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Distribution of Woody *Rosaceae* in W. Asia XIV

Sorbus torminalis (L.) Crantz

Among the 16 species from the genus *Sorbus* which occur in southwestern Asia, the greatest number, namely 11, is to be found in Turkey. In the remaining countries they are much less common. Thus in Iran there are only 5 species, in Afghanistan 3, in Syria and Lebanon 2 each and in Iraq only 1. In that region the most extensive range is demonstrated by *Sorbus umbellata* (Desf.) Fritsch and *S. torminalis*. The former, which until today is unevently treated by various authors, is frequently divided into small, independent species or varieties. Its range covers Turkey, Cyprus, western Syria, Lebanon, northern Iraq, the Caucasus and northern and western Iran. It is also known from southern Europe. A very similar range in western Asia is occupied by the second species — *S. torminalis*, with the exception however that is does not grow on Cyprus nor in Iraq.

The Asiatic range of *S. torminalis* represents only a small part of its total range which occupies primarily the central, southern, southeastern and even partially northwestern Europe (England) as well as northwestern Africa (Browicz, Gostyńska-Jakuszewska, 1966). Throughout the range *S. torminalis* occurs primarily as a component species in termophilous, mixed deciduous forest or in thickets, on exposed, insolated slopes, both in lowlands and in the lower reaches of the mountains. Moving further shouth and east the stands are located at higher elevations, reaching 1200 m in the Balkans, 1700 - 1950 m in eastern Turkey and even 2200 m (near lake Van), 1900 m on the Caucasus and 2200 m in northern Iran. In Syria this wild service tree was found at 1400 m elevation and in Lebanon at 1250 m.

The range of *S. torminalis* in western Asia is divided into two basic parts. The first, much larger from second, extends as a wider or narrower belt along the coast of the Black Sea and the Aegean, starting from Izmir in the west and up to the USRR frontier in the east. On the Transcaucasus it joins with the Caucasian part of the range running from northwest (Novorossiysk) to southeast (Great Caucasus, Talysh Mt., northern Iran).

The second part covers primarily the eastern region of South Ana-

tolia, northwestern Syria and northern and central Lebanon. Between the two parts there is a marked disjunction. Some links between them exist through East Anatolia where *S. torminalis* has been found in several isolated stands (Fig. 1).

S. torminalis is a very variable species. Throughout its range various forms of it exist, which differ in the size of the leaf blade, the depth of sinuses, the size and apices of the lobes, the degree of pubescence, the depth and acuteness of serration, the shape and size of fruit and even their pigmentation. These forms are frequently given the rank of variety or subspecies. However according to Kárpáti (1960) the variability is not determined geographically, and thus the rank of form is in this case completely justified. Kárpáti has recognized 36 such forms in Hungary and neighbouring countries. Some have been found in various, frequently far removed regions; they occur also in western Asia.

The variability of *S. torminalis* in Asia had been first reported by Boissier (1872) who has described a new variety from Turkey and the Caucasus — var. *pinnatifida* Boiss. It proved however that this variety is not restricted only to that region, since it was later found also in northwestern Africa (Battandier, Trabut, 1883; Maire, 1937), in the Balkan peninsula (Hayek, 1927), in Roumania (Buia, 1956), in Hungary (Kárpáti, 1960) and in Germany (Düll, 1961). In Syria and in Lebanon (Mouterde, 1970) it is supposed to be even more common than the typical form. Kárpáti (*l. c.*) has lowered its rank to form.

In 1933 Diapulis has found in Turkey, from the region of Marash, a different variety — var. *mollis* (Beck) Diap. with permanently pubescent leaves on the dorsal surface. This variety has however been known for a long time in central Europe and has a rich synonymy. According to Kárpáti (1960) the name „*mollis*" should be replaced by an older one, first used in 1878, namely „*semitorminalis*".

