Tropical Forest Issues

Issue No. 61, November 2022

Towards fire-smart landscapes

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TROPENBOS INTERNATIONAL

Table 1. Selected key terms used in fire management

Community-based fire management	A fire management system in which a local community (with or without the collaboration of other stakeholders) has substantial involvement in and responsibility for deciding the objectives and practices involved in preventing, controlling and utilizing fires. Often referred to by its acronym, CBFiM.
Controlled fire	Traditional / indigenous practices that are based on inherited experience. This differs from prescribed burning, that is based on advanced fire ecology science. *See also Prescribed burning*.
Firebreak	Any natural or constructed discontinuity that aims to segregate, stop or control the spread of fire, or to provide a control line from which to suppress a fire. It is characterized by a complete lack of combustible material. *See also Fuelbreak*.
Fire management	All activities required for the protection of forests and other vegetation from fire, and the use of fire to meet land management goals. It involves the strategic integration of knowledge — on fire regimes, probable fire effects, values at risk, level of forest protection required, cost of fire-related activities, and prescribed fire technology — into multiple-use planning, decision making, and day-to-day activities to accomplish stated resource management objectives. Successful fire management depends on effective fire prevention, detection, pre-suppression and control, having an adequate fire suppression capability, and consideration of fire ecology and human relationships.
Fuelbreak	Generally wide (20–300 m) strips of land on which less flammable vegetation is maintained and integrated into fire management, or where vegetation has been modified or fuel loads reduced so that fires can be more readily controlled (as distinguished from firebreak). In some countries, fuelbreaks are integrated elements of agroforestry systems that are intensively cultivated, grazed or subject to prescribed burning. Closed forests may contain fuelbreaks known as "shaded corridors," where stands are intensively thinned and pruned. Fuelbreaks also have the advantages of preventing erosion, and offering a safe place for firefighters to work. *See also Firebreak*.
Integrated fire management	A system that includes one or both of the following concepts: (1) integration of prescribed natural or human-caused wildfires and/or planned application of fire in forestry and other land uses in accordance with the objectives of prescribed burning; and/or (2) integration of fire management activities and use of the capabilities of rural communities/land users to meet land management objectives.
Landscape fire	A fire burning in vegetation of natural and cultural landscapes, e.g., natural and planted forest, organic terrain (such as peatlands), shrub, grass, pastures, agricultural lands, and peri-urban areas, regardless of ignition sources, damages, or benefits. *See also Wildfire*.
Prescribed burning	Controlled use of fire to reduce fuels (in either their natural or modified state), under specified environmental conditions, which allows the fire to be contained to a predetermined area and at the same time to produce the required intensity of heat and rate of spread to attain planned resource management objectives. Early burning is a form of prescribed burning conducted early in the dry season before leaves and undergrowth are completely dry and/or before leaves are shed, as a precautionary measure against more severe fire damage later on. *See also Controlled burning*.
Wildfire	Any unplanned or uncontrolled fire burning in vegetation of natural, cultural, industrial, and residential landscapes, which regardless of ignition source (i) may require suppression response, or (ii) other action according to agency policy, e.g., allowing the fire to freely burn as long as it meets land management objectives. *See also Landscape fire*.
Wildland fire	A North American term used internationally, "wildland" includes all burnable vegetation resources, including managed forests and plantations. Since "wildland" does not have a corresponding term in languages other than English, alternative terms are preferred (vegetation or landscape fire, or specific terms such as forest, grassland, agricultural or pasture fires).

Box 1. Issue highlights

Tropical Forest Issues No. 61 (formerly *ETFRN News*) includes 26 articles, including contributions from 100 co-authors (Pasiecznik and Goldammer 2022). Following a call for abstracts reviewed by a seven-strong panel of experts, case studies were selected from 15 countries in tropical America, Asia and Africa, along with articles summarizing the ecology, management and concepts related to fire management. This synthesis draws out common lessons and recommendations.

Highlights include the following insights. Local participation is crucial, for all parties to share their perceptions of the problem, and to jointly design and implement fire prevention and suppression. The importance of indigenous and traditional knowledge of fire management emerges strongly, especially in Latin American articles. Innovative cases are presented, such as the use of agricultural fuelbreaks, with potential for scaling, if land rights are secured. Equitable landscape governance as seen in indigenous territories was also importance for successful fire management. Capacity development for fire management is also needed at all levels, from national and subnational coordination to community volunteers — and not just for dedicated fire brigades. Where lacking, national integrated fire management strategies, policies and action plans must be developed, with cross-sector collaboration, clear roles and responsibilities, and resources for effective fire prevention and suppression. What is also clear is that "no fire" policies introduced in many countries have been counterproductive, and have actually contributed to more intense wildfires. Thus a shift is urgently needed, from a focus on suppression to one on prevention and integrated management, including the controlled use of fire. Finally, expansion of international efforts is needed, building on well-established organizations and networks, for generating, collating and sharing experiences.

As the smoke clears, we see the urgent need to better acknowledge and incorporate the knowledge and practices of the people described at the start of this story. The use of prescribed fire is just one subject highlighted in this review (see Box 1). It does not intend to fan the flames of polarized debates but does aim to put out the embers that underlie the misinformation that continues to support the prevalent mindset of decision makers.

Fire management terminology

To avoid confusion and ensure clarity it is essential to have agreed terminology, and in multiple languages. The generally accepted global fire management glossary (GFMC 1999) includes terms in Spanish, French and Russian (FAO 2010). This was revised and updated from the first multilingual consent-based Wildland fire management terminology, in English, French, German, Italian and Spanish (FAO 1986). Over the past 20 years, fire management terminologies have been published for Europe, Australasia, North America and Central Asia (for all available glossaries, see GFMC 2017). The terms in Table 1 are based on those in published glossaries.

The history of "no fire" policies

Hunters, farmers, shepherds and other land users all over the world have routinely used fires to manage vegetation throughout history of humanity. Today, the prevailing perception of land management authorities seems to be that "all fire is bad." What happened to cause this seismic shift in thinking? That story starts 200 years ago. Much has been written on this and there are numerous versions of historical events (Pyne 2021); though some may argue the details, the following provides an indication of how this change in mindset occurred.

In temperate and Mediterranean Europe, natural (lightning-caused) fire is not a factor that has shaped natural ecosystems. However, the use of fire in land management has a long history and has significantly shaped cultural landscapes, including ecosystems of high conservation value. However, a complex mix of cultural and power relationships led to the emergence of the view that fire use by land users should be discouraged.

During the era of European colonialism, indigenous fire practices were largely replaced by unsustainable burning by settlers, and in some cases traditional practices were even outlawed, perhaps as a way to exert control and power over indigenous peoples. Prohibitions continued as countries gained independence, and bans even expanded, such as in Latin America in the 1900s, with the implementation of "zero fire" or "zero burning" policies [see 2.1]. In Brazil, the Forest Code of 1934 was the basis of the country's fire prohibition policy, which considered traditional fire practices as an enemy to be fought [2.2]. In South and Southeast Asia, the "fire schism" in India, Indonesia and Myanmar (Burma) was reviewed (Goldammer 1993).

Tropenbos International (TBI) envisions a future in which forests and trees are used sustainably for the benefit of local people and the global community. By making knowledge work for forests and people, Tropenbos International contributes to inclusive and evidence-based decision making for the improved management and governance of tropical forests. TBI's longstanding local presence and ability to bring together local, national and international partners makes it a trusted partner in sustainable development.

Tropical Forest Issues is a serial publication previously published as *ETFRN News*, each with 20-25 articles on topical themes relevant to international development agendas.

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