

Enhancing territorial development based on biocultural identity. A capacity building approach

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ABSTRACT

The adoption of new territorial approaches based on biocultural identity is increasingly valued for the activation and enhancement of processes of inclusive and sustainable rural development. These processes are often hindered by the presence of conflicts, rather than collective action and collaboration among stakeholders, at different institutional levels. This negatively affects the preservation and sustainable valorization of local biocultural heritage towards a synergic integration and balanced satisfaction of the interests at stake.

Consequently, capacity building is increasingly taken into consideration by both researchers and policy makers to respond to an emerging need of territorial dynamization, requiring the mobilization of local actors, as well as enhanced decision-making and action-taking powers.

Our paper aims to provide a systemic comprehension and enhancement of territorial development paths based on biocultural identity and to foster their enhancement through the adoption of a capacity building approach. A novel holistic conceptual model is designed and operationalized supporting the analysis of the key processes of biocultural heritage valorization for rural territorial development.

A participatory action-research (PAR) approach was developed in eight territories, in both Europe and Latin America, illustrative of biocultural heritage valorization dynamics. The latter represented case studies and worked as laboratories for the model application. The paper presents the case of the Garfagnana territory, an inner mountain area of the Tuscany Region (Italy), which stands out for its capacity to comprehensively illustrate the applicability of the conceptual model and its expected results as a typical case study.

The findings prove the model to be supportive in the identification of the virtuous aspects, criticalities, and needs for improvement that characterize processes of biocultural heritage valorization for rural territorial development, the detection of related dynamization needs, and a shared demand for capacity building, which made it possible to highlight and describe a new interdisciplinary profile of territorial enhancer (TE).

The results support the adaption of education and training to align with territorial specificities and the valorization of the local diversity of resources and knowledge. As an outcome, we expect to foster processes of both educational transformation and social innovation through empowerment, thus generating concrete change in rural territories and communities, aiming at a long-lasting impact on social wellbeing, sustainability, and cohesion.

1. Introduction

The adoption of new territorial approaches is increasingly valued for the activation and enhancement of processes of inclusive and sustainable territorial development concerning rural and inner contexts (Schejtman and Berdegué, 2004; Alburquerque, 2013; Berdegué et al.,

2020; Sánchez Aguilar et al., 2021; Galeano-Barrera et al., 2022). In contrast to the homologation or global, hetero-directed models, rural territorial development (RTD) builds on the valorization of context-specific potential and the mediation of conflicts, assigning a special role to the empowerment and mobilization of local actors (Chacón Rivera, 2021; Nizam and Tatari, 2022). Specifically, RTD

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models involve the design and implementation of tailored solutions for the preservation and sustainable use of local specific resources and pursue agri-food systems transformation and a higher territorial cohesion (Basile and Cecchi, 1997; Cazzuffi et al., 2013; Sánchez-Zamora et al., 2014; Ranaboldo and Arosio, 2017; Ruperti Cañarte et al., 2021).

Within this framework, the focus on biodiversity and cultural heritage is growing, not only as resources to preserve, but also as common territorial assets to be recognized, renewed, and valorized by means of collaborative strategies (González and López-Prado, 2014; Maffi, 2018; Labadi et al., 2021; Ortiz et al., 2021; Ruperti Cañarte et al., 2021). In order to embody this complexity, researchers (Argumedo and Swider-ska, 2014; Bridgewater and Rotherham, 2019) have developed the holistic concept of biocultural heritage, where knowledge, biological diversity, landscapes, and culture are perceived as inter-connected and inter-dependent. Biocultural heritage is identified as the whole set of knowledge and practices of local communities, and their biological resources, held collectively, transmitted, and innovated from one generation to the next (Cocks, 2010; IIED, 2015). To that end, both local and non-local stakeholders should step up and collaborate to combine their goals and actions, making the mobilization of the local biocultural heritage and the entire local community into a trigger for more inclusive and sustainable processes of development (Banini, 2017; Mantino and Vanni, 2018; Fundación Superación Pobreza, 2023).

Many rural contexts experience a lack of collective action and collaboration among stakeholders at different institutional levels, generating conflicts instead of synergic integration of interests, thus negatively affecting the preservation and sustainable use of local biocultural heritage (Alonso González, 2014; Burke et al., 2023). Considering this, a need for stimulating and accompanying local actors emerges, with the aim to favor the co-creation of a shared identity feeling, and their activation towards the realization of individual and collective valorization initiatives (López-García et al., 2015; Boucher and Riveros-Cañas, 2017; Basile and Cavallo, 2020; Olazabal Arrabal et al., 2021).

Thus, the role of human development (Barboza Arias, 2021) and localized social capital (Penati and Buttari, 2007) need to be increasingly supported to overcome structural bottlenecks through the implementation and reproduction of high quality biocultural-oriented virtuous valorization circles (Belletti et al., 2003; Vandecastelaere et al., 2010; Scaramuzzi et al., 2016). Specifically, fostering the enhancement of individuals' identity awareness and sense of agency (Barker, 2005) can make them become conscious, autonomous, and co-responsible agents for the dynamization of the territory. Building on the definitions of Boucher and Riveros-Cañas (2017) and López-García et al. (2015), we intend territorial dynamization as the combination of decisions and actions that make it possible to activate and accompany inclusive and sustainable processes of territorial development, based on the mobilization of local heritage, territorial actors, and local communities for higher life quality and human well-being (Ranaboldo and Arosio, 2017).

In this regard, capacity building approaches are increasingly identified in the literature (Whittle et al., 2011; Thapa et al., 2019; Barboza Arias, 2021) and in the implementation of local policies (i.e. EU Rural Development Policy measures for training and cooperation) as an enabling factor of rural territorial development. In this sense, capacity building approaches, when building on the analysis of context-specific dynamization gaps and related needs, can provide an adequate response and potential for the empowerment of territorial actors (Thapa et al., 2019).

Specifically, the design and implementation of tailored profiles, training contents and methods can be directed to support the realization of co-learning processes and networks (Chandler and Kennedy, 2015), which can underpin the democratization of learning and the strengthening of human capabilities. The latter can act as a driver and facilitator of biocultural-oriented rural development paths (Sánchez Aguilar et al., 2021; Ranaboldo, 2021; Chacón Rivera, 2021). Despite this, more efforts

are needed, on the part of both researchers and practitioners, for the identification, development, and validation of coherent capacity building methodologies.

Our paper aims to provide a systemic comprehension of territorial development paths based on biocultural identity and to foster their enhancement through the adoption of a capacity building approach. For this goal, a novel holistic conceptual model is designed and operationalized supporting the analysis of the key processes of biocultural heritage valorization for rural territorial development, the detection of related dynamization needs, and a shared demand for capacity building, with a strong focus on the role and potential of the territorial actors.

On this basis, the paper values the relevance of an interdisciplinary profile, flexible and adaptable to context-specific problems and opportunities, to allow the education and training of *territorial enhancers* (TEs).

Specifically, in Section 2 and Section 3, the identified conceptual framework and the followed methodology are illustrated. Section 4 presents the case study analysis and results. Lastly, Section 5 and Section 6 are dedicated respectively to the case study discussion and conclusions.

2. The conceptual framework

2.1. Enhancing rural territorial development based on biocultural identity: a literature review

Our framework builds on the concepts of territorial dynamization (López-García et al., 2015; Boucher and Riveros-Cañas, 2017; Boucher et al., 2018) and territorial development with cultural identity (Molano, 2006; Tregear et al., 2007; Ranaboldo, 2018; Olazabal Arrabal et al., 2021) based on a biocultural approach (Turner et al., 2018; Maffi, 2018; Hanspach et al., 2020; Burke et al., 2023). Specifically, we focus our attention on the potential role of biocultural heritage¹ valorization as a common territorial asset, to feed processes of inclusive and sustainable rural territorial development (Frison and Coolsaet, 2018; Winkel et al., 2020).

As stated by Fonte and Ranaboldo (2007), biocultural heritage acquired a high potential due, among other factors, to a growing demand for goods and services with symbolic attributes (Ray, 2003). The latter responds to the affirmation of new models of life (nature, health, fair trade, business ethics) and to the indissoluble link they have with rural territories (Saquet, 2016). The recognition of origin, memory and a shared historical trajectory among local actors can contribute to the enhancement of social relations and territorial cohesion, as well as to an increasing social recognition and market appreciation of rural cultural and natural diversities (Boucher and Riveros-Cañas, 2017).

Accordingly, a new paradigm of rural territorial development based on biocultural identity can be fostered, involving the realization of quality virtuous valorization circles of local specific biodiversity and cultural resources (Belletti et al., 2022a). Here, territorial identity becomes a determinant attribute for the production, enhancement, and reproduction of biocultural goods and services, considering the satisfaction of both market and social demand (Fonte and Ranaboldo, 2007; Colloredo-Mansfeld, 2011; Boucher et al., 2018).

In this regard, different types of problems, affecting biocultural heritage valorization, may emerge (Scaramuzzi et al., 2016). As for example, in some cases, the heritage resources are not used or are underutilized (lack of activation); on the contrary, in other cases, the resources are over-exploited, in a short-term logic (lack of environmental sustainability). Furthermore, there are other situations wherein the resources are valorized, but the benefits are inequitably distributed and do not allow the managers of these resources (very often small-scale farmers) to reproduce them (lack of sustainability and social justice).

