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THE HEALTH OF FORESTS WITHIN THE STATE FORESTRY ORGANISATION SOLDANESTI IN THE PERIOD 2000-2010 ON FOREST MONITORING DATA

Forest monitoring represents the supervision of the forest condition and the evaluation of national forest fund inventory, in order to provide continuous information on the evolution of vegetation and forest soils, the effects of stress factors (pollution, drought, changing environmental conditions) on forests, the size and production fund structure.

The analyses of forestry monitoring data are effectuated in order to develop and underline the management measures and to prevent the undesirable situation taking in to consideration the stand health evolution after hoar-frost from 2000 year . The study is presented for a period of 11 years (2000-2010). Data collected were processed by electronic computer using a special program "Fox pro". The achieved results on key indicators (defoliation, discoloration) were organized by species, age, age classes and classes during the years 2000-2010.

Key words: monitoring, forestry, discoloration, defoliation, forest fund

Просіі Е. ЗДОРОВ'Я ЛІСІВ В РАМКАХ ДЕРЖАВНОЇ ЛІСОВОЇ ОРГАНІЗАЦІЇ ШОЛДЕНЕШТІ ЗА ПЕРІОД 2000-2010 РОКІВ ЗА ДАНИМИ МОНІТОРИНГУ ЛІСІВ

Моніторинг лісів представляє спостереження за станом лісів та інвентаризацію національного лісового фонду, щоб забезпечити безперервну інформацію про розвиток рослинності і лісових ґрунтів, про вплив стрес-факторів (забруднення навколишнього середовища, посухи, зміна умов навколишнього середовища) на ліс і його продуктивність.

Аналіз даних моніторингу лісового господарства здійснюється з метою розвитку і розробки управлінських заходів для запобігання небажаної ситуації для збереження здоров'я та відновлення лісів. Дослідження проводилися протягом 11 років (2000-2010). Отримані дані оброблені за допомогою спеціальної програми "Fox Pro". Результати за основними показниками (дефоліація, знебарвлення) систематизовані за видом, віком, віковими категоріями та класами за період 2000-2010рр.

Ключові слова: моніторинг, лісове господарство, зміна кольору, листопад, лісовий фонд

Просии Е. **ЗДОРОВЬЕ ЛЕСОВ В РАМКАХ ГОСУДАРСТВЕННОЙ ЛЕСНОЙ ОРГАНИЗАЦИИ ШОЛДЭНЕШТИ ЗА ПЕРИОД 2000-2010 ГОДОВ ПО ДАННЫМ МОНИТОРИНГА ЛЕСОВ**

Мониторинг лесов обеспечивает наблюдение за состоянием здоровья национального лесного фонда и инвентаризацию лесов, а так же обеспечивает непрерывную информацию о состоянии лесной растительности и почв, о воздействии стрессовых факторов (загрязнение окружающей среды, засухи, изменение условий окружающей среды) на лес и его производительность.

Развитие исследований в области здравоохранения лесов основывается на данных мониторинга лесов, целью которого является разработка и обоснование мер для восстановления лесов и предотвращения нежелательных ситуаций в лесах лесного хозяйства. Исследование представлено в течение 11 лет (2000-2010). Обработка данных производилась с помощью программы "Fox Pro". Результаты по основным показателям (дефолиация, обесцвечивание) были систематизированы по видам, возрастным группам, классам возраста за период 2000- 2010 гг .

Ключевые слова: мониторинг, лесоводство, дефолиация, обесцвечивание, лесной фонд

Introduction

Forest monitoring represents the supervision of the forest condition and the evaluation of national forest fund inventory, in order to provide continuous information on the evolution of vegetation and forest soils, the effects of stress factors (pollution, drought, changing environmental conditions) on forests, the size and production fund structure [1].

Monitoring of a domain can take place at global, regional, national and local [2].

An important role in achieving the objective of forest conservation are the measures to prevent and combat the harmful effects of natural disasters. The analyses of forestry monitoring data are effectuated in order to develop and underline the management measures and to prevent the undesirable situation taking in to consideration the stand health evolution after hoarfrost from 2000 year. The study is presented for a period of 11 years (2000-2010).

Materials and methods

Data collected were processed by electronic computer using a special program "Fox pro". The achieved results on key indicators (defoliation, discoloration) were organized by species, age, age classes and classes during the years 2000-2010.

