

KAZIMIERZ BROWICZ

Distribution of woody *Rosaceae* in W. Asia XII
Miscellaneous notes

1. *PADUS AVIUM* MILL.

This is an Eurasiatic species with a tremendous range extending from Portugal and Spain in the west through the whole continent as far as Japan in the east. It is sometimes reported in the literature from Afghanistan and the Himalayas, this information however is erroneous and concerns a completely different species — *Padus cornuta* (Wall. ex Royle) Carr. (Browicz, 1969). Within *P. avium* three basic subspecies can be recognized, which are frequently treated as independent taxa.

1. subsp. *avium* — Europe and western Siberia as far as Yenisei in the east and the Caucasus.
2. subsp. *pubescens* (Rgl. et Tilling.) Browicz, *comb. nov.* = *Prunus padus* L. var. *pubescens* Rgl. et Tiling. in *Nouv. Mém. Soc. Nat. Moscou* (Fl. Ajan.) 11:79 (1858); *Padus asiatica* Kom., *Fl. URSS* 10:578 (1941) — eastern Siberia from the Yenisei, Far East of the USSR, Mongolia, north-eastern China, Japan. This subspecies is characterized by more or less velutinous young shoots and more or less pubescent lower surface of the leaves.
3. subsp. *petraea* (Tausch) Pawł. — mountains of central Europe and northern Scandinavia. Bushy habit, inflorescences more compact, usually projecting upwards or at an angle.

The full range of *P. avium* has been described by Meusel, Jäger and Weinert (1965). Until recently it was believed that this species attains its southern limit on the Caucasus, or in north-eastern Turkey, however presently the picture has to be modified to some extent. The number of stands reported in Turkey has not increased markedly but in 1971 a stand of *P. avium* has been found in Iran. So far it is the only report of that species from Iran. (Fig. 1). At the northern limit of its occurrence in Europe *P. avium* attains a latitude of 70°35' N (Komarov, 1941), while the Iranian stand is an extremal one in the southeastern direction located at a latitude of about 38°46' N. At the same time it is probably the most elevated stand of the species — at an altitude of

2300 m. Similarly elevated, usually above 2000 m, are the stands in Turkey.

Since the type subspecies — subsp. *avium* usually grows in the lowlands and in lower reaches of the mountains, one can suspect that in Iran and Turkey, and possibly also on the Caucasus (perhaps partially only)

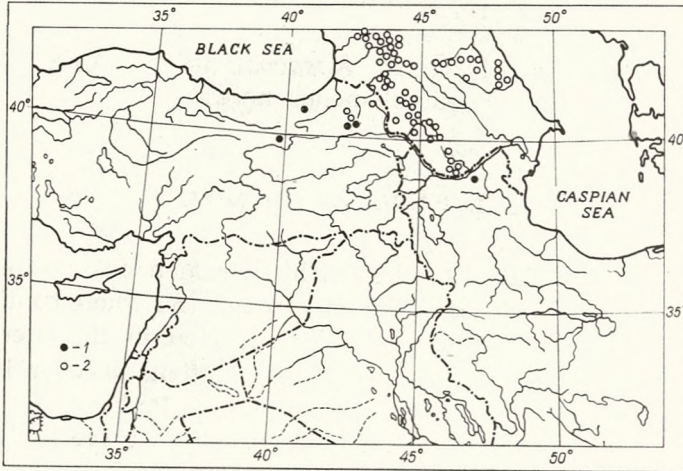


Fig. 1. The distribution of *Padus avium* in W. Asia and Caucasus: 1. herbarium specimens, 2. literature

P. avium is represented by its mountain subspecies — subsp. *petraea*, which occurs above 1000 m elevation and in central Alps it attains a maximum elevation of 2200 m (Braun-Blanquet, Rübél, 1933). Unfortunately the herbarium material from western Asia is scanty and incomplete, and therefore it does not permit a definite diagnosis. One can only point out that the specimen from Iran has erect infrutescence, which would correspond to the subsp. *petraea*. Also on the labels of herbarium sheets from Turkey the specimens of *P. avium* are determined as 2-3 m high shrubs.

P. avium is not only a new species for the flora of Iran but it also represents for that flora a new genus from the family *Rosaceae*. A point map of the distribution of this species in the Caucasus, with a note about the presence of three inadequately localized stands in Turkey (probably near Çildir lake and between Kars and Kagizman) has been prepared by Grossheim (1952).

