Abstract: The history of forest eco-governance in Russia can be traced back to more than 1000 years ago, but before Peter I came to power, the forest eco-governance in Russia rarely considered forest regeneration and sustainable development. Since ancient times, the European part of Russia has been regarded as the most wooded and forested region in Europe. However, in the 18th century, the consistent use of timber as the main fuel in the Russian manufacturing industry and residential heating, as well as the unrestrained use of forests in shipbuilding, construction, timber export, etc. led to the rapid depletion of forests in some regions of Russia. In this context, the Russian government put the reinforcement of the national forest eco-governance on the agenda. Peter I is considered to be the first forester in Russian history. During his reign, he promulgated about 200 laws and regulations on the conservation of forest resources, and his successors further developed his ideas about forest ecological conservation. Although it failed to prevent the trend of destruction of forest ecological environment in Russia, it solved the problems of building a powerful country and a strong army, achieving industrial development, and meeting people's needs in Russia to a certain extent. The measures and ideas of eco-governance in Russia in the 18th century are of important practical significance.

Keywords: the 18th century, Russia, forest resources, forest eco-governance, sustainable forest development

Forest is the largest terrestrial ecosystem, accounting for 31% of the world’s land area. The forest ecosystem is an interactive functional unit composed of soil, trees, shrubs, herbs, fungi, microorganisms, insects, animals, birds and humans. The forest ecosystem and other ecosystems are not independent. Instead, they cross and interact with each other (Li, 2021a). The ecological function of forests is mainly reflected in water and soil conservation, water conservation, wind prevention and sand fixation, climate regulation, pollution elimination, etc. Over the past few centuries, human economic activities and irrational use of forests have resulted in
the loss of large areas of forests, with serious ecological consequences. In 2012, the General Assembly of the United Nations declared March 21 as the International Forest Day in its resolution, and commemorative events have been held since 2013, through which countries or regions around the world have taken this opportunity to increase efforts to protect the forest ecological environment and jointly guard the “lungs of the earth”. On March 21, 2023, it will mark the 10th anniversary for holding official commemorative events on the International Forest Day. Russia's forest resources cover about 20% area of the world's total forest resources, making it the world's largest country in forest resources. Every aspect of Russian life is inseparably linked with forests. From a historical perspective, the survival and labor of the Russian people not only promoted the progress and development of civilization, but also caused significant changes in the ecological environment. The study on the history of forest ecology is conducive to a profound understanding of the relationship between forests and society, so as to make the whole mankind pay more attention to ecological construction and accelerate the harmonious development between man and nature. It is of great significance to study the forest ecology and sustainable forest development of contemporary Russia by sorting out and summarizing the problems of forest eco-governance in Russia in the 18th century.

1 Forest Ecological Situation in Russia in the 18th Century and Before

In order to correctly understand forest eco-governance in Russia in the 18th century, it is necessary to sort out and analyze forest resources in Russia from ancient Russia to the end of the 18th century, so that we can find out the reasons why the Russian government strengthened forest eco-governance. The Russian academic circles pay close attention to the study on the history of forest ecology and forest eco-governance in Russia, but there are few written materials about the situation of forest resources in the history of Russia. In addition, there are rare quantitative statistical data about the forest area before the 20th century in the historical books before 1900 (Канищев et al., 2014), and the Russian forestry departments are also unable to make true and accurate statistics on its forest resources. In 1744, Vasily Tatishchev, a Russian urban planner and designer, wrote in his book *A Brief Introduction to the History and Geography of the Russian Empire* that “the Russian Empire is rich in forests” (Анисимов et al., 2003, p. 18). At the end of the 18th century, the forest statistics of individual provinces, and even some systematic information of individual forest regions of the Russian Empire began to appear in various economic, geographical,
statistical and survey data (Канищев et al., 2014). *The Russian Forests*, published in 1900, and *the Encyclopedia of Russian Forestry*, published in 1903, focus on the forest resources in the European part of Russia (Рыбалкин, 2007), while the forest resources in the Caucasus and Siberia had yet been in an unknown state (Рыбалкин, 2007). The two works mentioned above are the earliest extant books on the statistics of Russian forest resources prepared by the national forestry department in Russia.

