

ASSOCIATIVE ORGANISATIONAL MODELS IN ITALIAN FORESTS FOR ADDRESSING LAND ABANDONMENT

ORGANIZACIJSKI MODELI POVEZOVANJA V ITALIJANSKIH GOZDOVIH ZA REŠEVANJE PROBLEMATIKE OPUŠČANJA ZEMLJIŠČ

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ABSTRACT

This paper investigates associative organisational models as a potential governance solution to the issue of land abandonment. Land fragmentation, along with inadequate or absent management, are key problems that hinder forest stability and resilience in many countries, particularly in Southern Europe. Land abandonment further exacerbates these issues, increasing climate change-related risks, such as forest fires. After reviewing the broader European context, the paper focuses on Italy, where this problem is particularly acute. Based on a qualitative content analysis of the literature and policy documents, the paper outlines the available solutions for promoting active forest management through associations, as outlined by Italian forest law. Several types of associative models exist, facilitated by recent policy initiatives, including forest consortia, forest associations and cooperatives, and various instruments for regulating partnerships and associative management. However, limited data on land abandonment and forest ownership, especially regarding private ownership, hampers effective implementation and monitoring, highlighting a significant research gap in this area.

Key words: private forest owners, associative solutions, associative forest management, land fragmentation

IZVLEČEK

Članek prikazuje rezultate raziskave organizacijskih modelov kot eno mogočih upravljaljskih rešitev za težave zaradi opuščanja rabe zemljišč. Razdrobljenost zemljišč ter pomanjkljivo ali manko upravljanja so ključni problemi, ki ovirajo stabilnost in odpornost gozdov v številnih državah, zlasti v južni Evropi. Opuščanje zemljišč je hkrati s tem povezan kritični dejavnik, ki povečuje izpostavljenost nekaterim s podnebnimi spremembami povezanimi tveganji, kot so gozdni požari. Po pregledu evropskega konteksta se članek osredotoča na primer Italije, kjer je ta problem še posebej pereč. Na podlagi kvalitativne vsebinske analize literature in dokumentov o politikah so opisane razpoložljive rešitve za spodbujanje aktivnega gospodarjenja z gozdovi prek združenj v skladu z italijanskim zakonom o gozdovih. Obstaja več vrst modelov združevanja, tudi zaradi nedavnih političnih pobud, kot so gozdarski konzorciji, gozdarska združenja in zadrage, ter nekaterih instrumentov za urejanje partnerstev in asociativnega upravljanja. Kakorkoli, pomanjkljivi podatki o opuščanju zemljišč in o lastništvu gozdov, zlasti zasebnih, ovirajo učinkovito izvajanje in spremljanje ter pomenijo raziskovalno vrzel na tem področju.

Ključne besede: zasebni lastniki gozdov, rešitve združevanja, asociativno upravljanje gozdov, razdrobljenost zemljišč

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1 INTRODUCTION

1 UVOD

Land abandonment and ownership fragmentation, often accompanied by uncertainty about landownership, are important and interrelated issues that hinder active forest management in parts of Central Eastern Europe and Mediterranean Europe (Lawrence et al., 2021). These challenges exacerbate the impacts and risks of climate change, such as forest fires (Rodríguez Fernández-Blanco et al., 2022; Spadoni et al., 2023). In

many cases, managing very small parcels is not economically viable, leading many smallholders to abandon them. The abandonment of secondary forests reduces land values and perpetuates a vicious cycle that erodes forest-related socio-ecological communities.

Furthermore, ideological polarisation between different views on forests, often corresponding to urban vs. rural points of view and sometimes challenging scientific consensus while being influenced by mass media, can represent a further obstacle to the active man-

agement of forest landscapes (Pecurul-Botines et al., 2023). Various innovations, supported by the EU RDP and CAP funds, have been introduced to aggregate forest properties or support forest-related supply chains and networks. These innovations aim to encourage more active forest management, including organisational, institutional and social innovations.

However, due to high management costs, difficult market conditions, adverse events and an increasing number of “absent” forest owners (Mozzato and Gatto, 2016), these efforts have not achieved the expected outcomes. In countries such as Italy, the trends of land abandonment and fragmentation have persisted over decades, despite the introduction of governance and policy tools.

This paper provides an updated overview of the associative solutions proposed to promote forest management, with a focus on the Italian context, where this issue is recognised as a priority and where recent political actions have been taken to address it.

1.1 An insight into the Italian context

1.1 Vpogled v kontekst Italije

Italian forests are predominantly owned by private individuals (ca. 66%), with an average property size of less than 3 ha per owner. These privately owned forests have been less studied compared to publicly owned forests (Canton and Pettenella, 2010; Mozzato and Gatto, 2016; Rizzo et al., 2019). Of the 34% of forests under public ownership, 65% are municipal forests, while only 24% are state-owned (or region-owned) forests. More than 60% of Italian forests are located at altitudes above 500 metres, primarily in hilly and mountainous areas that have experienced significant depopulation in recent decades (Amodio, 2022). Among the reasons limiting the economic and social opportunities that could arise from the use of the primary resources in these territories, land fragmentation has been identified as a crucial driver (Secco et al., 2018; Rizzo et al., 2019). Fragmentation drives up management costs, which often exceed the revenues generated by agricultural, agro-pastoral and forestry activities. Coupled with changes in the lifestyle and management objectives of private owners, this often leads to land abandonment, altering the ecosystem services provided by meadows, pastures and forests (Beltramo et al., 2018). Since precise figures on land abandonment are lacking, statistical proxies are used to provide an overall picture of the issue. According to the latest Agriculture Census, the Utilised Agricultural Area (UAA) decreased by 26.4% over the last 38 years (from 15.8 million ha in 1982 to 12.5 million ha in 2020). During the same

period, Wooded Areas (WA) shrank from 5.6 million ha (25%) in 1982 to 2.8 million ha (17%) in 2020 (ISTAT, 2022). The Census definition of WA differs somewhat from the FAO’s definition of forests, since it considers areas of at least 0.5 ha where mature canopy cover is no less than 50% of the total area. This includes forest roads, natural areas within forests (e.g. ponds, rivers, clearings), nurseries and forest buildings.

