

Thesium (Santalaceae) in Crimea, Ukraine

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Received 1 Dec. 2003, revised version received 13 Feb. 2003, accepted 5 Mar. 2004

Romo, A., Didukh, Y. & Boratyński, A. 2004: *Thesium* (Santalaceae) in Crimea, Ukraine. — *Ann. Bot. Fennici* 41: 273–281.

A new species of *Thesium* is described from Crimea, and its affinities to closely related taxa are discussed. *Thesium* is represented in Crimea by four taxa: *T. arvense*, *T. dollineri* subsp. *simplex* (including *T. caespitans*), *T. brachyphyllum* and *T. krymense* sp. *nova*. *Thesium dollineri* subsp. *moesiacum* is excluded from the flora of Crimea. *Thesium procumbens* and *T. brachyphyllum* are closely related taxa, which should be recognized as different species, but only the latter is present in Crimea.

Key words: Crimea, phytogeography, *Santalaceae*, taxonomy, *Thesium*

The genus *Thesium*, with nearly 260 species, has its main center of diversity in the Cape region of South Africa, where about 80 species occur. A second center of diversity is located in the Mediterranean area, where the eastern half of Greece stands out with ten and Turkey with 18 species.

Crimea, despite its peripheric position in regard to the biogeographical Mediterranean region (Meusel *et al.* 1965), harbours four distinct taxa, one of which is described here as new to science.

As a result of an expedition undertaken to the mountainous region of Crimea, some *Thesium* specimens were collected. The plants were initially assigned to *T. brachyphyllum*, but a more detailed study revealed that we were dealing with an undescribed taxon. The presence of *T. procumbens* in Crimea requires confirmation. The references made to this plant in the region

stem from a broadly-based concept of the species, which includes *T. brachyphyllum* in the synonymy of *T. procumbens*.

The herbarium acronyms follow Holmgren *et al.* (1990).

Key to species of *Thesium* in Crimea

1. Inflorescence a raceme, branched at base *T. arvense*
1. Inflorescence a panicle, not branched at base 2
2. Leaves dissimilar, lower ones scale-like, 2–3 mm long, upper 5–8(10) mm long; peduncles about as long as flowers; persistent portion of nutlet 1/3 of length of nutlet *T. brachyphyllum*
2. Leaves all similar, linear, more than 10 mm long, lower ones not scale-like; peduncles longer than flowers; persistent portion of nutlet 1/3 to 1/4 of length of nutlet .. 3
3. Bracteoles shorter than fruit; leaves linear, 12–16 mm long; lateral bracts shorter than flowers; nutlet with longitudinal, conspicuous, slightly branched nerves; nerves numbering 14–16 *T. krymense*

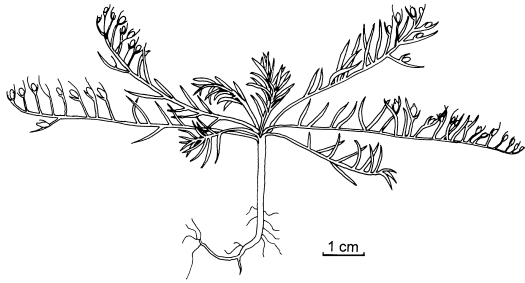


Fig. 1. Habitat of *Thesium krymense* (from holotype).

3. Bracteoles longer than fruit; leaves linear, more than 18 mm long; lateral bracts equalling to or longer than flowers; nutlet with conspicuous branched nerves numbering less than 14 4
4. Leaves linear, to 30 mm long; lateral bracts about as long as flowers; nutlet 2.5 mm long, with longitudinal, conspicuous nerves somewhat reticulate with transverse and oblique nerves, nerves numbering up to 6(8)
..... *T. procumbens*
4. Leaves linear, to 22 mm long; lateral bracts 2 to 3 times as long as flowers; nutlet to 3.5–4 mm, with some anastomosing nerves, nerves numbering up to 12
..... *T. dollineri* subsp. *simplex*

***Thesium krymense* Romo, Didukh & Boratyński, sp. nova (Figs. 1–3)**

Planta perennis, undique viridi-flava. Caules minute papillati. Folia indistincte nervata, margine laevia. Inflorescentia plerumque unilateralis, dimidium longitudinis caulis occupans. Bracteae fructibus plus quam duplo longiores; bracteolae breviores, nonnumquam longitudinem fructus non aequantes. Nucula 2.75–3.25 × 1.75–2.25 mm longa lataque, glabra, longitudinaliter distincte 14–16-nervata. Perianthium post anthesim (persistens in fructu) 0.5–0.75 mm longum atque longitudine 1/3–1/4 nucularis longitudinalis aequans.

TYPE: **Ukraine.** Crimea: Hora Belaya Skala, dry grasslands in eroded margaceous soils, 250–340 m, 7.VI.2001, Boratyński, Didukh, Romo 10355/1 et al. (holotype BC 830671; isotypes KW ex BC 830672, KOR).