Forty years ago Schwarz (1934) has described from the region of Izmir in Turkey a new subspecies which he called *S. torminalis* subsp. *brachyloba* Schw. Unfortunately his diagnosis is insufficiently clear so that it is difficult to determine in what new taxon differs from others (I do not know the type specimen of Schwarz and I do not know wheather they exist at all). Schwarz believed that this subspecies has been found earlier by Sintenis (Mt. Ida) and by Kotschy (in the Amanus and Taurus Mts.). Since he does not give the numbers of herbarium specimens, it is not clear which specimens he was referring to. In later years subsp. *brachyloba* has been found in eastern Turkey, in the vicinity of lake Van (Rechinger, 1952). Both f. *semitorminalis* and subsp. *brachyloba* have been ignored in the works on Turkish service trees (Gabrielian, 1961, 1972).

In 1942 Rechinger has recognized a herbarium specimen collected by Kriesche in northern Iran, in the Elburs Mts., as subsp. *brachy-*

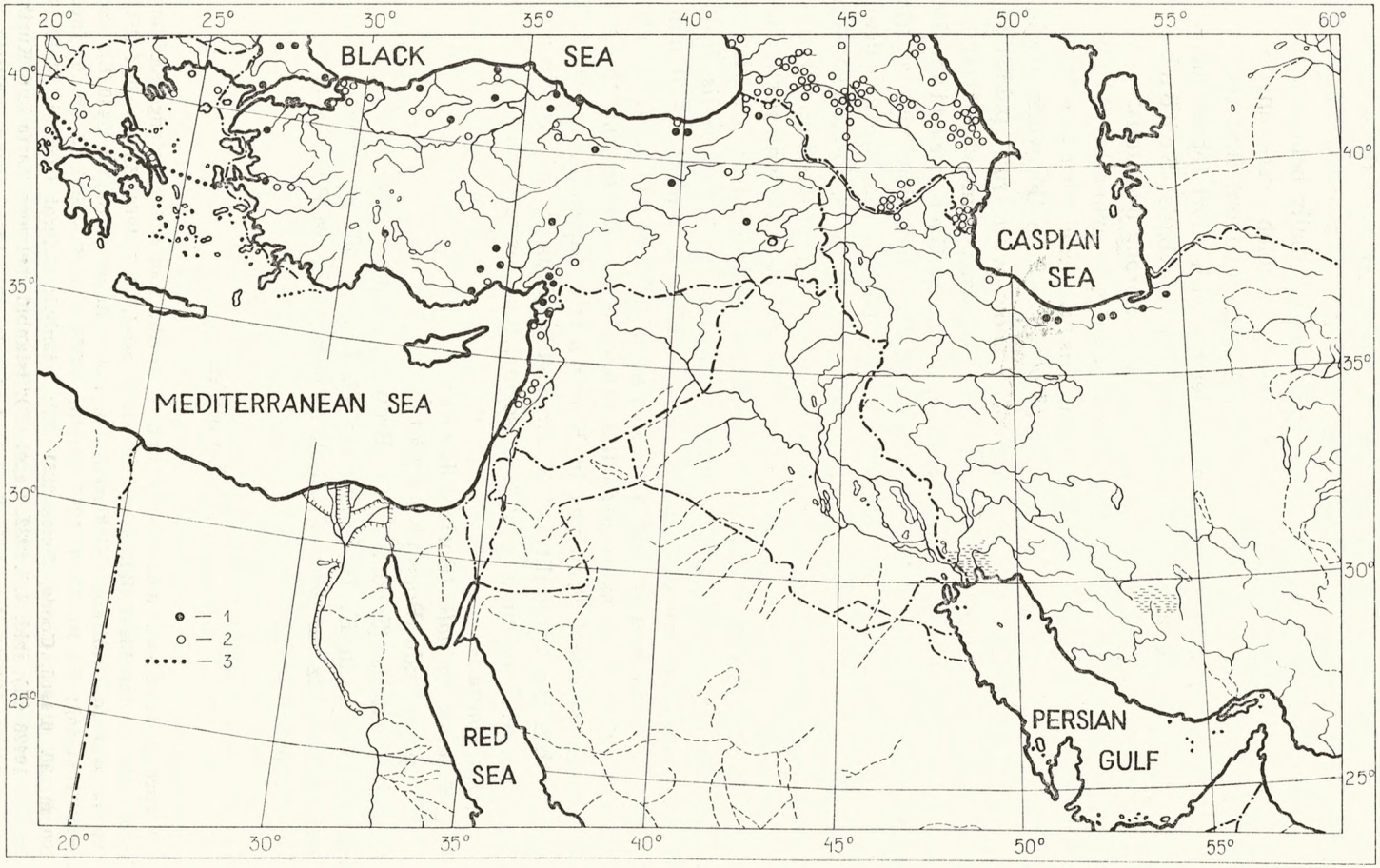

Fig. 1. Distribution of *Sorbus torminalis* in W. Asia: 1 — herbarium specimens, 2 — literature, 3 — range of distribution in Europe

loba. This was the first specimen of *S. torminalis* from these mountains and it was thanks to this specimen that it was realized that *S. torminalis* extends much further east than was originally believed. In later years some more specimens were collected, which were analysed by Schönbeck-Temesy (1969). She has pointed out that they differ from typical *S. torminalis* in having leaves with short lobes, and small fruit 12 mm long and 7.5 mm wide. On this basis Schönbeck-Temesy has described a new species — *Sorbus orientalis*.

Very similar leaf types have been described earlier by Diapulis (1933) from the Caucasus as *S. torminalis* var. *caucasica* (see table 146 f. 5 in Diapulis's work and plates 29 f. 5-7 in the work of Kárpáti, 1960). Also the drawing of a shoot with fruit published in Grossheim's (1952) Flora of the Caucasus