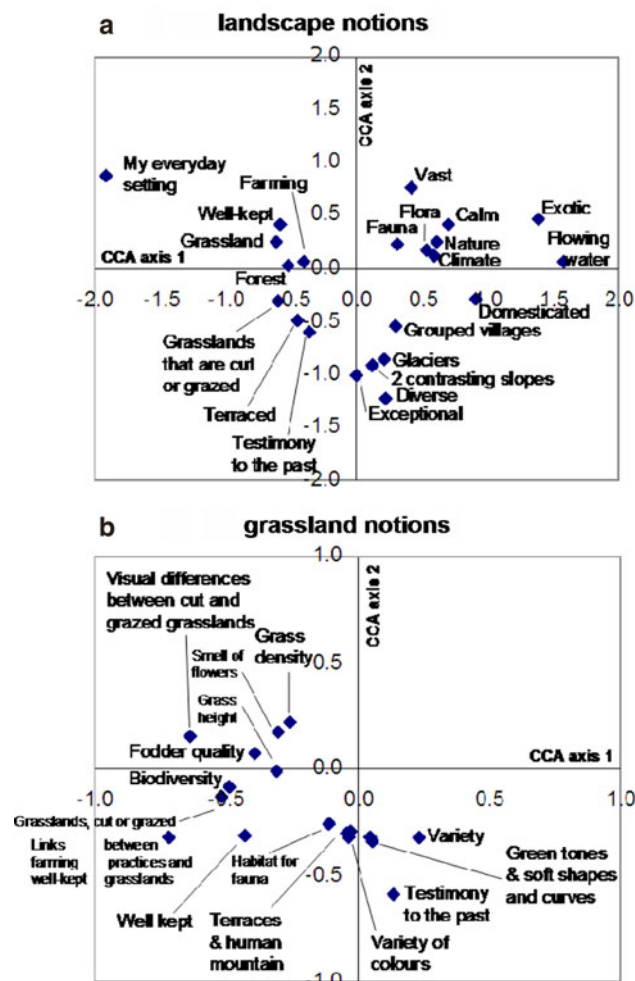


Fig. 1 Graphical representation of CCA results. Figure 1a shows the coordinates of notions used to describe the overall landscape (landscape notions) on the first two axes of the CCA. Figure 1b shows the coordinates of notions used to describe the local grasslands (grassland notions) on the first two axes of the CCA. CCA axes 1 and 2 are the *horizontal and vertical axes*, respectively. In both Fig. 1a, b, only those notions with a score higher than 0.25 are shown. Notions that appear close together on the graph tend to be found together across the interview sample

description of the landscape as ‘exotic’ with ‘flowing water’ (Fig. 1a). These two opposed descriptions of the overall landscape are associated with contrasting descriptions of the local grasslands (Fig. 1b). The ‘everyday setting’ is associated with an agronomical description of the local grasslands, including notions such as the ‘visual differences between cut and grazed grasslands’ and the ‘links between farming practices and well-maintained grasslands’ as well as ‘fodder quality’ and ‘biodiversity’. The ‘exotic’ (i.e. unfamiliar) description of the overall landscape is not associated with any notions linked to the local grasslands (no notions contribute significantly to the right hand side of axis 1 in Fig. 1b).

The second CCA axis (vertical) describes the overall landscape as an ‘exceptional’ and ‘diverse’ ‘terraced

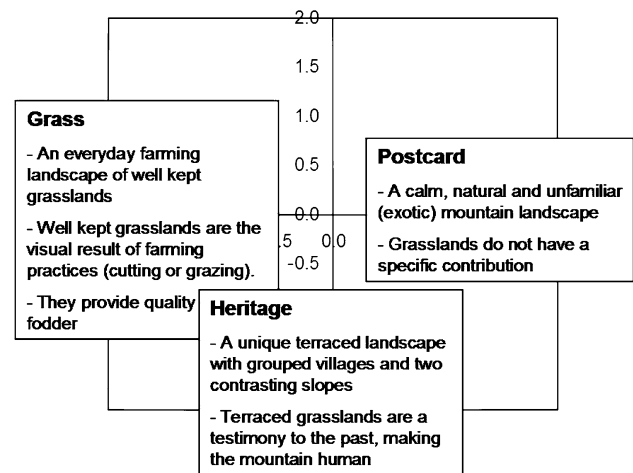


Fig. 2 Representation of the CCA axes as a basis for formulating social representations (see Fig. 1 for the underlying notions)

landscape’, with ‘two contrasting slopes’ that are a ‘testimony to the past’ (Fig. 1a). This ‘exceptional’ landscape is associated with a description of local grasslands as ‘testimony to the past’ but also to a pictorial description of their ‘variety of colours’, ‘green tones’ and ‘soft shapes and curves’. They are symbols of ‘a human mountain’ (as opposed to a wild mountain) with ‘terraces’. The notion of ‘well-kept grasslands’ contributes to both CCA axes (Fig. 1b).