Prostrate perennial 6 to 10 cm high, greenish-yellow, glabrous, with procumbent herbaceous stems slightly ascendent at tips and unbranched. Stems minutely papillose. Leaves obscurely nerved, alternate, simple, linear. All leaves simi-

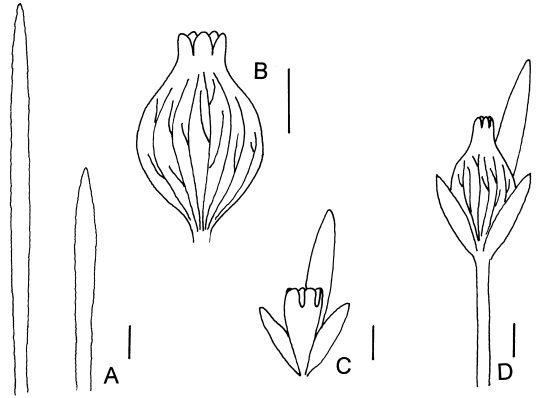


Fig. 2. *Thesium krymense* (from holotype). — A: Leaves. — B: Nutlet. — C: Flower with bract and lateral bracteoles. — D: Nutlet with bract and lateral bracteoles. Scale bars = 1 mm.

lar, 12–16 × 0.5–0.6 mm, with conspicuous venation. Inflorescence mostly unilateral, occupying less than half of stem. Flowers subtended by two bracteoles and one bract. Lateral bracteoles slightly shorter than flower, bract twice flower length, flowers yellowish, pentamerous, 1.75–2.25 mm (including ovary zone), tepals 0.5–0.6 mm, perianth 1–1.25 mm. Bract 1.5–2 times as long as fruit, bracteoles smaller, shorter than fruit. Fruit nut-like. Nucule ovoid, 2.75–3.25 long × 1.75–2.25 mm wide, (including remains of perianth) glabrous, conspicuously longitudinally veined, veins slightly branched. Veins on nucule differentiated, 14 up to 16; narrow but distinct broad longitudinal veins and many weak irregular anastomosing veins; fruit stalk (pedicel) 0.4–0.5(0.7) mm, bracteoles shorter than fruit. Bract as long as fruit; persistent perianth 0.5–0.75 mm long, length 1/4 to 1/3 of nucule (Fig. 2).

ETYMOLOGY. The specific epithet refers to the vernacular name of Crimea: Krym.

HABITAT. Eroded margaceous soils, calcareous shale; in its classic locality grows with *Crepis purpurea*, *Euphorbia petrophila*, *Gypsophila glomerata*, *Helianthemum stevenii*, *Linum tauricum*, *Onosma taurica*, *Scutellaria orientalis* and *Thymus tauricus*.

PHENOLOGY AND LIFE FORM. Flowering and fruiting at end of May and in June; hemicryptophyte.

DISTRIBUTION: Endemic of Crimea.

Thesium krymense belongs to the series *Micrantha* (cf. Bobrov 1936). This series comprises plants with short, prostrate, unbranched stems and small flowers. To this series belong also *T. brachyphyllum* from the eastern Mediterranean, *T. parnassi* from the Balkan Peninsula, *T. libanotis* from Syria, *T. pyrenaicum* from northern Spain, *T. sommieri* from northern Italy, *T. kyrnosum* from Corsica and *T. brachystegium* from the western Mediterranean. The revised herbarium material of *T. krymense* comes from KW and YALT, and was used for the distribution map (Fig. 3).

Species closely related to *T. krymense* are *T. procumbens* (Fig. 4), *T. brachyphyllum* and *T. dollineri* subsp. *simplex*. They are compared in Table 1.

ADDITIONAL SPECIMENS EXAMINED (numbers correspond to Fig. 3). — **Ukraine.** Crimea: (1) Sevastopol, mount Sapun (Hora Sapun), northern slope, 1981 *Kosyh* (YALT); (2) Bakhchisaray region, Malo-Sadove, calcareous rocks, 1981 *Golubev* (YALT); (3) Bakhchisaray region, Krasny Mak, mountain summit, 1997 *Ryff* (YALT); (4) Yalta region, Gursuf, Mertva dolina, calcareous shale, 1929 *Kotov* (KW); (5) Bujurlun, near Gurzuf, calcareous shale, 1930 *Kotov* (KW).

Thesium brachyphyllum Boiss. (Figs. 5–6)

Diagnoses Plantarum Orientalum Novarum, ser. 1(5): 48. 1844. — TYPE: "In reg. alpine Tmoli (Boz Dagh) supra Philadelphiam" *Boissier* (holotype G-Boiss.).

