

Article

The Organization of Nature Conservation in State-Owned Forests in Poland and Expectations of Polish Stakeholders

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Abstract: *Research Highlights:* The presented findings result from the first large-scale research conducted in Poland in relation to the State Forests—the most important place for the protection of Polish nature. They may constitute an important contribution to the improvement of the nature conservation system. *Background and Objectives:* The current model of organization of nature conservation in the State Forests in Poland is not fully effective. In regard to the growing influence of society on nature protection and the need to improve the existing system of nature conservation, this study poses the question: what are the expectations of various stakeholders as for the organization of nature conservation in the State Forests? The aim of the article is to present these expectations, to broadly discuss them, and to present recommendations for the future. *Materials and Methods:* The survey was conducted in 2013, among 41 various stakeholder groups in Poland. The choice of the surveyed groups was determined by their legal competence and/or practical experience in nature conservation in the State Forests. *Results:* A total of 77.9% of the respondents supported the concept of transferring full responsibility for nature conservation to foresters, while 51.1% supported financing of nature conservation tasks exclusively by the State Forests. In total, 46.8% of respondents believed that foresters should determine the principles and methods of nature conservation. The presented expectations of the Polish stakeholders differ from the current real situation, however, they still cannot be considered as a complete solution. *Conclusions:* The results indicate a need for a broader discussion and perhaps, consequently, a reorganization of the functioning of nature conservation in state-owned forests in Poland, considering the social expectations and trust in foresters. This can be inspiring also for other countries with a high proportion of state-owned forests.

Keywords: State Forests; nature protection; financing; decision making; responsibility; implementation of protective measures; Poland

1. Introduction

1.1. The State-Owned Forests in the World and in Poland

Forests, not only in Poland but also worldwide, are regarded as the most important centers of terrestrial biodiversity [1–3]. Among them, the state-owned forests (and generally lands) are very important for nature conservation [4–10]. On the one hand, this is due to well-preserved natural resources that are worth protecting (e.g., [11]). On the other hand, the creation of protected areas on state lands reduces social conflicts related to the limitation of the possibilities to use nature resources (e.g., [8,12–15]). It is noteworthy, that in 2006 about 11.5% of the world's forests were in protected areas [3], in the case of Europe, in 2018 it was 17% (of the state forests), and e.g., in Austrian Federal Forests as much as 50% [6].

Public ownership of forests, including State ownership, concerns approximately 76% of the world's total forest area—about 3040 million ha. The share varies from region to region: it is the lowest in Europe (44%), average in North America, Latin America-Caribbean, and Asia-Pacific (68%, 64% and 67%, respectively), and the highest in Africa, Central Asia, and Russian Federation (99%, 100% and 100%, respectively) [16]. In Europe, 35 companies, enterprises, and agencies (from 24 countries) that sustainably manage state forests are associated in the European State Forest Association (EUSTAFOR). For example, in Norway it is Statskog (about 1 million ha), in France the Office National Des Forêts (about 6.7 million ha), and in Romania Romsilva (about 3.2 million ha) [17].

The State Forests National Forest Holding (in short: The State Forests; this abbreviation will also be used in the text for forests managed by the State Forests), established in Poland in 1924, is also a member of EUSTAFOR. It is the largest institution managing state-owned forests from all countries within the European Union. In 2018, with about 26,400 employees, this institution managed 7.1 million ha of woodlands (and 0.5 million ha of other lands), which account for 76.9% of the total area of Polish forests, 96.7% of the total area of state-owned forests in Poland [18], and over 3.3% of forest area in the EU [19].

Polish forests managed by the State Forests are an important source of timber and other commercial products. For example, in 2018, the harvested yields reached 43.30 million m³ of wood and at least 4500 tonnes of fruit and 3200 tonnes of mushrooms [18]. Wood products account for 9.3% of the value of Polish exports, and the importance of the wood sector in Poland's national economy is greater than the average one in the European Union. At the regional and local level, the forest-wood sector is a stimulator of development, especially in rural regions, with a total employment standing at about 500,000 people [20]. The State Forests operate on the principle of financial self-sufficiency and cover their costs with their own revenues ([21], sect. 50.1), with a positive financial result, e.g., in 2018, the net profit amounted to about PLN 540 million [22]. Conducting a sustainable forest management requires that the State Forests should meet both people's needs and economic factors, while protecting forests and biodiversity ([21], sect. 6.1.1a). However, in practice, this involves a number of smaller and larger conflicts between various stakeholders, especially between the "demand for timber" and the "conservationists position". These trade-offs between different demands towards State Forests are specific not only to Poland, but also e.g., to Germany [23].

1.2. The Importance of the State Forests for the Protection of Polish Nature

As early as in 2004, Polish law concerning forests (including the State Forests) was classified as restrictive, as compared to other countries and regions of the world [4]. This is of vital importance for nature conservation in those areas. The adopted model of sustainable forest management (Forest Act [21], sect. 7.1), implementing the integrative approach to nature conservation [5], allows to protect or shape forests with a high biodiversity on a large scale. Forests in Poland are relatively well-preserved, biologically diverse, supporting over 60% of species recorded in Poland. This results in a large number of protected areas and objects in the State Forests, covering 24.3% of the area of Poland (based on [18,24]), often disproportionately higher than on the remaining 75.7% of the area of Poland (Table 1). Out of the 10 legal forms of nature conservation (Nature Conservation Act [25], sect. 6.1), only national parks are excluded from the structure of the State Forests. The state-owned forests located in the latter, cover a much smaller area, about 192,000 ha ([24]) and are managed according to different rules [25]. Among the forms of nature conservation put into practice by the State Forests and listed in Table 1, those with numbers 2, 3, 8 correspond most closely to the integrative approach for nature preservation, while those with numbers 1, 5, 6, 7, and 9 to the segregative approach. In the case of number 4 the approach may vary, depending on the situation of the object of protection (partly after: [26]). The forms of nature conservation listed in Table 1 cover a total of 70.6% of the area managed by the State Forests (unpublished data, made available by Directorate-General of the State Forests, in short: DGSF).

Table 1. Forms of nature conservation in the State Forests (SF) compared to Poland in general, at the end of 2018 (based on [24,27], and information from the General Directorate of Environmental Protection).

No.	Form of Nature Conservation	Objects in the SF		All Objects in Poland	
		Number	Share of the SF's Surface	Number	Share of the Country's Surface
1	Nature reserve	1284	1.62%	1501	0.54%
2	Landscape park	122	17.25%	123	8.07%
3	Landscape protection area	386	33.80%	386	22.39%
4	Natura 2000 (SPAs)	133	29.14%	145	15.71%
5	Natura 2000 (SACs)	708	21.86%	849	11.16%
6	Natural monument	11,167	-	35,022	-
7	Ecological area ¹	8316 ¹	0.39%	8206 ¹	0.18%
8	Documentation site of inanimate nature	124	0.02%	182	<0.01%
9	Landscape-nature protected complex	164	0.60%	331	0.38%
9	Buffer zone (around sites of selected species)	3798	2.01%	3827	0.49%

¹ Different methods of counting in the State Forests and in Poland in general.

It is noteworthy, that for private owners (of forests) in Poland, biodiversity conservation is neither an ethical priority nor a financial benefit [28,29]. There is a common lack of will, habits, or social need for environmental protection and undertaking activities aimed at it [30]. Hence, so far, not private but state ownership of land/forest is a pillar of nature conservation in Poland [28,31]. This is why the organization of nature conservation in the State Forests is so crucial for the effectiveness of nature conservation in the whole country.