Data from the National Forest Inventory (Gasparini et al., 2022) provide more detailed forest-related information, highlighting a significant gap between the 9 million ha of “high forests” reported in 2015 and the 2.9 million ha of WA in active farms estimated in 2020. This gap is partly due to the exclusion of “pure” forest holdings, i.e. forest owners who do not have a farm, from the Census sample until 2010, removing one of the few sources of data on privately owned forests (Mozzato and Gatto, 2016). Even when comparing earlier WA data (pre 2010), a large discrepancy remains: 4.5 million ha in the 2000 Census versus 8.75 million ha in the Forest Inventory (the closest available data refers to 2005). Other indicators confirm that a significant proportion of forest appears to be abandoned or managed in an extensive, occasional or unplanned manner. Only 9.5% of coppices (which account for approximately 42% of the Italian tall forests) are in the “young” phase, and just 0.1% are “in regeneration”, indicating very limited activity. Furthermore, no silvicultural interventions have been detected in 37.4% of the forest area, and only 15.5% of the total forest area has a valid management plan (RaF Italia, 2017; Gasparini et al., 2022), even though such plans are mandatory for public forests (which comprise 34% of the total).

The land abandonment issue, together with the need to redistribute abandoned farmland, has been a central theme in rural development policies since the post-war decades (beginning in the 1950s), culminating in Law No. 440 (1978), which set rules for the use of uncultivated, abandoned or insufficiently cultivated land. However, these policy instruments have not been effective in halting or reversing the trend, and land abandonment driven by urbanisation and industrialisation has continued, accompanied by increased ownership fragmentation due to the heritage system (Omizzolo, 2015).

In recent years, regional legislation has sought to address these issues through governance and policy instruments. One example is the creation of land banks aimed at reallocating unused agricultural land, with the goal of boosting employment in rural areas (Povellato and Vanni, 2017). This initiative mirrors similar efforts in 13 other EU countries (Hartvigsen et al., 2021). The Italian Land Bank was established by Law 154/2016

and includes agricultural land that is already cultivated and capable of generating income immediately, allocated through a simple and transparent auction procedure managed by a ministerial agency.

Another policy strategy recently implemented in the forestry sector encourages the management of fragmented forest holdings by supporting the establishment of forest owners' associations, as outlined in Italian forest law (L. 34/2018). These associations are seen as a way to consolidate fragmented properties and reactivate the management of abandoned lands by streamlining management costs (Brocca et al., 2023), as detailed in chapter 3.

2 METHODS

2 METODE

Two separate methodologies, schematised in Fig. 1, were used. The first phase aimed to identify the main associative organisational solutions in Europe to encourage forest management, followed by a second, more in-depth analysis focused on the Italian context.

Initially, a rapid semi-systematic review of the scientific literature was carried out to obtain an overview

of the situation at the European level, following the PRISMA guidelines (Page et al., 2021). This methodology, designed to provide insight into complex areas and topics, allows for the inclusion of a partial set of literature while maintaining transparency, enabling readers to assess whether the arguments and judgments presented are reasonable (Snyder, 2019). The process is based on the following steps: (1) identification of studies to be included, (2) selection of identified studies, (3) eligibility assessment, (4) full document reading and (5) data extraction.

Between January and April 2023, nine query strings were developed for literature searches in the Scopus database. These searches were based on two core keywords: "forest AND organization" plus keywords added using the Boolean operator W/1 after "Forest" and linked with OR: "actor*", "owner*", "association*", "model forest*", "communit*", "cooperative*", "consortium", "agreement*", "network*". The articles found were then screened according to three criteria: i) they had to focus on organisations associating forest owners; ii) the text had to include at least some details about the legal form of the organisation; and iii) the

