

Two New Records from Wetland Habitats of the Central Alborz Mountains, Iran

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Abstract: *Oxytropis glabra* (Lam.) DC. (Papilionaceae) and *Carex pycnostachya* Kar. & Kir. (Cyperaceae) are reported as new records for the flora of Iran. These species occur in wetland habitats sharply embedded in steppic vegetation in the Alborz Mts., N Iran. A morphological comparison between these new records and related species is presented. Habitat features of each species are described. Newly found localities for these 2 species in Iran indicate westward extension of the distribution of these species.

Key Words: *Carex pycnostachya*, Irano-Turanian region, mountain wetlands, *Oxytropis glabra*.

Introduction

The north-central border of Iran is marked by the Caspian Sea, which is bordered on the Iranian side by the Alborz Mountains. Although only approximately 100 km wide north to south, this mountain range reaches elevations greater than 4500 m a.s.l. and forms a long, east-west barrier that separates the moist Caspian Sea climate from the more arid central part. Botanical investigation of the Alborz range was initiated in the 19th century (e.g., Kotschy, 1861) and continuing research has resulted in several publications (e.g., Gilli, 1939; Klein, 2001), but rather little is known about the wetlands and their flora and vegetation. The occurrence of a remarkable number of wetland sites, as patches of verdant habitat within surrounding dry steppe vegetation, forms an important feature of the mountains and relates them to relatively similar structures in other adjacent mountains in Turkey (Vural, 1996; Parolly, 2004), Afghanistan (Gilli, 1971), and Iraq (Hadač & Agnew, 1963). During vegetation and floristic studies on the wetland habitats of the southern slopes of the Alborz

Mts., we found new records from *Oxytropis* DC. (Papilionaceae) and *Carex* L. (Cyperaceae). The specimens were compared initially with material housed in TUH, TARI and more recently K (abbreviation according to Holmgren et al., 1990).

Results and Discussion

Oxytropis glabra (Lam.) DC. Astragal. 35 (1802).
Synonym: *Astragalus glaber* Lam., Encycl. Meth. Bot. 1: 525 (1783). *O. diffusa* Ledeb., Fl. Ross. 1: 585 (1842).
Figure 1.

Examined specimen

Iran: Tehran Province: Firuzkuh, on the road from Firuzkuh to Ghaemshahr, 1-2 km after Firuzkuh to Ghaemshahr, Chaman Shooorestan, 1997 m, 35°47'12.39" N, 52°49' 44.48" E, 6 July 2006, Naqinezhad, no. 36895 (TUH), duplicate in K.

Perennial, 20-35 cm high; stems few, more or less ascending, green, branching, glabrous or sparingly hairy;

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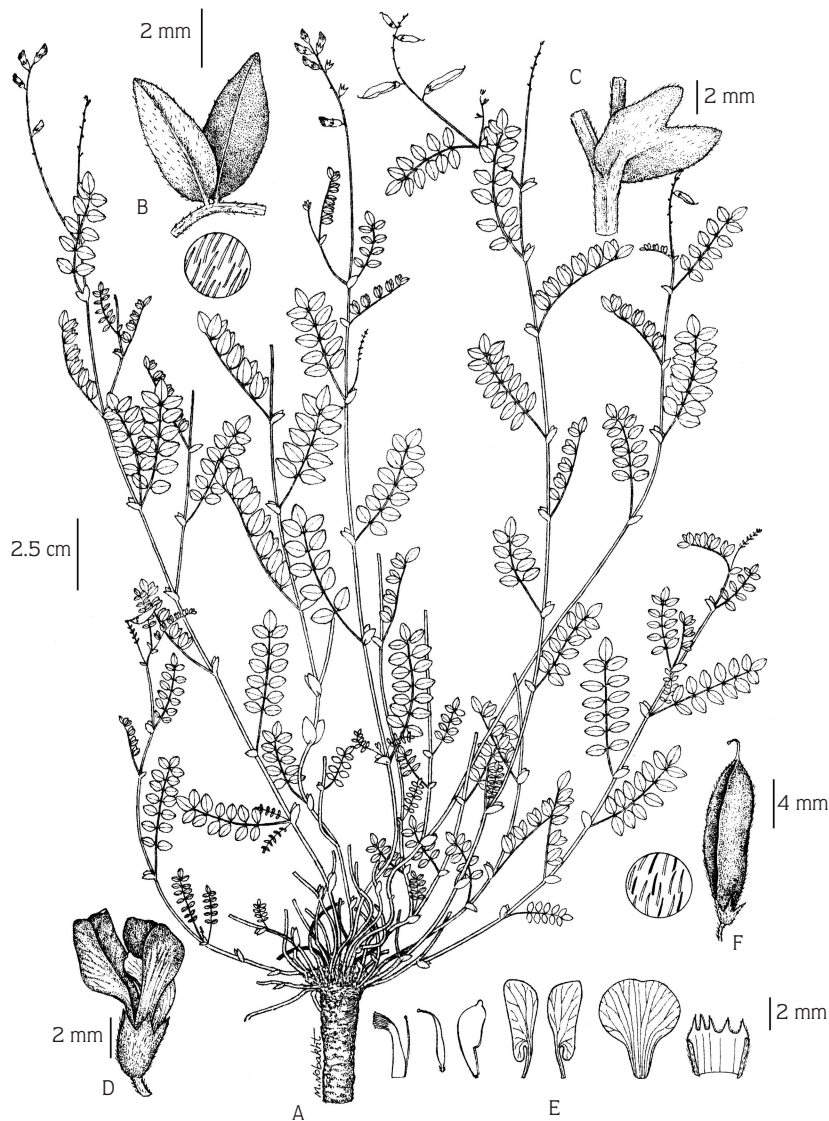