1.3. Current Organization of Nature Conservation in the State Forests

According to Professor Olaczek (Polish authority in the field of nature conservation), the current organization of nature conservation in Poland and in the State Forests is imperfect. The biggest deficiencies and shortcomings are the bureaucracy, related costs, conflicting solutions, and managing of protected areas “at a distance”, discouraging foresters, scientists, and also local governments from nature conservation [32].

The organization of nature conservation in the State Forests is regulated by the Nature Conservation Act [25] and Forest Act [21]. The most important competences and activities of various institutions, concerning different forms of nature conservation in the State Forests (from Table 1), are presented in Figure 1. Among listed institutions, the so-called organs of nature conservation i.e., persons having special legal and practical competences in issues related to nature conservation were distinguished ([25], sect. 91).

Not all solutions in the organization of nature conservation in the State Forests are permanent—some can be realized in different variants (dotted lines in Figure 1). For example, supervisory bodies of nature reserves, natural monuments, ecological areas, documentation sites, and landscape-nature protected complexes are determined in the legal acts establishing those objects ([25], sect. 15.3, 44.2). In practice, district forest managers of the State Forests may be designated.

Below, focus is placed on three practical aspects of the actual organization of nature conservation in the State Forests: determination of protective measures; responsibility for the protected areas and objects; financing of nature conservation tasks.

The determination of principles and methods of nature conservation in the state forests means the decision-making process on the design of nature conservation. Among the forms of nature conservation listed in Table 1, only nature reserves, Natura 2000 sites, and landscape parks have protection plans, prepared by the Regional Director of Environmental Protection, the Minister of the Environment or the director of the landscape park, respectively ([25], sect. 20, 28, 29; see Figure 1). Foresters may comment on draft plans ([25], sect. 19.1a, 28.3, 29.2, 29.5), but these comments do not have to be taken into

account. In all the other cases (forms of nature conservation), decisions about protective measures are added to the legal acts establishing those objects and areas ([25], sect. 23.2, 44.2) or are made ad hoc by the units that established the given form of nature conservation. In practice, conservation plans are still lacking in many cases, as there is no money to draw them up, and in addition, some organs of nature conservation are overloaded with responsibilities and are not keeping up with their realization [32]. In communes, on the other hand, the knowledge about protected objects (No. 5–8 in Table 1) is often incomplete and incorrect, which means that there are no grounds to determine methods of their protection [33]. Foresters from the State Forests can have more influence on the design of nature conservation only in the case of drafting a conservation plan for a nature reserve. However, such a solution is rarely used (Figure 1). Foresters set their own rules for nature conservation in areas outside the protected objects (29.4% of the area managed by the State Forests), implementing the integrative approach to nature conservation ([21], sect. 7.1), though the Minister of the Environment may still introduce some adjustments when approving them ([21], sect. 22.1).

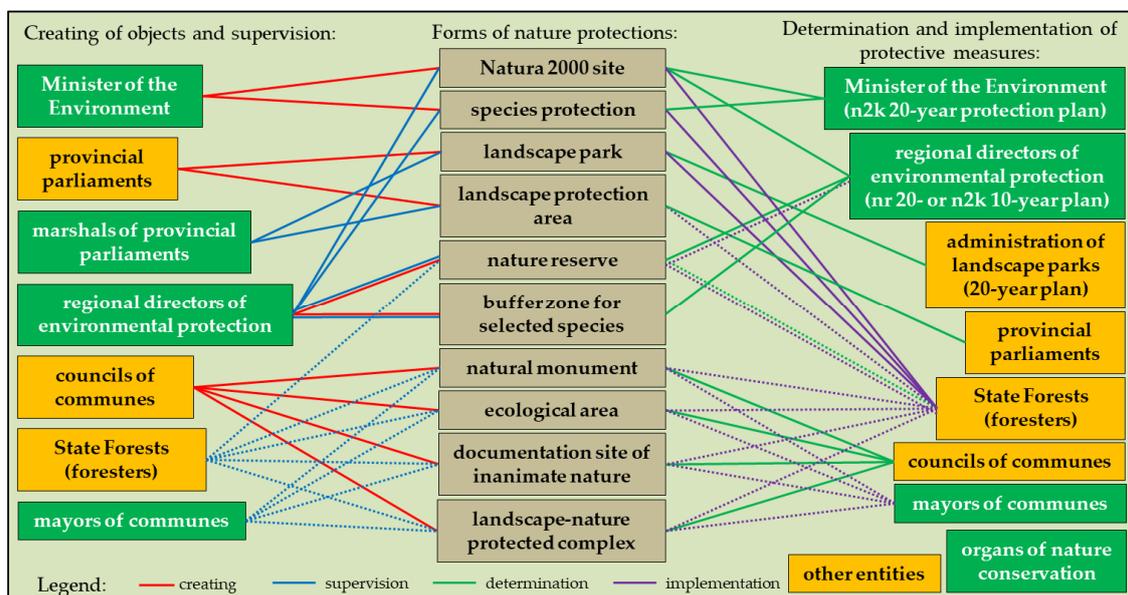


Figure 1. Organization of nature conservation in the State Forests (solid line—permanent solution, dotted line—possible solution).

In this article, the responsibility for protected areas and objects includes the organization and implementation of protective measures. The organization of protective measures means organizing people (workers), equipment, and materials necessary to carry out the protective measures, as well as the enforcement of legal acts associated with this form of nature conservation. This is usually the responsibility of the entity that supervises the given form of nature conservation (Figure 1). Out of the forms of nature conservation listed in Table 1, only landscape parks have their own administration ([25], sect. 105, 107), and it is independent of the structure of the State Forests in the same area. The implementation of protective measures consists of realizing them in the field, and it is often done by specialized companies selected through a tender procedure. In practice, the entities responsible for protective measures often do not have sufficient resources to organize and implement them [32]. For example, systematic protective measures were carried out in only 55% of communes examined by the Supreme Audit Office [33]. The organization and implementation of protective measures is very often delegated to employees of the State Forests. This is always the case within the borders of landscape parks and Natura 2000 sites ([25], sect. 32.4, 105.5; Figure 1). In the case of other forms of nature conservation, foresters carry out protective measures if they are included in forest management plans, on the basis of information from available legal acts (e.g., those establishing the given forms of nature conservation in the State Forests) ([21], sect. 6.1.11). Additionally, foresters

are responsible for the organization of nature conservation in areas outside the protected objects, when realizing the model of sustainable forest management.

In relation to the current financing of nature conservation, the State Forests should in theory be granted designated subsidies from the government budget to perform the tasks delegated by the governmental administration. This applies particularly to the preparation and implementation of protection plans for nature reserves supervised by this institution, as well as to the protection of plant and animal species ([21], sect. 54.5). In reality, 2008 was the last year in which funds for this purpose were provided: 0.57 million PLN [34]. In the same year, direct costs of nature conservation covered by the State Forests reached 5.09 million PLN [35]. In 2018, no designated subsidies from the government budget were transferred, and direct costs of nature conservation covered by the State Forests amounted to 17.18 million PLN [22]. We should add to these sums costs of lost profits due to the restrictions on forest management in protected areas. The annual expenditure of the State Forests on nature conservation in the broad sense—including environment-friendly methods of forest management—was estimated to reach at least about 500–700 million PLN [34,36]. Additionally, the government budget should participate in the financing of Natura 2000 sites ([25], sect. 39). Apart from designated subsidies from the state budget, funds for nature conservation should also theoretically be provided by some organs of public administration ([25], sect. 4.2), e.g., those that establish the forms of nature conservation and determine the necessary protection measures. In practice, a much greater role in funding nature conservation in the State Forests is played by foreign (especially EU) and Polish environmental protection funds. Nature protection projects implemented by the State Forests (both within and outside the protected areas) have co-financing from the Operational Programme Infrastructure and Environment in the total amount of 42.05 million PLN in 2014–2020 (based on [37]), and from the LIFE fund in 2010–2020—a total of approx. PLN 39.05 million PLN (based on [38]). In the latter case, the National Fund for Environmental Protection and Water Management (from Poland) also provides financial support for the State Forests in the total amount of 20.31 million PLN.

