Associating forest sector's actors to encourage forest management, an urgent response to land abandonment processes: an assessment of the Italian context

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ABSTRACT

This research investigates the phenomenon of forest land abandonment and some solutions proposed to address it. Land fragmentation, poor or missing management, is recognized to be a major issue that hinders forest management in many countries, especially in Southern Europe, and land abandonment is a critical factor that improves exposure to risks related to climate change and their impacts. The paper focusses on the Italian context, where this issue is particularly relevant, first trying to give a quantitative representation of this problem, recurring to some proxy statistical data, since no precise assessment is available, and then describing the organisational solutions available to encourage active forest management and to support the forest supply chain.

KEYWORDS

Land abandonment, fragmentation, associative solutions, associate forest management

1 INTRODUCTION

Land abandonment and ownership fragmentation, often accompanied by uncertainty about landownership, are important and related issues that hinder forest management in some parts of Central East Europe and in Mediterranean Europe (Lawrence et al., 2020), exacerbating the magnitude of impacts and risks of climate change, e.g. forest fires (Rodríguez Fernández-Blanco et al., 2022). Management of small forest parcels is not profitable, many smallholders give it up, and their abandonment accelerates the loss of land value and fosters a vicious cycle that definitively depletes forest-related communities. Various types of innovation have been supported through, e.g., the EU RDP and CAP funds, to consolidate forest properties or to support forest-related supply chains, in order to encourage forest management, including organisational,

institutional and social innovations. The issue of land abandonment, together with the need for redistribution of abandoned farmland, has been a "strong" theme in Italy, in rural development policies, already since the first postwar decades (from the '50s), culminating in Law n. 440/1978, 4 August, which dictated rules for the use of uncultivated, abandoned, or insufficiently cultivated land. More recently, the creation of Land Banks[1] was introduced as an instrument for the reallocation of unused agricultural land (Povellato and Vanni, 2017). Another common policy approach to encourage the management of fragmented forest holdings is based on supporting the establishment of forest associations. This paper aims to provide a summary of the problem of land abandonment, with specific reference to the Italian context, where this issue is recognised as a priority and some important political actions are underway to address it, and to review organisational and contractual solutions aimed at activating the management of forest land.

2 METHODS

The focus on the Italian context was based on a hybrid methodology due to the scarcity of scientific literature on this topic. The first part of the research was built on the analysis of proxy statistical data available from Italian national research institute (ISTAT[2], ISPRA[3]) and the national forest inventory, while the second part, to describe organisational solutions, was completed with an analysis of policy and legislation integrated with a review of national grey literature, carried out following three steps, represented in Fig. 1.