Since ancient times, the European part of Russia has been regarded as the most wooded and forested region in Europe. No other country in Europe has such a large area of perfect natural environment (Истомина, 2016). Before the 18th century, Russians paid little attention to their own forests, which were freely accessible to anyone. With the development of industry and agriculture in Russia, the main role of forests has gradually shifted from the gathering industry to industrial and civil fuels and industrial materials. The rich forest resources are closely related to human beings, and both of which are not only dependent and unified, but also destructive and antagonistic. However, with the progress of human, the contradiction between forests and human has become more and more prominent, and forest destruction has become more and more severe.

In the 17th and 18th centuries, the division of natural zones in the European part of Russia was similar to what it is today, including the Arctic desert zone, the tundra, the forest zone, the forest grassland zone, the grassland zone, the semi-desert zone, and the desert zone (Цветков, 1957). Russia not only features forest resources which are widely distributed and large in area, but also features a wide variety of forest vegetation and biological resources, providing sufficient renewable resources for Russians. The distribution of forests in the European part of Russia is extremely uneven, with forested areas in the north, less forested areas in the south, and no forested areas at all in some places; Two thirds of the forests are distributed in seven northern provinces, including Arkhangelsk Governorate, Vologda Governorate, Olonets Governorate, Novgorod Governorate, Kostroma Governorate, Vyatka Governorate and Perm Governorate, with the highest forest coverage (89%) in Vologda Governorate and the lowest in Vyatka Governorate (45%) (Орлов & Фаас, 1900). According to historical records, in 1696, the European part of Russia covered a forest area of 213.416 million hectares, with the forest coverage of 52.68%; In 1725, it covered a forest area of 213.958 million hectares, with the forest coverage of 51.16%; In 1741, it covered a forest area of 210.788 million hectares, with the forest coverage of 49.82%; In 1763, it covered a forest area of 205.89 million hectares, with the forest coverage of 48.66%; In 1796, it covered a forest area of 217.322 million hectares, with the forest coverage of 44.76% (Цветков, 1957). During the 100 years from 1696 to 1796, the forest area of the European part of Russia increased by 3.906 million
hectares, but the forest coverage decreased by 7.92%. Due to various factors, the above data are not enough to describe the extent of forest destruction in the European part of Russia. However, from 1696 to 1796, we can see the clue from the changes in the forest area of the six northern governorates in the European part of Russia. Within the 100 years, the total territorial area of the six governorates remained at 191.789 million hectares, but its total forest area decreased from 141.37 million hectares to 136.927 million hectares, and the forest coverage decreased from 73.71 to 71.40% (Цветков, 1957), a drop of 2.31%. The above changes show that, on the one hand, within the 100 years, the land area of the European part of Russia increased from 405.091 million hectares to 485.465 million hectares, and the measures taken by the government, such as forest regeneration, afforestation and reforestation, legal regulation and control, have promoted the increase of the forest area of the European part of Russia to a certain extent. On the other hand, the demand for timber from industrial production, deforestation, and shipbuilding led to a decline in the forest area of the European part of Russia. In 1763, the land area of its European part increased by 18.037 million hectares compared with that in 1696, but the forest area decreased by 7.526 million hectares, and the forest coverage decreased by 4.02%. The forest ecological environment in Russia suffered huge destruction, which is more obvious in its European part, where thousands of hectares of forests along the Volkhov River, the Svir River, Kuban River and Volga River had been cut down.