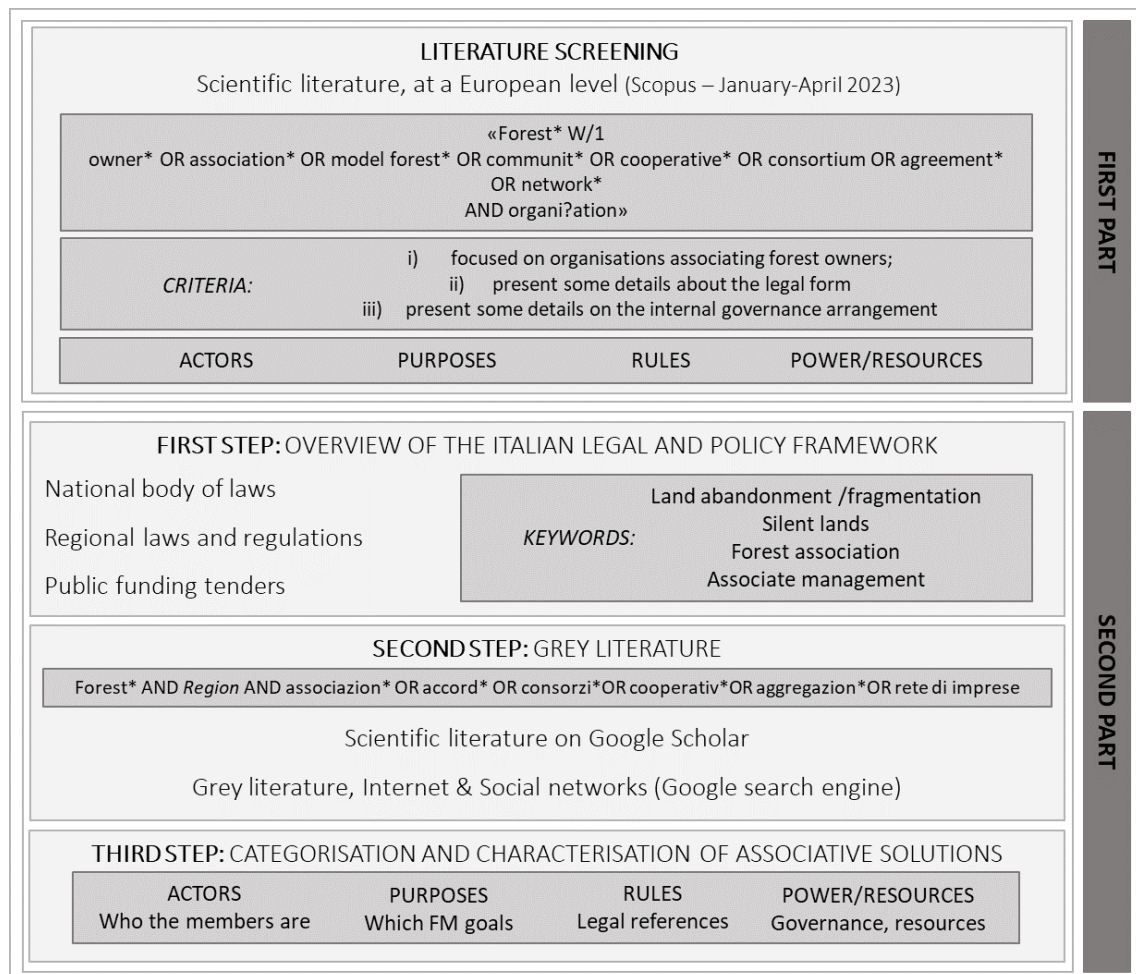


Fig. 1: Scheme of the methodology

Slika 1: Shema metodologije

text had to provide some information on internal governance arrangements. Only articles meeting all three criteria were considered relevant, after which a deeper content analysis was carried out to identify and characterise different types of associative forest management organisations.

The reading of the texts and extraction of data were based on a previously developed analytical framework that considers four key dimensions (Loreggian et al., 2023): i) actors: who the members are; ii) purposes: the objectives they aim to achieve; iii) rules: the legal/formal framework; and iv) the distribution of power and resources (governance arrangements are considered within this dimension). The identified types were then grouped into three main categories: i) forest associations, ii) forest cooperatives and iii) other models for associative forest management.

The in-depth analysis of the Italian context was based on a hybrid methodology due to the limited availability of scientific literature on organisational solutions in the forest sector in Italy. Specifically, the focus on Italy involved three steps (outlined in Fig. 1): first, an analysis of current Italian policy and legislation documents; second, a review of both scientific literature (searched only via Google Scholar) and grey literature, including online sources, conference materials, public event reports and newspaper articles; and finally, a categorisation and characterisation of existing forms of forest owner associations.

In the first step, references to the terms “land abandonment”, “land fragmentation”, “silent lands”¹ and “association/associated” were searched within policy documents. For these documents, a set of six keywords was selected to guide the subsequent literature review. In the second step, these keywords (in both Italian and their English translations) were used to search the scientific literature (via Google Scholar) and grey literature (via the Google search engine). Finally, the existing organisational solutions detected during the previous steps were categorised and characterised according to the same analytical framework cited above (Loreggian et al., 2023), based on the following dimensions: i) actors, ii) purposes, iii) rules and iv) distribution of power and resources.

3 RESULTS

3 REZULTATI

The literature review resulted in the identification of 528 articles, of which 103 were selected based on

¹ “Silent lands” are defined by the national forest law as lands whose owner is unknown, or unavailable after a proper search has been carried out (D.Lgs. 24/2018, art. 3 and 12).

their titles and 30 after reading abstracts. In the end, only 22 were deemed eligible to for in-depth content analysis. The results of this analysis are presented below.

3.1 Overview of the problem and suggested policy and governance solutions at the European level

3.1 Pregled problema in predlagane rešitve politike in upravljanja na evropski ravni

Private land fragmentation, poor organisation and insufficient motivation among private owners are identified as major issues affecting the forest sector in many European countries (Mobilisation and ..., 2008; Pecurul-Botines et al., 2023). In Europe, 56% of the total forest area is privately owned, with “individuals and families” owning nearly 77% of it. A large proportion of these holdings, 88%, are less than 10 hectares in size (Who owns ..., 2019). Various organisational models exist, ranging from those where forest owners are actively engaged in managing their own forests, to those where owners are shareholders and the association manages the forest on their behalf (Rauch and Gronalt, 2005; Hansmann et al., 2016; Pezdevšek Malovrh et al., 2017). These models have been grouped into three main categories, as outlined in Table 1: i) forest owners’ cooperatives; ii) forest owners’ associations; and iii) community forests and other associative solutions.