Interpreting clusters of co-occurring notions as social representations

The first axis of the CCA opposes two clusters of co-occurring notions (Fig. 2). On the right hand side, the overall landscape is described as a ‘mountain’ landscape with little reference to attributes specific to VA. ‘Nature’ (as opposed to artificial—Mauz 2002), for example, has a very broad meaning. It makes no reference to the local grasslands. It does focus, however, on the site being ‘calm’ and ‘exotic’. We called this rather generic description of mountain scenery the postcard representation. In contrast, notions on the left hand side of CCA axis 1 (Fig. 1b) described the overall landscape as ‘my everyday setting’ rather than as a scenic setting (*paysage* in French). It is opposed to the notion of ‘exotic’ located on the right hand side of CCA axis 1 (Fig. 2). This reflects the difference between the overall landscape as seen by an insider and a detached view on the landscape as seen by an outside observer. Grasslands are described as a major component of the site’s character and they are seen as a resource that has to be managed through mowing or grazing. We called this description focusing on natural resources the grass representation.

The second CCA axis (Fig. 2) is by construction independent of the two contrasting representations described earlier. It illustrates the existence of a more informed (i.e. specific) description of the whole site than the ‘exotic’

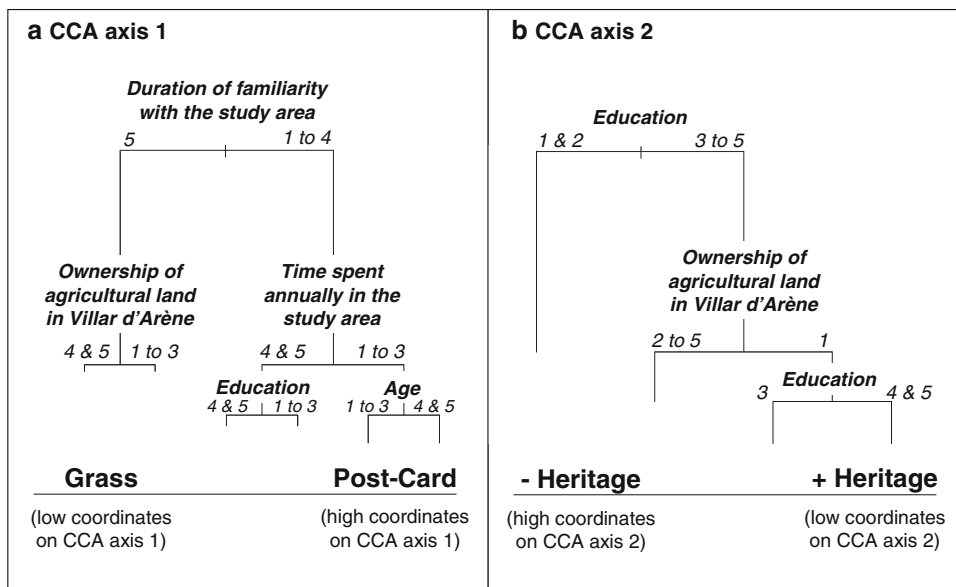


Fig. 3 Dendrograms of classification tree analysis of interview coordinates on axis 1, which opposes the “grass” and “postcard” sets of notions (Fig. 3a), and axis 2 on which low coordinates are associated with the “heritage” set of notions (Fig. 3b) of CCA based on the social background of interviewees. *Branches* are split by social background variables (*italic bold*) with an indication of which classes (numbers 1 to 5, in *italics*) the branches correspond to. *Vertical length of the branches* indicates dissimilarity. Social background variables are time spent annually in the study area (5 classes numbered 1–5 in

the following order: passing, 1 or 2 weeks, 1 month, 2–3 months, year round), duration of familiarity with the study area (5 classes in this order: 1, 1–5, 5–20, over 20 years and native), ownership of agricultural land in the study area (5 classes in this order: none, 1–1.9, 2–4.9, 5–14.9 and over 15 ha), age (5 classes in this order: 20–30, 31–40, 41–50, 51–60 and over 61 years old) and education (5 classes in this order: Certificat d’études, CAP—BEP, Baccalaureate, Baccalaureate + 2 years, Baccalaureate + 5 years). The latter two imply university education

standard mountain scenery and the ‘everyday setting’. This description insists on the site’s peculiarities (‘two contrasting slopes’ and ‘terraced’ slopes) and focuses on local grasslands as both a cultural (‘testimony to the past’, ‘terraces’) and natural (‘biodiversity’) heritage. We called this description the heritage representation.