In the early 19th century, due to the influence of military expansion abroad and the industrial revolution in Western Europe, Russian industry enjoyed further development, which could not only be separated from the support of forestry, but also exerted a huge impact on the forest ecological environment. To sum up, from the mid-18th century to the first half of the 19th century, due to indiscriminate deforestation, forests in the European part of Russia, Western Urals, Southern Siberia and the coastal areas of Lake Baikal were severely damaged, and the ecological environment was also greatly affected. Climate change, drought, soil erosion, landslides and other natural disasters occurred frequently. By the mid-19th century, the demand for timber from industrial development had further increased, and insufficient measures had been taken to renew the forests after they were excessively deforested. As a result, some areas where forests have been excessively deforested suffered worsened deteriorated climate conditions and severe soil erosion. From the reign of Peter I to the World War II, 62 million hectares of forest disappeared in Russia, replaced by farmland, roads and residential areas. Large-area coniferous forests were preserved only in northern Russia, and primary forests were gradually replaced by derivative forests.

In the 18th century, the continuous use of timber as the main fuel in Russian manufacturing industry and residential heating, as well as the unrestrained use of forests in shipbuilding, construction and timber export led to the rapid depletion of
forests in some regions. In this case, the Russian government put the reinforcement of national forest ecological management on the agenda.

2 Forest Eco-Governance in Russia in the 18th Century

In the 18th century, multiple measures to improve the forest ecological environment in Russia were mainly aimed at the European part of Russia, which was not applicable to the forests in Siberia. This is because the European part was the center of Russian people for life and residence, and also the most developed industrial area in Russia. The value of forests in Siberia, Russia, was mainly reflected in the fur trade. Although the local forests had also suffered damage to a certain extent, the region was still rich in forest resources under the circumstance that there was no large-scale deforestation since it was sparsely populated with underdeveloped industries.

The history of forest eco-governance in Russia can be traced back to more than 1000 years ago. In the early 10th century, legislation aimed at the rational use of natural resources emerged in Russia. The Yaroslavl Code, introduced in the 11th century, imposed severe penalties for arson and cutting down private forests. For the next hundreds of years, many forests were regarded as private property, and the owners could cut down trees and damage forests to reclaim land according to their needs. Instead, little consideration was given to forest regeneration and sustainable development, and the forest ecological environment was destroyed to a certain extent. In 1485, Ivan III promulgated the first decree on forest conservation in Russian history, forbidding felling of forest trees in specified areas, appointing special personnel to supervise forest management, catching illegal tree fellers, and imposing fines and other penalties on relevant responsible persons. However, this decree did not produce the desired effect. In the 15th and 16th centuries, Russia implemented strict protection for the forests on the southern border. The Tsar Aleksey Mikhailovich promulgated about 70 decrees to protect hunting and fishing grounds, forests and meadows.

In the 18th century, due to the development of Russian industry and navy, the amount of timber felling continuously increased, and all sectors of society began to realize the necessity of protecting the forest ecological environment. Rational utilization and protection of forest resources became one of the important policies of the Russian government (Лупанова, 2015). In the 18th century, Russia had a total of 8 tsars, including Peter I and Catherine II. Based on the duration of reign of the eight tsars in the 18th century and their role in forest eco-governance, this paper focuses
on forest eco-governance during the reign of Peter I, Anna I, Elizabeth I and Catherine II.

### 2.1 Forest Eco-Governance During the Reign of Peter I

Peter I’s thoughts on forest eco-governance originated from the reform of Europeanization. In 1697, Peter I sent a mission to Western Europe to learn shipbuilding and navigation technology. After returning to Russia, they actively set up the shipbuilding business. Timber presented unique value for building river vessels and seagoing vessels. During the reign of Peter I, there were two types of timber for shipbuilding. The first type includes oak, larch and pine. The second type includes birch, spruce, ashtree, maple, poplar, alder, basswood and beech. The former is mainly used to make brace rods, hulls, planks and decks; The latter is mainly used for the internal structure of the hull (Красногорская, 2006). It takes a lot of timber to make a warship. Russian warships are usually made of oak, which is hard and not easy to ignite. The construction of a standard sailing warship needs about 4000 oak trees, while the construction of a warship equipped with 100 cannons needs 6000–10,000 oak trees (Красногорская, 2006).

