Farmers' Perceptions of a Mountain Biosphere Reserve in Austria

Author: Humer-Gruber, Adelheid

Source: Mountain Research and Development, 36(2) : 153-161

Published By: International Mountain Society

URL: https://doi.org/10.1659/MRD-JOURNAL-D-15-00054.1

Mountain Research and Development (MRD)
An international, peer-reviewed open access journal
published by the International Mountain Society (IMS)
www.mrd-journal.org

MountainResearch
Systems knowledge

Farmers' Perceptions of a Mountain Biosphere Reserve in Austria

Adelheid Humer-Gruber
adelheid.humer-gruber@oeaw.ac.at
Institute for Interdisciplinary Mountain Research, Technikerstr. 21a, 6020 Innsbruck, Austria

This study explored farmers' perceptions of a biosphere reserve in the Austrian Alps with the goal of promoting better understanding among different stakeholders involved in the agricultural sector in a biosphere reserve. Biosphere reserves have a variety of functions and serve as models of sustainable regional development and involve stakeholders in decision-making on and development of protected areas. In the Alpine biosphere reserve selected for this study, the conservation of cultural landscapes plays a major role; therefore, farmers feature prominently, and this study focuses on their points of view. Farmers rely heavily on natural resources, but structural changes in agriculture determine their work to a large degree, and they often refuse to support protected area management. This situation calls for a closer integration of social-scientific knowledge in regional development programs. Qualitative research methods based on grounded theory can help identify sources of conflict and social strengths. The study found substantial support for the reserve but also a noticeable lessening of the original excitement about it, pointing to the need for further outreach and to the importance, when establishing future reserves, of handling the start-up phase with heightened sensitivity.

Keywords: *Alpine biosphere reserve; farmers' perspectives; agriculture in conservation areas; sustainable development; Austria.*

Peer-reviewed: *March 2016* ***Accepted:*** *March 2016*

Introduction

In Alpine regions, a mosaic of land uses evolved over centuries (Lauber et al 2014). Small-scale farms, now disappearing (Tappeiner et al 2008), are characterized by high morphological variety and biodiversity (Becker et al 2007) related to the regional socioeconomic interactions and the multifunctionality of the landscape elements (Weiger 1990; Renting et al 2009). Structural changes in the agricultural sector are clearly noticeable in these remote areas, as small-scale farms give way to highly specialized and economically more profitable industrial agriculture (Weiger 1990; Amend et al 2008).

Agriculture in Europe

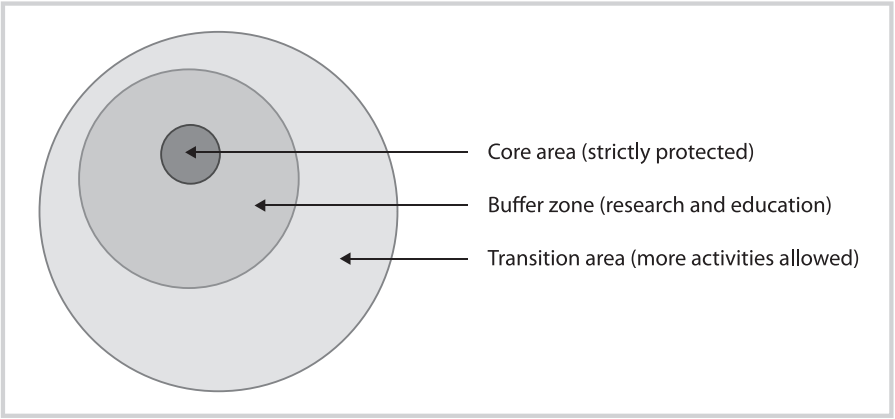
The agricultural sector has seen tremendous structural changes in recent decades (Weiger 1990; Carolan 2012) due to policy changes in the European Union, industrialization, and intensification of agriculture (Donald et al 2002). Farmers are in a difficult economic situation (Pretty et al 2010). Remote areas in particular are still in relatively good ecological condition and characterized by high biodiversity. There, people's relations to environmental goods and services (Flint et al 2013; Diaz et al 2015) are expected to be quite strong, borne out of geographical, economic, and ecological limitations in mountain areas and traditional social structures (Fassio et al 2014). But rural depopulation has resulted in agricultural degradation and therefore loss of (agro) biodiversity as well as cultural erosion (Weiger 1990; Campbell and Lopez Ortiz 2011).

People should be able to earn a viable living from farming and conserve nature at the same time (Mölders 2012). However, earning an income is becoming increasingly challenging (Hornfeld 2009) as revenues are decoupled from agricultural productivity and based on subsidies that depend on political decisions (Weiland 2011). Agricultural industrialization and intensification have also caused fundamental environmental problems (Weiger 1990), including unsustainable intensification in some areas (Weiland 2011) and abandonment of agriculture in others (MacDonald et al 2000; Hornfeld 2009; Lauber et al 2014), as well as loss of cultural landscapes and agrobiodiversity (Flade et al 2006). Reforms of the European Union's Common Agriculture Policy have, however, provided a wide range of environmental incentives (EEA 2007).

Nature conservation and cultural landscapes

Agricultural areas are important for natural resource management (Altieri 1995; Weiland 2011), management of cultural landscapes, and conservation of biodiversity

FIGURE 1 Zoning in BSRs (based on UNESCO documentation).