Figure 1. *Oxytropis glabra* (Lam.) DC. based on *Naqinezhad* 36895 (TUH). A, habit. B, leaflet with upper and lower surfaces. C, stipule. D, flower. E, different parts of flower. F, pod with surface indumenta.

stipules herbaceous, free or half-connate, ovate or lanceolate-ovate, 4-7 mm long, glabrous or sparingly pubescent; leaves 3-10 cm long; leaflets 5-9-paired, lanceolate or ovate-lanceolate, 3-10 × 3-6 mm, glabrous or nearly so above, sparsely appressed hairy beneath; peduncles 2-8 cm long, with scattered short white spreading hairs; racemes loose (with more or less discrete flowers), 3-7 cm long, many-flowered; bracts narrowly lanceolate, ca. 2 mm long, acute, sparsely hairy; pedicels 1 mm long; calyx campanulate, 2.5-4 mm long, with

short white appressed hairs (mixed sometimes with few black ones), teeth lanceolate-subulate; corolla pale lilac, standard ca. 7 mm long, limb orbicular, slightly emarginated at apex, wing 6-7 mm long, keel 5-6 mm long, beak 0.2-0.5 mm long; pods oblong, 10-20 × 3-6 mm, pendulous, deeply grooved ventrally, rounded dorsally, membranous, with short loosely appressed white hairs or black and white, later becoming glabrous, stipe ca. 1 mm long.

Taxonomic remarks

Oxytropis is one of the largest genera and most taxonomically difficult genera of Papilionaceae, with 32 taxa in Iran (Boissier, 1872; Bunge, 1874; Vasilchenko, 1984; Ranjbar, 1999). *Oxytropis glabra* is in the section *Mesogaea* Bunge. The closest species to *O. glabra* is *O. heratensis* Bunge ex Boiss. described from Herat, Afghanistan. The differences between these 2 species are presented in the Table. Two distinct habit forms, i.e. plants with longer leaves and longer peduncle and plants with smaller leaves and shorter peduncle, were collected in the same population. Taxonomic studies indicated the occurrence of the characters of *Oxytropis glabra* in both specimens. Moreover, this morphologic variation has been also observed in the specimens of this species in Kew herbarium.

Distribution and habitat

Oxytropis glabra grows in wet salty meadows near Firuzkuh, Tehran. This species occurs in similar habitats across its distributional range from W & E Siberia, Central Asia, Mongolia, Pakistan, Kashmir and Tibet to China (Fedchenko & Vasilchenko, 1948; Ali, 1977). *Oxytropis glabra* is associated with other wet meadow species, e.g., *Carex orbicularis* Boott subsp. *kotschyana* (Boiss. & Hohen.) Kukkonen, *Hordeum violaceum* Boiss. & Huet, *Juncus gerardi* Loisel. subsp. *persicus* (Boiss.) Snogerup, *Plantago maritima* L. subsp. *salsa* (Pall.) Rech.f., *Scorzonera parviflora* Jacq., and *Triglochin maritima* L. Although the newly found locality in the Alborz Mts. is relatively far from the main distribution of *Oxytropis glabra*, the occurrence of this species in similar

habitats supports the westward extension of the distribution of this species.

