*sustainability*

MDPI

*Article*

# The Role of Land Consolidation Associations in Enhancing Mountain Attractiveness: The Case of ASFO Erbezzo

**Lucia Montefiori [1], Ivana Bassi [1], Rossella Dosso [2,*], Viviana Ferrario [3] and Luca Iseppi [1]**

[1] Department of Agricultural, Food, Environmental and Animal Sciences, University of Udine, 33100 Udine, Italy; lucia.montefiori@uniud.it (L.M.); ivana.bassi@uniud.it (I.B.); luca.iseppi@uniud.it (L.I.)
[2] Department of Economics, University of Udine, 33100 Udine, Italy
[3] Department of Project Cultures, University of Venice IUAV, 30123 Venezia, Italy; viviana.ferrario@iuav.it
* Correspondence: rossella.dosso@uniud.it

**Abstract**

This study investigates the role of Land Consolidation Associations in enhancing the attractiveness of mountain areas, with a focus on the ASFO Erbezzo in Stregna (Friuli-Venezia Giulia, Italy). Using a mixed-methods approach that combines a quantitative survey with qualitative interviews, the research explores perceptions of the ASFO's environmental, economic, and social impacts. The findings indicate widespread appreciation for the ASFO's contributions to landscape restoration, improved land management, and renewed engagement in agro-silvo-pastoral activities. Respondents noted increased safety, enhanced property value, and the symbolic revitalization of the territory. The initiative also fostered social cohesion and community participation, though challenges persist, including uneven engagement, limited services, and reliance on a small core of active individuals. While the ASFO's contribution to the area's attractiveness, especially for potential new residents, was generally acknowledged, structural constraints like housing shortages and weak local economies remain barriers. The results highlight the strategic relevance of collective land management for ensuring the sustainable regeneration of mountain areas, thereby contributing to the advancement of the Sustainable Development Goals outlined in the 2030 Agenda.

**Keywords:** Land Consolidation Associations; mountains attractiveness; ASFO Erbezzo; Mixed Methods; 2030 Agenda

check for updates

Academic Editor: Teodor Rusu

Received: 24 July 2025
Revised: 4 September 2025
Accepted: 12 September 2025
Published: 15 September 2025

**Citation:** Montefiori, L.; Bassi, I.; Dosso, R.; Ferrario, V.; Iseppi, L. The Role of Land Consolidation Associations in Enhancing Mountain Attractiveness: The Case of ASFO Erbezzo. *Sustainability* **2025**, *17*, 8275. https://doi.org/10.3390/su17188275

**Copyright:** © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

## 1. Introduction

Many mountain areas across Europe and beyond have long faced demographic decline, a process driven by structural factors such as geographic isolation, limited access to services, and the reduced profitability of traditional agro-silvo-pastoral activities. These dynamics have contributed to sustained outmigration, particularly among younger populations. This has resulted in aging communities, abandoned landscapes, and the progressive erosion of local socio-economic systems [1,2]. However, recent studies suggest that this long-standing trend may be experiencing localized reversals. Some mountain territories are now showing signs of demographic stabilization or even modest population growth, which is attributed to a combination of policy innovation, grassroots initiatives, and changing societal values.

The attractiveness of mountain areas for new residents, or their ability to counter depopulation, is a multidimensional concept. Three intersecting dimensions are particularly salient. The first is environmental and landscape attractiveness, which reflects ecological quality, scenic value, and the cultural identity of managed landscapes; interventions

such as land restoration play a direct role in reinforcing this dimension. The second is socio-cultural and community attractiveness, defined by social cohesion, opportunities for interaction, and a sense of belonging, factors especially important for individuals seeking lifestyles oriented toward community and slower living rhythms. The third is economic and functional attractiveness, which encompasses the viability of local economic activities, particularly in agriculture and forestry, alongside the provision of essential services and infrastructure. Considered together, these dimensions move beyond a purely touristic framing and highlight mountains as viable and desirable environments for settlement and employment [3–6].

Recent studies indicate that some mountain territories are experiencing demographic stabilization or even modest population growth. New residents are drawn by the quality of life, environmental amenities, and opportunities for jobs and sustainable lifestyles that the mountains offer [7–9]. Additionally, land management models like collective property associations (e.g., Land Associations in Italy and France) have helped reactivate underutilized land, creating conditions more favorable for agro-silvo-pastoral entrepreneurship and social innovation [10–13]. Despite these positive signs, these trends remain fragile and unevenly distributed. Structural barriers persist, hindering the long-term settlement of new residents and the intergenerational renewal of local populations. Consequently, reversing the depopulation of mountain areas requires sustained, coordinated efforts at the policy, community, and institutional levels [14–16].

Land fragmentation is a widespread issue in many European mountain regions, resulting from historical inheritance systems, emigration, and socio-economic marginalization. This fragmentation, characterized by small, scattered plots with unclear ownership, significantly hinders land use planning, agricultural viability, and sustainable territorial governance [17,18]. In mountain areas, the implications are severe due to the challenging physical geography, which includes steep slopes and limited accessibility. When combined with fragmented land tenure, these factors become major obstacles to investment, mechanization, and integrated landscape management [19]. Furthermore, parcel fragmentation increases land abandonment, as distant or uninterested owners allow plots to fall into disuse, which contributes to ecological degradation, higher fire risk, and a loss of biodiversity [20].

Ultimately, overcoming the challenges posed by land fragmentation in mountain areas requires not only technical solutions but also socio-political innovation [14]. This theme is closely linked to common property, which has held a central position in local development research. A substantial body of literature has examined the multiple dimensions and roles of common properties across time and space. Scholars have investigated how common properties contribute to local development [21,22], their influence on landscape morphology and identity [23], their resilience and adaptability to socio-cultural transformations [24,25], and their historical evolution and legal foundations [26]. These studies have helped illuminate the continuing relevance of commons in contemporary rural and mountain territories, offering insights into their potential as tools for sustainable territorial governance.

In parallel to this well-established field of study, an equally significant, yet relatively underexplored, topic is emerging: the collective management of private properties. Unlike common properties, which, especially in alpine regions, have often preserved their historical perimeters and communal governance systems over centuries, private properties have undergone a process of fragmentation. In response to these dynamics, a variety of tools and policy instruments have been developed in recent years to address land fragmentation and abandoned landscapes. These range from innovative mechanisms such as land shareholding [27], forest contracts, and land banks, to a renewed interest in traditional forms of collective resource management. Among these, the Land Consolidation Association (in

Italian, Associazione Fondiaria or ASFO), a legal and administrative model inspired by French experiences, has recently garnered attention in the Italian context. This model allows private landowners to entrust the management of their properties to a single collective entity while retaining full ownership rights. This model was first institutionalized in Italy through the regional law 21/2016 of the Piedmont Region, and was later adopted by other regions, including Friuli-Venezia Giulia in 2017 and Lombardy in 2019.

