

KAZIMIERZ BROWICZ

Distribution of Woody Rosaceae in W. Asia X

Pyrus syriaca Boiss. and *Pyrus glabra* Boiss.

1. PYRUS SYRIACA BOISS.

P. syriaca was described by Boissier in 1849 on the basis of his own herbarium collections made in northern Syria near the boundary with Turkey (Cassius Mts. near Kessab) and from the frontier region between Syria and Lebanon (between Zebdani and Zachle). With time it became obvious that the range extends considerably beyond Syria, in fact that it is the most extensive range for all the pear trees of south western Asia. It spreads from northern Turkey to western Iran and from the southern Transcaucasus to central Israel (fig. 1). It is situated in the middle of the range of closely related pear trees which Maleev (1939) has included under the common name *Syriaceae*. He included in the group, besides *P. syriaca*, also the following species: from the Caucasus - *P. sosnovskii* A. Fed., *P. oxyprion* Woron., *P. raddeana* Woron., *P. zangezura* Meleev and from Middle Asia - *P. korschinskyi* Litw. This last species occurs also in northern Afghanistan. Species from the group *Syriaceae* are characterized by lanceolate to elliptical leaves, glabrous or only slightly pubescent, coriaceous, with serrulate margins and callous teeth at the tips. They have also thick, rigid pedicels. In the group two other species can also be included, namely *P. amygdaliformis* Vill. for southern Europe and western Turkey and *P. glabra* Boiss. from south western Iran. They have entire or almost entire leaf margins but in all other characters they correspond to the group.

In comparison to *P. communis* L. (*s. l.*) this group did not play any greater role in cultivation. Its pomological value is slight and was only local in character. Kotschy has already mentioned in 1864 that a form of *P. syriaca* from Lebanon has edible fruits, and he even refers to it under a separate name as *P. nobilis*. *P. syriaca* was also cultivated in the gardens of south western Iran, in the regions of Shiraz and Kazerun (Stapf, in sched. 421 - 423). According to Bornmüller (1914) in cultivation it is characterized by wider leaves, however as I was able to judge on the basis of rich herbarium materials the width of leaves in *P. syriaca* is a very variable character. Greater importance is distinguishing between wild and cultivated varieties should probably be attached to differences in fruit size.

In some countries fruit of wild *P. syriaca*, though hard and with a considerable content of grit cells are none the less collected and eaten by the local population

similarly as the fruit from wild *P. communis* is eaten in Europe. This was reported from northern Iraq (Meikle, 1966) and from Palestine (Zohary, 1962). Sometimes *P. syriaca* is also used as a stock for the grafting of cultivated varieties of *P. communis* for example in Upper Galilee (Zohary, 1951).

P. syriaca is a very variable species, both as regards the size of leaves, particularly their widths, shape of leaf bases, length of petioles and pedicels. For this reason within the species several taxa of lower rank have been recognized. From Lebanon var. *bovei* (Steud.) Mouterde (Mouterde, 1970) has been reported, which is characterized by entire or only slightly serrulate leaf margins, with globular fruit on long pedicels. This variety has been originally described as a separate species as *P. bovei* Steud., it is known from only a few stands in Antilebanon and its systematic position is not entirely clear yet.

Bornmüller and Gauba (1936) have described from northern Iran, from the Elburs Mts., [...] in einem Seitental des Keredj bei Razechan 1900 m" another variety – var. *abbreviata*. Leaf blade in this variety is only twice as long as wide and it has a petiole of about the same length. It has been recently recognized as a separate species – *P. mazanderanica* by Schönbeck-Temsey (1969). Her description was based on two sterile herbarium specimens. One of these (Rechinger 9666) is represented as it seems by deformed shoots (possibly after cutting or grazing) and as result the leaves are shapeless and small. Their serrate margins and darkening after drying would rather tend to suggest that we are dealing here with *P. boissieriana*. The type specimen of *P. mazanderanica* (Gauba 457) comes from the classical site of *P. syriaca* var. *abbreviata* collection and description. Two shoots of that specimen have a dense foliage and the leaves are young, not quite grown yet, so that is difficult to tell what is their actual size. In contrast to the leaves of the former specimen these leaves do not darken after drying but are green or brown, and in that character they resemble *P. syriaca*. Thus the systematic value of *P. mazanderanica* or the presence of *P. syriaca* in the Elburs Mts. require further confirmation.

A third variety of *P. syriaca* – var. *microphylla*, I have described when preparing genus *Pyrus* for the „Flora of Turkey” (Browicz, 1970), on the basis of herbarium specimens from Turkey (Coode, Jones 938; Zohary 2173) and Lebanon (Kotschy 716). Its leaves are only 3.5 cm long.

Besides the three described taxa, four further ones have been mentioned, however their names have not been published and are only indicated on herbarium labels. M. Zohary has described three new varieties in the herbarium of the Hebrew University, Jerusalem, namely: from Turkey – var. *brevipedunculata* (Eig, Zohary 234) with the peduncles only 13 mm long, from Iraq – var. *oxyphylla* (Eig, Zohary 237) with very narrow leaves and var. *longipes* (Zohary 232) with peduncles up to 4 cm long. It appears however that these varieties do not have a determined range of occurrence and therefore can only be considered as forms.

A few words are required about the subsp. *armeniaca* separated out from *P. syriaca* by Rubtsov in the herbarium of the Institute of Plant Industry in Leningrad. It is difficult to decide, since a publication is lacking, what where the reason

for Rubtzov's opinion. It can only be said that his specimens of *P. syriaca* from Armenia are characterized by more or less elliptic leaves with a cuneate base. Considering the fact that the stands of *P. syriaca* in southern Transcaucasus are isolated from the remaining part of the range it is possible that we are dealing here with a new taxonomic unit that has become morphologically selected out from the remainder of the species.

Zohary (1951) writes that *P. syriaca* „... is a sub-East Mediterranean species deeply penetrating into the western part of the Irano-Turanian region” and later that „Judging by its ecological requirements its origin seems to be Irano-Turanian rather than Mediterranean”. This question is difficult to decide, since *P. syriaca* on the one hand appears to be distinctly related to *P. glabra* and the Middle Asiatic species *P. korschinskyi*, and on the other it is also close to the Mediterranean species *P. amygdaliformis*, and the ranges of the two species meet in western Turkey. Type of distribution (see map, fig. 1) would tend to indicate that *P. syriaca* should be considered as an eastern Mediterranean species.

