

***XANTHIUM STRUMARIUM* SUBSP. *ITALICUM* (MORETTI) D.LOVE, AN INVASIVE ALIEN PLANT ON THE ROMANIAN BLACK SEA COAST**

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Abstract

Native to North America, *Xanthium strumarium* subsp. *italicum* is an invasive plant with a high risk for environment in Eastern and Central Europe, inclusive on the Romanian Black Sea coast. Its spiny fruits are dispersed in many ways, but especially clinging to fur of animals or on the shoes and clothing of humans. Grazing cows and horses in the Danube Delta Biosphere Reserve, has facilitated the widespread of the rough cocklebur on the sand dunes where it replaces gradually the native psammophilous plants of the beaches. On the southern coast of Romania, this species is abundant in the disturbed habitats of the harbours of Midia and Constanta and on the sand dunes between Mamaia and Navodari.

Keywords: *Coastal systems, Invasive species, Beach, Black Sea*

The spread of invasive alien species poses a serious threat to the conservation of natural and semi-natural habitats (Weber, 2005). The invasive plants change the character, form or nature of ecosystems and they have a tremendous impact on the native floral communities. IUCN defines alien invasive species as "an alien species which becomes established in natural or semi-natural ecosystems or habitats, is an agent of change and threatens native biological diversity" (McNeely et al., 2001).

Xanthium strumarium subsp. *italicum* (*X. orientale* subsp. *italicum* (Moretti) Greuter; *X. italicum* Moretti) known as rough cocklebur is an annual plant native to North America, belonging to *Asteraceae* family. From America, it has been extensively naturalized elsewhere, including the Eastern and Central Europe. The burry fruits cling to the fur of animals and the clothing of humans, and are easily dispersed in this way. It has become invasive especially in disturbed habitats but also on the roadsides, along the riverbanks and on the sandy beaches (Fig. 1), where it replaces, gradually, the typical psammophilous species, some of which are rare plants.



Fig. 1. *Xanthium italicum* on the sand dunes between Mamaia and Navodari

In the Danube Delta Biosphere Reserve, *Xanthium italicum* is abundant within the plant communities *Elymetum gigantei* Morariu 1957 and *Cakilo euxinae-Salsolietum ruthenicae* Vicherek 1971, in the frame of the habitat types 2110 – Embryonic shifting dunes and 1210 – Annual vegetation of drift-lines. Large local populations with *Xanthium italicum* were observed on the beaches of Sulina, Sfântu Gheorghe, on Saraturile sandbank (between Sulina and Sf. Gheorghe), in Sacalin area, between Portita and Periteasca. Grazing cows and horses is a frequent activity in the Danube Delta Biosphere Reserve, especially close to villages and farms, and this fact facilitates the spreading of the spiny fruits of rough cocklebur on the sand dunes. Here, *Xanthium italicum* often develops large colonies, having a negative influence upon the floristic composition of the psammophilous plant communities, a typical behaviour of an invasive plant. South of Cape Midia, on the southern coast of Romania, *Xanthium italicum* is locally abundant in the area of the Midia and Constanta

harbours (Fig. 2) and between Mamaia and Navodari (at approximately 5 km south from Midia harbour).



Fig. 2. Locations with large local populations of *Xanthium italicum* in the Danube Delta Biosphere Reserve

The harbours could be the main gate for the introduction of this taxa in the coastal area. In other locations, i.e. Constanta, Eforie Nord, Eforie Sud, Tuzla, Costinesti, Saturn, Mangalia, 2 Mai, Vama Veche, *Xanthium italicum* has been noticed only as a sporadic plant. On the northern coast of Bulgaria, *Xanthium italicum* grows abundantly on the sand dunes and has become co-dominant within the plant community *Xanthio italicici-Leymetum sabulosi* Tzonev et al. 2005.

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