(CBD 1993; Flade et al 2006), which is especially rich in mountain regions (Messerli and Ives 1997). In Alpine regions, low-intensity (extensive) agricultural practices are essential to preserve biodiversity in cultural landscapes with different ecosystems that have evolved over hundreds of years (Weiger 1990; Holzner and Frohmann 2007) and are home to different species and significant genetic diversity. In Alpine regions, conservation of cultural landscapes is equivalent to conservation of agricultural landscapes. Agroecological approaches (Altieri 1995) search for more sustainable agricultural systems, with the goal of sustainable development of areas shaped by agriculture (Campbell and Lopez Ortiz 2011). Local farmers, with their ecological knowledge, fulfill many crucial tasks (Grasser et al 2012), always depending on the priorities of the conservation site.

Solutions must be found that support both nature conservation and agriculture (Abresch 2000). To achieve this, the consideration of local cultural values and a stronger integration of social-scientific knowledge are essential (Hornfeld 2009; Lamarque et al 2011).

Biosphere reserves and participation of local communities

One effort toward this end is the establishment of UNESCO biosphere reserves (BSRs), which are intended to support nature conservation, sustainable human economic and social development, and research and education (UNESCO MAB 1995). They serve as models for ways to integrate these different priorities to achieve sustainable development. At the BSR conference in Seville in 1995, participants agreed that conservation of biodiversity should no longer be regarded in isolation (UNESCO MAB 1995; Lange 2005). Since then it has been clear that people working and living in and around BSRs should participate in decision-making processes and be able to meet their economic, social, cultural, and ecological needs. BSRs are divided into 3 zones, each with different priorities assigned to conservation aims and human needs (Figure 1). The *core zone* serves as a strict conservation area surrounded by the *buffer zone*, which allows recreation and sustainable use. The *transition zone* includes settlements and aims for sustainable development, education, and strengthening of regional economy. BSRs could also be seen as think tanks for sustainable development (Hammer et al 2012; Mölders 2012), which constructively support local interests. BSRs have the potential to demonstrate new ways of agricultural modernization that offer an alternative to intensification and industrialization, which lead to debt and abandonment of labor-intensive mountain farms.

Participation by local stakeholders is fundamental to the success of BSRs (Jungmeier et al 2010; Keupp 2010). Lessons learned from older BSRs show that local communities need to be approached early in the planning phase and integrated in decision-making processes (Stoll-Kleemann and Welp 2008). This needs to be done with sensitivity to the balance of social power structures (Wallner and Wiesmann 2009).

In the Alpine BSR selected for this study, Salzburger Lungau and Kärntner Nockberge, preservation of the cultural landscape is of high interest. As managers of the land and keepers of traditional ecological knowledge, farmers play an important role in maintaining the Alpine landscape and biodiversity. Traditional knowledge of ecosystem management and mitigation of natural hazards are of the highest interest for BSR management.

Research objective

Numerous studies have been conducted on the conflict between nature conservation and agriculture (eg Pongratz 1994; Plachter et al 2004; Knierim and Siebert 2005; Flade et al 2006), mainly from the perspective of conservation, protected areas management, regional development, or economic feasibility. In comparison to studies by Wallner (2005) and Lamarque et al (2011), which focused on the perspective of local communities, this study specifically explores the interest group of farmers. As mentioned earlier, farmers living and working in the BSR occupy a central position in the selected study areas, but it seems

BOX 1: Characteristics of the BSR Salzburger Lungau and Kärntner Nockberge

When established: September 2012
Area: 149,600 ha
Core zone: 8192 ha
Buffer zone: 55,235 ha
Transition zone: 86,173 ha
Highest point: 3076 masl—Großer Hafner, Lungau
Lowest point: 588 masl—Millstättersee, Nockberge
Permanent inhabitants: 33,350 as of 2012
Federal states: Carinthia and Salzburg
Number of communities: 19 (15 in Salzburg and 4 in Carinthia)

that their point of view has been largely ignored by research to date. While Hornfeld (2009) explored farmers' acceptance of a national park, this study deals with Alpine BSRs that developed in a bottom-up process based on strong participatory approaches already in the initial phase.

The research presented here is part of a larger study based on interviews with farmers in BSRs that focus on the role of agriculture; the significance of the cultural landscape, nature conservation, and the BSR for agriculture in general and their farms in particular; and knowledge transfer. The study is being conducted in Austria and Switzerland, in three BSRs with similar geographical features but different years of declaration, to explore and compare farmers' perceptions and different points of view on the mentioned issues.

This article examines the farmers' perceptions of the *BSR Salzburger Lungau and Kärntner Nockberge*. What is their point of view regarding the BSR and do they see an influence of the BSR on agriculture and on their farm?