The range of *P. syriaca* covers Turkey (particularly southern Turkey), southern Transcaucasus in the USSR, western Iran, Cyprus, western Syria, north eastern Iraq, Lebanon, north and central Israel and western Jordan (fig. 1).

1. Turkey. In Turkey *P. syriaca* is distributed along a relatively narrow belt in the southern part of the country, from Arduç Dagi (Prov. Antalya) to the frontier with Iran. Besides an isolated group of stands can be found in northern Anatolia, in the provinces Kastamonu and Samsun. In the western part of the range *P. syriaca* occurs at lower elevations, between 300 and 1300 (1500) m, while in the east in provinces Bitlis and Hakkari it can be found between 1700 and 2000 m elevation. It grows in the form of a small tree, even though sometimes it attains as much as 12 m (Davis, *in sched.* 22338). It occurs on dry stony and rocky slopes, on limestone rubble, on the edge of fields, in maquis and in clear oak forests, as well as at higher elevations along banks of rivers.

2. Cyprus. According to Chapman (1949) the species is “[...] rare but found in various parts of Island, usually between 600 and 1200 m”. Judging by the available data it is more common in the western part of Cyprus.

3. Syria Mouterde (1970) reports that *P. syriaca* grows in Syria similarly as in Lebanon, in all the wooded areas, however data from the country are very scanty. Stands of *P. syriaca* in Syria have been recently listed by Mouterde (*l. c.*). It appears that this pear tree is known from the north of the country, between Lattakia and the Turkish border and from the eastern part of the Antilebanon, on the boundary with Lebanon. Isolated stands are also to be found in the region of Djebel Druz (southern Syria), from where it was reported from only a small number of stands. It forms there sparse forests together with such species of trees and shrubs as: *Quercus calliprinos*, *Crataegus azarolus* (this is probably *C. aronia*), *C. sinaica*, *Pistacia atlantica* and *Acer microphylla* (Moutedre, 1953) which grow at about 1100 - 1200 m elevation. In the north, on Djebel Alaouite (Nahl, 1962) it can also be found in the association of *Cedrus libani* (*Cedretum*).

4. Lebanon. In Lebanon *P. syriaca* is a common species, particularly in the north



Fig. 1. Distribution of *Pyrus syriaca*: 1. herbarium specimens, 2. literature, and *P. glabra*: 3. herbarium specimens



Phot. K. Jakusz

Fig. 2. A herbarium specimen of *Pyrus syriaca* collected in Iraq, region of Rowandiz (Naturhistoriska Riksmuseum, Stockholm)

and in the east, at elevations of 1100 to 1800 m. Possibly in the coastal regions it grows at lower elevations. According to Zohary (1951) it plays an important role in the forests of *Quercus infectoria* on the Antilebanon and in Hermon. A list of the Lebanese stands has been prepared by Mouterde (1970).

5. Israel. *P. syriaca* occurs here primarily in northern Galilee in the association *Quercus calliprinos* — *Pistacia palaestina*, together with *Laurus nobilis*, *Arbutus andrachne*, *Phillyrea media*, *Rhmanus alataernus*, *R. palaestina*, *Viburnum tinus*, *Styrax officinalis*, *Cercis siliquastrum*, *Crataegus azarolus*, *Quercus boissieri*, *Acer syriacum*, *Prunus ursina* and *Eriolobus trilobatus* (Zohary, 1962). Besides it is also known from the central part of the country, from Ain Karim, west of Jerusalem (Post, Dinsmore, 1932).



Phot. K. Jakusz

Fig. 3. A herbarium specimen of *Pyrus syriaca* collected in Armenia, near Dzhermuk (Institute of Dendrology, Kórnik)

6. Jordan. The range of *P. syriaca* is very restricted here and represented only by a few stands in Samaria, on the east side of the Jordan river near Ajlun and Jarash (Kasapligil, 1956), as well as in the vicinity of Jerusalem. Here also the most southerly stands of the species can be found in the Judean Mounatins in Kefar Estion (Zohary, 1951) and between Tantur and Bethlehem (Oppenheimer, Evenari, 1940).

7. Iraq. In the north-eastern part of Iraq *P. syriaca* is a common species, occuring similarly as a number of other Mediterranean species of trees and shrubs in the mountain regions from Zakho in the west to the Iranian border in Sulaimaniya district in the east. Here also it grows in oak forests (*Quercus aegilops* and *Q. infectoria*) on limestones to an elevation of 650 - 1800 m, usually however not above 1400 m (fig. 2).

8. Iran. Until recently information about the occurrence of *P. syriaca* in Iran was very scanty, in fact restricted to a short note by Bornmüller (1911) based on

the herbarium collections of Strauss made in 1903 - 1905 in the vicinity of Khorramabad. It is only recently that new collections have provided some more information about its occurrence in the country. It appears that the range of *P. syriaca* in Iran extends from the frontier with Iraq (Avroman Mts.) to Esfahan (in West Kurdistan, Luristan, Bakhtiari). It occurs in the mountain regions, and was found there between 1200 m and almost 2300 m elevation (Furse, in sched, 3425). Thus in Iran *P. syriaca* attains the upper limit of its vertical distribution.

Further south Stapf has collected several herbarium specimens in the vicinity of Schiraz and Kazerun, however, as was mentioned before, they came from trees under cultivation, and therefore these stands were not marked on the map. Also Parsa (1948) mentions two stands from the Iranian Azerbaijan, however I do not know of any herbarium specimens from that region. These stands, if they are true obviously are associated with the stands of *P. syriaca* from Transcaucasus.

9. USSR. In the USSR, in southern Transcaucasus, *P. syriaca* attains the northern limit of its occurrence. It grows here only in southern Armenia, particularly in the vicinity of the towns Dzhermuk and Megri and in Nakhichevan ASSR, between 1700 and 2150 m elevation. It is striking that here, on the limit of its occurrence it attains exceptional sizes, since as is evidenced by Rubtsov (in sched. 18) he has found a tree 14 m high and 40 cm in diameter.

