

A New Juno *Iris* from North-east Anatolia, Turkey

Adil GÜNER^{1,*}, Hayri DUMAN²

¹Nezahat Gökyiğit Botanik Bahçesi, Tekfen Sitesi, Aydınlık Sokak, No: 7, A Blok, 34340 Etiler, Beşiktaş, İstanbul - TURKEY

²Gazi Üniversitesi, Fen-Edebiyat Fakültesi, Biyoloji Bölümü, 06560 Teknikokullar, Ankara - TURKEY

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Abstract: A new late flowering, reddish brown *Iris* L. species from the subgenus *Scorpiris* Spach, *Iris nezahatiae* Güner & H.Duman, is described and illustrated from north-east Turkey. Its distinguishing characters, affinities, and ecology are discussed and its threat category is assessed as 'Critically endangered (CR)'.

Key Words: Iridaceae, *Iris*, Juno, Flora, Turkey, Flora of Turkey, Monocotyledones

Türkiye'nin Kuzey Doğusundan Yeni Bir Juno *Iris* L. Türü

Özet: Türkiye'nin kuzey-doğu'sundan yeni bir tür betimlenmiş ve resimlenmiştir: *Iris nezahatiae* Güner & H.Duman. Altıncı *Scorpiris* Spach'e dahil olan yeni tür, çok geç çiçek açmakta ve çiçek rengi kırmızımsı kahverengidir. Makalede türün ayırıcı özellikleri, akrabalıkları ve ekolojisi tartışılmış; dahil olduğu tehdit kategorisi 'vahim (CR)' olarak belirlenmiştir.

Anahtar Sözcükler: Iridaceae, *Iris*, Juno, Flora, Türkiye, Türkiye Florası, Monocotyledones

Introduction

On June 5, 2005, an *Iris* L. specimen (MÖZT 3639, NGBB accession number 2004-452B, collected in 2004) flowered in the geophyte collection of the Nezahat Gökyiğit Botanic Garden, İstanbul (NGBB). It was certainly a junon iris (subgenus *Scorpiris* Spach) but it was an unusually late time of year for a junon iris to flower, even in İstanbul, since all the other junons in NGBB had finished flowering at the end of April. In addition to its late flowering time, the flowers were a very unusual brownish-pink. For these reasons, the first author started studying the material and realised that it might represent a new iris species. In general appearance it resembled *Iris caucasica* Hoffm., but its flower colour was similar to that of *Iris galatica* Siehe.

After some inquiry, the first author realised that Hayri Duman had already collected the same species (H. Duman 9356-Z. Aytaç) and he also thought that it might be a new species. Therefore, they decided to work together.

During a visit to the United Kingdom in 2005, the material was compared with other *Iris* material at the herbaria of both Kew (K) and Edinburgh (E), but no similar specimens were found. When Tony Hall (a specialist junon iris grower at Kew) saw photographs and dried material, he remembered seeing a photograph of the same species in the Alpine Garden Society Bulletin under the name of *Iris galatica* (Joyce, 2000).

Further material was collected in May and June 2006 from north-east Anatolia and, as a result of these studies, we concluded that the specimens did indeed represent a new *Iris* species.

Iris nezahatiae Güner & H.Duman sp. nov. (Subgen. *Scorpiris* Spach), Figure 1, 2, 3.

Type: [Turkey] A8 Artvin: Yusufeli, Kılıçkaya (Ersis) yukarısı [above Kılıçkaya (Ersis)], 1315 m, metamorfik dik yamaçlar [metamorphic steep slopes], 40°42.332'N—41°29.552'E, 19/v/2006, A.Güner