Localities

Turkey. Region alpine du Lazistan, près de Djimil, vers 2300 m d'altitude, 7. 1866 c. fl., Balansa (G.); Distr. Erzerum, in valle fl. Chnys-czai, prope opp. Chnys-kala, 1800 m (Schischkin, 1929); Kars: 10 km from Sarikamis to Karakurt, 2050 m, by stream in *Pinus silvestris* forest, 2-3 m shrub, 15.7. 1966, Davis 46595 (E); Kars:

Yagmurlu dağ between Sarikamis and Karaorgan, 2200 m, igneous scree, 2 m shrub, 7.7. 1957 c. juv. fr, Davis, Hedge 30708 (E. K.).

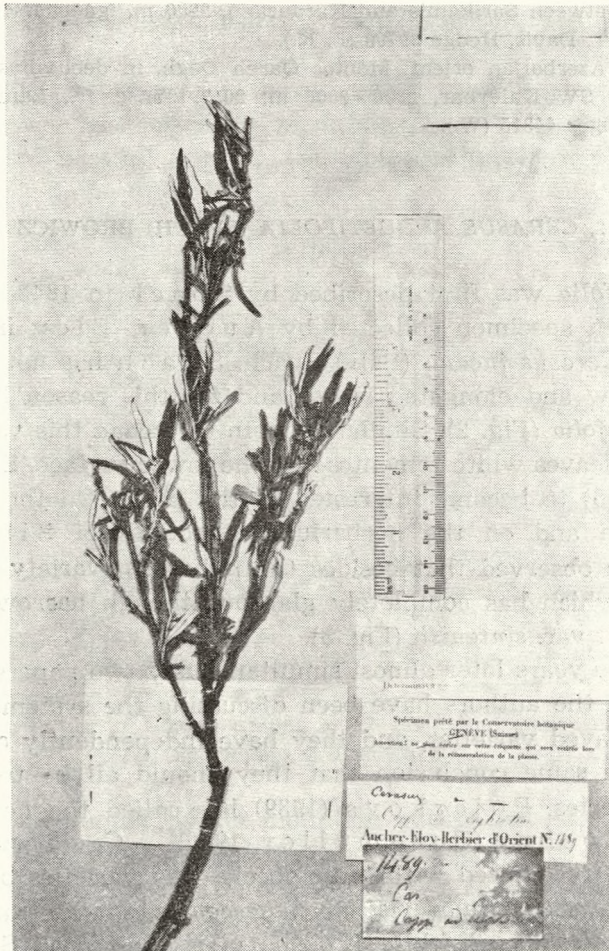
Iran. Prov. Azerbaijan orient. Montes Qareh Dagħ, in declivibus saxosis prope Aliabad, 20 km SW Kaleybar, 2300 - 2500 m, 20.7.1971 c. fr., Lamond (Nr. 4871) Termé — Rechinger 44315 (W.).

2. *CERASUS ANGUSTIFOLIA* (SPACH) BROWICZ

C. angustifolia was first described by Spach in 1843, on the basis of a herbarium specimen collected by Aucher-Eloy in Turkey, as a variety of *Cerasus incana* (Pall.) Spach. Spach has noted its exceptionally narrow and elongated leaves and for this reason he has called it var. *angustifolia* (Fig. 2). Similarly as in *C. incana* this variety is characterized by leaves white tomentose on the lower surface. Schneider was next (1906) to become interested in the plant. On the basis of the type specimen and on the herbarium collections of Sintenis and Huethe has observed that besides the pubescent variety there is also another one which has completely glabrous though narrow leaves, and he has called it var. *sintenisii* (Fig. 3).