Considering this, the existence of knowledge and power asymmetries

¹ See Section 1 for a definition of biocultural heritage.

among stakeholders, both intra and extra-territorial, is a hindering factor to development (Treake and Krell, 2014). Moreover, rural territories rich in biocultural assets are often threatened by concurrent development models based on an extractivistic logic, which take advantage of and deplete the local biocultural resources, with the goal of maximizing private benefits through deprivation, without reciprocity and stewardship (Durante et al., 2021; United Nations UN, 2021).

The abovementioned failures can also be consequences of the significant institutional weaknesses which often affect processes of rural territorial development. According to Berdegué et al. (2020), the most relevant of these can be identified as: the presence of cross-cutting coordination failures; the persistence of old conceptions of rural life; and the difficulty in generating institutional arrangements that balance bottom-up and top-down actions. As a result, conflicts arise from the existence of different appropriation practices and strategies which bring in violence and destruction, increasing poverty and inequality in rural territories, owing to a lower negotiation power of local actors and the inequitable sharing and distribution of benefits (e.g., extractive industries and the exploitation of natural resources, agri-food corporations with effects on monocultures, mass tourism lobbies, or drug trafficking as well as political violence).

The difficulty of overcoming conflicts likely to compromise a balanced self-governance is significantly affected by a lack of key human capabilities and the weakness of localized social capital (Alkire, 2002; Abramovay et al., 2006; Penati and Buttari, 2007; Albuquerque, 2013). Therefore, more efforts are required for the advancement of human development and the strengthening of shared knowledge, values, and networked relations among stakeholders, both in rural areas and the surrounding contexts.

Sen's Capability approach (Sen, 1995, 1999) conceptualizes human development as essentially based on the expansion of the capabilities of human resources with a view to improving the power of action, freedom of choice, and propensity for collaboration of both local people and organizations. To foster rural development processes, empowered human resources, operating individually, or within organizations and communities, can accompany territorial actors through the recognition of their specific identity, and their activation for the planning, synergic combination, and successful implementation of collaborative strategies (Costamagna et al., 2013; Albuquerque and Pérez, 2013).

Within this framework, capacity building is acquiring a growing importance as a dynamic approach for expanding human capabilities, as well as contributing to social capital construction (Alkire, 2002; López-García et al., 2015; Boucher and Riveros-Cañas, 2017; Thapa et al., 2019; Barboza Arias, 2021). Importantly, this approach has proven to play a fundamental role in supporting the generation, enhancement, and diffusion of specific knowledge, skills, and competencies among individuals, locally or outside the territorial borders, that are necessary to enhance their capacity of feeding virtuous valorization processes of biocultural heritage (RIMISP, 2016).

Accordingly, innovative capacity building methodologies should be developed, valuing the potential of contextualization and co-design perspectives. In this sense, specific learning outcomes and education and training programmes should be identified and implemented, in collaboration with territorial actors and relevant stakeholders, aiming at responding to context-specific dynamization needs and capacity building demand and considering the development of co-learning networks (Costamagna et al., 2013; Costamagna and Larrea, 2015; Ruperti Cañarte et al., 2021). Significantly, this approach subtends the recognition of local actors as unique and irreplaceable protagonists to be empowered (Fischer and McKee, 2017; Flood et al., 2022) to play a key role in processes of biocultural heritage preservation and in the interconnection of contextual with external knowledge and know how.

2.2. Capacity building approaches for rural territorial development based on biocultural identity: a new conceptual model

In this paper we propose a new conceptual model aimed at supporting the design and implementation of capacity building approaches, enhancing rural territorial development processes with biocultural identity (Fig. 1). In particular, we want the model to function as an innovative analytical tool for the characterization of biocultural heritage valorization dynamics in different territorial contexts, supporting the identification of related dynamization needs and capacity building demand.

As shown in Fig. 1, the model intends to provide a multi-dimensional representation of the dynamics that make it possible to activate, fairly remunerate, and reproduce local biocultural resources, through initiatives collectively realized by territorial actors, and of the related drivers and effects (both internal and external). Also, the model aims to support the identification of possible conflicts among stakeholders, negatively affecting biocultural heritage conservation and sustainable use, and the presence of power and knowledge asymmetries among actors, that limit their capacities and potential.

In this sense, going from the center to the outside of the figure, different analytical perspectives are combined and interrelated in a systemic and holistic framework consisting of:

- I. The perspective of the *virtuous valorization circle of biocultural resources* (Vandecandelaere et al., 2010; Belletti and Marescotti, 2011; Scaramuzzi et al., 2016; Belletti et al., 2022a). This perspective highlights the fundamental role played by the activation of the territorial actors to implement and sustain collective action processes. Specifically, starting from the identification of local biocultural resources, collaborative multi-actor strategies can sustain the creation of biocultural products and services, their qualification, and fair remuneration, by means of both market and non-market mechanisms. Accordingly, economic payoffs can be generated together with other sociocultural and environmental benefits that, if equitably distributed among the actors of the territorial system, make it possible to close the circle, reproducing and improving the resources themselves (Vandecandelaere et al., 2010; Maréchal et al., 2016) and contribute to the preservation and enhancement of local specific natural and socio-cultural resources (Fonte and Ranaboldo, 2007; Belletti et al., 2017).
- II. The *critical processes of rural territorial development based on biocultural identity* (Belletti et al., 2022a), entailing both *productive transformation and institutional development* in the territory (Schejtman and Berdegué, 2004). In particular, five macro-categories are identified in the model:
 - i. *Activation and empowerment of local actors*. Territorial actors should become the pivotal agents of sustainable valorization processes (van der Ploeg and Van Dijk, 1995; Cejudo and Navarro, 2020), considering their economic, social, and environmental interests at stake in the identification and mobilization of territorial resources. Nonetheless, sometimes external actors (e.g. NGOs, Universities and Research Centers) play an important role in supporting the processes with significant capacity and knowledge;
 - ii. *Networking and coordination of local and non-local actors*. The creation of network relationships and coordination mechanisms between empowered local agents, and between these and other agents outside the territory (van der Ploeg and Marsden, 2008), is key to overcoming the obstacles derived from the small size of either farms, companies or communities and thus to generating a variety of collaborative advantages in the sustainable use of biocultural resources (Sacchi et al., 2019; Domi and Belletti, 2022);
 - iii. *Identity and value recognition of biocultural resources and products*. It is the process by which territorial actors (e.g., consumers,

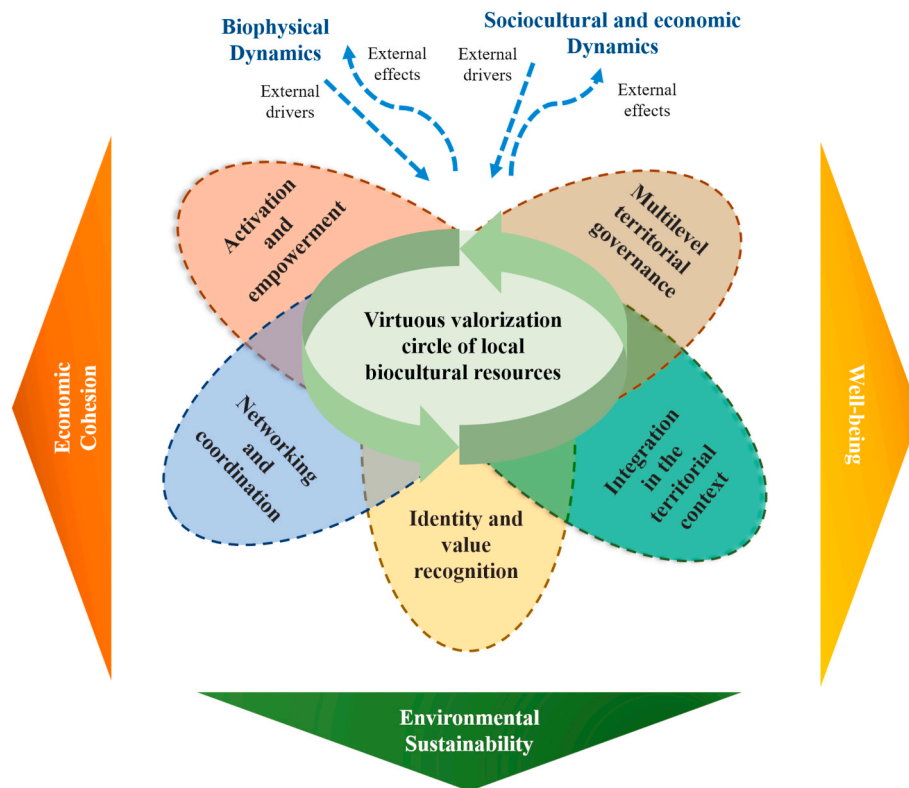


Fig. 1. Enhancing rural territorial development based on biocultural identity: a new conceptual model for capacity building approaches. (Source: Authors' original work).

citizens, public institutions, other actors in the territory and/or value chain, etc.) can recognize the value of biocultural resources and products linked to origin, biodiversity, and cultural heritage, and link them effectively (from a communication, commercial and logistical point of view) to local and global market niches (Bérard and Marchenay, 1995; Tregear et al., 2007);

- iv. *Integration of activities in the territorial context.* The elements of the biocultural heritage, by their historical depth and their collective and identity dimension, allow an integration with other activities in the territorial context, even beyond their current economic importance (Pecqueur, 2001; Bérard and Marchenay, 2004; Belletti et al., 2017);
- v. *Multilevel territorial governance.* Many different levels of the institutional framework influence local development processes (Pollermann et al., 2014), so the linkage of the territorial governance system (including citizens' and consumers' organizations) (Lamine et al., 2012) with regional, national, and international levels is of utmost importance.