* E-mail: adilguner@ttnet.net.tr

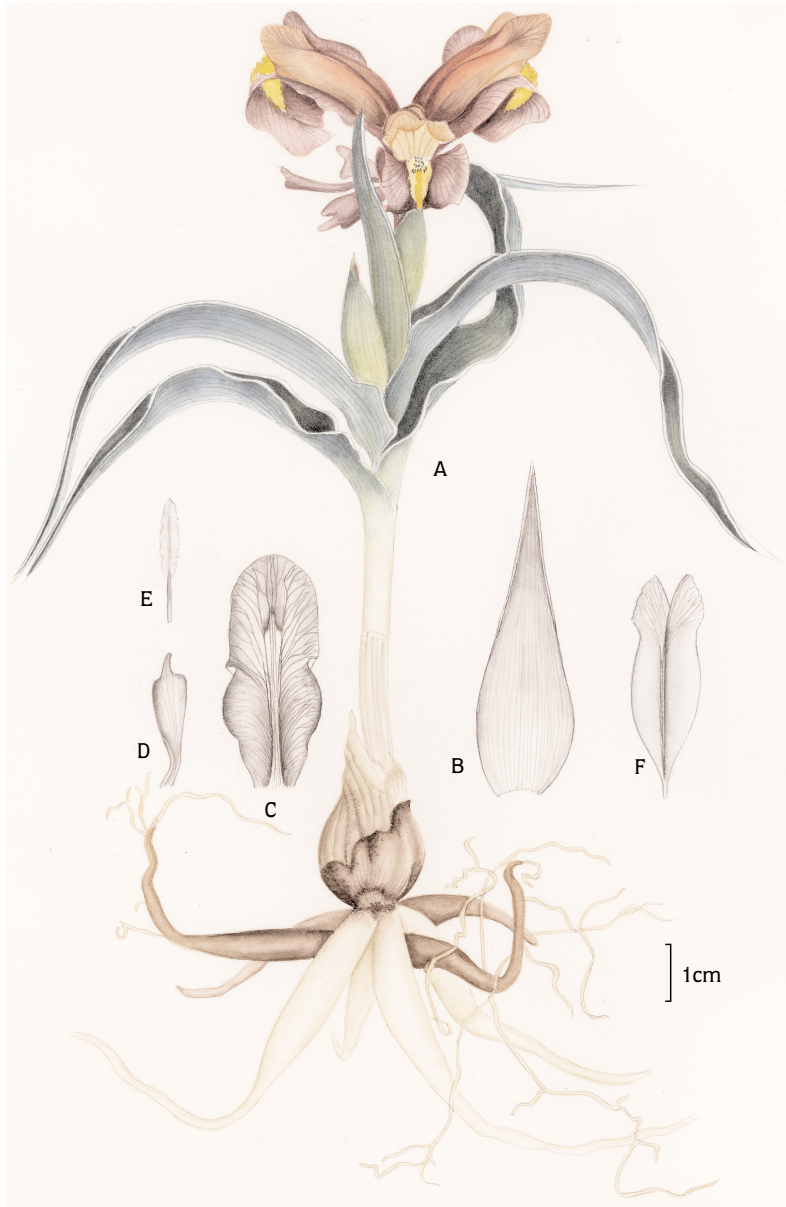


Figure 1. *Iris nezahatae* Güner & H.Duman: A- plant, B- bract, C- fall, D- standard, E- stamen, F- style branch (illustrated from the living specimen flowered in NGBB, collectors: M. Öztekin 3639-A.Güner, F. Tezcan, H.B. Güner, accession number: 2004-452B [illustrated by Gülnur Ekşi]).

14024-M.Johnson, M.Öztekin, R.Unwin, P.Ravenhill, NGBB accession 2006-401 (holo. Hb. of NGBB; iso. GAZI).

Diagnosis:

Affinis *I. caucasicae* Hoffm. sed floribus rubello-brunneis (non luteis vel viridi-flavis), bracteis, bracteolis et perianthi tubo brevioribus differt.

Description:

Planta 10-15 cm alta tempore florendi. *Bulbus* 3-3.5 x 1.8-2.2 cm, ovoideus; tunicae fusco-brunneae, papyraceae, ultra collum productae; radices penariae carnosae, incrassatae. *Caulis* 1-2(-3)-florus, simplex, internodiis absconditis tempore florendi et fructifer. *Folia* (4-)5-6, falcata, canaliculata, linearo-lanceolata, 10-18



Figure 2. *Iris nezahatae* Güner & H.Duman (collectors: M. Öztekin 3639-A.Güner, F. Tezcan, H.B. Güner, accession number: 2004-452B [photo by Adil Güner]).



Figure 3. *Iris nezahatae* Güner & H.Duman, type material (A.Güner 14024-M.Johnson, M.Öztekin, R.Unwin, P.Ravenhill), (photo by Adil Güner).