In 1968 I have seen the stands of *P. syriaca* near the resort town of Dzhermuk, at an elevation of about 1800 m. (fig. 3). It grows there in sparse oak forests (*Quercus macranthera*) together with *P. zangezura* and also on exposed dry slopes, sometimes together with *P. salicifolia*, with which it appears to form hybrids. A map of distribution of the stands of *P. syriaca* on the Transcaucasus has been published by Goysheim (1952).

Localities

Herbarium specimens:

1. Turkey. Prov. Kastamonu: Ecevit, between Seydiler and Küre; 1100 - 1200 m, edge of field, 30. 7. 1962 c. fr., Davis 38523 (E.); Prov. Samsun: Havza (Sekigöz), 1000 m, 1. 5. 1965, Tobey 923 (E.); Havza at Sekigöz, 800 m, limestone rubble, 23. 4. 1969 c. fl., Tobey 2489 (E.); Pontus Galaticus, in inferiore monte Ak-dagh prope Amasia, 800 m, 22. 5. 1890 c. fr., Bornmüller 1810 (BM. G. K. LE. PRC. W.); Samsun: Yeni Ankara Yol, 30 m, open field in wild condition, 12. 3. 1966 c. fl., Tobey 1540 (E.); Antalya: Bük Orman, Arduç Dagi, 1100 - 1300 m, 16. 4. 1970 c. fl., Bozakman, Fitz 72 (W.); Env. of Beyşehir, fields, 17. 8. 1959 c. fr., M. et D. Zohary 2173 (HUJ.); Icel: Mut, 20 miles N of Mut to Karaman road, 1400 m, roadsides, 13. 5. 1965 c. fl., Coode, Jones 938 (E.); Bulgardagh, env. of Biridglek, near spring, 1100 - 1200 m, 21. 8. 1931 c. fr., Eig, Zohary 234 (HUJ.); Plantae ad Allah (Ullah) Dagh, Cilicien, crescit ad Dundarle pagum 4000', 5. 6. 1859 c. fr., Kotschy 1159 (W.); Maras: Akifiye, 15-miles north of Andirin, 1500 m, field edge, 18. 5. 1965 c. fl., Coode, Jones 1178 (E.); Plantae ad Pyramum in monte Nur lectae. In rupestribus montis, Kotschy 945 (W.); Col. de Hassan Beyli (Amanus), 12. 4. 1893 c. fl., Herb. Post. 363 (G.); Nr. Fevzi Pasha, 3500', 12. 4. 1934 c. fl., Balls 767 (K.); In dumetis m. Soffdagh, Cyrrhe, 3 - 4000', 27. 6. 1865, Haussknecht (W.); Entre Alexandrette et Aintab, 1 - 3000', 15 - 20. 3. 1910 c. fl., Haradjian 3981 (E.G.K.W.); Col. de Beilan, 5. 4. 1893 c. fl., Herb. Post 363 bis (G.); Env. of Ouschahasdly (between Antiochia and El-Ourdu), a sacred forest of *Quercus infectoria*, 7. 7. 1932 c. fr., Eig, Zohary, 239, 240, 242 (HUJ.); Amanus mountains, env. of Bithias, 500 - 600 m, 27. 8. 1931 c. fr., Eig, Zohary 233 (HUJ.); Cassius:

Cheikh Keui, ad marg. machiarum, c. 900 m, 26. 4. 1933 c. fl., Samuelsson 4083 (S.); Betw. Maras and Gaziantep, about 30 Km S of Maras, remnants of maquis, 29. 7. 1962 c. fr., Zohary 2020 (HUJ.); Gaziantep, Indji Su, 3500', 20. 4. 1935 c. fl., Balls 2164 (K.); *Kurdistania occidentali*: Taurus Cataonicus. In monte Nimrud Dagh prope vicum Kjachta districtus Mamuret-ul-Asis, infra vicum Urik in silvis substrato calcareo 1000 - 1200 m, 12. 7. 1910 c. fr., Handel-Mazzetti 2196 (WU.); Sivas: 10 km S of Alacahan, Sivas to Malatya, 1700 m, M. et D. Zohary 3366 (HUJ.); 6 km S of Diarbekir, fallow field, 600 m, 19. 6. 1964, Zohary, Plitman 19604-8 (HUJ.); Bitlis: Küçüksu, E of Tatvan, 1700 m, field, 19. 5. 1966 c. fl., Davis 44300 (E.); Bitlis: 5 - 8 km NW of Tatvan, 1800 m, field, 21. 5. 1966 c. fl., Davis 43349 (E.); Bitlis: Tatvan, 1800 m, 29. 6. 1954 c. fr., Davis, Polunin 22338 (E.K.); In rupestribus ad urbem Bitlis, 5000', 18. 9. 1859, Kotschy 471 (G. K. LE. S. W.); Hakkari: Zap gorge, 6 km N of the junction of the Van-Hakkari and Yüksekova roads, 1800 m, banks of Zap river, 2. 7. 1966 c. fr., Davis 45755 (E.); Hakkari: nr. junction of Van-Hakkari-Yüksekova roads, 1700 m, limestone gorge of Zap, nr. river, 10. 6. 1966, Davis 44710 (E.); Hakkari: 9 km S from the Hakkari-Yüksekova road junction, 1550 m, rocky S slope, 8. 6. 1966 c. fr., Davis 44666 (E.); Hakkari: Bajirge, 1700 - 1800 m, dry stony slopes, 18. 6. 1966 c. fr., Davis 45273 (E.); Hakkari: 16 km from Bajirge to Yüksekova, 2000 m, sloping meadows, 18. 6. 1966, Davis 45179 (E.); Hakkari: 32 km from Yüksekova to Semdinli, 1750 m, meadows in valley, 15. 6. 1966 c. juv. fr., Davis 45085 (E.); Hakkari: Sat Dagi, between Yüksekova and Vargöz, 1900 - 2000 m, rocky slope, 27. 6. 1966 c. fr., Davis 45567 (E.).

