

The wild pear (*Pyrus* L., *Rosaceae*) species in the flora of Azerbaijan Republic

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The article provides information about wild pears spread in the Republic of Azerbaijan. It has been revealed that currently 21 species of wild pears belonging to the *Pyrus* L. genus are known in the flora of Azerbaijan. 17 species of them have been spread in the area of Nakhchivan Autonomous Republic. *Pyrus zangezura* Maleev., *P. voronovii* Rubtz., *P. georgica* Kuth., *P. demetrii* Kuth., *P. fedorovii* Kuth., *P. psuedosyriaca* Gladkova., *P. chosrovica* Gladkova., *P. megrica* Gladkova, *P. caucasica* var. *schuntukensis* Tuz., *P. salicifolia* var. *angustifolia* Kuth., *P. salicifolia* var. *latifolia* Alexenko species have been given firstly for the flora of Azerbaijan and Nakhchivan Autonomous Republic. As a result of climate change and anthropogenic factors in recent years in the Autonomous Republic considering the wild pears of *Pyrus boissieriana* Buhse (CR A2 abc; C1), *P. eldarica* Grossh. (CR A2 abc; C1), *P. grossheimii* Fed. (CR A4 cd; C1), *P. hyrcana* Fed. (CR A2 abc; C1), *P. salicifolia* Pall. (NT), *P. vsevolodii* Heidemann (NT) species rareness and endangering they have been included the Red Book of Azerbaijan, *P. medvedevii* Rubtz. (NT), *P. syriaca* Boiss. (NT), *P. zangezura* Maleev. (VU B1a(i)c(ii); C2a(i)), *P. raddeana* Woronow (VU B1a(i)c(ii); C2a(i)), *P. voronovii* Rubtz. (VU B1a(i)c(ii); C2a(i)), *P. megrica* Gladkova (VU B1a(i)c(ii); C2a(i)) species have also been included the Red Book of Nakhchivan Autonomous Republic.

Key words: The Republic of Azerbaijan; wild pear; *Pyrus* L.; flora; rare species; distribution areas; Red Data Book

Introduction

There are more than 150 species wild fruits and berries belonging to the 15 families and 36 generas in the forests of Azerbaijan. Their composition is rich in various vitamins, microelements, proteins, fats, sugars, acids, in a word, with many essential elements useful for human organisms. From this point of view, wild fruits do not fall behind cultivated fruit types and sometimes they are superior from them. One of the wild fruits is the species pear belonging to the genus *Pyrus* L. grown in our forests. 27 species from them are grown in the Caucasus.

There have been shown 18 species of pears in the flora of Azerbaijan (Fedorov, 1954), 2 species of them (*P. serotina* Rehd. and *P. communis* L.) have been cultivated in cultura and four species (*P. elata* Rubtz., *P. voronovii* Rubtz., *P. raddeana* Woronow, *P. complexa* Rubtz.) are believed to be in the territory of Azerbaijan.

Because of researches conducted by T.H. Talibov and A.M. Ibrahimov (Ibrahimov, 2007; Talibov & Ibrahimov, 2009; Talibov & Ibragimov, 2009); there have been identified 17 species and 3 variations of wild pear have spread in the territory of Nakhchivan Autonomous Republic.

Methods

In order to clarify the current situation of the representatives of *Pyrus* L. in the Azerbaijan Republic flora, there have been given attention to the herbariums kept at their Herbarium Fund of the Botany Institute of Azerbaijan National Academy of Sciences, Bioresources Institute of Nakhchivan branch of Azerbaijan National Academy of Sciences, Nakhchivan State University, there have also been comparative analysis of herbarium samples concerning of organizations and various Institutions placed on their web sites. There have been determined the content of the *Pyrus* L. genus fulfilling of field expeditions during 2004-2017.