With the rapid development of fleet construction and industry, the Russian government and all sectors of society began to realize that forests are not only valuable natural resources, but also could be gradually depleted due to indiscriminate deforestation and improper use. Generally speaking, shipbuilding requires the selection of timber with a certain size of cross section, older tree age and high quality, but even though Russia was rich in forest resources at that time, suitable timber for shipbuilding was not common. In the early 18th century, the dwindling availability of high-quality trees for shipbuilding in central and northern Russia became of great concern to the Russian government. In order to obtain more high-quality timber for shipbuilding, Peter I began to strengthen forest eco-governance. Since 1703, the use of riparian forests has been subject to strict regulation by the government, with the cutting of precious shipbuilding timber banned by law within 50 versts along large rivers and 20 versts along small ones (Козин, 2012). During his reign, Peter I promulgated about 200 decrees, orders, or directives concerning the conservation and rational use of forest resources, that is, in 1718, the National Forest Guard aimed at protecting timber forests for shipbuilding was set up; In 1719, the Navy Command, a unified national forest management organization was established. In 1722, a decree was promulgated to appoint local nobles to be responsible for the management and protection of forests, the supervision on the sales of timber, and the implementation of forest legislation; In 1723, Russia’s first national forestry organization law aimed at
protecting forest resources came into force (Шелгунов, 1857). The above-mentioned laws, orders or directives involve the establishment of forest resource management systems, the formulation and implementation of forest management plans, the reinforcement of conservation and management of forest resources, the training of forest managers, the reinforcement of forest fire prevention, the prohibition of deforestation and land reclamation, the prohibition of indiscriminate deforestation, and the implementation of national control over revetment forests and timber forests for shipbuilding. The government of Peter I promulgated a series of decrees mainly aimed at preventing the free felling of forests, in which oak forests, elm forests, maple forests, ashtree forests, larch forests and mast pine forests adjacent to rivers were included within the scope of protection (Лупанова, 2015); The felling of oak, maple, elm, larch and pine trees with a cross-sectional diameter of more than 53 cm was forbidden (Красногорская, 2006).

In order to protect the forest ecology of Russia, Peter I specially established the timber identification system to determine the origin of timber; set up the competent forestry authorities at the Russian Naval Academy, for the purpose of protecting riparian forests and nature reserve forests and of planting trees suitable for shipbuilding; set up the National Forest Guard to strengthen the protection of forest resources, and reinforced forest fire prevention and extinguishing, and imposed death penalty or exile on those who violated the ban on felling trees in the forests within the areas involved; divided the timber forests for industrial use into 25–30 logging areas, and implemented the rotation logging system, with only one logging area available for felling each year (Быкова, 2013), so as to achieve sustainable use of forests. In order to effectively protect forest resources in Russia, the Russian Academy of Sciences, established in 1724, set up a special department to study forests and other plant resources in Russia. The first Russian foresters included the academicians M. V. Lomonosov and A. A. Nartov, as the founders of forest science in Russia, held the main views on forest ecological protection, that is, to protect and comprehensively study the forest, rationally use the forest for the benefit of mankind, and to maintain the status of Russia as a power of forests.

2.2 Forest Eco-Governance in Russia During the Reign of Anna I and Elizabeth I

Anna I and Elizabeth I were the successors of Peter I. During their reign, they further developed Peter I’s concept of forest ecological conservation, and partly continued the system of forest eco-governance during the reign of Peter I. The government of Anna I promulgated decrees to strictly regulate artificial forestation, tree planting and regeneration, young forest protection, forest supervision, storage of superior
varieties, forest fire prevention, deforestation, etc., and imposed penalties such as fines, “permanent engagement of hard labor” (Гребенщикова, 2007, p. 138) and even death penalty for the acts of destroying forest resources, and implemented the prohibitive duty system in order to restrict or reduce the export of precious tree species abroad. Elizabeth I took active measures to strengthen forest eco-governance, and promulgated decrees on the protection of forest resources almost every summer, stipulating that residents must take measures to prevent forest fires (Тяпкин & Глазунов, 2015), no one may burn forests in any form; Residents who cause forest fires due to violation of regulations would be punished to a certain extent, and officials with “lax supervision” (Тяпкин & Глазунов, 2015, p. 208) would receive the harshest punishment.

