

***Populus* × *cinovskisii* (Salicaceae), a new cultivated intersectional hybrid of poplar from Belarus, the Baltic countries and Finland**

***Populus* × *cinovskisii* (Salicaceae) — новый культивируемый межсекционный гибрид тополя из Беларуси, Прибалтики и Финляндии**

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<https://doi.org/10.31111/novitates/2023.54.08>

Abstract. The morphological features and systematic position of a cultivar known as *Populus* ‘Lettland’, widespread in Belarus, the Baltic countries and Finland, are reviewed. This taxon is described here as a new intersectional hybrid, *Populus* × *cinovskisii* Val. N. Tikhom.

Keywords: *Populus*, poplar, Baltic countries, Belarus, Finland, new intersectional hybrid.

Аннотация. Обсуждаются морфологические особенности и систематическое положение широко распространенного в Беларуси, странах Прибалтики и Финляндии культивара, известного под названием *Populus* ‘Lettland’. Этот таксон описан как новый межсекционный гибрид *Populus* × *cinovskisii* Val. N. Tikhom.

Ключевые слова: *Populus*, тополь, Беларусь, Финляндия, Прибалтика, новый межсекционный гибрид.

Introduction

Populus L. is a genus of deciduous flowering plants in the family *Salicaceae* Mirb., native to most of the Northern Hemisphere. The number of *Populus* species ranges from 22 to 100, plus hundreds of hybrids, varieties and cultivars (Eckenwalder, 1996, 2010; Fang et al., 1999; Tzvelev, 2001). Poplars form one of the most complicated genera that include many cultivated and adventive plants. This is mainly due to high levels of infraspecific variability and spontaneous hybridization within the genus (Nasimovich, Kostina, 2015) which makes it difficult to distinguish hybrids and to establish boundaries between species in this genus (Kostina et al., 2017; Nasimovich, 2020).

Many poplar species hybridize in the wild in areas of overlapping distribution and when introduced taxa grow together in botanical gardens and parks. In addition, poplars are of high economic importance, so almost all species of this genus are involved in active breeding work and many artificially obtained hybrids and cultivars are used in forestry and landscaping. At the same time, cultivars and spontaneous hybrids used in urban landscaping can hybridize with each other as well as with native poplar species, eventually leading to the formation of complex swarms of hybrid nature (Vanden

Broeck et al., 2005; Meirmans et al., 2010; Talbot et al., 2012; Hu et al., 2017).

Hybridization can produce stable combinations of genotypes that prove more resistant than the parent species and can become invasive or potentially invasive plants (Gaskin, 2017). One such potentially invasive cultivar in Belarus is *Populus* ‘Lettland’. It is noteworthy that this taxon, despite being one of the most widespread poplar cultivars in the Baltic countries and Belarus, has not yet been formally designated in botanical nomenclature.

According to R. Cinovskis (1977), this poplar was introduced under the name *Populus trichocarpa* Torr. et A. Gray ex Hook. to the Skrīveri Arboretum (Latvia) in the 1930s, from where it was distributed not only to the Baltic countries, but also to Scandinavia. This cultivar is most likely widespread in Southern Finland, as it is the one depicted under the name *Populus trichocarpa* in “Suomen puu- ja pensaskasvio” (1992: 148). *Populus* ‘Lettland’ was introduced to Belarus in 1951 (Fedoruk, 1985). At present, according to our data, it is one of the most widely cultivated poplars in Belarus. This poplar exhibits rapid growth and high yield potential, which makes it widely used in both afforestation and landscaping. It also has robust vegetative propagation capabilities, which enables it to efficiently colonize a wide range

of secondary habitats such as overgrown quarries, landfill edges, abandoned farmsteads, etc. *Populus* 'Lettland' is classified as invasive in Latvia (Evarte-Bundere et al., 2022) and a potentially invasive taxon in Belarus (Chernaya kniga..., 2020).