Caespitose with a stout, lignified main root. Whole plant yellowish-green. Stems arising usually from a distinct cushion-like basal portion, procumbent or ascending, rarely suberect, minutely papillose. Cauline leaves (3)5–8(13) mm, rather densely set, typically two-ranked, usually falcate, acute, minutely papillose. Bracts usually at least 3 times as long as fruit. Bracteoles shorter than fruit. Inflorescence a raceme occupying more than half stem; flowering branches up to 1 mm. Flowers pentamerous; perianth campanulate-rotate; perianth lobes greenish-yellow or whitish-yellow. Fruit 2.3–3.1 × 1.1–1.3 mm, ellipsoidal, yellowish-green with up to 6 (rarely 8) narrow but distinct longitudinal veins and many weak, irregular, anastomosing

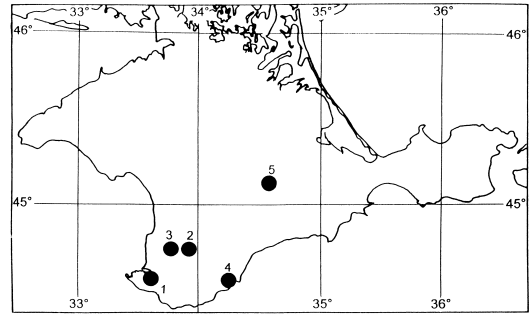


Fig. 3. Distribution of *Thesium krymense*.

veins; receptacle rather broad and attenuate; persistent perianth up to 0.5 mm, broadly attenuate, gradually widening into seed-bearing portion.

According to Bobrov (1936), this species is a Crimean plant, from where it was mapped by Jalas and Suominen (1976). It grows only in the southern part of Crimea, except for one locality near Kazantip.

Thesium brachyphyllum is distributed from the East Mediterranean region (Greece, Crimea) to Iran and Turkey (Miller 1982), but it does not occur in the Caucasus, although it was reported from there by Miller (1982). In Turkey it grows in meadows, and on rocky slopes and scree, between 100 and 1300 m. In Greece it is reported from grassy slopes on limestone at 1800–1900 m (Aldén 1986) and, under the name *T. procumbens*, from grassy meadows on limestone at 1600–1900 m (Snogerup & Snogerup 1997).

We agree with Mosyakin and Fedoronchuk (1999) that *Thesium brachyphyllum* and *T. procumbens* are distinct species. The same taxonomic opinion was given by Bobrov (1936) and by Hendrych (1964). Only Miller (1982) treated the two taxa as synonyms, and later Hendrych (1994), in a study of chorology of the genus *Thesium* in Turkey, was of the opinion that both taxa are similar, and that it consists of a single orophyte with a circum-Pontic and Euxinic distribution. The same taxonomic opinion was expressed by Heller and Heyn (1994) and Snogerup and Snogerup (1997). Hendrych (1995) later cited *T. procumbens* for Crimea, and extended its range to include the Balkans (Hendrych 1998), as a result of the prevailing taxonomic opinion. This amplified distribution is in our opinion based on

erroneous taxonomy and too excessive a synonymy.

Despite being fairly similar, *Thesium brachy-*

phyllum and *T. procumbens* differ morphologically and can be distinguished in the field (Figs. 4 and 5; cf. also Table 1).

Table 1. Comparison of *Thesium krymense*, *T. procumbens*, *T. brachyphyllum* and *T. dollineri* subsp. *simplex*.

Character	<i>Thesium krymense</i>	<i>Thesium procumbens</i>	<i>Thesium brachyphyllum</i>	<i>Thesium dollineri</i> subsp. <i>simplex</i>
Stem	6–10 cm, prostrate	10–15 cm, prostrate	5–15 cm, ascending-prostrate	5–15 (20) cm, prostrate (to erect-ascending)
Leaves	linear, all similar, 12–16 mm long and 0.5–0.6 mm broad	linear, all similar, to 30 mm long and 1 mm broad	lanceolate, dissimilar, middle 5–8 (10) mm long and 1 mm broad, lowest 23 mm long, scale-like	linear, all similar, to 22 mm long and 1 mm broad
Leaf venation	inconspicuous	conspicuous	conspicuous	inconspicuous
Peduncle	3–4 mm, more or less as long as flower	2–3 mm, longer than flower	4–5 mm, longer than flower	2 mm, about as long as flower
Flower*	1.75–2.25 mm	2 mm	3 mm	2.25 mm
Inflorescence	mostly unilateral	not unilateral	unilateral	not unilateral
Lateral bracteole	shorter than flower	± as long as flower	longer than flower	as long as flower
Fruit**	ovoid, 2.75–3.25 mm long, conspicuously longitudinally nerved; nerves slightly branched up to 14–16 distinct longitudinal veins on outlet	ovoid, 2.5 mm long, conspicuously reticulate; up to 6 distinct narrow longitudinal veins on outlet	ellipsoid, 2.5 mm long, inconspicuously longitudinally nerved; nerves slightly branched; up to 6 distinct narrow longitudinal veins on outlet	ellipsoid, 3.0–3.5 mm long, conspicuously longitudinally nerved; nerves slightly branched; up to 12 distinct longitudinal veins, some of them anastomosing, on outlet
Pedicel of fruit	0.4–0.5 mm	< 0.4 mm	0.4 mm	0.4 mm
Lateral bracteole	shorter than fruit	as long as fruit	shorter than fruit	longer than fruit
Bract	1.5–2 times as long as fruit	to 2 times as long as fruit	usually more than 3 times long as fruit	to 6 times as long as fruit
Persistent portion of perianth	1/3–1/4 of nutlet length	1/3–1/4 of nutlet length	1/3 of nutlet length	1/3–1/4 of nutlet length
Occurrence area	Crimea	Caucasus (E Transcaucasia, Iran)	E Mediterranean region (Greece, Crimea, Turkey)	SE Europe (from Austria and Czech Republik in the North to Bulgaria in the South)

