

# Two new species of *Centaurea* (Asteraceae) from Turkey

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Two new species of *Centaurea* L. (Asteraceae) from Turkey are described and illustrated. *Centaurea cankiriense* A. Duran & H. Duman (sect. *Cheirolepis* (Boiss.) O. Hoffm.) is restricted to the steppes of Dumanlı Dağ (A4: Atkaracalar-Çankırı). *Centaurea antalyense* H. Duman & A. Duran (sect. *Phalolepis* (Cass.) DC.) occurs in forest and macchia in the south of Akseki district (C3: Antalya).

Key words: Asteraceae, *Centaurea*, taxonomy

## Introduction

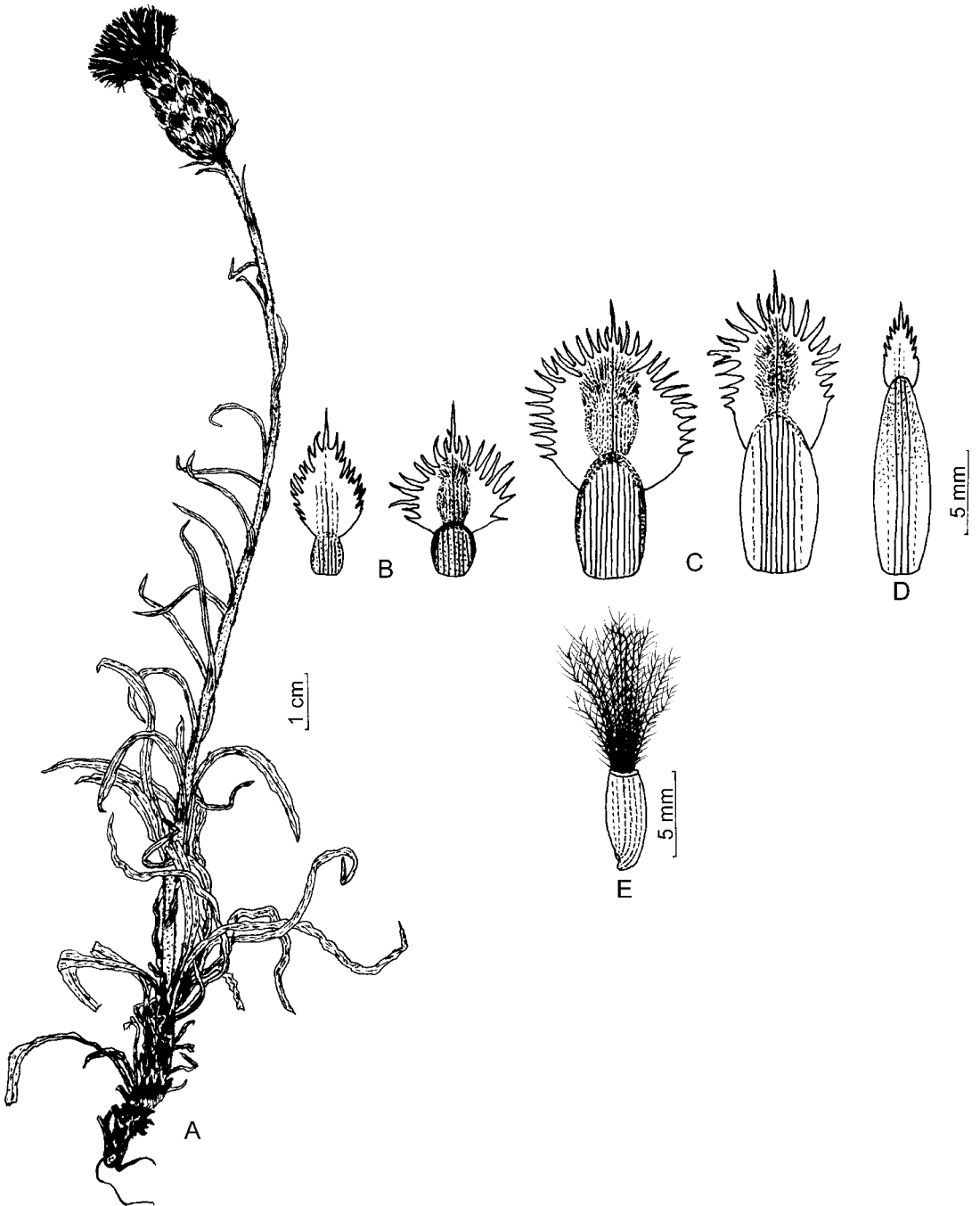
Turkey is one of the main centres of diversity for the genus *Centaurea* (Wagenitz 1986). In the Flora of Turkey, 172 species plus six imperfectly known species of *Centaurea* were accepted (Wagenitz 1975). Since then six new species have been described from Turkey: *Centaurea mykalea* Hub.-Mor., *C. iconiensis* Hub.-Mor., *C. cariensiformis* Hub.-Mor., *C. nydeggeri* Hub.-Mor., *C. yozgatensis* Wagenitz, and *C. hadimensis* Wagenitz, K. Ertuğrul & H. Dural (Davis *et al.* 1988, Wagenitz & Hellwig 1996, Wagenitz *et al.* 1998). One species (*C. amplifolia* Boiss. & Heldr.) was added as a new record for Turkey by Davis *et al.* (1988). In this paper, we describe