3.2 Associative forest management solutions to land abandonment and fragmentation in Italy: legislation and experiences

3.2 Rešitve asociativnega gospodarjenja z gozdovi, vezane na opuščanje in drobitev zemljišč v Italiji: zakonodaja in izkušnje

As mentioned in the Introduction, Italy has promoted various forms of associations for over a century as a mean to foster forest management. However, following the introduction of “forest consortia” in the first forest law (RD 3267/1923), there was a long period without specific policies addressing this issue. From the 1980s onwards, a “regionalisation” trend emerged, driven by administrative decentralisation, including in the forest sector (Secco et al., 2017). Since then, several regional administrations have developed associative organisational models in the forest sector, incorporating them into regional laws and programmes (Baldini and Baldi, 2014; Corona et al., 2023).

Two recent policy documents from the Ministry of Agriculture, Food and Forestry (RaF Italia, 2019) highlight the importance of this approach: the Consolidated Text on Forests and Forestry Supply Chains

Table 1: Analytical synthesis of the main types of models identified through the literature review for associating forest owners in Europe

	FOREST OWNERS' COOPERATIVES	FOREST OWNERS' ASSOCIATIONS	COMMUNITY MANAGED FORESTS
Diffusion	Common in Northern Europe and Baltic countries.	Common in Europe.	Common in Europe, with various specific models.
Actors	Small private forest owners, either: i) paying a quota for annual financial returns; ii) signing long-term agreements.	Small private forest owners.	Members of a local community.
Purpose	Cost reduction, for profit.	Supporting forest owners in managing their forests, lobbying.	Managing community-owned or entrusted lands.
Rules	Democratic companies (one member, one vote).	Not-for-profit, democratic and participatory.	Democratic but exclusive, with country-specific norms.
Resources and Business models	i) dividend model: members are shareholders, providing capital and receiving a financial return; ii) active owners model: owners directly involved in forest management.	i) organisations established to support members in forest management (administration, legal compliance, sales, funding); ii) organisations for representation of members' interests (lobbying).	i) community forests, where communities hold property rights; ii) community-based forest enterprises managing third party (often public) forests.
References from the literature review	(Kittredge, 2005; Rauch and Gronalt, 2005; Hull and Ashton, 2008; Tuominen et al., 2008; Dedeurwaerdere, 2009; Hansmann et al., 2016; Pezdevšek Malovrh et al., 2017; Pivoriūnas, 2021)	(Milijic et al., 2010; Živojinović et al., 2015; Pezdevšek Malovrh et al., 2015; Sarvašová et al., 2015; Hansmann et al., 2016; Pöllumäe et al., 2016; Kajanus et al., 2019; Pöllumäe et al., 2019; Pivoriūnas, 2021)	(Macqueen, 2013; Ambrose-Oji et al., 2015; Bassi and Carestato, 2016; Bissonnette et al., 2018; Lawrence et al., 2021)

(Legislative Decree n. 34/2018, art. 10, c. 5) and the National Forest Strategy (2022). The first document identifies “associative forms of management” as a key strategy to enhance forest planning and promote sustainable forest management (Ferrucci, 2018). The second, approved in February 2022, reaffirmed this approach. Both documents outline two primary objectives for forest management associations, aimed at addressing fragmentation and abandonment: first, to aggregate properties for more rational, cost-effective and sustainable management, and, second, to recover abandoned and so-called “silent” lands, whose owners are unknown or unreachable (Brocca et al., 2023).

The models found in the literature and policy documents can be categorised into two broad types: (i) structural solutions, involving formal associative structures, and/or (ii) contractual solutions, formalising cooperation agreements between two or more ac-

Table 2: Main solutions for associating forest owners and/or implementing associative management in Italy

(i) Structural solutions	(ii) Contractual solutions
Formal organisational structures that constitute new entities associating various actors.	Agreements between two or more actors (the parties to the contract) that produce legal effects.
<ul style="list-style-type: none"> ○ Consortia ○ Associations ○ Cooperatives ○ Foundations ○ Forest condominiums 	<ul style="list-style-type: none"> ○ Concessions ○ Business networks ○ Forest agreements ○ Value chain contracts ○ Long-term private multi-year sales of forest plots ○ Free loan contracts

Preglednica 1: Analitična sinteza glavnih tipov modelov združevanja lastnikov gozdov v Evropi, opredeljenih s pregledom literature

tors (Table 2). Commons are excluded from this analysis as they typically manage a single, non-fragmented property and do not aggregate multiple forest owners/actors.

This categorisation is primarily based on the legal framework defining the entity of the agreement. Some structural solutions, such as foundations and the forest condominiums, remain very rare and are not detailed here. For example, the “Italian Forest Fund” is a foundation created to manage forests solely for nature conservation purposes, openly opposing other management objectives. It differs substantially from other associative models because its members are not forest owners, with ownership instead being transferred to the foundation, primarily through external donations. The forest condominium (only one known case) is an attempt to manage small private forest holdings through a “central administration” service provided by

Preglednica 2: Glavne rešitve za združevanje lastnikov gozdov in/ali uvajanje asociativnega upravljanja v Italiji

a professional forester, supporting a group of private landowners under a mid-term agreement.

Some contractual solutions, such as concessions, private sales contracts and free loan contracts, are primarily used to regulate agreements between two parties and are therefore not discussed in detail in the following section. Instead, a summary is provided (in Table 3), along with examples of the main types of multi-actor associative models.