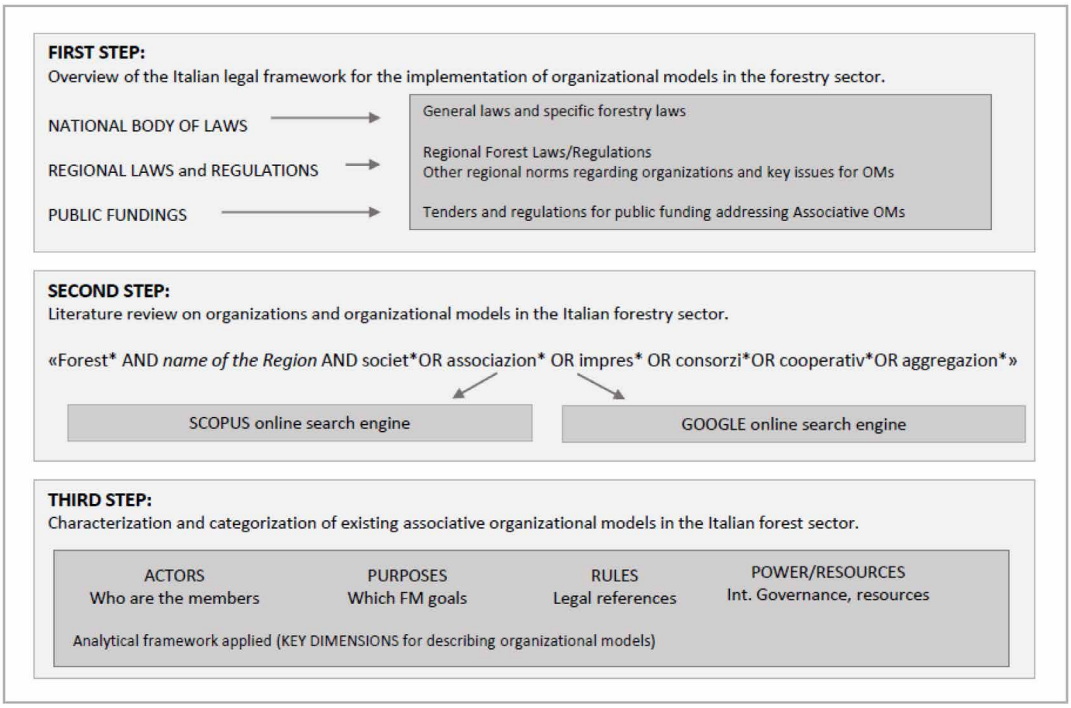

Figure 1. Scheme of the methodological framework applied in the second part of the research.

[1] Italian Law, n.154/2016, 28 July
[2] ISTAT (Istituto Nazionale di Statistica) is a national research institute controlled by the Italian Government.
[3] ISPRA (Istituto Superiore per la Protezione e la Ricerca Ambientale) is a national research institute controlled by the Italian Ministry of Environment.

In the first step, national and regional institutional sources were analysed. References to land abandonment, land fragmentation, "silent lands"[4] , to organisational solutions were searched and analysed. Then a second step was done searching for keywords resulting from step 1 analysis (see Fig. 1), within the scientific literature (Scopus engine) and the grey literature (Google engine). Finally, in a third step, the organisational solutions detected during the previous steps were analysed and categorised, according to a framework that considers four key dimensions: i) actors (who the members are); ii) purposes (which objectives they aim to reach); iii) rules (the legal/formal framework); iv) power and resources distribution (Loreggian et al., 2023).

3 RESULTS

3.1 Land abandonment in Italy

The biggest change in national land use patterns probably consists of management abandonment of agricultural and forest land, though the monitoring process for abandonment is discontinuous, sporadic, and with different outcomes. Missing precise quantification, some proxies can be considered to try to understand the phenomenon. According to data from the ISTAT Agriculture Censuses summarised in Table 1 (ISTAT, 2022a), the Agricultural Area (UAA) decreased by 26.4% from 1982 to 2020 (from 15.8 to 12.5 million hectares - Mha). In the last decade surveyed, UAA decreased by 33,100 ha/year, with the closure of 48,257 farms/year. According to ISPRA (Munafò, 2022) in its latest annual report on soil consumption, from 2006 to 2021, 115,300 ha of "natural and semi-natural soil" (i.e. agricultural, forest and uncultivated land) were lost, corresponding to 7687 ha/year, equal to 23.2% of the average annual decrease in UAA over the 2010-20 decade. Although these data are not perfectly comparable, together they allow for a perception of these two processes, the main reasons for land use change in Italy.

Table 1. Evolution of the number of farms, UAA, TAA and WA in the last 5 ISTAT Censuses of Agriculture. Our elaboration of ISTAT data from 7th General agriculture census and former reports.

YEAR	Absolute data				WA/TAA	Indexes referred to 1982=100			
	N° of farms	(thousands of hectares)				N° of farms	UAA	TAA	WA
		UAA	TAA	WA					
2020	1,133,023	12,535	16,474	2,865	17.40%	36.2	79.2	73.6	50.8
2010	1,615,590	12,856	17,081	2,901	17.00%	51.6	81.2	76.3	51.4
2000	2,393,161	13,182	18,767	4,580	24.40%	76.4	83.3	83.8	81.2
1990	2,848,136	15,026	21,628	5,510	25.50%	90.9	94.9	96.6	97.7
1982	3,133,118	15,833	22,398	5,640	25.20%	100	100	100	100

[4] "Silent lands" is used to define forest lands whose owner is unknown, or unavailable after a proper search was carried out, within the national forest law (D.Lgs. 24/2018, art. 3 and 12)

ISTAT also records the evolution of the Total Agricultural Area (TAA), which includes wooded land, unutilised agricultural land and buildings. Wooded areas have always been an important part in active farms (a quarter of the surface area in the 1980s), witnessing a traditional integration between land cultivation activities and hydrogeological protection, the use of timber for energy purposes, the production of pole wood and occasionally of timber for internal use and for sale. Gradually, this farming model is disappearing, with a reduction in both absolute and relative terms of wooded areas. Compared to the 1980s, the forest area is half and now covers about 17% of the total farm area.

