

# The Destruction of Woodland in the Steppe Region, 1760–1914

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This article analyzes the destruction of the small areas of woodland in the steppe region of the Russian Empire between the 1760s and 1914. The main concern of the article is not to calculate the decline in the forested area, but to trace evolving perspectives on the causes and consequences of deforestation over the period. This is carried out by analyzing a range of contemporary primary sources, including the accounts of the Academy of Sciences expeditions of 1768–1774, statisticians and officials, and the growing cohort of Russian scientists, culminating in the famous speech by Dr Astrov in Chekhov's "Uncle Vanya". On the basis of observation, as well as reading the works of foreign specialists such as Humboldt, Russians came to suspect that the loss of woodland in the steppe region had wider environmental consequences, including exacerbating soil erosion and climate change. The loss of woodland also had implications for Russian national identity.

**Keywords:** deforestation, Russia, steppes, forest, environment, environmentalism, fire, soil erosion, climate change, national identity.

## Introduction

For many centuries the heartland of the Russian state and settlement was in the forested region around Moscow. The forest has therefore played an enormous role in Russian life, culture and identity. In the late nineteenth century, the majestic forests depicted in the paintings of Vasili Shishkin epitomised for many a Russian landscape. (French, 1983; Ely, 2002). When Russian settlers moved onto the steppes, which they started to do in large numbers in the eighteenth century, they encountered a boundless grassland. There were areas of woodland in the steppe region, but they were confined mostly to river valleys, ravines, areas with sandy soil and uplands. Nevertheless, as their forebears had done for centuries in the forested heartland, the settlers continued to use products of the forest for many everyday purposes. They used wood, for example, for construction, to make implements for their farms and utensils for their kitchens, to heat their houses, and bast (inner bark) to make their footwear. Some of the migrants came from the northern part of present-day Ukraine and German lands, which were also forested environments. By maintaining aspects of the way of life they were accustomed to the farmers who migrated to the steppes had a profound impact on the nomadic way of life and environment that had endured there for millennia. Over time, the migrants and their descendants displaced the nomadic pastoralists and their herds of livestock. The settlers' arable fields came to replace pasture land as the main form of land use. The farmers with their domesticated livestock and cultivated plants also displaced the previous, "natural", wildlife and vegetation of the steppes. The wild flowers that exploded in a riot of colour in the spring became rarer as the steppes were ploughed up. Contemporaries paid most attention, however, to the continuing destruction of the small areas of woodland. There was growing concern among members of the local population, provincial authorities, natural historians and scientists. By the late-nineteenth century, anxiety about the destruction of woodland in the steppe region was reflected in

paintings by members of the Wanderers school of artists and in the writings of prominent literary figures (Moon, 1997, 2007, 2009).

Changes in the forested area in “European Russia” between the end of the seventeenth century and the outbreak of World War One were calculated by M.A. Tsvetkov on the basis of contemporary data. He estimated that the area of woodland in the river basins of the middle and lower Volga and lower Don and in the north Caucasus and southern Urals fell by half between 1696 and 1914. The forested proportion of this region declined from twenty two to eleven percent. Much of this woodland, however, was in the southern Urals. From the middle decades of the eighteenth century, Tsvetkov had data on southern Ukraine, where the proportion covered by forest was far lower and had declined to around five percent by 1914 (Tsvetkov, 1957, p. 110–118). The purpose of this paper, however, is not to revisit Tsvetkov’s computations, but to consider what the destruction of woodland in the steppe region meant to contemporaries between the mid-eighteenth and early twentieth centuries. Attention will focus on the growing concerns about the loss of woodland in the region, attempts to measure the decline, and to identify the causes and understand the consequences of deforestation.

The destruction of woodland in the steppe region was, of course, part of a larger story of deforestation in the entire Russian Empire and the wider world. In his magisterial study of deforestation around the globe, Michael Williams wrote rather briefly about the Russian part of the story, stating that: “richly textured detail ... does not exist for the continental extent of the Russian forest. What happened where and when is largely unknown, and local motivation and causes are obscure” (Williams, 2003, p. 285). Building on the work of scholars from a number of disciplines who have considered this issue in parts or all of the steppe region (Barrett, 1999, p. 59–67; Costlow, 2003; Kirikov, 1979 and 1983; O’Rourke, 2000, p. 53–54; Pushkarenko, 2000, p. 47–48), this article will provide some textured detail on the part of Russia — the steppes — where deforestation was felt most urgently.

## Concerns about Deforestation

Peter the Great is well known for his concern to protect timber that could be used for ship-building (Karimov, 2007). Concerns about deforestation, both in Russia as a whole and in the steppe region in particular, were raised over the following decades. In one of the first volumes of the proceedings of the Free Economic Society in 1766, Leman argued that, following the experience of other European countries, the area of forest in Russia was decreasing ‘daily’ (Leman, 1766, p. 118–119). The following year in the same publication, Petr Rychkov, who lived in Orenburg province in the east of the steppe region, wrote of the need to protect forests and to increase their area. (R[ychkov], 1767). The leaders of the Academy of Sciences expeditions which traversed the steppes in 1768–1774 (Moon, 2010a) also sounded the alarm. Early on in his expedition, Ivan Lepekhin, a native of forested northern Russia, expressed concern about the ‘neglect’ of forests. In one village he visited, he noted that the peasants were poor, because they had to buy wood for fuel, implements, and construction (Lepekhin, 1821, p. 98–99). The situation was similar in the 1780s and 90s when Vasilii Zuev and Peter Pallas made further expeditions across the steppes. Both commented on the wasteful use of timber, the ‘unpardonable’ destruction of forests, and the existence of towns, such as Belgorod, built almost entirely from wood in the midst of a largely treeless environment (Pallas, 1802, p. 14, 34; Zuev, 1787, p. 49, 144, 163, 170). In 1793, in an account of the economy of his native Ekaterinoslav province for