The critical processes of rural territorial development based on biocultural identity entail a synergic productive transformation and institutional development in the territory (Schejtman and Berdegué, 2004; Abramovay et al., 2006; De Janvry and Sadoulet, 2007; Cazzuffi et al., 2013; Ranaboldo and Arosio, 2017; Berdegué et al., 2020). Productive transformation is intended as a necessary step to link the local economy with external dynamic markets in a competitive and sustainable way. In order to be sustainable, this transformation also needs a conservation of local biocultural resources through adequate valorization, implying the reorganization and qualification of supply chains and territorial production systems. This process must be supported by an institutional transformation dynamic, aiming at promoting the concerted action of local agents, both amongst themselves and with relevant external agents, through multi-level and collaborative settings.

- III. *The role of territorial cohesion for inclusiveness and sustainability effects in the territory.* In particular, the model describes territorial cohesion as a holistic concept, embodying three desired general goals (Demeterova et al., 2020, building on Pye et al., 2008): economic cohesion, well-being, and environmental sustainability. We believe these goals can be reached in a territorial system of governance through economic efficiency, social cohesion, and ecological balance (Buitelaar et al., 2015). Inclusiveness and sustainability should also be taken into account at individual level in terms of favoring the activation and involvement of actors facing greater inequalities, fewer opportunities, and less power to exercise their rights (e.g., family farmers and small-scale entrepreneurs, young people, and women).

- IV. *The socio-ecological systems (SES) perspective* (Ortiz et al., 2021). The latter contributes to the detection and analysis of the (socio-cultural, economic, and biophysical) dynamic connections between locally-based biocultural heritage valorization processes and the surrounding context. In particular, it makes it possible to outline the external factors that act as drivers of biocultural resources and the mobilization of the territorial actors and the produced external effects, affecting both society and the ecosystem.

Considering the abovementioned perspectives, the model supports a systemic representation and holistic comprehension of rural territorial development based on biocultural identity. In our research, we focused the analysis on the perspective of critical processes, in order to understand the dynamics, criticalities and identify demands for capacity building. Specific attention was paid to the role of territorial actors, enabling the identification of needs and gaps in terms of human resource capabilities and power of action.

3. Methodology

The methodology, developed and implemented within the EU-funded SUS-TER project² followed a participatory action-research (PAR) approach (Greenwood et al., 1993; Chambers, 1994; Guijt, 2014; Kondon et al., 2007; Padilla and Ramos Filho, 2012). According to this approach, relevant stakeholders, interested in the results of the work, were involved in different stages of the research process (i.e., design, data collection; needs and gaps analysis), and in the definition of the actions (i.e., restitution of results, discussion, identification of relevant knowledge, skills and competencies).

Researchers worked with stakeholders in a context of practice, this not primarily to understand backgrounds and dynamics, but to co-produce a desired change as a path to generating knowledge and empowering local actors (Bradbury-Huang, 2010). As a result, the implemented action-research process represented a transformative orientation to new knowledge creation, taking knowledge production beyond the gate-keeping of professional knowledge makers. Accordingly, the process led to innovative outputs such as a profile and a course (Section 4.5), tailored based on their needs and in response to the gaps of the existing training offer.

The methodology was developed in eight territories,³ in both Europe and Latin America, that are emblematic of biocultural heritage valorization dynamics. Each territory represented a case study (Poteete et al., 2010; Yin, 2012) and worked as a laboratory for the application and testing of the identified conceptual model (Section 2.2), with a specific focus on the characterization and validation of the five described critical processes of rural territorial development based on biocultural identity.

Qualitative methods were adopted for data collection and analysis (Pretty, 1995; Bergold and Thomas, 2012). Specifically, case study protocols were designed and discussed by all the researchers involved, supporting the coordination of both field and desk activities (Yin, 2012; Baskarada, 2014). Hence, both public and private stakeholders, operating at different institutional levels (local, national, international), were actively involved for the co-production of shared and plural knowledge (Torre et al., 2023), combining scientific findings with local and practical know-how.

This paper presents the case of the Garfagnana territory, an inner mountain area of the Tuscany Region (Italy), which stands out for its capacity to comprehensively illustrate (Epler, 2019) as a typical case study (Seawright and Gerring, 2008) the applicability of the conceptual model and its expected results. Specifically, the model proved to be supportive in the identification of the dynamization needs and the related capacity building demand, not only for the Garfagnana territory, but also for the other seven areas analyzed by the project.

According to the commonly defined protocols, the participatory action-research steps developed in Garfagnana were also carried out in the other SUS-TER territories.

At first, the data were collected through a combination of key informant interviews (Patton, 2002; Wang et al., 2017) with a prior desk research process on scientific literature, grey institutional sources, official statistics, legal documents, and regulations. Purposeful snowball sampling was conducted for the recruitment of stakeholders (Creswell

and Plano Clark, 2011; Palinkas et al., 2015) adopting the following inclusion criteria: i. the actors' in-depth knowledge of the territory and related biocultural valorization dynamics; ii. their active role in either public or private sectors (i.e., expression of different economic activities: agricultural, tourism, commercial) or even intermediary bodies (i.e., consortiums, associations, citizen organizations); iii. their knowledge and/or participation in initiatives for the valorization of territorial biocultural heritage.

The recruitment and data gathering were carried out until the point of saturation (Saunders et al., 2018). Interviews were semi-structured (Patton, 2002) and conducted in person. In most cases, interviews were scheduled during field visits, thus also opening space for observation.

Concerning the case of the Garfagnana territory, both interviews and desk analysis took place during the first semester of 2019. Fig. 2 reports a synthesis of the sources used for the mining of both primary and secondary data, including the realization of ten in-depth interviews.

Following the data collection stage, a qualitative text analysis was performed, intended to triangulate the output of interviews with the literature review and documentary analysis, and enhance the trustworthiness of the results. Therefore, primary information and secondary data and literature were integrated, elaborated, and synthesized, considering the new conceptual model, thus supporting the understanding of biocultural-oriented rural territorial development processes.

This process of analysis led to the identification of both dynamization needs and capacity building demand in Garfagnana in the same way as in the other seven territories. Findings from each of the case studies were then jointly compared by all the research teams, showing a high level of consistency, and allowing for the elaboration of a common educational profile. The new profile was designed by means of a process of desk analysis and participatory discussion, involving all the researchers of the SUS-TER partnership and some key informants of the different territories.

With the aim of discussing and validating the shared needs and the identified learning outcomes, focus groups (Herr, 2007) and "dialogues of knowledge" (diálogos de saberes), were organized with local actors and stakeholders of the different territories. In the case of Garfagnana, a multi-stakeholder (i.e., agricultural, and rural tourism entrepreneurs, representatives of local institutions and associations) focus group was organized.

4. Results

The results are summarized in the following paragraphs, thus: i. giving evidence of the Garfagnana area criticalities and biocultural potential (Section 4.1), ii. describing three illustrative initiatives of biocultural heritage valorization, highlighting the underlying territorial dynamics as well as related drivers and outcomes; and iii. analyzing these initiatives from the perspective of biocultural-oriented territorial approaches to rural development (Section 4.2). On these bases, the presented valorization initiatives are characterized in the light of the five critical processes of rural territorial development based on biocultural identity defined by our conceptual model (Section 4.3). Accordingly, relevant context-specific dynamization needs and arising demand for capacity building are outlined (Section 4.4). Building on that, a new interdisciplinary profile of TE is proposed and described in Section 4.5.

4.1. Garfagnana territory conflicts and potential related to biocultural heritage valorization

Garfagnana is the northernmost area of the province of Lucca in Tuscany (Italy). Uniquely, the territory is enclosed between the two mountain ranges of the Apuan Alps and the Apennines (Fig. 3). As an inner mountain area, Garfagnana is characterized by relative isolation and a decreasing population with a very low density (53.97/km²). At the

² SUS-TER is an Erasmus + Capacity Building project entitled "Networks of knowledge, skills, and competencies for an inclusive and sustainable territorial valorization of cultural heritage, products of origin and biodiversity", involving universities, institutions, and other public and private territorial actors, coming from both Europe and Latin America.

³ Specifically, the following rural territorial contexts were considered and compared: Garfagnana (Tuscany), Italy; Alt Urgell (Cataluña), Spain; Región Chorotega, Costa Rica; Turrialba Jimenez, Costa Rica; Municipio de Santa Catarina de Minas (Distrito Ocotlán, Oaxaca), Mexico; Municipio de Chilón (Selva Norte Chiapas), Mexico; Departamento de Caldas, Colombia; Cuenca del Río Quindío (Cordillera Central de los Andes), Colombia.

