ON THE PRESENCE OF *PYRUS* × *JORDANOVII* IN SERBIA

MARJAN NIKETIĆ

Natural History Museum, 11000 Belgrade, Serbia, e-mail: mniketic@nhmbeo.rs

In the first edition of the Flora of Serbia (Jovanović 1972) three species were reported: *P. domestica* Medik., *P. pyraister* (L.) Burgsd. and *P. amygdaliformis* Vill. (= *P. spinosa* Forssk.). The first two taxa are hardly distinguished and according to current classification they are conspecific, within the *P. communis* L. [including two native spiny subspecies: *P. c.* subsp. *pyraister* (L.) Ehrh. and *P. c.* subsp. *caucasica* (Fed.) Browicz] (Browicz 1992, Kurtto 2009, Zohary *et al.* 2012, Kurtto *et al.* 2013, Bartolucci *et al.* 2018). Moreover, some recognize *P. pyraister* as a synonym of *P. communis* (POWO 2018). The domesticated type subspecies probably derived from two “eco-geographic wild subspecies” in Europe and W Asia (Zohary *et al.* 2012).

In addition to these taxa, Jovanović (1977) mentioned two species with tomentose leaves for Kosovo and E Serbia: *P. elaeagrifolia* Pall. and *P. nivalis* Jacq. The latter species was described from Austria and more widely known from southern parts of W, C and E Europe (Terpó & Amaral

Franco 1968, Aldasoro *et al.* 1996). However, its natural origin and/or distribution have been questioned (Koch 1869, Dostálek 1997, Fischer *et al.* 2008, Sisko *et al.* 2009, Kurtto 2009, Kurtto *et al.* 2013, Dimopoulos *et al.* 2013, Bartha & Király 2015, POWO 2018). Dostálek (1997) and NPGS (2018) renewed the old opinion of Koch (1869) that *P. nivalis* is actually a nothospecies arose through the hybridisation of *P. communis* s.l. and *P. elaeagrifolia* s.l. which, according to Dostálek (1997) naturally has taken place in the sympatric area of the Balkan Peninsula (Bulgaria, SE Romania) and probably Anatolia. In fact, real hybrids are certainly limited to the contact zones in the east. In the rest of Europe their distribution was strongly affected by anthropogenic influence and could be treated as a fertile hybridogenous homoploid species ($2n = 34$). Cultigenous or doubtfully native origin of *P. nivalis* is already presumed for Slovakia (Dostálek 1997), Austria (Fischer *et al.* 2008), Slovenija (Sisko *et al.* 2009) and Hungary (Bartha & Király 2015). As a cultural pear of lesser value *P. nivalis* is rarely propagated and the introgression with local species and cultivars brought it almost to extinction (Dostálek 1997). The introgression into the genome of *P. communis* s.l. led to the forms of common pear with hairy leaves (Dostálek 1997) and consequently although the genome of *P. nivalis* is indeed present in Slovenia, its typical individuals have not been found (Sisko *et al.* 2009).

According to Dostálek (1997) the *P. nivalis* complex consists of hybrid swarms including several nothosubspecies and reverse hybrids originated from different subspecies of *P. communis* and *P. elaeagrifolia*. It also includes cultigenous *P. austriaca* A. Kern., which in his opinion should be derived from the type subspecies of *P. communis* and *P. elaeagrifolia*. Yet, it seems likely that this plant actually originates from a cross between *P. communis* subsp. *pyraster* and *P. nivalis* (Terpó 1960, Kurtto *et al.* 2013, Király 2015).

Dostálek also described some hybrids between *P. communis* s.l. and *P. spinosa* from Bulgaria (Dostálek 1980, 1984) which, unlike the previous ones, do not have grey-tomentose leaves beneath. It should be kept in mind that this author recognized two current subspecies of *P. communis* as a separate species, describing *P. ×jordanovii* Dostálek (*P. communis* × *P. spinosa*) and *P. ×velenovskyi* Dostálek (*P. pyraster* × *P. spinosa*). In accordance with the current classification, it is necessary to propose a nomenclature novelty for the lattermost nothotaxon:

***Pyrus* ×*jordanovii* nothosubsp. *velenovskyi* (Dostálek) Niketić, stat. et comb. nov. (Figs 1–2)**

[*P. communis* subsp. *pyraster* (L.) Ehrh. × *P. spinosa* Forssk.]

≡ *P. ×velenovskyi* Dostálek [*P. pyraster* L. × *P. spinosa* Forssk.], Folia Geobot. Phytotax. 19: 91 [basionym].