To summarize, the grass representation makes little reference to specific attributes of VA. It focuses on provisioning ecosystem services but also includes considerations for regulating services, in particular through stewardship (‘well-kept’ grasslands). The heritage and postcard representations have a more cultural focus, the latter exclusively for the overall landscape. In the Postcard representation, no particular ecosystem property is identified and landscape evaluation essentially focuses on its aesthetic properties (i.e. cultural services), but with little reference to attributes specific to VA. Unlike the postcard representation, the heritage representation focuses on what makes VA a distinct mountain landscape. It also considers additional ecosystem services such as supporting (biodiversity) and regulating (through stewardship).

Relating respondents’ social background and notions

Our classification tree analysis of interview coordinates on CCA axes 1 and 2 in relation to social background of

interviewees reveals how the social representations described earlier relate to these variables (Fig. 3).

Negative coordinates on CCA axis 1 (i.e. the grass representation) are associated with interviewees who are native to the study area, and who own agricultural land in VA. This shows that notions indicative of the grass representation are more often used by native farmers of VA. Coordinates with a higher value on CCA axis 1 are associated with non-natives and people who spend less than 1 month annually in VA. Thus, notions indicative of the postcard representation are more likely to be used by short-term visitors (tourists). Among these, it is particularly the case for more elderly visitors (age above 50). Coordinates with a low value on CCA axis 2 are associated with people with university education, who do not own agricultural land in VA. This shows that notions indicative of the heritage representation are more likely to be used by educated non-farmers. The duration of their familiarity with the study area or the amount of time they spend in VA each year had no influence.

Discussion

The study of social representations of rural landscapes of Europe is crucial in a context where the objectives of

public policies concerning land-use and rural development in these landscapes are fiercely debated. It makes it easier to anticipate local reactions to the environmental consequences of policy changes. This is especially true in the marginal agricultural regions of Europe such as mountains, dry Mediterranean and cold northern regions, where highly subsidized land uses are most vulnerable to changes in policy directions.

Ecosystem services in descriptions of a mountain grassland landscape

The notions used by interviewees to describe local grasslands in VA demonstrate their knowledge of and interest for various benefits provided by these grasslands. We interpreted these as ecosystem services (Millennium Ecosystem Assessment 2005). Some provisioning ecosystem services were associated with farming and hunting. However, cultural ecosystem services (e.g. aesthetics and testimonies to past use of the land) dominated the description of grasslands (Table 3). This situation is widespread in industrialized societies where people's material well-being and access to resources is essentially secured through trade and the welfare state (Millennium Ecosystem Assessment 2005). People do not rely directly on ecosystems around them for provisioning services. The provisioning of food and fibre for the wider European population by mountain areas such as VA is also negligible. In fact, the continued provision of cultural ecosystem services for the satisfaction of the urban majority or the preservation of an authentic link to the land is at the heart of many contemporary debates on rural development across Europe (Elands and Wiersum 2001; Bazin 2003).

We showed that, without linking them to predefined social categories or social histories, the notions used do describe the overall landscape or the local grassland ecosystems across the interviewed sample formed clusters of co-occurring notions. Interpreting these co-occurring notions as social representations, we found that a richer vernacular representation focusing on the grassland resource (and associated with a long-term interaction with the local ecosystems) shared little with an aesthetic appreciation of the landscape mostly found among short-term visitors.

The social representations we identified are local in that they are based on a social survey conducted in the grassland landscape itself. Yet, they match issues such as biodiversity, wilderness or the rural idyll (not necessarily interpreted as social representations) identified in other studies of ecosystem services provided by mountain, dry or otherwise marginal agricultural areas of Europe (e.g. MacDonald 1998; O'Rourke 2000; Hovardas and Stamou 2006; Soliva 2007). We thus consider them generic enough to be relevant in other similar landscapes.

Representations oppose the vernacular and the aesthetic landscape

Our results show that the grass and postcard representations do not overlap. Natives of VA are more likely to describe the overall landscape and the local grasslands using notions related to the grass representation. Their seeing the landscape as 'my everyday setting' refers best to the French notion of *cadre de vie* which carries a different more functional perspective than the French term "*paysage*". As mentioned earlier, the latter refers ambiguously both to landscape and scenery. Visitors and seasonal residents are more likely to describe the overall landscape using notions that are widely applicable to aesthetic landscapes (Roger 1997), such as those formulated by Nohl (2001). On the contrary, the grass representation fits the definition of a vernacular landscape (Brinckerhoff Jackson 1984). Our results show that in VA, these two social representations of the landscape are mutually exclusive.