3.3 A closer look at possible solutions for addressing forest abandonment and fragmentation based on empirical cases identified in Italy

3.3 Podrobnejši pregled možnih rešitev za obravnavanje opuščanja in razdrobljenosti gozdov na podlagi empiričnih primerov v Italiji

a) Forest consortia. The consortium is the oldest legal entity for implementing associative forest management in Italy. Initially developed to associate public forest owners (primarily municipalities), forest consortia remain a distinct Italian model. The “Consorzio Boschi Carnici”, founded in 1874 by 19 municipalities in the northeastern Italian region of Friuli Venezia-Giulia, is one of the oldest examples. Forest consortia were later promoted and regulated by Royal Decree 1723 (1921) and further expanded by Royal Decree 3267 (1923). These laws mentioned consortia as the reference model for associating forest owners, although they were mainly directed towards public owners, such as municipalities, mountain communities and parks. When controlled by public members, consortia are considered public enterprises. A consortium is, in fact, an organisational form regulated by the Civil Code (Art. 2602), which can only include entrepreneurial subjects or, in the special case of forest consortia, also public subjects. Private, non-entrepreneur individuals cannot be members. The consortium can become a company itself, with limited liability for its individual members, capable of managing forests while ownership remains with each member, with the aim of generating and sharing profits. Furthermore, forest consortia often take care of other public functions in the territory, such as hydro-geological safety, and can be responsible for maintaining tourism infrastructure such as footpaths, trails, via ferratas, mountain huts and picnic areas. Forest consortia appear to be the best solution thus far for developing solid business models, based on commercial activities but also able to secure financing from Rural Development or other European funds. In some Italian regions (e.g., Lombardy), their public significance is legally recognised, allowing them to receive

public funding for the provision of “environmental services” (i.e., ecosystem services). Consortia can act as legal entities entitled to sign contracts and agreements and participate in other societies or associations.

b) Forest associations. Associations are defined in articles 14 to 42 of the Civil Code as one of the key entities within the Italian legal system: collective organisations whose purpose is the pursuit of “non-economic goals”, i.e. they are not-for-profit. Various calls for financial support and legislative interventions have shaped specific types of associations at the regional level. Examples include “Forest Associations” in Veneto, Molise and Sicily; “Land Associations” in Piedmont; and “Woodland Communities” in Tuscany. Associations can be legally recognised or not, depending on the choice of the members (and can acquire legal status following registration in the Register of Legal Persons). However, associations face significant limitations in conducting commercial activities and managing financial resources compared to consortia, as they are not allowed to make profits. Their governance is also more complex, as it necessarily relies on participatory decision-making mechanisms.

c) Forest and community cooperatives. The cooperative model is a well-established solution in forestry across Europe. While forest owners’ cooperatives thrive in Northern Europe (Hull and Ashton, 2008; Kajanus et al., 2019), in Southern Europe, the cooperative model is more frequently applied to forest workers’ enterprises (Trigkas et al., 2020). In Italy, there are no examples of cooperatives among forest owners. As with other Southern European countries, the cooperative model in the forest sector is implemented by many forest workers’ companies, especially in central and northwestern regions. However, they are not relevant for the purpose of this study since they do not associate owners but instead carry out forestry operations on third-party properties.

Nevertheless, it is worth mentioning the innovative experience of community cooperatives, which first appeared in Italy about 30 years ago. Some of these cooperatives are significantly involved in the management of forest lands otherwise at risk of abandonment. Community cooperatives generally operate in multiple sectors, with the overall goal of responding to urgent local community needs, typically in rural mountain areas, where a minimum level of commercial and welfare activities, mobility and assistance to vulnerable groups such as the elderly are required (Grignani et al., 2021). Their potential in forest management is evident, as Italian forests are the primary natural resource in mountain regions, both in the Apennine and

Table 3: Summary of the three main types of associative structures operating forest management in Italy**Preglednica 3:** Povzetek treh glavnih tipov asociativnih struktur pri upravljanju gozdov v Italiji

CHARACTERISTICS	CONSORTIA	ASSOCIATIONS	COMMUNITY COOPERATIVES
Members	Public forest owners (municipalities) and forest entrepreneurs (private)	Forest owners (private and public) + other actors	Members of a local community
Forest ownership	Shareholders (large areas >3000 ha)	Members (small areas 50-500 ha)	Contractors (mid-small areas ≈200 ha)
Legal form	Contract à Enterprise (artt. 2602-2616 cc) RD 3267/1923	Associations (artt. 14-42 cc) + Regional laws	Cooperative (labour model) Regional laws
Internal governance structure	Democratic but centralised. Vertical	Democratic and participatory. Horizontal	Democratic and participatory. Vertical
Purpose	For profit efficiency (cost optimisation), land management.	Not-for-profit activation of management (care for the territory) and land care.	Mutualism, socio-economic development of local community, creating employment opportunities.
Value proposition	Timber and regulation of forest ecosystem services.	Forest management plans, support for administration, marketing and logistics.	Any valuable forest ecosystem services.
Forest management	Management responsibility given to the consortium by contract.	Management responsibility given to the association by bylaws (unclear legal definition).	Management responsibility given to the cooperative by contract.
Financial sources	Commercial revenues and Rural Development (RD) funds.	Targeted (regional) grants + financing from public tenders (RD funds).	Commercial revenues, financing from public tenders (RD funds, etc.).
Context	Areas where public entities (municipalities) have extended forest ownership.	Abandoned areas, with fragmentation of private land and/or small public properties.	"Inner" rural areas (low-altitude mountain regions).