Looking at data from the National Forest Inventory, as reported in Table 2, we can try to complement the Census with forests. There is a relevant gap between the estimated area in the 2020 Census of 2.9 M ha of wooded areas in active farms and the "high forests" in the third INFC, equal to 9.0 M ha in 2015. One could say that the two-thirds gap between the census and the inventory data is due to the presence of "specialised" forest holdings, which are accounted for in the ISTAT sample. However, this hypothesis is unlikely when we look at other indicators that suggest that a significant part of the national forest heritage is not managed or is managed in very extensive, occasional, unplanned terms. Let us look at other proxy variables that may justify this assertion.

Table 2. Evolution of forest area (our elaboration from the last 3 National Forest and Carbon Sinks Inventories).

YEAR	Absolute data (thousands of hectares)			Indexes referred to 1982=100		
	"High" forests	Other woodlands	Total	"High" forests	Other woodlands	Total
2015	8,957	1,097	10,054	145.8	82.8	127.4
2005	8,759	1,708	10,467	142.6	67.4	120.7
1985	6,142	2,533	8,675	100.0	100.0	100.0

According to the latest INFC, on 37.4% of the forest area there is no silvicultural intervention, a significant index of abandonment of management. Only 15.5% of the total forest area has a management plan, a ratio even lower than the already low value of 16.3% in 2005. More than 60% of Italian forests are located at an altitude above 500 m, that is, in hilly and mountainous territories that have been characterised by depopulation phenomena in recent decades. Among the reasons that limit the economic and social opportunities that could derive from the use of primary resources in these territories, land fragmentation, which characterises most private forest areas, has been recognised as a crucial driver (Rizzo et al., 2019; Secco et al., 2018). The average size of private forest properties does not exceed 8 hectares (Secco et al., 2017). This fragmentation, which often results in a real pulverisation of private properties into an unspecified number of owners, is a huge problem that hinders economically viable forest management.

3.2 Associating: organisational solutions for land abandonment

In Italy, for over a century, the legislator has encouraged the adoption of both horizontal (e.g., between public and private forest owners) and vertical (between producers and primary wood processing industries) forms of association. The Forest Law 3267/1923 gave the right (and financial resources) to 'several municipalities and moral entities, to form a consortium, for 'the recruitment of a single director for the technical management of forest heritage.' Following this national regulatory intervention, from the 1980s onwards, it was the Regions that defined the details of associative organisational models in the forestry sector, in the framework of the administrative decentralisation that regarded also the forestry sector (Baldini and Baldi, 2014), further spurred on by a new solicitation at the national level at the beginning of the 2000s, through Legislative Decree 227/2001 (art. 5 c.3). This decree urged regions and local authorities to promote forms of association in the forest sector, to promote a more rational and efficient management of forest stands. Several Italian regions have integrated regional forest laws, making explicit the strategic role of different types of associated forest management that were promoted also through incentives and dedicated funding calls, within the framework of rural development plans. Finally, the two recent and main acts signed by the Ministry of Agriculture, Food and Forestry (MIPAAF): the Consolidated Text on Forests and Forestry Supply Chains (Legislative Decree 34/2018) indicated 'associated forms of management' as one of the strategies to be pursued, in order to increase forest planning to foster sustainable forest management (Ferrucci, 2019) and the National Forestry Strategy, approved in February 2022, confirmed this orientation. In addition to these, three other significant interventions can be found in recent years, confirming the relevance of this issue in recent national policies: (i) the call for funding (for a total of 5 million €) to support the promotion and/or the start-up phase of associative forms for the management of forestry-pastoral areas, (ii) the creation of 'Forest Agreements' which is a regulatory instrument, and (iii) the call for funding 'Forest Supply Chain contracts' in April 2023 (10 million € within the RRF[5]) supporting initiatives of innovation and development of the forest supply chain that must be proposed by interregional associations of actors, signing a contract with the Ministry itself to enforce their agreement.