Although ASFOs are a relatively recent innovation, scholarly interest in their implementation and effects has begun to grow. Existing studies primarily focus on their role in reshaping land governance structures [28,29]. To a lesser extent, research has explored their contribution to enhancing territorial attractiveness through tourism and landscape management [30]. In the Eastern Alps, particularly in Friuli-Venezia Giulia, a few recent works have begun to document the early stages of ASFO implementation, pointing to their potential in counteracting land abandonment [15].

Despite this emerging literature, several research gaps remain, particularly concerning the broader territorial impacts of ASFOs. This study addresses these gaps by investigating the influence of ASFOs on the socio-economic vitality of mountain areas. The central objective is to analyze the mechanisms through which ASFO activities can enhance mountain attractiveness, thereby contributing to reversing depopulation trends, fostering the settlement of new residents, and retaining current inhabitants, especially younger generations. By analyzing the impacts that ASFOs may exert on the territories where they operate, this research aims to highlight the potential of these associations not only as a technical solution for land management but also as a strategic tool for mountain revitalization and spatial rebalancing.

## 2. Materials and Methods

The theme of mountain attractiveness in relation to the initiatives undertaken by Land Consolidation Associations was explored through a case study: the Land Consolidation Association Valli dell'Erbezzo (ASFO Erbezzo), which is located in the Municipality of Stregna. This association is not only the first of its kind established in the Friuli-Venezia Giulia region but also represents the most advanced and consolidated example currently operating in the area. A general overview of ASFO Erbezzo is presented in Section 3.

The research adopted a Mixed Methods approach, an integrated design that combines both quantitative (numerical) and qualitative (textual and narrative) data to gain a more comprehensive and nuanced understanding of the phenomenon under investigation. This approach is based on the assumption that combining diverse data types provides richer insights than any single method, particularly for complex, socially embedded phenomena [31–33]. The explanatory sequential design was chosen for this study [34]. This design involves two distinct phases: an initial quantitative phase, followed by a qualitative phase. The purpose of the qualitative phase is to further explain or enrich the interpretation of the numerical findings from the first phase.

The quantitative phase involved designing and disseminating a dedicated questionnaire with three sections. The first section aimed to highlight the respondent's relationship with ASFO Erbezzo and the Municipality of Stregna. The second section investigated specific aspects of the ASFO initiative, including expectations, perceived impacts on the landscape, attractiveness for potential new residents, effects on social cohesion, economic benefits for landowners, and the involvement of agro-silvo-pastoral enterprises. The third section collected socio-demographic data such as age, gender, educational attainment, and occupation to contextualize the respondents' perspectives.

The questionnaire was administered via an online form. Distribution occurred primarily through social media platforms and local messaging app groups (e.g., WhatsApp

and Telegram) during the early months of 2023. A total of 56 anonymous responses were collected. The study's quantitative sample is limited in size, non-random, and not statistically representative of the broader target population. This was a deliberate choice for an exploratory, mixed-methods approach, where the quantitative data were used to inform and guide the more in-depth qualitative phase. Furthermore, as illustrated in Section 4, the questionnaire design automatically excluded participants who were not knowledgeable about the ASFO or its activities from responding to the second section. This section was completed by 37 participants. Given the small and non-representative sample, disaggregating findings across groups could have led to unsubstantiated conclusions. The analysis was, therefore, limited to descriptive statistics, which were appropriate for capturing key variables relevant to the research and for informing and shaping the subsequent stages of the research process.

The qualitative phase of the study consisted of fieldwork conducted through semi-structured interviews with open-ended questions. This approach provided rich insights that informed the emerging analytical and thematic framework. Semi-structured interviews offer several advantages in qualitative research. They combine a consistent guided framework with the flexibility to explore emerging themes, which allows researchers to probe deeply into participants' experiences and perspectives. The open-ended nature of the questions fosters rich, nuanced responses and helps develop rapport between the interviewer and interviewee, which can enhance data authenticity. Additionally, semi-structured interviews allow for clarification and reformulation of questions, contributing to greater accuracy in data collection. While adaptable to various social and cultural contexts, they also maintain enough structure for comparison across different interviews, thus supporting thematic analysis [35–37].

When investigating individual perspectives, establishing trust between participants and researchers is essential, an objective more effectively achieved through direct and sustained engagement over time. Because the collective management of land assets is a relatively underexplored topic, the use of interviews was particularly valuable for eliciting emerging themes from the lived experiences and viewpoints of participants. Furthermore, as the research team was simultaneously supporting the participatory process for defining ASFO's strategic direction, interviews were also considered a suitable method for fostering community engagement within a participatory research framework [38].

The interviews explored several key thematic areas, including participants' personal involvement in ASFO activities; rural abandonment; the sustainability of local agro-silvo-pastoral enterprises; the social dynamics generated by the ASFO; the association's perceived strengths and weaknesses, as well as those of the broader municipal and regional context; and the ASFO's capacity to attract new residents and foster economic or entrepreneurial revitalization. The fieldwork was conducted between May 2023 and February 2024 through a series of short-term stays in the area. These visits were strategically timed to coincide with ASFO meetings, the summer season, and local festivals and fairs.

The interviews involved a diverse sample of individuals, including ASFO members, local residents who are not members, tourists, non-resident homeowners, and economic operators who collaborate with ASFO and those who do not. This sampling strategy aimed to gather a wide range of perspectives and integrate different viewpoints regarding the ASFO's activities and future prospects. A total of 26 interviews were conducted. The sample was partly predetermined and partly constructed using a snowball sampling technique, whereby initial participants referred additional respondents [39].

## 3. Case Study: An Overview of ASFO Erbezzo

ASFO Erbezzo was founded in the municipality of Stregna, in the Friuli-Venezia Giulia region of northeastern Italy, along the border with Slovenia. This territory has a complex orography, situated between the Judrio river and the Erbezzo stream, and is characterized by hills and mountains with significant slopes. The municipality of Stregna, which is part of the Natisone Valley, is a widespread settlement consisting of 15 hamlets and several villages scattered across the various slopes and the valley floor (Cernetig, Clinaz, Dughe, Gnidovizza, Oblizza, Podgora, Polizza, Postregna, Presserie, Raune, Saligoi, Tribil Inferiore, Tribil Superiore, Varch and Zamir). The Natisone Valley also includes the municipalities of Drenchia, Grimacco, Pulfero, San Pietro al Natisone, San Leonardo, Savogna and Prepotto; Cividale del Friuli and Torreano are occasionally included due to their geographical proximity (Figure 1).