Alpine areas. The community cooperative "I briganti di Cerreto" in the Emilia-Romagna region (central Italy), founded in 2003, was one of the first to offer not only tourism services but also forest management services, ranging from more traditional timber logging activities to more innovative forest therapy sessions. Another community cooperative, "Ecosistema comunale di Castell Azzara" in Tuscany, signed a "forest agreement" (a contract, as further detailed in the paper) with three private forest owners, assuming full responsibility for forest management.

d) *Innovative contractual solutions.* There are several contractual instruments that allow a landowner to entrust the management of forest resources or certain services to third parties. One of the more recent and specific types of contracts is the so-called "forest agreement", defined by national law n.108 (2021), with the purpose of "enhancing public and private areas with an agro-sylvo-pastoral vocation, as well conserving and providing ecosystem services offered by forests". This contract allows for the participation of forest owners (or subjects holding rights in rem of forest property), even if they are not entrepreneurs. Forest agreements appear to be highly suitable for bringing together various actors, both public and private, from different sectors to manage private and public forests, ensuring the conservation and delivery of ecosystem services while respecting biodiversity and landscapes.

In the few recent agreements signed, various ap-

plications have emerged: public landowners assigning forest management responsibilities to a third public administration, private owners entrusting their land to a community cooperative (private entity, not owner), and even agreements between public and private forest owners, involving multiple actors, both public and private, with different roles in a management framework that balances public and private interests.

Finally, it is worth mentioning long-term forest concessions, a seemingly simple but very uncommon solution, with a few scattered examples such as the "Ecolforest" forestry cooperative in southern Italy and the "Silva" forest cooperative in Piedmont, both of which were entrusted with multi-year management of municipal forests. Small forest enterprises, as well as larger forest associations, can benefit from such contracts that allow investment in innovative machinery and technologies that would otherwise be prohibitively expensive. Public forest owners are the primary type of landowners who could offer forest concessions, as the size of their land could make management activities profitable. They, in turn, benefit from long-term agreements through more careful interventions and investments in infrastructure (such as forest roads), which could also be funded through rural development programmes. Additionally, other ecosystem services, regulated by the contract, could be provided alongside the profits from timber sales (Romano et al., 2014).

4 DISCUSSION AND CONCLUSIONS

4 RAZPRAVA IN ZAKLJUČKI

Although the monitoring of agricultural and forest land use is discontinuous, sporadic and yields uncertain and varied results depending on the sources of information, the most significant change in national land use patterns in recent decades in Italy likely stems from the abandonment of agricultural and forest land management. The expansion of forests serves as a general indicator of this trend, driven by intensive urbanisation and industrialisation, particularly after the Second World War. Italy's total forest area has doubled in 50 years and now covers ca. 11 million hectares, or 36% of the country's total land area, according to the last National Forest Inventory. However, only a small portion is actively (and responsibly) managed (e.g., only 9-10% is certified according to FSC and/or PEFC standards, and only ca 15% has an approved and updated forest management plan).

Despite the evidence that the problem is persisting or worsening, national policy makers still consider associating forest owners (and especially private and small owners) as one of the preferred solutions to address land fragmentation and abandonment. Interestingly, the creation of associative forms for the management of privately owned forest land does not seem to be a priority in the EU Forest Strategy 2030, where collaboration is primarily mentioned in relation to initiatives aimed at enhancing the skills and knowledge of forest actors. The emphasis on networks and associated management mirrors the important role assigned by Italian authorities responsible for the sector (namely, the Ministry of Agriculture, Food Sovereignty and Forestry) to domestic forests, which are mainly seen as key assets for rural development and the revitalisation of local supply chains. This supports local economies and maintains employment opportunities in rural areas while guaranteeing the maintenance of landscapes attractive for tourism and ensuring protection against soil erosion and hydrogeological instability.

However, as mentioned, there is not yet a robust, regular and complete monitoring and evaluation process to assess the effectiveness of the various policy instruments introduced in the past to stimulate the aggregation of private forest owners. The overall uncertainty is further compounded by an inconsistent framework developed by the 21 different Italian regions and autonomous provinces, each attempting to support forest associations through region-specific norms and funding that are not coordinated, while civil matters remain the exclusive competence of the state.

A deeper understanding of the overall framework

is needed, from the national level down to the regional levels, as any solution, whether structural or contractual, should be implemented with the right actors, well-defined purposes and compliance with existing laws. Solutions should be based on appropriate governance arrangements specific to each case and, above all, subject to regular monitoring and evaluation. This process can assist policy makers and practitioners in obtaining evidence-based information to guide their decisions. All the solutions have limitations, but they can be complemented by integrating other instruments to overcome specific issues or foster collaboration with other (associative) actors. Moreover, associations are recognised in the Consolidated Forest Law 34/2018 as a strategic entity to reactivate the management of silent lands (Art. 12, c. 3). However, the same law assigns the responsibility for defining how this process should be completed to the regions and autonomous provinces, and no clear procedures have been established to date.