Primary data sources	Affiliation	No. of interviewees
	Tuscany Region Offices	3
	Association of European Regions for origin products	1
	National Association of Italian Municipalities (ANCI)	1
	Local Action Group (LAG) <i>MontagnAppennino</i>	1
	Union of Municipalities of Garfagnana (UCG)	1
	Community of Food and Agrobiodiversity of Garfagnana	1
	Information and Tourism Reception (IAT) of Garfagnana	1
	Local producer cooperative	1
Main secondary data sources	Description of data sources	Websites
<i>Tuscany Region legislation and programmes</i>	Tuscany Region Laws and Regulations published on the Official Gazette of the Tuscany Region	https://www.regione.toscana.it/regione/speciali/burt
	Tuscany Region Rural Development Plan 2014-2022	https://www.regione.toscana.it/psr-2014-2020/cos-e
<i>Tuscany Region official documents and reports</i>	Integrated Local Development Strategy – GAL <i>MontagnAppennino</i>	https://www.montagnappennino.it/wp-content/uploads/2017/01/SISL-SCHEDA-PF.pdf
	Leader Method: LAGs, notices, tenders, and their integrated local development strategies	https://www.regione.toscana.it/psr-2014-2020/leader
	Tuscany Region/Agrobiodiversity webpage	https://www.regione.toscana.it/agrobiodiversita%C3%A0
	Tuscany Region / Typical Products webpage	https://www.regione.toscana.it/prodotti-tipici
	Tuscany Region / Sustainable Productions webpage	https://www.regione.toscana.it/produzioni-sostenibili
<i>Statistical data</i>	Tuscany Region Official Statistics	https://www.regione.toscana.it/statistiche/dati-statistici
	Statistics of the Tuscany Region Institute for Economic Planning	http://www.irpet.it/agricoltura
	IV Italian Agriculture Census 2010	https://www.istat.it/it/censimenti-permanenti/censimenti-precedenti/agricoltura/agricoltura-2010
<i>Studies conducted by universities and research centres within EU- and local funded projects</i>	Contracts 2.0 – Innovative contracts for farmers and nature, financed: European Union, Programme Horizon 2020.	https://www.project-contracts20.eu/practice-policy-briefs/
	PROMETEA Project – Promozione della multifunzionalità del settore agro-turistico, funded by EU Interreg Programme.	https://interreg-maritime.eu/web/prometea
	VIVIMED Project – Servizi innovativi per lo sviluppo della filiera del turismo nell'entroterra dell'area mediterranea, funded by: EU Interreg Programme.	https://interreg-maritime.eu/web/vivimed/-/on-line-il-video-vivimed-garfagnana
	VAGAL Project – Valorizzazione genotipi animali autoctoni, funded by: EU, Cross Border Cooperation.	https://www.progetto-vagal.eu/index.php?newlang=italian
	Home Gardens – I Semi del Sapere Project, funded by: Union of Municipalities of Garfagnana.	https://comunitadelcibo.it/i-semi-del-sapere/
<i>Media sources</i>	Local newspapers websites, blogs, and others	

Fig. 2. The territory of Garfagnana case study data sources.

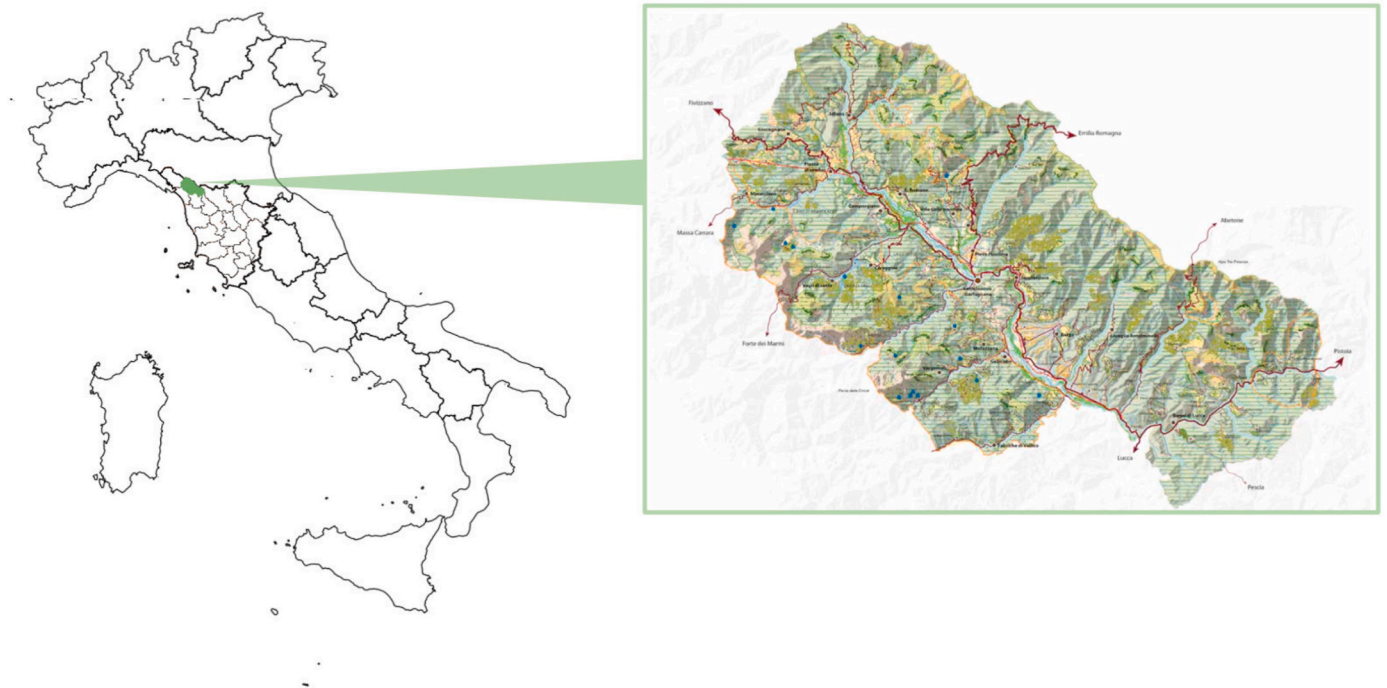


Fig. 3. The Garfagnana territory located in the northernmost area of the province of Lucca in Tuscany (Italy). Source: Authors' elaboration on [Osservatorio Regionale Paesaggio Toscana](#).

same time, the territory stands out for its rich biocultural heritage, including high-value natural green spaces, typical villages as well as local products and traditions, which form the basis for the development of rural and nature-based tourism.

Garfagnana is distinguished by its rural and mountain landscapes.

These are typified by successful attempts to harmonize nature and human intervention, and by a rich agrobiodiversity. Besides that, the typical natural heritage is protected by a network of nature reserves and parks, including the Apuan Alps Regional Park and the National Park of the Tuscan and Emilia Apennines, recognized by UNESCO in 2015 as a

Biosphere Reserve ([Gruppo di Azione Locale MontagnaAppennino, 2016](#)). In the territory, there are also important testimonies of art and architecture, such as Romanesque churches, monasteries, fortresses, and castles. This heritage has been enriched thanks to processes of proud re-cognition and valorization of the local actors' identity and culture, revived through religious rites, performances, and folk tales.

In addition, the agri-food sector shows important synergies between agriculture, processing, and local culture and traditions. Baskets of high-quality typical goods are supplied, characterized by the small scale of the productions and a direct and short-chain distribution. Significantly, some of these products have even been acknowledged as protected designations of origin (PDOs) or protected geographical indications (PGIs).

Although the Garfagnana biocultural heritage has retained significant specificity and integrity, the risks of abandonment or under-exploitation are today characterizing a growing part of it. As a matter of fact, contradictions are detectable if we consider local processes of development that many times over make short term economic interests prevail at the expenses of the environmental and socio-cultural ones. For example, since the Fifties, important attempts at industrialization have been made on the valley floor, with a focus on manufacturing and paper processing, largely underestimating the opportunities offered by agriculture (characterized by small scale farms, following quality differentiation market strategies) and tourism. Similarly, in the mountains, marble and stone mining conducted with modern techniques has been favored, despite its highly negative impacts on the ecosystem and landscape.

Despite the above conflicting interests, in recent years, local rural communities are undergoing relevant transformations, accelerated by the effects of the COVID-19 pandemic, that are opening the door to new development perspectives. Among these transformations, we identified the local actors' greater appreciation of biocultural capital value potential, the diffusion of multifunctional agriculture, the return to the countryside of original settlers or new younger residents, and a heightened focus of both citizens and consumers on the environment and the maintenance of local culture.

The abovementioned factors work as drivers for the emergence of new opportunities for biocultural-oriented agricultural diversification and higher territorial cohesion. Accordingly, an increasing commitment of local farmers, supply chain operators, and territorial bodies is favoring the creation of multi-stakeholder networks, and the realization of individual and collective initiatives. The latter are pursuing a synergic combination of public and private interests towards a higher level of agricultural sustainability, tourism development, agrobiodiversity and nature preservation, and the enhancement of typical products and traditions. Based on the interviewees' opinion, three initiatives were identified from the ones activated in Garfagnana as relevant examples to illustrate the dynamics of biocultural heritage valorization.

4.2. Describing three illustrative initiatives of biocultural heritage valorization for rural territorial development in garfagnana

4.2.1. Protection and valorization of endangered agrobiodiversity resources in a supply chain logic: Formenton Ottofile maize of garfagnana

Ancient maize varieties have an important cultural and symbolic value for Garfagnana, being part of the local agricultural culture and culinary tradition. The conformation of the territory, its relative isolation, and the small-scale of most local producers, have made it possible to maintain some landraces despite the spread of hybrid varieties, characterized by higher productivity and more adequate to modern distribution.

