

Priorities for afforestation areas on a national scale

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This talk aims to present a set of priorities for afforestation areas on a national scale in Italy. With the increasing need for forest restoration and conservation, identifying priority areas for afforestation is critical for achieving the national targets for ecosystem services provision, biodiversity conservation, climate change mitigation and adaptation. Reforestation in fact is not a new policy, but its main objectives may not be the same in different parts of a country, and they may depend on different environmental, social, climatic or cultural needs. This is why nation-wide reforestation projects, such as Parco Italia project in Italy, need to prioritize between different and competing demands.

To achieve this goal, we carried out a survey among experts and professionals with forestry, ecological or agronomic backgrounds. From the synthesis of the results, we identified the main goals for afforestation in Italy, and a suggested set of environmental variables (e.g. distance from roads, distance from forests, population density, ...) to be mapped and used to rank high priority areas.

For each considered goal for afforestation (e.g. connectivity, climate adaptation, ...), we produced a map with a resolution of 1 km (a raster file made with GIS). This not only shows the potential reforestation of the Italian territory, but shows the areas with the highest priority, i.e. where the effects of reforestation can best respond to the considered objective. We expressed the priority with a score between 1 and 100 that we obtained with an Analytic Hierarchy Process (AHP), a method which allows to compare several alternatives in relation to a plurality of criteria.

We will also highlight the potential benefits of afforestation, including carbon sequestration, soil conservation, and recreation opportunities. Our approach integrates GIS analysis, stakeholder engagement, and decision-support tools to identify areas with the highest potential for afforestation and to engage local communities and private landowners in the process. Our findings can provide guidance to policymakers and practitioners in Italy to achieve a more effective and efficient afforestation strategy, contributing to the country's commitments to the Paris Agreement, the EU Biodiversity Strategy and the EU restoration law.