The origin of material studied for Table 1: *T. procumbens*. **Russia**. Ossetia, Planta Caucasiae n° 812/ ad Mare Glaciale Zei, VIII.1881, A.H. & V.F. Brotherus, P 00210100. *T. brachyphyllum*. **Turkey**. Kizil Depo, 2500 m, W. Siehe's botanische Reise nach Cilicien, n° 654/1896, 1895/1896, W. Siehe, P 00207773. *T. krymense*. **Ukraine**. Crimea, Belaya Skala, dry grasslands in eroded margaceous soils, 250–340 m, 7.VI.2001, Romo 10355/1, BC 830671. *T. dollineri* subsp. *simplex*. **Romania**. Transsilvania, Langenthal, in collibus sterilibus rarissime, without date, Barth., BC 56599.

*The perianth, whose length is the total of tube plus lobes, includes the ovary zone.

**Measurements of fruit include the persistent perianth.

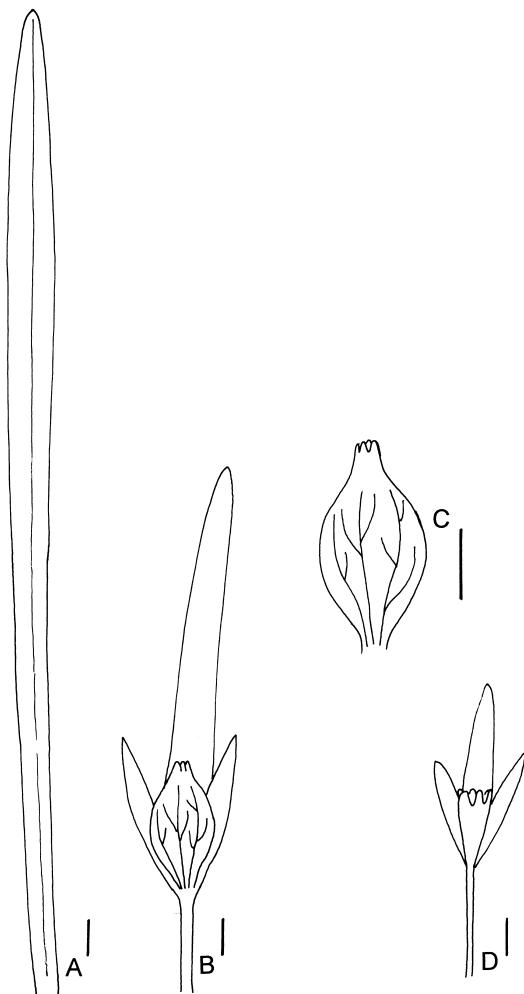


Fig. 4. *Thesium procumbens* (specimen, see Table 1). — **A:** Leaf. — **B:** Nutlet with bract and lateral bracteoles. — **C:** Nutlet. — **D:** Flower with bract and lateral bracteoles. Scale bars = 1 mm.

SPECIMENS EXAMINED (numbers correspond to Fig. 6): — **Ukraine.** Crimea: (1) Sevastopol, mountains, 1902 *I. Shyryaev* (KW); (2) Bakhchisaray, Staroselye, 1981 *V. N. Golubev* (YALT); *ibidem*, hills E of Staroselye, 1981 *V.M. Kosykh* (YALT); (3) Yalta, Kokkozy yayla, 1887 *N. Zelenekiy* (YALT); (4) Opolznoe, above the road, 1977 *V.M. Kosykh & O.G. Usacheva* (YALT); (5) Simferopol, rocky steppe slope, 1926 *leg. ?* (YALT); (6) Perevalnoe forest district (lesnichestvo), 1972 *S. Morozhuk* (KW); *ibidem*, Demerdzhy, 1982 *Ya. Didukh & L. Vakarenko* (KW); (7). Ay-Petri, 600 m, 1904 *V. Taliev* (KW); *ibidem*, Ay-Petrinskiy opytny uchastok, 1915 *P.W. Kryzhevskiy* (YALT); *ibidem*, Yalta Mountain Reserve, 700 m. Ay-Petri, scree, 1975 *Ya. Didukh* (KW); *ibidem*, Livadiyske l-vo. Ay-Petri, steppe of *Festuca valesiaca*, 1975 *Ya. Didukh* (KW); (8) Gurzufskoe Sedlo (Gurzuf pass), 1980 *T. N. Vylegzhanina* (YALT); (9)