Formenton Ottofile maize of Garfagnana is one of the 5 varieties at risk of genetic erosion present in the territory, and it is emblematic of many other landraces. The recognition and qualification of the value of the resource occurred thanks to a process that involved various actors. The recovery of this kind of maize was initiated by a small farmer in the

area, with the support of the *SlowFood* organization. In 2005, a project of the Tuscany Region Agricultural Development Agency characterized the specific maize germplasm and, in 2009, the resource was registered as an endangered landrace in the Tuscan Regional Repertories of local breeds and varieties ([Tuscany Region Law 64/2004](#)). Lately, it was also registered in the new National Register of endangered agrobiodiversity ([Italian Parliament National Law 194/2015](#)). In addition, other studies, carried out by the University of Pisa, have highlighted interesting nutraceutical properties of the landrace, such as the high content of phenols, flavonoids, and carotenoids ([Ercoli et al., 2018](#)).

The activation of collaborations between private and public stakeholders was fundamental for the recovery and conservation of the threatened genetic resource. The maize genetic material is conserved in a section of the Regional Germplasm Bank, managed by the Union of the Municipalities of Garfagnana, while its reproduction is carried out *in situ* thanks to a network of custodian farmers (currently 5), officially recognized by the specific [Tuscany Region Law 64/2004](#). It is important to highlight that both custodian farmers and the Germplasm Bank became part of a new Community for Food and Agrobiodiversity of Garfagnana, operating as a multi-stakeholder network for local biocultural heritage protection and valorization (Section 4.2.2).

The local genetic resource recovery also facilitated the realization of valorization initiatives. An association of small local producers was initially created, leading to the registration of a collective mark for the protection and the qualification of a geographical indication for the maize product, and the tracing of the derived flour. Despite this, the mark is now very rarely used, and the maize is valued mainly by a plurality of collective or individual initiatives, led for the majority by local mills and targeting local and traditional markets. Importantly, the product shows an easier market allocation and has been able to achieve significant premium prices, at both production and consumption level.

Interviews highlighted that the existing synergy between public and private stakeholders was fundamental for the success of activated initiatives of landrace recovery, conservation, and valorization. Despite this, some need for support emerged for the enhancement of the landrace market potential. In particular, dialogue and interconnections for greater coordination and collaboration among local farmers and custodians, and between them and other agents of the local supply chain (e.g., mills, restaurants, processors, small retailers, etc.) require facilitation. This could lead to a higher traceability and transparency of the supply chain, the strengthening of maize product qualification (e.g., reinforcement of the adopted collective mark), and the realization of collective growth strategies (e.g., development of new maize-based products, adoption of biodiversity or sustainability certifications, creation of new high value market niches). To that end, also, the fundamental interlinking of producers and market operators with other relevant territorial actors and stakeholders (such as research institutes, local bodies, associations) should be boosted.

4.2.2. Multi-actor governance model and operative network for biocultural heritage valorization: the Community for Food and Agrobiodiversity of Garfagnana

An interesting initiative of territorial animation and multi-actor dialogue is the creation of the Community for Food and Agrobiodiversity of Garfagnana. The latter was founded in 2017 in the wake of the new [Italian Parliament National Law 194/2015](#) on agrobiodiversity. The Community was created by the initiative of the Union of Municipalities of Garfagnana, with the collaboration of the Tuscany Region Administration, and the financial support of the competent Regional authority through the activation of specific 2014/2020 Rural Development Plan measures.

The Community represents an innovative cross-sectoral multi-actor governance model and operative network, aiming at a synergic coordination of local policies and private actions, towards a sustainable and inclusive valorization of Garfagnana agrobiodiversity and related biocultural heritage. Key objectives of the Community are: the sensitization

of local actors on the potential of biocultural resources, the building of trust and collaborations between stakeholders with different backgrounds and skills (i.e., farmers, custodians, local food system operators, agritourism, associations, citizens/consumers, and institutions), the inclusion and engagement of actors with fewer opportunities (specifically women and young people), and the promotion of biocultural-oriented short supply chains and food systems.

The Community adopted different strategic and operational tools (Innocenti et al., 2018). At first, a Community Charter was signed by 54 members for the Community set up (*Comunità del Cibo della Garfagnana*, 2017a). The Charter aims at regulating its organizational structure, and it defines both the principles and rules that the members should follow. Secondly, a Pact for Food and Agrobiodiversity (*Comunità del Cibo della Garfagnana*, 2017b) and a Strategic Plan were created, supporting the identification and implementation of the Community actions, and the related available financial resources.

Currently, the Community works as a social promotion association. Members consider themselves as part of an ethical and cultural movement for the protection and valorization of agrobiodiversity and biocultural resources as common territorial assets, the enhancement of the quality of life of local communities, and the promotion of a solidarity economy.

The Community fosters the activation of sustainable decision-making and action-taking processes, aiming to deal with emerging socio-cultural, economic, and environmental challenges, greatly worsened by the effects of the COVID-19 pandemic. To that end, it works as a collective agent in the realization of projects, such as the ones financed by Rural Development Programmes, and supports the design and coordination of collaborative initiatives among stakeholders.

Regarding these initiatives, interviewees highlighted in particular: the realization of participated projects for the qualification of landraces and market remuneration, as for the cases of Formenton Ottofile maize (Section 4.2.1), and local varieties of spelt and chestnut; the strengthening of local supply chains, considering the development of projects for food procurement, involving the school canteens of the territory; the enhancement of communication activities for promoting the territory, thus with particular reference to a dedicated Community website (www.comunitadelcibo.it) and social networks; the realization of collaborative censuses and studies for the monitoring of associated producer resources and needs, and the provision and funding of possible collective solutions for improvement (e.g., performance of a census of agricultural machineries to understand the convenience of collective purchase or rental).

Furthermore, thanks to the initiative of the Tuscany Region Administration, the Community was also recently registered in the Italian National Registry of Food Districts (*Italian Council of Ministers Legislative Decree 228/2001; Italian Parliament National Law 205/2017*), thus acquiring the possibility to apply for dedicated financial and legal tools, intended to support an inclusive and sustainable growth of local producers and food chains.

The presented activities are proving successful in supporting a higher level of commitment and collaboration by local actors. Nonetheless, the interviews also highlighted critical aspects such as, specifically, the difficulty of maintaining stakeholder efforts constant, the need to enhance the local actors' ability to accompany the realization of collective valorization strategies, the lack of effective tools for the co-creation and diffusion of knowledge on underutilized or neglected landraces and landrace-based products.

4.2.3. The Local Action Group MontagnAppennino: LEADER approach for supporting the community, the supply chain, and territorial integrated project planning activities

The Local Action Group (LAG) *MontagnAppennino* is a non-profit consortium company operating in Garfagnana as well as in the neighboring mountain area of the Pistoia Apennine. Based on the EU rural development policy LEADER approach (European Commission, 2006),

the LAG was created in 2016 by the joint initiative of both public and private bodies situated in the Tuscan provinces of Lucca and Pistoia.

The aim of the LAG is to act as a localized partnership, acting consistently with EU, national and local programming, for the identification, implementation, and financial management of a local development strategy, in a bottom-up co-designed approach. Specifically, it incentivizes and accompanies territorial approaches to the development of Garfagnana rural and inner areas, based on the protection and valorization of local specific natural resources, typical products, culture and traditions.

Through the promotion of collaborative projects involving different stakeholders (public bodies, private companies, associations), the LAG supports agricultural and forestry competitiveness, quality of life, and the enhancement of the rural environment. In the area of Garfagnana, the LAG sustains projects intended to promote the valorization of biocultural heritage and local products, the diversification of incomes, the development of rural tourism, and the requalification of small villages and agro-silvopastoral landscapes. Its commitment is to restore the synergic connections between rural areas and the surrounding environment, and make the territory into an active player in innovative and integrated projects.

By issuing funding calls, the LAG implements measures aimed at both public and private actors, operating in the fields of agriculture, tourism, crafts, trade, and culture. In this regard, it activates individual calls for tenders together with collective instruments such as: on the one hand, Integrated Territorial Projects, aimed at favoring the realization of public-private initiatives for territorial development by sustaining concertation and networking; on the other hand, Integrated Supply Chain Projects, for the creation of collaborative supply-chain partnerships and research and innovation initiatives intended to foster the creation of agrobiodiversity-oriented and short supply chains in different sectors, i.e., forest-wood-energy, quality livestock production, mountain fruit, grain growing, and rural tourism.

In addition, interviewees highlighted the importance of an innovative initiative the LAG is carrying out, in collaboration with other Tuscan LAGs, the Tuscany Regional Administration, and the Italian National Rural Network, to support the realization of co-created bottom-up projects for the regeneration of local communities. To this end, the LAG plays an important role in facilitating the gathering of local actors' opinions and needs, in raising their awareness about biocultural heritage and the recognition and protection of common territorial resources, and the development of related collective valorization strategies. In this sense, the creation of local partnerships is sustained, considering the need to involve a diversified group of actors, including institutions, farmers, supply chain operators, associations, cooperatives, schools, and citizens that should be recognized and start acting not only as stakeholders but above all as rights bearers.

As in the last point, the interviews outlined a few challenging aspects regarding the LAG's role in fostering territorial dynamization and development. Importantly, the maintenance and expansion of the LAG structure requires the availability of trained human resources and professionals, capable of acting both as animators and facilitators of the complex of dynamics involving territorial actors' intentions, actions, and interactions, at both the local and non-local levels. In the same way, a continuous dialogue between LAG, the Tuscany Regional Administration and other local entities should be maintained, favoring the exchange of knowledge and the coordination of actions for supporting local actors as they move towards inclusive and sustainable processes of development.

4.3. Analyzing garfagnana biocultural heritage valorization initiatives in the light of critical processes of rural territorial development

The identified conceptual model (Section 2.2) was operationalized, as related to the characterization of the above-described biocultural heritage valorization initiatives in the perspective of five critical

processes of rural territorial development based on biocultural identity (Fig. 4).