somewhat resembles *S. orientalis*. Lately this taxon was mentioned by Gabrielian (1972) from north-western Turkey. She reached the conclusion however (probably on the basis of the geographic distribution) that we are dealing here, not with a species, but only with a variety of *S. torminalis* — var. *orientalis* (Schön.-Tem.) Gabr. It appears however that similarily as in the previous instances the rank of a form will be sufficient, particularily since the small size of the fruit cannot be considered as a sufficiently convincing argument. The variability in size of *S. torminalis* fruit is considerable and the dimensions vary within the limits 12-20 mm in length to 7-15 mm in width (Kárpáti, 1960; Düll, 1961; Gabrielian, 1972). Both as regards the shape of the leaves and the depth of sinuses (see leaf drawings in Kárpáti's paper) *S. orientalis* lies well within the variability of *S. torminalis*. Thus in the Asiatic par of the range of *S. torminalis* (at least so far) four forms can be recognized:

1. f. *torminalis*,
2. f. *semitorminalis* (Borbás) Jávorka,
3. f. *pinnatifida* (Boiss.) Kárpáti,
4. f. *orientalis* (Schön.-Tem.) Browicz, *comb. nov.* (=*S. orientalis* Schön. — Tem. in K. H. Rechinger Fl. Iranica 66 : 47, 1969; *S. torminalis* (L.) Crantz var *orientalis* (Schön.-Tem.) Gabr. in P.H. Davis Fl. Turkey 4 : 156. 1972).

Localities

Turkey. Herbarium specimens: On the foot of Malaydadg (Kirklareli), 12. 6. 1968, Baytop 13247 (E.); N. of Demirköy forest, 19. 7. 1963, Zohary 5615 (HUJ.); On the way to Demirköy (Kirklareli), 18. 7. 1959, A. et T. Baytop 5450 (E); Canos dagi (Tekirdağ) 750 m. 14. 7. 1968, Baytop 13558 (E.); Tekirdağ: 5 km of Inecik, 200 m, 30. 6. 1965, Coode, Jones 2851 (E.); Istanbul: Belgrat Ormani, 17. 10. 1966, Baytop 10428 (E.); ibid, 4. 7. 1932, Regel (E.); Istanbul: between Tarfa and Kurtköy, Baytop 12153 (ISTE.); Istanbul: Kartal, Aydos Da, 9. 7. 1965, Aytug, Yaltirik 3338 (E.); Troas: Edremit, Kutshiherik-Tal, 26. 4. 1928, Bernhard (JE.); Balikesir: Erdek,

