



## The present-day status of *Armeria maritima* ssp. *maritima* (Mill.) Willd. in botanical reserve “La Sărătură”, Bistrița-Năsăud county, Romania

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**Abstract.** *Armeria maritima maritima*, a halophile plant subspecies, can be found in only one location in Romania, namely the botanical reserve “La Sărătură”, in Bistrița-Năsăud county. We briefly describe this location and then we discuss about the species status nowadays. Some protection measures have been established years ago, but in reality they are not effective anymore. However, the plant population is still stable, many individuals expending nearby the reserve.

**Key Words:** salt, protected area, halophile species, Natura 2000 Programme.

**Introduction.** *Armeria maritima* is a halophile plant native to coastal areas across the Northern Hemisphere (Anderberg 2017). It can grow in dry, sandy, saline conditions such as coastal cliffs, grassland and salt marshes, salted roadsides and inland on mountain rocks (Stace 2010). It is common in British salt marshes (Blamey et al 2003). The species has many varieties cultivated in botanic gardens (Păun & Palade 1976).

In Romania, the genus *Armeria* includes few species (Răvăruț 1960; Pinto da Silva 1992), and the species *A. maritima* has more subspecies (Ciocârlan 1990). The one of interest for us is *Armeria maritima* ssp. *maritima* (Mill.) Willd. (sea thrift, sea pink, common thrift). In this paper we will discuss about its status in the single location from Romania where it occurs.

**The description of the botanical reserve „La Sărătură”.** „La Sărătură” botanical reserve is the single habitat for *A. maritima maritima* in our country. It is located in Blăjenii de Jos, Șintereag village, Bistrița-Năsăud county, Romania, at the geographic coordinates 47°11'18" N and 24°21'32", having a total surface of 20 ha ([http://www.mmediu.ro/dep\\_mediu/biodiversitate.htm](http://www.mmediu.ro/dep_mediu/biodiversitate.htm)) (Figure 1).

It is one of the few places from the county where the salt emerges to the soil surface, especially during the summer, thus appearing some salt springs, salted efflorescences and specific plant species (Chintăuan et al 2004; Chintăuan 2008; Rusu & Gavriiloaie 2013a) (Figure 2).

The relief belongs to Câmpia Transilvaniei (Transylvania Plain), being characterised by low hills, large valleys and muddy terrains. The hills have an altitude up to 297 m (Cocean et al 2011). The annual average temperature is 7-8°C ([www.primariasintereag.ro](http://www.primariasintereag.ro)). The waters within the reserve are represented by a small rivulet, named Valea Sărată (Salted Valley), several saltwater springs, and muddy ponds which differ in number depending on season (Rusu & Gavriiloaie 2013a) (Figure 3). Another water source is represented by subterranean mineral waters, which have been collected by local people in a well (heavily degraded nowadays) (Figure 4). There used to be an artificial freshwater pond too, assuring the drinking water for cattles and sheep

around the area (Cocean et al 2011). In the present days the freshwater pond is almost completely silted.

