

Wildfires history of northern (Polissya) part of Rivne oblast of Ukraine

The negative impact of number socio-economic and environmental factors in recent years worsens the conditions of forest management and requires more attention to the problem of forest fires in the Ukraine. The most important factors that contribute to the fire hazard is reducing rural population through urbanization, inadequate funding of forestry, agricultural land overgrown by forest and climate change. This requires research of forest fire history in the region, which precedes the development of an effective system of protection of forests from fires.

Region of study includes territory of nine forestry enterprises within the Western Polissya natural zone. The aim of the paper is a quantitative evaluation of time-spatial characteristics, long-term and seasonal dynamics of forest fires in the region.

In the study, three fire maximums identified during 2003-2012, when 59% of the number of wildfires occurred and 81% of total area burned with highest average fires areas. The period of recurrence of fire maximums is 2-4 years mostly during drought period. Fire maximums can occur on whole region or in a part of it. This requires stable funding and permanent readiness of forest fire brigades, regardless fire hazard in previous year as well as close interactions with the local weather station for fire danger prediction.

During seasons fire peaks usually occurred in May when 50.5% forest fires take place and 81% of total fires area burned. The lowest humidity of air and the largest number of days with drought are the main reasons of its. In addition, a significant number of forest combustible materials accumulated in the fall, increasing the number of ignition sources in the forests because of recreation and business activities increasing forest fires in the spring.

The dynamics of human impact on forests can be traced through the analysis of distribution of fires and their areas by day of week. Essential predominance of number of fires is found in non-weekends days except Monday, which may be

associated with an increase in the number of ignition sources caused by the different activities in forests.

Clearly visible increase in the average area of fires on Friday and during weekend. A possible reason for this may be reduction of the effectiveness of fire response during weekend. Significant proportion of fires (10% of the population) took place on 1–3 of May - in the days of mass visiting of forest by population.

Remote sensing data indicate that some fires did not registered officially by forest enterprises to avoid personal responsibility of administration for fires implemented by State Forestry Agency of Ukraine. In the same time, obligatory condition of high efficiency of fire management is registration of all fires occurring in forest enterprises. It is important to reflect causes of fires in the official fire reports that is not a case in Ukraine.

According to the official fire records, fire season started on April 2 and ended November 13. In the same time, the first fires on agricultural lands occurred in the first half of March, which created conditions for possible development of forest fires. So, forest fire service of northern Rivne region should be prepared to fight fires during 15.03-31.10.

Fires occur in locations with ignition sources (forest visitors) regardless of the class of natural fire hazard, including in damp and wet coniferous forests and deciduous forests. This requires regular patrolling of these areas during periods of high fire danger. Area and intensity of fires does not meet current national "rating scale natural fire danger of forest land", which requires development of regional scales. The highest ratios observed in the number of fires in forests of V Class (lowest natural hazard), and the relative area of fires in forests of IV and V grades are higher than in forests of III Class (moderate hazard). Share of pine species in stand also affects the development of natural fires. The relative number and area of fires in forests with a share of pine plantations in stock 90 - 100% higher 1.5-2 times than in the stands, where the share of pine in the stock is 70 - 80%. These features must be considered when approving patrol routes, laying mineralized breaks in order to reduce fire risk spaces.