the Free Economic Society, I. I. Veber noted that in past times forests had not been as scarce. He continued: "now it is already noticeable that the shortage of this material which is so necessary and essential is from year to year becoming more painful, and presents a very sad spectacle for future times" (Veber, 1795, p. 179–180).

Over the following decades, the destruction of woodland became a cause of ever growing concern and anxiety among members of the population of the steppe region and Russia as a whole, among officials, agricultural specialists, natural scientists, landowners, and the wider educated public. In the last part of the nineteenth century, the *zemstva* paid attention to the phenomenon. The precision and approach of studies changed over time with the development of Russian science. Many scientists, however, did not hesitate to express their feelings. Vasilii Chernyaev (1796–1871) made an impassioned speech at Khar'kov University, where he was professor of botany, in 1858. He decried the "senseless destruction, which is increasing every year" of the forests of "Ukraine" (by which he meant a territory straddling the forest-steppe and steppe between the rivers Dnepr and Don) (Chernyaev, 1858, p. 47). Studies were produced right across the steppe region documenting the continuing loss of woodland that were, in part, mournful and tinged with nostalgia and, in part, angry. There seems to be no particular geographical patterns to the concerns. Indeed, as the speech by Chernyaev makes clear, they were at least as strong in the forest-steppe belt as on the steppes proper. Some writers may have exaggerated the extent of forest cover on the steppes in the past, and therefore overstated the problem. This may have been due to a shortage of adequate statistics on Russia's forests that was a cause of constant complaint among specialists (Costlow, 2003, p. 99).

### Measuring Deforestation

By the early-twentieth century, specialists had data based on reasonably accurate measurements of the area of woodland in the steppe region, that covered entire provinces as well as individual settlements, going back over several decades. In his 1906 study of the *stanitsa* of Nizhne-Chirskaya in the Second Don district of the Don region, I. Timoshchenkov was able to report that between 1853 and the start of the twentieth century, the inhabitants had felled around half their forest, reducing it in area from 4,053 *desyatiny* to 2,087 *desyatiny* (the latter figure included some newly-planted woodland) (Timoshchenkov, 1906, p. 117–121). A quarter of a century earlier, an official study of forest on cossack lands in the Second Don district as a whole reported that: "Almost half of the entire forested area ... has been destroyed in 25 years." Of 54,492 *desyatiny* of forest in the 1840s, there were approximately 30,000 left<sup>1</sup>. Back in 1821, Vasilii Sukhorukov, an official attached to the Ataman, was charged with producing a historical and statistical account of the Don Cossack territory. After extensive and detailed research in several archives, he gave figures on the area of forest in each district of the territory. They added up to over 421,000 *desyatiny*, around 3 per cent of the total area. He had not been able find comparable data for earlier periods, however, and his conclusions on changes over time were of necessity vague:

"But in general all the present forests are only the remnants of those majestic and impenetrable forests that once straddled the banks of the Don, Donets, Khoper, Medveditsa, Buzuluk, Mius,

<sup>1</sup> Gosudarstvennyi arkhiv Rostovskoi oblasti (GARO). F. 55. Op. 1. D. 1366 [1875]. L. 11–12.

and other rivers flowing into them. Over the last 50 years, these forests have been brought into decline: they have been destroyed, at times as a result of the needs of the Cossack Host, at times of the wilfulness of the powerful, and finally, the inhabitants themselves, chopping them down without any economic calculation, with little attention from the local authorities, have brought [them] to such a state that now very few stanitsy meet the unavoidable needs of their inhabitants from their own forest". ([Sukhorukov], 1891, p. 209–210).

Cossacks had lived on the Don, and had been felling trees, since the fifteenth and sixteenth centuries. In parts of the steppe region that had been annexed and settled more recently, it was easier to trace the impact of the growing population on the local woodland. The territory of Stavropol' province in the north Caucasus was annexed from the Ottoman Empire in 1774. A century later, the secretary of the Provincial Statistical Committee, Iosef Bentkovskii, compared the extent of woodland in the 1870s and 1880s with descriptions from Peter Pallas's expedition of 1768–1774 and a military report from the 1770s. Bentkovskii also made comparisons with descriptions and data on forest area in I. V. Rovinskii's 'economic description' of the Caucasus and Astrakhan' provinces, sponsored by the Free Economic Society, of 1809. Bentkovskii's comparisons indicated many places where forests had disappeared completely in the century since Russian annexation. He presented statistics, moreover, to show that the area of forest within the contemporary borders of Stavropol' province had fallen from around 80,000 *desyatiny* in 1806 to 32,000 *desyatiny* in 1882. In some cases, only place names and memories were left. (Bentkovskii, 1876; id., 1882, [Rovinskii], 1809, p. 98–100) Three years later, a detailed scientific study of the province was carried out by D. L. Ivanov. He was a mining engineer who had been sent by the Ministry of State Domains on the request of the governor of Stavropol' to investigate whether the eastern part of the province was suitable for settlement. His visit coincided with the very serious drought and crop failure of 1885, which greatly coloured his impressions. He wrote that of the luxuriant forests, "which we know about from historical documents and the testimony of old people", very little was left. "If we had a modern forestry map with forested lands and their quality accurately marked", he continued, "then we would be struck by the insignificant and insipid specks of colour amid the denuded huge area of the province as a whole..." He cited similar figures to Bentkovskii from official data that there were 30,700 *desyatiny* of forest remaining in the province, comprising only 0.49 % of the total area, and 46,892 *desyatiny* had been destroyed over the previous eighty years (Ivanov, 1886, p. 238–239).