1.4. The Influence of Society on Nature Conservation in the State Forests

The influence of society on nature conservation in forests may depend on historical, political, legal, economic, and social factors. In the group of political and legal factors—at international and national level—the Aarhus Convention [39] on access to information, public participation in decision-making, and access to justice in environmental matters is worth mentioning. This Convention on a global scale is one of the important steps towards social involvement in environmental resource management [40] and towards meeting societal demands in nature conservation in forests. However, it applies currently only to Europe and a few Asian countries [41]. The extension of policy and legal tools for public participation in nature conservation has a particular effect on public forests, where there is no conflict with the rights of private owners to their land. Social pressure and preferences for nature conservation in state forests are characteristic e.g., for Austria [6] or for Germany [23,42], where—according to the state forestry representatives—non-governmental environmental organizations are even unable to compromise on their demands for nature conservation [42].

In Poland, the influence of society (various stakeholders) on nature conservation in forests began to be more noticeable only after the collapse of socialism in the second half of the 1980s. The change of the political system allowed the creation of numerous non-governmental organizations (NGOs), including those dealing with nature and environmental protection [43,44]. In relation to the visible development of environmental NGOs, the public awareness of the influence on forest nature conservation has also increased. Additionally, Poland signed the abovementioned Aarhus Convention [39]. It means that the procedures related to social involvement in the environment protection need to be followed, and this applies also to forests [45].

The Polish society can influence nature conservation in state-owned forests in various ways. For example, it can suggest new areas and objects to be protected. The effectiveness of such proposals depends on their merits and a positive decision of the relevant organs and institutions. The society

(as well as various institutions, organizations, local governments, etc.) has also the right to consult legal acts concerning environmental protection, nature conservation, and forestry, e.g., proposals of strategies, acts of the Parliament, and resultant ordinances published on the website of the Government Legislative Centre [46]. The society (various stakeholders) can submit comments and proposals concerning projects of protection plans for protected areas ([25], sect. 19.1a, 28.4, 29.6), and thus participate in their management. In some cases, representatives of the society have a right to decide on the fate of selected forms of nature conservation. This applies to local governments' agreements to create a landscape park or landscape protection area ([25], sect. 16.4, 23.3). Public consultation is also required for proposals of forest management plans in individual forest districts of the State Forests. The forest management plan is a document predicting forest management activities for a period of 10 years ahead, approved by the Minister of the Environment ([21], sect. 22.1), and the nature conservation programme constitutes an integral part thereof. Thus the influence of the society (various stakeholders) on nature conservation in the State Forests is potentially quite remarkable according to Polish law, although in reality it started to become effective as late as in the 21st century and in practice (e.g., in the case of forest management plans' consulting) it is still rather weak [47]. However, looking at it more broadly, there is a growing pressure for nature conservation in state forests, especially from non-governmental organizations and some academics [32]. Their expectations can be characterized in simple words as follows: within the boundaries of nature conservation forms, implemented protection should be as restrictive as possible (as in the segregative approach to nature conservation), whereas outside their boundaries forest management should be as gentle as possible for nature (as in the integrative approach) [48]. However, the full spectrum of social expectations regarding nature conservation in the State Forests has not yet been recognized.

1.5. The Purpose of the Study

The review of the information presented above allows for some important facts to be noted. Firstly, the area of the State Forests is of crucial importance for nature conservation in Poland. Secondly, the current organization of nature conservation in the State Forests is not perfect. Although foresters have the knowledge and skills to properly manage nature in area of state-owned forests (the numerous protected areas and objects are a proof thereof—Table 1), they have little influence on the decision-making process of nature conservation design in most of the area they manage, and the bodies that should deal with it often fail to fulfil their responsibilities. The organization and implementation of protective measures in practice is often passed on to foresters, without financial means to do so, however. Thirdly, expectations of various stakeholders with regard to nature conservation and its organization in the State Forests are insufficiently recognized.

In regard to both the growing influence of society on nature protection and the need to improve the existing system of nature conservation, this study poses the question: what are the expectations of various stakeholders as to the organization of nature conservation in the State Forests? Three main elements were taken into account: determination of protective measures, responsibility for the protected areas and objects, and financing of nature conservation tasks. The aim of the article is to present these expectations, to broadly discuss them, and to present recommendations for the future. For these reasons, attempts have been made to answer further questions: how far do stakeholders' proposals differ from current solutions? May the system proposed by stakeholders be considered ideal? What may affect the solutions they chose? To what extent could the presented results and discussion be useful for other countries with a similar forest ownership structure and/or nature conservation organization?

The determination of "how to protect it, how to organize it?" is as important as the issue of "what and where to protect?" in the state forests. Stakeholders' expectations on this issue may have a significant impact on the foresters' work, especially if they are legalized under the procedures related to social involvement in the protection of the environment. That is why it is particularly important to identify in detail the various stakeholders and their needs. The presented findings result from the first extensive research ever conducted in Poland in relation to the State Forests—the most important

place for the conservation of Polish nature. They may constitute an important contribution to the improvement of the nature conservation system. It should also be emphasized, that the analyzed issues (the organization of nature conservation) are universal, associated with forest biodiversity protection in any country where it is implemented. It is also worth noting that the presented results concern state-owned forests, which are quite rarely an object of studies [6], and thus allow to fill the research gap in this respect.

2. Materials and Methods

To investigate the stakeholders' expectations concerning the organization of nature conservation in the State Forests in Poland, an original questionnaire was used in a survey conducted in 2013.

The choice of the surveyed groups (Table A1 in Appendix A) was determined by their legal competence and/or practical experience in nature conservation in the State Forests. They were designated on the basis of the following:

1. Eight legal acts and 51 regulations in force in 2012—among others the Nature Conservation Act [25] and Forest Act [21]. For example, the Nature Conservation Act [25] indicates the so-called organs of nature conservation, i.e., persons who have legal competence in issues related to nature conservation. These include the Minister of the Environment, the General Director of Environmental Protection, province governors (voivodes), regional directors of environmental protection, heads (marshals) of provincial parliaments (sejmiks), directors of national parks, heads (starosts) of counties (powiats), and mayors of rural, urban-rural, and urban communes (gminas) ([25], sect. 91). From among the listed organs of nature conservation, the survey (Table A1 in Appendix A) omitted only those which competence concerned exclusively urban areas, i.e., areas beyond the management of the State Forests (authorities of urban counties and communities);
2. descriptions of 5347 non-governmental organizations and their field branches [49] dealing with “Ecology and protection of animals and natural heritage”—only organizations described as practically acting for the benefit of forests or considered very likely to do so, were selected for the survey;
3. articles published in the years 2008–2012 in the following periodicals (of these, all entities which operated in the field of nature conservation in the State Forests in its broadest sense, were selected out):
 - a. “Głos Lasu” (“The Voice of Forest”)—free monthly magazine for foresters published by the State Forests,
 - b. “Las Polski” (“The Polish Forest”)—independent paid bi-weekly “for foresters and forest friends”,
 - c. “Studia i Materiały Centrum Edukacji Przyrodniczo-Leśnej w Rogowie” (“Proceedings of the Center for Nature and Forestry Education”)—scientific periodical publishing post conference materials, concerning among others, nature protection in forests at the end of events co-organized by the State Forests,
 - d. “Chrońmy Przyrodę Ojczystą” (“Let’s Protect Our Native Nature”)—bimonthly for natural scientists and naturalists amateurs, published independently from the State Forests, containing scientific and popular science articles.