Despite the lack of clarity about the quality of these policy and governance instruments, identifying landowners, who are the main beneficiaries and/or targets, remains a significant challenge, hampering the on-the-ground effectiveness of policies. This is due to a combination of bureaucratic complexity, data privacy regulations and the continuous migration of many people from rural (mountain) to urban areas or other countries, making it very difficult to inform them of opportunities and motivate them to take action. Furthermore, understanding who forest owners are, their characteristics, motivations and attitudes would be a key step for policy makers and practitioners to select the most effective instruments to implement in different cases (Pezdevšek Malovrh et al., 2015). This represents another major research gap: there is no characterisation of private forest owners in Italy based on their socio-economic features (Mozzato and Gatto, 2016). Only a few general studies and one recent detailed study focused on the province of Trento conclude that forest management within small private holdings is largely voluntary and depends on forest owners' values and objectives (Rizzo et al., 2019). This is consistent with the conclusions from a similar, broader study on Slovenian and Serbian private forest owners' behaviour, which concludes that the understanding of owners' behaviour is important for the success of policy initiatives aimed at promoting forest management, whether individually or collectively. It is essential to target owners with a tailor-made mix of policy instruments (Pezdevšek Malovrh et al., 2015; 2017). In regard to the category of "silent owners" or "absent owners",

who are no longer farmers, more attention should be paid in policy design to new types of land owners. This involves shifting away from the traditional focus on farmers in rural development funding programs and recognising new, innovative profiles of civil society-driven groups of potential owners and managers who are increasingly interested in forest conservation and stewardship.

In conclusion, this paper provides an updated overview of policy instruments introduced in Italy to stimulate associative forest management. It aims to support both current and prospective forest owners in taking action to reverse forest abandonment and assist policymakers in adjusting and improving existing instruments to better suit their objectives.

5 SUMMARY

Land abandonment and ownership fragmentation, often accompanied by uncertainty about landownership, are significant and interrelated issues that hinder forest management in some parts of Central Eastern Europe and Mediterranean Europe, exacerbating the impacts and risks of climate change, such as forest fires. The management of small parcels is not profitable, leading many small holders to abandon them. This accelerates the reduction of land values and fosters a vicious cycle that depletes forest-related communities, particularly in mountain regions.

These issues are a priority in Italy, as recognised in the Italian forest strategy and addressed by the recent national forest law (l. 34/2018) and some normative and funding initiatives at the regional level. Italian forests have expanded continuously over the last century, while agricultural land and wooded areas within active farms have decreased. Data on forest management, such as the ratio of forest areas with management plans, confirm that most forests, including those owned by public entities, lack proper management plans, often being managed informally or abandoned altogether.

This research investigates associative organisational models as proposed solutions to address the inter-related problems of land fragmentation and land abandonment. Given the scarcity of data on these problems and their solutions, the paper initially highlights proxy data, followed by a methodology combining a scientific literature review, policy document analysis and a review of grey literature. After providing an overview of associative models at the European level, the article categorises and characterises the main associative organisational solutions available to encourage active forest management and support the development of

forest supply chains, starting with landowners, as indicated by the national forest law.

Two main types of solutions are identified: structural and contractual, with three and two categories, respectively, described in more detail, along with some unique cases. Consortia, which have existed in the Italian forest sector for over 150 years, act as enterprises whose members (often municipalities) assign management responsibilities to the consortium, typically for profit and the provision of ecosystem services. Associations, introduced more recently, aim to counter private land fragmentation, especially through land associations, which are detailed and supported by some regions. These associations provide opportunities for small private forest owners to access funding, share costs and gain local representation, but they face significant limitations in business development and financial management.

Despite a strong historical legacy, cooperatives in Italy have limited application in the forest sector. They are present in some regions but are primarily forestry companies, not cooperatives of forest owners. Community cooperatives, however, are an innovative model that is rapidly spreading to address broader social issues and could play a significant role in associative forest management, particularly in marginal, rural, low-mountain areas where forest ownership is typically fragmented.

Several contractual instruments (e.g., public concessions, long-term agricultural contracts) can be applied to forest management, but business networks and forest agreements are specifically designed to aggregate multiple actors, either to improve vertical integration of the value chain or to serve as a first step towards association. Contracts are crucial for developing institutional associations, allowing them to expand managed areas and develop business relationships and opportunities.

In conclusion, while forests in Italy have expanded by 2.8 million ha of high forests between 1985 and 2015, wooded areas in active farms have decreased by 2.8 million ha between 1980 and 2020. With only 15.5% of Italian forests under a management plan, land abandonment remains a significant issue, reducing the variety and amount of forest ecosystem services that could be provided and depleting forest-related communities. Associating forest owners, as indicated in the national forest law (Art. 10), has emerged as a key solution to combat land fragmentation and abandonment. Implementing associative solutions requires careful consideration of the overall socio-economic context and a deep understanding of the complex legal

framework at both national and regional levels for the effective integration of different solutions and understanding the potential for their development.

Significant gaps remain in the quantitative evaluation of land fragmentation and abandonment, as well as in understanding who forest owners are, their behaviour, motivations and attitudes. More research is needed to provide necessary information for the success of policy initiatives and the effective development of forest associations.

6 POVZETEK

Opuščanje zemljišč in razdrobljenost lastništva, ki ju pogosto spremlja negotovost glede lastništva zemljišč, sta pomembni in povezani vprašanji, ki ovirata gospodarjenje z gozdovi v nekaterih delih srednje-vzhodne Evrope in sredozemske Evrope ter povečujeta obseg vplivov in tveganj podnebnih sprememb, npr. gozdnih požarov. Gospodarjenje z majhnimi parcelami ni donosno, zato ga številni mali lastniki opuščajo, opuščanje gozdov pa pospešuje izgubo vrednosti zemljišč in spodbuja začaran krog, ki dokončno izčrpa z gozdom povezane skupnosti, najpogosteje v gorskih regijah.