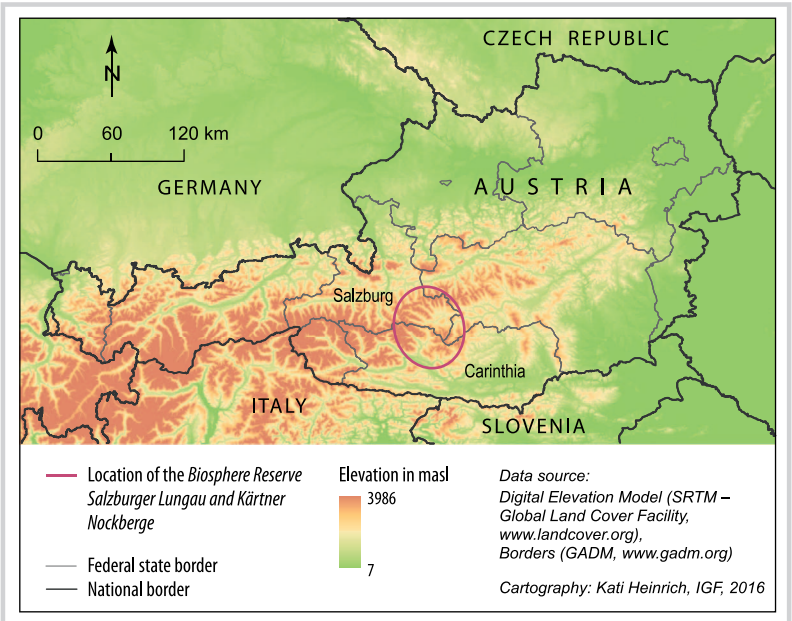
Study area

The BSR Salzburger Lungau and Kärntner Nockberge has only been in existence since 2012, but the area containing it has been settled for millennia. It covers about 1500 km^2 (46°45′58″N–47°17′44″N; 13°19′04″E–13°59′47″E), and elevation ranges from just under 600 m above sea level (masl) in the valleys to 3000 masl (Box 1; Figure 2). It is an outstanding example of richly structured inner Alpine landscape, with typical ecosystems such as mountain meadows, marshes, and quaking bogs (UNESCO 2012). The conservation of cultural landscapes and integration of local traditional knowledge in ecosystem management is of high interest for the BSR (Lange 2005).

A mission statement, goals, and areas of activity for this BSR were developed with public participation in 2014. The preservation and development of the cultural landscape and agricultural sector were defined as top priorities. The mission statement acknowledged farmers' key functions in regional development, nature and landscape conservation, tourism, promotion of traditional and ecological knowledge, and rural culture and society.

The BSR includes 2 administrative authorities in 2 Austrian federal states: Regionalverband Lungau in Salzburg and Biosphärenpark Nockberge in Carinthia. In Carinthia in 1980, a citizen initiative stopped

FIGURE 2 Location of the BSR Salzburger Lungau and Kärntner Nockberge. (Map by Kati Heinrich)



http://dx.doi.org/10.1659/MRD-JOURNAL-D-15-00054.1

TABLE 1 Characteristics of farms visited for the survey.

Farms studied	Lungau	Nockberge	Total
Size: <20 ha	1	1	2
Size: 20–50 ha	4	0	4
Size: >50 ha	5	9	14
Family labor	2–4	0.5–4	average 2.5
Conventional agriculture	2	6	8
Integrated agriculture	2	1	3
Organic agriculture	6	3	9
Nature conservation measures	7	8	15
Family members with additional income	7	9	16
Mountain pastures	8	6	14
Forestry	5	9	14
Tourism (room rental)	3	4	7
Direct marketing of food	1	4	5
Number of farms with crops	4	0	4
Number of farms with cattle	10	8	18
Number of farms with sheep	1	1	2
Number of farms with goats	1	1	2
Number of farms with horses	3	3	6

a planned ski resort in the Nockberge region, which in 1987 was designated as a national park by the Carinthian government, with a focus on extensive alpine pasture management. Given its anthropogenic influence, the International Union for Conservation of Nature (IUCN) classified the region as a category IV area—ie a habitat and species management area. In 2004, efforts began to redesign the area as a BSR, together with the Salzburger Lungau, and it was so designated in 2012. The core zones are located on the edges of the area.

In Salzburg state, more than 50% of the farms are organic (Strauß and Darnhofer 2014). The high number of large farms (>50 ha) is a result of large, privately owned, extensively used mountain pastures and, especially in Carinthia, forestry, an important source of income. The narrow valleys and steep slopes in the area around Nockberge do not allow crop farming, while the Salzburg part of the BSR is known for its potatoes (*Lungauer Eachtling*) and rye (*Tauernroggen*). Of the 20 farmers with whom interviews were conducted, 19 raised cattle, and activities included dairy farming (7 in Lungau and 3 in Nockberge), suckling calf husbandry (3 in Lungau and 4 in Nockberge), and fattening and breeding (6 in Lungau and 5 in Nockberge) (Table 1).

Methods

The study was based on qualitative research methods (Lamnek 2005; Kuckartz 2010). Social-empirical methods are highly suitable for detecting the source of conflicts between BSR managers and local land users. Qualitative research methods using a grounded-theory approach (Glaser and Strauss 1967) make it possible to detect typologies through profound analysis of perceptions and their origins (Schermer 2005; Kuckartz 2010). By consolidating social strengths and detecting barriers, divergent perceptions can be reconciled, intractable conflicts prevented, and lessons learned and passed on.