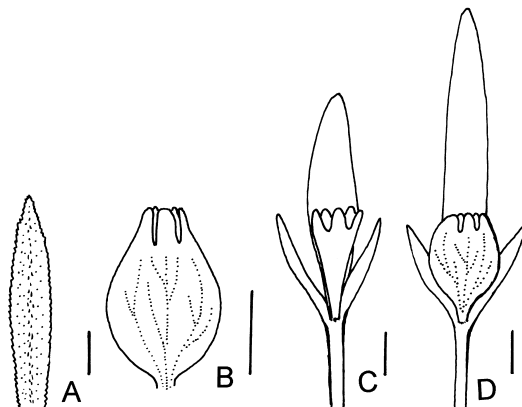


Fig. 5. *Thesium brachyphyllum* (specimen, see Table 1). — **A:** Leaf. — **B:** Nutlet. — **C:** Flower with bract and lateral bracteoles. — **D:** Nutlet with bract and lateral bracteoles. Scale bars = 1 mm.

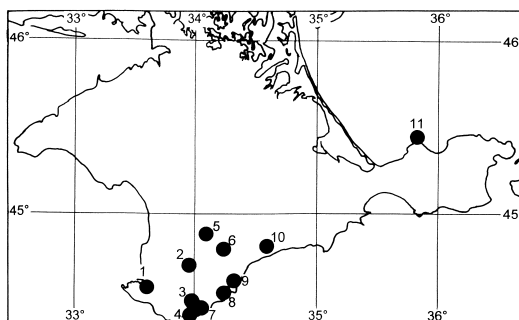


Fig. 6. Distribution of *Thesium brachyphyllum* in Crimea.

Alushta-Yalta, near Kyzyltash, 1930 *M. Kotov* (KW); (10) Karabi-yayla, SW of meteo station, 1980 *W.M. Kosykh & O.G. Usacheva* (YALT); (11) Mys Kazantip, 1914 *Korzhevskiy* (YALT).

SPECIMENS WITHOUT PRECISE LOCALIZATION: Crimea: yayla, plateau, 1901 *G. Fedorov* (YALT); yayla, opytnaya posadka, zashchita, 1914 *K. Lewandowskiy* (YALT).

***Thesium dollineri* Murb. subsp. *simplex* (Velen.) Stoj. & Stef. (Fig. 7)**

Fl. Bulg. Ed. 2: 312. 1933. — *T. simplex* Velen., Fl. Bulgar. 499. 1891. — *T. diffusum* Schur, Enum. Pl. Transsilv. 589. 1866, *et auct., non* Andr. — **TYPE:** “Colles prope pagum Valua Lunga appellatum, olim Germania Lagental dictum, in vallis fluminis Tirnava Mare dicta in Transsilvaniae Romaniae” (holotype PRC).

T. ramosum Hayne var. *caespitans* Ledeb., Fl. Ross. 3, 2: 541. 1851. — *T. caespitans* (Ledeb.) Tzvelev, Fl. East Europe 9: 406. 1996.

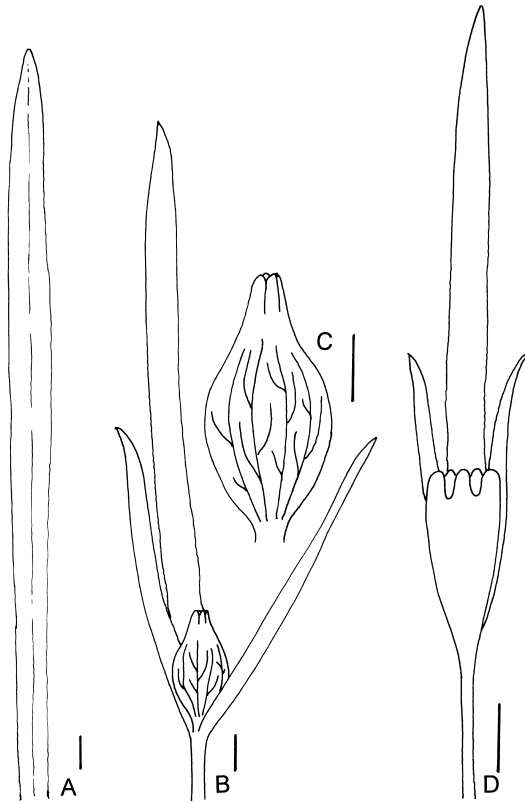


Fig. 7. *Thesium dollineri* subsp. *simplex* (specimen, see Table 1). — A: Leaf. — B: Nutlet with bract and lateral bracteoles. — C: Nutlet. — D: Flower with bract and lateral bracteoles. Scale bars = 1 mm.

This taxon (Fig. 7) was reported from the Crimea by Hendrych (1993) and Tzvelev (1996, as *T. caespitans*), but later Mosyakin and Fedoronchuk (1999) reported only the closely related *T. moesiacum*, which belongs to *Thesium dollineri* s. lato. We did not see the herbarium materials in KW or YALT, which could confirm the presence of the subspecies in the Crimea.