Although several successors of Peter I took measures for protecting forest ecology to a certain extent, on the whole, after the reign of Peter I, Russia's forest eco-governance has weakened significantly. This was reflected in the decrees promulgated by the government of Elizabeth I in 1748. For example, forest managers were only responsible for protecting “timber forests for shipbuilding” (Тяпкин & Глазунов, 2015, p. 208) and focused on specific characteristics such as tree species, tree age and size in such forests. In some documents, it was stipulated that deforestation was restricted and punished only when it affected the country’s shipbuilding industry, while damaging forests to reclaim land, building wooden houses, home heating and industrial fuels were not covered within the scope of forest supervision. In a word, the failure of supervision, deforestation and forest fires even led to the depletion of forests near the cities and villages of Tobolsk and Tomsk during this period.

2.3 Forest Eco-Governance in Russia During the Reign of Catherine II

According to historical records, Catherine II believed that the state monopoly on forest resources was not conducive to the development of Russian economy, so she abolished Peter I’s policy of protecting precious forest resources for the development of shipping and industrial production (Лупанова, 2016). However, some data show that Catherine II paid great attention to the protection of Russian forest resources. During her reign, she took measures for forest protection, made statistics and scientific research, and drafted the new Forest Ordinance. On the whole, great changes took place in the forest ecological governance and management in Russia during the reign of Catherine II, during which the forest management system of the central government was abolished, and the right of forest management was transferred to various departments; The state monopoly of forests during the reign of Peter I was
abolished, the economic value of forests was taken as the primary objective, free trade in forest products was allowed.

From the perspective of scientific research, in the 1760s, the concept of forest management was gradually widely applied in Russia. Forest management, also known as silviculture, is mainly aimed at protecting the forest ecological environment and promoting the sustainable development and sustainable use of forests. More and more scientists began to pay attention to forest management and forest ecological conservation in Russia, of which the outstanding representatives include M. V. Lomonosov, A. A. Nartov, A. T. Bolotov, S. P. Krashennikov, P. I. Rychkov, et al. In 1765, A.A. Nartov published a paper entitled *On Forest Seeding*, in which he conducted an in-depth study on afforestation and reforestation in Russia, including site selection for afforestation, maturity time and collection of tree species, processing and storage of tree species, sowing techniques and soil management, forest protection, etc. (Бабич & Евдокимов, 2016). However, the thought of Nartov on afforestation and reforestation did not arouse enough attention at that time.

Since the mid-18th century, Russian timber was mainly used as industrial fuel, for house building, shipbuilding, export, etc. The rapid development of Russian industrial enterprises, construction industry and shipbuilding industry not only consumed a lot of forest resources, but also caused great damage to the forest ecological environment. The main forest ecological problems faced by Russia include inefficient utilization of forest resources, forest fires, forest diseases and insect pests, indiscriminate deforestation, and low awareness of the public on forest ecological environment. The cities including St. Petersburg, Nizhny Novgorod, Saratov, Astrakhan, Moscow, Riga, Kremenchuk, Yekaterinoslav, Kherson, Arkhangelsk and Tsaritsyn in Russia became the industrial centers that consume a great deal of timber (Черных, 2017). The forest ecological environment around the above cities also suffered damage to varying degrees, and it was difficult to see tracts of forests in some places.

In the traditional shipbuilding method in Russia, almost the entire hull was made of wood, and the service life of the ship greatly depended on the planting conditions of the timber forest for shipbuilding. For Russia, in the 18th century, it was still the era of wooden ships. In order to develop the shipbuilding industry, Catherine II paid great attention to the quality and growth conditions of timber forests for shipbuilding at the beginning of her reign, formulated regulations on the protection of timber forests for shipbuilding, and promulgated a series of decrees on reforestation in logging sites and attracting residents to plant trees. In 1767, the government of Catherine II divided the forest supervision departments, with the timber forests for shipbuilding under the jurisdiction of the Admiralty Council, while the jurisdiction over other forests was transferred to the Ministry of the Interior; In 1782, the government of Catherine II promulgated a decree aimed at developing the
state-owned forestry (Черных, 2017). In the same year, the Russian government promulgated a draft law on forests, mainly involving issues related to collection of tree species, seeding, forest cultivation, afforestation, etc.