Thirty or so years later almost simultaneously two papers were published in which the authors have been discussing the systematic value of the narrow leaved varieties, and they have independently of each other arrived to the same conclusion that they should all be treated within a separate species. Pojarkova (1939) has called the new species *C. araxina* and Koehne (Bornmüller, 1940) — *C. albicaulis*. Pojarkova has not recognized within the species any varieties believing that the leaves are „... *supra brevissime pubescentia, subtus cano-tomentosa vel utrinque glabra...*” while Koehne, similarly as Schneider before him has retained the variety *sintenisii* with completely glabrous leaves (*foliis ab initio glaberrimis*). It is difficult to give a definite opinion about the systematic rank of these varieties, since they appear throughout the range of the species, frequently on one and the same stand. Besides specimens with completely glabrous leaves from the earliest stages of their development and those permanently white tomentose, it is also possible to find intermediate forms that have initially pubescent leaves, particularly on long-shoots, later becoming glabrate with development, and which are glabrous and green or only slightly pubescent on the lower leaf surface. These are probably transitory forms resulting from crosses between varieties; possibly they should be considered as subspecies.

Pojarkova (l. c) has included *C. angustifolia* (as *C. araxina*) into a separate series *Incanae* Pojark. within section *Amygdalocerasus* Koehne, together with 9 other western Asiatic species from the genus *Cerasus*. Within the series, *C. angustifolia* is related most to *C. incana* (Pall.)



Phot. K. Jakusz

Fig. 2. *Cerasus angustifolia* var. *angustifolia* — type specimen (Conservatoire et Jardin botaniques, Genève)

Spach, from which it differs primarily in having leaves that are 5-8 times longer than their width and in having rolled-in leaf margins, and to *C. hippophaeoides* Bornm. This latter species has also narrow leaves with rolled in margins, but it is densely ash-grey tomentose on both leaf surfaces. So far it is only known from three stands at the western extremity of the range of *C. angustifolia* (Fig. 4). A similar phenomenon is observable in northern Iran, where another species from the series *Incanae* is widely distributed — *C. pseudoprostrata* Pojark., with leaves grey tomentose on the lower surface. On one stand besides that species there is also a closely related species *C. chorassanica* Pojark., which similarly as *C. hippophaeoides* has leaves densely tomentose on both surfaces (however they are not narrow but obovate or elliptic and short).



Phot. K. Jakusz

Fig. 3. *Cerasus angustifolia* var. *sintenisii* — type specimen (Naturhistoriska Riksmuseum, Stockholm)

The range of *C. angustifolia* (Fig. 4) has a very characteristic shape of a narrow somewhat arching belt running from the west to the east, more or less from a longitude of 40° E (Turkey) to $46^{\circ}13'$ E (Megri, Armenian SSR). This region falls mainly in the valley of the river Aras (Arax) where *C. angustifolia* can be found most frequently at an elevation of 900 - 1650 m among thickets of shrubs, and in devastated remnants of forests, on dry stony and rocky slopes. The most elevated stand has been found in Iran at 1800 - 2000 m.

The recent discovery of *C. angustifolia* (in both varieties) in north-

western Iran has increased the number of wild species from the genus *Cerasus* in that country from eight to nine. It is possible, however, that this species has been known in Iran somewhat earlier. Parsa (1948) mentions in his flora a *C. incana* var. *angustifolia* Spach from one stand — Meshkambar, at 1300 m elevation and gives a short description of that variety: "Feuilles linéaires — lancéolées"; this could correspond to *C. an-*

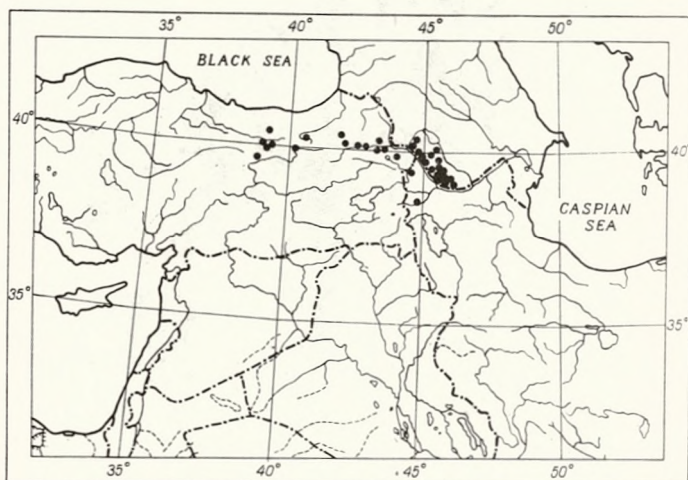


Fig. 4. The distribution of *Cerasus angustifolia* (herbarium specimens)

gustifolia, however an error with the large leaved forms of *C. incana* (long shoots) is also possible. Unfortunately I have not seen a herbarium specimen from that stand.