cm longa, basi 0.8-1.6 cm lata, leviter undulata, acuminata, marginibus albis, levibus vel scabrellibus, supera nitido-viridia, infra glauca et distincte et ordinate nervosa. Bracteae et bracteolae fere aequales, arcte vaginans tubo perianthorum; bracteae 4-6.2 x 1.3-1.6 cm, lanceolatae, viridis, acuminatae, ad marginem membranaceae, dorsaliter leviter carinatae; bracteolae 4.5-5.5 x 1.5-2.1, ovatae vel lanceolatae, acutae vel acuminatae, non carinatae, membranaceae margine et in dimidio inferiore. Perigonium 5.5 cm diametro, rubello-brunneum, interdum pallentior crista lutea; tubus perigoni 2.4-3.6 cm longus, interdum interne hirsutus; segmenta exteriora 3.5-4 x 1.3-1.7 cm, oblonga, ungue parum alata, linea mediana angusta, lutea, lamina 1.2-1.4 x 1.2-1.3 cm, oblonga, lamina ungue lata fere aequalis vel leviter angustior, crista c. 2.5 mm alta, undulata, lutea; segmenta interiora reflexa vel patentia, 1.5-1.7 x 0.4-0.5 cm, lanceolata, irregulariter dentata; styli 3.1-3.6 x 1-1.4 cm, rubello-brunnei margine pallentior vel albidii; stigma bilobata et retusa, 0.1-0.2 x 0.4-0.5 cm; stamina 2.1-3 cm longa, filamenta 1.3-1.9 cm longa, eburnea, anthera 1.1-1.3 cm longa, eburnea, pollen eburneum. Capsula oblongo-cylindracea, circa 2 x 1 cm, rostro circa 1 cm longo. Semina ovoidea, circa 4 mm diametro, rugosa.

Plant 10-15 cm tall at flowering time. Bulb 3-3.5 x 1.8-2.2, ovoid; tunic dark brown, papery, prolonged into a neck on stem; storage roots fleshy, swollen. Stem hidden by leaves with invisible internodes even in fruit,

unbranched, with 1-2(-3) flowers. Leaves (4-)5-6, falcate, canaliculate, linear-lanceolate, 10-18 cm long, 0.8-1.6 cm wide at base, slightly undulate, acuminate, margins white, smooth or scabridulous, glossy green above, glaucous and distinctly and regularly veined below. Bracts and bracteoles almost equal, tightly sheathing perianth tube; bracts 4-6.2 x 1.3-1.6 cm, lanceolate, green, membranous at margins, acuminate, slightly carinate at back; bracteole 4.5-5.5 x 1.5-2.1 cm, ovate or lanceolate, green at upper half, membranous at lower half and on margins, acute or acuminate, not carinate. Flower 5.5 cm in diameter, reddish brown, sometimes paler with a yellow crest; perianth tube 2.4-3.6 cm long, sometimes hairy inside; falls 3.5-4 x 1.3-1.7 cm, oblong, claw 2.1-2.4 x 1.3-1.4 cm, somewhat winged with a narrow yellow band at centre, blade 1.2-1.4 x 1.2-1.3 cm, oblong, almost as wide as claw or slightly narrower, crest c. 2.5 mm high, crinkly, yolk yellow; standard reflexed or spreading, 1.5-1.7 x 0.4-0.5 cm, lanceolate, irregularly dentate; style branches 3.1-3.6 x 1-1.4 cm, reddish brown with paler to whitish margins; stigma bilobed and retuse, 0.1-0.2 x 0.4-0.5 cm; stamens 2.1-3 cm long, filaments 1.3-1.9 cm long, creamy white, anther 1.1-1.3 cm long, creamy white, pollen grains creamy white. Capsule oblong-cylindrical, c. 2 x 1 cm, beak c. 1 cm long. Seeds ovoid, c. 4 mm, rugose.

Material examined:

Turkey A8 Artvin: Yusufeli, Çevreli-Kılıçkaya road junction, 694 m, road sides, 40°44.313'N-41°28.353'E, 12/vi/2004, M. Öztekin 3639-A. Güner, F. Tezcan, H.B. Güner (fruiting material; it produced flowers in NGBB on 14/v/2005).

A8 Artvin: Yusufeli, between Yusufeli and İspir, Alanbağı Köyü, around Hav Bağları, 750-900 m, *Paliurus spina-christi* scrub, 15/v/2004, H.Duman 9356-Z. Aytaç (flowering material).

A8 Artvin: Yusufeli, around Çevreli Köyü, Çoruh Valley, 690 m, steppic open scrub, alluvial slopes, 40°44,381'N—41°28.434'E, A.Güner 13977-M. Johnson, M. Öztekin, R. Unwin, P. Ravenhill (flowering material).

A8 Artvin: Yusufeli, around Öğdem, 1635 m, steppe, metamorphic ground, 40°55,005'N—41°38,339'E, A.Güner 13991-M. Johnson, M. Öztekin, R. Unwin, P. Ravenhill (living material, accession number 2006-474, NGBB).

A8 Artvin: Yusufeli, below Öğdem, around Hazara, 1360 m, meadow, metamorphic slopes, 40°54,639'N—41°36,987'E, A.Güner 13994-M. Johnson, M. Öztekin, R. Unwin, P. Ravenhill (flowering material).