Interview partners—half of them in each of the 2 federal states, Carinthia and Salzburg, in which the BSR is located—were selected using snowball sampling (Bortz and Döring 2006), drawing on government and private networks and spontaneous on-site contacts. Hence, interviewees included farmers who do not cooperate with the BSR. As a former herder, the researcher's concrete experiences facilitated personal contact with the farmers and eliminated doubts. Ensuring that the interviews were anonymized and answers treated confidentially led to discussions that were surprisingly honest and open.

http://dx.doi.org/10.1659/MRD-JOURNAL-D-15-00054.1

TABLE 2 Characteristics of interview partners.

Interviewees	Lungau	Nockberge	Total
Total number	10	10	20
Women	2	2	4
Men	8	8	16
Age <35 years	2	1	3
Age 35–60 years	8	8	16
Age >60 years	0	1	1
Farm manager	8	7	15
Farm manager since: number of years (average)	12.7	22.1	17.4
Farm manager since: number of years (minimum/maximum)	3/26	13/30	3/30
Full-time farmer	6	8	14
Agricultural education: none	1	2	3
Agricultural education: *Facharbeiter* (journeyman level)	5	5	10
Agricultural education: *Meister* (master level)	1	3	4
Agricultural education: university degree	3	0	3
Inherited the family farm	9	10	19
Number of children	0–4	0–6	average 2.5

In line with "theoretical sampling" strategy (Glaser and Strauss 1967), the sample covered a variety of farming systems and intensities but is not representative. Narrative interviews were conducted with farmers at 20 farms between August and December 2014, using local dialects. The interviews were transcribed by OfficeWorx and analyzed using MAXQDA software (Kuckartz 2010). Taking into account the history of the BSR and based on participatory observation in the field (Lamnek 2005), a conversation inventory (Deppermann 2008) was developed, which helped the interpretation process (Nohl 2008). The interviews explored farmers' points of view on agriculture, cultural landscapes, nature conservation, BSRs, and knowledge transfer. The results in this article focus on their statements related to BSRs.

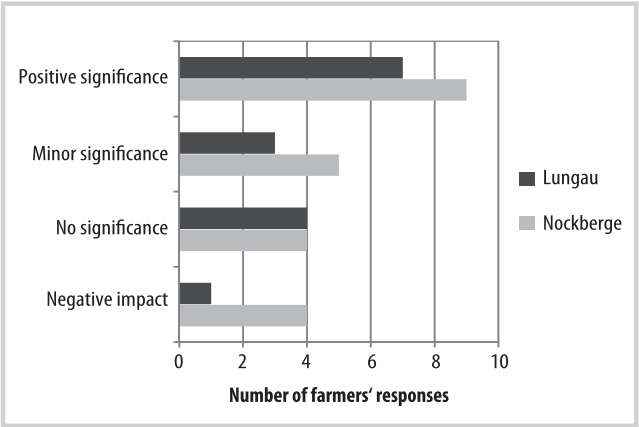
The coding system evolved directly from the transcriptions of the interviews, using a mixture of inductive and deductive processes, following the grounded theory approach (Kuckartz 2010). The evolved clusters are described in the sections that follow and are illustrated with statements by the interviewees that were translated by the author. For the analysis with MaxQDA Software, each interviewee was counted once per cluster if a statement was found in the interview.

Interviewees in Lungau and Nockberge shared similar characteristics (Table 2). All farms were run as family businesses with diverse additional incomes from tourism, forestry, other off-farm jobs, or direct marketing of high-quality processed products. One farm was rented; the rest were inherited from family members in the traditional way. Many farms are *Erbhöfe*, which means they have supported the family for more than 200 years. Most of the farmers lived in the BSR's transition zone, but they also had farm and pasture land in the buffer and core zones (Figure 1). Interview partners were selected to cover a high variety of faming systems, without a focus on gender ratio.

Most interviewees were full-time farmers; this was an effect of the snowball sampling method and does not reflect reality. In both areas, the proportion of farms run

http://dx.doi.org/10.1659/MRD-JOURNAL-D-15-00054.1

FIGURE 3 Farmers' perceptions of the BSR.



as a side activity is significantly higher. Most of the interviewees (7 in Lungau and 8 in Nockberge) participated in nature and agricultural conservation measures through the Austrian agro-environmental program (*ÖPUL*) or other contract-based arrangements (*Vertragsnaturschutz*). When a new funding period started in 2014, 2 interviewees withdrew from these measures because they found them too restrictive and a poor fit with their way of farming.

Results

Farmers saw the BSR's impact on agriculture as having positive significance (n = 16), little significance (n = 8), no significance (n = 8), or a negative impact (n = 5), depending on which issues they were talking about. The description of the clusters stresses which topics led to positive opinions and why other issues resulted in negative perceptions. Almost all interview partners made at least some positive statements about the BSR; 5 made only positive comments about it. These opinions are summarized in Figure 3 and discussed in more detail later. There were no major location-based differences in these perceptions.