2. **Cyprus.** Myrton, 6. 5. 1932 c. fr., Syngrassides 459 (K.); Ayia valley, 1500', 28. 9. 1956 c. fr., Merton 2832 (K.); Road from Myrtua to Panagra gorge, 800', 13. 3. 1956 c. fl., Merton 2511 (K.); Toxeftera near Ayios Yeoryios (Akamas) 500', on river bord, limestone, 8. 3. 1962 c. fl., Meikle 2003 (K.); Inter Kuklia et Papho ad versus Chrysochu, 6. 5. 1862 c. fr., Kotschy 668 (W. K. LE.).

3. **Syria.** Antilebanon, n. Serghaya, c. fl. Hayne (K.).

4. **Lebanon.** In Libani borealis declivitatibus orientalicis silvaticis inter Der-el-Ahmar et Aineta, 15 - 1800 m, 27 - 28. 6. 1910 c. fr., J. et F. Bornmüller 11775 (E. G. LE. W. WRL.); Ainette, c. fr., Unger 566 (W.); Antilebanon 3000 - 4500', 1858, Unger 377, 461 (W.); Beirut, 1871 c. fr., Herb. Post. (E.); Saïde, 30. 6. 1889 c. fr., Peyron 195 (G.); Borde de la rivière Aoulé près du fonte Saïda, 22. 6. 1853 c. fl., Blanche (W.); Bords du torent Nahr Aoulé, au M. de Saïda, 15. 5. 1858, Gaillardet 1091 (G. L. LE. PRC. W. WRL.); In regione Amygdalorum frequens, 4500', In territorio montis „Hermon”, 24. 6. 1855 c. fr., Kotschy 157 (LE. S. W.); Lebanon, 1855, Kotschy 761 (W.).

5. **Israel.** Pekiuu — Hurfesh (Upper Galilee), maquis, 2. 6. 1926, Eig, Zohary (TBI.).

6. **Jordan.** East of Jordan, 1873 c. fr., Paine (K.); Ajlun, in *Pinetum halep.*, 2. 5. 1945, Davis 9464 (K.).

7. **Iraq.** Khantur. Mt. NE of Zakho, 1360 m, 6. 7. 1957 c. fr., Ali Rawi 23383 (K.); Khantur, 1700 m, 10. 5. 1947, Rawi 8600 (K.); Distr. Mosul. Ad confines Turciae prov. Hakkari, in ditone oppidi Zakho, in quercetis jugi ca. 8 km a Zakho meridiem versus, 2 - 4. 7. 1957 c. fr., Rechinger 10670 (W.); Env. Gavarki (Dohuk distr.), 1190 m, 28. 9. 1933 c. fr., Eig, Zohary 237 (HUJ.); Rowanduz, 26. 3. 1930 c. fl., Guest 585 (K.); Rowanduz Gorge, 2000', 12. 10. 1931, Guest 494 (K.); Hardian near Diana Rowanduz, 25. 6. 1934 c. fr., Field, Lazar 863 (S.); Distr. Rowanduz: ad fontem Kani Mai Shirin prope vicum Zeyta, ad pedem montis Potise, 21. 6. 1961 c. fr., Agnew, Hadač, Haine, Kader 6010 (PR.); Env. of Jindian, 650 m, Cenomanian-Turanian rocks with grey-redish soil, 17. 4. 1933 c. fl., Eig, Zohary 238 (HUJ.); Montane valley betw. Salahuddin and Chuklawa, Erbil Liwa, 31. 3. 1964 c. fl., Abbas, Barkley 7070 (K.); Mirawan Pass, betw. Arbil and Rowanduz, 17. 4. 1933 c. fl., Eig, Zohary 241 (HUJ.); Pirmum Dagh 1100 m, *Quercus aegilops-infectoria* forest, on limestone, 8. 5. 1948, Gillett 8022 (K.); In montis Kuh-Sefin reg. infer. supra pagum Schaklava, ditionis Erbil 1000 m, 11 et 18. 5. 1893, Bornmüller 1029 (K. LE. W.); Gali Warta c. 30 km NW by N of Rania, 1300 - 1400 m, 13. 5. 1959 c. fl., Rawi, Nuni, Kaas 28731 (K.); Rayat, 1800 m, 25. 8. 1953 c. fr., Guest 13125 (K.); Env. of Rayat, 1280 m. near the bridge, bank of stream, 4. 10. 1933 c. fr., Zohary 232, 235 (HUJ.);

In declivio supra pagum Zawiya, 21. 10. 1960 c. fr., Hadač 2798 (PR.); Qarachitan — Zawiya (Pir Omar Gudrun), 1300 - 1700 m, 19. 4. 1947 c. fl., Gillett 7792 (K.); Pir Omar Gudrun (Pira Magrun), 6. 1868, Haussknecht 372 (K.); Distr. Suleimania: declivibus borealis montis Kopi Qaradagh: Waziara, 29. 5. 1961, Hadač et al., 5149 (PR.); Kopi Qara Dagh mont., Sulaimaniya 29. 4. 1964 c. fl., Barkley, Abdul-Rahman 8523 (K.); Kopi Karadagh 5000', frequent in oak forests on upper slopes, 22. 6. 1957 c. fr., Wheeler Haines (E.); Penjwin, 1350 m, 21. 6. 1951, Rawi 22469 (K.); Distr. Sulaimaniya. In ditone pagi Penjwin, in quercetis montium, 1400 m, 19 - 20. 6. 1957, Rechinger 10465 (W.); Tarniar Dagh, betw. Penjwin and Douleh Sur, 1250 m, debris of serpentine, *Quercetum infectoriae*, 16. 9. 1933 c. fr., Eig, Feinbrun 236 (H.UJ.).

8. Iran. In valle Gawaru, Gauba 458 (W.); Marivan, 35°32'N, 46°21'E, alt. 1700 - 1900 m, northern slope of shady mountain with more or less depleted forest of mainly *Quercus persica*, 5. 5. 1963 c. fl., Jacobs 6488 (E. W.); 20' E of Marivan, 6000 - 7000', open scrub wood, 24. 7. 1962 c. fr., Furse 3425 (K.); Baghé-Khan, 2. 6. 1950, Sabeti 394 (E. W.); Ti, Luristan, along cultivation, 2. 6. 1940 c. fr., Koelz 15961 (W.); Luristan: Bisheh, 50 km a Khorramabad orientem versus, substr. calc., ca. 1200 - 1400 m, 14 - 16. 7. 1948, K. H. et F. Rechinger 5774 (W.); Nijiu, 1900 m, 12. 5. 1937 c. fl., Koie 526 (L.E. W.); Sepid-Dacht, 13. 6. 1950 c. fr., Sabeti 395 (W.); Fariab (Bakhtiari), 2. 10. 1950, Sabeti 396 (W.); Isfahan: Bakhtiari, Sovéh, 17. 8. 1950, Hakimi 5721-E (W.). — var. *abbreviata* — Prov. Kazvin. Razekhan prope Keredj, Gauba Sabeti 457 (W.)?