A total of 41 stakeholder groups were selected, and out of them, a total of 6746 respondents to the survey, one questionnaire was in fact to be sent to every single organization, regional and local government, etc. (Table A1 in Appendix A). Depending on the type of respondent, the questionnaire was addressed individually to one person (individual respondent) or to the most important person in a given unit/institution (collective respondent). In the case of 3246 individual questionnaires one answer to each question was foreseen. In the case of the remaining 3500 collective addressees (research units;

NGOs and their branches; councils of all rural and urban-rural communes; councils of all rural counties; regional nature conservation councils; socio-scientific councils of all forest promotion complexes), it was possible for a larger number of people within a given unit to answer the questionnaire questions. However, only a few socio-scientific councils of forest promotion complexes, NGOs, and research units used this possibility.

A total of 6746 questionnaires were sent and 1608 responses were received (23.8%) (Table A1 in Appendix A). In case of any doubts, the filled questionnaires were verified and supplemented by e-mail and phone in 2013 and 2014 (the questionnaires were not anonymous, respondents provided their e-mail addresses). In the printed or on-line questionnaire (depending on the group of respondents), the following semi-open three questions with answer variants were included:

Q1: Principles/methods of nature conservation in the area of the State Forests should be determined by:

- the State Forests,
- organs of nature conservation (e.g., the Minister of the Environment, the Regional Director of Environmental Protection, the mayor),
- other bodies (which?).

Q2: Responsibility for the areas and objects of protected nature in the State Forests should be borne by:

- the managing body—the State Forests,
- organs of nature conservation (e.g., the Minister of the Environment, the Regional Director of Environmental Protection, the mayor),
- other bodies (which?).

Q3: Who should finance nature conservation tasks in the State Forests?

- the State Forests from their own funds,
- the government budget,
- another source (which?).

Numbers of received answers to the questions listed above are presented in Table A1 (in Appendix A).

The answers to each question were first divided into variants, where identical or almost identical answers were treated as one variant. Then the analysis was conducted in two ways. First, the different variants of answers for a given question were counted and compared to the sum of all answers to that question. In this way, information was obtained as to what proportion of all the respondents to the survey chose a given variant of response. Secondly, a choice of response variants was identified at the level of individual stakeholder groups. For this purpose, the number of responses under a given variant provided by stakeholders belonging to one group was compared to the sum of responses provided by that group.

Next, the hierarchical cluster analysis was carried out on the variant most frequently chosen by respondents in each answer (“the State Forests”). The PAST program was used for this purpose (version 4.03 [50,51]). From the ‘Multivariate’ menu, ‘Clustering’ option was selected, followed by ‘Classical’. The cluster distinguishing algorithm was set as ‘Single linkage’ (nearest neighbor), where clusters are joined basing on the smallest distance between the two groups [52]. The distances between objects were counted as Euclidean distances. In this way, the ‘dendrogram’ was obtained as a result of grouping the respondents according to the similarity of their answers.

Answers to the additional questions posed for the purpose of the work were based on both long-term own observations about the situation of nature conservation in state forests in Poland, as well as the available literature and studies on Poland and other regions of the world.

Although the research was carried out a few years ago, it has not lost any of its validity and relevance, because to date nothing has changed in the organization system of nature conservation

in the State Forests. The results obtained are related to the current situation in Poland (in the State Forests).

3. Results and Discussion

3.1. Determination of Principles and Methods of Nature Conservation

The first question (Q1) investigated stakeholders' opinion on who should determine the principles/methods of nature conservation in the area of the State Forests. This question was answered by 1605 respondents (Table A1 in Appendix A), in 17 variants (V). Most frequently, they chose the following responses: "the State Forests" (V1—46.8%, for proportions in individual groups of respondents, see Table 2) and "organs of nature conservation" (V2—40.0%). Apart from these two variants, more than 1% of respondents answered: "organs of nature conservation in consultation/agreement with the State Forests" (V3—5.0%) and "the State Forests in agreement with nature conservation organs/guards" (V4—4.9%). The remaining variants of answers were submitted by 0.1%–0.6% respondents. In total, 59.4% of respondents believed that the principles/methods of nature conservation in the area of the State Forests should be determined by the State Forests, either independently or in cooperation with other entities.

Table 2. The four most frequently chosen variants to answer Question 1 (who should determine the principles/methods of nature conservation in the area of the State Forests?).

Groups of Respondents	V1 (%)	V2 (%)	V3 (%)	V4 (%)
Research units	30.0	60.0	-	10.0
NGOs	39.5	36.8	5.3	5.3
Mayors of rural and urban-rural communes	54.5	38.0	2.9	2.8
Councils of rural and urban-rural communes	55.0	39.0	1.6	2.4
Heads (starosts) of rural counties	43.0	43.6	5.0	4.5
Boards of rural counties	45.0	37.6	8.3	2.8
Councils of rural counties	37.8	45.1	4.9	6.1
Province governors (voivodes)	44.4	33.3	-	11.1
Boards of provinces (voivodeships)	20.0	30.0	40.0	10.0
Heads (marshals) of provincial parliaments	10.0	60.0	30.0	-
Environmental committees of provincial parliaments	100.0	-	-	-
Regional directors of environmental protection	-	100.0	-	-
Regional nature conservation councils	-	33.3	-	-
Agency for Restructuring and Modernization of Agriculture	-	100.0	-	-
State regional sanitary inspectors	16.7	83.3	-	-
Directors of national parks	14.3	64.3	14.3	7.1
Directors of landscape parks and their complexes	17.8	35.6	17.8	24.4
Councils of landscape parks	25.0	-	25.0	50.0
Executive Board and Supervisory Board of the National Fund for Environmental Protection and Water Management	-	-	-	100.0
Executive boards and supervisory boards of provincial funds for environmental protection and water management	-	90.0	-	10.0
Provincial heads of State Hunting Guard or units performing their duties	14.3	42.8	14.3	14.3
Environmental Project Coordination Centre	-	-	100.0	-
Authors of scientific publications	-	50.0	-	-
Socio-scientific councils of forest promotion complexes	45.2	41.9	6.5	3.2
Branches of Forest Management and Geodesy Office	-	100.0	-	-
Representatives of selected forest journals	-	-	-	-

Currently (see Section 1.3) foresters have a limited influence on establishing nature protection rules, especially within the boundaries of protected areas (70.6% of the area managed by the State Forests). Meanwhile, the largest group of stakeholders (46.8% of respondents) expects the setting of nature conservation rules to be the exclusive task of the State Forests' foresters. Local self-governments prevailed among the supporters of such a solution. On the other hand, a particular skepticism about this option was expressed by members of the administration of protected areas (national parks and landscape parks), selected organs of regional authorities (at the level of province), as well as representatives of research units and regional directors of environmental protection (Table 2).

These stakeholders, along with representatives of provincial funds for environmental protection and water management, as well as regional authorities (at the level of counties), preferred nature conservation rules to be created by organs of nature conservation (40.0% of respondents), showing a mistrust towards foresters. This overlaps only to a limited extent with the current organization system of nature conservation, in which the principles of protection are most often determined by the entities which established a given form of nature conservation (Figure 1). It is noteworthy that e.g., some German foresters consider the existing rules and programs regarding strictly protected forest reserves as an expression of mistrust towards them and their forest management skills [23].