"Trees and shrubs of Azerbaijan" (Bandin & Aliyev, 1970), "Higher plants of Azerbaijan" (Askerov, 2006), "Flora of Azerbaijan" (Fedorov, 1954), "Trees and shrubs of the USSR" (Fedorov, 1954), "Areas of trees and shrubs of the USSR" (1980), "Flora of the Caucasus" (Grossheim, 1952), "Dendroflora of the Caucasus" (Sahokiya, 1965), "Flora of the USSR" (Maleev, 1939) and other modifiers V.N. Gladkova (1987, 1990), Talibov & Ibrahimov (2008) had been utilized for determining of species.

Results and discussion

The available taxons which have been discovered by A.M. Ibragimov and T.H. Talibov, at the same time new pear species for Azerbaijan and the Nakhchivan AR are as follows:

1. Sectio: *Pashia* Koehne. 1893, Deutsch. Dendrol: 244: emend. Terpo 1960. Ann. Acad. Horti-Viticult. 22. 6. 2: 30-32.

1. *P. boissieriana* Buhse. It is tree or bush, the height is up to 5 m. The fruit is smaller, the diameter is 1-1,5 cm. It is spheric, shiny, and red; the flower is in arising flower-group, with a stalk of 4 cm. The fruit is rapen in the month of August-September. It has been spread in the mountain forest of Astara and Lankaran, on the edges of the glade.

2. Sectio: *Pyrus* L. 1753, Sp. Pl. 1: 479.

2. *P. grossheimii* Fed. It is a tall bush or tree, the length is 10-12 m, the diameter is 12-16 cm. The fruit is smaller, the diameter is 2 cm, is sphere or partially oblongated. It is spread mainly in the forests and the edge of forests of Talish (Leryk, Shuvi, Penser, Bendesar) (Fedorov, 1954). It is a rare plant and its natural reproduction is very weak, so it needs to be replicated and reproduced.

3. *P. hyrcana* Fed. It is a tree, the height is 16 (25) m. Bark is dark grey coloured, young shoot is white, with small lentils, thornless. The fruit are found individually or umbrella gangs, hollow sphere, the diameter is up to 3 cm, cinnamon coloured. Natural reproduction is poor, there are 6-8 different aged young adults in 1 hectare. It has spread in the Bandasar region of Lankaran and Astara, in mountainous and foothill forests areas around Masalli, Istisu, Shuvi, Perenbel, Khocabar, Burdtala (Fedorov, 1954).

4. *P. caucasica* Fed. The height is 25 m, oblongated, oval or conical conopy, diameter is up to 60 cm. It has got a broad spread areal and the most well-known pear species. It has been noted in the Caucasus. It has been noted in the work of "Flora of Azerbaijan" (Fedorov, 1954) that species have spread in the Greater Caucasus (Guba region) in the eastern, western, central and northern regions of Lesser Caucasus. It has been indicated on literature data (Prilipko, 1954; Asadaov et al., 2001) that species have spread in the forest of Bichenek of Shahbuz region of Nakhchivan AR. However, the spread areas of the species have been revealed on the investigations carried out by T.H. Talibov and A.M. Ibrahimov (2007).

It has been determined that *P. caucasica* Fed. species are spread in large areas y of the Kuku, Bichanek of Shahbuz region, in the surroundings forest of the Nurgut, Nasirvaz and Gildachay villages of Julfa region (1800-2200 m above sea level).

Also, in the studies of T.H. Talibov and A.M. Ibrahimov (2007), there have been shown the spreading of new variation of *P. caucasica* var. *schuntukensis* Tuz. in the Shahbuz region (1900-200 m above sea level). The *P. caucasica* var. *schuntukensis* Tuz. variation have been determined according to the specimen of the herbarium specimen from the Shuntuk river basin (350 m above sea level) in 1966 by A.S. Tuz (Tuz, 1972).

As *P. caucasica* Fed. has been grown in the wetlands, but also has a high fruit yield. Indigenous people gather and use this species fruit enthusiastically. Natural restoration is sufficient.