The varied availability and reliability of information on the extent of former forest cover created problems for many nineteenth-century attempts to measure the extent of deforestation. Specialists looked back to earlier written sources, only to find that many were qualitative rather than quantitative, as well as general and at times subjective, if evocative. A range of sources were considered by D. Strukov (1853), who was the official inspector of agriculture in southern Russia (O deistviyakh... 1853, p. 24). A study of Samara district by the zemstvo in the 1880s tried to assess the timing and degree of deforestation by looking back to Adam Olearius's brief description of the area when he sailed down the Volga with an embassy to Persia sent by the Duke of Holstein in the 1630s (Sbornik statisticheskikh svedenii... 1883, p. 3). Often, however, writers such as Ivan Palimpsestov (see below) turned to recollections of 'old timers' or local lore (Palimpsestov, 1882, p. 134–135). A study of Nikolaevsk district in southern Samara province in 1880 reported that "according to local legends (*predaniya*)", the banks of the Bol'shoi Irgiz and other rivers and streams had once been covered by forests of oak, maple, elm, asp, and birch, which had "refreshed the boundless steppe", but that they had been destroyed by earlier settlers (Lishin, 1880, p. 45). By the time of a zemstvo study of the district in 1889, the 'legends' seem

to have evolved into ‘facts’ about the extent of forest cover in the early-nineteenth century. The hard data presented on the area of woodland in the district dated back only to 1879, but revealed a decline from 24,954 desyatiny to 16,372 desyatiny in 1886, which was little over half of one percent of the total area (Sbornik statisticheskikh svedenii... 1889, p. 14, 41). In some locations it was very obvious that the inhabitants had recently chopped down lots of trees. “The stumps which are left’, Chernyaev asserted in his impassioned speech at Khar’kov University in 1858, ‘are evidence for the merciless destruction that has taken place in our memory” (Chernyaev, 1858, p. 47). In 1873, an inhabitant of the cossack *stanitsa* of Pyatizbyanskaya, in the Second Don district of the Don region, recalled a time not long before when all the gullies around the settlement had been full of good oak woods, but that they had been cut down to build houses. Only “individual... stumps, scattered around the gullies, like watchmen recalling the recent downfall of their centuries- old comrades” were left (Kryukov, 1910, p. 81). Even more poignant was a story from a village in Buzuluk district, Samara province, recorded in a zemstvo study of 1885: “In the village of Dalmatovo, out of all the forest that was allotted to it, there is ... only one birch tree left, which the peasants have deemed protected for ever, so that religious services can be held in its shade” (Sbornik statisticheskikh svedenii... 1885, p. 39).

One tree left was a very long way from the vision of Ivan Palimpsestov, who fervently believed, and embarked on long quest over the second half of the nineteenth century to prove, that the steppes as a whole had once been forested to a far greater extent than in his lifetime. Palimpsestov was an Orthodox clergyman, but also an enthusiastic student and teacher of the natural world, and promoter of the agricultural development of the steppe region (Palimpsestov, 1879). He lacked the university training of Chernyaev and the subsequent generation of Russian scientists, but thought widely and at times quite deeply about the subject. He wrote extensively and insistently about deforestation and related matters. In 1850, in an article published by the Free Economic Society, he bemoaned the destruction of the forests in his native Saratov province:

“Yes, those ancient oaks with great girths which grew in broad bands along both sides of the Medveditsa and Koper rivers, of which those mighty fellows (*sobraty*) that have escaped destruction remind us from time to time of the might and splendour of the verdure in Saratov province, are no longer with us. Those dense, lofty forests of oak, lime, maple, asp, cherry, elm, pine and birch, which almost completely covered the basins of the Koper and Medveditsa, the remnants of which we now find along ravines and streams flowing into those rivers — and which as small copses are oases of woodland among the bare steppe — are also no longer with us” (Palimpsestov, 1850, p. 113).

Convinced the harmful consequences of deforestation, Palimpsestov tried to prove the steppes had once been forested. These former forests, he argued, had been destroyed by the inhabitants. In addition to deforestation in recent decades, he asserted that the nomadic and semi-nomadic pastoralists who had preceded the agricultural settlers had systematically, over the course of several millennia, cleared the forests in order to create pasture for their livestock and arable land. He speculated that they had used fire to get rid of the trees (Palimpsestov, 1882). Palimpsestov struggled to find sufficient hard evidence to support his arguments and to convince doubters, especially among university-trained natural scientists such as pioneering soil scientist Vasilii Dokuchaev. (Dokuchaev, 1949–1961, vol. 6, p. 239–245). Nevertheless, Palimpsestov’s was a persistent voice, both eccentric and visionary, that drew attention to the perceived harm of destroying forests.