Positive significance

Farmers (n = 16) expected that the BSR label would increase appreciation of their local products and lead to a strengthened value chain, especially in regional markets, and that this would help to keep family farms viable. They saw the BSR label as a great opportunity for direct marketing, for example, by providers of the "biosphere breakfast" in Lungau and other niche products. Local caterers and hotels offering regional products were seen as important outlets for agricultural producers. They said that this would require strong networks of cooperation, for example, to meet the volumes needed by a hotel, but these were expected to develop over time. The added value was also recognized in relation to the cultural landscape, which is of central importance for the BSR. The farmers said that the BSR supported them and appreciated their services:

> *Earlier farmers were asked to let their land fall fallow [as a conservation measure]. And the farmers … should not farm anymore … they are following new paths now. It is necessary after all that the land is cultivated, because it is a cultural landscape and not a jungle.* (female farmer, Lungau)

In the Nockberge region, mountain pastures and agricultural management are widespread and important in terms of cultural identity. Farmers were therefore more in favor of a BSR than another nature reserve classification, as BSR values aim to maintain cultural landscapes and heritage in the buffer and transition zones and impose strict conservation only in the core zone, contrary to other nature reserve classifications. In addition, compensation payments for land owned in the core zone in Carinthia is highly appreciated by farmers. In the face of declining European agricultural subsidies, the BSR is seen as a way to continue farming.

Little significance

Almost half of the interviewees (n = 8) said that the region is becoming better known, and they perceived the UNESCO title as good publicity for tourism enterprises, including restaurants and private room rentals. For agriculture, however, they saw only indirect benefits from the increase in tourism: "*We are benefiting, but making a living on agriculture in the biosphere reserve is not possible*," a male farmer in Lungau said. Locally, the BSR is recognized, but its ideas rarely are. It is not yet clear that it can be used by the people themselves to seek support and a voice for their own ideas. In many cases there is a lack of information and commitment and time to obtain information. In the opinion of farmers, the BSR is of higher significance for other sectors, like nature conservation and tourism. Some farmers said they did not identify with the BSR because they do not have properties in the core zone.

No significance

Lack of awareness is the major reason why the BSR had no significance at all for many farmers (n = 8), who said it did not influence their daily routine either positively or negatively. Numerous conversations conducted during the study gave the impression that the community in general was not aware of the functions of a BSR and the possibility of participating. Exceptions included people who were involved in projects or had participated in the development of the mission statement. Farmers saw benefits for other sectors but not for themselves, and thus did not pay close attention to it. A male farmer from Lungau said that farmers took a wait-and-see attitude when the mission statement was developed:

"*Most of the time it was like that: there were all the nature conservationists, and I don't know, whoever, and all the communities. And only a handful of farmers appeared … they simply missed their chance to be heard.*"

Participation is time-consuming and requires long-term commitment to an intense process. A small number of people carry out a wide range of functions within the community; the BSR is seen as another time-consuming demand on already busy schedules.

Negative significance

After the BSR designation, fears were raised that the BSR label might bring further regulations for farmers. Altogether, 5 farmers perceived negative impacts, 4 in Nockberge and 1 in Lungau. In their words, they felt virtually expropriated because they were no longer allowed to decide themselves how to cultivate their land. From their perspective, too many regulations govern agriculture, and agricultural subsidies are linked to conservation measures. They said they did not perceive applying for agricultural subsidies as a free choice because it is an important part of their income. Due to recent discussions concerning the designation of the core zone, in the Carinthian part of the BSR more farmers said they were expecting negative impacts from the BSR. Prohibition of road construction and restrictions on hunting were mentioned in this context.

Summary of Results

Figure 3 shows that the largest group of interviewees had a supportive stance toward the BSR. As the interviews were processed in an anonymized form that enhanced trust, the results are very positive for the BSR. Almost all interviewees (16 altogether; 7 in Lungau and 9 in Nockberge) reported some positive associations with the BSR. The BSR was seen as the future path for the region, and sustainable development was seen as "suitable for the grandchildren," providing a livelihood for young people after graduation. Outmigration of young people is a major problem in the area (Fuchshofer et al 2001). The potential of the BSR to provide a regional added value for the whole community was highlighted by numerous interviewees. The rising demand for regional products is a positive effect not only for farming but also for other sectors like tourism and restaurants. Especially in the Nockberge region, numerous products promoted by the BSR are appreciated by farmers as both producers and consumers. Indeed, the interviews showed that many felt like welfare recipients and would prefer being paid for their products—and being paid more for higher-quality products, confirming Schermer's (2005) finding. Promotion of BSR products would also increase farmers' motivation to adopt BSR status. The BSR is recognized as a platform to bring different stakeholders together and strengthen cooperation between sectors.

The number of interviewees who saw the BSR as having only minor significance was quite high (n = 8). These participants knew about the BSR and its opportunities, but they did not know how their farm, or agriculture in general, could benefit from it. Overall, they were curious about the BSR; their future experiences are likely to influence them to support or oppose the BSR, and it may take only a little effort by BSR management to win their support.

For 8 people, 4 from each location, the BSR had no significance. There are various reasons for this: they consider themselves bystanders in the BSR; they rely on entrenched structures; or they lack information, interest, and time. This shows once more that participatory processes take time, and a period of 2 years since the BSR's declaration may not be enough to identify with the BSR and recognize its benefits.