Thesium arvense Horv.

Fl. Tyrnaviensis Indig. 1, 27, 1774. — TYPE: "Bazanii in graminosis siccis na Bilovisku," J.L. Holuby (holotype PRC).

Perennial, stems many, 15–25(35) cm, ascending to erect, more or less simple, arising from a capitate rootstock. Leaves linear to linear-oblong, scale-like below, (2)5–40(60) × 1–3 mm.

Inflorescence a raceme, often branched below. Bracts 1–4(8) times as long as nut, bracteoles 2/3–2 times nut. Flowers white, perianth infundibular, 2–2.5 mm, lobes narrowly triangular, 0.75–1 mm. Fruit (3)3.5 × 1.5–2 mm, nut ellipsoid, glabrous, longitudinally nerved. Perianth persistent, 1/3 to 1/4 as long as nut, pedicel slightly swollen, often red-tinged.

This taxon is present in the southern part of the Crimean peninsula (Jalas & Suominen 1976, Hendrych 1968, 1995). It is quite frequent in the southern part of the area.

REVISED MATERIAL of *T. arvense* (ut *T. ramosum*) in KW and YALT (in alphabetical order). — **Ukraine.** Crimea: Alma, after Bodrak, 1915 V. Andreev (YALT); *ibidem*, Saribana forest, 1897 V. Andreev (YALT); Alushta region, Mezhdureczje village, river Aj-Serez, 1968 M. Kotov (KW); *ibidem*, NE of Alushta, *Carpinus-Quercus* shiblyak, 1978 V.M. Kosykh & O.G. Usacheva (YALT); Alushta, Rybache, 1977 V.M. Kosykh (YALT); Arabatska kosa, 77 km, 1968 A. Krasnova (KW); *ibidem*, 2 km N of Solyanovo, 1980 V.M. Kosykh (YALT); Ay-Petrinskaya yayla, W of TV station, 1979 V.M. Kosykh, O. G. Usacheva (YALT); *ibidem*, near Besh-Tekne, 1939 N. Chernova (YALT); *ibidem*, 1979 V.M. Kosykh (YALT); *ibidem*, W of meteorostation, 1979 V.M. Kosykh & O.G. Usacheva (YALT); Ayu-dag, N slopes, 1956 Kurchenko & Shvedchikova (YALT); *ibidem*, S slopes, 1981 V.N. Golubev & A.V. Sazanov (YALT); Bakhchisaray, near Chufut-Kale, 1973 leg. ? (KW), *ibidem*, Verkhorechye, meadows, 1982 Ya. Didukh & L. Vakarenko (KW); between Bakhchisaray and Sevastopol, 1977 M.I. Karasyuk & V.M. Kosykh (YALT); Balaklava, on the rocky E slopes, 1926 S. Dzevanovskiy (YALT); Belbek, ridge Inkerman, N slope, 1903 N. Zeleneckiy (YALT); Belogorsk: E of Prolom, forest clearings, 1968 I.I. Kryukova (YALT); Biech, 1916 A. Dojch (YALT); Biyuk-Karasu: meadows between old and new course of Biyuk-Karasu river, Tamakskiy Lug, 1925 M. Anisimova & Z. Omelayanenko (YALT); *ibidem*, 1924 M. Anisimova & T. Cyrina (YALT); between Boz and Kadzhenbak, 1917 A. Dojch (YALT); Bulganak, field, 1915 V. Andreev (YALT); Demerdzhy-yayla, 1904 V. Taliev (KW); Dzhankoj-Symferopol, Gvardeyske, 1973 O. Dubovik (KW); Feodosya region, Planerske, 1973 O. Dubovik & O. Osetrova (KW); Feodosya, between Islam-Terek and Vladislavkoy, 1930 A. Dojch (YALT); Feodosya, mys (rocky slope), 1955 Kotova (YALT); pass on the road Feodosya–Sudak, 1974 S. Morozzyuk (KW); Gurzuf: South coast near Gurzuf, 1927 P. Oksiyuk (KW); *ibidem*, *Juniperus* forest between Martyan and Gurzuf, 1917 S. Stankov (YALT); Karadag, N slope of Karagach, 1920 V. Nevskiy (YALT); *ibidem*, S slope, 1932 Borodina (YALT); *ibidem*, skirt of forest, alt. 200 m, 1941 M. Kotov (KW), *ibidem*, Zub-Legener, calcareous rocks, 1975 M. Kotov (KW), *ibidem*, Svyata, in forest, scree, 1948 M. Kotov & V. Karnaukh (KW), *ibidem*, volcanic ridge Karagach, scree slopes, 1947 M. Kotov & V. Karnaukh (KW), *ibidem*, Zub, 1948 M. Kotov & V. Kar-

