

Impact of changes in forest and land ownership structures on fire risk in Hungary: Towards adaptation of fire management measures

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Abstract

During the complicated process of change in the political system, a basic change in forest ownership relations took place, and as a result of this change approx. 730,000 hectares (ha) of forests became privately owned. The new ownership structure henceforward has an important role in forestry and in wildfire management, too. More than 1/3 of the forest estate are smaller than 1 hectare, and ¾ are smaller than 5 ha. 40 percent of the private forest owners live in town, and have just indirect contact with their forests. More than 14 percent of the Hungarian forests are of inordinate ownership.

In Hungary wildland fires can be classified in five representative groups of characteristic fire regimes. Each group has distinct fuel types, fire size and fire characteristics:

1. Spring fires in broadleaved stands (oak, turkey oak, black locust and poplar regeneration and plantations), usually of small size (<5 ha).
2. Summer fires in broadleaf stands (mostly oak stands) are surface fires with low intensity but with fast fire spread, and also in conifer stands in the Hungarian flat land. The surface fires in those stands mostly develop into crown fires.
3. Summer fires in juniper-poplar stands. After the fire the species ratio in the area changes due to fire intolerance of junipers.
4. Grassland fires in summer and autumn. The occurrence of these fires is high, but unfortunately the state statistics do not provide statistical information. The average fire size is 20-50 ha, with a trend of increased over the last decade. Some large fires between 1500-8000 ha occurred.
5. Peatland fires in very dry summers.

Responsibilities in wildland fire management in Hungary

Fire prevention in Hungary is the duty of the forest owners. This general rule was sufficient when the state forest ownership was near 99 %. Under the actual ownership structure, however, there is no adequate fire protection. Firefighting in practice is the responsibility of the professional and volunteer fire brigades. The firefighting resources are sufficient to fight structural fires. However, if several small wildfires occur in the area of responsibility of a fire unit a fire house the resources become limited and the response times will be longer.

Developed areas in the Hungarian fire prevention system

Because of the change in the ownership and administration structure Hungary needed a new and more affective fire prevention concept.

- Reorganization of the fire data gathering system, because the old manual system didn't work with many private forest and land owners. The new system has a integrated wildlandfire database between the forest and fire service and collect more data about the wildlandfire for better evaluation and prevention planning.

Review of the fire prevention planning regulations (fire prevention maps and resource database, building of cooperation agreements and procedures between the forest and fire services, development of special plans for small private forest owners, development of public awareness campaigns, new nation-wide symbol for fire prevention, development of wildland fire education material for ground and secondary schools [in secondary school with short fire ecological introduction], special training program for foresters and structural firefighters on wildland fire behavior and suppression, and development of specific Hungarian fuel models)

Summary:

The change in the forest ownership structure, land-use change and the increased human activities resulting in an increase of wildfires in Hungary necessitated the review of the former forest fire regulations, and development a new fire prevention concept at country level.

Beside of that activity in the area of Aggtelek National Park a pilot project was started involving university, regional fire units and the forest and park services to develop cost efficient fire prevention methods such as digital camera systems and to analyze fuel management methods such as prescribed burning and his effect on the local stands.

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