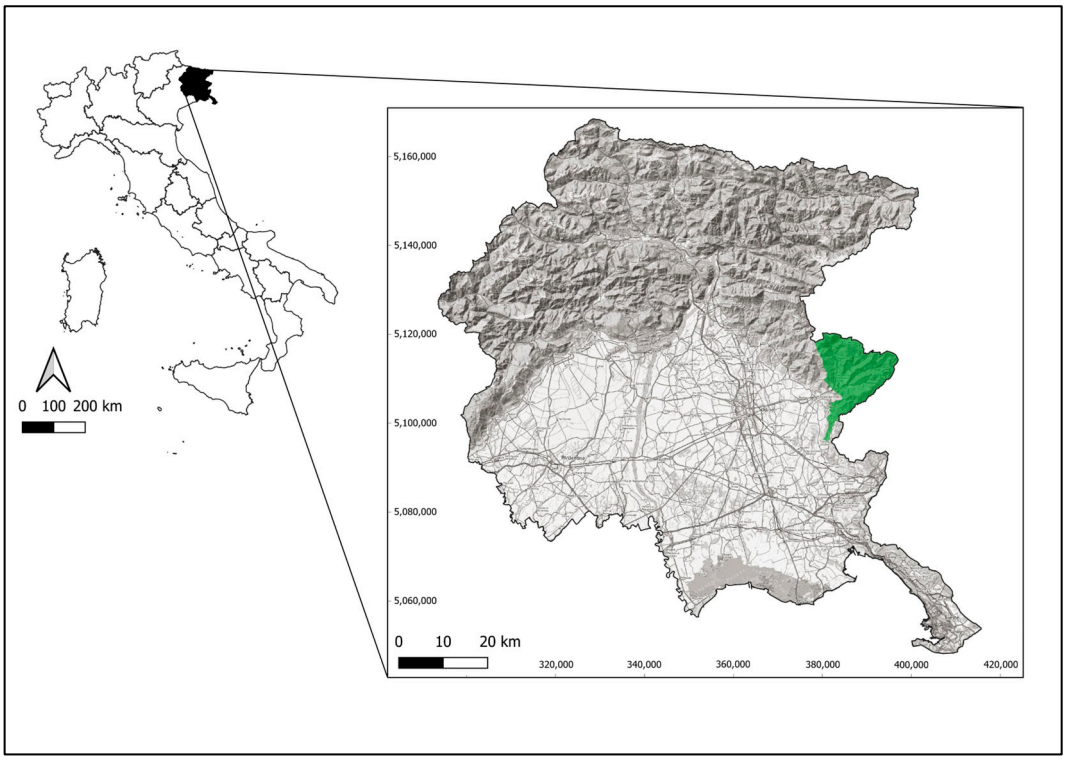



**Figure 1.** Location of the Natisone Valley (highlighted in green) within the Friuli-Venezia Giulia region.

Until the early 1960s, the Municipality of Stregna had a population exceeding 1500 residents and a socio-economic structure that was markedly different from the present day. The local economy was predominantly based on subsistence agriculture and artisanal activities, with production mainly for self-consumption and local exchange. Starting in the 1970s, historical and political developments led to significant depopulation, which placed the area within the broader trend of rural-to-urban migration that characterized Italian mountainous regions during the same period.

The contrast with present-day Stregna is stark: the village is now largely depopulated, with only 284 residents recorded as of 31 December 2023 (www.istat.it), and a significantly reduced number of productive activities. The effects of this decline are clearly visible in the landscape: forests have reclaimed meadows and fields, numerous houses stand abandoned, and basic services are increasingly lacking. The remaining inhabitants are predominantly commuters who travel daily to nearby urban centers for work. In addition to depopulation, land fragmentation poses a further challenge; in the Municipality of Stregna, the average

size of land parcels is just 0.24 hectares, with many plots held in shared ownership. This situation complicates efforts by potential new residents or entrepreneurs to acquire land or establish economic activities in the area.

The municipalities of the Natisone Valleys, including Stregna, rank among those with the lowest average taxable incomes in Friuli-Venezia Giulia, frequently falling below €18,000. This situation is largely attributable to the high prevalence of pension income, reflecting the advanced average age of the population. Illustrating the socio-economic challenges faced by the area, the Natisone Valleys have recently been included in the Italian Strategy for Inner Areas 2021–2027. This territorial cohesion policy seeks primarily to enhance the quality of public services and expand economic opportunities in peripheral areas, thereby counteracting demographic decline and marginalization through improvements in essential services—such as education, healthcare, and transport—and the promotion of local development (https://torrenatisonegal.com, www.politichecoesione.governo.it).

It is within this context that the ASFO Erbezzo was established, with the explicit aim of counteracting land abandonment and enhancing the identity-based landscape of the Natisone Valley. Founded in 2015 as a participatory initiative, the Association began its activities thanks to the commitment of its founding members, who actively promoted its vision and mission among local landowners. By the end of 2015, the Association had already incorporated 84 parcels of land, contributed by 27 owners.

The Association's activities began with the gradual restoration of grasslands, made possible by financial contributions provided under Regional Law 10/2010 of the Friuli-Venezia Giulia Region, which supports the recovery of grassland areas.

In 2021, ASFO launched its first community-led process to define the 2021–2026 strategy for the management of restored meadows and chestnut groves. A revision of the strategy was carried out—again through a participatory process—during the final months of 2023, with the aim of updating the action plan for the 2024–2026 period. In addition to restoring meadows for mowing and grazing, the strategy includes actions focused on revitalizing traditional chestnut cultivation in the area and promoting sustainable forest management.

According to the most recent official data from 31 December 2024, the ASFO comprises 555 land parcels, contributed by 86 owners, and covers a total area of 145 hectares (Minutes of the Ordinary Assembly of ASFO Erbezzo, 12 March 2025). These parcels are distributed across four municipalities, as the Municipalities of Drenchia, Torreano, and San Leonardo have recently joined the initiative. The meadows restored, covering approximately 20 hectares, are managed partly by individual members and partly through lease agreements with operators engaged in mowing, grazing, and forest management activities (Table 1).

**Table 1.** Structural features of ASFO Erbezzo.

| Year | Members | Conferred Land Parcels | |
|---|---|---|---|
| | | Number | Hectares |
| 2015 | 27 | 84 | not available |
| 2016 | 46 | 173 | 22 |
| 2017 | 75 | 320 | 45 |
| 2023 | 83 | 505 | 136 |
| 2024 | 86 | 555 | 145 |

Source: www.asfoerbezzo.eu.

## 4. Results

The quantitative survey was administered via an online form. A total of 56 respondents participated in the survey. The socio-demographic composition of the sample showed that 12.5% of respondents were under 30 years old; 37.5% were between 30 and 50; 41.1% were between 50 and 70; and 8.9% were over 70. The majority of respondents were male (58.9%) and highly educated, with 46.4% holding a high school diploma and 41.1% a university degree. The sample included a wide range of occupations, such as public sector employees, manual laborers, agricultural entrepreneurs, retirees, and students.