It is important to highlight that there is a close connection between the three valorization initiatives analyzed within the territory, understood as critical processes. For example, they all focus on the local biocultural heritage, they involve a few common actors and stakeholders, and they share some common goals. In addition, these processes develop in synergic, or sometimes conflicting ways, influencing the opportunity to reach the desired goals and achieve greater cohesion at territorial level. In this sense, it is important to emphasize that, in a perspective of cohesive territorial development, increasing synergies between these initiatives and processes (and among others present in the territory) is fundamental.

4.4. Identifying dynamization needs and capacity-building demand affecting garfagnana biocultural heritage valorization for rural territorial development

The analysis of Garfagnana biocultural heritage valorization dynamics in the three initiatives above highlights both the success factors and the criticalities – in terms of gaps of decisions and actions by local actors – that affect the realization of critical processes of rural territorial development. Building on that, thanks to the conduction of both in-depth interviews and a focus group, relevant dynamization needs were detected in the three initiatives, together with a related demand for capacity building. As shown in Fig. 5, that information was interpreted and summarized according to the five process macro-categories included in the model we designed (Section 2.2).

As shown in Fig. 5, we intend capacity building demand as the set of capabilities that individuals, operating in (local and non-local) organizations and communities, are asked to acquire in order to act as facilitators and supporters of territorial actors' empowerment, activation, and commitment towards the realization of inclusive and sustainable biocultural-oriented territorial approaches. Considering this, the presented scheme was used as a primary input in the structuring and specification of the new interdisciplinary profile.

4.5. The territorial enhancer: a new interdisciplinary profile

The dynamization needs and capacity-building demand identified through the model described and its operationalization, in the case of Garfagnana as well as in the other seven territories of the SUS-TER project sample, were compared, integrated, and rationalized, leading to the design of a new *territorial enhancer* (*dinamizador/a territorial*) profile, based on a complex interdisciplinary integration.

The profile of TE is addressed to different human resources, to be trained at both local or at a wider territorial level, for acquiring the capacity to work either individually or in private and public organizations, for the “activation and facilitation of the processes of sustainable management and inclusive valorization of cultural heritage, products of origin, and biodiversity in rural areas” (Belletti et al., 2022b). Consistently, four learning outcomes were identified for the TE profile construction and implementation (Fig. 6).

Considering the profile aims and the diverse capacities required by TEs, the presented learning outcomes are described as follows:

- *Identification, characterization, and mapping of the actors and the biocultural resources of a determined territory, in order to highlight their specificities and accompany their appropriation by local actors.*

This learning outcome is intended to increase TEs capacity to detect and highlight local biocultural resources specificities, and accompany processes for their appropriation by local stakeholders. In this area, TEs should acquire capacities to promote the active involvement of local actors in the co-construction of biocultural-oriented valorization processes.

In this sense, firstly, TEs should become capable of facilitating local actors in making common memory for the recognition and valuation of their own identity and biocultural heritage, thus stimulating their activation and empowerment. As a result, cultural and socio-economic impoverishments affecting rural areas can be counteracted. Secondly, support is needed in rural areas to boost injections of external knowledge and human capital, considering the revitalizing role of newcomers,

RTD PROCESSES	INITIATIVES		
	Formonten Ottofile Maize of Garfagnana recovery and valorization	The Community for Food and Agrobiodiversity of Garfagnana	The role of Local Action Group <i>Montagn'Appennino</i> in enhancing Garfagnana biocultural heritage
Activation and empowerment of local actors	<ul style="list-style-type: none"> • Sensitization of producers by the Tuscany Region Administration and local competent authority to the characterization and recovery of the local maize genetic resource at risk of genetic erosion. • Producers' collaboration with local competent authority for the genetic characterization and germplasm recovery and conservation. • Dissemination among local producers of good practices of maize seed farming and cultivation. 	<ul style="list-style-type: none"> • Support of territorial bodies for social animation activities, involving operators and consumers. • Fostering awareness of their potential in young farmers, innovative and multifunctional farms, and supply chain operators. • Growing proactivity and commitment of local actors towards the recovery, conservation and sustainable use of agrobiodiversity and the related local biocultural resources. • Recognition by institutions, practitioners, and local people of the possible benefits of being and acting as a community for reducing power and information asymmetries in the realization of effective strategies for biocultural resource valorization. 	<ul style="list-style-type: none"> • Support for the sensitization and animation of territorial actors and local communities (e.g., farmers, supply chain operators, citizens/consumers) to foster the valorization of local biocultural heritage. • Issuing of funding calls to implement RDP measures incentivizing the activation and collaboration of public and private actors. • Financial incentives and support for local communities' capacity for co-planning and self-determination. • Fostering the shift from a logic of stakeholders to a logic of rights bearers in considering local actors' participation.
Networking and coordination of local and non-local actors	<ul style="list-style-type: none"> • Regional Germplasm Bank local section (originated by a collaboration between municipalities) (LR 64/2004) assures the availability of traced seeds. • Local producers contacting and linking with SlowFood Association. • Development of relations of producers with local mills and local retailers. • Activation of the Conservation and Security Network (LR 64/2004), involving custodian farmers, germplasm bank and local and regional competent authorities. • Link with universities and research centers for the realization of collaborative research and action projects. 	<ul style="list-style-type: none"> • Involvement and collaboration of territorial bodies, (custodian) farmers, small farms, local citizens/consumers, processors, universities, and research centers towards the creation of stable multi-actor networks, as a basis for the community creation. • Link with universities and research centers, for the realization of collaborative studies and project planning. 	<ul style="list-style-type: none"> • At a local level, LAG is a non-profit consortium company, including both public and private local actors. • Encouragement of local actors and communities' self-organization and networking for the design and implementation of multi-stakeholder valorization strategies as a lever of territorial development. • Link with universities and research centers (collaborative studies and strategic planning).
Identity and value recognition of biocultural resources and products	<ul style="list-style-type: none"> • Recognition of specificity and market potential, also through scientific studies. • Maize product identification by defining common rules and creating a collective mark (involving local producers and mills, but not custodians). • Risk of confusion and imitations. 	<ul style="list-style-type: none"> • Recognition by producers, operators, and institutions of the multiple value potential of agrobiodiversity and local biocultural heritage valorization through agrifood products, both fresh and processed. • Agrobiodiversity and biocultural resources product qualification and marketing by custodians (LR 64/2004), other farmers, and supply chain operators. 	<ul style="list-style-type: none"> • Promotion of local biocultural resources specificities and multiple value potential through participated sensitization and dissemination initiatives. • Support for the development of collective processes for the qualification and marketing of biocultural products.
Integration of activities in the territorial context	<ul style="list-style-type: none"> • Maize flour is the basis of many local dishes that are important elements of the gastronomic heritage of the territory. • Development of producers' relationships with restaurants and local consumers to foster product authenticity. • Link with integrated tourism development (agritourism, festivals, gastronomic routes). 	<ul style="list-style-type: none"> • Co-design and implementation of supply chains and territorial strategies for promoting baskets of high-value agrobiodiversity and biocultural goods and services. • Dialogue with local restaurants and public canteens for activating food procurement agreements. • Dialogue with local schools for organizing sensitization initiatives. 	<ul style="list-style-type: none"> • Incentivizing innovative ideas for the realization of integrated territorial development strategies enhancing common biocultural goods and services.
Multilevel territorial governance	<ul style="list-style-type: none"> • At local level, there are no real governance settings but instead a plurality of initiatives, individual and collective (led for the most by local mills). • Link with the upper Regional Law 64/2004 and policies for the protection and valorization of agrobiodiversity. • Link with National Law 194/2015 and policies for the protection and valorization of endangered agrobiodiversity (support and regulation). 	<ul style="list-style-type: none"> • At a local level, formal governance settings were developed as the basis for the Community organization and management (charter, pact, and association). • Link with the upper Regional Law 64/2004 and policies for the protection and valorization of agrobiodiversity. • Link with National Law 194/2015 and policies for the protection and valorization of agrobiodiversity (support and regulation). • Link with National Law 205/2017 institutionalizing Food Districts and Legislative Decree 228/2017 regulating them. 	<ul style="list-style-type: none"> • Link with the EU LEADER Strategy and EU Rural Development policy. • Link with Italy's National Strategy for “Inner Areas” (2013) (place-based policy framework).

Fig. 4. Critical processes of rural territorial development based on biocultural identity in the territory of Garfagnana. Source: Authors' elaboration on primary and secondary data.