## Identifying the Causes of Deforestation

Many contemporaries considered who was to blame for the destruction of the scarce woodland in the steppe region, and why it had taken place. The use of wood for construction had attracted comment from scientists and others from at least the time of the Academy of Sciences expeditions of 1768–1774. Several expedition leaders noted with surprise that both peasant settlers, who were recent arrivals, and cossacks, who had lived in the region for generations, used scarce timber, rather than stone or brick, for construction. Lepekhin commented that there were no stone buildings in Saratov, which he visited in 1769, with the exception of seven churches and two monasteries (Lepekhin, 1821, p. 378). At Tsaritsyn, further down the Volga, the Swedish expedition leader Johann Falck recorded that the town was ‘small’ and the churches and houses were all wooden (Fal’k, 1824, p. 128). Samuel Gmelin and Johann Güldenstädt, whose itineraries took them down the river Don, both noted that the Don cossacks built their houses mostly from wood. In the large *stanitsa* of Uryupinskaya on river Khoper, Güldenstädt counted around three hundred wooden houses. It became apparent to Gmelin, as he travelled down the Don, moreover, that there were more trees on the far side of the river, where the nomadic Kalmyks lived, than the cossack side, where there were almost no trees left (Gmelin, 1771–1785, part 1, p. 244, 265; Güldenstädt, 1787–1791, vol. 1, p. 50, 60). Later in his expedition, in 1773, Güldenstädt visited Taganrog, on the Sea of Azov, and the nearby defensive line. All the houses in the port were made from logs and there was, he noted, a shortage of forest in the area. Settlers on the defensive line, moreover, used timber brought from 40 versts up the river Mius, as all the trees lower down had been felled (Gil’denshtedt, 1879, p. 212). The Russian predilection for timber was especially noticeable in parts of the region where Russian settlers and cossacks lived alongside other ethnic groups. Falck noted that on the Terek river in the north Caucasus, the Russians’ houses were wooden, while those of other people were made out of *mazanka* (wattle daubed with clay) (Fal’k, 1824, p. 66).

The use of timber for construction was identified as a significant cause of rapid deforestation in the north Caucasus after the Russian annexation of part of the region in 1774. A defensive line was constructed from Mozdok on the Terek to Azov near the mouth of the Don. Migrants then moved in, built settlements, and cultivated the fertile land. In his 1809 description of the region, Rovinskii recorded: “The town and village houses are largely build of [local] timber.” The inhabitants, he noted, carefully selected tall, straight trees, such as poplars, for construction. They also used the forests to provide fuel. Many members of the rural population, moreover, carted large quantities of firewood to towns for sale ([Rovinskii], 1809, p. 100–102). The fortress and later city of Stavropol’, founded in 1777 on upland, developed at great cost to the surrounding woodland. A source from 1845 quoted by the statistician Ivan Shtukenberg indicated that in the vicinity of the city, where there had once been forests with trees that could provide timber fit for construction, were ‘now’ only ‘shrubs’ ([Shtukenberg], 1857–8, vol. 1, article 3, p. 28–29, 35). Bentkovskii later wrote of the: “Ruthless destruction of forests” that had followed the construction of the fortified line, including the original fort at Stavropol’, and the settlement of land behind the line (Bentkovskii, 1876). Settlers again felled forests to provide timber for construction when they moved onto more outlying parts of the steppes later in the nineteenth century. The author of a zemstvo study of largely treeless Nikolaevsk district in southern Samara province in 1889 noted, accusingly, that the churches in the district town of Nikolaevsk and in the villages were all made out of oak (Sbornik statisticheskikh svedenii... 1889, p. 14).

Timber was also used to build ships and bridges. In Kherson province, on the north coast of the Black Sea, a military and statistical study of 1849 reported that: “The first settlers of this

region destroyed many forests for the construction of buildings and ships when [the ports of] Khereson and Nikolaev were founded." Grigorii Potemkin had founded the ports in 1778 and 1789 after the annexation of the territory. By 1849, the total area of forest in the province was only 120,062 *desyatiny*: a little over two percent of the total area (Voenno-statisticheskoe obozrenie... 1849, vol. 11, part 1, p. 132–133). An investigation in the Don Cossack territory in 1847–1853 revealed that new barges were being constructed every year to ship goods down the Donets river. The author of the report recommended that, in order not to deplete the forests, the barges should be sent back upstream and reused. *Stanitsy* on the Khoper and Medveditsa rivers, moreover, were building new wooden bridges every year, and leaving the old ones to be broken up by the ice and flotsdam after the end of navigation for the year. The investigator argued that it would be better to use ferries, rather than to ‘destroy the remnants of the *stanitsas*’ forest’ on new bridges<sup>2</sup>.