9. USSR (Transcaucasus). Between Erivan and Basch-Gjarni 8. 7. 1928 c. fr., Agagian 21082 (L.E.); Reg. Daralagez, Wajk near Dzhermuk, 25. 6. 1946, Takhtadzian 36050 (ERE. L.E.); Daralagez, village Isti-su, forest, 7. 8. 1933 c. fr., Takhtadzian 35031 (ERE.); Dzhermuk, on the right riverside of Arpa, oaks forest, 3. 9. 1961 c. fr., Gabrieljan 69695 (ERE.); Prope termas Isty-ssu (Dzhermuk), ad margines silvarum, 15. 8. 1943, Maklatadze 34452, 34954, 34963 (ERE.); Dzhermuk, 1. 8. 1952 c. fr., Mulkijanian 66609 (ERE.); Dzhermuk, oaks forest on the S. slope, 13. 10. 1954, Mulkijanian 66598 (ERE.); Prope Istissu. Ad margines silvae quercinae 30. 8. 1940 c. fr., Fedorov 27245 (ERE.); Juxta termas Dzhermuk (olim Isti-Su). Ad margines que rceti, 7. 1950 c. fr., Takhtadzian, Gozheva, Czerepanov 3968 (G. L.E. TBI.); S of Dzhermuk in *Quercus-Pyrus* scrub, 1800 - 1900 m, 12. 7. 1968 c. fr., Browicz (Herb. Kórnik); Daralagez: Aleti-su, 17. 8. 1931, Karagjan, Safiev (L.E.); Daralagez: between Kaušuk and Jali-djuz 31.8. 1936, Rubtzov (WIR.); Region Mikojan, near village Kalaser, 2040 m, dispersed in the fields, 1. 9. 1931 c. fr., Rubtzov 14, 15 (WIR.); Dzhermuk — Azizbekov, 17. 7. 1964 c. fr., Mulkijanian, Nazerova 87990 (ERE.); Distr. Azizbekov, village Terger, 1700 m, 4. 9. 1936 c. fr., Rubtzov 23 (WIR.); Distr. Azizbekov, on the right riverside of Arpa, 1. 8. 1952, Mulkijanian 66600 (ERE.); Distr. Azizbekov, SW of Gušči, 2. 8. 1945 c. fr., Karapetogi 35119, 56089, 35120 (ERE.) Distr. Azizbekov, river Arpa, near the village Kušči, in the remnants oaks forest, E slope, 2000 m, 1. 7. 1946, Doluchanov 66611 (ERE.); *ibid.* 2100 - 2150 m, 1946, Doluchanov 66610 (ERE. TBI.); Prov. Megri, prope pag. Abgiaz, 13. 8. 1935 c. fr., Tamamschian 21083 (ERE.); Prope pag. Abgiaz, 14. 7. 1929 c. fr., Schelkovnikov (L.E. WIR.); *ibid.*, 14. 7. 1929 c. fr., Karapetogi 21227 (ERE.); Distr. Megri near village Mjulk, 1950 m, 14 - 16. 9. 1936, Rubtzov 2, 21, 23, 25, 31, 32, 35 (WIR.); Distr. Megri, village Taštun, 2000 m, on the edge of field, 15. 9. 1934, Rubtzov 20 (WIR.); Distr. Megri, 1 km of the village Taštun, riverside, 15. 9. 1934, Rubtzov 18 (WIR.); Distr. Megri, Ličk, on the road to Taštun, 1950 m, on the fields, 28. 9. 1932, Rubtzov 46 (WIR.); Lischk, 26. 9. 1932, Agagian 26347 (ERE.); Distr. Megri, village Ličk, 1900 m, 14 - 15. 9. 1934, Rubtzov 1, 3, 9 (WIR.); Below the village Ličk, 12. 9. 1943 c. fr., Mulkijanian 66602 (ERE.); Distr. Megri, E part of the mt. Cojuch, 7. 6. 1947, Doluchanov 66599 (ERE.); Distr. Megri, village Mğolk, 1950 m, 16. 9. 1934 and 13. 9. 1936, Rubtzov 26, 28, 36, 52, 57 (WIR.); Prov. Zangezur, circa p. Gedjalan fauc. Jaglu-dara, 30. 7. 1929, Schelkovnikov, Kara-Murza (ERE. L.E.); Nakchichevan. distr. Shakhbuz, between village Biganač and Biganalskij pass, 11. 8. 1946, Takhtadzian 36623 (ERE. L.E.); Nakchichevan, distr. Shakhbuz, ca. 1800 m, in forest, 28. 5. 1947 c. fl., Grossheim, Ilinskaja, Kirpicznikov (L.E.); Inter p. Liskvas et p. Daštun, 22. 7. 1929 c. fr., Schelkovnikov, Kara-Murza 21084 (ERE.); In silvaticis Koschadara Szovits (L.E.); Distr. Achty, in silvis, 5. 9. 1942, Tamamschian, Fedorov 29011 (ERE.).