Environmental discourse analysis has been used extensively to expose the socio-political implications of how people see landscapes and associated ecosystems (Goldman and Schurman 2000). In the case of marginal agricultural landscapes such as mountain grasslands, basing landscape planning and management only on visual landscape preferences would favour those that relate to the landscape and its ecosystems through its aesthetic qualities. Such would be the case of recent urban settlers to a given rural area (Nesbitt and Weiner 2001; Antrop 2002; Svendsen 2004). This would thus favour the postcard or the heritage social representations.

Without discussing the consequences of aesthetics based planning, local rural dwellers' concerns for the diverse ecosystem services included in the vernacular grass representation could implicitly be excluded (Purdon 2003; Dakin 2003). This could lead to the loss of the rich relationship between people and the land, and the associated local environmental knowledge base that the grass representation carries. This is especially true if participation and bottom-up processes are considered as important parts of efficient decision-making (Van Asselt and Rijkens-Klomp 2002).

Linking local social representations to socio-political discourses

Our exploration of the linkages between local social representations and socio-political discourses aimed at exploring whether local preferences for such discourses could offer a feedback mechanism from perceived changes in ecosystem service delivery to the establishment of public policies (Selby et al. 2007). These linkages are not straightforward, as discussed in the following paragraphs.

The grass representation we identified in VA differs from the *Agri-ruralist* discourse by its vernacular nature. In

contrast to socio-political discourses, it is not related to wider considerations on the role of farming or of provisioning ecosystem services in defining desirable rural landscapes (see also McHenry 1996; Svendsen 2004). Nevertheless, the continued existence of the grass representation in VA is tightly linked to the continued existence of local farmers and farming, which is an important focus of the *Agri-ruralist* discourse. Farmers in VA rely heavily on public support via the Common Agricultural Policy (CAP), which is incompatible with the key focus on economic profitability in the *Utilitarian* discourse (Frouws 1998).

Unlike the local, vernacular, grass representation, the postcard representation is well represented at the regional and national level through mass media and advertising aimed at fostering tourism in mountain regions (Bozonnet 1992, 1996). In the *Hedonist* socio-political discourse, rural areas are described as a playground for urban citizens (Frouws 1998). We found that short-term visitors to VA are more likely to refer to the postcard representation when describing the overall landscape but they do not explicitly describe it as a playground. In the *Nature Conservation* discourse, the contrast between domesticated (artificial) and wild (natural) landscapes is a key concept (Elands and Wiersum 2001; see also Mauz 2002). Many important notions of the postcard representation refer to such concepts (e.g. ‘nature’). However, the postcard representation does not give a description of the local ecosystems and the services they provide. Although the *Nature Conservation* discourse focuses on nature’s intrinsic value, and thus ignores ecosystem services, it does contrast with the postcard representation in its detailed emphasis on ecosystem integrity and biodiversity. Thus, our results do not make it possible to unambiguously relate the Postcard representation to either of the strictly defined *Hedonist* or *Nature Conservation* socio-political discourses of Elands and Wiersum (2001). Local and regional debates on access to protected areas for outdoor sports are common place and confront these two socio-political discourses (Labande 2004). It is, however, possible that in high-mountain areas such as VA, lay people combine these two discourses and formulate similar landscape preferences where the wild (natural) mountains are the playground.

Our results show that the heritage representation is independent of the opposition we found between the grass (vernacular) and the postcard (aesthetic) representations. It acknowledges the importance of grasslands as a resource (as in the grass representation) but has a more explicit focus on their cultural and natural values. This relates the heritage representation to the *Hedonist* discourse (Frouws 1998; Elands and Wiersum 2001). The heritage representation recognizes the contrast between the domesticated south-facing slope and the wild north-facing slope giving it possible relations to the *Nature Conservation* discourse described by Elands and Wiersum (2001). By recognizing farmers’

roles as stewards of the countryside, the heritage representation also has strong relations to parts of the *Agri-ruralist* socio-political discourse described by Frouws (1998). Following Elands and Wiersum (2001), the future of rural areas in the *Agri-ruralist* discourse is one of a new social contract between farmers and society based on sustainability and quality. In the ‘*Nature Conservation*’ discourse, the future of rural areas lies in a balance between rural and nature areas. It seems that in VA, the heritage representation offers a vision for the landscape and its ecosystems where the grass and postcard representations are made compatible. We can thus interpret the heritage representation as a local combination of the *Agri-ruralist*, *Hedonist* and *Nature Conservation* socio-political discourses.

