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# The role of urban agriculture for the governance of high natural values areas. New models for the city of Turin CollinaPo

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***Abstract***

**Ecosystem services and land-management policies in urban and peri-urban areas are topics of growing interest, because they maintain biodiversity and the production of ecosystem goods, such as food, wood and cultural/recreational values. The aim of the project is the monitoring and the analysis of management policies in the metropolitan context of natural park of Turin, recognized in 2016 as CollinaPo, UNESCO MAB (Man and the Biosphere programme). Since its establishment (1990), the Natural Park of Po Torinese encouraged connections between public and private territorial subjects. This action focused on forestry, wildlife management and planning network of public enjoyment. In order to identify the best strategies, cultural, agricultural and livestock best practices were analysed. The number and types of farms involved during the last 25 years were evaluated. The study analyses the management activities coordinated by natural Park Authority, by listing and quantifying significant actions to systemic governance of high natural values areas. The results showed the important role of urban farms for ecosystem services management, confirmed by the increasing of numbers and types of stakeholders that signed collaboration with natural Park Authority. These results address new models in agricultural and natural planning of green infrastructure of Turin. Therefore, it identifies strategic assets to develop urban governance models, bridging all the territorial actors. This approach will connect agricultural outputs and touristic inputs, promoting circular economy.**

**Key words**: ecosystem services, green infrastructure, MAB UNESCO, management, livestock

## INTRODUCTION

Turin is an interesting case for investigating the policies of territorial management and conservation of nature through the benefits of ecosystem services in urban and periurban environments. Indeed, although in the last Century the city of Turin has been connoted by its industrial development, the city has been able to preserve important natural, agricultural and forestry surfaces. Within the programme MAB UNESCO, the recent designation of CollinaPo as Biosphere Reserve emphasises a project of sustainable development for the city and its territories. The Biosphere Reserve involves the town and its nearby countryside, overall 85 municipalities, 1,519,529 inhabitants, 171,233.85 ha with 69% agricultural areas, 14% forests and semi-natural areas, 15% artifical surfaces (SiTI, 2015). The 14 core zones are mainly made up of natural reserves for a total area of 3,853.05 ha (2.25% of the entire Reserve) (Figure 1). With the support of different public and private Authorities, also multi-utilities organisations, the management of the natural areas of the river Po and the Hill of Turin Authority promoted the candidacy of CollinaPo. Therefore, it capitalizes almost thirty years of activities to integrate the institutional management policies of the Park institution with landscape and urban planning coordinated by the City of Turin (Porro, 2016), and it develops the model "Green infrastructure" within the strategic plan of the city of Turin 2015-2025.

Consequently, the Park Authority proposed this project as a territorial laboratory in the zoning areas of CollinaPo in the world net of Urban Biosphere Reserves. Its objective is to integrate the local best practices in the global context of valorisation of the urban agriculture and its ecosystem services in city planning (Artuso, 2015). In addition, it needs to test new models to manage and to enhance agricultural areas of high naturalistic

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value, in response to European expectations of adaptation to climate change. Among the main objectives of the CollinaPo Biosphere Reserve there is, on one hand, the strengthening of the links between agriculture, food production and forestry, and on the other, research and innovation, in order to improve management and environmental performance in the metropolitan context (SiTI, 2015). This approach is strongly linked to the theme of ecosystem services, whose study is now crucial for implementing management and planning policies for new urban and peri-urban green areas. Ecosystem services have been regulated at European level by the Millennium Ecosystem Assessment (Hassan et al., 2005), which in its report defined them as the benefits that humans derive from ecosystems. It has also been shown that healthy ecosystems are mandatory for sustainable cities, because they influence and affect human well-being and most of the economic activity (TEEB, 2011). It is therefore conceivable that this new approach to the study of ecosystems can be the key to testing new models of integrated management of agricultural and natural areas, safeguarding the landscape and improving the ecological value of the study area. The aim of the project is the monitoring and the analysis of management policies in the metropolitan context of natural park of Turin, recognized in 2016 as CollinaPo, UNESCO MAB (Man and the Biosphere programme).

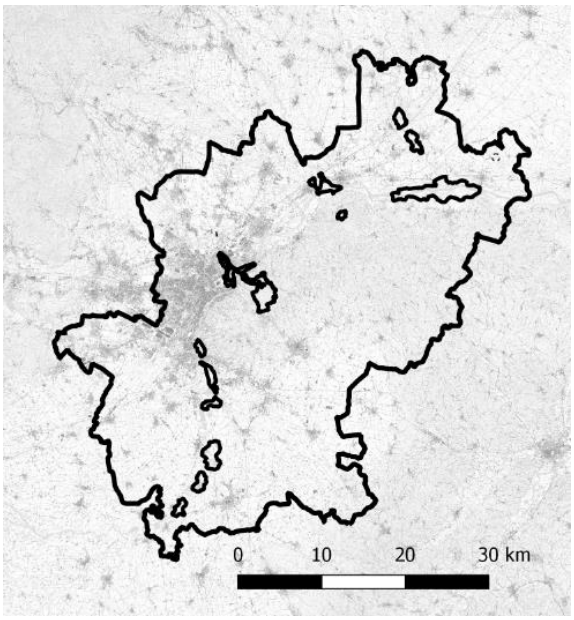

Figure 1. Biosphere Reserve CollinaPo with 14 core zo
processing)
Figure 2. Sheep flock in periurban area of Turin