Literature:

1. **Turkey.** Ala Dag, am d. Südwestrand, bei 1400 m, 22. 9. 1938, Bornmüller 755 (Bornmüller, 1941); Distr. Erzerum, in clivis siccus ad opp. Aschkala, 1700 m (Schischkin, 1929); Distr. Musch, ad rupes pr. pag. Bostanskaja (Schischkin, 1929); In declivitatibus ad pag. Magalisor; Ad fontes fl. Sonamer-su, declivitatibus aridis, 2000 m; Distr. Bitlis, in querceto prope pag. Czuchur-Norschen, 1400 m, (Schischkin, 1929); In Sassun, bis 1900 m. (Handel-Mazzetti, 1913); Karpuz (Boissier, 1872); Distr. Hakkari: in valle fluv. Zab prope pagum Koçanes, dit. Ğulamerik, ca. 1800 m, 3. 9. 1910, Nábělek 1859 (Nábělek, 1923); Am Göldschik (Handel-Mazzetti, 1913); Montibus ad Marash (Boissier, 1872); Dere Bagtsché. Amanus, Wall (Rechinger, 1963); Kurd Dagħ (Post, Dinsmore, 1932); Umgebung von Souk-Oluk, in einem abgeholzten Pinetum, 800 - 850 m, 9. 8. 1931 (Feinbrun, 1933).

2. **Cyprus.** On the road from the Ktima to Chrysoku (Holmboe, 1914); Dry slopes at Prodomo, 1905, Holmboe 940 (Holmboe, 1914); Platania (Chapman, 1949).

3. **Syria.** Cassius (Boissier, 1872); Kasab to Antioch (Post, Dinsmore, 1932); Sud de Harim, Pabot; Bassit, Pabot; (Mouterde, 1970); Baer-Bassit et le Djebel Alaouite (Nahl, 1962); Sur le littorale et dans les région montagneuses: Froulok, Nabi-Matta (Nahl, 1960); Ouwadi-el-Qarn, 1400 m, Wall (Rechinger, 1963; Mouterde, 1970); Jebel ed Droar, 3600', dry rocky slope (Samuelsson, 1935); Mons. drus., Qanaout 1100 m, Wall (Rechinger, 1963); Tell Jawalil, 12 km E of Soueida, 3600', Post; Kafer, 11 km SE of Soueida, 24. 4. 1943, Mouterde; Slenfé, Pabot (Mouterde, 1970); Entrex Suqeiq et Lac Phiala, 15. 6. 1907, Aaronshon 3722 (Oppenheimer, Evenari, 1940).

4. **Lebanon.** Antilibanon, Westfuss in Weingärten oberhalb Baalbek, 12 - 1300 m, Bornmüller 11774 (Bornmüller, 1914); Cèdres de Hadeth, Hasroun, Blanche; Bharré, Post; au dessus de Jounié; Baabda; 'Abey, Post; 'Araya, Post; Dahr-el-Baidar, Post; 'Ain Zehalta, Pabot; Deir-el-'Achair, Pabot; Tripoli, Blache (Mouterde, 1970).

5. **Israel.** Gallilee super.: Sommet du Kan-an, 13. 6. 1906, Aaronshon 3767 (Oppenheimer, Evenari, 1940); Env. of Hanita; Carmel: between Yagur and Jeleme (Zohary, 1951); Ain Karim (Post, Dinsmore, 1932).

6. **Jordan.** Env. of Kafer Estion; slopes of Beith Hastor; env. of Sheikh Bureik (Zohary, 1951); Entre Bureika et Sindjana, 8. 3. 1906, Aaronshon 3778 (Oppenheimer, Evenari, 1940); Ayn-'Arik (Post, Dinsmore, 1932); Stapheina, Ajlun ca. 950 m, 7. 3. 1956, Kasapligil 2924; Amman distr., Jerajs. El-Kitti village, Jebel Deceh, ca. 640 m, scattered trees in Pine forest, 8. 5. 1955, Kasapligil 2671 (Kasapligil, 1956); aux environs de Jérusalem, entre Tantur et Bethléhem (Oppenheimer, Evenari, 1940).

7. **Iraq.** Ad rupes prope pagum Mâr Jakub dit. Môsul, 900 - 1000 m (Nábělek, 1923); Mar Jakub nördlich von Mossul (Handel-Mazzetti, 1913); Distr. Šerizor: Handrian-Dar supra pagum Rowanduz, ad septentriones ab oppido Erbil, 1700 m, 23. 5. 1910, Nábělek 1870 (Nábělek, 1923).

8. **Iran.** Kermanschah: in monte Parrau, 19. 5. 1905, Strauss; ad Bernadsch, 15. 5. 1905, Strauss; in m. Kharguschschica, 1. 5. 1903, Strauss (Bornmüller, 1911); Kalibar (Ahar); Has-sanbaglu; Mont Avroman (Parsa, 1948).

2. *PYRUS GLABRA* BOISS.

P. glabra was discovered by Kotschy in May 1842, in south western Iran, near Shiraz, in the mountains of Kuh-e-Barfi, and later it was described by Boissier in 1845 (in Kotschy, Pl. Pers. austr. 336). Boissier (1846 - 1849) has based his diagnosis on the specimens collected by Kotschy, represented by shoots with leaves and inflorescences. The leaves of these specimens have not been completely grown yet. In later years the number of herbarium collections of this particular



Phot. Naturhistorisches Museum, Wien

Fig. 4. A herbarium specimen of *Pyrus glabra* collected by Stapf near Shiraz, Iran (Botanisches Institut und Botanischer Garten der Universität, Wien)

species, which marks off the southern limit of the range of distribution of the genus *Pyrus*, has been increasing very slowly and even today it is still very small. Boissier mentions one further specimen in 1872 from the collections of Haussknecht made in the mountains of Luristan, but without an accurate localization. It is possible that this is the same specimen Diapulis (1933) mentions "prope Kuh-i-Nur". The considerable distance that separates Luristan Mts. from Shiraz makes one suspect that this specimen represents in fact *P. syriaca* and not *P. glabra*. Unfortunately I have not seen it. From the same region another specimen of *P. glabra* has been reported (Schönbeck-Temsey, 1969) "Bisheh, 50 km a Khorramabad orientem versus, ca. 1200 - 1400 m, 14 - 16. 7. 1948, Rechinger 5789". It is a sterile specimen characterized by strong and sharp thorns, and very small leaves — 1 - 2.5 cm long and 1 cm wide with entire margins or only slightly serrulate, and therefore under no circumstance can it be considered as representing *P. glabra*. Possibly this is some special form of *P. syriaca*, or perhaps another taxon not known as yet.

