

Natural poplar and willow ecosystems on a grand scale: the Russian Federation

A.P. Tsarev

Available statistics indicate that the Russian Federation has among the world's largest areas of natural stands of Salicaceae.

The Russian Federation has the world's largest area of natural willow stands (*Salix* spp.) and the second largest area of natural poplar stands (*Populus* spp.), after Canada (Table 1). Natural poplar and willow ecosystems are important for environmental protection and as a source of wood and other materials (Table 2). The main products, in order of economic importance, are matches; packaging (pallets, boxes, crates); wickerwork; tannin; pulp, paper and cardboard; reconstituted wood panels; solid wood furniture; fuelwood and biomass for energy; and plywood.

The only one of these species for which official statistics on area and stock are available is aspen (*Populus tremula*); the area of natural stands is 20.6 million hectares and the stock of wood is 3.1 billion cubic metres. Other natural poplars (*P. suaveolens*, *P. alba*, *P. nigra*, *P. laurifolia*, *P. maximowiczii* and others) have an area of about 962 700 ha with stock of 143.39 million cubic metres. Natural stands of willows (all forms, including shrubs) grow on 2.9 million hectares; of these, 1.1 million hectares are tree forms (*S. alba*, *S. fragilis*, *S. caprea*), with a stock of 86.5 million cubic metres (unpublished State assessment data,



An impressive specimen in a nearly 130-year-old stand of *Populus alba* in the Khooper State Reserve, Voronezh Region (mean diameter 109.7 cm, mean height 43 m)

2003). The most widespread willow species in the country are shown in Table 3.

Although the Russian Federation possesses a huge area of forests (733.15 million hectares of stocked forest land, with a stock of wood of 76 060 million cubic metres, excluding forest areas not under the administration of the Ministry of Natural Resources [Forest Fund of Russia, 2003]), the southern regions

TABLE 1. Area of natural forests where poplars and/or willows represent the most prominent trees, either for their number or for dominance at canopy level, in the Russian Federation

Dominant genus	Approximate area (million ha)	Main <i>Populus</i> and <i>Salix</i> spp. present	Other species present
Poplars	21.6	<i>P. tremula</i> (20.6 million ha)	<i>P. suaveolens</i> , <i>P. alba</i> , <i>P. nigra</i> , <i>P. laurifolia</i> , <i>P. maximowiczii</i> , <i>P. canescens</i> , <i>P. davidiana</i> , <i>Chosenia arbutifolia</i> (together 962 700 ha)
Willows	2.9	<i>S. alba</i> , <i>S. fragilis</i> , <i>S. triandra</i> , <i>S. pentandra</i> , <i>S. caprea</i> , <i>S. viminalis</i> , <i>S. acutifolia</i> (~70%)	<i>S. cinerea</i> , <i>S. dasyclados</i> , <i>S. myrsinifolia</i> , <i>S. purpurea</i> , <i>S. myrtilloides</i> , <i>S. glauca</i> , <i>S. polaris</i>

Sources: Forest Fund of Russia, 2003; Chumakov, 1991; Skvortsov, 1968.

TABLE 2. Approximate average annual production or removals of roundwood, 2001–2003

Genus	From natural forests (1000 m ³)	From planted forests (1000 m ³)	From agroforestry and trees outside forests (1000 m ³)
<i>Populus</i>	70 000	300	80
<i>Salix</i>	2 270	2.5	7

Anatoly P. Tsarev is at Petrozavodsk State University, Petrozavodsk, Republic of Karelia, Russian Federation.

of the country have some deficit in wood supply. This is being addressed in part by the cultivation of fast-growing species of poplars and willows (Table 4).

Systematic research on genetics and breeding of willows and poplars has been carried out in the Russian Federation for the past 70 years. Willows have successfully been bred for straightness of trunk and productivity (for treelike willows); increased biomass per unit area; quality of boughs for wickerwork (length, flexibility, viscosity, etc.); content and quality of tannin; decorative properties; and frost resistance. Research on poplars has addressed growth, wood stock and biomass yield and their use in shelterbelts, water and soil protection and other environmental enhancement purposes, including ornamental uses. Poplars have been selected and bred for disease and frost resistance, fast growth and decorative pyramidal form. ◆



Natural *Salix alba* in the Voronezh region

TABLE 3. Main *Salix* species in the Russian Federation

Subgenus <i>Salix</i>	Subgenus <i>Vetrix</i>	Subgenus <i>Chamaetia</i>
<i>S. alba</i>	<i>S. caprea</i>	<i>S. reticulata</i>
<i>S. fragilis</i>	<i>S. myrsinifolia</i>	<i>S. herbacea</i>
<i>S. triandra</i>	<i>S. cinerea</i>	<i>S. retusa</i>
<i>S. pentandra</i>	<i>S. viminalis</i>	<i>S. myrtilloides</i>
<i>S. babylonica</i>	<i>S. schwerinii</i>	<i>S. glauca</i>
	<i>S. dasyclados</i>	<i>S. polaris</i>
	<i>S. acutifolia</i>	
	<i>S. pupurea</i>	

Sources: Skvortsov, 1968; Nazarov, 1936; Morozov, 1966.

TABLE 4. Area of planted poplars and willows in the Russian Federation

Description	Main purpose of management	Approximate area (ha)	Average increment (m ³ /ha)	Average rotation (years)
Poplars				
Planted forest	Wood production	25 000	10–15	20–30 (40–50 for aspen)
	Environmental	1 000	15–20	
Agroforestry and trees outside forests	Wood production	n.d. ^a		
	Environmental	5 000	15–20	30–40
Willows				
Planted forest	Wood production	200	10–20	1–2 (roots 2–20)
	Environmental	100		
	Other ^b	500	10–20	1–2 (roots 2–20)
Agroforestry and trees outside forests	Wood production	n.d. ^a		
	Environmental	100	10–20	20–30

^a n.d. = no data available.

^b Wicker, tannin, biomass for energy.



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