5. *P. vsevolodi* Heideman. The tree is about 5 m. The fruit is spheric pear formed, the diameter is 1.8-2.0 cm. Firstly, it is netted hairy, as growing up became naked, the fruit stalk is thick, hairy, is longer 1.5 to 2 times than fruit. It grows at the edge of the near the Altiaghac village of the Khizi region (Fedorov, 1954).

6. *P. demetrii* Kuth. It is a tree of a gray shell and spheric canopy, the height is 6-7 m. The shoots are grey-red-shelled and naked, with long thorns. The leaves are lancet form, the height is 4-7 (8.5) cm, the width is 1.2-1.6 (1.8) cm. The surface of leaf is bright green, bare, and the bottom side is pale green, slightly hairy along the middle vein. Drying time is becoming relatively dark. Fully or poorly vivid toothed, becoming sharpen at the end. The stalk is 1.5-2.5 cm in length and it is naked. The fruits are oblated from the poles, are naked and the lenght is 2.2-2.5 cm and diameter is 2.5-3.0 cm. The ripen fruit is brown. The thicker fruit stalk is 1.5-2.0 cm height. The pulp is very solid and hardened, it is a mouth-astringent.

The species have been collected by Sh.İ. Kutateladze for the first time in 1947 (Kutateladze, 1947) and determined based on herbarium specimens.

There have been shown that, *P. demetrii* Kuth. species have found in sparse forest as individually or along with oak, hawthorn, and other species of pear in the Nurgut village of Ordubad region and Bichenek village of Shahbuz region by T.H. Talibov and A.M. Ibragimov (Talibov & Ibragimov, 2009). It is a new species for the flora of Azerbaijan, as well as Nakhchivan AR.

3. Sectio: *Xeropyrenia* Fed. 1954, Trees and shrubs of the USSR, 3: 401.

7. *P. zangezura* Maleev. It is a thornless tree, height is up to 9-10 m, with scattered canopy. The branches are grey, immature shoots are dark brown. The leaves are wide; scalpel or oblongated egg-shaped, blunt or sharp pointed, the edges are blunt arched toothed. The fruit is in the bunch group with 7-8 numbers. There have been supposed to be found in the adjacent territories to Zangazur in Azerbaijan on the literature information (Bandin & Aliyev, 1970; Fedorov, 1954).

T.H. Talibov and A.M. Ibragimov (Talibov & Ibrahimov, 2007) confirmed that existence of *P. zangezura* Maleev. species in the flora of Azerbaijan, as showing that this species had grown at 1900-2000 m above sea level, the area called "Serkanbichen" in the Shahbuz State Nature Reserve of Nakhchivan AR.

8. *P. nutans* Rubtz. It is a tree, the length is 15 cm, the diameter of the trunk is 140 cm. The branches are thin and lumpy, the crust is spruce or shellfish, it is thornless. The size of fruit is small, the length is 2-3 cm and width is up to 2 cm. There have been shown being spread only in Bichanak area of the Shahbuz region of Nakhchivan AR on the literature data (Gurbanov, 1996). However, during the investigations carried out by T.H. Talibov and A.M. Ibrahimov (2007) in addition it has been revealed that, this species has spread in the forests of Nesirvaz and Nurgut villages of the Ordubad region, along with the hawthorn species or individual form at the altitudes of 2000-2200 m above sea level, it has been shown that it is finished in only one of the most accessible areas.

9. *P. psuedosyriaca* Gladkova. It is a tree, the height is up to 8-12 m, with scattered canopy. The branches are thornless. The bark of immature shoots is grey and hairy, after the hairs are spilled. The leaves height is 5.5-8.0 (9.5) cm, the diameter is up to 2.5-3.0 (3.5) cm.

The species have been included to the flora of Nakhchivan and Azerbaijan by T.H. Talibov and A.M. Ibrahimov for the first time (2007).