two new species, after which the total number of *Centaurea* species known from Turkey raises to 187.

***Centaurea cankiriense*** A. Duran & H. Duman, *sp. nova* (Figs. 1 and 3).

*Affinis* *C. serice* Wagenitz, *sed appendicula in spinulam 2–4 mm longam (nec 1 mm) terminanti, pappo 8–10 mm (nec 13–14 mm) longo differt.*

HOLOTYPE: Turkey. A4 Çankırı; Atkaracalar, Dumanlı Dağ, Taşlık-Harmanyeri, 1500 m, steppe, 21.VII.1994 A. Duran 1974 (GAZI; isotypes ANK!, ADO!, HUB!).



**Fig. 1.** *Centaurea cankiense* A. Duran & H. Duman (from the holotype). — **A:** Habit. — **B:** Outer phyllaries. — **C:** Median phyllaries. — **D:** Inner phyllary. — **E:** Achene.

Perennial herb with a woody rootstock. Stems erect or decumbent, striate, floccose-tomentose, 5–35 cm long and ca. 2 mm diam., usually simple, rarely 1–2 one-headed branches in median part. Leaves floccose-tomentose, margins slightly undulate or entire; basal leaves linear-lanceolate, petiolate, up to 11 ¥ 0.7 cm; median and upper leaves linear, decreasing to capitula, sessile, 1–3 mm broad, acuminate. Capitula solitary at end of branches. Involucre 20–30 ¥ 8–17 mm, oblong or cylindrical. Lower phyllaries linear-lanceolate, 5–10 ¥ 1.2–2 mm, appendage 5–7 ¥ 1–2 mm; median phyllaries oblanceolate, ca. 15 ¥ 10 mm, appendage 7–8 ¥ 6–10 mm; inner phyllaries linear or linear lanceolate, 15–18 ¥ 1–2 mm, appendage 1.5–2.5 ¥ 1–2 mm. Appendage large, concealing most of basal part of phyllaries, slightly decurrent, ± orbicular, with broad hyaline irregularly fringed to ciliate border or sometimes lacerate and firmer brown central part, distinctly concave, ending in a slender, 2–4 mm long spinule. Flowers yellow, marginal not radiant. Achenes 4–5 mm, brown or straw-coloured, glabrous; pappus simple, 8–10 mm, plumose, brownish.

**DISTRIBUTION AND ECOLOGY.** Endemic in transition territory of Central and North Anatolia. Irano-Turanian element. Occurs in steppe on stony slopes at 1400–1600 m. Flowers and fruits June, July and August. This species grows with *Galium verum* subsp. *glabrescens*, *Achillea teretifolia*, *Inula britannica*, *Scariola viminea*, *Sedum obtusifolium*, *Salvia verticillata*, *S. frigida*, *Silene supina* subsp. *pruinosa*, and *Hypericum linarioides*.

