

Iris foetidissima (Iridaceae): discovering the species in Turkey on the basis of a native population

Ali A. Dönmez & Zübeyde Uğurlu

Department of Biology, Faculty of Science, Hacettepe University, Beytepe, Ankara, Turkey, e-mail: aliadonmez@gmail.com (corresponding author);
zubeydeugurlu@gmail.com

Received: September 12, 2013 ▷ Accepted: August 28, 2014

Abstract. *Iris foetidissima* is a species which grows naturally in Europe. The species is mentioned in the Turkish flora as “doubtfully recorded”, without any specimen citation. The specimens collected from a natural area in the province of Sinop in Turkey show that *I. foetidissima* L. grows naturally in the country. Description of the species and pictures of its habitat are given, as well as the details of plants. Observations on the population and ecology of the species are discussed, and an IUCN threat category is proposed for the Turkish population.

Key words: *Iris foetidissima*, Iridaceae, native population, Sinop, Turkey

Introduction

The genus *Iris* L. comprises c. 280 species and they grow naturally in Eurasia, North Africa and North America (Mabberley 2008). Due to the geophytic life cycle, many of the species grow naturally in SW Asia. Along with tulips, *Iris* is also one of the most important horticulture plants in Turkey (Baytop & Mathew 1984). According to some uncertain data by Güner (2012), the genus is represented in Turkey by a total of 49 species.

Iris foetidissima L. is a species which basically grows near seashores and on islands in various European countries: from the Azores to Sicily, and in North Africa (Algeria and Morocco). The easternmost native location of the species is Sicily (Euro+Med 2013). The species was reported from İstanbul in a damp pasture, based on Mathew (1984), who also suggested that the specimen may have escaped from cultivation. On the other hand, there are four herbarium sheets of the species collected from the Yıldız Parkı Park during 1969–1977 by several collectors. The specimens of the species have been kept at the ISTE Herbarium. Except for these specimens, we have not found any other repre-

sentatives of this taxon in the other surveyed herbaria, including ANK, E, EGE, HUB, ISTE, ISTF, and ISTO, collected from parks or natural areas.

During a floristic study in the area of Zindan Mountain, Sinop and Kastamonu cities in Turkey, presumably a native population has been discovered at Mutluköy village of Ayancık, near Sinop, by the present authors (Fig. 1). The species is represented by a single population composed of approximately 150 individuals in an area smaller than 2000 m².

Material and methods

The specimens of the unknown *Iris* species have been collected in fruiting stage. The *Iris* specimens had reddish and black seeds in fruits with odour. The locality was visited next year in order to collect flowering specimens. The area has been explored so as to determine the population structure and interviews with the local people have been carried out to understand its origin and cultivation. Description of the species is given according to Webb & Chater (1980).

Results

Iris foetidissima L., Sp. Pl. 39 (1753).

Stem 30–90 cm high, somewhat compressed, with a single longitudinal ridge, bearing 3–4 leaves. Basal leaves 30–70 cm×10–25 mm, dark-green, evergreen, fetid. Flowers 1–5, dull-violet, more or less tinged with dull-yellow, seldom bright-yellow; pedicels 20–100 mm; spathes 50–100 mm, herbaceous. Hypanthial tube c.10 mm, stout. Falls 30–50×10–20 mm, oblong-ovate to oblanceolate. Standards 25–40×5–9 mm, oblanceolate. Style branches pale-yellow. Capsule 4–7 cm long, oblong-ellipsoid. Seeds 5–7 mm, globose, orange-scarlet, long-persistent in the dehisced capsule. $2n=40$. Flowering in May–June.

Distributed in NW Africa and South and West Europe; Azores, Canary Islands (introduced), Algeria, Great Britain, Corse, France, Ireland (introduced), Switzerland (introduced), Spain, Italy, Portugal, Morocco, Madeira (introduced), Sardinia, Sicily with Malta, Turkey (introduced), Asiatic Turkey.

Collected specimens: Turkey-A5 Sinop: Ayancık, around Mutluköy road junction, under *Platanus orientalis* L., around a stream, 222 m a.s.l., 41°56'804"K, 034°31'468"D, 26.10.2009, Ali A. Dönmez 16540 (HUB); 14.05.2010, Ali A. Dönmez 16802-Z. Uğurlu (HUB); 04.07.2010, Ali A. Dönmez 17278-Z. Uğurlu (HUB); 14.06.2011, Ali A. Dönmez 17741-Z. Uğurlu (HUB).