In 1796, after Paul I succeeded to the throne, he continued to develop Catherine II’s ideas on forest management. In May 1798, he promulgated a decree on establishing the Forestry Department in Russia, aiming to curb all acts of destroying forests (Быкова, 2013).

3 Contemporary Response to Forest Eco-Governance in Russia in the 18th Century

The ideas of forest eco-governance in Russia in the 18th century not only solved the problems of building a powerful country and a strong army, achieving industrial development, and meeting people’s needs in Russia, but also exerted great significance for forest eco-governance in contemporary Russia.

3.1 The Idea of Building Forest Nature Reserves in Russia in the 18th Century Continues to This Day

The history of nature reserves in Russia can be traced back to the early 18th century. In 1703, Peter I promulgated a decree prohibiting the logging of timber for shipbuilding. In 1709, the government discovered a primeval oak forest not far from Pavlovsk with an average age of 400–450 years. This oak forest was not only large in area, but also of high quality, making it very suitable for shipbuilding (Shipov Forest). Peter I called this oak forest the “Golden Jungle of Russia” (Истомина, 2016, p. 108), and built it into a forest nature reserve, named it the Shipov Forest, a word derived from the English word “ship”. The Shipov Forest Nature Reserve has been continued to this day. Later, due to the development needs of Russian shipbuilding industry, Shipov Forest was felled in large areas twice in 1770 and 1810–1830. In 1875, Henko, a famous forester, proposed to take measures for reforestation in the Shipov area, that is, to plant young oak trees in the area where oak trees were originally planted (Мищенко, 2014). Since then, the Russian government continued to strengthen the protection of Shipov Forest, which is also the main reason for the continuation of the forest nature reserve to this day. The Shipov Forest has now become a famous natural monument in Russia, with the oldest surviving oak tree of more than 170 years old. Apart from the Shipov Forest, the first national nature reserve in Russia was the Barguzin Nature Reserve, established on January 11, 1916, located between the northeast shore of Lake Baikal and the west slope of the Barguzin Mountains.
(Давыдова, 2021). The Barguzin Nature Reserve was set up to protect and breed sable, and avoid its extinction. At present, the reserve is home to more than 280 kinds of animals.

With the increasing expansion of population and rapid economic development, the natural environment is facing more and more pressure, and there is less and less wilderness left untouched by human. If we do not protect the natural ecological environment, all kinds of resources on the earth will be gradually exhausted, and human beings and the earth may gradually head for extinction. The establishment of nature reserves can maximize the preservation of the earth’s ecological environment, and it is also currently the only effective way to delay the destruction of the natural environment and the extinction of wild animals. The national nature reserve in Russia is the most valuable natural asset, as well as its intangible cultural heritage. Nature reserves are set up for both global reasons for everyone and local reasons based on specific regions, which in Russia mainly include protecting rare animal and plant populations, conducting scientific research and protecting natural processes (Давыдова, 2021), protecting the natural environment that has not been disturbed by human activities or with less artificial modification, keeping water resources from being polluted, developing tourism aimed to provide funds for ecological protection, and promoting ecological cultural and spiritual value. At present, there are 100 national nature reserves in Russia, whose objects of protection have expanded from forests to minerals, animals and plants, mosses and lichens, fish, marine organisms, etc. Some rare species have been listed in the Russian Red Book or International Red Book.

As the most important part of nature reserves and natural ecosystems in Russia, the forest serves as a natural gene pool, carbon repository, water reservoir and energy pool. To protect the forest ecological environment is not only to protect biodiversity, protect clean air and water, but also to protect wild nature and the integrity of natural landscape for scientific research. Protecting the forest ecological environment can continuously promote human to respect nature and love life. It is of great significance to maintain ecological balance, improve the natural environment, promote the harmonious development of man and nature, thus creating a favorable environment for human life, and promoting the comprehensive, sustainable and coordinated development of the economy and society.