**CONSERVATION STATUS.** The range of *Centaurea canki-riense* is restricted to a single location and an area of less than 5 km<sup>2</sup> (criterion B of IUCN 1994). We suggest that *C. canki-riense* should be placed under the IUCN category *Critically Endangered* (CR).

This species is similar to *Centaurea sericea* Wagenitz, of which only one specimen was collected from Dursunbey (Balıkesir) by Sevim and Mehpare in 1947. *Centaurea canki-riense* differs from *C. sericea* by the longer, 2–4 mm

long spinule of appendage (vs. 1 mm) and only 8–10 mm long pappus (vs. 13–14 mm).

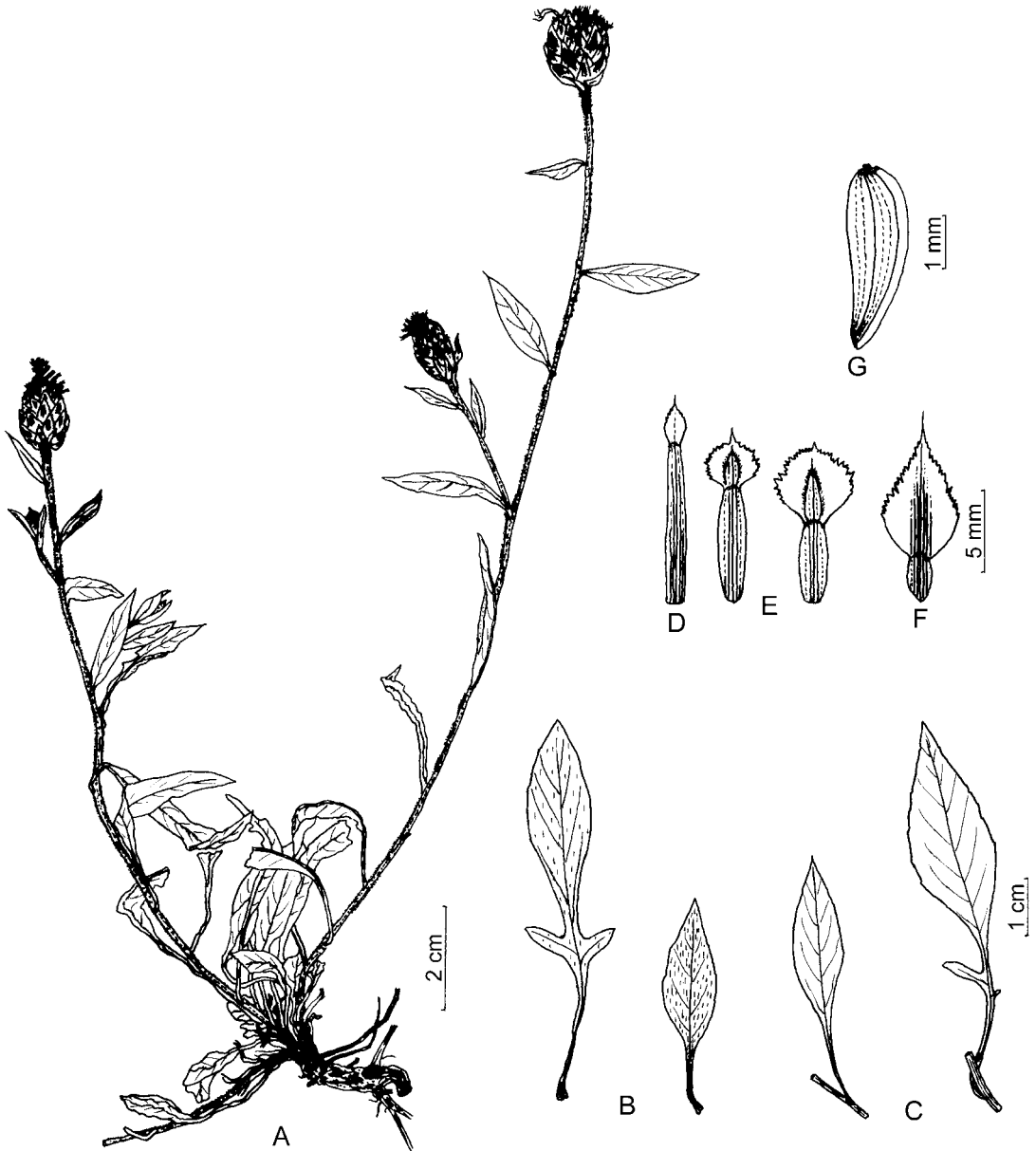
**ADDITIONAL SPECIMENS EXAMINED** (paratypes). **Turkey.** A4 Çankırı: Atkaracalar, Dumanlı Dağ, around Bozyazı, 1500 m, steppe, 30.VII.1991 A. Duran 1359 (GAZI); ibid., around Taşlık, 1500–1550 m, stony places, 18.VII.1991 A. Duran 1477 (ADO); Harmankaya valley, north of Ararözü, 1400 m, stony places, 30.VII.1991 A. Duran 1424 (GAZI).