Examined specimens (from photos):

Turkey – İstanbul: Yıldız Parkı, 20.05.1969, T. Gözler (ISTE No: 15160); 21.05. 1970, N. Özocak, G. Etem, F. Öktem (ISTE No: 18000); 24.05.1971, T. Gözler (ISTE No: 20530); 30.10. 1977, A. Baytop (ISTE No: 41503).

Distribution and ecology: *Iris foetidissima* specimens grow near a bay at Mutluköy village of Ayancık (Sinop). The species is represented by approximately 150 individuals and the population is flourishing. However, due to the presence of rhizomes, it is difficult to determine the exact number of the living individuals. The specimens grow under the *Platanus orientalis* L. trees. Although the specimens have been collected near the village, the species is not under grazing pressure. The odour from the plants protects them from grazing.

During our floristic studies in the region, all bays have been searched for a new population of the spe-



Fig. 1. A view from habitat and *Iris foetidissima* (A), Flower (B), Dissected flower (C), Fruit and seeds (D).

cies. Unfortunately, another population has not been found yet.

According to our interviews with the local people, these plants are called “süsen”, which is one of the common vernacular names of the *Iris* species in Turkey. This also suggests that the species is native in Turkey. According to our interviews and observations in the area, there are not any historical or other reasons for using these plants for ornamentation. On the other hand, *Iris germanica* and *Iris albicans* have been observed in the gardens of the area.

Considering the distribution pattern of the species, it grows naturally in various countries in the Mediterranean (Euro+Med 2013). Thus it could be assumed that the seeds may have been brought to this bay by ships. The seeds of the species have rather thick and strong testa. Because of the strong seed structure, the viable seeds could have possibly migrated from another location to this bay of Ayancık near Sinop in the region of the Black Sea.

Conservation status: *Iris foetidissima* grows widely across Europe and North Africa, but it is known

from only one locality in Turkey. The Turkish population of the species has been evaluated as Critically Endangered on the basis of the criteria in IUCN Red List Categories (IUCN 2001). Of the IUCN criteria, B2a explains best the situation of the population in the studied area.

Discussion

The presence of *I. foetidissima* in Turkey is based on the cross references mentioned in the *Flora of Turkey* by Mathew (1984), without citing herbarium specimens. During the extensive field surveys across Turkey, especially in the Black Sea region, we have not come across another locality of the species. Hence, if the species grows naturally in Turkey, it could be concluded that it is not common on the basis of our field expeditions, intensive floristic researches all over Turkey, and especially in İstanbul. Moreover that various floristic studies (Seçmen & Leblebici 2004; Kaynak & al. 2005; Doğru Koca & Yıldırım 2006; Ocak 2010; Özhatay & al. 2010), which have been recently carried out in the Black Sea region, also show that no specimens of this species have been collected in Turkey before. In one of the horticulture books in Turkey, *I. foetidissima* is mentioned without citing any specimen or specific literature about this species (Tuzlacı 2010).

The only known specimens of the species in Turkey are from cultivated material collected from the Yıldız Parkı Park in İstanbul and they have been kept in the ISTE Herbarium. In fact, it is difficult to trace out the origin of this specimen cultivated in Yıldız Parkı. On the other hand, the earlier extensive researches by botanists show that *I. foetidissima* does not grow in İstanbul and its environs. However, in terms of the long history of the Ottoman Empire and year-long management of the various areas of the Mediterranean Sea, it could be inferred that the species might have been cultivated in the past.

After examining the specimens in the ISTE Herbarium, it could be inferred that the species is not common in İstanbul. It could be assumed that the species may have been possibly cultivated in a limited number in İstanbul and probably not elsewhere, with the exception of the Yıldız Parkı. The late Professor Turhan Baytop, one of the most prominent authors and collectors of the Turkish *Iris* species, lived

in İstanbul. Therefore, there is no other collection, except the one mentioned in the *Flora of Turkey*.

