Planning and implementation of FSC compliant forest management under conditions of Russian forestry legislation

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Abstract. Currently the Forestry Legislation of Russian Federation provides enough requirements or and allowances to preserve biodiversity. However it often happens that some documents that allow to preserve biodiversity objects contradict other norms that literally stipulate to remove such objects from the ecosystem. The present article analyzes the established Forest Management system in Russian Federation. Based on the study of Russian Forest Legislation, FSC standards and judicial practice the present work concludes that it is required to foresee the necessary action at the stage of forest management planning. Only by following a certain sequence in planning: forest inventory, forest management regulations, forest management plan, technological mapping (for cutting areas, forest regeneration, silviculture etc.) forest management actions and use of forests will it be possible to legalize preserving biodiversity objects without compromising the Russian Forestry Legislation.

1. Introduction
The holder of FSC certificate has to maintain a number of mandatory standards, and in the first place those connected with environmental impact on forest ecosystems [1]. The main standard of reducing the negative impact on ecosystems while using forests is to preserve biodiversity, which is to leave key biotopes (relatively small areas of environmental value) when harvesting, as well as key elements of growing stock such as stand alone live or dead trees, dead wood that are so crucial for live cycles of birds, animals, insects, plants and microorganisms [2]. When harvest planning it is recommended to recognize, delineate and conserve these elements from the impact of harvesting equipment [3].

However regardless of the evident benefit of the above actions and the necessity to do nature conservation when it comes to practice the environmentally sensible forest user faces certain problems and even obstacles posed by the forestry authorities. Usually it is easy to leave hardwoods as seed trees on the logging site. Softwoods are most of the time demanded to be removed by the specialists of state forest authorities as unnecessary. Burning felling residue during low fire hazard season is the most common way of cleaning the logging sites, however it is far from perfect from the biodiversity point of view.

Problems in auditing the compliance with FSC standards arise due to poor quality of forest planning and design materials that are primarily based on forest inventory data. Protection forests and preserved forest areas if not delineated may be clearcut and later during the FSC audit treated as
standard violation and classified as not compliant. Violations of this kind may lead to FSC certificate withdrawal.

2. Materials and Methods
The present work is based on the study of the Forest Code of the Russian Federation as well as other legal and regulatory documents related to forest law and governing forestry activities. The documents were defined, the requirements of which must be fulfilled directly during protection, conservation, regeneration and use of forests. It was also studied how the requirements of legal and regulatory documents governing the activities of forestry participants interconnect at different stages of forest use and conservation. It was identified that forest management activities are carried out in compliance with forest planning and design based on forest inventory data. It was assessed how the information on forest fund land condition affects planning and implementation of forest protection, conservation, regeneration and use. Analysis of the RF Forest Legislation revealed that in its present state it is a very complicated system of interconnected federal and local laws and regulatory documents.

The Objective of the present study is to develop a method to harmonize the FSC standards with the Russian Forest Law. In order to implement the above Objective the following tasks were addressed:

✓ To identify the FSC requirements that if fulfilled may be treated by regional forest authorities as violations of the Forest Code of Russia.
✓ To analyze RF Forest Law enforcement to find the possibility to synchronize the Forest Code requirements with FSC standards.
✓ To integrate FSC standards in the following in the following action chain: planning and design of forest protection, conservation, regeneration and use. To implement the planned activities in a way that is complaint with the RF Forest Law.

3. Results
The study of the contemporary RF Forest legislation shows that many legal and regulatory documents directly or indirectly allow and sometimes even stipulate to preserve the objects of environmental value. For instance Clause 1 of the RF Forest Code (to be further referred to as RF FC) [4] directly expresses the demand to preserve biodiversity, recognizes the global environmental value of forests and declares that forests must be managed with no environmental impact. Since these principles have been legally established in the Forest Code since 2007 they have to be spelled out in the by-laws. However it is only recently that recommendations of this kind came into practice. They comprise: The Timber harvesting regulations [5]; The Order of the Ministry of Natural Resources “On Establishment of types of logging operations” [6], The Order defines the ways to clean the logging sites. The Fire Safety and Regulation Rules in the forests [7], which on the one hand allows to pile up the logging residue and leave it rot or to grind residue and scatter it over the logging area on the other hand has been historically interpreted as demanding to burn the residue in low fire hazard season. The environmentally conscious forest users face this one-sided interpretation of by-laws quite frequently. They may be fined or prosecuted for piling up the cutting waste.

The study of the forest by-laws requirements leads to the conclusion that implementation of forest protection, conservation, regeneration and use activities is the last link of a long chain. ultimate goal of a long chain. In order to implement the planned activities or to exercise the right to use forests in an environmental way it is not sufficient to abide by the clauses of the above by-laws. It is therefore required that the majority of the environmentally crucial aspects in use are incorporated into the forest planning and design documents and are accounted for at the stage of forest management planning.

At the moment Clause 87 of the RF Forest Code [4] stipulates that forest protection, conservation and use activities have to be carried out in line with the Forest Stewardship Plan [8] and Forestry regulations [9]. Furthermore, Clauses 51, 60.1 clearly stipulate that failure to comply with forestry regulations and forest stewardship plan in terms of forest protection (Cl. 51, item 3 of RF FC), forest conservation (Cl. 60.1 item 5 of RF FC), forest regeneration (Cl. 61 item 4 of RF FC) by individuals or legal entities that undertake forest use activities is a basis for preliminary termination of forest land
lease agreements, forest stand sale and purchase agreements as well as for compulsory termination of
the right of permanent (unlimited) use of forest plot or the right of gratuitous use of forest plot,
termination of easement or public easement.

Forest management documents of a forest district [10], the data of the state forest register [11] and
materials of special research and studies form the basis for development of the Forestry regulations.
The regulations may be edited in a number of cases [9], first of all in case of forest structure and
condition changes determined in the course of forest inventory, special inspections and forest
pathology studies.