A further cause of deforestation identified by contemporaries was clearing land of trees to create arable fields, meadows and pasture. In his account of Ekaterinoslav province in 1793, Veber made a direct connection between the growing population and cultivation of ever more land and the destruction of a large part of the forests (Veber, 1795, p. 190). In the mid-1850s, Bauman, who was the manager of the Ekaterinoslav state farm, described how forests along the Kashlagach river in eastern Ekaterinoslav province had been felled illegally since 1809. The land had first been used for grazing sheep, which had killed off the remaining trees and shrubs. The land had then been ploughed up and cultivated. In the process, all traces of the former woods had been removed. He speculated that the same process may well have occurred in adjoining parts of the Don Cossack territory (Bauman, 1856, p. 22–23, 26–27). Across the steppe region in Saratov province, in 1839 Andrei Leopold’ov, a ‘native and inhabitant’ of the province, produced a description of his homeland. He wrote that the forests in much of the province had been ‘ruthlessly destroyed’ in places by grazing livestock and in places to provide arable land. He noted that some people ‘erroneously’ thought that agriculture (*zemledelie*) was more profitable than protecting forest (Leopold’ov, 1839, vol. 1, p. 12–14; vol. 2, p. 142). Deforestation to clear land for farming was increasing in the late-nineteenth century as the growing agricultural population and their livestock put ever greater pressure on the available land. An official survey to evaluate land in Nikolaevsk district in the 1890s noted that land had earlier been cleared of trees for arable, hay meadows, and other uses<sup>3</sup>. In 1892 in the Donets district of the Don region, a total of 1,049 *desyatiny* of land — which was designated as forest but no longer had any trees — was leased out to private individuals for cultivation and grazing. (Several leaseholders subsequently complained that the land was not suitable for these purposes.)<sup>4</sup> The Stavropol’ official yearbook for 1904 noted that the forests in the province had been almost completely destroyed “in connection with the growth of agriculture and the progressive expansion of the area of tillage” (Pamyatnaya knizhka... 1904, p. 2). A further use of timber that attracted adverse comment was to make fences to mark boundaries. In 1858, Chernyaev had commented that in western Europe, where he had studied, hedges were used for this purpose (Chernyaev, 1858, p. 47–48).

One of the ways land was cleared of trees was fire. ‘Slash-and-burn’ farming dated back to the start of agriculture in densely forested central and northern Russia in medieval times (Smith, 1959, p. 51–74). On the steppes, the pastoral nomads had used fire for millennia to encourage the growth of fresh grass to provide fodder for their herds of livestock. Russian settlers also burned the steppe in the belief that the ashes would improve the soil. (Gmelin,

<sup>2</sup>GARO. F. 46. Op.1. D. 590 (1857). L. 49 ob.-52, 147.

<sup>3</sup>Gosudarstvennyi arkhiv Samarskoi oblasti (GASO). F. 834. Op. 30. D. 7 (1893–1899). L. 48.

<sup>4</sup>GARO. F. 301. Op. 27. D. 89 (1892).

1771–1785, part 1, p. 134). From at least the 1760s, it was recognised that burning the steppe destroyed woodland. Rychkov noted that fires set by the local population to burn stubble in the fields and by travellers to keep themselves warm at night could quickly get out control due to the wind. Fire spread so fast, he wrote, that a man on horse back could not escape. On the steppe, moreover, fire could jump and destroy everything, including young forests, in its path. (R[ychkov], 1767, p. 96–100). While he was travelling down the Volga on his expedition to the steppes in 1768–1774, Lepekhin ordered his party to stop lighting fires at night by trees as he believed fire to be a major cause of deforestation in the region (Lepekhin, 1821, p. 314). Fires also broke out spontaneously. When the Don Cossack authorities planned to plant trees on the steppe beyond in the Don in the 1840s, they decided to avoid areas where steppe fires spread from Astrakhan' province to the south as they destroyed young trees<sup>5</sup>.

Another way in which fire contributed to the destruction of woodland in the steppe region, in the view of contemporaries, was the use of wood for fuel both for domestic purposes and, increasingly, in industry and transport. Concerns about the impact of burning firewood on the forests were expressed from the mid-eighteenth century. In replies to a questionnaire sent out by the Free Economic Society in 1768, it was noted that the increase in distilling had caused the destruction of forests that had been sufficient at the start of settlement Slobodskaya Ukraina (later Khar'kov and southern Voronezh provinces on the northern edge of the steppes) (Prodolzhenie otvetov... 1768, part 8, p. 171). Towards the end of the eighteenth century, Veber noted that the majority of landowners in Ekaterinoslav province derived their main income from distilling and some also from preparing saltpetre. Both processes required large amounts of firewood, which was contributing to the destruction of the remaining woodland (Veber, 1795, p. 179). Among the causes Chernyaev identified as responsible for the 'rapid destruction of the forests' in his speech at Khar'kov University in 1858 was the use of increasingly scarce timber, rather than substitutes such as peat or pressed dung (*kizyak*), for fuel. A lot of firewood, he continued, was burned in distilleries, sugar refineries, brickworks and other factories (Chernyaev, 1858, p. 47–48). Vast amounts of firewood were burned by the steamships that first appeared on the Volga in 1821 and increased in numbers over the following decades. By the 1880s, there were over five hundred steamships carrying freight and passengers along the Volga, and burning 80 million puds of firewood a year. This was the equivalent of 10,000 *desyatiny* of forest. Much, however, came from the forested, northern part of the Volga basin (Veinberg, 1884, p. 395–396).