P. psuedosyriaca Gladkova species has widely spread in the forest, riverbank of Bichenek region of Shahbuz region and Nurgut village of Ordubad region of Nakhchivan Autonomous Republic.

It grows at the edges of the glade, forests along with the oak, apple, cherry, hawthorn and other species of pear (*P. syriaca* and *P. nutans*) at an altitude of 1800-2000 m.

10. *P. raddeana* Woronow. As showing have been not spreading in the flora of Azerbaijan, it was supposed that the species to be found on the border areas in Karabakh with Zangilan (Bandin & Aliyev, 1970; Fedorov, 1954).

It is thornless tree, the height is up to 5 m, the length of leaves is up to 6.0-8.0 cm in and the width is 2.0-4.0 cm, oblongated, ellipse-shaped. The leaf stem length is 3.0-4.0 cm and fluffy. The fruit is smaller, sphere shaped, the fruit stem is longer 2 times from fruit. Drought-resistant, less demanding of soil. It flourishes in April, and its fruit ripens in July-September. There is no information on natural rehabilitation.

The new spread area of *P. raddeana* Woronow have been determined by T.H. Talibov and A.M. Ibrahimov (2007) that, this species have found in the forests of Badamli, Kuku villages of Shahbuz region, Akhura and Havush villages of Sharur region and as in the case of rarely on the dry stony slopes of mountainous slopes of mountains (1800-2000 m altitude above sea level).

11. *P. acutiserrata* Gladkova. It is a low-height tree, the bark of the young branches is grey-brown-colored. The length of leaves are 5.0-8.0 cm, the width is 2.0-3.0 cm, the broad lancet or scalpel shaped, blade is leather form, edges are sharp toothed, but leaves on sterile branches are full-fledged. It is dense hairy on the upper and lower sides. The leaf stem is about 2-4 cm, hairy. The fruit is located as individual or minor subgroups. It is a spheric pear form, the fruit stalk is sparse hairy, the length is 2.0-3.5 cm.

P. acutiserrata Gladkova species have been collected by G.A. Denisova and determined in accordance with the sample stored in Herbarium (LE) of St Petersburg (Leningrad) of Russia from the surround of garden and sowing area near the village of Badamli in the Shahbuz district of Nakhchivan AR, abandoned by V.N. Gladkova (Gladkova, 1987) in 15. VII. 1954.

T.H. Talibov and A.M. Ibrahimov (2007) have noted that this species has spread individually or in groups around the villages of Badamli and Kuku villages and low mountain range of the Kuku Mountain of Shahbuz region.

12. *P. eldarica* Grossh. It is a bush, the length is 1.0-1.5 m. The trunk is intensely thorny. The leaves are small, oblong or rhombic form. It is grown on the rocks of the juniper and Eldar pine forest and Elleroyughu mountain (Fedorov, 1954). Natural restoration is poor, rarely gives shoots from the roots.

13. *P. syriaca* Boiss. The height is 10-12 m, it is a sturdy thorny tree. In the flotation of Azerbaijan (Fedorov, 1954) It have been shown that this species has spread in Bichanak span of Shahbuz region of Nakhchivan AR in the flora of Azerbaijan Republic. In the study, it was noted that, except of the Bichenek and Batabat zones, this species has also grown in the wide area of the forest field of surround of Nasirvaz and Nurgut villages of Ordubad district (5, pp. 27).

14. *P. voronovii* Rubtz. It is a tree, the height of the *P. voronovii* Rubtz. is up to 8-9 m, the bark of the young branches is grey-brown and thorny. The height of the leaves is 7.0-7.5 cm and the width is 4.0-4.5 cm, rhombic or elliptic, the surface is bright, and the lower side is faded green. The fruit is oblato on both sides, the size in 2.5x3.0 cm, and the stem of fruit is 2 cm. It flourishes in April-May and its fruit ripens in August-September.