***Centaurea antalyense* H. Duman & A. Duran, sp. nova** (Figs. 2 and 3).

*Affinis C. lyciae* Boiss. et *C. jaceae* L. A *C. lyciae* *foliis caulinis simplicibus, viridibus, dense glanduloso-punctatis et pilis brevibus vel sparse canescenti-tomentosis (non lyratis usque simplicibus, albo tomentosus), appendicula in spinulam 2–3-plo longiorem 1–1.5 mm longam (non 0.3–0.7 mm) terminanti, pappo nullo (haud praesenti 3–4 mm longo) differt. A C. jaceae appendicula integra usque minute denticulata in spinulam 1–1.5 mm longam terminanti (haud fimbriata vel lacerata, spinulam carenti) recedit.*

**HOLOTYPE:** Turkey. C3 Antalya; Akseki, near Güzel-su, 1250 m, clearings *Cedrus libani*. 29.VI.1996 A. Duran 3932 (GAZI; isotypes ANK!, ADO!, HUB!).

Perennial, stem erect, ridged, scabrous to grey tomentose or becoming glabrous, 5–40 cm, with 2–3 long branches in upper part, to 10 cm. Leaves green, very densely glandular-punctate, scabrous with short hairs and sparsely grey-tomentose; basal leaves entire or with few coarse teeth or lobes, lanceolate, 4–7 ¥ 0.7–1 cm, acute; median and upper leaves lanceolate to oblong or linear-lanceolate, entire, sessile, acute. Involucre 15–20 ¥ 10–15 mm, ovoid to oblong. Appendage large, totally concealing basal part of phyllaries, not decurrent, ± orbicular with broad hyaline margin and firmer brown central part, 4–6 ¥ 4–6 mm, entire to minutely denticulate, ending in a slender 1–1.5 mm spinule. Flowers rose-purple, marginal radiant. Achenes 2–3 mm; pappus absent.



**Fig. 2.** *Centaurea antalyense* H. Duman & A. Duran (from the holotype). — **A:** Habit. — **B:** Basal leaves. — **C:** Stem leaves. — **D:** Inner phyllary. — **E:** Median phyllaries. — **F:** Outer phyllary. — **G:** Achene.

**DISTRIBUTION AND ECOLOGY.** East Mediterranean element, endemic. Occurs in calcareous stony places, clearings of *Pinus brutia*, *Cedrus libani* and macchia vegetation at 1030–1600 m. Flowers in May and June, fruits in July. *Centaurea antalyense* grows with *Cedrus libani*, *Pinus brutia*, *Juni-*

*perus excelsa*, *J. oxycedrus* subsp. *oxycedrus*, *Styrax officinalis*, *Quercus coccifera*, *Q. infectoria* subsp. *boissieri*, *Fontanesia philliraeoides* subsp. *philliraeoides*, *Fraxinus angustifolia* subsp. *angustifolia*, *Fritillaria elwesii* (endemic), *Trifolium physodes* var. *physodes*, and *Phillyrea latifolia*.