When asked about their relationship with the Municipality of Stregna and the ASFO Erbezzo, 41.1% of all respondents said they live in the Municipality of Stregna. A further 32.1% live in other municipalities within the Natisone Valley, and 26.8% live elsewhere, almost exclusively within the Friuli-Venezia Giulia region. For 46.4% of the respondents, Stregna is either their place of origin or their new home. Of the remaining participants, 41.1% visit the area regularly or occasionally for recreation, sports, or professional reasons, and 12.5% have other connections, such as an interest in the ASFO initiative. A small number of respondents (12.5%) were not familiar with the ASFO, while 21.4% were aware of it but not informed about its activities. Because of this, the questionnaire automatically excluded these individuals from the subsequent section, which was completed by 37 participants. The majority of these 37 participants were landowners, local administrators, collaborators, or individuals who were knowledgeable about the ASFO's work.

The second section of the questionnaire began with an open-ended question to gather respondents' observations on the effects of the ASFO's establishment. The responses were then grouped into thematic categories. The data reveal a clear pattern of strong appreciation for the ASFO's core mission, as well as an important outlier concerning negative feedback (Figure 2). The most striking pattern is the overwhelming focus on "Landscape care", which was cited by over half of the respondents (52.6%). This is a significant finding because it indicates that the most visible and widely appreciated impact of the ASFO is the physical restoration and maintenance of the territory. The frequent use of the term "neatness" by respondents to describe the restoration of meadows suggests that the reversal of visual and ecological degradation is a tangible and symbolically potent outcome of the ASFO's activities.

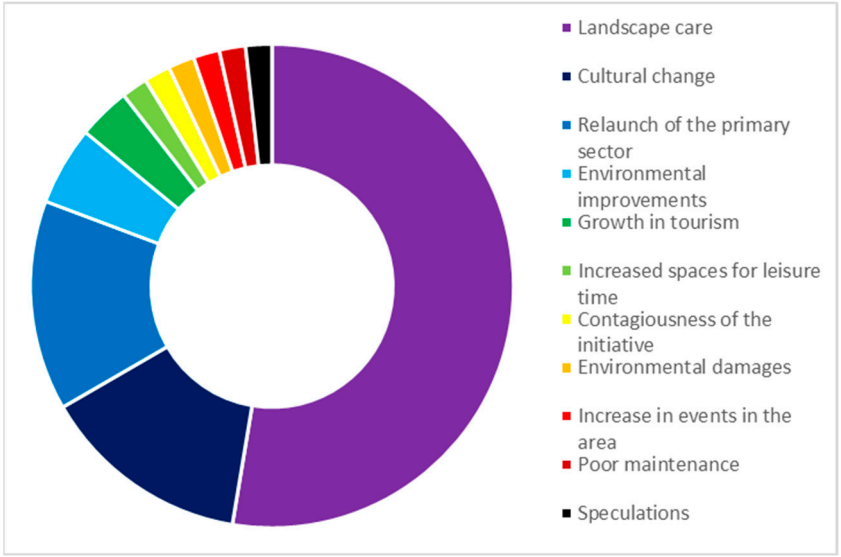



**Figure 2.** Thematic reclassification of open-ended responses on the perceived effects of ASFO in the Municipality of Stregna.

Beyond the landscape, the data reveal a pattern of perceived socio-cultural and economic revitalization. "Cultural change" and the "Relaunch of the primary sector" were cited with equal frequency (14%). This indicates that the ASFO's influence is not limited to physical changes but also extends to broader community-level impacts, such as renewed public awareness of the value of land stewardship and the creation of new opportunities for agro-silvo-pastoral activities. The community perceives the ASFO as a multi-faceted agent of change, addressing both the social and economic dimensions of mountain decline.

A key outlier in the data is the minimal amount of negative feedback. Only a small number of respondents reported negative effects, such as "Environmental damages", "Poor maintenance", and "Speculations". This is a significant finding, as it suggests that despite the challenges inherent in a new and complex initiative, the overwhelming sentiment remains positive. The low frequency of negative comments supports the high level of overall satisfaction with the ASFO's management reported in the quantitative survey.

Following this initial screening, the survey presented a series of items on the effects of collective land management. Using a four-point Likert scale (strongly agree, somewhat agree, somewhat disagree, and strongly disagree), respondents were asked to express their level of agreement (Figure 3). The data indicate that a large majority of participants agreed that the ASFO has contributed to landscape improvement (94.6%) and positively impacted community social cohesion (81.1%). These findings reinforce those from the open-ended questions about the importance of landscape care and cultural change.

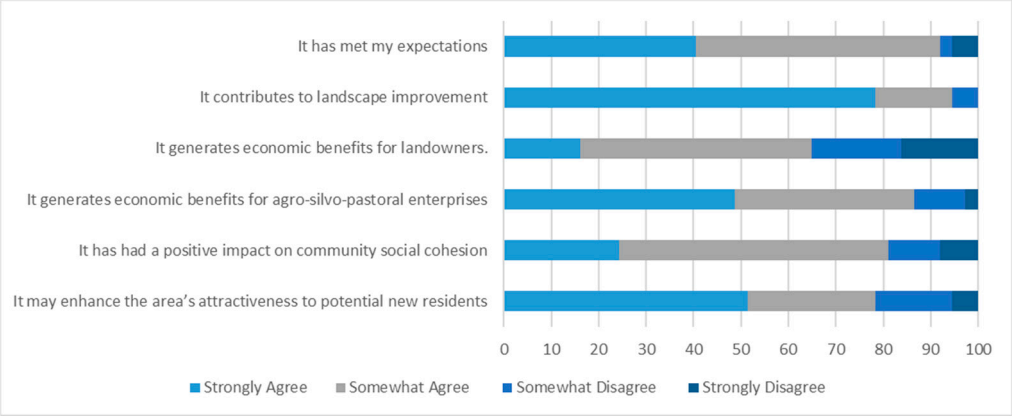



**Figure 3.** Items concerning the effects of collective land management by ASFO (values in %).

There is a notable contrast in perceived economic benefits. A high percentage of respondents agreed that the ASFO generates benefits for agro-silvo-pastoral enterprises (86.5%). However, a significantly lower number (64.9%) reported positive economic outcomes for individual landowners. This pattern suggests that while the ASFO is viewed as an effective tool for revitalizing the primary sector and enabling business activity, its perceived economic value for individual landowners is more varied. This aligns with qualitative findings indicating that participation is driven by factors beyond direct financial returns, such as risk mitigation and territorial care.

For each item, respondents were invited to justify their answers through an open-ended question. The qualitative data collected this way were analyzed and categorized by distinguishing between positive and negative elements. To deepen the understanding of the quantitative survey findings, a qualitative phase was conducted involving a non-representative sample of 26 individuals, as detailed in Section 2. Consistent with the items under investigation, the results presented below have been grouped into six thematic areas:

- Perceptions of ASFO's work: ASFO's management has met the expectations of its members.

- ASFO and the landscape: ASFO has a role in improving the landscape.
- ASFO and landowners: collective land management results in economic benefits for landowners.
- ASFO and the primary sector: collective land management results in economic benefits for agro-silvo-pastoral businesses.
- ASFO and local social dynamics: collective land management has affected the social life of the local community.
- ASFO and general attractiveness: collective land management has an impact on the area's attractiveness, particularly for potential new residents.