It is supposed founding in the adjacent territories to Zangazur in Nakhchivan AR and Karabakh on the work of "Flora of Azerbaijan" (Fedorov, 1954).

During the investigations carried out by T.H. Talibov and A.M. Ibrahimov (2007), assumption about of *P. voronovii* Rubtz. was in truth by the fact of new founding. It has been determined that species have spread in the forest and bushy areas called "Serkanbichen" and "Cheperbashi" in the Shahbuz State Nature Reservation between 1900-2100 m heights, with oak, hawthorn, apple and other species of pear.

4. Sectio: *Argyromalon* Fed., 1954, Trees and shrubs of the USSR, 3: 408.

15. *P. salicifolia* Pall. It is a tree, the height is up to 4-10 m. The diameter of the trunk is about 40 cm, the umbrella is numerous dense thorny. The leaves are oblongated (the height is 6-9 cm, the length is 0.5-1.0 cm), scalpel form. It grows on dry mountain slopes of small Caucasus, in Gobustan, in the mountainous and plains of Samur-Shabran region. These species are found in Nakhchivan AR in 1100-2200 m altitude area, in dry mountain slopes and rocks, in the valleys of the river individually or in groups (Talibov & Ibrahimov, 2007).

Though it has been shown that *P. salicifolia* Pall. species has spread in Nakhchivan AR by L. Prilipko (19, pp.109), but it has not reflected in the "Flora of Azerbaijan" and "The Treess and the Bushes of Azerbaijan". Further it has been shown about availability of *P. salicifolia* Pall. species in Nakhchivan AR territory by E.G. Gurbanov (Gurbanov, 1996).

K.S. Asadov and A.K. Asadov (2001) show the availability of *P. salicifolia* Pall. in the forest of Bichenek. It is mainly reproduced with root shoots.

In the researches conducted by T.H. Talibov and A.M. Ibrahimov, there have been given information on the wide spreading of var. *latifolia* Alexenko and var. *angustifolia* Kuth. variations of *P. salicifolia* Pall. species in the territory of the Autonomous Republic.

16. *P. medvedevii* Rubtz. It is a tree, the length is 10-20 cm long. The leaves are reverse lancet, the length is 9.0-11.0 cm, and the width is 3.0 cm. The fruit is green, as pear form. The fruit stalk is long and felty hairy. It is spread on rocky and dry mountain slopes of Nakhchivan AR.

The spread area of the species has further been clarified by T.H. Talibov and A.M. Ibrahimov (2007). It has been revealed that, *P. medvedevii* Rubtz. species have mainly spread in the near of the Jamaldin village of Julfa region the area called "Almemmed piri", as individually in Bichenek forest and on dry rocky of Lisbirt valley (surround of Karakush mountain) of Babek region.

17. *P. oxyprion* Woronow. It is a sparse thorny tree or bush with scattered canopy, the height is up to 5 m. Young branches are grided hairy. The leaves are obstinate lancet form, the leaf surface is turned to the stalk by being thinner to the bottom, the length is 3.0-7.0 cm, the width is 1.5 cm, and the edges are sharp toothed. The size of the fruit is smaller, the diameter is 1.5 cm, oblongated, the fruit stalk is up to 1.5-2.0 cm, felted hairy.

P. oxyprion Woronow have not been noted in the books of "Flora of Azerbaijan" (1954) and "Trees and shrubs of Azerbaijan" (1970). L.I. Prilipko (1939) and E.M. Gurbanov (1996) have showed that this species has been found in Nakhchivan AR.

T.H. Talibov and A.M. Ibrahimov (2007) have showed that *P. oxyprion* have been found in area of Sirab village of Babak region, at the surrounding area of Bichenek and Ayrinc villages of Shahbuz region, on the stony slopes of Kukudag, on the slopes of Ardij mountain of Sharur region. It flourishes in April-May, and its fruit ripens in August -September. It is drought resistant, not demanding to the soil.