The presented proposals did not include one that seems very valuable: foresters cooperating with scientists. This cooperation should be applicable particularly to those forms of nature conservation which represent the segregative approach to nature preservation (e.g., nature reserves). In the case of forms representing the integrative approach to nature preservation (e.g., landscape parks), cooperation should be extended to include representatives of local communities. In both cases, a supporting role could be attributed to NGOs. This would implement the model of co-management (management distributed among different state- and non-state actors [53]), with the establishment of rules and methods of protection being, of course, only a part of this management [54]. It is noteworthy that the application of a full model of co-management increases environmental awareness, reduces social conflicts, and reduces the costs covered by the government budget [12,55]. It is also worth noting that the statements concerning the establishment of protection rules were strongly polarized, indicating only one group of entities in charge of. Only 13.2% of stakeholders saw the need for cooperation between at least two parties. This seems to result from a lack of good mutual communication experienced by individual stakeholders in Poland. If the current organization of nature conservation in the State Forests is continued, the situation may only get worse. As an example, the opinion of NGOs from 2019 can be given that in recent years the previously good cooperation with foresters has deteriorated in many cases [48]. This may be related to the abovementioned opinion of Professor Olaczek about the current system discouraging foresters, scientists, and also local governments from nature conservation [32].

3.2. Responsibility for the Protected Areas and Objects

The next question (Q2) concerned the responsibility for areas and objects of protected nature in the State Forests. This question was answered by 1608 respondents (Table A1 in Appendix A), in 15 variants (V). Most frequently, they chose the response: “the managing body—the State Forests” (V1—77.9%, for proportions in individual groups of respondents, see Table 3). The threshold of 1% of respondents was exceeded also for the following responses: “organs of nature conservation” (V2—14.0%), “the managing body—the State Forests—and organs of nature conservation” (V3—4.7%), as well as “the managing body—the State Forests—and other entities, depending on signed contracts/competences determined in legal acts” (V4—1.2%). The remaining variants of answers concerning responsibility for nature conservation in the State Forests were submitted by 0.1%–0.4% respondents. In total, 85.4% of respondents believed that responsibility for areas and objects of protected nature located on land managed by the State Forests should be borne by the State Forests, either independently or in cooperation with other entities.

Table 3. The four most frequently chosen variants to answer Question 2 (who should be responsible for the areas and objects of protected nature in the State Forests?).

Groups of Respondents	V1 (%)	V2 (%)	V3 (%)	V4 (%)
Research units	60.0	40.0	-	-
NGOs	61.1	27.8	5.6	2.8
Mayors of rural and urban-rural communes	88.6	9.0	1.5	-
Councils of rural and urban-rural communes	84.2	10.6	3.5	0.4
Heads (starosts) of rural counties	71.9	18.0	6.7	-
Boards of rural counties	68.5	19.4	5.6	-
Councils of rural counties	69.5	23.2	2.4	-
Province governors (voivodes)	66.7	22.2	11.1	-
Boards of provinces (voivodeships)	30.0	40.0	10.0	10.0
Heads (marshals) of provincial parliaments	10.0	50.0	30.0	10.0
Environmental committees of provincial parliaments	-	100.0	-	-
Regional directors of environmental protection	40.0	40.0	-	20.0
Regional nature conservation councils	33.3	33.3	33.4	-
Agency for Restructuring and Modernization of Agriculture	-	100.0	-	-
State regional sanitary inspectors	83.3	16.7	-	-
Directors of national parks	86.7	-	-	-
Directors of landscape parks and their complexes	47.8	15.6	20.0	16.6
Councils of landscape parks	37.5	-	50.0	-
Executive Board and Supervisory Board of the National Fund for Environmental Protection and Water Management	-	-	100.0	-
Executive boards and supervisory boards of provincial funds for environmental protection and water management	70.0	10.0	20.0	-
Provincial heads of State Hunting Guard or units performing their duties	28.6	57.1	14.3	-
Environmental Project Coordination Centre	-	100.0	-	-
Authors of scientific publications	50.0	25.0	-	-
Socio-scientific councils of forest promotion complexes	61.3	29.0	6.5	-
Branches of Forest Management and Geodesy Office	100.0	-	-	-
Representatives of selected forest journals	100.0	-	-	-

Currently (see Section 1.3) foresters are often responsible (in practice) for the organization of protective measures and their implementation. The largest group of stakeholders (77.9% of respondents) expects such a solution to be valid always, even though currently it is not the case in all situations (see Figure 1). The high support for this solution was mostly due to the opinion of local self-governments members, but also e.g., national parks directors, state regional sanitary inspectors, and representatives of provincial funds for environmental protection and water management (Table 3). This opinion was the least common e.g., among directors and councils of landscape parks, regional directors of environmental protection, and selected organs of government at the regional level (provinces). The listed stakeholders (excluding landscape park authorities) would prefer to delegate the responsibility for protected areas and objects to organs of nature conservation (14.0% of respondents), which is a solution partly functioning at present (Figure 1).

The organization of protective measures and their implementation exclusively by foresters is a proven solution [32], but its full implementation in relation to protected areas and objects should be correlated with securing financial appropriate resources. This solution may also be completed by the possibility to delegate the implementation of protection tasks to non-governmental organizations, which would apply for funds from external funding sources. Apart from reducing own costs, the State Forests could thus improve relations with this group of stakeholders [56], which, in recent years, have slightly deteriorated [48]. In cases of joint management of a protected area, the need to define precisely the responsibility is emphasized by Vokou et al. [55]. The current organs of nature conservation should in turn supervise all of the above activities, in the sense of controlling of whether and how they have been implemented and with what effect.

3.3. Financing of Nature Conservation Tasks

The last question (Q3), concerning the financing of nature conservation tasks in the State Forests, was answered by 1604 respondents (Table A1 in Appendix A), in 20 response variants (V). Most frequently, they chose the following responses: “the State Forests from their own funds” (V1—51.1%, for proportions in individual groups of respondents, see Table 4) and “the government budget” (V2—37.3%). The threshold of 1% of respondents was exceeded also for three other responses: “the State Forests from their own funds and the government budget” (V3—5.1%), “the State Forests from their own funds and external aid funds” (V4—1.9%), “the State Forests from their own funds, the government budget, and external aid funds” (1.7%). The remaining variants of funding nature conservation in the State Forests were submitted by 0.1%–0.4% respondents. In total, 61.4% of respondents believed that the State Forests should participate in the funding either independently or in cooperation with other entities.

Table 4. The four most frequently chosen variants to answer Question 3 (who should finance nature conservation tasks in the State Forests?).

Groups of Respondents	V1 (%)	V2 (%)	V3 (%)	V4 (%)
Research units	20.0	60.0	10.0	-
NGOs	30.8	56.4	-	2.6
Mayors of rural and urban-rural communes	55.4	39.6	3.1	0.1
Councils of rural and urban-rural communes	51.4	42.4	4.3	-
Heads (starosts) of rural counties	52.0	31.4	6.9	2.3
Boards of rural counties	46.3	37.0	7.4	3.7
Councils of rural counties	50.6	32.5	9.6	-
Province governors (voivodes)	44.4	44.4	11.1	-
Boards of provinces (voivodeships)	40.0	20.0	20.0	-
Heads (marshals) of provincial parliaments	30.0	20.0	10.0	10.0
Environmental committees of provincial parliaments	-	100.0	-	-
Regional directors of environmental protection	60.0	20.0	20.0	-
Regional nature conservation councils	33.3	33.3	-	-
Agency for Restructuring and Modernization of Agriculture	100.0	-	-	-
State regional sanitary inspectors	66.7	33.3	-	-
Directors of national parks	66.7	-	-	6.7
Directors of landscape parks and their complexes	42.8	19.8	9.9	19.8
Councils of landscape parks	87.5	12.5	-	-
Executive Board and Supervisory Board of the National Fund for Environmental Protection and Water Management	-	-	-	-
Executive boards and supervisory boards of provincial funds for environmental protection and water management	60.0	10.0	10.0	-
Provincial heads of State Hunting Guard or units performing their duties	28.6	42.9	28.6	-
Environmental Project Coordination Centre	-	-	-	-
Authors of scientific publications	-	75.0	-	-
Socio-scientific councils of forest promotion complexes	31.2	50.0	9.4	-
Branches of Forest Management and Geodesy Office	-	100.0	-	-
Representatives of selected forest journals	-	-	-	-