3.2 The Decrees on Forest Protection in the 18th Century Laid the Legal Foundation for Forest Ecological Protection in Contemporary Russia

Peter I looked at forest resources not only from the perspective of consumption, but also from the perspective of reproduction, and the way of his rational utilization of
forest resources was fully reflected in the relevant legal provisions on nature protection (Злоказова, 2018). Peter I is known as the first forester in Russian history, because he created and developed forestry aimed at protecting the ecological environment, cultivating and protecting forests to obtain timber and other forest products, and using the natural characteristics of forests to play a protective role. He was deeply aware of the need to protect natural resources for future generations and the prosperity of Russia (Красногорская, 2006). In the 18th century, the Russian government passed multiple decrees on nature protection. During the reign of Peter I, about 60 decrees were passed, in which about 40 decrees were passed in 1725–1761, and nearly 100 decrees were passed in 1762–1801. Among them, the decrees on restrictions or prohibitions on the development and utilization of natural resources accounted for 20–25% of the total, and the laws aimed at restoring or enriching the natural environment accounted for 5–6%. In 1723, Russia published the collection of Peter I’s laws on the protection of forest resources, most of which contained relatively strict provisions on forest protection. All successive tsarist governments in Russia continued the legal provisions during the reign of Peter I to some extent, and until 1917 the laws on forest protection had not been changed much, except that the enforcement had been somewhat different. On May 27, 1918, Lenin signed the Forest Decree, which focused on forest ownership, sustainable use, classified management and forest protection (Рункова, 2020). Since the 1920s, the Soviet Union promulgated many decrees on forest ecological protection, including the Forest Code of the Russian Federation, the National Regulations of the Soviet Union on Forest Protection, among which the most famous one is the Forest Code of the Russian Federation, with two versions. The Forest Code of 1923 is the first systematic legal document regulating the forestry relations in the Soviet Union, containing the important contents of pre-revolutionary forest management and forest protection to a great extent (Якубов, 2013). After 55 years of implementation, the Forest Code of 1923 was replaced by the 1978 version. The Forest Code of 1978 clearly stipulated the state ownership of forests in the Soviet Union, and made detailed regulations on forest management, forest regeneration and protection, timber logging and sustainable use of forests. Since the 1990s, the forest related legislation of the Soviet Union has been gradually replaced by the new legislation of Russia. The rules and regulations on forest protection in Russia have been continuously improved, and the Forest Code of the Russian Federation was issued at the end of 2006 and came into force in January 2007. In Article 1, Chapter I of the Code, forest ecological protection was explicitly stipulated, including sustainable forest management, protection of forest biodiversity, improvement of available forest potential, protection of forest environment, realization of forest protection, protection of sustainable and inexhaustible forest use, etc. In short, the system of the Russian government on forest ecological protection in the 18th century became the foundation of the development of its forest
legislation, forest protection, forestry organization and forest science, and some of the provisions became the rudiments of forest inventory and afforestation program in contemporary Russia. In a word, the idea of sustainable forest development in contemporary Russia is the continuation of the concept of forest eco-governance during the reign of Peter I.

3.3 The Idea of Forest Management During the Reign of Peter I Is the Basis for the Development of Modern Forestry in Russia

The idea of forest management during the reign of Peter I has exerted a great impact on contemporary Russia, laying the foundation for the development of modern forestry. Here we only take the forest identification system and the rotation logging system for examples.