18. *P. georgica* Kuth. It is a short tree or bush with the height to up 4-9 m. The fruit is pear or sphere form, greenish, matte or yellowish-brown style. The stalk is longer than 1.5-4.0 cm. It is shown that plant has been grown in the rockies of Guba region and southeastern part of the Greater Caucasus of Azerbaijan flora. It was depicted for the first time in Georgia. It is grown in the forest and shrubbery of Shamakhi, Shabran and Khizi districts.

There have been identified the new spread zone of *P. georgica* by T.H. Talibov and A.M. Ibrahimov (2007), there have been shown that, plant have spread on the right bank of the Gilanchay valley (1200 m above sea level) of Ordubad region of the Nakhchivan Autonomous Republic, in the Guzey called area near the of Guney Gishlag of Shahbuz region and in Bichenek forest (1860 m above sea level).

19. *P. chosrovica* Gladkova. It is a thorny tree with scattered canopy the height is 6-7 m. The branches are dark brown. The leaves height is 4-6 (8) cm, ellipse-shaped, and in some cases, wide-lancet shaped. The edge is totally or obscurities toothed. First of all, both sides have a delicate felt-hairy, then the bottom side is felt-hairy, and the top is bright green, and when dryer it is relatively darker. The most common that, it is wide in the middle. The main part is wedge formed, sharp or pointed ended. The diameter of rounded fruits is 2.5-3.5 (4) cm, upside is covered with very scattering hairy and 2.0 cm heighted of hairy stems have been gathered mainly in pairs.

P. chosrovica Gladkova species have been assigned by V.N. Gladkova (Gladkova, 1990) that, have been collected from the Khosrov Reserve of Vedi district on 01.XX.1989, by the sample stored in the Herbarium of St. Petersburg (Leningrad - LE) of Russia.

Due to some investigations, the species have been found in oak-hawthorn, hawthorn-pear forest of Bichanak village of Shahbuz district of the Autonomous Republic (Talibov, Ibrahimov, 2007; 2009). It is new species for the flora of Azerbaijan, as well as Nakhchivan.

20. *P. megrica* Gladkova. It is a thornless tree, with scattered canopy. The height is 8 m, the diameter is up to 25-30 cm. The bark of the branches is grey or light brown coloured. The leaves are oblongated lancet form, the length is 5.5-7.0 cm, and the width is 1.5-2.0 cm. Both sides of leaves are hairy, then the hairs on the surface of aged leaves fell and became bright, the hairs at the bottom side stayed. The stalk is short and tightly hairy.

The fruits are smaller, rounded-pear, top sides are sparse hairy, the fruit stem is shorter and become stout to the fruit. *P. megrica* Gladkova have been described from the Zangazur area by the V.N. Gladkova (Gladkova, 1990) for the first time.

P. megrica Gladkova species have been notted in the sparse oak - hawthorn forests, along with other pear species in area of Nasirvaz village of Ordubad region by T.H. Talibov and A.M. Ibrahimov (2007). It is a new species for the flora of Azerbaijan and Nakhchivan.

21. *P. fedorovii* Kuth. It is a tree, the height of 5-7 m, with a pyramidal canopy, has got long and thin thorns. The leaves are narrow-lancet form or rarely in the long ellipse shape, the main part is narrowed by the longitudinal pace and the top part is sharpened gradually. The length of leaves is 3.0-7.0 (7.5) cm, and the width is 0.8-1.3 cm, it is nude, bright green on upside, it is naked or along the veins is unevenly splitted hairy the bottom side, fully edged. The length of fruits are 1.8-2.2 cm and 2.3-2.7 cm in diameter, round or oblongated or egg-shaped, naked, lemon-yellow coloured. It ripens in light brown coloured. The fruits are individually set on short and naked, thick stems, that their height is 0.8-1.5 (1.8) cm.

