



8th International Wildland Fire Conference

Global Wildland Fire Network – Statement of the Eastern Europe Region – Regional Eastern Europe Fire Monitoring Center (REEFMC) – Focus Ukraine

16 May 2023

Introductory remarks

Three major factors have determined fire regimes and their impact on population, rural infrastructure and ecosystems of Ukraine during the last four years:

- 1) Extensive use of fires in cultural landscapes all over the country and throughout fire season
- 2) Climate change
- 3) Full-scale military aggression of Russian Federation against Ukraine that started on 24 February 2022 and with large-scale collateral environmental and social impacts including wildfires.

Synergetic impacts of these factors resulted in a historically unprecedented situation in Ukraine with regard to number of fires, forest and non-forested area burned, number of fatalities, burned villages and houses.

To address current unprecedented challenges related to war and fires in Ukraine, the Regional Eastern Europe Fire Monitoring Center (REEFMC), in cooperation with the Global Fire Monitoring Center (GFMC), is supporting the development of a national fire management policy. In dialogue with government, agencies and the parliament principles and approaches for an integrated approach to landscape fire management are discussed. REEFMC and GFMC are working on strengthening the interface between science, forest management and fire and rescue services.

Specific landscape fire problems of the region

The war constituted the most severe impacts ever on fire regimes in Ukraine, including specific ignition sources, fuels, landscape types affected and response capacities.

Ignition sources included shelling, ground fighting of troops, use of phosphorous ignition devices by Russian military, movement of tanks and other armored vehicles that are not equipped with spark control, use of fires for heating, cooking and other needs of military units.

Indirect consequences of the war included:

- 1) Personnel and equipment of the fire and rescue services of the State Emergency Service of Ukraine (SESU) is trained and equipped primarily for structural and industrial fires and providing critical support in suppressing wildfires affecting forests and open landscapes including agricultural lands and other open-land ecosystems. However, since the beginning of war, priority had to be given to protect society and civil infrastructure from military attacks as well as supporting military operation in deliberated territories (demining) and along the front line.
- 2) During the war, the forest fire management system has lost essential human and technical resources. Many foresters have joined armed forces or territorial defense units, some fallen on the front line. A large number of fire engines were taken by occupants or were destroyed during military operations including by land mines.
- 3) The war has created some critical limitations for fire management on extended territories of forests along the border with Belarus and the front line, including the deployment of fire aviation, manning of fire outlook towers, use of fire detection cameras, use of radio communication due to



defense reasons, limitation in patrolling of forests due to defense priorities, financial limitations in maintaining fire engines and necessary fire management equipment, among other.

- 4) Unexploded ordnance (UXO) and land mines on the area of more than 1.6 million ha pose a threat to security of firefighters.

Climate change induced the first fires ever in the forests of Carpathian Mountains, including a large wildfire burning in August 2022, while a lack of experience and resources of fire management in mountainous of Ukraine terrains is observed.

Due to socio-economic crisis in Ukraine, which is provoked by the aggression of Russian Federation, and lack of the Governmental financial and technological support of small land owners and farmers, post- and pre- harvesting burning of straw, residues on the croplands, burning of old grass on pastures remain the most widely spreading practice in agriculture. In many cases, these land-use fires escape and develop large wildfires spreading through natural landscapes and, first of all, affecting in pine forests, shelterbelts and protected areas.

Main advances achieved since the last International Wildland Fire Conference: Action taken between the 7th and 8th Conferences

To address recent changes in fire regimes and future risks from fires, REEFMC in cooperation with GFMC, international organizations, the government of Ukraine and other stakeholders, supported the development and contributed to the implementing of the following:

- 1) The National Strategy of the Integrated Landscape Fire Management for 2020-2035¹
- 2) New Order on Fire and Pest Management (Approved by the Cabinet of Ministries of Ukraine, 20 May 2022)
- 3) New System of Fire Weather Danger Assessment (approved by Ukrainian Hydrometeorological Center, May 2020)
- 4) New extended course for Master students of forestry faculties "Fire Management" with field trainings
- 5) Standard program of advanced training for foresters "Forest firefighter" and "Incident commander of forest fire suppression" approved by State Emergency Service of Ukraine
- 6) Research tools for landscape fires risk assessment (within EU project "FirEUrisk") that were implemented as a web portal "Landscape fires of Ukraine"²
- 7) Establishment of research demonstration plots aimed at reducing the share of pine in pure pine stands and fire resistant edges of forests in order to increase resilience of landscapes and communities (in the frame of the RESILPINE project supported by Germany³)
- 8) Monitoring system of landscape fires in Ukraine developed by the REEFMC has been providing statistical information on fires in zones of direct and indirect impact since the beginning of the war⁴ (mirrored by GFMC⁵)
- 9) Development of recommendations on fire management in territories contaminated by UXO and land mines for fire personnel of forest enterprises.

Over the course of 2022, wildfires had affected Ukrainian forests and open landscapes in an unprecedented magnitude and became additionally deteriorated by impacts of shelling, rocket and drone attacks, on-ground fighting, land mines and UXO. In order to assess precisely the disturbances caused by

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https://nubip.edu.ua/sites/default/files/u184/proiekt_derzhavna_strategiya_upravlinnya_landshaftni_mi_pozhezhami.pdf

² www.wildfires.org.ua

³ <https://gfmc.online/programmes/natcon/gfmc-ukraine-resilpine-2021.html>

⁴ <https://nubip.edu.ua/en/node/9087/2>

⁵ https://gfmc.online/globalnetworks/SEEurope/SEEurope_1_radio.html



fire, the mapping of all fire-damaged territories was implemented with the help of OroraTech (defining the coordinates of fires), Sentinel-2 (level 2A, mapping of the fire polygons according to the place and time of the ignition), and land cover from Copernicus (100 m resolution, 2019). Data on the occupied territories (dynamic) was taken from the open source of Institute for the Study of War. In 2022, a total 19,930 fires affected a total area of 754,941 ha; out of which 56,595 ha were forest, 419,112 ha agricultural lands and 321,056 ha on the temporary occupied territories.

Conclusions and recommendations

Taking into account unprecedented impact of climate change, war and related to it social economic crisis, Ukrainian forest management requires strong international support of fire management during the war period and during postwar recovery. Current and future needs are defined by the Ministerial Conference for the Protection of Forests in Europe (FOREST EUROPE, currently chaired by Germany), the Global Fire Monitoring Center in cooperation with Government of Germany, REEFMC and other stakeholders.^{6 7}

In order to address current and future needs of fire management of Ukraine, minimize the impact of catastrophic fires on population, infrastructure, fire personnel and ecosystems, regional security, the following support is urgently required:

- 1) Technologies and armored technologies for disposing UXO and land mines in forests and allowing safe fire suppression operations
- 2) Full size and pick-up off road modern fire engines with high pressure pumps and other needed equipment, tractors
- 3) Mobile fire ponds and hoses
- 4) Personal protective equipment for fire fighters (helmets, flame resistant jackets and pants, shoes, radios, etc.), including armored life vests and military helmets to protect personnel during firefighting in UXO contaminated lands
- 5) Hand tools for fire prevention and suppression (tools for fire breaks establishing, backpack fire extinguishers, drip torches etc.)
- 6) Support of the National Fire Training Center with modern programs of firefighter trainings and equipment for trainings
- 7) Inclusion of local communities situated along or within forests and fire-sensitive open lands towards active participation in wildfire risk reduction
- 8) Support national research capabilities to map wildfire risk, establishment of fire resilient stands and landscapes by silviculture, fire ecology and other methods; support national and local fire policy dialogue on landscape fire management.

⁶ https://foresteurope.org/rapid-response-mechanism/#ukraine_forests

⁷ https://gfmc.online/globalnetworks/balticregion/BalticRegion_7.html