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Araucaria columnaris (Araucariaceae) casual alien in Sicily

Abstract

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The first case of spontaneous regeneration of *Araucaria columnaris* in Europe is reported. Data are given on the taxon and on the Sicilian site where *A. columnaris* - native to New Caledonia (Australia) - tends to spread autonomously.

Key words: Dendrological flora, urban green, alien trees, Mediterranean area, Palermo.

Introduction

New Caledonia hosts almost half of the world's species of *Araucariaceae* (19 out of 45 species) (Earle 2021). In Italy, fewer than ten specific taxa are included in the genus *Araucaria* Juss. Most of them are of Australian origin. In the Italian territory *Araucaria bidwillii* Hook., *A. columnaris* (G. Forst.) Hook. (= *A. cookii* R.Br. ex Endl.), *A. heterophylla* (Salisb.) Franco, *A. cunninghamii* Sweet ex Courtois are widely cultivated. Localized in the Insubric region and scattered at a few sites in other regions, it is also *A. araucana* (Molina) K. Koch (= *A. imbricata* Pav.) from Chile (Traverso 1915).

Individual specimens of *A. luxurians* (Brogn. & Gris) de Laub. (Fig. 1a) and *A. rulei* F. Muel. ex Lindl. are known in two gardens of the city of Palermo: Villa Malfitano and the Giardino Inglese respectively (Raimondo 2019; Schicchi & Speciale 2020). In the literature, none of the *Araucaria* species are listed among the alien plants of the Italian flora (Galasso & al. 2018), nor are there any cases of naturalization of species of this genus in Europe. In this study, the first case of naturalization found in the city of Palermo is reported.

Araucaria columnaris, casual alien in Sicily

A. columnaris is an Australian species of great ornamental value, native to New Caledonia. It can reach a height of more than 40 meters and has an erect trunk, gray

and flaky bark, which is detached by rings, with short branches and branched, verticillate, starting from the base of the tree. It has persistent, spiraled, lesiniform, narrow leaves at the apex of the twigs. The female cones, ovoid in shape, are composed of numerous scales, each bearing a seed.

It is one of the most remarkable trees of the historical gardens of the city of Palermo where the species has been introduced in the second half of the nineteenth century (Schicchi & Speciale 2020). Magnificent and numerous are the specimens present in the Giardino Inglese, two of which are truly remarkable (Fig. 1a), slightly younger than the oldest and tallest specimen cultivated inside the Botanical Garden, and coeval with a second group of soaring specimens that in Palermo embellish the garden of the family Tasca d'Almerita.

First report of spontaneous renewal of *Araucaria columnaris*

The tree from which the spontaneous renewals of *A. columnaris*, is about 60 years old. It is located within a small private garden, situated in Via Armida (Fig. 1b), in the residential area of Mondello (Figs. 1b, 2). A number of seedlings between 1 and 8 years old can be found spontaneously in the flowerbeds near the mother plant, or in disused pots stored nearby to be repurposed (Fig. 3).



Fig. 1. a) The English Garden in the city of Palermo: in the foreground - in the center - the only plant known in Italy of *Araucaria luxurians*, behind - on both sides - two centuries-old *A. columnaris*, one of them - to the right - with forked top; b) The fertile tree of *A. columnaris* in the site of Via Armida (Mondello, Palermo).

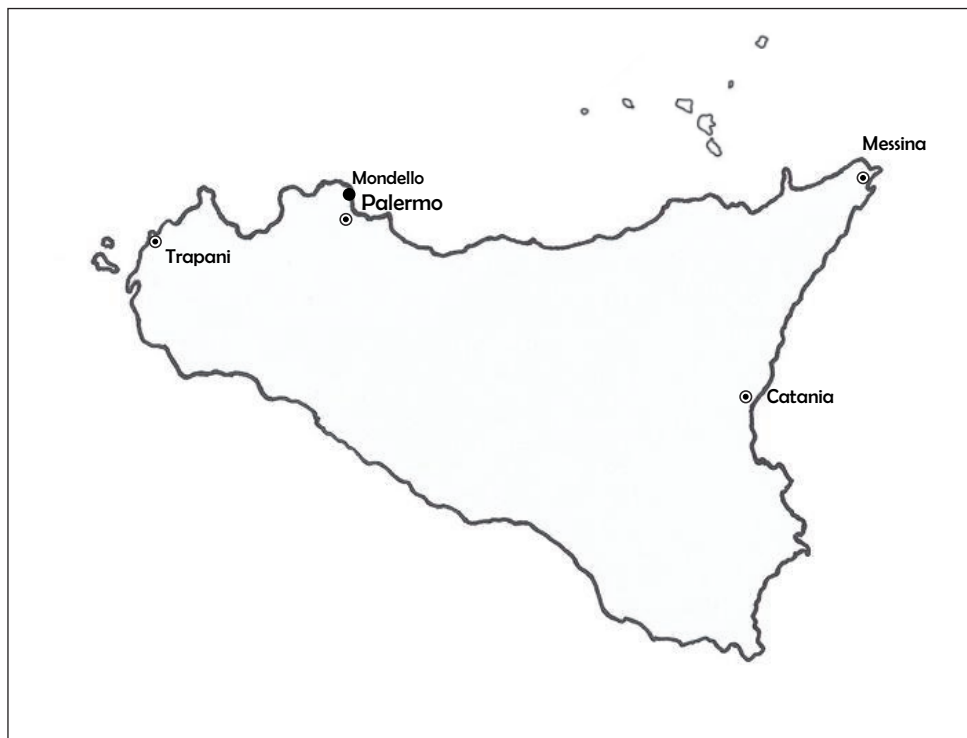


Fig. 2. Localization in Sicily of the Mondello site (Palermo), where the first case of spontaneous renewal of *Araucaria columnaris* in Europe was recorded.

Discussion and Conclusion

Compared to the *Araucaria* species cultivated in Italy and in the European territory, excluding botanical gardens and arboreta, Sicily is the Italian region with the highest number of taxa of the genus, introduced in urban green areas. In this Mediterranean island with climatic conditions almost similar to those recorded in particular in some sectors of the Australian Continent - from which most of the species originates - 6 specific taxa are known, all cultivated. Among these species, *A. columnaris* is very important and it is particularly widespread in the city of Palermo. Moreover, the Palermo area is the place where all the species present in the parks and gardens of the whole Italy occur, with the only exception of *A. araucana*, the only American species cultivated in Sicily which grows in few humid hilly sites, exposed to the sea, among which Ucria (Messina), a small center of Nebrodi Mountains (Fig. 4).

As already mentioned, the species is native to New Caledonia (Australia) from where also originate *Araucaria rulei* and *A. luxurians* present inside, respectively, even if with only one specimen, in the two extraordinary gardens of Palermo.



Fig. 3. Seedlings of *Araucaria columnaris* in two pots (*a* and *b*) from the private garden of Via Armida (Mondello), near the fertile tree of the species in Fig. 1*b*.



Fig. 4. *a*) *Araucaria auracana* cultivated in a private site of Ucria (Nebrodi, Messina); *b*) Detail of the branches and the leaves.

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