When the BSR was declared, enthusiasm was widespread in the community, but much of this has evaporated. The first participatory meetings to develop the mission statement in Lungau were recognized as very positive, and the motivation of individual staff members was mentioned by almost all interviewees. Some interviewees said that the initial discussions contributed to an appreciation for their work as regional producers, while for others the process has come to a halt: "*It lasted for one year. All the time ideas were collected, projects planned, and so on. It was a mass of opportunities, which appeared all of a sudden. I think the biosphere people [managers] more or less drowned in them*" (male farmer, Lungau).

Only 2 interviewees mentioned that farmers are significant for the BSR because the cultural landscape, which would not exist without farmers, is given priority in the mission statement.

In the Nockberge region, implementation involved lengthy and difficult negotiations, though no interviewee offered any details about these discussions. This explains the difference in "negative impact on agriculture" responses between Lungau (n = 1) and Nockberge (n = 4). People emphasized their appreciation of the long-desired agreement. The Carinthian part of the BSR has a tremendous advantage in the experiences, structures, and concepts gained from the Carinthian national park, which predates the BSR.

Eleven interviewees pointed to the need for improved cooperation with the BSR management. Interviewees said they expected the BSR management to work transparently, to work without bias, and to not be influenced by various local groups. A point of criticism concerned the balance of power in the participation process. There is a desire for cooperation within different groups and for openness.

Discussion and conclusions

The interview results suggest that a BSR's starting phase is sensitive and that once trust is lost, it is difficult to recover. Becoming a model for sustainable economic development, as stated in the mission statement of the BSR, is a long process that relies on the effort and involvement of many people. Many studies have pointed to the need for a well-balanced dialogue (McNeely 1995; Pretty and Pimbert 1995; Lewis 1996; Stoll-Kleemann and Welp 2008; Mose 2009; Jungmeier et al 2010; Reutz 2012). BSR implementation demands patience and motivation; it is a matter of strong personalities and confidence in the idea, which needs to be disseminated in the first place. The interviews show that promoting cooperation and understanding the requirements of different stakeholders are among the biggest challenges for the BSR management. The development of a shared vision and goal for the region is a sensitive process, which relies on participatory processes (Keupp 2010).

Raising farmers' awareness of the BSR might raise their motivation to participate. Farmers play a central role in the BSR, and it is important to ensure that their enthusiasm and inventiveness support it rather than oppose it. The BSR does not serve a single purpose—like economic development or nature conservation or agriculture or tourism. Rather, it provides an opportunity for multiple stakeholders to gather around one table and discuss the future development of the area; it operates as a voice for the wider community.

This study focused on farmers' perceptions, and the information gathered is therefore biased. The BSR Salzburger Lungau and Kärntner Nockberge has been in existence only since 2012. Comparison with a more well-established and widely accepted BSR would give insights into integrated and sustainable development approaches and make it possible to strengthen and complete existing strategies or develop new policies for sustainable rural development.

ACKNOWLEDGMENTS

The researcher is thankful for the kind support from the communities in the research areas. The project was financed by MaB-Austria and by MaB-Switzerland. The author is open to any feedback and recommendations on the dissemination of results and is happy to provide links within and to the community and to other research in the study area.

REFERENCES

Abresch JP. 2000. Landwirtschaft contra Naturschutz? *Ökologisches Wirtschaften* 3(4):17–18.

Altieri MA. 1995. *Agroecology: The Science of Sustainable Agriculture.* Boulder, CO: West View Press.

Amend T, Brown J, Kothari A, Phillipps A, Stolton S, editors. 2008. *Protected Landscapes and Agrobiodiversity Values 1.* Protected Landscapes and Seascapes Series. The World Conservation Union (IUCN) and Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ). Heidelberg, Germany: Kasparek Verlag.

Becker A, Körner C, Brun JJ, Guisan A, Tappeiner U. 2007. Ecological and land use studies along elevational gradients. *Mountain Research and Development* 27:58–65.

Bortz J, Döring N. 2006. *Forschungsmethoden und Evaluation für Human- und Sozialwissenschaftler 4.* Berlin, Germany: Springer.

Campbell BW, Lopez Ortiz S, editors. 2011 *Integrating Agriculture, Conservation and Ecotourism: Examples from the Field.* Issues in Agroecology—Present Status and Future Prospectus 1. Dordrecht, Netherlands: Springer.

Carolan M. 2012. *The Sociology of Food and Agriculture.* London, United Kingdom: Routledge.

CBD [Convention on Biological Diversity]. 1993. *Convention on Biological Diversity.* Available at: http://www.cbd.int/convention; accessed on 6 October 2015.

Deppermann A. 2008. *Gespräche Analysieren. Eine Einführung.* Wiesbaden, Germany: VS Verlag.

Diaz S, Demissew S, Joly C, Lonsdale WM, Larigauderie A. 2015. A Rosetta Stone for nature's benefits to people. *PLoS Biologie.* 13. http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1002040; accessed on 10 June 2015.

Donald PF, Pisano G, Rayment MD, Pain DJ. 2002. The Common Agricultural Policy, EU enlargement and the conservation of Europe's farmland birds. *Agriculture, Ecosystems and Environment* 89:167–182.

EEA [European Environmental Agency]. 2007. *Europe's Environment: The Fourth Assessment.* Copenhagen, Denmark: EEA.