The heritage representation carries important parts of the *Agri-ruralist* message (e.g. land stewardship—see also similar findings in the analysis of newspaper articles by Hovardas and Korfiatis 2008), as well as considerations relating to its value for short-term visitors who are more receptive to the *Hedonist* (e.g. authenticity) and *Nature Conservation* (e.g. biodiversity) socio-political discourses. The emergence and development of a heritage discourse as a “meta-socio-political discourse” for marginal agricultural areas of Europe with high cultural and natural heritage value could reinforce current support for agriculture aiming at sustaining the provision of present combinations of ecosystem services provided by these areas (MacDonald et al. 2000).

However, the consensual nature of such a discourse could also keep unchallenged current power relations, between social actors with conflicting interests concerning land-use (Peterson et al. 2005). The recent shift towards consensus-based participatory approaches in landscape and ecosystem management runs the risk of relating ecosystem services to a homogeneous “social demand” that would focus exclusively on provisioning services for local farmers or scenic value (e.g. Luginbühl 2001). We also found that although both the Postcard and the heritage representations were somewhat represented in the existing socio-political discourses, the grass representation was not. This could result in the latter being poorly represented in policy circles, and losing out to conflicting postcard or Heritage-centred policy options. In this respect, studies aiming to assess the non-market values of rural landscapes and their ecosystems should focus on making conflicting preferences explicit (Meppem and Bourke 1999; Peterson et al. 2005), rather than compiling people’s ad hoc preferences (Arler 2000) or willingness to pay (Sagoff 1998).

Conclusions

Overall, we thus found that local social representations of the rural landscape of Villar d’Arène did include notions related to ecosystem properties and ecosystem services. However,

we could not make straightforward links between these representations and the dominant socio-political discourses on rural development in Europe. Rather, the aesthetic postcard and heritage representations mix elements from different socio-political discourses. The resulting combinations make sense locally as in the case of the hedonist and nature conservation discourses being brought together in a landscape where wilderness and outdoor sports are a key activity. The vernacular grass representation is different in that its focus on the grasslands, as a resource does not have strong ties to socio-political discourses that deal with much broader issues. Instead, it seems that the continued existence of the grass representation is a key goal of the *Agri-ruralist* discourse itself.

Thus, although the three social representations identified in this study site were generic enough to attempt to relate them to socio-political discourses developed at broader geographic and socio-political scales, our findings suggest that strong political barriers exist between local perceptions of landscape changes and the policy drivers of those changes. Additional processes not limited to environmental change, such as local power struggles, must be taken into consideration in order to improve our understanding of human–environment interactions and social–ecological systems.

Acknowledgments This research was carried out as part of the EU funded project VISTA (Vulnerability of Ecosystem Services to Land Use Change in Traditional Agricultural Landscapes—EVK2-2001-000356). It would not have been possible without the logistical support of the Station Alpine Joseph Fourier and its staff. Specific thanks go to Serge Aubert for facilitating contact with local and regional stakeholders whom we thank for their patience and readiness to discuss the past, present and future of their grasslands. Some of the ideas presented in this paper have greatly benefited from discussions with Jean Paul Bozonnet. We also thank Daniel Cáceres, Felicitas Silveti and Harold Levrel for comments on previous versions of this manuscript. Wilfried Thuiller was partly funded by the EU funded project MACIS (Minimization of and Adaptation to Climate change: Impacts on biodiversity—project no. 044399).

Appendix

See Table 4.

Table 4 The five socio-political discourses as formulated by Elands and Wiersum (2001)

Discourse	Agri-ruralist	Hedonist	Utilitarian	Community sustainability	Nature conservation
Conception	Farmers stewards of the countryside	Countryside as the garden of the city	Production areas to be used for economic purposes	Remote places	Potential nature areas, nature has intrinsic purposes values
Problem	Crises in modern farming	Deteriorating aesthetic, cultural and natural values	Under-development and retardation	Marginalisation, stagnation and decrease in liveability and economic vitality	Uncontrolled incursion of rural in areas into wilderness areas
Future	New social contract farmers-society sustainability and quality	Re-establishment of these values above all	Need for innovative economic activities	(re)Creation of basic, social-economic structures and living conditions	Creation of new controlled, balance between rural and nature areas

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