The practice of making many domestic items out of wood, especially wood from young trees rather than other materials, came in for criticism by Chernyaev in 1858. He also criticized the Ukrainian custom of decorating houses for Pentecost with young maple trees, which in the city of Khar'kov alone resulted in the destruction of over a hundred thousand of the 'best young trees' every year (Chernyaev, 1858, p. 47–48). Almost a century earlier, Rychkov had soundly criticized the practice among Russian settlers on the steppe of continuing the custom in the forested heartland of central Russia of making footwear (*lapti*) out of bast (inner bark) from lime trees. He pointed out that other peoples, including Ukrainians and Bashkirs, made their footwear out of leather, which he argued was stronger and warmer in winter than bast (R[ychkov], 1767, p. 108–111). He could have added that the leather came from the hides of the livestock Ukrainians and Bashkirs grazed on the steppes.

From the mid-nineteenth century in particular, contemporaries increasingly remarked on what they saw as the wasteful attitude to woodland among many of the inhabitants of the

<sup>5</sup>GARO. F. 243. Op. 1. D. 19. L.1ob.–2.



steppes. A report compiled in 1863 on the state of the forests in the Don Cossack territory noted that woodland was disappearing, not because of the large population, but due to ‘incorrect and wasteful use’ of forests. Cossacks were felling trees without regard to the orders of their communities, and some cut several times amount of timber they were permitted to. In any case, until the end of the 1860s, regulation of felling was lax. This attitude to woodland, it was noted, showed little concern for their descendants<sup>6</sup>. The notion of felling trees with little regard for future generations was repeated in a study of southern Samara province (Lishin, 1880, p. 45). Some local inhabitants went so far as to deny that there had once been forests in the vicinity of their settlements: in the mid-1850s, people in Mius district in the west of the Don Cossack territory claimed that there had never been forests nearby, on account of the wind, only shrubs (Bauman, 1856, p. 24). Illegal felling of trees took place throughout the steppe region. Some of the culprits were caught and prosecuted<sup>7</sup>.

The sheer waste was conveyed in an official report of 1875, again from the Don region:

“unmanaged fellings [of cossack forest] each year ... have gradually destroyed whole areas, and have now diminished the remaining [forest]. In place of forest with timber fit for construction and centuries-old oaks only individual relics ... remain... In many stanitsy I was a witness to the sad fact that protected [forest] had been felled, the timber lay in piles on the roads for several years, and in time rotted”<sup>8</sup>.

The situation was little changed in 1910, when an article produced for the Don statistical committee described the forests of cossack *stanitsy* as “neglected, desolate, and uncared for”. The author presented data showing a 34 per cent decline in the area of such forest, from 291,902 to 191,462 *desyatiny*, in the Don region since the 1870s: around one hundred thousand *desyatiny* had “perished under the barbaric strikes of the axe”. He gave as reasons for the destruction: criminal waste of the ‘gifts of the creator’, lack of understanding and ignorance, but also the demands of ‘new ways of life’, and the ‘battle’ between arable land and forest. He cast doubt over the idea that land shortages were to blame, however, as he noted that it was the better-off cossacks who were chopping down the forests (Kryukov, 1910, p. 79, 85–86).

## Understanding the Consequences of Deforestation

The initial reason for concern about deforestation, going back at least as far as the Academy of Sciences expeditions of 1768–1774, was that the agricultural population needed forest to provide for various basic needs. This was one of the concerns of Lepekhin in particular as he travelled through the steppe region. Later writers also noted the impact of deforestation on the region’s inhabitants. In the 1820s, Sukhorukov wrote that there was little shipping on the river Don upstream from Kalachinskaya (the crossing point to the Volga), because there was so little timber available in Voronezh province that inhabitants had to import timber to make boats ([Sukhorukov], 1891, p. 27). Voronezh province was the location where Peter the Great had built his first fleets, from local timber, in the late-1690s. In the north Caucasus there were serious shortages

<sup>6</sup>GARO. F. 55. Op. 1. D. 829 (1863). L. 1–2; D. 860 (1867–1868), L. 13ob.–18ob.

<sup>7</sup>For examples from the Don region and Samara province, see GARO. F. 46. Op. 1. D. 497 (1840). L. 95; GASO. F. 112. Op. 98. D. 5 (1860–1867).

<sup>8</sup>GARO. F. 55. Op. 1. D. 1366 [1875]. L. 10-ob.

of wood by the 1840s. Shtukenberg wrote that the population of the region had insufficient wood for fuel, and so had to use substitutes, such as pressed dung (*kizyak*), reeds, and straw. All wooden implements and utensils, such as carts and crockery, moreover, had to be imported from central Russia ([Shtukenberg], 1857–1858, p. 34–35). Captain Petukhov, who described part of the north Caucasus at around the same time, noted that Russian settlers now built their houses from clay mixed with cattle dung and chopped-up straw as a result of the shortage of timber (Petukhov, 1911, 2nd pagn, p. 12). Peasant farmers on the steppes in Samara province were experiencing similar problems by the 1880s. In Samara and Nikolaevsk districts, the zemstvo reported, the peasants had insufficient forest left for fuel and construction. They were also burning pressed dung and using bricks for building. And, the zemstvo noted, the peasants had started to value the remaining forest and to protect it more carefully. In Novyi Uzen' district, in southern Samara province, the population were importing timber for construction down the Volga by the 1880s (*Sbornik statisticheskikh svedenii...* 1883, p. 30–31; 1889, p. 41; 1890, p. 37–38). The population of Astrakhan', on the delta of the Volga in the midst of almost entirely treeless steppes, had long been importing timber for construction and firewood down the river system, all the way from Vyatka province in northern Russia, at no little expense ([Rovinskii], 1809, p. 96–97).