Kapidăğ, Eğridere, 300 - 400 m. 12. 5.1965, Kayacik, Yaltirik 3281 (E.); Sipyle, Balansa (W.); Zonguldak: 15 km E. of Ereğli, 450 m, Davis 37537 (E.); Ankara, Kizilca haman, 1960, Wluocak (E.); Paphlagonia: Will. Kastambuli, Kure-Nahas in silva prope Topschi Chan, 18. 8. 1892, Sintenis 5011 (JE. LE.); Kastamonu: Inebolu--Küre, 450 m, hunging down shale bank (ecological relict) 8. 6.1954, Davis 21669 (E.); Sabandscha, 1835, Wiedemann (LE.); 8 km of Bafra. Hills on the way to Samsun. Forest of *Quercus callipr.-Carpinus orientalis,* 22. 8. 1959, M. et D. Zohary 3037 (HUJ.); Distr. Amasya. 1 km S. of Cakiralan. Cementery. Oak. forest, 1000 m, 10. 7. 1963, Zohary, Orshan 10784 (HUJ.); Near Samsun, 9. 1963, Tobey 4/9 (E.); Tokat to Artova, in oak scrub, 4. 9. 1954, Davis 24858 (E.); Kalanemo valley, a single tree, growing out of cliffs, 1934, Balls 332 (E.); Trabzon: Caykara, 1000 m, 14. 5. 1960, Stainton 8406 (E.); Tunceli: above Pülümür, 1700 m, in oak scrub, 8. 6. 1957, Davis 29279 (E.); Çoruh: Ardanuç, m. Vartskhet, east slope, xerophilous forest, 26. 5. 1914, Turkevicz (LE.); In Karduchia ad Boglan. Infra Musch ad Murrat flumen, 3000′, 31. 8. 1859, Kostchy 803 (S. W.); Isparta: Eğridir, 1450 m, Aydin, Çiğirtkan 6163 (ISTO.); In Tauri alpes „Bulgar Daph", in convalle Agatsch Kisse, regione *Abietis cilicicae,* 27. 8. 1853, Kotschy 342 (LE. W.); Taurus: Maden Tepe, 2. 7. 1927, Bernhard (JE.); Icel, 3 km S of Ucuncaburc (N Silifke), *Pinus brutia* Wald, 800 m, 21. 6. 1971, Sorger 71-24-28 (Herbar. Sorger); Icel: Bürücek, Asir Gediği, 1200 m, lime slopes in small thickets with *Carpinus* (*Ostrya* ?) sp., 7. 5. 1934, Balls 1294 (E.); Hadjin, Manissadjian 810 (JE. LE.); Amanus: Düldül Dagh, 5-7000′, 7. 1907, Haradjian 2356 (W.); Maras: Akifiye, Findik Dere, 1500 m, Coode, Jones 1220 (E.); Hatay: Osmaniye to Gavurdağı, 1200 m, 7. 1942, Mihçioglu 252 (K.); Ex Amano, prope Beilan in silvis Daas Dagh, 4500′, 6. 1862, Kotschy 288 (W.); Amanus: Atik, in machiis rupestribus, solo calcareo, ca. 950 m, 27. 5. 1933, Samuelsson 5471 (S.); Amanus. Bitias au Col de Selderin par la route de Tchankalik. Roches calcaires, 500 - 800 m, 10. 1935, Delbès 271 (HUJ.).