Currently (see Section 1.3) the funds for nature conservation should be secured in the budget by the government and organs of public administration, and outside the boundaries of the protected objects—by the State Forests themselves. Meanwhile, a majority of stakeholders (51.1%) expect that all the costs of nature conservation tasks (also in protected areas) should be covered only by the State Forests, which is a solution that is largely in practice at present. This answer was chosen more frequently e.g., by members of local self-governments (at commune and county level) as well as directors of national parks and regional directors of environmental protection. On the other hand, a particular skepticism about this was expressed by representatives of research units as well as councils of forest promotion complexes and NGOs. These stakeholders expect all the costs of nature conservation tasks

to be covered rather by the government budget (37.3% of respondents), which, in turn, is a narrower solution than the current one.

It is surprising that only a very small proportion of stakeholders' responses took into account external aid funds for environmental protection. In practice they provide important support for Polish nature conservation in recent years (see Section 1.3). Therefore, it seems that they should be taken into account as far as possible when financing nature conservation tasks both within and outside the protected areas. In the former case, the State Forests should also be granted real subsidies from the government budget (covering direct costs of nature conservation), because they carry out tasks important for Polish nature and society which implies costs and losses.

3.4. Factors Affecting the Solutions Chosen by Stakeholders

As it was shown in the previous subsections, the "State Forests" (exclusively) were the most frequent (in general) answer chosen by respondents. However, depending on the stakeholder group and on the question, this variant was more or less accepted (Table 5).

Table 5. Proportions of respondents suggesting that the State Forests should be the only entity responsible for determination of nature conservation's principles, undertaking responsibility for the nature conservation and responsible for its financing.

Groups of Respondents	Group Code	Principles Q1 (%)	Responsibility Q2 (%)	Financing Q3 (%)
Research units	A	30.0	60.0	20.0
NGOs	B	39.5	61.1	30.8
Mayors of rural and urban-rural communes	C	54.5	88.6	55.4
Councils of rural and urban-rural communes	D	55.0	84.2	51.4
Heads (starosts) of rural counties	E	43.0	71.9	52.0
Boards of rural counties	F	45.0	68.5	46.3
Councils of rural counties	G	37.8	69.5	50.6
Province governors (voivodes)	H	44.4	66.7	44.4
Boards of provinces (voivodeships)	I	20.0	30.0	40.0
Heads (marshals) of provincial parliaments	J	10.0	10.0	30.0
Environmental committees of provincial parliaments	K	100.0	-	-
Regional directors of environmental protection	L	-	40.0	60.0
Regional nature conservation councils	M	-	33.3	33.3
Agency for Restructuring and Modernization of Agriculture	N	-	-	100.0
State regional sanitary inspectors	O	16.7	83.3	66.7
Directors of national parks	P	14.3	86.7	66.7
Directors of landscape parks and their complexes	R	17.8	47.8	42.8
Councils of landscape parks	S	25.0	37.5	87.5
Executive boards and supervisory boards of provincial funds for environmental protection and water management	T	-	70.0	60.0
Provincial heads of State Hunting Guard or units performing their duties	U	14.3	28.6	28.6
Authors of scientific publications	W	-	50.0	-
Socio-scientific councils of forest promotion complexes	X	45.2	61.3	31.2
Branches of Forest Management and Geodesy Office	Y	-	100.0	-
Representatives of selected forest journals	Z	-	100.0	-

The dendrogram (Figure 2) prepared on the basis of the data from Table 5 shows which stakeholder groups answered similarly (taking into account the answers to all three questions), and which differently. The smaller the distance, the more similar the concepts of nature conservation organization in the State Forests. The concepts presented by stakeholders K, Z, Y, and N are the least similar to the others, while the most similar to each other are those presented by stakeholders E, F, G, and H. In the first case it was determined by the fact that these were single respondents. In the second case, three groups of respondents (out of four) come from the same social circle (rural counties). A great similarity of concept can also be seen in pairs O-P, C-D, B-X, and Y-Z, of which the first, third, and fourth are the least dependent on each other.

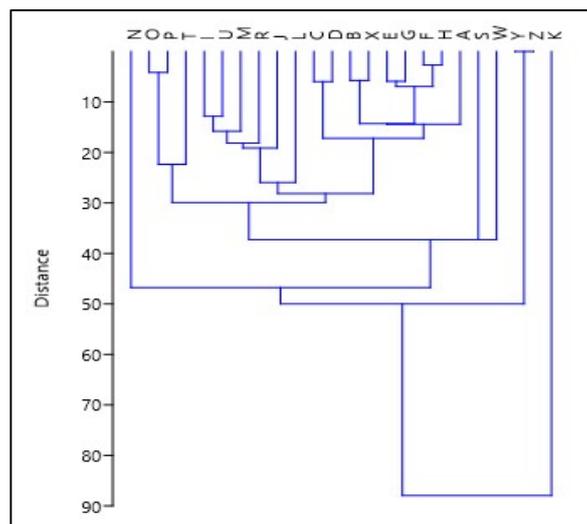


Figure 2. Dendrogram showing the results of the hierarchical cluster analysis (codes A–Z according to Table 5).

However, it should not be forgotten that apart from the answer “the State Forests” (exclusively), stakeholders also chose other response variants in which the State Forests were equally present. In total, 59.4% of respondents in case of Q1 (Principles), 85.4% in the case of Q2 (Responsibility) and 61.4% in the case of Q3 (Financing) chose the State Forests, either independently or in cooperation with other entities.

As the State Forests (foresters) were the most frequent answer chosen by respondents, an attempt to determine what factors could have influenced that is made below.

The expectation to have foresters’ involvement in the nature conservation organization increased may result from the intensive forest education of the society since the beginning of 2004. It annually involves about 3–4 million people. Forest education comprises explanation of e.g., principles of sustainable forest management and activities in the field of nature conservation carried out by the State Forests [57]. The support of respondents may indicate an increase in public confidence in foresters’ activities, associating them not only with tree felling, but also with care for biodiversity.

Another factor may be the trust in foresters resulting from tradition and/or frequent mutual contacts. Foresters have always been a respected and valued social group in Poland, particularly important in local communities. Actually, local self-governments have quite a lot to do with foresters, which could positively affect the evaluation of their work. There are also other examples. Sanitary inspectors are aware of the involvement of foresters in nature conservation, because they consult the project of forest management plan (including nature conservation programme) for each forest district ([21], sect. 6.1.11). Representatives of provincial funds for environmental protection and water management associate foresters with grant applicants and later beneficiaries of the grants transferred by those funds for nature conservation and environmental education of the society (e.g., [58]). In general, public trust in foresters is high: in 2018, in a public survey, the activity of the State Forests was evaluated positively by 84% of Poles, 86% believed that foresters are honest, and about 89%, that they are competent [59]. In 2014 (one year after the author’s survey) it was 81%, 86%, and 86%, respectively [60].