It was not just the cost to the local population of importing timber or the inconvenience of seeking substitutes for people accustomed to using wood for many everyday needs that explained the growing concerns about deforestation on the steppes. The idea gradually took hold and developed in Russia, as elsewhere in the world, that forests played a vital role in the wider environment, and that their destruction could entail serious consequences. In 1793, Veber wrote that the abundant and dense forests that had once existed in Ekaterinoslav province had provided strong resistance to the ruinous force of the easterly and northerly winds in the autumn and spring, had protected the surface of the land and the plants that grew on it against harsh frosts, had provided shelter from snow drifts and fodder for livestock, and had moderated the extremes of the climate in the winter. "Now", he remarked, "in large areas there is not a single tree to be seen" (Veber, 1795, p. 191).

The 'great drought', crop failure and famine, which afflicted much of the steppe region in 1832–1834 (Moon, 2010b, p. 257–258), focused attention on the issue of the environmental consequences of deforestation. At the first annual meeting of the Society for the Improvement of Forest Management on 25 February 1833, a paper was read entitled: "On the pernicious consequences of the devastation of forests." The author, together with other Russian specialists around this time, cited or translated the work of their counterparts in western Europe, including Humboldt and Charles Lyell amongst others. They summarized the experiences of other countries that had destroyed their forests throughout human history and around the globe, from north Africa and Asia Minor in ancient times to Caribbean islands, Peru, and the French Alps more recently. A series of articles were published in *Lesnoi zhurnal* in the 1830s that warned of the harmful consequences of destroying forests. Other consequences of deforestation, it was warned, included: soil erosion; dust storms; drifting sands; rivers getting shallower and silting up; the land itself drying up; the climate becoming hotter and drier; the loss of shelter against the wind; and the risk that land that had once been populated and productive would be transformed into infertile deserts. This was not idle speculation, but reflected very real fears rooted in contemporary experiences on the steppes (*Rassuzhdenie o neobkhodimosti okhraneniya...* 1833, p. 51–103; Britenbakh, 1835, p. 383–391; *O vliianii lesov...* 1837, p. 427–442; *O vliianii lesov na klimat...* 1837, p. 325–350). These concerns were repeated by other specialists who were troubled by deforestation, such as Chernyaev and Palimpsestov in the 1850s (Palimpsestov 1850, p. 111–122; Chernyaev, 1858, p. 2). Such concerns were reiterated with ever growing frequency and alarm over the latter part of the nineteenth century as Russians drew on their own

experience and the work of foreign writers. Palimpsestov drew heavily on Humboldt's work, later citing his prediction that by destroying forests, humankind would inevitably prepare two great calamities for itself: shortages of water and fuel (Palimpsestov, 1868, p. 2, 4, 5, 6, 11, 16, 20; id., 1881, p. 18). The important work by pioneering American environmentalist George Perkins Marsh, *Man and Nature*, that attached great significance to deforestation, was translated into Russian and published in 1866, only two years after it appeared in English (Marsh, 1866).

In the 1870s, Yakov Ignat'evich Veinberg was commissioned to write a study of "forests and their significance in nature" by two Moscow natural history societies. Veinberg was a graduate of the Odessa Richelieu licee (before Palimpsestov taught there) and the Physics and Mathematics Faculty of Moscow University. He taught in a number of institutions and worked as a district school inspector. In addition, he wrote popular articles on science, in particular meteorology, and translated some of Humboldt's writings<sup>9</sup>. Veinberg produced a detailed analysis of the scientific literature, both Russian and foreign, on forests. The results were published as a series of articles, written for a broad, educated readership, in *Russkii Vestnik* in 1878–1879. They were published in revised form as a monograph in 1884, which was awarded a prize by the Academy of Sciences. In the introduction to the book, Veinberg explained how, when he embarked on the study, he had been fully prepared to deny that forests had any wider impact, but that his views had changed as he studied the arguments for and against the significance of forests. He drew conclusions about the serious consequences of deforestation, and urged the protection of existing woodland and planting of new forests. He recognized the particular impact of deforestation in the steppe region (Veinberg, 1884, p. 28–29). His study is an invaluable survey of the state of knowledge of the importance of forests in the environment, and the consequences of their destruction.

Anxieties about the devastation of Russia's forests, including woodland in the steppe region, were taken up by some prominent members of the cultural intelligentsia in the late-nineteenth century. Jane Costlow has traced how, from the 1860s, 'the forest question' crossed over from specialized to general publications, in particular 'thick journals' such as *Russkii Vestnik*. It was also reflected in the relatively new genre of Russian landscape painting. In the background of the well-known painting by Il'ya Repin (1844–1930), "Procession of the Cross in Kursk Province" completed in 1883, is a low hillside covered with the stumps of recently-felled oaks. (We know they were oaks as the trees before they were chopped down were included in an earlier version of the painting). In the foreground, the religious procession is accompanied by an officious mounted policeman. Costlow 'reads' the final, deforested, version of the painting thus: "When our gaze moves back into the upper plane of the painting, we see both absence (of trees) and the presence (of violent authority)" (Costlow, 2003, p. 102–105). Kursk province was in the forest-steppe zone, and the artist was familiar with the region as he was born in Chuguev in Khar'kov province to the south, on the edge of the steppes. Repin's family was descended from military settlers on the steppe frontier, and he celebrated his Ukrainian heritage in his painting of the Zaporozhian Cossacks.