The first record of this hybrid in Serbia was previously unofficially mentioned for E Serbia (Jelašnica Gorge in vicinity of Niš) under the misapplied name *P. nivalis* (Niketić 1986). About five adult trees were found on the right (Klisura - Ploča) and one of the left (Inatovac - Kulina) slope of the gorge. One exsiccatus was collected after the fall of the leaves in autumn:

Fig. 1 – *Pyrus* $\times$ *jordanovii* nothosubsp. *velenovskii* (Dostálek) Niketić in Jelašnica Gorge – habitus.

E Serbia, Niš, Jelašnica Gorge, 200–450 m, Exp. S, limestone, forest and bushes and forest margins, together with “*P. pyraeaster* and *P. spinosa*”, MGRS 34T EN89, coll. et det. M. Niketić 07-Nov-1989 (BEO 80000) (Fig. 3).

The shape and hairiness of the leaves completely correspond to the specimens described and illustrated in Dostálek (1980). It is interesting that some trees produce fruits (Fig. 2b), analogous to hybrids in the *P. nivalis* complex.

Given that the presence of *P. elaeagrifolia* and its descendant, *P. nivalis*, has not yet been confirmed for the flora of Serbia (Kurtto *et al.* 2013), it is possible to suppose that earlier records for *P. nivalis* (Jovanović 1977) actually refer to *P.* $\times$ *jordanovii* nothosubsp. *velenovskii*. Additional research is needed to confirm this presumption. Generally, data on the presence of *P. nivalis* on the Balkan peninsula are contradictory. According to Terpó & Amaral Franco 1968 this species is reported for Ex-Yugoslavia, Bulgaria and Greece. Its presence is also confirmed for Bulgaria (Válev

Fig. 2 – *Pyrus* $\times$ *jordanovii* nothosubsp. *velenovskyi* (Dostálek) Niketić in Jelašnica Gorge: a) branches with leaves; b) dried fruit (pear) and leaves; c) tree bark; d) dried branches.

Fig. 3 – *Pyrus xjordanovii* nothosubsp. *velenovskyi* (Dostálek) Niketić from the Jelašnica Gorge (BEO 80000).

1973, Dostálek 1997), but not for the Balkan Peninsula (Kurtto *et al.* 2013) and Greece (Dimopoulos *et al.* 2013). From the area of the Ex-Yugoslavia species is surely present in Slovenia (Sisko *et al.* 2009) and N Croatia (Slavonija) (Kitaibel 1864), including *P. austriaca* (Király 2015).

CONCLUSION

A nothosubspecies of pear in the new combination *Pyrus* × *jordanovii* nothosubsp. *velenovskyi* (Dostálek) Niketić [*P. communis* subsp. *pyraster* (L.) Ehrh. × *P. spinosa* Forssk.] is recorded for the first time for the flora of Serbia. It is possible that some earlier records for the presence of *P. nivalis* actually refer to this taxon.

REFERENCES

- Aldasoro, J. J., Aedo, C., Muñoz Garmendia, F. (1996): The genus *Pyrus* L. (Rosaceae) in south-west Europe and North Africa. – **Botanical Journal of the Linnean Society** 121: 143–158.
- Bartha, D., Király, G. (eds) (2015): Distribution atlas of vascular plants of Hungary. – University of West Hungary Press, Sopron.
- Bartolucci, F., Peruzzi, L., Galasso, G., Albano, A., Alessandrini, A., Ardenghi, N. M. G., Astuti, G., Bacchetta, G., Ballelli, S., Banfi, E., Barberis, G., Bernardo, L., Bouvet, D., Bovio, M., Cecchi, L., Di Pietro, R., Dominato, G., Fascetti, S., Fenug, G., Festi, F., Foggi, B., Gallo, L., Gottschlich, G., Gubellini, L., Iamonico, D., Iberite, M., Jiménez-Mejías, P., Lattanzi, E., Marchetti, D., Martinetto, E., Masin, R. R., Medagli, P., Passalacqua, N. G., Peccenini, S., Pennesi, R., Pierini, B., Poldini, L., Prosser, F., Raimondo, F. M., Roma-Marzio, F., Rosati, L., Santangelo, A., Scoppola, A., Scortegagna, S., Selvaggi, A., Selvi, F., Soldano, A., Stinca, A., Wagensommer, R. P., Wilhalm, T., Conti, F. (2018): An updated checklist of the vascular flora native to Italy. – **Plant Biosystems** 152(2): 179–303.
- Browicz, K. (1992): Chorology of trees and shrubs in southwest Asia and adjacent regions. – Institute of Dendrology, Polish Academy of Sciences, Kórnik, Poland.
- Dimopoulos, P., Raus, T., Bergmeier, E., Constantinidis, T., Iatrou, G., Kokkini, S., Strid, A., Tzanoudakis, D. (2013): Vascular Plants of Greece. An annotated checklist: 372 pp. – Botanic Garden and Botanical Museum Berlin-Dahlem, Berlin, Hellenic Botanical Society, Athens.
- Dostálek, J. (1980): *Pyrus spinosa* und ihre Hybriden in Südwestbulgarien. – **Folia geobotanica et phytotaxonomica** 15: 59–73.
- Dostálek, J. (1984): Hybriden von *Pyrus spinosa*. – **Folia geobotanica et phytotaxonomica** 19: 89–93.
- Dostálek, J. (1997): *Pyrus elaeagrifolia* und ihre Hybriden. – **Feddes Repertorium** 108(5–6): 345–360.
- Fischer, M., Oswald, K., Adler, W. (2008): Exkursions flora für Österreich, Liechtenstein und Südtirol, ed. 3. – Biologiezentrum der Oberösterreichischen Landesmuseen, Linz.