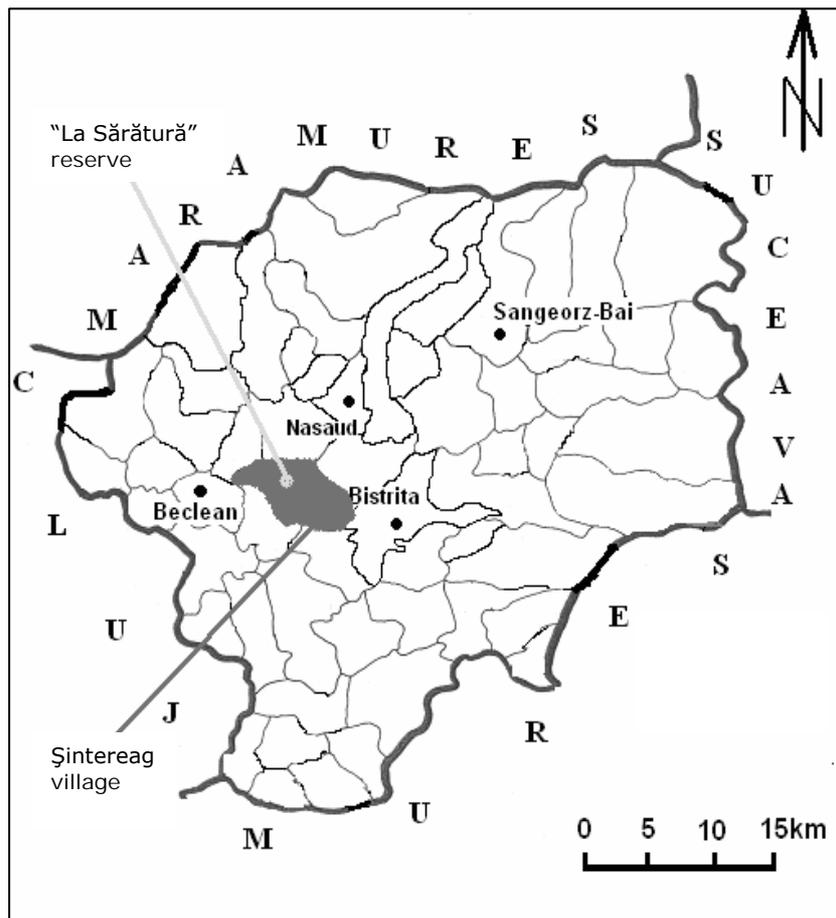


Figure 1. The location of "La Sărătură" in Bistrița-Năsăud county. The black dots (•) represent cities within the county.



Figure 2. Salt crust in the botanic reserve (photo by Cristina Rusu).



Figure 3. Temporary ponds within the botanical reserve, on April 2015 (photo by Cristina Rusu).



Figure 4. The former saltwater well (right upper side) within the botanical reserve (photo by Cristina Rusu).

This location is the single natural habitat from our country where we can find the plant species *A. maritima maritima* from Plumbaginaceae family (Ciocârlan 1990; Svoboda 2006). It was first discovered in the reserve in 1962 by the scientist Emilian Țopa, the founder of the Botanical Garden from Iași city (Svoboda 2006). It has a thin stem, with average length of 20 cm, elongated leaves of 5-8 cm long and 1 cm width, circularly arranged on the stem basis. The pivoting root is 20-25 long. The flowers are small, delicate, most of them being pink (Figures 5 and 6), but we also noticed few white ones. The flowering period is from May until October.

Along with *A. maritima maritima*, some other halophile species could be found within the reserve: *Salsola soda*, *Salicornia herbacea* (Figure 7), *Tamarix tetrandra*, *Limonium gmelini* (Chintăuan et al 2004; Rusu & Gavriiloaie 2013a; Toma & Ladar 2013).



Figure 5. *Armeria maritima maritima* in the botanical reserve (photo by Cristina Rusu).



Figure 6. The flowers of *Armeria maritima maritima* in the botanical reserve (photo by Claudiu Gavriloiu).



Figure 7. *Salicornia herbacea* in the botanical reserve (photo by Claudiu Gavriloiu).

**„La Sărătură” area as a botanical reserve.** Until the year 2000, the location had never benefitted of any protection. During that year, within the total 20 ha of the whole „La Sărătură” area, a surface of 5 ha with the highest concentration of *A. maritima maritima* individuals has been established as a protected area by the Local Council of the Șintereag village. Later, in 2003, the protected area was enclosed by a wood fence and a panel was set near the entrance of the protected zone (Rusu & Gavriloiu 2013a). Then, in 2007, the area has been included within the ecological network Natura 2000, with the code ROSCI0095, and since 2010 it was transferred under the custody of an NGO named Asociația Gal Ruralis (Gal Ruralis Association) (Rusu & Gavriloiu 2013b).

However, in 2013 the fence was already missing, being stolen piece by piece by the locals, only few remnants on the spot showing that there used to be a fence once. On May 2020, when we made the last trip on the spot, there were absolutely no remnants of the fence. The panel near the entrance was also in a high state of degradation, most of the information on it being barely readable. Basically, the whole area has no protection anymore, being crossed by cattles and sheep very often. The good thing is the cattles and sheep do not graze the protected plant, due to its high salt content, and, because the plant has a propagative vegetation, fragments of it are easily transported by these animals. So, in the last years, the plant extended its range within the whole area. Unfortunately, many wastes of all kinds can be found within the reserve, mainly near the former saltwater well. We can easily say that the protected species, which was the subject of our study, takes care of it by itself. And it does it well so far. However, we really hope that the local authorities, along with some environmental protection organizations will involve much more within the preservation of this unique place.

**Conclusions.** In Romania, the only place where *Armeria maritima maritima* could be found is in the botanical reserve “La Sărătură”, which used to be a protected area, since the year 2000. However, for more than ten years by now, the area has no protection actually, because the enclosing fence disappeared, and any cattle, ship, human being can easily enter the area with no restriction. Despite of these conditions, the plant enlarged its territory in the last years. Since the domestic animals do not graze it, the only real threat is posed by humans, who collect it during the flowering period. We hope for a new and extended implication of local authorities and environmental organizations in order to assure a long term protection for this unique species.

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