A points map of the distribution of *C. angustifolia* on the Caucasus has been prepared by Grossheim (1952). However since I have had the opportunity of seeing the herbarium collections of this species present in the Herbaria of Leningrad (LE.), Tbilisi (TBI.) and Erevan (EREV.) I have plotted all points on the map on the basis of these materials. It is perhaps worth pointing out that *C. angustifolia* possibly extends even further east, beyond longitude 46° E, since Prilipko (1954) has mentioned it also from the region of the southeastern part of the Azerbaijan SSR, that is from the southern region of the Lower Caucasus, but unfortunately I have not seen any herbarium specimens from that area.

Localities

a. var. *angustifolia*

Turkey. Cappadocia, ad Euphratem, Aucher-Eloy 1489 (G. — 'TYPUS); Auschin ad Euphratem, in montibus supra Diachbet, 9.5. 1890, Sintenis 2200 (JE.); Koesoe, inter Arvschusch et Szadagh, 25. 7. 1890, Sintenis 3169 (JE. K. LE. S.); Erzurm: 17 km from Horasan to Karakurt in Aras gorge, 1500 m. Rocky igneous slopes, 14. 7.

1966, Davis 46473 (E.); Kars: 7 km from Karakurt to Kagizman, in Aras gorge 1450 m, Rocky igneous N gully, 14.7. 1966, Davis 46492 (E.); Kars. Mountain E of Kagizman, 8 km from Akçay to Çumaçay, 1650 m, *Spiraea* scrub, 17.7. 1966, Davis 46803 (E.); Kars, prope Kara-kurt, 13.7. 1914, Litvinov (LE.); Distr. Kars: Kagizman, 30.4. 1914, Turkievich 67 (LE.); Distr. Kars, near Kagizman, Achezai, 30.6.1903, Seleshinsky (LE. TBI.); Distr. Kagizman, in valle fl. Araxis, inter Todan et Kagizman, 2.6. 1913, Woronow 1240b (LE.).

Iran. Prov. Azerbaijan occid. In valle fluvii Qotur W Khvoy, versus fines Turciae, 1800 - 2000 m, 10.6. 1971, Rechinger 41726 b (W.).

b. var. *sintensis* (Schneid) Browicz in P. H. Davis Flora of Turkey 4 : 16 (1972).

Turkey. Kassuklu, Huet (Schneider, 1906); Koesoe, inter Arvschusch et Szadagh, 25.7. 1890, Sintenis 3494 (S — SYNTYPUS); NE Anatolia, Env. of Kelkit, forest remnants, 1400 m, 31.7. 1962, M. et D. Zohary 31771 (HUJ.); Prov. Pontus: distr. Gumusane, above Bayburt, among dry rocks by stream, 16.5. 1960, Furse et Synge 189 (K.); Kars: 7 km from Karakurt to Kagizman, in Aras gorge, 1450 m. Rocky igneous N gully, 14.7. 1966, Davis 46452, 46491 (E.); About 50 km south of Kars. Stony ground, *Rhamnetum*, 1500 m, 22.6.1964, Zohary et Plitman 2267 - 14 (HUJ.); Kars: Mountains E of Kagizman, 7 km from Akçay to Çumçay, 1600 m, *Spiraea* scrub in N gully, 17.7. 1966, Davis 46814 (E.); Prov. Erzincan: Erzincan-Kelkit, c. 15 km from Erzincan, 1650 m. Igneous N slopes., 1.8.1957, Davis, Hedge 31883 (E. K.); Prov. Erzincan: Tercan-Aşkale, above Tercan, 1650 m, Igneous slopes, 8.6. 1957, Davis, Hedge 29347 (E. K.); Prov. Kars, distr. Olty, locus Kop-Kişlag, 26.5. 1912, Sosnovsky (TBI.); Ağrı: Doğubayazıt to Iğdir, 1620 m., Zohary, Plitman 2264 - 5 (HUJ.).

Iran. Prov. Azerbaijan occid. Maku, in saxosis calc. 1300 - 1400 m. 5.5. 1971, Rechinger, 39238, 39239 (W.).