In Italy, the management of forestry-pastoral areas in associated form can be achieved through the adoption of different organisational models, each characterised by distinctive features. Peculiar models can be found, some originating from regulatory (regional) initiatives, others from innovative solutions developed by the civil society, without any specific regulatory framework and direction, finally composing a multitude of solutions which can be traced back to a few main categories, within two typologies of instruments: i) adoption of formal organisational entities to associate different actors, such as consortia, associations and cooperatives; ii) contracts, which are binding cooperation agreements between two or more independent subjects to produce legal effects, such as concessions, network contracts[6], and 'Forest Agreements'.

[5] Resilience and Recovery Facility, the temporary instrument that is the centrepiece of NextGenerationEU -the EU's plan to emerge from the Covid-19 crisis.

[6] Introduced in Italy with Law n°33/2009, 9 April.

Conventional contractual instruments that allow the management of forest resources or some of their services to be entrusted to third parties (free loan contracts against land investments, concession contracts, contracts for multi-year sales of forest plots, contracts for cost and profit sharing in the management of economic activities, etc.) have recently been joined by an innovative contractual modality: the 'Forest Agreements', introduced with Law 108/2021, as a "tool for the development of business networks in the forest sector". The additional purpose of "valorising public and private areas with agro-sylvo-pastoral vocation, as well as for the conservation and provision of ecosystem services provided by forests" preludes to one of the innovative (and distinctive) features of the 'Forest Agreement' compared to the network contract, since it is not necessary that all contractors are entrepreneurs, as in the case of the former instrument. The participation of forest owners is a characteristic requirement of the 'Forest Agreement', which aims to directly involve those private forest owners who do not perform active forest management.

Finally, in addition to these types of instruments, there are the entities set up for the administration and management of collective properties, which represent the oldest and most traditional form of associated management of agro-sylvo-pastoral assets, only recently organically regulated by Law 168/2017, which recognises collective properties of all types, giving legal personality under private law and statutory autonomy to the entities that exercise their rights. The expression 'collective domain' is now used to univocally name all collective properties, beyond the different names they have assumed in the different territorial realities and the historical modalities through which they were constituted, such as the Regole present in Veneto and in the province of Trento, the vicinie in Friuli Venezia-Giulia, the Comunelle, the Comunanze, the Partecipanze, etc. (Bassi & Carestiato, 2016). According to the law, collective domains have their source of legitimacy in a 'primary legal order of the original communities' characterised by autonomy ('capacity for self-regulation') with regard to the management of assets, which form a patrimony qualified by the law as 'intergenerational co-ownership' (Daici, 2021).

4 DISCUSSION AND CONCLUSION

In summary, three main dynamics characterise the processes of land abandonment in Italy: i) the SAU has been progressively decreasing; ii) the forest area within actively managed holdings is progressively decreasing, and iii) forests are characterised by a process of expansion fuelled by the decreasing dynamics of the UAA, in a logic that is in any case dominated by a tendency towards extensification that in many cases turns into total abandonment, confirmed by the fact that Italy is among the large European countries the one that has the lowest average rate of timber withdrawal, both per hectare of wooded area and with respect to the net annual increase.

The abandonment of many forest stands has significant environmental and social consequences. The loss of management in environmental contexts that for centuries have been intensively managed safeguarding the resilience of forests can expose them to causes of degradation with the reduction of their ability to provide not so much raw materials, but services to regulate ecosystem and socio-cultural cycles (Romano, 2017).

Moreover, the vulnerability of forests tends to increase in the presence of a higher frequency of extreme events, an increase in average temperature, and instability in the availability of water resources. In these contexts, active forest management is required primarily because of the need to maintain a flow of public goods. If this flow can also be maintained through the enhancement of commercial activities, with the creation of added value and employment, a reduction in the public costs of forest protection can be achieved. Such considerations can be confronted with the indication that Stefano Rodotà, a prominent Italian legal expert, expressed many decades ago (1960): "*the failure to exercise ownership over an asset, its abandonment can be considered antisocial conduct and, therefore, determine a supervening lack of legitimacy to the ownership or exercise of the right of ownership.*" Based on this indication, it would be appropriate to raise civic and political awareness and consistent measures of action, following the trend that seems to have started, relying on associative solutions.

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