### *4.1. Perceptions of ASFO's Work*

The initial analysis focused on respondents' overall satisfaction with ASFO's activities, revealing a strong consensus. A significant majority of participants (91.9%) reported being either fairly or very satisfied with the current management. This positive sentiment was driven by the perceived effectiveness in reclaiming abandoned land and the promising outlook for future development. However, some critical issues were also identified, including challenges with ongoing land maintenance and the limited involvement of local businesses.

The qualitative interviews further contextualized these findings, confirming a broad sense of satisfaction that extended even to non-members and individuals who were initially skeptical. Many interviewees expressed appreciation for the ASFO's role in uniting local efforts, restoring neglected land, and facilitating sustainable management practices. While some concerns about long-term viability were noted, the project was generally seen as a crucial step forward for the community.

Interviewee comments were not just a list of opinions but concrete evidence of this shared sentiment. One participant remarked "It's a good initiative, there's no doubt". Another highlighted the social impact, stating, "People were hesitant at first, but they're satisfied now. Bringing people together to act collectively was a great idea". The initiative's role in creating a sense of hope was also a recurring theme, as reflected in the comment "ASFO gave me a glimmer of hope, despite my usual pessimism". These responses demonstrate how the ASFO has been successful in building trust and fostering a sense of collective purpose, turning initial skepticism into positive engagement and tangible outcomes.

### *4.2. ASFO and the Landscape*

Given that the primary mission of ASFO Erbezzo is the restoration of the identity-based landscape of the Natisone Valley, it is essential to assess its contribution to achieving landscape and environmental objectives. According to the questionnaire results, the vast majority of respondents (94.6%) agreed that ASFO has played a significant role in improving the landscape, with only two expressing mild disagreement. Reasons cited included active safeguarding of biodiversity, creation of new opportunities for the primary sector, and enhanced safety and accessibility. Conversely, critical observations pointed to a lack of resources and concerns about excessive tree cutting by forestry companies.

The qualitative interviews consistently explored the theme of landscape, both in defining its key elements and in assessing the effects of ASFO's activities. Respondents often recalled how the territory appeared in the past, emphasizing the changes caused by abandonment and the more recent interventions. One interviewee noted, "everything here used to be well-kept, with open meadows and few isolated trees". Another recalled a large, flat area that "used to be cultivated". The value of grasslands was frequently highlighted in connection to local culture and development potential, with one participant stating "Where there are prairies, there is a landscape, and that attracts people".

Participants also commented on the consequences of forest encroachment and landscape closure. The visibility of landmarks, such as a church, was lost due to overgrowth. An interviewee reflected on finding a hayloft "deep in the woods" and realizing the area was once "all meadows, completely open".

Interviewees attributed visible improvements directly to ASFO's interventions. One participant observed a "clear, positive change", noting that since ASFO's activity, the uncultivated land around the village "looks noticeably neater". These responses collectively illustrate how the ASFO has not only restored the physical landscape but also, for many, a sense of shared identity and belonging (Figure 4).



**Figure 4.** Examples of forest cleaning and clearing of views in the Municipality of Stregna (www.asfoerbezzo.eu).

### *4.3. ASFO and Landowners*

The study investigated the perceived economic benefits of ASFO membership for landowners. Responses were more varied than for other topics, with only 64.9% of participants reporting positive economic outcomes. The remaining 35.1% were skeptical, believing that the ASFO's primary purpose is broader territorial development rather than individual profit. For those who did identify positive impacts, the most cited benefits included lower land management costs, increased property value, and new opportunities for productive land use.

The qualitative interviews also highlighted that the primary benefits for landowners were not economic. Instead, key benefits included improved safety, particularly regarding wildlife and the risk of wildfires. Interviewees emphasized that unmanaged or overgrown areas contribute to a sense of vulnerability, with one commenting on how forests "shouldn't be so close to the roads. They're becoming dangerous". The sentiment that well-maintained land reduces the threat from animals and helps with fire prevention was also a key theme.

The restoration of meadows near villages is widely seen as a safety measure that enhances the overall value of nearby properties. From an economic perspective, landowners found concrete advantages in delegating land management responsibilities, which can reduce personal costs and even provide a modest income. One interviewee noted that the ASFO model is "ideal for people who can't, or don't want to, manage their land anymore, especially those who have moved away". The findings suggest that participation is motivated by a combination of practical benefits like risk mitigation and territorial care, in addition to emotional attachment to the land.

### *4.4. ASFO and the Primary Sector*

The study also investigated the perceived benefits of ASFO's activities for agro-silvo-pastoral enterprises. A favorable outlook was observed, with 86.5% of participants agreeing that collective land management through ASFO generates tangible economic benefits for businesses in the primary sector. Key advantages identified were increased land availability,

revitalization of the local primary sector, better access to public funding, and cost reductions through cooperative management. Respondents also noted improved productivity and greater administrative efficiency, as ASFO provides a single point of contact instead of requiring negotiations with numerous individual landowners.

Despite these benefits, several challenges were reported. Interviews with local actors highlighted the crucial role of public funding, as income margins from farming are often insufficient for a full-time living. One interviewee expressed that "Farms cannot be economically self-sufficient without public support".

Interviewees stressed the need for diversification and quality-focused supply chains as a viable strategy to overcome the challenges of scaling production. As one participant noted, "The economy today is based on quantity, and you simply can't achieve quantity here". Therefore, the focus should be on niche markets, such as selling specialty products at a higher price. This approach was favored over large-scale industrial farming, with one interviewee suggesting that a "family-based model can work better for this territory".

Regarding its organizational role, ASFO was praised for its ability to consolidate fragmented plots and make agricultural activity feasible. The association has also enabled the investment in shared equipment to support local workers. The forestry sector, in particular, has benefited from ASFO's coordination, which allows companies to plan and sign contracts more efficiently without having to deal with dozens of owners. One interviewee even credited the ASFO's activities with preventing them from leaving the area.

### *4.5. ASFO and Local Social Dynamics*

The questionnaire revealed that a majority of respondents (81.1%) perceived a positive effect on community cohesion in Stregna. The development of a participatory process for defining the ASFO's strategic direction was seen as a key benefit, fostering a sense of involvement and shared responsibility. Respondents also highlighted improved cooperation among landowners, reduced interpersonal conflicts, and new opportunities for social interaction created by improved landscapes and communal outdoor spaces. Conversely, some respondents reported no perceived social impact, while others pointed to persistent resistance and concerns that management responsibilities remain concentrated among a small number of individuals.