The anxieties about deforestation also found expression in literature. In Anton Chekhov's play 'Uncle Vanya' of 1897, the character Dr Astrov makes an impassioned speech, which fairly accurately summarizes the views of contemporary scientists:

"You can use peat as fuel in your stoves and build barns from stone. Well, I will concede that you can fell trees for necessities, but why destroy the forests? Russian forests are falling under the axe, billions of trees are perishing, the habitats of wild animals and birds are being laid to waste,

<sup>9</sup> See obituary in *Moskovskie vedomosti*. 1898. № 9–10 ([http://dic.academic.ru/dic.nsf/enc\\_biography/128393/](http://dic.academic.ru/dic.nsf/enc_biography/128393/)) (viewed 29/06/09).

rivers are getting shallower and drying up, wonderful landscapes are disappearing never to return, and all because man is too lazy to have the sense to extract fuel from the earth" (Chekhov, 1972–1984, vol. 13, p. 72–73).

Chekhov knew what he was writing about. He was a native of the steppe region, born in Taganrog on the coast of the Sea of Azov in 1860. He was familiar with the natural sciences, moreover, as he trained as a physician at Moscow University (Rayfield, 1997).

## Conclusion

Visitors to the steppes up to the eighteenth century routinely noted that while the steppe region was largely devoid of trees, there were woods in river valleys, ravines, and on higher land. From the second half of the eighteenth century, natural scientists, local landowners, and government officials expressed ever greater concern about the destruction of these areas of woodland and the wider consequences. There were two main reasons for the concern. First, trees provided the population with timber for construction, making carts, agricultural implements and other essential items such as footwear, as well as firewood for fuel. Second, over the nineteenth century, there was a growing belief or awareness in Russia and elsewhere in the world that forests played a vital role in the wider environment, in particular in restricting erosion, conserving moisture, and moderating the climate, especially by providing shelter from the hot, dry winds (*sukhovei*) that blew from the east and southeast. Over the late-eighteenth and nineteenth centuries, contemporaries came to believe that the continuing destruction of woodland in the steppe region was exacerbating the problem of soil erosion, hindering the retention of scarce moisture in the soil, and contributing to climate change. Deforestation, therefore, was making conditions on the steppes less favourable for agriculture and the livelihoods of the settlers who had moved to the region (Moon, 2007, 2010b).

One of the likely reasons why the shortage of trees and subsequent deforestation in the steppe region attracted so much comment from visitors and natural scientists, moreover, was that most came from environments in northern and central Russia and northwestern and central Europe where forests, rather than open grassland, were the norm. Thus, what was most immediately apparent about the steppes was the shortage of trees in contrast with the environments they were accustomed to. This made the rapid disappearance of the trees that did grow in parts of the steppe region seem even more alarming. Further, one of the main reasons for the rapid destruction of woodland in the steppe region was that many of the agricultural settlers also came from environments where there were seemingly endless forests. They were accustomed to using wood for many of their everyday needs with little regard to conservation. Over the nineteenth century, however, there were growing numbers of Russians who were born and brought up in the region, and yet they were also concerned, in some cases almost obsessively, about the destruction of woodland in the region. Chekhov's concern about deforestation may have been based on his reading of the scientific and wider literature on the subject, rather than a sense of difference between forested central and northern Russia and the treeless steppes. There is no doubt, however, that like many of his contemporaries, Chekhov was deeply concerned about the rapid pace of the destruction of the remaining woodland in the region in the late nineteenth century. For Palimpsestov: "Forest is so closely connected with human life", he wrote, "that the question of saving and expanding this precious cover on the earth's crust is a national (*narodnyi*) and state question, a question consequently that must be close to the heart of every member of a given national family or given

state" (Palimpsestov, 1882, vol. 12, № 2, p. 93). Thus, there was clearly a connection between the growing scientific awareness of deforestation and its consequences and broader cultural sensibilities that seems to have reflected Russia's developing national identity, which was based in part on an awareness of and appreciation for its landscape, during this period.

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## Уничтожение лесов в степных районах, 1760–1914

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В статье проанализировано уничтожение мелких лесных массивов в степных районах Российской империи в период между 1760 и 1914 гг. Основная задача статьи состоит не в том, чтобы подсчитать, как сократились участки, покрытые лесом, а в том, чтобы проследить, как отразились на ходе истории за весь этот период причины и последствия сведения лесов. Задача выполнена путем анализа целого ряда первичных современных источников, включая записи экспедиций Академии наук 1768–74 гг., статистиков, чиновников и растущей когорты русских ученых, и наконец, знаменитой речи доктора Астрова в чеховской пьесе «Дядя Ваня». На базе наблюдений, а также прочтения работ иностранных специалистов таких как Гумбольдт, русские пришли к мысли, что потеря лесов в степном районе имела более широкие экологические последствия, вплоть до усиления эрозии почв и климатических изменений. Потеря лесов могла также повлиять и на русское национальное самосознание.

**Ключевые слова:** сведения лесов, Россия, степи, лес, окружающая среда, пожар, почва.