Ta vprašanja so v Italiji prednostna naloga, ki je priznana v italijanski strategiji za gozdove in obravnavana v nedavnem nacionalnem zakonu o gozdovih (l. 34/2018) ter nekaterih normativnih in finančnih pobudah na regionalni ravni. Italijanski gozdovi se v zadnjem stoletju nenehno širijo, medtem ko se kmetijska zemljišča zmanjšujejo, krčijo pa se tudi gozdne površine znotraj aktivnih kmetij. Podatki o gospodarjenju z gozdovi, kot je razmerje načrtovanja, potrjujejo, da večina gozdov, tudi tistih javnih lastnikov, nima gozdnogospodarskega načrta, kar pomeni, da se z njimi gospodarji na neformalni ravni (značilno za majhne posesti), ali pa se z njimi sploh ne gospodarji, pogosto so opuščeni.

Ta raziskava preučuje organizacijske modele združevanja kot predlagane rešitve za reševanje medsebojno povezanih problemov drobljenja in opuščanja zemljišč. Zaradi pomanjkanja podatkov o teh dveh problemih in relativnih rešitvah so v članku najprej poudarjeni nekateri posredni podatki, nato pa metodologija združuje pregled znanstvene literature z analizo političnih dokumentov in pregledom sive literature. Po pregledu nekaterih organizacijskih modelov povezovanja na evropski ravni članek predstavlja kategorizacijo in opredelitev glavnih asociativnih organizacijskih rešitev, ki so na voljo za spodbujanje aktivnega gospodarjenja z gozdovi in podpiranje razvoja gozdne dobavne verige, začeni s lastniki zemljišč, v

skladu z navedbami nacionalne zakonodaje o gozdovih. Prepoznani sta dve glavni vrsti: strukturne in pogodbene rešitve, znotraj katerih so podrobneje opisane tri oziroma dve kategoriji ter nekateri posebni primeri.

Konzorciji so najbolj tradicionalni subjekti v italijanskem gozdarskem sektorju, ki že več kot 150 let delujejo kot podjetja, katerih člani so povezani lastniki zemljišč (pogosto občine), ki na konzorcij prenesejo odgovornost za upravljanje svojih gozdov, večinoma zaradi dobička, in so jim zaupane druge storitve gozdnega ekosistema. Združenja imajo neprofitne namene in so bila nedavno uvedena v gozdarskem sektorju kot posebno orodje za preprečevanje drobljenja zasebnih zemljišč, zlasti v primeru zemljiških združenj, ki jih podrobno opisujejo in podpirajo nekatere regije. Združenja potekajo tudi kot rešitev za male zasebne lastnike gozdov, da bi pridobili možnosti financiranja, si razdelili nekatere stroške in pridobili reprezentativnost na lokalni ravni, vendar doslej ni bilo velikih združenj, mala pa imajo pomembne omejitve pri razvoju poslovanja in finančnem upravljanju javnih sredstev.

Kljub močni zgodovinski zapuščini in razširjenosti se zadrage v Italiji v gozdnem sektorju uporabljajo le v omejenem obsegu. Razvite so bile le v nekaterih regijah in le za mala gozdarska podjetja, medtem ko lastniki gozdov tega modela v nasprotju z drugimi evropskimi državami niso uporabljali. Zadrage skupnosti so inovativen model, ki se hitro širi za obravnavo širših in raznolikih družbenih interesov, vendar bi lahko bile zanimiv akter pri asociativnem upravljanju gozdov, saj so močno povezane z obrobniimi, podeželskimi in nizkogorskimi območji, za katera so značilna gozdna območja, katerih lastnina je običajno zelo razdrobljena.

Za upravljanje gozdov se lahko uporabljajo številni pogodbeni instrumenti (kot so javne koncesije, dolgoročne kmetijske pogodbe itd.), vendar so poslovne mreže in sporazumi o gozdovih posebej zasnovani za združevanje več akterjev za doseganje boljšega povezovanja vrednostne verige (vertikalno povezovanje) ali kot prvi korak za združevanje podobnih subjektov, kot so lastniki gozdov. Poleg tega so pogodbe zelo pomembni instrumenti za razvoj institucionalnih združenj, saj jim omogočajo širitev upravljanega območja ter razvoj poslovnih odnosov in priložnosti.

Medtem ko se gozdovi širijo (+2,8 Mha visokih gozdov med letoma 1985 in 2015), se gozdne površine na aktivnih kmetijah zmanjšujejo (-2,8 Mha med letoma 1980 in 2020) in le 15,5 % italijanskih gozdov ima načrt upravljanja, zato lahko potrdimo, da je opuščanje zemljišč pomembno vprašanje za gozdarstvo v Italiji, kar zmanjšuje raznolikost in razpoložljivost eko-

sistemskih storitev, ki bi jih gozd lahko zagotavljal, ter zagotovo slabi z gozdom povezane skupnosti. Strategija združevanja lastnikov gozdov, ki je jasno navedena v nacionalnem zakonu o gozdovih (člen 10), se je uveljavila kot ena izmed ključnih rešitev za preprečevanje drobljenja in opuščanja zemljišč. Uvajanje asociativnih rešitev zahteva skrbno upoštevanje splošnega družbeno-gospodarskega konteksta in poglobljeno poznavanje zapletenega pravnega okvira, tako na nacionalni kot regionalni ravni, zlasti za učinkovito vključevanje različnih rešitev in razumevanje potencialov za njihov razvoj.

Ustrezne vrzeli so bile ugotovljene pri kvantitativnem vrednotenju razdrobljenosti in opuščanja zemljišč ter pri razumevanju, kdo so lastniki gozdov, njihovega vedenja, motivacije in odnosa; zato je potrebnih več raziskav, da se zagotovijo potrebne informacije za uspeh političnih pobud in učinkovit razvoj gozdnih združenj.

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