The next factor may be the recognition of foresters’ contribution to nature conservation in forests. Many stakeholders are aware of the foresters’ contribution to nature conservation in Poland, protective tasks carried out by them, as well as of the large number of protected objects on the land managed by the State Forests (see Table 1). Polish foresters have a very rich practical experience in protecting and shaping forest ecosystems, which should neither be ignored nor underestimated [61]. The directors of national parks also appreciate the financial help from the foresters, as the State Forests partly fund the protective measures and scientific research within national parks ([21], sect. 58.2–3, [22]).

External 'evidence' of the integration of nature conservation into forest management may be another factor. The State Forests are subject to external forest management quality control in respect of e.g., biodiversity conservation, to receive certificates from the Forest Stewardship Council (FSC–[62]) and Programme for the Endorsement of Forest Certification (PEFC–[63]). In 2013, the holding also received from the UNESCO the prestigious Sultan Qaboos Prize for Environmental Preservation, for outstanding contributions to the management or preservation of the environment [64].

The stakeholders' willingness to free from responsibility and expenses related to nature conservation may also be important. For the vast majority of the legally determined organs of nature conservation, nature conservation is an addition to numerous principal duties, associated with spatial management, economy, and community at the level of commune, county, or province (authorities) or to duties in the field of environmental protection (regional directors of environmental protection) [25,45]. Additionally, and quite often, the local self-governments are not prepared in respect of knowledge and staff to conduct nature conservation tasks ([65]—problem no. 12, [33]). Another problem is funds, which are insufficient, not only at the national level (government budget) but also regionally (budget of regional director of environmental protection) and locally (budget of commune) [13,32,33]. Hence a perspective of getting rid of responsibility in nature conservation probably appeared beneficial for the interviewed stakeholders.

Noting the shortcomings of the current nature conservation system may be another factor. Stakeholders have mostly proposed solutions that are currently working in practice, although in theory (in law) they are often considered a possible option only. However, they are more effective than basic solutions. This is in particular the case of the implementation and financing of nature conservation tasks.

The last factor may be the belief that the State Forests are a rich institution. The State Forests are perceived by the society as a wealthy company: in 2018, for example, the average monthly salary of a forester was almost twice as high as the average monthly salary in the entire national economy [22,66]. Therefore, according to many stakeholders, the State Forests can afford to finance nature conservation tasks.

However, some stakeholders preferred different organizational solutions in nature conservation than those involving foresters from the State Forests. The expectation of foresters being relieved of the burden of nature conservation organization may result from the comprehension of the heavy burden currently born by foresters—especially in terms of financing nature conservation. A particular understanding in this point was shown in the group of scientists, underfunded in Poland, who represented not only scientific institutions, but also participated in socio-scientific councils of forest promotion complexes and NGOs. It should be noted, however, that the study involved mainly less radical organizations, which cooperate with the State Forests.

Another factor may be the conviction about one's own competence and irreplaceability in nature conservation—less willingness to transfer to foresters the competence to determine nature conservation principles (or sometimes also to implement them) may be due to a conviction about greater abilities in this field among nature conservation officials, regional directors of environmental protection, scientists, or directors of landscape parks. This results sometimes in decisions on protective tasks being taken by people who have not been in contact with the object in question [32].

Publicizing negative stories by the media may be the next factor. The media publicize primarily conflicts (appearing in various regions and with different intensity) between foresters and some scientists and/or environmental organizations on the scope and restrictiveness of nature conservation in relation to forest management. This can unilaterally affect public opinion.

Another factor may be the negative stereotype of a forester. A reason for associating the State Forests with protection recommendations less frequently can be the still functioning negative stereotype concerning foresters, suggesting that tree felling harms nature and foresters in their work make decisions based only on economic reasons. This stereotype can further aggravate if a given group of stakeholders only rarely gets in touch with foresters or is unable to verify the various publicized pieces of information

in the field. It is noteworthy, that e.g., in Germany foresters also report that they are experiencing increasingly critical public opinion, especially with regard to harvest operations [23].

The last factor may be lack of trust in foresters resulting from mindsets and mutual contacts—forest management in the State Forests takes into account the needs of various interest groups (e.g., related to the forest-wood industry), as well as the necessity to maintain the stability and the good sanitary condition of the forest. Decisions made in this direction are most often contrary to the expectations of people and institutions orientated towards nature conservation, leading to their distrust of foresters as people potentially responsible for this protection. In recent years this has been the case, for example, for some NGOs [48].

3.5. Lessons for Poland and Other Countries

According to Sutherland et al. [67], on the global scale, the increase in number of protected areas was faster than our abilities to manage them properly. One of the elements of management is the organization of nature conservation. Not always and not everywhere the organization of nature conservation works properly [23], which may be influenced by historical circumstances, among others. For example, in Central and Eastern European transition countries nature conservation is still affected by the post-socialistic model of governance and it operates in a rather ineffective way [68]. On the basis of the presented research background (Introduction), the results obtained and the discussion carried out, several proposals can be formulated for both Poland and other countries with a similar structure of forest ownership and/or similar system of nature conservation organization.

The first proposal is to support and improve the organization of nature conservation in state forests (this would apply to Poland and probably some other countries). It is noteworthy, that the type of forest ownership affects the forest nature conservation, and this impact may vary depending on the country and culture [4,69,70]. For example, in Poland, because of our history, lack of appropriate policy, public awareness, initiative, and differentiation between conventional forms of nature conservation and nature conservation on private land, the latter is implemented on a very small scale [71]. The organization of nature conservation in state-owned forests (not only in Poland) will therefore be of fundamental importance for nature protection in particular countries for a long time to come. It is noteworthy, that within the European Union, management of protected areas is more advanced in countries of Western Europe than of Central-Eastern Europe, so the former should share their experiences with the countries that joined the Union later [72], i.e., also Poland.

The second proposal is to increase the foresters' rights to organize nature conservation (Poland). The great trust put by stakeholders in foresters, as well as the actual the State Forests' contribution to nature conservation in Poland, can be a basis for changing the current law. This would in majority concern the establishment of nature conservation rules for protected areas and objects. A similar action in other countries would have to be preceded by analogous studies of public trust in this type of solution.

The third proposal is to conduct regular surveys on public confidence in foresters, and periodically more detailed surveys among key stakeholders (Poland/other countries). The importance of public trust and awareness with respect to foresters' competence in planning and implementation of sustainable forest management was noted, e.g., by Franklin and Johnson [73]. The same applies to nature conservation in its more restrictive form. The knowledge of both the public attitudes and that of the individual stakeholders towards the foresters' work may be important for forest managers to shape development strategies (e.g., for the State Forests in Poland), as well as for possible organizational and legal changes in nature conservation. The social moods regarding the role to be played by the State Forests are also not without significance. According to a recent survey, 23% of Poles believe that the primary task of the State Forests should be nature conservation [59].

The fourth proposal is to increase people's knowledge and awareness of the foresters' work for nature conservation (Poland/other countries), through forest education and information actions. This may reduce the number and intensity of conflicts between foresters and different social groups

(in the context of nature conservation in forests), as well as increase public confidence in foresters as decision-makers in the field of nature conservation. It is noteworthy, that e.g., German foresters also indicate making the public more aware of the benefit of forest management for nature conservation as very important in future [23]. Education is also needed in the field of nature conservation itself—to form responsible attitudes and understanding for protection necessity, including its positive consequences for people [32]. It is noteworthy, that in Poland, as well as in some other countries, the procedures related to social involvement in protection of the environment need to be followed, and it results in an equally strong stress placed by the society and environmental organizations on tightening of regulations related to the use of forest and nature conservation [74].