The species has been originally assigned to herbarium samples collected by Sh.İ. Kutateladze (Kutateladze, 1947) in 1947 for the first time.

During the investigations carried out by T.H. Taliabov and A.M. Ibrahimov, *P. fedorovii* Kuth. species have been found on the dry stony slopes of Payiz and Buzgov villages of Babek region, in forest areas and mountain slopes of Bichanek village of Shahbuz region, the areas between the Daridagh and Jamaldin villages (Ibrahimov, 2008; Talibov & Ibrahimov, 2009). It is a new species for the flora of Azerbaijan and as well as Nakhchivan.

Conclusions

It has been revealed that currently 21 species of wild pears belonging to the *Pyrus* L. genus are known in the flora of Azerbaijan. 17 species of them have been spread in the area of Nakhchivan Autonomous Republic. *Pyrus zangezura* Maleev., *P. voronovii* Rubtz., *P. georgica* Kuth., *P. demetrii* Kuth., *P. fedorovii* Kuth., *P. psuedosyriaca* Gladkova., *P. chosrovica* Gladkova., *P. megrica* Gladkova, *Pyrus caucasica* var. *schuntukensis* Tuz., *P. salicifolia* var. *angustifolia* Kuth., *P. salicifolia* var. *latifolia* Alexenko species have been first given for the flora of Azerbaijan and Nakhchivan Autonomous Republic.

Thus, *Pyrus grossheimii* Fed., *P. eldarica* Grossh., *P. boissieriana* Buhse, *Pyrus hyrcana* Fed. and *Pyrus vsevolodii* Heideman pear species have been taken from the flora of Azerbaijan have not been noted in the flora of Nakhchivan AR.

In turn, *P. zangezura* Maleev., *P. psuedosyriaca* Gladkova., *P. megrica* Gladkova., *P. demetrii* Kuth., *P. chosrovica* Gladkova, *P. acutiserrata* Gladkova, *P. fedorovii* Kuth. pear species that newly founded and noted in the flora of Nakhchivan have not been found in the other regions of Azerbaijan. *P. serotina* Rehd. and *P. coomunis* L. pear species have been cultivated traditionally.

As a result of the influence of climatic and anthropogenic factors on the territory of the Autonomous Republic in recent years, there has also been a threat to the destruction of a number of precious species of wild pear genefund in nature. As a result of the investigations (Ibrahimov, 2008) considering of *Pyrus boissieriana* Buhse. (CR A2 abc; C1), *P. eldarica* Grossh. (CR A2 abc; C1), *P. grossheimii* Fed. (CR A4 cd; C1), *P. hyrcana* Fed. (CR A2 abc; C1), *P. salicifolia* Pall. (NT), *P. vsevolodii* Heideman (NT) species rareness and endangered have been included to Azerbaijan (Red Book of the Republic of Azerbaijan, 2013), *P. medvedevii* Rubtz. (NT), *P. syriaca* Boiss. (NT), *P. zangezura* Maleev. (VU B1a(i)c(ii); C2a(i)), *P. raddeana* Woronow (VU B1a(i)c(ii); C2a(i)), *P. voronovii* Rubtz. (VU B1a(i)c(ii); C2a(i)), *P. megrica* Gladkova (VU B1a(i)c(ii); C2a(i)) species have been included to the Red Book of Nakhchivan Autonomous Republic (Talibov & Ibrahimov, 2010).

From them *P. eldarica* Grossh., *P. boissieriana* Buhse and *P. hyrcana* Fed. species have been included to the The Red Book of Azerbaijan USSR (1987) that published in 1989 and *P. raddeana* Woronow species to the former Soviet Union's Red Book (Red book of the USSR, 1984).

Recent findings show that pear species in Azerbaijan should be investigated more thoroughly and determined their natural reserve and tons of pear fruit that remained without use should be directed to production.

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