

Materials of Conferences

TUVA MOUNTAIN FORESTS' FIRE HAZARD
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Fires are becoming the primary factor of mountain boreal forest areas reduction of the Tuva Republic. The forests of the Region, meeting the bioclimatic zones: arid (Central Asian internal-drainage basins) and Western and Eastern Siberia boreal forest ones and the forest, perform an especially important climate regulating function in Central Asia. The sub-boreal forests, which grow within definite limits, determine a high sensitivity to excessive natural and anthropogenic impacts.

For the last three decades the anthropogenic origin fires dominate over wildfires. One of the first reasons for the forest fires to grow in number is connected with the introduction of "agricultural clean burns" in the 80-s. The prairies subjected to spring fires differ from clean burns by the minimal amount of precipitations (300-500 mm). In spring a sharp rise of the atmospheric temperature and little relative humidity result in the intensive snow cover vapor. The winds typical of this season lead to drying up the soil and vegetation. Quickly dried burning conductors of steppe and grove belts are very sensitive to fires. The wind direction and intensity define the fire situation and promote the steppe fire spread into the forest steppe. In dry weather days with strong winds the spring fires inflict a serious damage on the forest ecosystem of the Region.

The forest fires were mainly of natural character and were caused by dry thunderstorms in the Region before the 80-s. It was found out that for the period from 1996 to 2006 20% of the forest fires were caused by dry thunderstorms; in 2007 only 100 from 318 fires were caused by thunderstorms. A more global factor – the total warming – has probably an effect on the sharp increase of wildfires in number. The fire data testify that the fire number dynamics is clearly correlated with the amount of precipitations. During the driest years the number of fires reached 353 (1980), 380 (1989), and during the wettest year there were only 43 fires registered (1985). Besides, the fire data analysis of the Forest Management Agency of the Tuva Republic and Krasnoyarsk Base of Forest Air Conservancy testified that summer wilderness fires are localized along geological cracks. It requires an in-depth study of geologic-

geophysical and geomorphological factors influencing the thunderous fire hazard formation in the mountain forests of the Region.

The anthropogenic origin forest fire increase is associated with the increase in demand for wild-growing edible plants of the taiga. During their harvest time neither traditional folk customs of solicitous attitude to plant resources nor fire caution measures are observed. The unique subboreal forests of the Region are greatly subjected to fires during berrying and nutting seasons because of badly put out bonfires, etc. For the period of 1996-2006 during the taiga berries (bilberry and blueberry) and cedar nuts gathering since July to the end of October there happened 298 fires and 94986,7 ha of the forest destroyed.

As a result, 33594,8 ha of forest area were destroyed with fires for 20 years (1959–1994). Then the fire taken forest area increased tragically: 546088,6 ha were destroyed with fires in 1995–2005, 60652,6 ha – in 2007. The total fire taken area made 60652,6 ha in 2007, the forest area of them making 43256,2 ha. An excessive increment of anthropogenic origin fires can result in negative changes in not only vulnerable forests of the Region, but also Southern Siberia mountain forests; and that can break the Siberian boreal forests' equilibrium having developed for a great while.

Since this year there are intensive local land methods in operation assisted by observation stations to detect forest fire foci less than 1 ha, and there works a satellite monitoring at the regional level. Such forest fire control method cannot inflict any appreciable damage at the timely detection of the fire focus. Such complex information got allows analyzing the current situation with forest fires, forecasting the fire hazard situation and carrying out the development analysis in the following and making the damaged forest areas inventory. Information technologies appear as an instrument of analysis, evaluation and monitoring of boreal forests of the Region, they being aimed at the optimal utilization of the last according to the sustained development concept.

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