There are conflicting data on the taxonomic position of this poplar to date. Cinovskis (1977) pointed out the possible hybrid nature of *Populus* 'Lettland' and that this hybrid is most often considered a cultivar of *P. trichocarpa*. A. T. Fedoruk (1985) suggested that the parent species of this hybrid are *P. trichocarpa*¹ and probably *P. laurifolia* Ledeb. and *P. suaveolens* Fisch. ex Poit. et A. Vilm. N. N. Tzvelev (2012) considered *Populus* 'Lettland' close to *P. × generosa* A. Henry (*P. deltoides* W. Bartram ex Marshall s. l. × *P. trichocarpa*). A. K. Skvortsov (2010) considered this taxon as a clone of *P. tristis* Fisch.

Material and methods

This study is based on herbarium specimens, examined by traditional morphological methods. A set of morphological characters, including leaves on long and short shoots, petioles, buds, male and female flowers, was used for taxonomic separation and identification of *Populus* taxa (Cinovskis, 1977; Fang et al., 1999; Tzvelev, 2001; Eckenwalder, 2010; Skvortsov, 2010).

In 2002–2023, herbarium collections of poplars deposited in V. L. Komarov Botanical Institute of the Russian Academy of Sciences, Saint-Petersburg (LE), M. V. Lomonosov Moscow State University (MW), N. V. Tsitsin Main Botanical Garden of the Russian Academy of Sciences, Moscow (MHA), M. G. Kholodny Institute of Botany of the National Academy of Sciences of Ukraine, Kiev (KW), W. Szafer Institute of Botany of the Polish Academy of Sciences, Kraków (KRAM), Jagiellonian University, Kraków (KRA), V. F. Kuprevich Institute of Experimental Botany of the National Academy of Sciences of Belarus, Minsk (MSK), and Central Botanical Garden of the National Academy of Sciences of Belarus, Minsk (MSKH), as well as own herbarium collections of about 1000 herbarium voucher sheets deposited in Belarusian State University, Minsk (MSKU) were studied (herbarium codes are cited according to Thiers, 2023).

In addition to herbarium specimens, scanned collections and photographs documenting human observations on online platforms were studied. We used the following resources: Global Biodiversity Information Facility (GBIF, 2023), iNaturalist (2023), Plantarium (2023). Cultivated and escaped plants were also studied throughout Belarus and in southeastern Latvia (Latgale).

Taxonomic decisions are based on protologues and our examination of original material available through online resources (Global Plants on JSTOR, 2023; GBIF, 2023) and follow the latest rules of "International Code of Nomenclature" (ICN) (Turland et al., 2018).

Results

Analysis of the morphological characters of *Populus* 'Lettland' confirms its proximity to the balsam poplars (*Populus* sect. *Tacamahaca* Spach), and the participation of *P. trichocarpa* in the formation of this hybrid is obvious (Table). This is clearly indicated by pubescent capsules (a character unique in this group for *P. trichocarpa*) and rather dense pubescence of leaf petioles, buds and young shoots. However, our comparison of *Populus* 'Lettland' with the type material of *P. trichocarpa* (lectotype [K000592057](#), epitype² [K000592056](#) (Belyaeva et al., 2020), isolectotype [NY00284002](#)) shows their major difference in leaf morphology. In the *P. trichocarpa* type material, leaves are broad (length approximately equal to width), with a heart-shaped base and red resin stains on the underside of the leaf blade. In *Populus* 'Lettland', leaves are much narrower (about 1.5 times as long as wide), with a cuneate base and without resin stains on the underside of the leaf blade.