Literature: Strandsha-Dagh, Mattfeld 3437; Belgrader Wald, Mattfeld 3173 (Diapulis, 1933); Dschendere, Wald von Belgrad (Rechinger, 1938); Ditionis oppidi Byzantii in silva belgradensi, 21. 7. 1929, Bornmüller 13407 (Bornmüller, 1940); Yalova (Birand, 1952); Nördlich von Beicos, 1927, Krause 2870 (Diapulis, 1933); Ponto, inter pagos Tekekoi et Sarnytch sparsim collibus silvat. 400 - 700 m, (Tchihatscheff, 1860); Izmit-Golcük. Turnali, Acarlar gölü (Birand, 1952); Bithynia: circa Hendek, in latere meridionali montis Ohlamurluk (vallis Ulu-Dere), in fageto--querceto, 450 - 530 m, rarior, 24. 6. 1925, Czeczott 83 (Czeczott, 1939); Troja, M. Ida Kareikos, 1883, Ascherson 481 (Diapulis, 1933); Sipylos Magnesiae, in quercetis fruticosis 600 - 800 m, Schwarz 972; Nifdag, in pinetis subalpinis, solo calcareo, 1500 - 1600 m, Schwarz 826 (Schwarz, 1934); In monte Tmolo supra Philadelphiam, (Bornmüller, 1908); Bolu: Ormanlarda, Abant 800 - 900 m; Zonguldak: Geyik tepe (Birand, 1952); Nördlich Yenicaga, etwa 1250 m, *Fagus-Carpinus betulus,* Wagenitz 177 (Wagenitz, 1963); Galatia: supra oppidulum Arab, in parte superiore vallis Yaila-Chai, in fruticetis ripariis, ca. 1500 m, 18. 6. 1925, Czeczott 850; Paphlagonia: Inter Küre et Ineboli, prope rivulum Alma-Dere, in silva mixta (*Ostrya, Fagus, Pinus, Abies*) ca. 700 m, 7. 8. 1925, Czeczott 655; Paphlagonia: in silva mixta ad orientem ad Edjevid, in collibus ad occidentem vergentibus ca. 1112 m, frequens, 6. 8. 1925, Czeczott 649 (Czeczott, 1939); Sinop-Ayancik: Iki, ca. 1000 m; Amasya (Birand, 1952); Prov. Pontus: Amasia, in monte Sana-dagh, 1500-1600 m, 15 - 16. 6. 1889, Bornmüller 1024 (Bornmüller, 1940); Trabzon, 1931, Görz 221 (Diapulis, 1933); Trabzon: Kalenema dere (Birand, 1952); Armenia, prope Erzerum, 1950 m (Tchihatcheff, 1860); Kurdistan: Berg W von Plil 10 km SSW von Bagi (am Van See), 2200 m (Rechinger, 1952); Tauro Cilicico supra Gülek, Balansa (Boissier, 1872); Mersin: Ormanlarda (Birand, 1952); Antitauro: declivite orient. m. Kartrandagh, c. 1400 m, in consortio cum *Pyrus aria* (Tchihatcheff, 1860); Taurus: Marash, 1910,

Meinke 145 (Diapulis, 1933); S. Amanus oberhalb Osmaniye, etwa 1250 m, obs.; Oberhalb Erzin, etwa 1120 m, unter *Quercus cerris,* obs. (Wagenitz, 1963).

Syria.

Literature: Slenfé, in dumetis *Quercus cerris,* solo calc., ca. 1100 m, Samuelsson 5106; ibid. ca. 1050 m, Samuelsson 5223 (Rechinger, 1959); Slenfé, Pabot (Mouterde, 1970); Ad transitum Nebi Younès supra Slenfé, in querceto, solo calc., c. 1400 m, Samuelsson 5808 (Rechinger, 1959); Nord de Lattaquié: S de Kessab, Pabot (Mouterde, 1970); Anserieh à Slenfé (Thiebaut, 1940).

Lebanon.

Literature: Jab. Kneissé, Napoléon; Cèdres de' Ain Zehalta, Mouterde; Jabal Barouk, Napoléon; Cédres de Barouk, Mouterde; Foret d'Ehden, de Tarde (Mouterde, 1970); à Feitroun (Thiebaut, 1940); Raifoun, in machiis, Wall (Rechinger, 1959); Pont sur le Nahr-el-Kelb entre Bikafya et Beskinta, Mouterde, Post; Bikafya, Blanche (Mouterde, 1959); Douhour Choueir, in decliv. arenaceo, c. 1250 m, Samuelsson 5654; Choueir-Mrouj, 1903, Kuegler (Rechinger, 1959); Berg Lehnec, 1903, Kuegler (Diapulis, 1933).