Richer collections of herbarium specimens on the basis of which one could characterize *P. glabra* more accurately have been provided by Stapf in 1885, also from the region of Shiraz, from Dasht-e-Arzhan (fig. 4). In that region Stapf has also collected specimens of *P. syriaca*, however as can be judged from the herbarium labels the collections were made from trees under cultivation (see above). As regards *P. glabra*, according to Stapf (1887) this species is not cultivated even though its "[...] Kerne mit Salz bestreut und geröstet, im Süden häufig gegessen werden". Stapf's herbarium specimens are characterized by fully grown leaves, the length of which sometimes reaches 11 cm and they are 1.5 to 2 cm wide. A detailed observation of these leaves indicates that the character of entire margins, which was indicated by Boissier is not an absolute one. In fact most of the leaves have entire or undulate margins, however besides these leaves there are some with slightly crenate or even crenate-serrulate margins particularly in the lower part on fruiting shoots. Tops of these teeth are sometimes characteristically thickened. This concerns also newer herbarium specimens collected by Behboudi. Besides a considerable leaf variability is observable, which on flowering and fruiting shoots is considerably shorter, frequently only 5 cm long.

Everything seems to indicate therefore that *P. glabra* is very closely correlated with *P. syriaca* and that possibly these two pear trees should be considered as subspecies. Between the range of *P. glabra*, restricted to a very small region, in Shiraz and Fars, and the range of *P. syriaca* there is a distinct gap, however, this could be only apparent due to lack of herbarium collections from that region. Our information about *P. glabra* is so far very scanty. We know nothing about its vertical distribution nor about sites and environments in which it occurs (fig. 1).

Localities

Herbarium specimens:

Iran. Bei Daescht aerdschen, 2. 6. 1885 c. fl., Stapf 419 (WU. E.); Zin i saefid bei Daescht aerdschen, 2. 6. 1885 c. fl., Stapf 418 (E. WU.); Ad fontes m. Kuh-Barfi pr. u. Schiras, 4. 5. 1842 c. fl., Kostchy 336 (W. WRL. — TYPUS); Chiraz: Ardakan — Kakun, 22. 7. 1949 c. fr., Behboudi 1271 - E (W.); Fars. Chiraz — Tolé Khorsow-Komeht, 22. 7. 1949 c. fr., Behboudi 1270-E (W.); Fars. Sissahkt — Déna, 31. 7. 1949 c. fr., Behboudi 1273-E (E.).

Institute of Dendrology and Kórnik Arboretum
Kórnik nr. Poznań

LITERATURE

1. Boissier E. — 1849. Diagnoses Plantarum orientalium novarum, Ser. 1., 10, Lipsiae et Parisiis.
2. Boissier E. — 1872. Flora Orientalis, 2, Basileae et Genevae.
3. Bornmüller J. — 1911. Collectiones Straussianae novae, Beih. Bot. Centralbl., 28, 2: 225 - 267.
4. Bornmüller J. — 1914. Zur Flora des Libanon und Antilibanon, Beih. Bot. Centralbl. 31, 2: 177 - 280.
5. Bornmüller J. — 1941. Bemerkenswerte floristische Funde im Ala Dag II, Feddes Repert. 50: 133 - 150.

6. Bornmüller J., Gauba E. — 1936. Florulae Keredjensis fundamenta (Plantae Gaubeanae iranicae), Feddes Repert. 39 : 73 - 124.
7. Browicz K. — 1970. *Pyrus* in P. H. Davis „Flora of Turkey” (manscr.).
8. Chapman E. T. — 1949. Cyprus trees and shrubs, Nicosia.
9. Feinbrun N. — 1933. Beitrag zur Kenntnis der Flora des Amanus-Gebirges (Syrien), Beih. Bot. Centralbl., 51, 2 : 374 - 388.
10. Grossheim A. A. — 1952. Flora Kavkaza, 5, Moskva—Leningrad.
11. Handel-Mazzetti H. — 1913. Pteridophyta und Anthophyta aus Mesopotamien und Kuridsan sowie Syrien und Prinkipo, Annal. k. k. Naturhist. Hofmus. Wien, 27 : 41 - 92.
12. Holmboe J. — 1914. Studies of the vegetation of Cyprus, Bergens Museums Skrifter, Ny Raekke, Bind. 1. No. 2, Bergen.
13. Kasapligil B. — 1956. Plants of Jordan with notes on their ecology and economic uses, Forestry Department, Amman.
14. Kotschy Th. — 1864. Die Sommerflora des Antilibanon und hohen Hermon, Verhandl. k. k. Zool.-botan. gesellsch. Wien, 14: 417 - 458.
15. Maleev V. P. — 1939. *Pyrus* L. in Flora URSS, 9, Moskva—Leningrad.
16. Meikle R. D. — 1966. *Rosaceae* in C. C. Townsend, E. Guest „Flora of Iraq”, 2 : 102 - 171, Baghdad.
17. Mouterde P. — 1953. La flore du Djebel Druze, Paris.
18. Mouterde P. — 1970. Nouvelle Flore du Liban et de la Syrie, 2, Beyrouth.
19. Nábělek F. — 1923. Iter Turcico-Persicum, 1, Publicat. Facult. Sc. Univers. Masaryk, 35, Brno.
20. Nahl I. — 1960. La végétation forestière naturelle dans le Nord-Ouest de la Syrie, Revue Forest. Franc. no. 2 : 90 - 101.
21. Nahl I. — 1962. Contribution à l'étude de la végétation dans le Baer-Bassit et le Djebel Alaouite de Syrie, Webbia, 16, 2 : 477 - 641.
22. Oppenheimer H. R., Evenari M. — 1940. II. Florula Cisjordanica, Bull. d. 1. Soc. Bot. d. Genève 31 : 1 - 423.
23. Parsa A. — 1948. Flore de l'Iran, 2, Teheran.
24. Post G. E., Dinsmore J. E. — 1932. Flora of Syria, Palestine and Sinai, 1, Beirut.
25. Rechinger K. H. — 1963. Zur Flora von Syrien, Libanon, Arkiv f. Botanik 5, 1: 1 - 488.
26. Samuelsson G. — 1935. Notes on two Collections of Plants from Syria, Palestine, Transjordan and Jordan, Svensk Bot. Tidskr. 29, 3: 375 - 390.
27. Schischkin B. — 1929. Contributiones ad floram Armeniae Turcicae, Ber. Tomsker. Staatuniv. 80 : 409 - 490.
28. Schönbeck-Temsey E. — 1969, *Pyrus* in K. H. Rechinger „Flora Iranica”, *Rosaceae* I., No. 66 : 27 - 36, Graz.
29. Stapf O. — 1887. Persische Culturbäume, Verhandl. k. k. Zool.-botan. Gesellsch. Wien, 37 : 10 - 12.
30. Zohary M. — 1951. The arboreal Flora of Israel and Transjordan, Imper. Forestry Inst. Univ. of Oxford No. 26.
31. Zohary M. — 1962. Plant life of Palestine, The Ronald Press Company, New York.