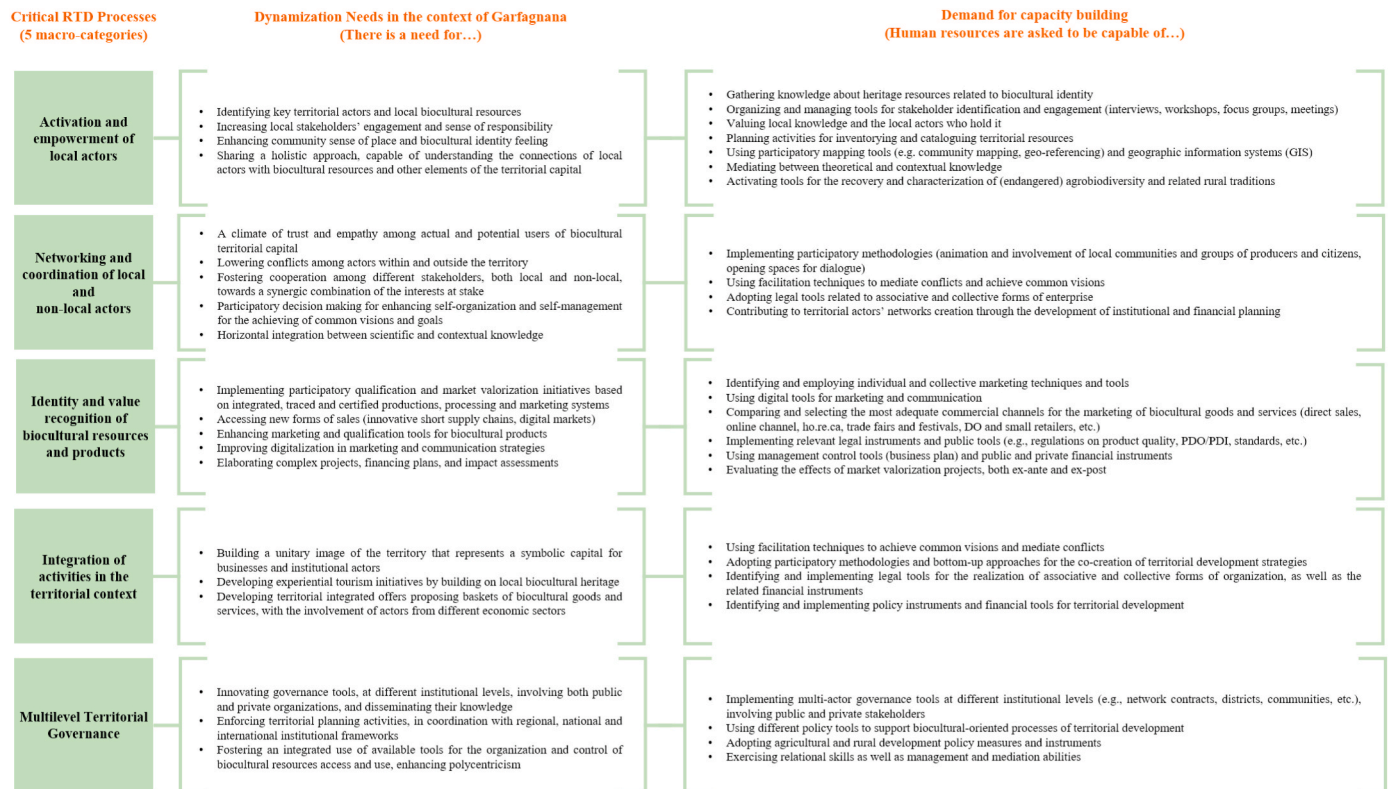


Fig. 5. Context-specific dynamization needs and demand for capacity building. (Source: Authors' original work).

contaminations, and connections with external networks, and the role of organized forms of territorial animation. In this sense, TEs should be capable to combine actors and knowledge from inside and outside the territory.

- *Adoption of territorial approaches for the elaboration of development strategies that mobilize and connect actors and local natural, social, and cultural resources, guaranteeing inclusion and sustainability.*

This learning outcome intends to strengthen TEs' capacity to understand the activated territorial dynamics, in both their internal and external articulations (including the new urban/rural relations and new population movements - i.e., emigrations, returns to the countryside, double residence), and contribute to the design and implementation of sustainable and inclusive territorial strategies, aimed at shaping multi-dimensional development alternatives for coping with (climatic, environmental, and even pandemic) crises. In this regard, TEs should be capable of identifying the internal and external conflicts affecting the recognition and valorization of biocultural heritage potential, promote social mobilization of different sectors (Gordillo, 2021), favor dialogue and meetings among stakeholders and the forging of pacts and alliances. As a result, undertaking leaderships based on an authoritarian and exclusionary culture can no longer be accepted; therefore, the affirmation of leaderships based on the respect of individual and collective rights becomes a key goal, thus even leading to the questioning of deeply rooted cultural patterns (e.g., gender).

- *Design and implementation of plans for insertion into markets that mobilize values based on territorial biocultural heritage, through the production of goods and services by innovating based on local knowledge within ethical and sustainability criteria.*

The aim of this learning outcome is to reinforce TEs' capacity to

carefully consider the specificities of local resources and recognize their collective dimension and multiple values. This recognition can work as the starting point for the valorization of biocultural heritage through market mechanisms, centered on the production and sale of goods (e.g., products of origin) and services (e.g., hospitality), and by innovating based on local knowledge within ethical and sustainability criteria. In this sense, TEs' capacity to exercise critical and innovative thinking should be boosted, with the aim of bridging and balancing the recognition, respect and valorization of culture and traditions with the incorporation of innovation, extra-territorial networks, and international knowledge. Also, TEs should be capable of stimulating and accompanying the creation of collective and collaborative multi-actor strategies for biocultural goods and services qualification. Accordingly, TEs should increase their knowledge and expertise on the adequate quality marks for use from those linked to the territory (e.g., designations of origin, collective marks, certification or guarantee marks, others not regulated by intellectual property rights).

- *Design and implementation of local systems of governance, organization, management, and evaluation of processes for the valorization of cultural heritage, products of origin and biodiversity that allow for the strengthening of dialogue, articulation, and autonomy.*

This learning outcome aims to boost TEs' capacity to contribute to the creation and strengthening of governance settings and management mechanisms that are effective in supporting the realization of inclusive and sustainable biocultural heritage valorization strategies, generating and fairly distributing multiple (social, economic, environmental) benefits, and targeting a balanced fulfilment of the private and public interests at stake, at both local and at a wider territorial level (Scaramuzzi et al., 2021). In this regard, TEs should be capable of linking the understanding of territorial dynamics and the realization of territorial strategies with the system and formal rules of local planning and



Fig. 6. The territorial enhancer interdisciplinary profile: identified learning outcomes. (Source: Authors' original artwork).

investment, through the continuity of proposals and initiatives, at regional and local level, and its cross-sectoral articulation. Accordingly, territorial actors' autonomy and sense of agency should be stimulated by TEs, who should also help to improve the dialogue and interconnections among territorial actors and with networks outside the territory.

Transversally to the four learning outcomes above, a set of relevant attitudes were also identified as fundamental requirements to be accrued by TEs to help them immerse themselves in the territory, become familiar with local criticalities and social and political dynamics, and work in an integrated manner. In particular, TEs should reinforce their willingness to commit with rural areas and local people; consolidate their vocation to service and their social sensitivity; improve their inclination for leadership, mediation, and conflict resolution; be open to dialogue, listening, and empathy; increase their relational capacity to interact with diverse actors; develop a strategic vision and be open minded or interested in different disciplines (Belletti et al., 2022b).

In order to target the above-described learning outcomes and attitudes, a dedicated course was designed within the SUS-TER project for supporting the new profile implementation (Belletti et al., 2022b). The course stands out for the innovative nature of its structure, learning methodologies, and training methods. These innovations foster its flexibility, and the possibility to be adapted and respond to the needs of different countries and contexts.

Flexibility and contextualization are primary elements of innovation

of both the TE profile and the course. Indeed, the systematization of the experiences we encountered in the different territories during the project implementation highlights that, in operational terms, TE training can greatly vary from territory to territory, considering that:

- TEs are mainly local actors (not academics). In some cases, they belong to local communities, or citizens' organizations (involving young people, women, indigenous peoples, Afro-descendants, etc.), and act as young leaders who are familiar with their territory, and have access to new tools (e.g., digital technologies, transports) and skills (e.g., medium-high level of education, communication, and social networking skills). In other cases, as in the case of Garfagnana, they are workers, strongly committed to the territory in which they operate (and live), employed in NGOs, municipalities, associations, or local authorities;
- TEs can be remunerated in different ways, according to the type of actor involved. In the case of citizens' organizations, remuneration might be founded on principles of local governance, and either be provided in kind (e.g., exemption from community works, participation as delegates in events, training, and travel) or based on own-contributions systems. When employees of associations, NGOs, public authorities are involved, remuneration is regulated by institutional rules, also considering the participation of TEs in programmes and projects for territorial development, as in the case of

Garfagnana. Nonetheless, even if remuneration is not the only motivation, TEs are not volunteers;

- Lastly, there is a need to highlight that the function of the TE may vary according to what is required in each territorial context, in a specific period. TEs are not primarily committed to the identification of dynamization needs (that should be identified by local stakeholders), but instead they should accompany the dynamization interventions necessary at different times (e.g., for the case of Garfagnana, mapping biocultural resources, coordinating valorization strategies, designing dedicated investments, etc.). To that end, regardless of the context, TEs should be trained to be a pro-active part of multi-actoral teams, and co-facilitate processes of collective decision-making and action-taking, being aware of the impossibility to deal alone with the complexity of dynamization issues.

5. Discussion

Our study provides an analysis of the virtuous aspects, criticalities, and needs for improvement that characterize dynamics of biocultural heritage valorization for inclusive and sustainable rural territorial development. At the same time, it enables the identification of a shared demand for capacity building at territorial level, aiming at expanding human resources capabilities as a fundamental step for supporting the empowerment of local actors and the enhancement of territorial dynamization.

On a theoretical basis, we designed a new conceptual model (Section 2.2), working as an innovative tool supporting the analysis of key processes of rural territorial development based on biocultural identity, and their enhancement through the design and implementation of capacity building approaches.