Fassio G, Battaglini LM, Porcellana V, Viazzo PP. 2014. The role of the family in mountain pastoralism—Change and continuity. Ethnographic evidence from the western Italian Alps. *Mountain Research and Development* 34:336–343.

Flade M, Plachter H, Schmidt R, Werner A. 2006. *Nature Conservation in Agricultural Ecosystems.* Results of the Schorfheide-Chorin Research project; On behalf of Landesbundesamt Brandenburg. Wiebelsheim, Germany: Quelle und Meyer.

Flint CG, Kunze I, Muhar A, Yoshida Y, Penker M. 2013. Exploring empirical typologies of human-nature relationships and linkages to the ecosystem services concept. *Landscape and Urban Planning* 120:208–217.

Fuchshofer R, Eckstein K, Wullner M. 2001. *Heidi wohnt hier nicht mehr. Zur Abwanderung des autochthonen kreativen und innovativen Potentials aus dem ländlichen Raum.* Projektbericht. http://www.stadtlandberg.at/heidi/ergebnisse/ergebnis1.htm; accessed on 15 June 2015.

Glaser BG, Strauss AL. 1967. *The Discovery of Grounded Theory: Strategies for Qualitative Research.* Chicago, IL: Transaction Publisher.

Grasser S, Vogl CR, Schunko CH, Grabowski MM, Vogl T, Vogl-Lukasser B. 2012. *Biokulturelle Vielfalt. Vom lokalen Erfahrungswissen zu Pflanzen im Biosphärenpark Großes Walsertal.* Endbericht. Vienna, Austria: Austrian Academy of Sciences. Department für Nachhaltige Agrarsysteme, Universität für Bodenkultur Wien. http://www.nas.boku.ac.at/fileadmin/data/H03000/H93000/H933-IFOL/AGWI/BCD_Endbericht_2012_Grasser_et_al.pdf

Hammer T, Mose I, Scheurer T, Siegrist D, Weixlbaumer N. 2012. Societal research perspectives on protected areas in Europe. *Eco.mont* 4(1):5–12.

Holzner W, Frohmann E. 2007. *Almen—Almwirtschaft und Biodiversität.* Vienna, Austria: Böhlau.

Hornfeld M. 2009. Leben und Arbeiten in der Nationalparkregion Hohe Tauern: aus der Sicht der Landwirtschaft. *In:* Mose I, editor. 2009: *Wahrnehmung und Akzeptanz von Großschutzgebieten.* Wahrnehmungs Geographische Studien 25. Oldenburg, Germany: BIS-Verlag der Carl von Ossietzky Universität Oldenburg, pp 129–164.

Jungmeier M, Paul-Horn I, Zollner D, Borsdorf F, Lange S, Reutz-Hornsteiner B, Grasenick K, Rossmann D, Moser R, Diry C. 2010. *Part_b: Partizipationsprozesse in Biosphärenparks: Interventionstheorie, Strategieanalyse und Prozessethik am Beispiel vom Biosphärenpark Wienerwald, Großes Walsertal und Nationalpark Nockberge.* Vienna, Austria: Austrian Academy of Sciences.

Keupp H. 2010. Kommunale Förderbedingungen für bürgerschaftliches Engagement. *In:* Pilch Ortega A, Felbinger A, Mikula R, Egger R, editors. *Macht—Eigensinn —Engagement. Lernprozesse gesellschaftlicher Teilhabe.* Berlin, Germany: Springer, pp 137–150.