## MATERIALS AND METHODS

This study investigated the actions that the Park Authority has launched and managed in recent years, thanks to public-private alliances, for the integration of networks and territorial systems directly or indirectly linked to agriculture. Particularly, it has analysed activities that have in the Park Authority a role of capacity builders for achieving objectives of public and institutional interest, thanks to the collaboration of private subjects and citizenship. It has considered long-term actions regulated by conventions or partnerships, capable of highlighting benefits derived from these socio-economic and managerial collaborations. A key to analysing this contest lies in a vision of territorial laboratory about organisation of relationships, integration of process and systemic design to make exchanges efficient and reduce waste in urban models (Bistagnino and Campagnaro, 2014). The research has identified institutional activities realized with the active and voluntary contribution of other stakeholders for a final objective that is the participatory governance of areas of high naturalistic value. The data informing this paper draw from different sources. These include documents of Park Authority and interviews with involved public and private actors.

## RESULTS AND DISCUSSION

The difficulty in managing environmental problems, in areas even of high naturalistic value in urban contexts, represents a major challenge for the Park Authority, which often has insufficient resources to achieve institutional objectives.

The research highlighted four actions of interest for the purposes of this study:

i) pasture management in natural areas,
ii) forest management of small private forest plots,
iii) management and containment of wild boar, and
iv) management of the paths network. In the first three cases, these are practices activated in areas directly managed by the Park Authority; in the fourth case, it is an action of a wide area coordinated by the Park Authority.

The need to solve specific problems originated the four cited practices, all characterized by an agreement signed between the Park and farms or private citizens.

i) In the case of livestock farmers, there has been a widespread difficulty in conducting their productive process between bureaucratic fulfilment and coexistence with the constraints imposed by the management of natural emergencies. For example, the Park Authority acted as facilitator by building together with the seven cattle and sheep breeders, pasture plans for each of them which were shared with the municipalities crossed and with the veterinary authorities (Figure 2);
ii) small forest owners are often employed in other crafts, but some of them still use the forest to get firewood. They mainly originate from those countryside areas but living in the city have lost their rural skills. The indications to manage habitat and landscape are often difficult to understand and be applied and the Park Authority offers a technical assistance service, both in the office and in the forest. The advantage is mutual so guaranteeing compulsory improvement interventions in accordance with the owners who in this way are more willing to cooperate;
iii) for the numbers reached by its population, the wild boar is a species that represents for the whole Piedmont region a management problem in particular for the damage to agriculture and the safety of road traffic. The region has activated a number containment plan and has identified in the Park entities one of the actuators. The Authority Park of Po Torinese has therefore a plan of killing about 200 heads/year to limit the damage to agriculture and straight conflicts with the resident population near the natural areas. Through the Convention with four small slaughterhouses and local distributors, the meat is marketed avoiding waste and promoting the brand of the Park. In cases of surplus, a chain bringing meat to the dining rooms of the poor has been activated with a voluntary association;
iv) the action undertaken within an urban area offers more opportunities to build networks or involve stakeholders. In the face of an increasing demand for outdoor spaces for the practice of hiking disciplines (walking, running, mountain bike) in the discovery context that Turin offers thanks to the hilly Forest of its hills, the Park Authority has assumed in 2012 a co-ordination role of the numerous privately owned hiking associations that had recovered the hiking area locally. With their support and preservation, the Park has identified a hierarchy of routes promoting activities that start right from the city aimed to familiarise with the nearby countryside through slow mobility mode. It involved in 56 municipalities partnership well beyond its own boundaries of competence thus sustaining a trace of regional relevance of 114 km that innervate all the local paths. They sought farmers and restaurateurs who could become custodians of the track. In 2013 nine companies signed this onerous convention for the support of the project.

## CONCLUSIONS

Despite the protected areas and the Natura 2000 sites are now considered central to European biodiversity policies, at local level they enter with evident difficulties within the Italian policies and urban plans (Voghera and La Riccio, 2016). The tools, to support the decision maker and the policy makers to plan, govern and support concretely new ways of practicing agriculture in the city, are absent (Gottero, 2016). The experience and awareness gained during the application dossier of CollinaPo in Biosphere Reserve MAB UNESCO and its strong urban characterization offer the territory of Turin the possibility to test with new micro models, but aspiring to macro results (Bistagnino, 2017). This study identifies activities of the Park organisation that

constitute examples of local public-private negotiations. They are a proposal to apply for the direct management of the landscape, contributing to the construction of a new territorial identity that will have the focus on green infrastructure and not only on the city centre. Similar projects have been successful in other metropolitan contexts, such as for the South Milan Agricultural Park, for the city of Lyon or for the Espace Naturel Lille Metropole for example. These experiences demonstrate that with integrated multidisciplinary approaches and concerted with the different stakeholders it is possible to pursue models of circular economy. Indeed the described practices are set in rural and natural contexts with characteristics of high natural value, also included in peri-urban territory, and develop contemporary models for the management instrument of the Park, already thought by Valerio Giacomini in the years ' 70, just founding the same programme MAB in the UNESCO (Giacomini and Romani, 1992).

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