A detailed study of *Populus* 'Lettland' leaf morphology indicates the participation of some species of *P. sect. Aigeiros* Duby in the origin of this hybrid. This is indicated by petiolar characters, which are conservative in poplars (Klimov, Proshkin, 2018; Proshkin, Klimov, 2019, 2020): in *Populus* 'Lettland' the petioles are distally slightly flattened at right angle to plane of blade, with a weak groove on the adaxial side (Fig.: C), whereas in sect. *Tacamahaca* the petioles are cylindrical or distally slightly flattened in plane of blade, with

¹ The currently accepted name for this species is *P. tristis* (Skvortsov, 2008, 2010; POWO, 2023), which I do not agree with. *Populus trichocarpa* has hairy 3–4-valved capsules, whereas all *P. tristis* trees I have seen have glabrous, mostly 2-valved capsules. The same was noted by Cinovskis (1977) in Latvian plants. *Populus trichocarpa* and *P. tristis* also differ in their appearance. *Populus trichocarpa* is a large tree up to 75 m tall (Eckenwalder, 2010), whereas *P. tristis* is a small tree up to 15 m tall.

² I am not sure of the correctness of the epitype designation in this case, as the lectotype is a clearly identifiable specimen (a short shoot with mature leaves and a catkin), whereas the epitype, according to the ICN is "a specimen or illustration selected to serve as an interpretative type when the holotype, lectotype, or previously designated neotype, or any original material associated with a validly published name, is demonstrably ambiguous and cannot be critically identified for purposes of the precise application of the name to a taxon" (Turland et al., 2018: Art. 9.9).

Table. Diagnostic characters of *Populus* × *cinovskisii* and related species

Trait	<i>P. tristis</i>	<i>P. trichocarpa</i>	<i>P. × cinovskisii</i>	<i>P. × berolinensis</i>
Tree height, m	7–10(15)	30–50(75)	to 30	to 30
Crown	Spreading	Usually roughly conical	Broadly ovate	Broadly conical
Branchlets	Reddish brown, round	Reddish brown, becoming grey by third year, round	Light brown, angled	Yellowish grey, angled
Petiole	Cylindrical or distally slightly flattened in plane of blade, with a prominent groove on the adaxial side	Cylindrical or distally slightly flattened in plane of blade, with a prominent groove on the adaxial side	Distally slightly flattened at right angle to plane of blade, with a weak groove on the adaxial side	Distally flattened at right angle to plane of blade, with almost no groove on the adaxial side
Leaf blade shape	Usually triangular-ovate to cordate, base cordate	Usually triangular-ovate or narrowly ovate to cordate, base rounded to cordate	Oval, ovate or oblong-ovate, base cuneate to rounded	Ovate or rhombic-ovate, base broadly cuneate or rounded
Leaf blade colour	Abaxial surface white to greyish white or greenish white with abundant red resin stains, adaxial surface dark green	Abaxial surface white to greyish white or greenish white with abundant red resin stains, adaxial surface dark green	Abaxial surface greyish white without red resin stains, adaxial surface dark green	Abaxial surface green or slightly white without red resin stains, adaxial surface green
Leaf margins	Not translucent	Not translucent	Translucent border weakly developed (not along the entire length of the margin and not on all leaves)	Translucent
Capsules	Glabrous, 2-valved	Densely hairy to glabrate, 3- or 4-valved	Hairy, 2- or 3-valved	Glabrous, 2-valved

a prominent groove on the adaxial side. A weakly developed translucent leaf margin can be observed on some leaves, which is also one of the specific features of species in section *Aigeiros*. In contrast to typical balsam poplars, resin stains are almost never observed on the underside of the leaves of *Populus* ‘Lettland’. All these observations give us grounds to assume that *Populus* ‘Lettland’ is an intersectional hybrid (*P. nothosect. Tacageiros* Dolat. et Ziel. — Seneta et al., 2021), although with a predominance of characters of *P. sect. Tacamahaca*. From a morphological point of view, the most probable origin of *Populus* ‘Lettland’ is spontaneous or intentional hybridization of *P. trichocarpa* with *P. × berolinensis* K. Koch (*P. nigra* L. × *P. laurifolia*), but this hypothesis should be verified by the use of molecular genetic methods.

The presence of pronounced invasiveness in *Populus* ‘Lettland’ and the ambiguity of the systematic position of this cultivar prompt us to give this taxon a scientific name.