Knierim A, Siebert R. 2005. Förderung des Biodiversitätsschutzes durch Landwirte. Eine Analyse des aktuellen Wissensstands. *In:* Hagedorn K, Nagel UJ, Odening M, editors. *Umwelt- und Produktqualität im Agrarbereich.* Schriften der Gesellschaft für Wirtschafts- und Sozialwissenschaften des Landbaues e.V. 40. Münster-Hiltrup, Germany: Landwirtschaftsverlag, pp 489–500.
Kuckartz U. 2010. *Einführung in die computergestützte Analyse qualitativer Daten.* 3. Auflage. Wiesbaden, Germany: VS Verlag.
Lamarque P, Tappeiner U, Turner C, Steinbacher M, Bardgett RD, Szukics U, Schermer M, Lavorel S. 2011. Stakeholder perceptions of grassland ecosystem services in relation to knowledge on soil fertility and biodiversity. *Regional Environmental Change* 11:791–804.
Lamnek S. 2005. *Qualitative Sozialforschung Lehrbuch* 4. Weinheim, Germany: Beltz.
Lange S. 2005. *Leben in Vielfalt.* Der österreichische Beitrag zum UNESCO-Programm "Der Mensch und die Biosphäre". Projektleiter: A. Borsdorf. Vienna, Austria: Austrian Academy of Sciences Press.
Lauber S, Herzog F, Seidl I, Böni R, Bürgi M, Gmür P, Hofer G, Mann S, Raaflaub M, Schick M, Schneider M, Wunderli R, editors. 2014. *Zukunft der Schweizer Alpwirtschaft. Fakten, Analysen und Denkanstösse aus dem Forschungsprogramm AlpFUTUR.* Birmensdorf, Switzerland: Eidgenössische Forschungsanstalt WSL.
Lewis C, editor. 1996. *Managing Conflicts in Protected Areas.* Gland, Switzerland: IUCN Biodiversity Programme.
MacDonald D, Crabtree JR, Wiesinger G, Dax T, Stamou N, Fleury P, Gutierrez Lazpita J, Gibon A. 2000. Agricultural abandonment in mountain areas of Europe: Environmental consequences and policy response. *Journal of Environmental Management* 59:47–69.
McNeely JA. 1995. *Expanding Partnerships in Conservation.* Washington, DC: Island Press.
Messerli B, Ives JD. 1997. *Mountains of the World: A Global Priority.* New York, NY: Parthenon.
Mölders T. 2012. Natur schützen—Natur nutzen: sozial-ökologische Perspektiven auf Biospärenreservate. *Natur und Landschaft—Zeitschrift für Naturschutz und Landschaftspflege* 87(6):266–270.
Mose I, editor. 2009. *Wahrnehmung und Akzeptanz von Großschutzgebieten.* Wahrnehmungs Geographische Studien 25. Oldenburg, Germany: BIS-Verlag der Carl von Ossietzky Universität Oldenburg.
Nohl AM. 2008. *Interview und dokumentarische Methode. Anleitung für die Forschungspraxis.* 2nd edition. Wiesbaden, Germany: VS Verlag für Sozialwissenschaften and Springer.
Plachter H, Kruse-Graumann L, Schulz W. 2004. Biosphärenreservate: Modellregionen für die Zukunft. *In:* Deutsches MAB-Nationalkomitee, editor. 2004: *Voller Leben. UNESCO-Biosphärenreservate. Modellregionen für eine Nachhaltige Entwicklung.* Berlin, Germany: Springer, pp 14–23.
Pongratz HJ. 1994. Die Wissenschaft und das bäuerliche Umweltbewusstsein—Reflexionen zum Stand der Bundesdeutschen Agrarsoziologie. In: Brombach C, Nebelung A, editors. *Zwischenzeiten und Seitenwege—Lebensverhältnisse in peripheren Regionen.* Münster, Germany: Literatur Verlag, pp 71–90.
Pretty JN, Pimbert MP. 1995. Beyond conservation ideology and the wilderness. *Natural Resources Forum* 19(1):5–14.
Pretty J, Sutherland WJ, Ashby J, Auburn J, Baulcombe D, Bell M, Bentley J, Bickersteth S, Brown K, Burke J, Campbell H, Chen K, Crowley E, Crute I, Dobbelaere D, et al. 2010. The top 100 questions of importance to the future of global agriculture. *International Journal of Agricultural Sustainability* 8:219–236.
Renting H, Rossing WAH, Groot JCJ, Van der Ploeg JD, Laurent C, Perraud D, Stobbelaar DJ, Van Ittersum MK. 2009. Exploring multifunctional agriculture. A review of conceptual approaches and prospects for an integrative transitional framework. *Journal of Environment and Management* 90:112–123.
Reutz B. 2012. *Wie werden Schutzgebiete zur Chance für die lokale Bevölkerung? Die Valorisierung von Schutzgebieten durch lokale Partizipation* [PhD Dissertation]. Innsbruck, Austria: University of Innsbruck.
Schermer M. 2005. Die Motivation von Bauern zur Teilnahme an der ÖPUL-Maßnahme "biologischer Landbau" am Beispiel Tirols. *Jahrbuch der Österreichischen Gesellschaft für Agrarökonomie* 10:77–85.
Stoll-Kleemann S, Welp M. 2008. Participatory and integrated management of biosphere reserves lessons from case studies and a global survey. *GAIA* 17: 161–168.
Strauß A, Darnhofer I. 2014. *Rethink Farm Modernisation and Rural Resilience.* http://www.wiso.boku.ac.at/afo/forschung/rethink/; accessed on 22 April 2015.
Tappeiner U, Borsdorf A, Tasser E. 2008. *Alpenatlas: Society-Economy-Environment.* Heidelberg, Germany: Spektrum Akademischer Verlag.
UNESCO. 2012. *Biosphärenpark Salzburger Lungau und Kärntner Nockberge.* http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-america/austria/salzburger-lungau-kaerntner-nockberge/; accessed on 10 June 2015.
UNESCO MAB. 1995. *Man and the Biosphere Programme.* http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/man-and-biosphere-programme/; accessed on 10 June 2015.
Wallner A. 2005. *Biosphärenreservate aus der Sicht der Lokalbevölkerung - Schweiz und Ukraine im Vergleich.* Birmensdorf, Switzerland: Eidgenössische Forschungsanstalt für Wald, Schnee und Landschaft (WSL).
Wallner A, Wiesmann U. 2009. Critical issues in managing protected areas by multi-stakeholder participation: Analysis of a process in the Swiss Alps. *Eco.mont* 1:45–50.
Weiger H. 1990. Landwirtschaft und Naturschutz. Situation—Defizite—Strategien. *Forstwirtschaftliches Centralblatt* 109:358–377.
Weiland S. 2011. Umwelt- und Nachhaltigkeitskonflikte in europäischer Landwirtschaft und Agrarpolitik. *In:* Groß M, editor. 2011: *Handbuch Umweltsoziologie.* Wiesbaden, Germany: VS-Verlag Springer, pp 598–612.