Carex pycnostachya Kar. & Kir., Bull. Soc. Nat. Mosc. 15: 522 (1842). Synonym: *C. curaica* Kunth var. *pycnostachya* (Kar. & Kir.) Kük. in Engler, Pflanzenr. IV. 20, 38: 124 (1909). Figure 2.



Figure 2. *Carex pycnostachya* and inflorescence based on dried specimen of Naqinezhad 36933 (TUH).

Table. The main morphological differences between *Oxytropis glabra* and *O. heratensis*.

	<i>O. glabra</i>	<i>O. heratensis</i>
Plant size	20-35 cm	2-20 cm
Leaves length	3-10 cm	2.5-3 cm
Leaflets		
Pairs numbers	5-9	4-5
Length	3-10 mm	2-6 mm
Upper surface	hairless to few hairs	same as lower surface with dense indumentum
Peduncle length	2-8 cm	1-2 cm
Length ratio of calyx tube to segments	2-3	3-4
Standard		
Length	ca. 7 mm	7.5-9 mm
Shape	orbicular	obovate
Length of keel mucro	0.2-0.5 mm	0.6-1.25 mm
Length of pod stipe	ca. 1 mm	subsessile

Examined specimen

Iran: Tehran Province: Firuzkuh, mountain area near Arjomand, Sagoon Lake, 3097 m, 35°50′ 57.43″ N, 52°20′ 56.64″ E, 4 July 2006, Naqinezhad, 36933 (TUH), duplicate in K.

Rhizomatous, 30-50 cm high; stem robust, 2-3 mm in diameter, sharply trigonous and usually scabrous above, obtusely trigonous below, deeply grooved; leaves from ca. $\frac{1}{2}$ of stem length to ca. equalling it; sheaths 30-70 mm long, greyish-black, margin of scarious side slightly oblique; ligule conspicuous, at margin up to 1 mm long, at middle up to 0.5 mm long, scarious; blades 2.5-3.5 mm broad, yellow-green, flat, scabrous; inflorescence 10-40 × 5-10 mm, light brown, cylindrical, compact or the lowest spikes separated; bracts inconspicuous, lowest of variable size, sheathless, narrow, scabrous; spikes androgynous, female glumes 3-4 × 1.5-2 mm, cymbiform, acute, margins scarious; utricles 3.5-4 × 1.5-2 mm, with stipe to 0.5 mm ellipsoid or ovoid, plano-convex, yellowish brown or brown, with 5-9 strong, dark veins above and 3-5 below, glossy, conspicuously suberous, with narrow, scabrous wing in upper part; beak 0.5-1 mm, conical, with narrow, scabrous wings, bidentate or oblique, deeply split above, ostiole margins scarious; nut 1.8-2 × 1-1.2 mm, ellipsoid or obovoid, bi-convex (or plano-convex), glossy, finely or obscurely reticulate.

Taxonomic remarks

Carex pycnostachya is a member of the subgenus *Vigna* (Beauv.) Nees and is similar to *Carex divisa* Huds.

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and *C. curaica* Kunth. The most important character to distinguish this species from the others is the occurrence of some conspicuous nerves on the back of utricles in *C. pycnostachya* (Kukkonen, 1998). *Carex pycnostachya* is the 102th taxa of *Carex* already known from Rechinger's Flora Iranica area after Kukkonen (1987, 1998), Akhani (1998), Naqinezhad & Ghahreman (2002), Amini Rad (2003, 2005a, 2005b), Naqinezhad et al. (2005), and Amini Rad (2006).

Distribution and habitat

Carex pycnostachya is distributed in Irano-Turanian wet mountainous parts of Central Asia from Tarbagatai to Tadjikistan, Afghanistan, Pakistan, Kashmir, and China (Krešetoviš, 1935; Kukkonen, 1998; Kukkonen, 2002). This species was known in the Flora Iranica area only from some localities in central Afghanistan (Kukkonen, 1998). *Carex pycnostachya* was found as a marginal fringe around the Sagoon Lake, one of the high mountain lakes of the Alborz Mts., where it was associated with some other wetland species such as *Chara* sp., *Hippuris vulgaris* L., *Potamogeton pectinatus* L., *Utricularia* sp., and *Zannichellia palustris* L.

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