In forestry I.S. Soldanesti are located 44 permanent surveys of forestry monitoring level 1 (national network 2x2 km) [3].

Each area of permanent sample (SPP) consis ts of two concentric circles with rays of 7,98 m (200 m^2) and 12,62 m (500 m^2). The minimum diameter of trees to be inventoried is of 80 mm. In the circle of radius 7,98 m diameter are inventoried all trees greater than 80 mm, but in the ring determined of concentric circles with rays of 7,98 m and 12,62 m diameter, are inventoried only trees with core diameter greater than 280 mm.

Evaluation oh forest vegetation health was to estimate defoliation and foliage discoloration in the crown of trees, also estimation of physical injuries following the action of various biotic and abiotic factors.

Defoliation is one of the most important parameters and express loss of leaves or needles in the crown of a treecompared to another device whose foliage is completely (reference tree). The registration is effectuated in percentage by rounding to the nearest valuedivisible by 5 (eg 5, 10, 15).

Another important index estimated from dat a for forest monitoring device is foliage discoloration. Foliage discoloration is estimated from 5 to 5 percent and take into account when the deviation from its color is cut (yellow, rust).

Results and discussion

Analyzing the evidence obtained, we obtained an evolution of the health of the trees that are distinguished by the following:

- Reduction in the number of trees without defoliation since 2001, and also substantially increased the proportion of defoliant trees in classes 2, 3 and 4;
- Improving trends in foliar device for the trees under study are minimal;
- Species in the period 2001-2007 in defoliation group classes 1-4 are included virtually all trees, all species being affected, especially oaks;
- From 2009 was improved foliar machine status in all species of trees, in group 0 (no defoliation) in 2010 were within 28,3% of all inventoried trees, in grade 1 (weak defoliant) of defoliation the same year were

within 51,9% of the trees inventoried and grade 2 (moderate defoliant) were within the remaining trees -19,8%;

- In 2000 were less affected trees in age classes 21-40 years andsince 2001 this year class is most affected by defoliation in defoliation classes 2 and 3, other age classes are equally affected, especially the large proportion of trees included in defoliation class 4, that is dead trees (in particular age class 81-100 years);
- Positive trend of reducing the degrees of defoliation in the period 2000-2007 is not observed, the trees being included in defoliation classes 1-4, mainly in grades 2 and 3 (moderate and strong defoliant);
- A substantial improvement of the health of trees in all age classes is attested from 2009, when the age-grade (1-20 years) 82% of all trees are included in defoliation level 0 (no defoliation), grade II age (21-40 years) 32,5% of trees have defoliation degree 0, the class III age (41-60) 21,8% of trees have defoliation degree 0, in the fourth grade age (61-80) 43,7% of trees are without defoliation, in grade age (81-100 years) 58,7% and age class VI a (101-120 years) 95.2% are without defoliation;
- The degree of fading is lower than the degree of defoliation;
- Substantial increase in the number of trees affected by fadingsince 2001, most of them included in classes 1 and 2 fade (weak and moderately affected by fading);
- Most affected species are oak and lime;
- Since 2006 increased the proportion of discoloration classes 2 and 3 (moderate and strong discolored), while decreased the proportion of fading trees included in class 0 (no fading trees), this leading to increased number of trees included in the group grades1-4. Thus, if in 2001 were affected trees at a rate of 70,2%, then in 2007 it increased to 97,0%;
- As with defoliation, is noted an improvement of trees foliage inventoried since 2009, especially species of hornbeam, willow and lime, for all species shown in this year a 64,7% proportion of trees belonging to the degree discoloration 0 (no discoloration) compared with 2007 when this degree of discoloration were employed only 2,7% of the trees inventoried;
- In 2000 unaffected trees had a proportion of 65,8%, the remainder being included in the class 1 of discoloration (trees with foliar unit slightly bleached);
- Since 2001 has increased the proportion of affected trees, especially included in fading classes 1 and 2;
- Based on age class can see that all classes are affected and during the period 2001-2007 the proportion of trees affected increased: from 70,2% in 2001 to 97,3% in 2007;
- In the same time can see a reduction of unaffected trees included in fade class 0 (no discoloration): from 29,8% in 2001 to 2,7 in 2007;
- Large number of dead trees, especially in age classes: 61-80 years and 81-100 years;
- Since 2009 in all age classes indicated an improvement of thediscoloration of the foliage, so all the trees in 2010 have included 48,8% of trees inventoried in the degree of discoloration 0 (nodiscoloration) compared with 2, 7% in 2007 and 44,1% of thetrees included in a degree of discoloration (slightly faded) compared with 58.0% in 2007.