The species is given as “doubtfully recorded” by B. Mathew in the *Iris* entry of the *Flora of Turkey*, without any specimen citation (Mathew 1984). In one of the latest publications, Güner (2012) underlines that “presence of the species in Turkey requires confirmation”, without any reference. Furthermore, he gives an unusual distribution area of the species. His suggestions unsupported by literature or specimen citation make the presence of the species in Turkey more uncertain.

Collection of *I. foetidissima* from a natural area during our extensive floristic studies in the region of Sinop shows that this species in fact is a member of the Turkish flora. In the light of our field observations and interviews with the local people, we have come to the conclusion that the population is native. However, there are still some outstanding questions. One of them deals with the worldwide distribution of the species: if the Sinop population of this species is native, how can we explain its disjunction with the other native Mediterranean populations? If the species was accidentally brought by ships, why was it at that very location, instead of several other harbours which have been frequently used in the past and recent times? These questions can be explained in the future by further biogeographical and probably molecular phylogeographical studies.

Description of the species in the mentioned *Flora* or in other botanical sources gives the flower's colour as “dull-violet, more or less tinged with dull-yellow, seldom bright-yellow”. However, the Turkish population is composed completely of yellow-orange flowers with violet veins.

Acknowledgements. The authors are grateful to the Scientific Research Unit of Hacettepe University for the financial support (Project No: H.Ü.-BAB-0801601010), to Brian Mathew for confirming the identification, and to Mine Koçyiğit for sending the pictures of *I. foetidissima* from the ISTE Herbarium.

References

- Baytop, T. & Mathew, B. 1984. The Bulbous Plants of Turkey: an Illustrated Guide to the Bulbous Petaloid Monocotyledons of Turkey: *Amaryllidaceae*, *Iridaceae*, *Liliaceae*. Batsford in association with the Alpine Garden Society, London.

- Doğru Koca, A. & Yıldırım, Ş.** 2006. Flora of Akçakoca district (Düzce-Turkey). – In: **Ivanova, D.** (ed.), Proc. IV Balkan Botanical Cong., Institute of Botany, Sofia.
- Euro+Med (2006+).** 2013. Euro+Med PlantBase – the information resource for Euro-Mediterranean plant diversity, <http://ww2.bgbm.org/EuroPlusMed/> [accessed: 29 Oct 2013].
- Güner, A.** 2012. *Iris* L. – In: **Güner, A., Aslan, S., Ekim, T., Vural, M. & Babaç, M.T.** (eds.), A Checklist of the Flora of Turkey, Vascular Plants, NGB and FAD publication. İstanbul (in Turkish).
- IUCN** 2001. IUCN Red List Categories, Version 3.1. Prepared by the IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge.
- Kaynak, G., Daşkın, R. & Yılmaz, Ö.** 2005. Plants of Bursa. T.R. Uludağ Univ., KETAM Press, Bursa (Bursa Bitkileri. T.C. Uludağ Üniversitesi, KETAM Yayını) (in Turkish).
- Mabberley, D.J.** 2008. Mabberley's Plant-Book (3th ed.). Cambridge Univ. Press, Cambridge.
- Mathew, B.** 1984. *Iris* L. – In: **Davis, P.H.** (ed.), Flora of Turkey and the East Aegean Islands. Vol. 8: 382-410. Edinburgh Univ. Press, Edinburgh.
- Ocak, A.** 2010. Flora of Çatacak Eskişehir I-II. Eskişehir Municipality Press, Eskişehir. (in Turkish).
- Özhatay, N., Özhatay, E. & Erdem, A.Ö.** 2010. Native Plants of Şile. Işık Univ. Press, İstanbul. (in Turkish).
- Seçmen, Ö. & Leblebici, E.** 2004. Plants and Vegetation of Wetlands in Turkey. Ege Univ. Press, İzmir. (in Turkish).
- Tuzlacı, E.** 2010. Garden Plants and City Flowers of Turkey. Turkey Business Bank Cultural Publication, İstanbul (in Turkish).
- Webb, D.A. & Chater, A.O.** 1980. *Iris* L. – In: **Tutin, T.G., Heywood, V.H., Burges, N.A., Valentine, D.H., Walters, D.H. & Webb, D.A.** (eds), Flora Europaea. Vol. 5: 87-92. Cambridge Univ. Press. Cambridge, London, New York, New Rochelle, Melbourne, Sydney.
-