naukh (KW); *ibidem* S slope below Zub, 1978 V.M. Kosykh (YALT); *ibidem* S slope below Zub, 1978 V.M. Kosykh & O.G. Usacheva (YALT); *ibidem*, steppe and scree slopes, 1978 Ya. Didukh (KW), *ibidem*, at the foot of Karagach Mt., 1978 V.M. Kosykh & O.G. Usacheva (YALT); *ibidem*, 1979 V.N. Golubev (YALT); Karagach, W slopes, 1978 V.M. Kosykh & O.G. Usachova (YALT); Karasubazar region, near Kazanly, meadow, 1929 V. Vasilev (YALT); Kastel Mt slope, 1928 V.I. Maleev (YALT); Kerch Peninsula, SW of Bondarenkovo, Azov Sea coast, 1955 N. Chernova, I. Novoselcova & I. Krylova (YALT); *ibidem*, Parpachskiy ridge between Agibey and Kenegez, 1925 E. Vulf & S. Dzevanovskiy (YALT); Kokey, 1917 A. Dojch (YALT); Korbekly, forest, 1914 V. Andreev (YALT); Krymskoe primore sanatorium, 1984 V.M. Kosykh (YALT); Kuchuk-Uzen, 1927 W. Vasilev (YALT); Kurtsovskaya dacha, 1916 A. Dojch (YALT); Kurtsy, 1915 V. Andreev (YALT); Kuybyshevo vicinity, 1956 N.I. Rubtsov, Privalova & Prokonkina (YALT); between Lugova and Kenegez, S slopes of Parapach hills, 1955 N.I. Rubtsov, L. Privalova & Kotova (YALT); Maliy Mayak, S slopes, V.M. Kosykh & O.G. Usachova (YALT); Massandra, pine forest, 1914 G.I. Grabovski, (YALT); *ibidem*, 1977 V.M. Kosykh & O.G. Usacheva (YALT); Meganom, 1986 V.V. Korzhenevskiy (YALT); Mellas, 1979 V. V. Korzhenevskiy (YALT); Mys Martyan, forest, vicinities of Nikita Botanical Garden, 1916 S. Stankov (YALT); *ibidem*, Juniperus forest in the upper part, 1920 V.I. Maleev (YALT); *ibidem*, 1969, 1970, 1976 I.V. Golubeva (YALT); *ibidem*, 1979 I.I. Maslova (YALT); *ibidem*, Juniperus forest, 1929 S. Stankov & A. Pegova (YALT); Neyzats, groves, 1915 V. Andreev (YALT); vicinities of Nikita Botanical Garden, 1954 V.M. Kosykh (YALT); *ibidem*, 1955 Astakhova & Kozhevnikova (YALT); *ibidem*, in the mountains above Nikita, 1919 S. Stankov & V.I. Meleev (YALT); Nikitska yayla, near field station, NW slope, 1965 V.N. Golubev (YALT); Opolznevoe, clearing in the garden, 1977 V.M. Kosykh & O.G. Usacheva (YALT); Opuk Mt., 1982 V.V. Korzhenevskiy (YALT); Privetnoe, near pass Alikot-Bogaz, S slope, 650 m alt., 1989 V.N. Golubev (YALT); Shyroke, Juniperus excelsa forest, 1980 Ya. Didukh & L. Vakarenko (KW); Simeiz, road to Yalta, 1917 A.N. Petunnikov (YALT); *ibidem*, above Simeiz on the rocky slopes inside the Pinus forest near path to Kopek-Bogaz, 1929 S. Stankov & A. Pegova (YALT); Simferopol, N slope, 1886, 1888 N. Zeleneckiy (YALT); *ibidem*, 1915 V. Andreev (YALT); Simferopol region, Vorontsovskij Sad, 1907 V. Andreev (YALT); Forest Saribash, 1917 leg. ? (YALT); Simferopol region, Burchi-Selyadin, 1929 A. Dojcz (YALT); Mazanka, steppe, 1974 S. Morozjuk (KW); Simferopol region, Petrovske rocks, 1911 N Yanata (YALT); Simferopol region, Zalese, 1974 O. Dubovik & O. Osetrova (KW); Simferopol, Dubki, 1914 V. Andreev (YALT); *ibidem*, 1980 Ya. Didukh & L. Vakarenko (KW), *ibidem*, 1986 V.N. Golubev & I.I. Maslova (YALT); Novo-Nikolaevka, steppe, 1972 V.N. Golubev (YALT); Solnechnogorske forest, Karatau, 1963 Yu. Shelyag-Sosonko & G. Kukovitsa (KW); Stary Krym, Agarmysh, 1927, 1928 T. Tsyryna (YALT); Sudak region, Novy Svet, 1918 V. Vuchetich (YALT); *ibidem*, slope covered with forest of Pinus-Juniperus, 1959 Z. Gorokhova (KW); *ibidem*, 9 km E of Sudak, 1978 V.M. Kosykh & O.G. Usacheva (YALT); Symeiz, on the rocky places, 1916 A.N.