3. *PYRUS BOISSIERIANA* BUHSE

The range of this species lies in the Hyrcanian floristic subprovince and covers the mountain regions around the southern shores of the Caspian sea (Talysh, northern Iran, Kopet-Dagh). In that part of Asia *P. boissieriana* is the only species of pears from the section *Pashia* Koehne which is characterized by fruit deprived of a calyx and covered with small whitish lenticels. Species from section *Pashia* occur also in Europe (*P. cordata* Desv., *P. rossica* Danilov and *P. magyarica* Terpó), in northwestern Africa (*P. longipes* Cosson et Durieu, *P. marmorensis* Trabut and *P. gharbiana* Trabut) and in southwestern Turkey (*P. boissieriana* Buhse subsp. *crenulata* Browicz), however the greatest center of their differentiation is to be found in East Asia, particularly in China (Fedorov, 1958). *P. boissieriana* shows a close affinity to the Himalayan species *P. pashia* D. Don, the most westerly stands of which are to be found in eastern Afghanistan, in Nuristan (Schönbeck-Temesy, 1969). A disjunction between the extreme stands of these two pears is about 1000 km in a straight line (Fig. 5).

Thus *P. boissieriana* is still another example of the floristic affinity

between the Caucasus and East Asia. Among other species of trees and shrubs, which show a similar relationship one could mention: *Albizia julibrissin* Durazz., *Gleditsia caspica* Desf., *Pterocarya fraxinifolia* (Poir.) Spach, *Zelkova carpiniifolia* (Pall.) K. Koch and *Hedera pastuchovii* G. Woron.

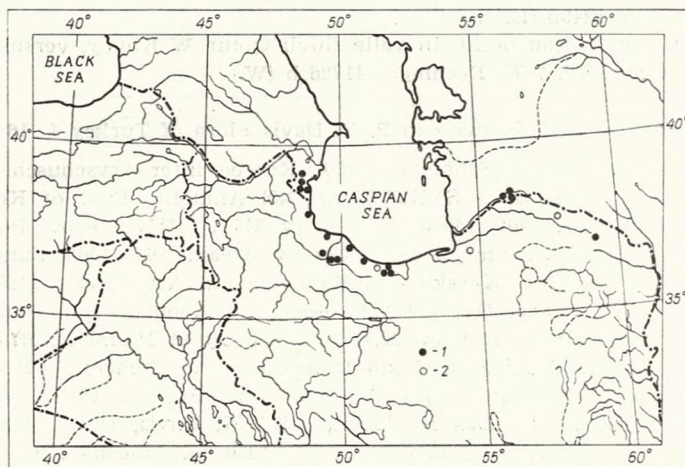


Fig. 5. The distribution of *Pyrus boissieriana*: 1. herbarium specimens, 2. literature

P. boissieriana has been discovered in 1848 by B u h s e in northern Iran, and later described by him in 1860. From the mountains of Talysh it was first reported in 1925 by W o r o n o w; however the first herbarium specimens were collected there much earlier in 1834 (H o h e n a c k e r, *in sched.*).

In western Kopet-Dagh it occurs as single specimens on dry clayey slopes of gorges in the region of the steppes, between 600 and 1500 m elevation (B o g u s h e v s k y, 1932; V a s s i l c z e n k o, 1957). The main part of the range occurs however in northern Iran, where the pear has been found at elevations from 660 to 2400 m. It grows in sparse broadleaved forests, particularly in oak ones (*Quercus macranthera*, *Q. castaneifolia*) and along their edges and also in forests of *Cupressus sempervirens* and *Biota orientalis* (Z o h a r y, 1963). Since it is capable of forming root sprouts it forms sometimes small clumps as a result of vegetative propagation. This is of particular significance at the north-eastern limit of its range where as a result of sharp temperature changes during flowering time *P. boissieriana* seldom sets fruit (B o g u s h e v s k y, 1932).

Localities

USSR, Talish. Talysh, 1834, Hohenacker (LE.); Pr. pagum Tatuni, Hohenacker (LE.); Puškin region, 100 - 200 m, 17. 7. 1950, Bespalova (LE.); Talyš, Lerik region, mount ca. 1 km W of Lerik, 4. 5. 1946, Ilinskaja, Kirpičnikov (LE.); Talyš — near

village Massaly, 20. 8. 1936. Fedorov (LE.); Between Levasi and sovchoz Massaly (Grossheim, 1952); Lenkoran region, slope of the mount Siogan near Sevakeraš, 17. 10. 1929, Moniuško (LE.).