The fifth proposal is to increase the role of scientists (Poland), mainly as a support for foresters in establishing principles and methods of nature conservation in state forests. According to Zamora (in [75]), a stronger and more trustful relationship between protected areas managers (but also decision-makers) and scientists is fundamental to enhance effective management. At the same time, it would be necessary to provide resources and capacity needed to conduct research actions for nature conservation in state forests.

The next proposal is to develop good communication in the field of nature conservation in state forests (Poland/other countries). Depending on the situation and needs it may be organized at different levels: between scientists and decision-makers [7,8,76–79], scientists, decision-makers and other stakeholders, e.g., the local communities [12,28,73,77,80,81], between the bodies that manage the protected areas [7], between scientific communities [80], or between foresters and NGOs [48]. Communication process allows to reduce social conflicts and achieve better compromises [23]. It is important because the problem of conflicts over the use of natural resources within protected areas concerns many regions of the world, not excluding Poland (e.g., [8,12,14,15,28]).

The last proposal is to search for various sources of financing nature conservation in state forests (Poland/other countries). The problem of insufficient funding of nature conservation is observed not only in Poland, but also in other countries, e.g., Germany [7,23], United Kingdom [40], Greece [55], Switzerland [9], and the Netherlands [7]. In case of Natura 2000, none of the European countries have created a financial solution that would satisfy all stakeholders [13]. Examples of funding sources include subsidies from the state [55], income from admission fees [55,75], tourism and recreation, as well as sale of local products [55], market-based mechanisms [82], or external aid funds for environmental protection [8]. It should be noted that NGOs are well experienced in fundraising for nature conservation tasks [83], so establishing cooperation with them is worthwhile.

3.6. Limitations

The studies presented have three basic limitations:

- the limited number of questions and their simplicity—it results from the fact that they were part of a much more extensive survey. This allowed to collect a relatively high percentage of answers to the questions asked. However, if we were to focus exclusively on these issues and ask much more detailed questions, additional results could be obtained;
- lack of anonymity of the questionnaires—maybe if the questionnaires were anonymous, there would be more answers, but this would not allow for their verification. Perhaps this is why the questionnaires were not filled by organizations that most frequently oppose foresters in respect of nature conservation, and it is difficult to establish meaningful dialogue with them;
- limited group of stakeholders—the study focused on stakeholders who have legal competence and/or practical experience in nature protection in the State Forests. Therefore, other stakeholders, for whom nature conservation may also be relevant (in a positive or negative sense), were not questioned. In the future, it would also be worthwhile to examine the opinions of other stakeholders (e.g., those related to the wood industry or tourism) about the organization of nature conservation in state forests.

4. Conclusions

The aim of this article was to present current solutions as well as expectations of the selected Polish stakeholders in respect of organization of nature conservation in state-owned forests in Poland. Three aspects were taken into account: determination of protective measures, responsibility for the protected areas and objects, and financing of nature conservation tasks on land managed by the State Forests. In a survey conducted in 2013 among 41 various stakeholders' groups, 77.9% of the respondents supported the concept of transferring full responsibility for nature conservation to foresters, while 51.1% supported financing of nature conservation tasks exclusively by the State Forests. In total, 46.8% of respondents believed that foresters should determine the principles and methods of nature conservation.

Proposals concerning the organization of nature conservation in the State Forests, presented by the stakeholders, vary from the current solutions, although to a different extent, depending on the activities. The solutions proposed would definitely more often than it is currently the case involve the State Forests' foresters in the organization of nature conservation in Poland, especially in terms of establishing the principles of nature conservation and its financing. The organization of nature conservation in the State Forests proposed by stakeholders (the most frequently chosen answers to the questions asked) is much better than the current one in terms of simplicity of solutions. In fact, it reduces the number of bureaucratic contacts between offices/institutions and foresters, as well as potential conflicts between authors of protection recommendations and their contractors. In addition, it provides that the protection rules would be established by people who have the closest, often daily contact with protected areas and objects, as well as the knowledge and practice in forest protection and management. In favor of the solution proposed by stakeholders is also the fact that the Polish State Forests are managed in a sustainable way, taking into account the needs of biodiversity protection. Completing that with competences in the field of nature conservation organization would be a solution consistent with the State Forests' activity model. However, the presented solutions have also some shortcomings and several improvements could be proposed, as indicated in the text of this article.

The most important observation, however, is that the stakeholders have expressed quite a high trust in the foresters. This trust, as well as the actual foresters' contribution to nature conservation in Poland, can be the basis for changes in the current law towards increasing their powers, especially in terms of determination of protective measures. The presented problems, as well as some proposals, are universal, and may be inspiring also for other countries with a high contribution of state-owned forests in their efforts to improve the system of nature conservation organization.

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Appendix A

Table A1. Groups of stakeholders and numbers of responses to questions Q1–Q3.

Groups of Respondents	No. of Questionnaires Sent	No. of Responses to Q1	No. of Responses to Q2	No. of Responses to Q3
Research units ¹	120	10	10	10
NGOs and their branches ¹	426	38	36	39
Mayors of all rural and urban-rural communes (gminas)	2169	723	726	720
Councils of all rural and urban-rural communes ¹	2169	251	254	253

Table A1. Cont.

Groups of Respondents	No. of Questionnaires Sent	No. of Responses to Q1	No. of Responses to Q2	No. of Responses to Q3
Heads (starosts) of all rural counties (powiats)	314	179	178	175
Boards of all rural counties	314	109	108	108
Councils of all rural counties ¹	314	82	82	83
Province governors (voivodes)	16	9	9	9
Boards of provinces (voivodeships)	16	10	10	10
Heads (marshals) of provincial parliaments (sejmiks)	16	10	10	10
Environmental committees of provincial parliaments	16	1	1	1
Regional directors of environmental protection	16	5	5	5
Regional nature conservation councils ¹	16	3	3	3
Minister of the Environment	1	0	0	0
General Director of Environmental Protection	1	0	0	0
National Nature Conservation Council	1	0	0	0
Minister of Agriculture and Rural Development	1	0	0	0
Minister of Infrastructure and Development	1	0	0	0
Parliamentary (Sejm) Committee of Environmental Protection, Natural Resources, and Forestry	1	0	0	0
Prime Minister	1	0	0	0
Public Benefit Works Council	1	0	0	0
National Board of Water Management	1	0	0	0
Agency for Restructuring and Modernization of Agriculture	1	1	1	1
General Inspector of Environmental Protection	1	0	0	0
National Committee for Environmental Impact Assessment	1	0	0	0
State regional sanitary inspectors	16	6	6	6
Directors of national parks	23	14	15	15
Directors of landscape parks and their complexes	122	90	90	91
Councils of landscape parks	122	8	8	8
Executive Board and Supervisory Board of the National Fund for Environmental Protection and Water Management	1	1	1	1
Boards and supervisory boards of provincial funds for environmental protection and water management	16	10	10	10
Provincial heads of State Hunting Guard or units performing their duties	15	7	7	7
Environmental Project Coordination Centre	1	1	1	1
Norway Grants	2	0	0	0
Selected political parties	6	0	0	0
Selected authors of scientific publications (not employed by research units)	14	4	4	4
Socio-scientific councils of all forest promotion complexes ¹	25	31	31	32
Branches of Forest Management and Geodesy Office	12	1	1	1
Selected centers for rehabilitation of protected animals or animal parks	3	0	0	0
Forest-nature expert evaluation office	1	0	0	0
Representatives of selected forest journals	3	1	1	1
Total	6746	1605	1608	1604

¹ For those respondents, the questionnaires enabled individual members of the given unit to present their own opinions; only few socio-scientific councils of forest promotion complexes, NGOs, and research units used this possibility.

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