Petunnikov (YALT); Koshka Mt., on the rocky ridge, 1956 N.I. Rubtsov & Kotova (YALT); Syuryu-Kaya, at the foots, 1977 V.M. Kosykh & O.G. Usacheva (YALT); Tarkhankut, Olenevka, Dzhangul, 1964, 1965 G. Kuznetzova (KW); *ibidem*, 1973 O. Dubovik (KW), *ibidem*, 1974 S. Morozjuk (KW), *ibidem*, 1976 N. Loskot (KW); *ibidem*, 1978 V. Protopopova, N. Loskot & O. Dubovik (KW); *ibidem*, Dzhangulskoe coast, 1982 V.N. Golubev (YALT); Taraktash, 1976 V.V. Korzhenevskiy (YALT); Tauria, Alupka, in campis, 1900 K. Golde (YALT); Near Yalta, 1871 leg. ? (KW); Tauria, Supra Yallum (Chair-Dubki) in prates silvaticis, 1900 K. Golde (YALT); *ibidem*, Yalta, Botkinskaya path, 1919 Grabovskiy (YALT); *ibidem*, Uzenbashskaya path, 1905 I. Vankov (YALT); Yalta mountain nature reserve, forest Opolznevske, pine forest, 1974 Ya. Didukh (KW); *ibidem*, mountain nature reserve, 1975 leg. ? (KW); *ibidem*, forest Alupkinske, Shan-Kaja, forest of Pinus pallasiiana, 1978 Ya. Didukh (KW); *ibidem*, Scree mound near Bijuk-Lambat, 1925 P. Oksiyuk (KW); *ibidem*, Aju-Dag, 1973 O. Dubovik (KW), *ibidem*, on the maritime cliffs, 1958 K. Popov (YALT); Yauzlar, 1901 G.I. Grabovskiy (YALT); Yayla, 1919 G.I. Grabovskiy (YALT).

Doubtful or erroneous records from the Crimea

Thesium procumbens C.A. Mey.

Verz. Pfl. Cauc. 40. 1831. — TYPE: "Caucasus, in pratis Caucasii occidentalis alt. 400–1200 hexap (740–2150 m)" C.A. Meyer (holotype LE).

Bobrov (1936) reported this from the upper and middle Dnieper areas, and the distribution map of Jalas and Suominen (1976) included also the middle Dniester and middle Siversky Donets, the latter being a tributary of the Don. It was also mapped by Hendrych (1972) from southern Ukraine (except Crimea) and the Caucasus. Later Hendrych (1997) identified the Ukrainian plants as *T. diffusum*, and only a few specimens of the Crimean origin were referred to *T. procumbens* by Hendrych (1995), since that author considered *T. procumbens* and *T. brachyphyllum* conspecific.

Thesium procumbens (Fig. 4) belongs to the series *Procumbentia* (Bobrov 1936), which is characterized by small, mostly cup-shaped, solitary flowers, and the persistent portion of the perianth being 1/4 to 1/3 of the length of the nutlet.

The presence of *T. procumbens* in Crimea clearly requires confirmation. The lack of her-

barium materials, which could support its presence there, leads us to the conclusion that the species is with certainty known at present only from the Caucasian Mountains. The records from Crimea should be understood either as referring to *T. brachyphyllum*, or as resulting from a rather broad circumscription of this taxon (see Hendrych 1995). *Thesium procumbens* is a Caucasian plant (Hendrych 1998) that is found in the Great Caucasus, Transcaucasia, and NW Iran (Polatschek 1982). It is distinct from *T. brachyphyllum*, although they are closely similar (Figs. 4 and 5, Table 1).

Thesium dollineri Murb. subsp. *moesiicum* (Velen.) Stoj. & Stef.

Fl. Bulg. Ed. 2, 312, 1933. — *T. moesiicum* Velen., Fl. Bulg.: 500. 1891.

Thesium dollineri subsp. *moesiicum* is known from Bulgaria (Hendrych 1972, Jalas & Suominen 1976, Hendrych 1993). It does not occur in Crimea, despite the report from that area by Mosyakin and Fedoronchuk (1999).

Thesium humile Vahl.

Symb. Bot. 3: 43. 1974.

The Crimean records of *Thesium humile* (Vulf 1947) are most probably invalid, since there neither exist herbarium specimens nor can the species be confirmed in any other way in the territory. The same applies to *T. linophyllum* (Hendrych 1995). The two mentioned taxa most probably do not occur in Crimea.

Acknowledgements

The work was partially funded by the bilateral scientific cooperation between CSIC–PAN (Consejo Superior de Investigaciones Científicas (Spanish Research Council)–Polska Akademia Nauk (Polish Academy of Sciences) and PAN–NANU (National Academy of Sciences of Ukraine). We also thank the curators of the Herbariums of the Nikitsky Botanical Garden of Yalta (YALT), the Museum National d'Histoire Naturelle de Paris (P) and the Conservatoire Botanique de Genève (G) for their valuable help, and to Padre Lainz for his

help with the Latin diagnosis and Peter M. Jörgensen for his helpful comments on the manuscript. The English language was improved by Samuel Pyke.

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