In its turn in line with article 70 of RF FC the forest management plan has to comply with the
forestry regulations of the forest district. The forest management plan is developed by individuals or
legal entities to whom forest plots are provided for permanent (unlimited) use or lease in line with
clause 12 of RF FC on the basis of forest lease agreement, certificate of permanent (unlimited) use,
forestry regulations of the forest district, data from the state forest register, land planning and
allocation documents as well as other special studies [8, 10, 12]: forest pathology, landscape, soil etc.
When developing the forest management plan it is allowed on the initiative and at the expense of the
party using the forest land to undertake a forest inventory in due course in order to find, account for
and assess the quality and quantity parameters of the forest resources along with planning forest
protection, conservation and regeneration activities. The information obtained can be used in
development of the forest management plan on the condition that it is dually recorded in the state
forest register and forestry regulations of the forestry district.

Therefore the proper way to ensure the right planning and implementation of forest protection,
conservation and regeneration activities would be the correct assignment of such activities during
forest management planning. The general scheme of planning, design and implementation of forest
protection, conservation, regeneration and use in Russian Federation is given on Figure 1.

![Figure 1](image_url)

**Figure 1.** The scheme of implementing the forest protection, conservation, regeneration and use
activities in line with RF Forest Legislation.

The forest inventory forms the base for forest management documents. Forest inventory
assessments of the allocated areas within the forest districts (inventory assessments for the forest
districts and forest plots), forest management maps (the maps of forest districts and forest plots) are
the forest management planning documents and the base for updating and changing the information in
the state forestry regulations. During the site inventory and delineating the inventory parcels it is required to use the data of the state forest pathology monitoring, forest pathology studies in combination with the state forestry register data on current changes that took place over the past period since the last inventory.

Now the timber harvesting rules directly recommend preserving the biodiversity objects during harvesting. However mistakes, discrepancies and even lack of details in description of inventoried forest parcels during the inventory or forest management planning that do not account for preserving the key biotopes will make it impossible to comply with FSC standards [14] when organizing the use of forests.

4. Discussion
It is evident from the above that often the cause of potential conflicts is the lack of information or incorrect description of the inventoried forest parcel that fail to delineate the biodiversity objects. Most often it is not considered to be the inventory engineer error due to the fact that the quality of his work is evaluated by the accuracy of the assessment of the main forest elements. There are several examples of such cases, e.g.

1. It will be much easier to get the forest local authorities approval of the technological map with marked preserved key biotopes such as trees with broken tops, dead wood and (or) old-age trees if these objects were earlier marked during the forest parcel inventory. In practice the inventory engineer has to include additional information in the inventory card the so called 9th, 13th, 19th and 21st tiers of the tree stand.

2. Undervaluation of amount of viable young growth during the inventory of the ripe forest leads to recommending plantations as a planned forest management activity following clearcut [13]. When compiling the forestry regulations such forest plots in table 17 are included in the scope for artificial regeneration. If errors of underestimating the young growth during inventory the planned scope of plantations will dramatically increase. By following the forest management plan the forest district will authorize the tenant to fulfill the planting volume requirements and will not allow him to undertake cutting with preservation of undergrowth. In these cases implementation of the scope of forest management activities prescribed by the forestry regulations may be treated as priority even though it is recorded that the amount of young growth of valuable tree species is sufficient for natural regeneration.

3. One more example of clearcut without preservation of young growth is often caused by young trees uneven distribution – for instance in areas with decaying older trees. In this case when filling out the inventory form it is important to mark the uneven distribution of young growth (within the forest plot) and when doing the forest management plan to mark this growth area in table 17 as designated for mixed regeneration. Only correct assessment of preliminary amount of young growth allows to keep it without violating the forestry regulations.

4. By indicating the varying of forest conditions from B3(C3) to B4(C4) when filling out the inventory form in the part of specific features of the forest plot it will be easier to delineate the wetland as non-operational area at the time of developing and approving the harvesting plan.

5. Minor discrepancies during forest inventory (leaving out the minority trees (1…5%) of rare species for this area, unevenness of the forest stand, different age structure, variable tree species composition, presence of valuable species etc.) can also lead to failure to delineate the present key biotopes.

The harvesting rules stipulate making lists of biodiversity objects for specific forest districts and marking them in the forestry regulations. In accordance with the Order of Russian Ministry of Natural Resources «On endorsement of contents of the forestry regulations of forest districts” the new regulations should have table 20 with norms and parameters of biodiversity objects. This normative document is regionally specific as it takes into account the habitats of plant species, endemcity of species etc. There is an even more complicated example: in the Southern taiga region lime trees in case their presence is less than 1 per cent from the total forest fund area have to be recommended to be
treated as the main key biotope on the cutting area, whereas in the more southern areas that belong to the coniferous and deciduous forest zone such treatment is inappropriate. Keeping in consideration the above it is required to compile the list, introduce it in the forestry regulations of the forestry districts and consider this list when planning the forest management activities.

5. Conclusion
Currently there has been a busy discussion that inventories of forest districts and parks have to result in developing new draft forestry regulations. We fully support this initiative as the forest management instructions stipulate that the tenant must attend the forest management meetings. Therefore if there is only one source of forest inventory and forestry regulations it would be easier to influence the inventory engineers by means of the forest management meeting protocols and thus receive the planning documents that correspond to the specified objectives. In our opinion the algorithm of continuous planning, design and implementation of management activities of the tenant on the forest plot proposed in this study will allow to carry out the planned activities in line with FSC standards. Moreover by fulfilling all the actions prescribed by the algorithm focused on FSC compliance there will be no violations of the Forest Law of Russian Federation.

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