The forest certification and identification system in contemporary Russia continues the concept of forest identification during the reign of Peter I. The Forest Code of the Russian Federation stipulates that the export of precious timber such as oak and ash wood from the Russian Federation must be identified one by one in accordance with the identification procedures specified by the decrees of the Russian government; According to the approved identification procedures, the label must reflect the name, identification number and other information of legal entity or individual entrepreneur. Russian forest certification aims to improve national forest management, ensure that consumers obtain certified forest products, enhance the quality of forest supervision and management, improve the collection and use of forestry taxes and fees, boost the working efficiency and economic benefits of the forest complex, and ensure the sustainable forest development and biodiversity, etc. At present, the main forest certification types in Russia include compulsory forest resource certification, logging company certification, timber radioactivity ecological certification, timber technology certification, voluntary forest management certification and so on. Voluntary forest management certification is most widely used in Russia, including the certification of Forest Stewardship Council (FSC) and the Program for the Endorsement of Forest Certification Schemes (PEFC). In 2000, the Forest Stewardship Council issued the first FSC forest management certificate to Russia. In 2020, with the forest area of 56.83 million hectares certified by FSC (Шматков, 2021), Russia became the country with the largest FSC-certified forest area in the world. In 2021, Russia’s FSC-certified forest area increased to 62.16 million hectares, with a year-on-year increase of 9.4%; Since 2009, the PEFC forest certification system has been operated in Russia. In March 2010, an enterprise in St. Petersburg, Russia
received the first PEFC forest certification certificate. Since March 2022, the FSC certification and PEFC have ceased to operate in Russia, providing an opportunity for Russia to establish its own forest certification system. In fact, since the transformation, some Russian enterprises and experts have begun to discuss the establishment of the Russian national forest certification system. The main reason is that some FSC certificate holders in Russia are dissatisfied with the international certification system. In addition, some enterprise representatives hope that the forest certification system in Russia can fully adapt to national legislation, and the certification cost can be cheaper than international certification. Moreover, if the international certification system stops issuing certificates in Russia, domestic enterprises will face less risk. At present, the national forest certification system widely supported by representatives of some business, scientific, non-governmental organizations and Russian institutions is the “forest standard”. They believe that this is one of the solutions to the problem of forest certification in Russia and a feasible way to promote the further development of forest certification in Russia. There is still a certain gap between the forest certification system in Russia and that in developed countries. Under the circumstance that the two international voluntary forest certification systems stop their activities in Russia, forest products in Russia will be less competitive in the international market. To sum up, from the perspective of climate change and ecology, there is still a long way for Russia to go to establish its own forest certification system, and it also takes time to develop certification standards in line with the international market.

The rotation logging system introduced during the reign of Peter I has been widely used in contemporary Russia. The premise of rotation logging is to determine the period of rotation. The rotation period refers to the production cycle in which the forest within the operation type is felled in turn and then the mature forest is felled in the original logging area. At present, according to the purposes and requirements of forest management in Russia, the logging methods adopted include final felling, tending felling, selective felling, clear felling, sanitation felling and so on. In the process of forest felling in Russia, different ways are adopted in different regions and according to different tree species, but first it is required to find out whether there are restrictive regulations for a certain tree species in a certain region (Li, 2021b), and then different methods of felling are adopted in a targeted way. At present, tending felling, selective felling and sanitation felling are mainly adopted for precious tree species in Russia, for the purpose of cultivating high-yield precious tree species and improving the quality and sanitary conditions of standing forests. Of course, timber felling is one of the important economic activities of human, with the aim to meet people’s demand for timber, develop economy, create employment opportunities, and earn foreign exchange through export. Timber felling should be viewed from the perspective of sustainable forest use, that is, whether logging can contribute to the
sustainable access to forest resources required by human and minimize the adverse impact of human activities on forest resources (Ярошенко, 2021).

In conclusion, forestry involves a relatively long production cycle, which requires the implementation of a range of measures for sustainable management, so as to ensure the sustainable supply of timber. Today, forest management in Russia benefits from the concept of forest ecological protection during the reign of Peter I. In contemporary Russia, it is of both scientific and practical significance to inherit and carry forward the historical experience in the fields of forest management, forest protection and regeneration, and sustainable forest development in Russian history.

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References


Орлов, М.М., & Фаас, В.В. (1900). О лесах России: Распределение лесов, их эксплуатация, внутренняя и внешняя лесная торговля. Экономическая типо-лит.


Цветков, М.А. (1957). Изменение лесистости европейской России с конца VII столетия по 1914 год. Издательство академии наук СССР.


Шелгунов, Н.В. (1857). История русского лесного законодательства. Тип. Министерства гос. имуществ.

