

THE DIFFUSION OF *ROBINIA PSEUDOACACIA* L. IN TUSCANY

C. GIULIANI, M. BAZZICALUPO, R. BENESPERI, B. FOGGI, M. GENNAI,
L. MALECI BINI, A. MENGONI A., F. PINI, M. MARIOTTI LIPPI

Dipartimento di Biologia Evoluzionistica, Università di Firenze, Via Romana 17, 50125 Firenze.

A research group devoted to the study of alien invasive species has been recently constituted at the Department of Evolutionary Biology of the University of Florence, with the aim to investigate their diffusion in Tuscany and to evaluate, as far as possible, the influence that the current climatic change could have on their expansion patterns, with potential serious threats on the structure and functioning of the local ecosystems.

Within this project, the plant biologists selected a pool of target-species, the most indicative-case of which is *Robinia pseudoacacia* L. (black locust). This tree, native to North-America, was introduced to Europe in the XVII century, and quickly spread in the old continent; in Tuscany its presence has been reported starting from the XVIII century.

The massive expansion trend is related to the rapid growth, the ability of successfully colonize nutrient-poor soils because of the capacity to establish symbiosis with nitrogen-fixing bacteria, and the reproductive strategy acting through both the vegetative and the sexual mode.



The history of its diffusion in Tuscany is not entirely known and, in particular, it is not clear how many the successive introductions have been and in what areas have been realized. As a consequence, an exhaustive genetic investigation on the local black locust populations, allowing to establish the mutual relationships and to clarify the contribution of the first introduction and of the successive ones, if independent, is required. Therefore, beside the plant biologists, also the geneticists of the Department are involved in this project; additionally, they will investigate the plant interactions with the native nitrogen-fixing bacteria.

Although the reproductive biology of this species is to a large extent known, several topics require further improvements and implementations. In the first phases of this study the floral morphology, the vitality of the pollen grains and the pollination system have been examined; furthermore, an experimental plan on the germination of the seeds has been organized. Beside trying to understand the bio-ecological model realized by black locust during its expansion, also the effects of this process on diversity will be considered, particularly on the diversity of both epiphytic lichens and vascular plants.

In this work, we present some of the preliminary results by the different research groups.

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