Iran. Azerbaidžan: Montes Talysch, Dinuchal, 1000 m, Gauba, Sabeti 452 (W.); Prope Schahrud, Herb. Bungeanum (LE.); Prov. Gilan, Lahidjan, Esfandieri 450 (W.); Region Caspian, mixed deciduous forest, 37° N, 49°40' E, 12. 4. 1953, Jacobs 6180 (E.W.); Prov. Gilan. In montibus supra Menjil, 1200 m, Gauba, Sabeti 447 (W.); Prov. Gilan. Harsevil near Menjil, Gaubā Sabeti 451 (W.); Elburz: Gaduk, Komrud, 26. 7. 1948, Behboudi, Aellen 5720 E (W.); 11 km N. of Gaduk, on the Therena-Zirub road, 1730 m, 8. 5. 1961, Zohary, Orshan A 147/9 (HUJ.); 17 km S of Zirab, *Zelkova-Lonicera* open forest, 660 m, 9. 5. 1961, Zohary, Orshan 320/19 (HUJ.); In valle fluvii Talar, Rechinger 2317 (Schönbeck-Temesy, 1969); In valle fluvii Chalus, 2400 m, Rechinger 966 a-b (W.); Prov. Mazanderan: Distr. Kudjur. Inter Nemasieh et Sanus, 1600 - 2200 m, 9 - 11. 8. 1948, K. H. et F. Rechinger 6556 (W.); Prov. Mazanderan: Kelardasht, 1200 m, Gauba Sabeti 449 (W.); Mazanderan, Hazar Jerib, 5. 1948, Sharif 415 (W.); Prov. Mazanderan, Distr. Kudjur. Inter Kindj et Dasht-e Nazir, 800 - 1300 m, 9 - 11. 8. 1948, K. H. et F. Rechinger 6638 (W.); In *Biota orientalis* forest, Gaz Galeh near Asterabad, acc. to Djazirei (Zohary, 1963); Bei Radkan, 19. 9. 1848, Buhse (LE.); Ziaret, Bunge (Schönbeck-Temesy, 1969).

USSR, Turkmenia. Kopet-Dagh: Distr. Karakala, mount Chazar, near Czoch — agač, 9. 7. 1912, Lipsky 3529 (LE.); Distr. Karakala, Chasar-dagh, near springs of Mezetli (?), 9. 1948, Blinovskij (LE.); Distr. Karakala, shoulder of Kudzun-dag, near pass, 4. 5. 1916, Tscherniakovskaya 884 (LE.); George Karagač, Kašbag, Juzbegi, mount Sjunt-dag, Palyzak, basin of rivers Sumbar and Čandyr (Bogushevsky, 1932; Vassilczenko, 1957).

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KAZIMIERZ BROWICZ

Padus avium Mill., *Cerasus angustifolia* (Spach) Browicz i *Pyrus boissieriana* Buhse

Streszczenie

Autor omawia zasięgi trzech gatunków występujących na Kaukazie, w północno-wschodniej Turcji, w północnym Iranie oraz w Kopet-Dagu i zamieszcza punktowe mapki ich zasięgu. Dwa gatunki, *Cerasus angustifolia* i *Padus avium* są nowymi dla flory Iranu, a ostatni z nich reprezentuje zarazem nowy dla tej flory rodzaj.

Padus avium poza obszarem Kaukazu występuje na kilku stanowiskach w Turcji oraz na jednym, nowo odkrytym stanowisku w Iranie, na znacznych wysokościach od 1800 do 2300 m n.p.m. Autor przypuszcza, że być może jest to górski podgatunek czeremchy — subsp. *petraea* (Tausch) Pawł., jednak zbiory zielnikowe są niekompletne i nieliczne i nie pozwalają na zdecydowany sąd.