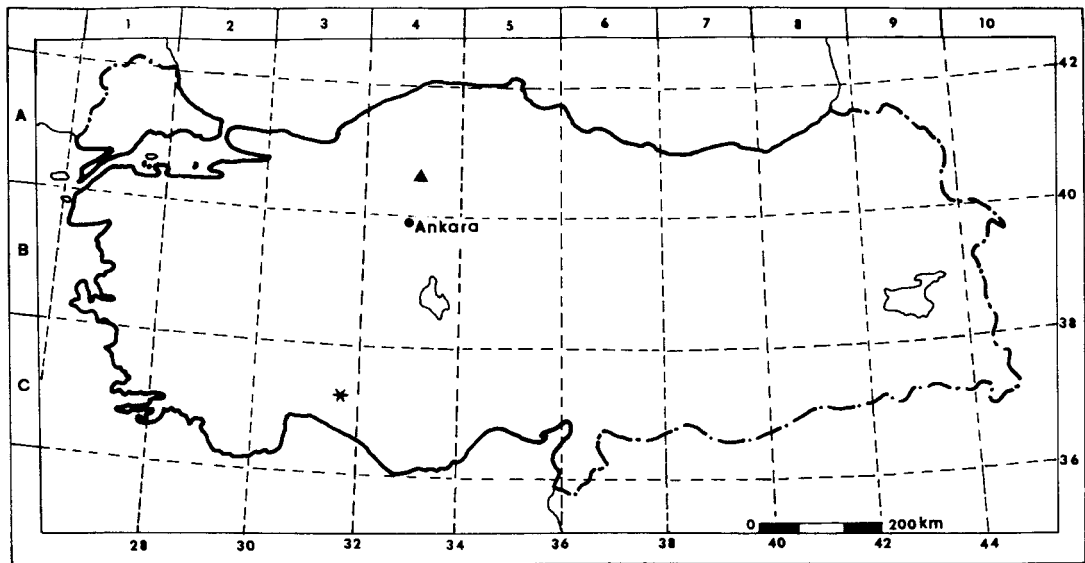


Fig. 3. Distribution map of *Centaurea cankiriense* (▲) and *C. antalyense* (\*).

**CONSERVATION STATUS.** This species occurs only in the south of Akseki (Antalya) district between 1030–1600 m and in an area less than 100 km<sup>2</sup> (criterion B), (IUCN 1994). Thus we suggest that the *Centaurea antalyense* should be placed under the IUCN category *Critically Endangered* (CR).

*Centaurea antalyense* is between sect. *Jacea* (Mill.) DC. and sect. *Phalolepis* (Cass.) DC. Although the vegetative parts are very similar to *C. jacea*, the appendage characters resemble those of *C. lycia*. From *C. lycia* it differs by the simple stem leaves which are also green, densely glandular-punctate, with short hairs or sparsely grey tomentose (vs. lyrate to simple and white tomentose as in *C. lycia*), the appendage ending in a 1–1.5 mm long spinule (vs. 0.3–0.7 mm), and absence of pappus (vs. 3–4 mm long in *C. lycia*). From *C. jacea* it differs in having entire to minutely denticulate appendages, which end in a 1–1.5 mm long spinule (vs. not fringed or lacerate and lacking a spinule).

**ADDITIONAL SPECIMENS EXAMINED (paratypes).** **Turkey.** C3 Antalya: Akseki, Geyran Yayla, 1400–1500 m, clearings macchie, 6.VII.1994 A. Duran 1937 (GAZI); *ibid.*, 1600 m, open places, 21.VII.1995 A. Duran 3060 (ADO); Güzelsu, around Serebil, 1030 m, clearings *Pinus brutia*, 31.V.1996 A. Duran 3801 (GAZI), 24. VII. 1997 A. Duran 4236 (ADO).

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