- Jovanović, B. (1972): Fam. Malaceae Lois.-Deslongch. In: Josifović, M. (ed.): Flora SR Srbije 4: 127–178. – Serbian Academy of Sciences and Arts, Belgrade. [in Serbian]
- Jovanović, B. (1977): Fam. Malaceae. In: Josifović, M. (ed.): Flora SR Srbije Supplement 9: 110–111. – Serbian Academy of Sciences and Arts, Belgrade. [in Serbian]
- Kurto, A. (2009): Rosaceae (pro parte majore). In: Euro+Med Plantbase - the information resource for Euro-Mediterranean plant diversity. [<http://ww2.bgbm.org/EuroPlusMed/PTaxonDetail.asp?NameCache=Rosaceae&PTRefFk=7300000>] (retrieved October 16th 2018)
- Kurto, A., Sennikov, A. N., Lampinen, R. (eds) (2013): Atlas Florae Europaeae. Distribution of Vascular Plants in Europe 16. Rosaceae (*Cydonia* to *Prunus*). – The Committee for Mapping the Flora of Europe, Societas Biologica Fennica, Vanamo, Helsinki.
- Király, G. (2015): *Pyrus austriaca* A. Kern. In: Raab-Straube, E. von & Raus, Th. (ed.) (2015) - Euro+Med-Checklist Notulae, 4 – **Willdenowia** 45(1): 119–129.
- Kitaibel, P. (1864): Additamenta ad Floram Hungaricam. – **Linnaea** 32(4-5): 305–642.
- Koch, K. (1869): Dendrologie; Bäume, Sträucher und Halbsträucher, welche in Mittel- und Nord- Europa im Freien kultivirt werden. – Ferdinand Enke, Erlangen.
- Niketić, M. (1986): Fitogeografske karakteristike Jelašničke klisure kod Niša. – Unverzitet u Beogradu, Prirodno-matematički fakultet, Odsek za biološke nauke, Beograd. (graduate work, manuscr.) [in Serbian]
- NPGS (2018): U.S. National Plant Germplasm System. – United States Department of Agriculture. Agricultural Research Service. [<https://www.ars-grin.gov/npgs/>] (retrieved October 16th 2018)
- POWO (2018): Plants of the World Online. – Royal Botanical Garden Kew. [<http://powo.science.kew.org>] (retrieved October 16th 2018)
- Sisko, M., Javornik, B., Siftar, A., Ivancic, A. (2009): Genetic Relationships among Slovenian Pears Assessed by Molecular Markers. – **Journal of the American Society for Horticultural Science** 134(1): 97–108.
- Terpó, A. (1960): Magyarország vadkörtéi (*Pyri* Hungariae). – **Kertészeti és Szőlészeti Főiskola Évkönyve** 22: 1–258.
- Terpó, A., Amaral Franco, J. (1968): *Pyrus* L. In: Tutin, T. G., Heywood, V. H., Burges, N. A., Moore, D. M., Valentine, D. H., Walters, S. M., Webb, D. A. (eds): Flora Europaea 2: 313. – University Press, Cambridge.
- Válev, S. (1973): In: Jordanov, D. (ed.): Flora Reipublicae Popularis Bulgaricae 5: 335–339.
- Zohary, D., Hopf, M., Weiss, E. (2012): Domestication of Plants in the Old World: The Origin and Spread of Domesticated Plants in Southwest Asia, Europe, and the Mediterranean Basin, ed. 4. – University Press, Oxford.

О ПРИСУСТВУ *PYRUS* × *JORDANOVII* У СРБИЈИ

МАРЈАН НИКЕТИЋ

РЕЗИМЕ

Нотоподврста дивље крушке у новој комбинацији *Pyrus* × *jordanovii* nothosubsp. *velenovskii* (Dostálek) Niketić [*P. communis* subsp. *pyraster* (L.) Ehrh. × *P. spinosa* Forssk.] констатована је по први пут за флору Србије. Могуће је да неки ранији подаци о присуству врсте *P. nivalis* заправо одговарају овом таксону.