

## THE IMPACT OF FIRES IN LIGHT-CONIFEROUS CENOSES SUBTAIGA ALTITUDINAL BELT COMPLEX

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One of the most important issues facing foresters and urgent, is the preservation of biodiversity of natural ecosystems in conditions of increasing anthropogenic pressure on natural complexes.

In recent years, silvicultural research in natural resources often analyzed the spatial structure of the vegetation cover, exposed to adverse external effects. Obtained materials necessary for creating a project of environmental management in specific areas.

In accordance with the above, the purpose of our research was the study of destructive fire impact on the pine-larch forests (*Pinus sylvestris* L. and *Larix sibirica* Ledeb.), widespread in mountain forests of southern Siberia forb series of forest types. In the role of dominant ground vegetation are common bracken (*Pteridium aquilinum* (L.) Kuhn), bolshevata sedge (*Carex macroura* Meinsh), and the average dobrovoltsaia spirea (*Spiraea chamaedryfolia* L., *S. media* Franz Schmidt), trostnikovidnogo reedgrass (*Calamagrostis arundinacea* (L.) Roth) and mesophytic herbs.

The work carried out in the subtaiga altitudinal belt complex Mansky-Kanskaya forest district (North-Western part of Eastern Sayan). Okrug is situated on the territory that is part of the Central Asian orogenic belt EPI-platform. The exact location of the polygons and their detailed characterization are indicated by us earlier [2].

The trial area was laid at the fires 4 years ago, when basically ends the elimination affected by fire of trees, and on control plots under the forest canopy for a long time not exposed to unexposed. Account work carried out in late summer, while the larch had not entered the colorization phase of needles. Description of the phytocenoses, all your work is carried out according to standard techniques [1, 3].

In the ashes, where light coniferous breeds of different age, made the enumeration of the forest's levels of thickness with the unit trees healthy, doubtful and shrunken. The composition of the stand – 6JI4C, average height and diameter is 17.9 m and 20.5 cm, the fullness – of 0.53, class of bonitet – III. Fire the grass-roots, sustainable, average strength. The results of observations are given in the table.

Table – Post-fire mortality of trees in degrees of thickness

| Condition | Degrees of thickness, cm |
|-----------|--------------------------|
|-----------|--------------------------|

|              |                  |                 |                 |                  |                 |                  |                  |                 |                |                |
|--------------|------------------|-----------------|-----------------|------------------|-----------------|------------------|------------------|-----------------|----------------|----------------|
| trees        | 8                | 12              | 16              | 20               | 24              | 28               | 32               | 36              | 40             | 44             |
| Healthy      | -                | $\frac{23}{23}$ | $\frac{97}{54}$ | $\frac{156}{78}$ | $\frac{79}{91}$ | $\frac{32}{100}$ | $\frac{14}{100}$ | $\frac{9}{100}$ | $\frac{3}{25}$ | $\frac{2}{14}$ |
| Questionable | -                | $\frac{16}{16}$ | $\frac{13}{7}$  | $\frac{8}{4}$    | $\frac{3}{3}$   | -                | -                | -               | -              | $\frac{5}{36}$ |
| Shrunken     | $\frac{42}{100}$ | $\frac{60}{61}$ | $\frac{71}{39}$ | $\frac{37}{18}$  | $\frac{5}{6}$   | -                | -                | -               | $\frac{9}{75}$ | $\frac{7}{50}$ |

Notes: the numerator is the number of trees, pieces; the denominator is the same %.

The materials submitted show that the greatest damage trees marked in steps of smaller thickness (8, 12 cm). Primary cause of death for most small wood community supports thermal effect on the pine needles, which burned in the flames of a ground fire, due to the fact that the lower branches are located at a distance of about 1.5 m from the soil surface. Needles in the middle and upper parts of the crown have received lethal damage due to the filtration through it of the high-temperature gas flow.

Also observed mortality of overmature specimens of larch and pine, which forms the woody community of the most resistant to the pyrogenic factor individuals.

The cause of death of these large trees was the burn of the cambium at the root collar, where the peel thickness is less than several times as compared to that in the lower part of the trunk. Inspection overmature larch and pine trees in the control areas showed that at the base of the trunks of old trees accumulates large amounts of litter, passing the edge of the fire continues to burn for a long time. Weak protection in the form of a thin crust at the neck of the root and smaller thickness of skeletal roots (about 3.5-5 mm) does not protect plant cells from heat damage.

Illustrated with actual data characteristics of the mortality of the stand in degrees of thickness, allow to assert, that under the studied conditions, the diameter of the trunk is a good diagnostic feature for predicting post-fire death of woody plants.

In addition, studies the role of fire revealed the specificity of the effect of fire impact on subtaiga plant cenoses of the belt. It manifests itself in the frequency of occurrence of fires, their distribution and development, silvicultural and environmental effects of fire exposure associated not only with weather but also with the phenological development of the ground vegetation in the herbal series of forest types. It is established that pologamy mortality trees is determined by the force of fire exposure. Weak ground fires, escaped, causing considerable damage to forest stands.

References

1. Anuchin N.P. Forest inventory. – M.: Forest industry, 1971. – 512 p.
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3. Sukachev V.N., Zonn S.V. Methodical instructions for study of forest types. – M.: an SSSR, 1961. – 144 p.