Conclusions

Following the data presented we formulate the following conclusions and recommendations:

1. Monitoring networks are the main tools for monitoring the adverse effects leading to the expansion of disease processes of trees and stands, and the data obtained are representative also for other enterprises affected by frost in the fall of 2000.
2. I.S. Soldanesti has a representative network of permanent survey on forest monitoring, a total of 44 surveys in the national network, where processing of collected data made it possible to play the real situation of trees and stands, development trends.
3. Defoliation phenomenon is most pronounced since 2001 compared with 2000, the proportion of affected trees significantly increased, all species studied, especially the oak, are strongly affected the proportion of trees affected is increasing every year.
4. The age classes of defoliation mention a stronger damage youngtrees (21-40 years) in grades 2 and 3, and the presence of olderstands high degree of damage 4 (dead trees). Note

that data for 2007 are 100% damage to trees of all age classes, there were nonon-defoliation tree.

5. The degree of fading is lower than the degree of defoliation. The most affected species are oak and lime. We conclude that since 2006 the proportion of discoloration classes 2 and 3 (moderate and strong discolored) increased, while the proportion of fading trees included in class 0 (no fading trees) decreased, leading to increased number of trees included in group classes 1-4.

6. The age classes: all classes are affected and the period 2001-2007 the proportion of trees affected increased:from 70,2% in 2001 to 97,3% in 2007. A negative dynamic is indicated by the large number of dead trees, especially in older classes: 61-80years and 81-100 years, how stands forward in time and age, the fading phenomenon is more visible and pronounced.

7. Since 2009 showed an improvement in the health of treesinventoried, at defoliation and fade for all species and age classes.

8. Stands from I.S. Soldanesti had over the last decade an unsatisfactory state of vegetation, in the period 2000-2007 were recorded a strong defoliation degree and a weak-moderate degree of fading, with a substantial improvement in health status since 2009, requires careful increased, as most are fundamental natural-type stands, as well as the appropriate forest works.

Recommendations:

- ✓ Continuous monitoring of the health oftrees;
- ✓ The scientific research and ecological restoration works in the affected stands ;
- ✓ Preservation of fundamental naturalstands;
- ✓ Promotion of basic species genetic forms resistant,environmentally stable;
- ✓ Maintaining normal consistency;
- ✓ The timely execution of work and caremanagement;
- ✓ Maintaining a proper sanitary condition of forests;
- ✓ Conservation of biological diversity of forests and their stability;
- ✓ Management of differentiated functional categories of forest types of Polyfunctional (under conservation protection regime),
- ✓ Avoiding all human actions that affect resistance stands, grazing, harvesting of non-organic technology.

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ЗАКОНОДАТЕЛЬНОЕ РЕГУЛИРОВАНИЕ СБРОСА СУДОВЫХ БАЛЛАСТНЫХ ВОД В УКРАИНЕ

Рассмотрены вопросы правового регулирования сброса с судов балласта, приведен анализ действующего международного и национального законодательства в области управления судовыми балластными водами, исследована проблема ратификации Украиной Международной Конвенции о контроле судовых балластных вод и осадков и управлении ими, представлены перспективы развития комплекса управления балластом в Украине.

Ключевые слова: балластные воды, загрязнение с судов, Международная Конвенция о контроле судовых балластных вод и осадков, управление судовым балластом

Волошина А. ЗАКОНОДАВЧЕ РЕГУЛЮВАННЯ СКИДУ СУДНОВИХ БАЛАСТНИХ ВОД В УКРАЇНІ

Розглянуто питання правового регулювання скиду з суден баласту, наведено аналіз чинного міжнародного та національного законодавства в галузі управління судновими баластними водами, досліджена проблема ратифікації Україною Міжнародної Конвенції про контроль суднових баластних вод й осадів та управління ними, представлені перспективи розвитку комплексу управління баластом в Україні.

Ключові слова: баластні води, забруднення з суден, Міжнародна Конвенція про контроль суднових баластних вод й осадів, управління судновим баластом