Populus* × *cinovskisii Val. N. Tikhom., nothosp. nova (*P. trichocarpa* Torr. et A. Gray ex Hook. × ?*P. × berolinensis* K. Koch).

Tree up to 25 m tall; bark greyish, darker and cracked at the base of the trunk; crown broadly ovate. Branches spreading; branchlets light brown, angled. Buds conical,

resinous; outer scales pubescent. Leaves: petiole distally slightly flattened at right angle to plane of blade, with a weak groove on the adaxial side (Fig.: C); blade usually ovate or oblong-ovate, 6–12 × 4–7 cm, base cuneate to rounded, basilar glands 2, round, translucent border weakly developed (not along the entire length of the margin and not on all leaves), apex obtuse to acute, abaxial surface greyish white without red resin stains, sparsely pubescent, adaxial — dark green, glabrous. Capsules ovoid, 5–6 mm, densely hairy, 2- or 3-valved.

H o l o t y p e (Fig.: A, B): Belarus, Minsk Region, Pukhovichi District, v. Zazerka. Plantings at the memorial to the fallen in the Great Patriotic War. 53.659479° N, 27.783781° E, 23 V 2004, Val. N. Tikhomirov, A. N. Sennikov (MSKU-49014 (sheet 1), MSKU-49015 (sheet 2); isotype — [LE 01262744](#)).

Paratypes. **Belarus.** *Minsk Region:* Minsk District, vicinity of railway station Zelenoe, mossy pine forest, overgrown ditch, 3 VI 2001, Val. N. Tikhomirov, № 00240 (MSKU); *Minsk*, 42 Kizhevatova Street, planting along the road, 5 IX 2002, *idem*, № 01607 (MSKU); *ibidem*, 58 Kizhevatova Street, 150 m north of the building of the emergency hospital, 5 IX 2002, *idem*, № 01608 (MSKU); *Mogilev Region:* Mstislavl city, Yurchenko Street, square near the city library, 24 VIII 2001, *idem*, № 00802 (MSKU). **Estonia.** *Saare County:* Pärssamaa, dendraariumis, 18 VII 1959, H. Rebasoo, A. Paivel ([TU265778](#)); *Järva County:* Viljandi r.,