Interviews confirmed these findings and provided additional context. Interviewees identified the dense network of associations in Stregna as crucial for the ASFO's creation and continuation. As one respondent noted, "Without a strong social fabric, the ASFO would not have been able to continue". However, this social capital is concentrated among a few individuals, a point highlighted by another participant who remarked, "The problem is that they're always the same people". These individuals are active in various local events, from festivals like Dinner on the Lawn and Burnjak to the Slow Food local initiatives (www.slowfood.it).The ASFO has played a positive role in renewing opportunities for social interaction in a context where informal social life has eroded due to depopulation and the closure of communal spaces like taverns. Events such as guided walks, screenings, and public meetings have helped strengthen community ties. One interviewee saw meeting people as a "positive outcome" of the ASFO's work, while another suggested the association is a means to "unite people around a shared destiny".

### *4.6. ASFO and General Attractiveness*

The majority of respondents (78.4%) agreed that ASFO activities have the potential to enhance the area's appeal for prospective new residents. Impacts identified as contributing to this attractiveness include better-maintained living spaces, improved operating conditions for primary sector businesses, support for land management, and

increased territorial safety. The participatory nature of the ASFO process and the potential for creating employment were also seen as positive factors. Conversely, key barriers to attractiveness were identified as the inability to attract new businesses, a lack of tangible benefits for some landowners, limited local services and housing, and a shortage of entrepreneurial initiatives.

The qualitative interviews strongly highlighted the landscape as a primary attractor. Interviewees commented that the clearing of vegetation around hamlets gives "the feeling of life" that was previously absent, and that a "neat" Stregna could be an incentive for people to move there.

Beyond the physical landscape, a different lifestyle was also identified as a significant pull factor. Participants noted that while one might not become a "millionaire" in the area, they can "lead a certain type of life" that is appealing to young people. One interviewee mentioned being initially drawn by nature but finding the community to be a surprising and supportive element.

Opinions varied on the adequacy of local services. Some participants expressed concern, while others found the existing services, such as a doctor, pharmacy, and free school bus, to be acceptable or even preferable. For some, the availability of land was more important than extensive services, challenging the dominant market view that a place without services is worthless. In summary, while some limitations exist, Stregna is seen by many as a meaningful alternative where landscape, lifestyle, and community are key intersecting elements.

## 5. Discussion

Given the characteristics of the sample, described in Section 2, the findings do not provide definitive statistical proofs, but rather indicators of perceptions and trends within the specific sample regarding the territorial, socio-economic, and cultural impacts of collective land management as implemented through ASFO Erbezzo. The research highlights both the perceived achievements of the initiative and the challenges that continue to shape its evolution within the context of mountain rurality. The results also suggest the ASFO's ability to contribute to improving the attractiveness of mountain areas.

The initial analysis of ASFO's activities revealed a strong consensus of general satisfaction, which extended even to those who were initially skeptical. First and foremost, the data underscore a broad consensus among stakeholders regarding the positive impact of ASFO on environmental and landscape attractiveness. The restoration of meadows and the improved neatness of land surrounding settlements emerged as highly visible and symbolically potent outcomes. This mechanistic link is crucial: ASFO's work in reclaiming abandoned land directly reverses the visual and ecological degradation caused by depopulation, thereby reactivating a sense of place and territorial belonging. This process not only improves aesthetics but also enhances territorial safety by reducing the risk of wildfires, which are a major concern for residents. The transformation from overgrown, abandoned land to "well-kept" and "neat" spaces creates a visible signal of vitality, which is a powerful psychological pull factor for potential residents who value a healthy, managed environment. This aligns with existing literature on landscape stewardship as a form of socio-environmental care [40–42], where managed landscapes are not only ecological assets but also markers of cultural identity and community vitality.

The initiative also appears to contribute to socio-cultural and community attractiveness, particularly through the renewal of social engagement. The participatory nature of ASFO's decision-making processes was acknowledged as a key enabler of shared responsibility and conflict reduction. The ASFO acts as a platform for civic engagement, creating new spaces for social interaction through public events like guided walks and meetings,

helping to counter the erosion of informal social networks caused by depopulation. These elements correspond with broader trends in "neo-rural" migration, where lifestyle and a sense of community are increasingly salient factors [43]. While concerns were raised about the concentration of management efforts within a small core of individuals, these dynamics reflect the tension between the promise of collective governance and the realities of limited human capital in sparsely populated areas.

From an economic and functional perspective, the ASFO has tangibly supported agro-silvo-pastoral entrepreneurship by providing increased land availability and improved administrative efficiency. By consolidating fragmented parcels, the ASFO makes agricultural activity feasible on a scale that was previously impossible for individual landowners. This collective management model also reduces personal maintenance costs and can increase property values, offering concrete economic advantages that attract both entrepreneurs and new residents. However, the interviews also revealed persistent structural weaknesses: limited entrepreneurial capacity, reliance on public subsidies, and difficulties in scaling up production. These challenges echo broader patterns in marginal rural areas, where multifunctionality and diversification are often essential for the survival of primary activities [44,45].

The case of ASFO Erbezzo ultimately illustrates the ambivalent role of grassroots initiatives in contexts of demographic and economic fragility. On one hand, the association has demonstrated that collective land management can be a viable instrument for activating local resources, restoring landscapes, and fostering forms of social innovation. On the other hand, its sustainability remains contingent upon continued volunteer engagement, stable institutional support, and the emergence of new actors willing to invest time, energy, and resources into rural futures.

## 6. Conclusions

This study offers an in-depth exploration of the ASFO Erbezzo experience, generating valuable insights into the dynamics of collective land management in mountain areas; however, its findings should be interpreted with caution given the context-specific scope, the small and non-representative sample, and the limited temporal frame of analysis.

The survey demonstrates the relevance of collective land management for the sustainable regeneration of mountain areas, aligning with the United Nations Sustainable Development Goals (SDGs) outlined in the 2030 Agenda. The case of ASFO Erbezzo shows how such initiatives can promote sustainable land use and support biodiversity through the restoration of abandoned meadows and forests, thereby contributing to SDG 15 (Life on Land). The initiative has enhanced the livability and attractiveness of the area, as a majority of respondents (78.4%) agreed that ASFO activities could attract new residents through the creation of better-maintained living spaces and increased safety. This supports SDG 11 (Sustainable Cities and Communities) by fostering inclusive and resilient rural communities. Furthermore, the ASFO has tangibly supported agro-silvo-pastoral entrepreneurship by providing increased land availability and improved administrative efficiency, with 86.5% of participants agreeing that ASFO generates economic benefits for primary sector businesses. This aligns with principles of responsible consumption and production, supporting SDG 12. The participatory and community-led governance model of ASFO Erbezzo, which has fostered a positive social impact and improved cooperation among landowners, illustrates the potential of multi-stakeholder collaboration, contributing to SDG 17 (Partnerships for the Goals).

