

Project partner: Hortus Botanicus Karalitanus of the University of Cagliari

Island

SARDINIA

Species name (Family)

Gentiana lutea L. subsp. *lutea* (Gentianaceae)

Common name

Genziana maggiore (Italian name), yellow gentian (English name)

Plant description

- ✓ *Gentiana lutea* subsp. *lutea* is a rhizomatous plant, which usually develops one unbranched stout stem (rarely two or three) up to 90 cm tall; it has a basal rosette formed by lanceolate-elliptic leaves. Flowers are yellow and have a bicarpellate ovary. The fruits are capsules, which hold a great number of elliptic, flattened and winged seeds. Seeds have a linear underdeveloped embryo and show an intermediate complex morphophysiological dormancy.
- ✓ Yellow gentian is a geophyte rhizomatous plant flowering in summer (June-July) and fruiting in late summer (August). The wind is the main seed dispersal agent. Corolla has an open structure, which facilitates pollinator access (insects belonging to Hymenoptera and Diptera orders).
- ✓ *G. lutea* subsp. *lutea* grows in grasslands, meadows, heather and broom in the upper montane and subalpine pastures, with an altitudinal range from 1200 to 1800 m a.s.l. in Sardinia. From a bioclimatic point of view, the species can be referred to the Lower Supra-temperate, Upper Humid, Semicontinental Weak.

Distribution

G. lutea subsp. *lutea* is an orophilous species distributed in the mountain ranges of South Europe: Sardinia, Corsica, Iberian, Italian, and Balkan Peninsulas and Alps. In Sardinia are present 24 localities in the Gennargentu Massif and 34 historical localities are extinct.

Map



Legal status

G. lutea subsp. *lutea* is included in the Annex V of the Habitats Directive 92/43/EEC and in the Annex D of the Council Regulation 338/97/EC of endangered medicinal plants. The population is located inside the SCI (Sites of Community Importance) “Monti del Gennargentu” (ITB 021103).

Main threats and conservation status

According to the IUCN Threats Classification Scheme (Version 3.2) the main threats in Sardinia are:

- ✓ 5.2.1: Gathering Terrestrial Plants - Intentional Uses and 2.3.1: Nomadic grazing. The main threats in Sardinia are the excessive root harvesting and grazing, which caused the extinction of the species in some localities.
- ✓ 11.1: Habitat Shifting & Alteration and 6.1 Recreational activities. In the near future, two main causes of extinction for the species could be the climate change and severe weather, besides the increase of mountain tourism and recreational activities as hiking.

This *taxon* was assessed as Least Concern (LC) at European level, Near Threatened (NT) in the Italian Red List and as Endangered (EN) in Sardinia.

Conservation actions carried out in the CARE-MEDIFLORA project

Seeds of all natural populations were collected and germplasm was stored at the Sardinian Germplasm Bank (BG-SAR) and used for duplicated exchanges with the Seed Bank (BGS-CT) of the University of Catania. Several plants were produced and cultivated in the greenhouse of Fo.Re.S.T.A.S. Agency in Talana (NU). A translocation was carried out where the species was extinct, in the site “Serra Siccoruli” in “Monte Genziana” Talana, fenced before the transplantation. A total of 200 individual plants were translocated, and each plant has been labelled for future monitoring activities. Subsequently, two new fences were built in a different locality near the translocation site where other 200 plants were translocated. A monitoring plan of translocation and the maintenance of the fence was elaborated and started in May 2017 measured the effectiveness of the management activities and the survival rate. Monitoring indicates that the management measures were in optimal conditions and the survival rate of the introduced individuals was acceptable. After the end of the project, the monitoring activities will be continued, ensuring the long-term sustainability of the *in situ* actions.

Photos



Left: Flowering of *Gentiana lutea* subsp. *lutea* (photo by Alba Cuena-Lombrana). Right: Habitat of *Gentiana lutea* subsp. *lutea* (photo by Alba Cuena-Lombrana).



Translocation of *Gentiana lutea* subsp. *lutea* (photo by Gianluigi Bacchetta).