Zasięg *Cerasus angustifolia* ma kształt wąskiego, nieco łukowato wygiętego pasa przebiegającego z zachodu na wschód, mniej więcej od 40° (Turcja) do 46° 13' dług. geogr. wsch. (ZSRR: Megri, Armenia). Obszar ten przypada głównie na dolinę rzeki Aras (Arax), gdzie *C. angustifolia* rośnie najczęściej na wysokości 800 - 1650 m n.p.m. Najwyższe stanowisko zostało stwierdzone w Iranie — 1800 - 2000 m. Na całym obszarze zasięgu, często na jednym i tym samym stanowisku, występują dwie odmiany *C. angustifolia*: var. *angustifolia* o białawo owłosionej spodniej stronie liścia i var. *sintenisii* (Schneid.) Browicz o liściach obustronnie nagich; znane są jednak formy przejściowe. Blisko spokrewniony z *C. angustifolia* jest *C. hippophaeoides* Bornm., znany jak dotąd, tylko z trzech stanowisk w Turcji (rejon Sivas), który ma również równo-wąsko-lancetowate liście, lecz obustronnie gęsto, szaro owłosione.

Pyrus boissieriana jest w omawianym rejonie jedynym przedstawicielem sekcji *Pashia* Koehne (owoce na powierzchni z drobnymi, białawymi przetchlinkami, pozbawione kielicha), której centrum zróżnicowania przypada na wschodnią Azję, a zwłaszcza na Chiny. Ten typowo hyrkański gatunek charakteryzuje się stosunkowo małym zasięgiem rozciągającym się wzdłuż południowych wybrzeży Morza Kaspijskiego, od Tałyszu poprzez północny Iran do zachodniego Kopet-Dagu. Główna część zasięgu przypada na Iran, gdzie gruszę Boissiera znajdowano na wysokości 660 - 2400 m n.p.m. (w Kopet-Dagu 600 - 1500 m). Rośnie ona przeważnie w prześwietlonych lasach dębowych. Wydaje odrośla korzeniowe.

КАЗИМЕЖ БРОВИЧ

Padus avium Mill., *Cerasus angustifolia* (Spach) Browicz,
Pyrus boissieriana Buhse

Резюме

Автор рассматривает ареалы трёх видов, распространённых на Кавказе, в Северо-Восточной Турции, в Северном Иране и на Kopet-Dage, и публикует их точечные карты. Два из этих видов (*Cerasus angustifolia*, *Padus avium*) являются новыми для флоры Ирана, а последний — также и новым родом.

Padus avium за пределами Кавказа найден на нескольких местонахождениях в Турции и на одном, недавно открытом, местонахождении в Иране, на больших высотах (1800 - 2300 м над ур. м.). Автор предполагает, что это ничто иное, как горный подвид subsp. *petraea* (Tausch) Pawł., однако гербарные сборы очень неполные и малочисленные и не дают возможности высказать окончательное суждение.

Ареал *Cerasus angustifolia* имеет форму узкой, слегка выгнутой наподобие лука, полосы, проходящей с запада на восток примерно от 40° (Турция) до 46°13' вост. геогр. долг. (СССР, Мегри, Армянская ССР). Этот район относится в основном к долине реки Аракс. Здесь *C. angustifolia* произрастает чаще всего на высоте 800 - 1650 м над ур. м. Наиболее высокое местонахождение, отмеченное в Иране, расположено на 1800 - 200 м. На всём протяжении ареала, часто на одном и том же местонахождении встречаются две разновидности — var. *angustifolia* с беловато опущенной нижней стороной листьев и var. *sintenisi* (Schneid.) Browicz с листьями голыми с обеих сторон; известны, однако, и переходные формы. К *C. angustifolia* близок *C. hippophaeoides* Bornm., известный до сих пор всего лишь с трёх местонахождений в Турции (вилайет Сивас). Листья у него также узко-ланцетовидные, но густо покрыты с обеих сторон серыми волосками.

Pyrus boissieriana является в данном районе единственным представителем секции *Pashia* Koehne (на поверхности плодов беловатые чечевички, нет чашечки), центр многообразия которой расположен в Восточной Азии, точнее в Китае. Этот типично гирканский вид характеризуется относительно небольшим ареалом, протяжённым вдоль южного берега Каспийского моря, от Талыша через Северный Iran до Западного Kopet-Dage. Основная часть ареала приходится на Iran, где вид этот расположен от 800 до 2400 м над ур. м. (на Kopet-Dage от 600 до 1500 м). Растёт преимущественно в осветлённых дубовых лесах, образует корневые отпрыски.



Fot. K. Jakusz

Bożodrzew gruczołowaty (*Ailanthus glandulosa* Desf.) — owocostan