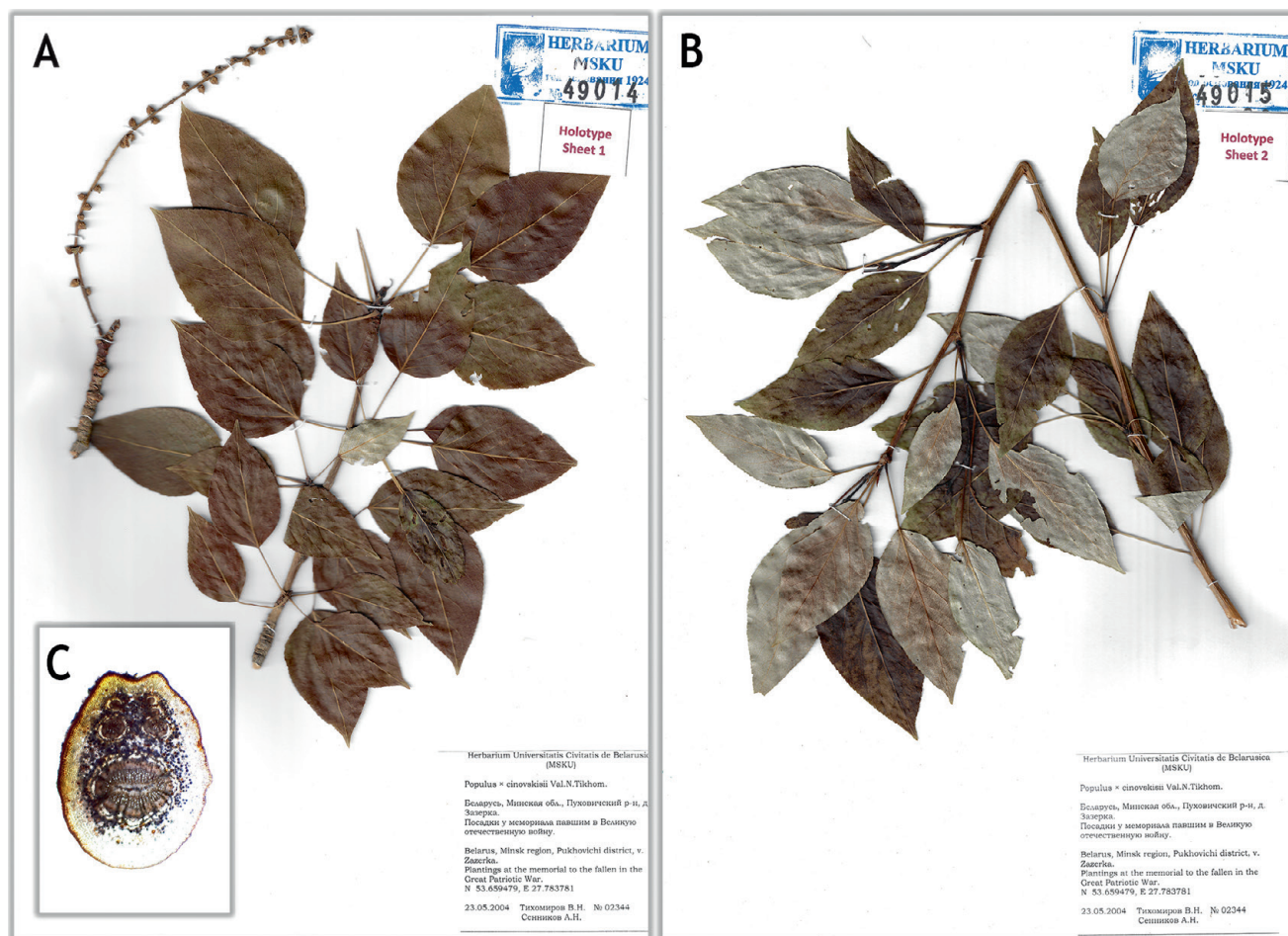


Fig. *Populus* × *cinovskisii*.

A, B — holotype: A — sheet 1, branch with short shoots and capsules (MSKU-49014); B — sheet 2, coppice shoot (MSKU-49015). C — cross section of petiole taken from a tree growing near the Belarusian State University building, at 7 Kurchatova Street, Minsk.

Võhmast loodes, Muriku küla, Rõugu park (looduskaitse all), 2 VII 1965, A. Saare, S. Talts ([TAA 0097398](https://doi.org/10.25907/2474-2924.2021.00097398)). **Finland.** Åland: Jomala, Godby, Hotel Godby, in the garden, 13 VI 1988, Pentti Alanko, № 62130 (H1591932); *Uusimaa*: Helsinki, Torpparinmäki, Kotitorpantie 2, 3 trees planted in 1982 (probably from Tolppolan taimisto, Vihti), c. 3 m tall, 29 V 1986, Teuvo Ahti, № 44797 (H1565074).

Etymology. The species is named in honour of Raimonds Cinovskis (1930–1998), prominent Latvian botanist, dendrologist, founder and Head of the Dendrology Laboratory of the National Botanical Garden of Latvia.

Acknowledgements

The author thanks Dr. A. N. Sennikov (V. L. Komarov Botanical Institute of the Russian Academy of Sciences; Botanical Museum of the Finnish Museum of Natural History) for discussion of the results obtained,

Dr. Keith Chamberlain (Cardiff University, UK) for linguistic corrections and anonymous reviewers and editors for their comments and suggestions.

This work was carried out within the framework of the project B21UZBG-011 funded by the Belarusian Republican Foundation for Fundamental Research.

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