KAZIMIERZ BROWICZ

Pyrus syriaca Boiss. i *P. glabra* Boiss.

Streszczenie

Na podstawie bogatych zbiorów zielnikowych oraz danych z literatury, każdorazowo cytowanych, autor omawia zasięgi dwóch blisko ze sobą spokrewnionych gatunków grusz — *P. syriaca* i *P. glabra*.

Grusza syryjska charakteryzuje się największym zasięgiem wśród grusz południowo-zachodniej Azji. Obejmuje on znaczną część Turcji (zwłaszcza południowej), południowe Zakaukazie (Armenia i Nachiczewańska ASRR), zachodni Iran, Cypr, zachodnią Syrię, północno-wschodni Irak, Liban, północny i środkowy Izrael oraz zachodnią Jordanię. Najdalej na północ sięga *P. syriaca* w Armenii po okolice kuracyjnej miejscowości Dzhermuk, a najdalej na południe w Jordanii, nieco na południe od Jerozolimy. Skrajne zachodnie stanowisko znajduje się w Turcji koło Arduç Dagi (Prow. Antalya), a wschodnie w Iranie, w rejonie Esfahan.

P. syriaca reprezentuje grupę grusz, którą Maleev (1939) określił mianem *Syriaceae* i zaliczył do niej takie gatunki, jak kaukazkie *P. sosnovskii* A. Fed., *P. oxyprion* Woron, *P. raddeana* Woron. i *P. zangezura* Maleev oraz środkowoazjatycką *P. korshinskyi* Litw. Autor uważa, że do tej grupy można jeszcze włączyć *P. glabra* Boiss. i *P. amygdaliformis* Vill. Ten ostatni gatunek występuje w całej południowej Europie i w zachodniej Turcji, gdzie jego zasięg graniczy z zasięgiem gruszy syryjskiej.

Typ zasięgu *P. syriaca* przemawia za tym, że należy ten gatunek traktować jako wschodnio-śroziemnomorski. Rośnie on przede wszystkim w suchych rejonach głównie na wapiennym podłożu, w zaroślach krzewów oraz w świetlistych lasach dębowych (*Q. macranthera*, *Q. infectoria*, *Q. calliprinos*, *Q. aegilops*), między 300 (Turcja) a 2300 (Iran) m n. p. m.

Drugi gatunek gruszy — *P. glabra* posiada bardzo ograniczony zasięg i występuje w południowo-zachodnim Iranie, tylko w rejonie Shiraz i Fars. Oprócz tego podawany był z zachodniego Iranu, z gór prowincji Luristan, jednak autor nie widział stąd żadnego okazu zielnikowego, który by mógł te wiadomości potwierdzić i przypuszcza, że odnoszą się one do poprzedniego gatunku — *P. syriaca*. Zbiory zielnikowe oraz dane z literatury o *P. glabra* są bardzo skąpe, tak że na ich podstawie nie można nic powiedzieć ani o rozmieszczeniu pionowym, ani o wymaganiach ekologicznych tej gruszy.

КАЗИМЕЖ БРОВИЧ

Pyrus syriaca Boiss. u *P. glabra* Boiss.

Резюме

Основываясь на просмотренных богатых гербарных материалах, а также на цитируемых литературных данных, автор обсуждает вопрос об ареалах двух близкородственных видов груш: *P. syriaca* и *P. glabra*.

P. syriaca обладает самым обширным ареалом среди груш юго-западной Азии. Он охватывает значительную часть Турции (особенно южной), южное Закавказье (Армения и Нахичеванская АССР), западный Иран, Кипр, западную Сирию, северо-восточный Ирак, Ливан, северный и центральный Израиль и западную Иорданию. Далее всего на север этот вид заходит в Армении (до окрестностей Джермука), а на юг — в Иордании, несколько южнее Иерусалима. Крайнее западное местонахождение расположено в Турции, около Ардуç Даги (вилайет Анталья), а восточное — в Иране, в районе Эсфагана.

P. syriaca является представителем той группы груш, которой Малеев (1939) дал наименование *Syriaceae*, отнеся к ней такие кавказские виды как *P. sosnovskii* A. Fed., *P. oxyprion* Woron., *P. raddeana* Woron., *P. zangezura* Maleev и среднеазиатский вид *P. Korshinskyi* Litw. Автор считает, что в эту группу можно включить также *P. glabra* Boiss. и *P. amygdaliformis* Vill. Последний вид представлен во всей южной Европе и в западной Турции, где его ареал граничит с ареалом *P. syriaca*.

В соответствии с характером ареала *P. syriaca* этот вид следует рассматривать как восточно-средиземноморский. Произрастает он прежде всего в сухих районах, преимущественно на известняковых почвах, в зарослях кустарников, а также в светлых дубовых лесах

(*Quercus macranthera*, *Q. infectoria*, *Q. calliprinos*, *Q. aegilops*) между 300 (Турция) и 2300 (Иран) м над ур. м.

У другого вида *P. glabra* ареал крайне ограниченный, вид этот встречается только в юго-западном Иране, в районе Шираза и Фарса. Кроме того, его указывали для западного Ирана, с гор Лурестана, однако автор не видел ни одного гербарного образца, который мог бы подтвердить эти сообщения и считает, что они относятся на самом деле к *P. syriaca*. Гербарные материалы и литературные данные о *P. glabra* очень бедны, и на их основе невозможно ничего сказать ни о вертикальном размещении вида, ни об его экологических требованиях.



Kwiatostany wiciokrzewu *Tellmanna* (*Eonicera* × *tellmanniana* Spaeth.)

Fot. K. Jakusz