First, the study revealed that while only a portion of landowners reported direct economic gains from ASFO membership, many cited indirect benefits like enhanced safety and reduced land management burdens. To capitalize on these findings, regional authorities

should provide dedicated support systems, such as direct financial aid for land transfer and management, that formalize these non-monetary benefits and offer a clear incentive for all landowners, particularly those who are absentee owners, to join ASFOs. Second, our results show that ASFOs have tangibly supported agro-silvo-pastoral businesses by providing access to consolidated land and improving administrative efficiency. However, the study also revealed persistent structural weaknesses in the primary sector, such as limited entrepreneurial capacity and a reliance on public subsidies. To address these issues, policies should be designed to foster the creation and growth of small-scale, diversified businesses through grants for young farmers and entrepreneurs, and by investing in local value chains for niche products. Third, the survey results revealed that while ASFO activities contribute positively to the area's appeal, structural deficits like housing shortages and inadequate services remain significant barriers. To address this, policymakers must integrate land management with housing and service strategies. This means facilitating the renovation of abandoned houses and supporting essential local services like healthcare and transportation to create a more functional and livable territory. Fourth, the research found that the ASFO has fostered community cohesion and reduced interpersonal conflicts, but also that management responsibilities are concentrated among a small core of individuals. To address this, authorities should support place-based initiatives that help expand community engagement beyond the core. This could involve funding community-led projects and educational programs that strengthen social solidarity and promote a shared sense of land stewardship. Finally, the ASFO Erbezzo's expansion to include neighboring municipalities demonstrates the potential for scaling this model. Policies should encourage and provide resources for inter-municipal collaboration to consolidate larger land areas and create a more strategic instrument for regional spatial rebalancing.

Future research should conduct longitudinal studies to assess the sustainability and evolution of ASFO-type initiatives over time. Comparative analyses across different regional contexts could provide deeper insights into the conditions for success. Interdisciplinary approaches that integrate socio-economic, ecological, and governance dimensions would be valuable for fully capturing the complex dynamics of collective land management. Finally, further investigation into the motivations and barriers for non-participating stakeholders could inform strategies to broaden community engagement and improve inclusivity.

**Author Contributions:** Conceptualization, L.M., I.B., and V.F.; methodology, L.M. and I.B.; investigation, L.M.; writing—original draft preparation, L.M. and R.D.; writing—review and editing, I.B., R.D., V.F., and L.I.; supervision, I.B. and L.I. All authors have read and agreed to the published version of the manuscript.

**Funding:** This study was partially funded by the European Union—NextGenerationEU, in the framework of the consortium iNEST—Interconnected Nord-Est Innovation Ecosystem (PNRR, Missione 4 Componente 2, Investimento 1.5 D.D. 1058 23 June 2022, ECS_00000043—Spoke1, RT2, CUP I43C22000250006). The views and opinions expressed are solely those of the authors and do not necessarily reflect those of the European Union, nor can the European Union be held responsible for them. This study was also partially funded by PRIN—RESEARCH PROJECTS OF NATIONAL INTEREST—Call for proposals 2020—"MIND—Mountains INsiDe the Mountain. Narratives, dynamics and development paths: new readings".

**Institutional Review Board Statement:** Ethical review and approval were waived for this study by the Institution Institutional Committee due to Legal Regulations. This study involved non-sensitive, anonymized socioeconomic data and did not include clinical procedures or vulnerable populations. The research was conducted in full compliance with Regulation (EU) 2016/679 (General Data Protection Regulation—GDPR) and national data protection laws, ensuring the anonymity and

voluntary participation of all subjects. Therefore, ethical approval was not required according to institutional and national guidelines.

**Informed Consent Statement:** Informed consent for participation was obtained from all subjects involved in the study.

**Data Availability Statement:** The raw data supporting the conclusions of this article will be made available by the authors on request.

**Acknowledgments:** The authors acknowledge the valuable contributions of all participants who supported this research by completing the online questionnaire and participating in the fieldwork.

**Conflicts of Interest:** The authors declare no conflicts of interest.

## References

1. MacDonald, D.; Crabtree, J.R.; Wiesinger, G.; Dax, T.; Stamou, N.; Fleury, P.; Gutierrez Lazpita, J.; Gibon, A. Agricultural abandonment in mountain areas of Europe: Environmental consequences and policy response. *J. Environ. Manag.* **2000**, *59*, 47–69. [CrossRef]
2. Bender, O.; Kanitscheider, S. New immigration into the European Alps: Emerging research issues. *Mt. Res. Dev.* **2012**, *32*, 235–241. [CrossRef]
3. Dax, T.; Tamme, O. Attractive Landscape Features as Drivers for Sustainable Mountain Tourism Experiences. *Tour. Hosp.* **2023**, *4*, 374–389. [CrossRef]
4. Zeraib, S.; Kouba, Y.; Berghout, B. The Influence of Tourism Development Strategies on the Attractiveness of Mountainous Destinations: A Case Study of the Aures Mountains in Algeria. *Sustainability* **2022**, *14*, 13045. [CrossRef]
5. Schirpke, U.; Tasser, E.; Tappeiner, U. Predicting scenic beauty of mountain regions. *Landsc. Urban Plan.* **2013**, *111*, 1–12. [CrossRef]
6. Long, K.; Wang, N.; Lin, Z. Assessing scenic beauty of hilly and mountain villages: An approach based on landscape indicators. *Ecol. Indic.* **2023**, *154*, 110538. [CrossRef]
7. Membretti, A.; Leone, S.; Lucatelli, S.; Storti, D.; Urso, G. *Voglia Di Restare: Indagine sui Giovani Nell'italia Dei Paesi*; Donzelli Editore: Roma, Italy, 2023.
8. Perlik, M. *The Spatial and Economic Transformation of Mountain Regions: Landscapes as Commodities*; Routledge: Abingdon, UK, 2019. [CrossRef]
9. Malec, M.M.; Ziernicka-Wojtaszek, A.; Kędzior, R. Can Tourists' Preferences Determine the Direction of Sustainable Development in Mountain Landscapes? *Sustainability* **2024**, *16*, 10133. [CrossRef]
10. Deng, Q.; Xiang, S.; Chen, B. Rural Land Consolidation and Social Consciousness Change: A Case Study of a Land Consolidation Program in Rural Chongqing, China. *Sustainability* **2023**, *15*, 15853. [CrossRef]
11. Corrado, F.; Dematteis, G.; Di Gioia, A. *Nuovi Montanari: Abitare Le Alpi Nel XXI Secolo*; Franco Angeli: Milano, Italy, 2014.
12. Galioto, F.; Musotti, F. The governance of agricultural lands in marginal areas: A conceptual framework. *Ecol. Econ.* **2023**, *212*, 107933. [CrossRef]
13. Ónega-López, F.J.; Puppim de Oliveira, J.A.; Crecente-Maseda, R. Planning Innovations in Land Management and Governance in Fragmented Rural Areas: Two Examples from Galicia (Spain). *Eur. Plan. Stud.* **2010**, *18*, 755–773. [CrossRef]
14. Bassi, I.; Carzedda, M.; Iseppi, L. Innovative local development initiatives in the eastern Alps: Forest therapy, land consolidation associations and mountaineering villages. *Land* **2022**, *11*, 874. [CrossRef]
15. Bassi, I.; Carzedda, M.; Iseppi, L. Gestione collettiva dei patrimoni fondiari montani: Le associazioni fondiarie e il caso dell'ASFO Erbezzo. *LaborEst* **2022**, *24*, 11–15.
16. Breschi, M.; Ferrari, M. *Montagne Vuote. 'Homo appenninicus' cercasi*; Forum Editore: Udine, Italy, 2023.
17. Van Dijk, T. Scenarios of Central European land fragmentation. *Land Use Policy* **2003**, *20*, 149–158. [CrossRef]
18. Sikor, T.; Müller, D. The limits of state-led land reform: An introduction. *World Dev.* **2009**, *37*, 1307–1316. [CrossRef]
19. Tarolli, P.; Straffelini, E. Agriculture in Hilly and Mountainous Landscapes: Threats, Monitoring and Sustainable Management. *Geogr. Sustain.* **2020**, *1*, 70–76. [CrossRef]
20. García-Ruiz, J.M.; Lasanta, T.; Ruiz-Flano, P.; Ortigosa, L.; White, S.; González, C.; Martí, C. Land-use changes and sustainable development in mountain areas: A case study in the Spanish Pyrenees. *Landsc. Ecol.* **1996**, *11*, 267–277. [CrossRef]
21. Bassi, I.; Carestiato, N. Common property organizations as actors in rural development: A case study of a mountain area in Italy. *Int. J. Commons* **2016**, *10*, 363–386.
22. Daici, M. Proprietà collettive e sviluppo locale. Elementi di ricerca per il Friuli-Venezia Giulia (Italia). *J. Alp. Res.* **2021**, *109*, 1–13. [CrossRef]
23. Barale, M.F.; Valcanover, M. Paesaggi collettivi: Il Gran Consortile di Riclaretto e le proprietà collettive delle valli del Germanasca. *J. Alp. Res.* **2021**, *109*, 1–19. [CrossRef]