The Garfagnana territory provided a typical case study for the model validation. On the one side, the results highlight the role that the recovery and valorization of rural biocultural heritage can play in feeding processes of multidimensional transformation towards a higher agricultural sustainability and territorial cohesion (Ranaboldo and Schejtman, 2009; Turner et al., 2018; Maffi, 2018; Hanspach et al., 2020; Ortiz et al., 2021; Labadi et al., 2021). On the other side, they evidence that more efforts are needed to enhance territorial dynamization, by reducing institutional weakness and social constraints, through the strengthening of human development and territorial actors' empowerment (Narayan, 2002; Penati and Buttari, 2007; Clark et al., 2007; Venegas, 2009; Fischer and McKee, 2017; Winkel et al., 2020; Berdegue et al., 2020).

On these bases, we identify territorial dynamization needs, and interpret these in light of a concrete demand for capacity building. As significant evidence, the dynamization needs and capacity building demand outlined for the case of Garfagnana are confirmed in the other seven territories, thus proving the designed model efficacy, and opening the space for the elaboration of a common educational response.

The model operationalization and validation within the scope of the SUS-TER project contribute to boost a new conception of local actors' involvement in strategies for rural territorial development: passing from the logic of mere participation to the one of territorial dynamization and co-responsible agency (Costamagna et al., 2013; López-García et al., 2015; Boucher and Riveros-Cañas, 2017). In this regard, the key role of human resources is recognized and strengthened (Bodin and Crona, 2012; Jungsberg et al., 2020) with respect to the enhancement of their background of knowledge, skills, and competences, in accompanying territorial actors through processes of identity recognition, biocultural heritage and related value identification (Sánchez Aguilar et al., 2021; Chacón Rivera, 2021; Slater, 2022), and the activation and reproduction of reciprocal dialogue and interconnections for mediation and collaboration.

Consequently, the creation of networked territorial intelligences is pursued, based on reduced knowledge asymmetries, a higher power of decision and action (Sen, 1995, 1999; Liu et al., 2020), and leading to

the self-organization and self-management of territorial capital and biocultural identity valorization (Du et al., 2019; Winkel et al., 2020).

In line with this, as shown in Section 4.5, the role and potential of the new TE profile were identified, based on the Garfagnana case study results, and coherently with the ones from the other analyzed territories (Belletti et al., 2022b). Specifically, TEs – operating with or within local rural areas – show a capacity to decide and act to facilitate the realization of *commoning* processes by territorial actors or support their “actions of mutual aid, negotiation, communication and experimentation, mobilized for the dynamic management of shared resources” (Winkel et al., 2020, p.436 on Bollier, 2015).

In many contexts and circumstances, actors playing as territorial enhancers emerge spontaneously, thanks to their innate qualities, operating locally or at a wider territorial level, thus becoming true catalysts and activators. Unfortunately, this situation does not always occur, and in some territories, capacity building is needed for dynamization (Universidad de Caldas, 2019).

In this sense, two major challenges can be identified: on the one hand, strengthening the capacity of the enhancers already active in the territories; on the other hand, stimulating the emergence of TEs where they are not present, supporting their mobilization, the recognition of their role, and their integration in local contexts.

Starting from the challenges above, the construction and implementation within the SUS-TER project of the new interdisciplinary profile (Section 4.5) for the education and training of TEs proved highly innovative, even if different actors have already been identified in the field of extension, vulgarization, adult education, and learning, fulfilling the role of animators, catalysts, or facilitators (Landini et al., 2017; Cristóvão et al., 2012). Nonetheless, no dedicated educational profile existed yet, explicitly entailing the full range of knowledge, skills and competences needed for accompanying paths of social innovation and rural territorial development with bio-cultural identity.

As for the target, we took into consideration not only students, but also practitioners, and other human resources active in communities or in public or private organizations, both at local and non-local level (Ranaboldo, 2021). As a matter of fact, at times the need for actors playing as TEs was originated or favored by specific public policy interventions, as in the case we saw involving the Garfagnana Local Action Group, which includes a position of territorial animator. In other cases, private collective strategies may require and foster the inclusion and valorization of TEs. For instance, within the scope of the analyzed territories and biocultural valorization initiatives, this applies to the case of coffee routes in the Caldas Department (Colombia) (Universidad de Caldas, 2017; Polanía Obando et al., 2019). Also, it has proved relevant in indigenous handicraft and typical products collective valorization strategies in the Municipality of Chilón (Selva Norte Chiapas, Mexico) (INEGI, 2010; SEDESOL, 2017; Soloaga et al., 2019).

Significantly, the innovative nature and relevance of the profile are grounded in the capacity building approach and PAR methodology embraced by the SUS-TER project. Indeed, the possibility to activate, in Garfagnana as well as in the other seven analyzed territories, contextualized and collective processes of investigation and mutual understanding - involving academy, research institutions, and territorial actors – supported: i. the recognition of the knowledge and know-how systems already present locally, and of the role of the local actors that sustain them (Torre et al., 2023); ii. the testing of the validity of these systems to support major changes in territorial contexts and the surrounding environment (Lehébel-Péron et al., 2016); iii. their enhancement, by creating connections with new knowledge and practices, both scientific and practical, with reference to new technologies and market trends. As a result, the co-designed TE profile proves to be adoptable in different contexts, and capable of fostering favorable multilevel co-learning environments, and of responding to local territorial dynamization gaps and lack of capabilities (Maffi and Woodley, 2012; Costamagna and Larrea, 2015; Maffi, 2018; Barboza Arias, 2021).

In light of the above, we expect the proposition of a bottom-up

approach adapting education and training to territorial specificities and the valorization of local diversity of knowledge and resources to sustain processes of both: i. *educational transformation* (Triana and Burkart, 2023), based on the activation and maintenance of a horizontal dialogue among local, national and international experiences, and a higher sensitivity, territorial rootedness, and coherent vision of teachings and curricula; ii. *social innovation* (Díez Palomar and Flecha García, 2010; Nordberg et al., 2020), by seeking to meet the impelling need to question existing power and inequality patterns in local biocultural heritage access and control, affecting rural territories and local actors (Burke et al., 2023). As an outcome, the generation of concrete change in rural territories and communities through empowerment is pursued, aiming at a long-lasting impact on social wellbeing, sustainability, and cohesion.

6. Conclusions

Our work contributes to the understanding and enhancement of rural territorial development processes based on biocultural heritage valorization through capacity building. This is a fundamental approach for accompanying the local actors' empowerment and territorial dynamization paths and feeding the major changes needed in educational and training institutions.

As a support to the implementation of the approach, a new conceptual model was designed and operationalized in the paper, thus favoring the proposal, testing, and validation of multiple innovations.

At first, we highlight the relevance of placing identity and cultural heritage, as well as biodiversity, at the very center when considering processes of rural development. Specifically, we foster their role as common territorial assets and pivots of multidimensional transformation in rural and inner contexts, contrasting emerging environmental and societal challenges, such as: climate change, diversity loss, rural-urban divide, new and different levels of poverty and inequalities, the growth of conflicts, and the complexification of related phenomena.

Secondly, we show that both profound productive and institutional changes cannot be imposed top-down, but must originate from enhanced dialogues, with and within the territories, as well as from the local actors' mobilization, knowledgeable decisions, and co-responsible actions. In this sense, the local actors' recognition, and use of the complex body of local knowledge and the very diverse practices rooted in the territory should be enhanced, in combination with their willingness to open to new conceptualizations and systemic complex innovations, certainly not limited to technology.

Accordingly, we underline the fundamental role of capacity building and promote a significant renovation of the current offer of education and training. This should entail not only the enhancement of the curricular contents of universities and training centers, but above all an innovation of the learning methodologies themselves.

In this sense, the SUS-TER TE profile and course aim to serve as a path finder. As a matter of fact, while recognizing the importance of bringing very different and distant territories and actors closer together (i.e., by combining virtual and face-to-face interactive learning approaches), the logic of learning that comes from local teachers and talents, with equal dignity with their peers, professors, and academic researchers, is here reinforced. Accordingly, territories become open multi-actor classrooms, where local individuals - independently from their previous level of education - can participate in the education and training processes, both as beneficiaries and teachers. As an outcome, the effective recognition of this type of knowledge is believed to be key in contributing to breaking paradigms, and stimulating processes of democratization, transparency, and inclusion of different sources of knowledge.

To this end, experiences such as those gained within the SUS-TER project need clear and scalable strategies. Renovated but limited and scattered educational and training offers are not enough, and more efforts are needed to ensure higher levels of harmonization and

systematization. Hence, the idea *small is not beautiful* should work as a starting point for future research and action: meaning, even if the processes work well in each territory, they are still limited if they do not manage to go beyond and contribute to changes of greater magnitude and transcendence.

In this sense, a fundamental aspect is the contribution that co-learning networks – developed at international, national, and territorial level, can make to a sustainable scaling up, if the horizons and practices are shared, and generate trust and commitments in the medium and the long term.

On these bases, broad and deep multi-actoral processes can be sustained, contributing to constructively energizing the territories, supporting innovative policy actions, and developing territorial strategies that pursue greater sustainability and cohesion.

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Patents and intellectual property

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Author contributions

All authors have contributed equally.

Submission declaration and verification

We confirm that this manuscript has not been published elsewhere and is not under consideration by another journal.

All authors have approved the manuscript and agree with its submission to the Journal of Rural Studies.

We confirm that, if accepted, the paper will not be published elsewhere in the same form without the written consent of the copyright holder.

Declaration of competing interest

None.

Data availability

Data will be made available on request.

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