A8 Artvin: Yusufeli, below Çıralı Köyü, 770 m, scrubby slopes, metamorphic deep valley, 40°52,808'N—41°33,450'E, A.Güner 13999-M. Johnson, M. Öztekin, R. Unwin, P. Ravenhill (living material, accession number 2006-446, NGBB).

A8 Artvin: Yusufeli, below Kılıçkaya (Ersis), 800 m, metamorphic steep slopes, 40°44,035'N—41°26,651'E, A.Güner 14022-M. Johnson, M. Öztekin, R. Unwin, P. Ravenhill (living material, accession number 2006-400, NGBB).

Discussion

Iris nezahatae is closely related to *I. caucasica*, but, based on the characters shown in Table 1, it is well separated from this species. Its flowering time is quite different from that of *I. caucasica* and all other Juno iris species observed at the NGBG. However, due to the big altitude differences in habitat, flowering time may slightly overlap because *Iris nezahatae* grows at lower altitudes. The most striking difference is the flower colour. Many iris species show colour variation and flower colour is therefore not a reliable character, but, in the case of *I. caucasica*, the flower colour is a relatively stable yellow or greenish yellow. So far, although there is some minor variation in the density of colour, no other flower colour has been observed for *Iris nezahatae*, even though it has been collected from quite a wide area around Yusufeli. It occurs in different habitats to those preferred by *I. caucasica*. In addition, its shorter perianth tubes convinced us that the specimens represent a new species.

The photograph shown in the Alpine Garden Society Bulletin (Joyce, 2000) under the name of *Iris galatica* should be re-identified as *Iris nezahatae*.

According to Mathew (1984), the number of Juno irises known in Turkey was 6, but *Iris nezahatae* now brings the total to 7.

Ecology and status:

Iris nezahatae occurs in the Çoruh Valley in the Yusufeli district, where it prefers dry, stony, steep scree slopes or sometimes alluvial slopes. *Paliurus spina-christi* Mill., *Acer divergens* C.Koch & Pax ex Pax, and *Juniperus oxycedrus* L. are present in the open scrubby vegetation occurring at the bottom of the valley. Other accompanying shrubs are *Colutea armena* Boiss. & Huet and *Cotinus coggygria* Scop. In this endemic-rich

Table 1. Comparison of *Iris nezahatae* and *I. caucasica* s.l.

| | <i>I. nezahatae</i> | <i>I. caucasica</i> s.l. |
|---------------------------|---------------------|---------------------------|
| Flower colour | reddish brown | yellow or greenish yellow |
| Perianth tube | 2.4-3.6 cm long | 3-4.7 cm long |
| Altitude | 650-1360 m | 1200-3500 m |
| Flowering time in habitat | May-June | April-June |
| Flowering time in NGBB | May-June | April |

vegetation, endemics such as *Clypeola raddeana* Albov, *Salvia rosifolia* Sm., *Genista aucheri* Boiss., *Seseli andronakii* Woron., *Stachys viscosa* Montbr. & Auch. ex Benth. var. *odontophylla* (Freyn) Rech.f., *Lathyrus woronowii* Bornm., *Haplophyllum armenum* Spach, *Ballota rotundifolia* K.Koch, *Bupleurum schistosum* Woronow, and *Alyssum artvinense* Busch occur. Other plants growing with *Iris nezahatiae* include *Campanula macrochlamys* Boiss. & Huet, *Muscari tenuiflorum* Tausch, *Ornithogalum narbonense* L., and *Bellevalia gracilis* Feinbrun.

Currently this new species is known from 5 localities around Yusufeli. Its 'extent of occurrence' is approximately 225 km² in an area roughly 15 km by 15 km. According to the IUCN red list categories (IUCN, 2001), *Iris nezahatiae* may be assessed as 'endangered (EN)' (criteria b1 and b1a), but unfortunately when the Yusufeli dam is constructed in the near future more than 50% of the distribution area of the new species will be flooded. For assessing a taxon as 'critically endangered', criterion A4a estimates that an 80% reduction of the population size is required. However, although the

estimated reduction in this case is approximately 50% (which is insufficient for the species to be classified as 'critically endangered'), since it is already an 'endangered species' and close to the 'critically endangered' criteria, we conclude that *Iris nezahatiae* must therefore be assessed as 'critically endangered (CR)'.

Etymology

The new species is named after the late Mrs Nezhahat Gökyiğit, the wife of Mr A Nihat Gökyiğit, the sponsor of the Nezhahat Gökyiğit Botanic Garden.

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