24. Dalla Torre, C.; Ravazzoli, E.; Omizzolo, A.; Gretter, A.; Membretti, A. Aprire il dibattito sui commons rurali di montagna nelle regioni alpine in cambiamento. Uno studio esplorativo in Trentino, Italia. *J. Alp. Res.* **2021**, *109*, 1–20. [CrossRef]
25. Crosetti, A.; Joye, J.-F. Mountains and the collective management of the commons: Influences and interactions. *J. Alp. Res.* **2021**, *109*, 1–6. [CrossRef]
26. Lorenzini, C. Montagne diseguali? Il ruolo regolatore delle risorse collettive nella montagna friulana, secoli XVII–XVIII. In *Disuguaglianza Economica nelle Società Preindustriali: Cause Ed Effetti*; Fiorentini, G., Ed.; Firenze University Press: Firenze, Italy, 2020; pp. 231–253. [CrossRef]
27. Moiso, V.; Pagliarino, E. Azionariato fondiario e gestione collettiva: Una "Terre de Liens" italiana? *Agriregionieuropa* **2013**, *9*, 24–30.
28. Beltramo, R.; Rostagno, A.; Bonadonna, A. Land Consolidation Associations and the Management of Territories in Harsh Italian Environments: A Review. *Resources* **2018**, *7*, 19. [CrossRef]
29. Cavallero, A. L'associazione fondiaria per rivitalizzare l'agricoltura in montagna. *Piemonti* **2013**, *7*, 25–28.
30. Bonadonna, A.; Rostagno, A.; Beltramo, R. Improving the Landscape and Tourism in Marginal Areas: The Case of Land Consolidation Associations in the North-West of Italy. *Land* **2020**, *9*, 175. [CrossRef]
31. Amaturo, E.; Punziano, G. *I Mixed Methods Nella Ricerca Sociale*; Carocci Editore: Roma, Italy, 2016.
32. Greene, J.C.; Caracelli, V.J.; Graham, W.F. Toward a Conceptual Framework for Mixed-Method Evaluation Designs. *Educ. Eval. Policy Anal.* **1989**, *11*, 255–274. [CrossRef]
33. Tashakkori, A.; Teddlie, C. *Handbook of Mixed Methods in Social & Behavioral Research*; Sage: Thousand Oaks, CA, USA, 2003. [CrossRef]
34. Creswell, J.W.; Plano Clark, V.L. *Designing and Conducting Mixed Methods Research*, 2nd ed.; Sage: Thousand Oaks, CA, USA, 2011.
35. Bryman, A. *Social Research Methods*, 5th ed.; Oxford University Press: Oxford, UK, 2016.
36. Kvale, S.; Brinkmann, S. *InterViews: Learning the Craft of Qualitative Research Interviewing*, 3rd ed.; Sage Publications: Thousand Oaks, CA, USA, 2014.
37. Patton, M.Q. *Qualitative Research & Evaluation Methods: Integrating Theory and Practice*, 4th ed.; Sage Publications: Thousand Oaks, CA, USA, 2014.
38. Bergold, J.; Thomas, S. Participatory research methods: A methodological approach in motion. *Hist. Soc. Res.* **2012**, *37*, 191–222.
39. Guest, G.; Namey, E.; Mitchell, M. *Collecting Qualitative Data: A Field Manual for Applied Research*; Sage Publications: Thousand Oaks, CA, USA, 2013. [CrossRef]
40. Antrop, M. Why landscapes of the past are important for the future. *Landsc. Urban Plan.* **2005**, *70*, 21–34. [CrossRef]
41. Plieninger, T.; Bieling, C.; Fagerholm, N.; Byg, A.; Hartel, T.; Hurley, P.; López-Santiago, C.A.; Nagabhatla, N.; Oteros-Rozas, E.; Raymond, C.M.; et al. The role of cultural ecosystem services in landscape management and planning. *Curr. Opin. Environ. Sustain.* **2015**, *14*, 28–33. [CrossRef]
42. Longo, A.; Zardo, L.; Maragno, D.; Musco, F.; Burkhard, B. Let's Do It for Real: Making the Ecosystem Service Concept Operational in Regional Planning for Climate Change Adaptation. *Sustainability* **2024**, *16*, 483. [CrossRef]
43. Benson, M.; O'Reilly, K. Migration and the search for a better way of life: A critical exploration of lifestyle migration. *Sociol. Rev.* **2009**, *57*, 608–625. [CrossRef]
44. Van der Ploeg, J.D.; Renting, H.; Brunori, G.; Knickel, K.; Mannion, J.; Marsden, T.; de Roest, K.; Sevilla-Guzmán, E.; Ventura, F. Rural development: From practices and policies towards theory. *Sociol. Rural.* **2000**, *40*, 391–408. [CrossRef]
45. Marsden, T.; Sonnino, R. Rural development and the regional state: Denying multifunctional agriculture in the UK. *J. Rural Stud.* **2008**, *24*, 422–431. [CrossRef]


**Disclaimer/Publisher's Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.