Iran. Herbarium specimens: Gale Maran, 1600 m, Gauba 402 (W.); Prope Radkan, Buhse (W.); In valle fluvii Talar, Kriesche in Rechinger 2338 (W.); Inter Kinch et Dasht Nazir, 800 - 1300 m, Rechinger 6647 (W.); Kalar Dasht, 1400 m Gauba 400 (W.); Pol-e-Zanguleh, 2200 m, Gauba 401 (W.).

Literature: Hassan Beyglu, Knapp (Parsa, 1948; Schönbeck-Temsey, 1969); Kalibar (Ahar), 1500 m; Yehlah, (Guilan), Arasbaran (Parsa, 1948).

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Streszczenie

Zasięg *S. torminalis* w zachodniej Azji podzielony jest na dwie zasadnicze części. Pierwsza z nich rozciąga się od Izmiru na zachodzie i poprzez wybrzeża północnej Turcji dociera na wschodzie do Zakaukazia, a następnie przebiega wzdłuż pasma Wielkiego Kaukazu do gór Tałyszu oraz do północnego Iranu (okolice Gorgan). Druga część obejmuje przede wszystkim wschodnią część południowej Anatolii, północno-zachodnią Syrię oraz północny i środkowy Liban. Te dwie części zasięgu powiązane są z sobą tylko w nieznaczny sposób kilkoma odizolowanymi stanowiskami we wschodniej Anatolii. Na Cyprze i w Iraku *S. torminalis* nie występuje. Jej najwyższe stanowiska stwierdzono w Iranie i we wschodniej Turcji (okolice jeziora Van) na wysokości 2200 m n.p.m., podczas gdy w Syrii tylko na wysokości 1400 m, a w Libanie 1250 m.

S. torminalis jest gaunkiem bardzo zmiennym. Wydzielono w nim cały szereg taksonów niższego rzędu (odmiany, podgatunki) którym Kárpáti (1960) nadaje tylko rangę formy. W obrębie azjatyckiej części zasięgu znane są 4 takie formy, a mianowicie: f. *torminalis*, f. *semitorminalis* (Borbás) Jávorka, f. *pinnatifida* (Boiss.) Kárpáti, f. *orientalis* (Schön.-Tem.) Browicz, *comb. nov.* Ta ostatnia forma po raz pierwszy wydzielona była w 1969 r. przez Schönbeck-Temesy jako samodzielny gatunek; autor polemizuje z tym poglądem.

КАЗИМЕЖ БРОВИЧ

Sorbus torminalis (L.) Crantz

Резюме

Ареал этого вида в Западной Азии разделяется на две основные части. Первая из них простирается от Измира на западе вдоль побережья северной Турции и доходит на востоке до Закавказья; в дальнейшем она проходит по хребту Большого Кавказа до гор Талыша и до северного Ирана (окрестности Горбана). Вторая часть охватывает прежде всего восточные районы Южной Анатолии, северо-западную Сирию, северный и центральный Ливан. Эти две части связаны друг с другом лишь несколькими изолированными местонахождениями в Восточной Анатолии. На Кипре и в Ираке вид этот не встречается. Самые высокие местонахождения зарегистрированы в Иране и в Восточной Турции (район озера Ван) на 2200 м над ур. м.; в Сирии же он поднимается только на высоту 1400 м, а в Ливане — на 1250 м.

S. torminalis — вид очень изменчивый. В его составе выделен ряд таксонов более низкого ранга (разновидности, подвиды), некоторыми исследователями (Kárpáti, 1960) относимых даже к рангу форм. В азиатской части ареала известны четыре такие формы, а именно: f. *torminalis*, f. *semitorminalis* (Borbás) Jávorka, f. *pinnatifida* (Boiss.) Kárpáti, f. *orientalis* (Schön.-Tem.) Browicz, *comb. nov.* Последняя форма была описана первоначально как особый вид (Schönbeck-Temesy, 1969), однако автор не согласен с этой точкой зрения и полемизирует с ней.