



Global Fire Monitoring Center (GFMC)



Draft Proposal / Outline

The Wildland Fire Handbook: Basics, Strategy, Tactics and Safety

A Manual for Fire Services in Western, Baltic and Eastern Europe

Rationale and Reason for Developing the Handbook

In the countries in Western, Baltic and Eastern Europe the fire services are responsible for suppression of forest fires and other wildland fires.

It has been recognized, however, that fire services personnel – both professionals and volunteers – are not properly trained in the very specific fundamentals of wildland fire, particularly the aspects of wildland fire behaviour that are not only critical for successful fire suppression but also for personnel safety. There is also a lack of special equipment for wildland fire suppression and its use. The use of hand tools or counter firing – fire suppression without water – is widely unknown. Special protective clothing and personal safety equipment for wildland fire conditions is not in place in the region. Fire service personnel in general is not familiar with technical wildfire prevention measures which are usually handled by the forest services and the land owners respectively. Knowledge on principles of preventive measure that influence wildland fire behaviour and fire effects

The concept of the handbook is to provide basic knowledge and demonstration materials for the fire services. The handbook will be based on the specific knowledge of fire management gained in other regions of the world where fire is a more regular phenomenon and where specific standards, training and equipment have been developed over the years, e.g. in North America, Australia and some Southern European countries

This first outline of the book contents will be handled flexibly as additional suggestions will be made during its development and review.

Contents (3rd draft, February 2005)

Principles of Combustion

- The Wildland Fire Triangle
- Combustion of organic materials
- Wildland fire propagation: Radiation, convection and conduction

Fire Weather

- The weather engine, relationship between temperature and relative humidity
- Effects of terrain, vegetation, clouds and wind on temperature and relative humidity
- Effects of wind
- Atmospheric stability, inversion layers and thermal belts
- Clouds and thunderstorms

Topography and Fuels

- Topography, fuels and fuel moisture

Wildland Fire Behaviour

- Fire environment
- Fire behaviour characteristics
- Fire behaviour prediction

Fire Prevention and Protection

- Fuel management
- Fire breaks
- Fuel breaks
- Defensible space at the Wildland-Urban Interface (WUI)

Wildland Fire Suppression Methods

- Use of fire suppression equipment (hand tools, mechanized equipment)
- Use of foam and retardants
- Firefighting without water
- Fireline construction and placement
- Use of fire (backburning, burning out)

Initial Attack Strategy and Tactics

- Developing a strategy and plan of attack
- Direct, parallel and indirect attack
- Aircraft (helicopter, fixed wing): Tactics, communication, safety
- Structure protection at the WUI
- Post-fire: mop up

Fireline Safety

- Safety as a personal responsibility
- Clothing and Personal protective Equipment (PPE)
- Safe driving on the way to the fire
- Foot travel safety
- Hand tools safety
- Initial attack safety checklist
- Extended attack safety checklist
- Safety briefing
- Line construction safety guidelines
- Downhill or Indirect Line Construction safety guidelines
- Pumper and tanker safety
- Wildland\urban interface watch outs situations and hazards
- Power line safety
- The 18 watch out situations
- The ten standard fire fighting orders
- Lookouts, Awareness, Communications, Escape route, Safety zone (LACES)
- Common denominators of fire behaviour on Tragedy fires
- Safety in firebombing drop zones
- Firefighter entrapment
- Fatigue Management
- Heat Stress

Threats of Wildland Fire Smoke to Health and Safety of Firefighters and the Public

- Smoke characteristics and dispersion
- The WHO Health Guidelines on Vegetation Fire Events

Fire Organisation and Management

- Small fire organization
- Large fire organization
- International standards: The Incident Command System (ICS)

Early Warning of Wildland Fires

- Definitions: Wildland fire risk, hazard and danger
- Fire-weather based early warning systems
- Use of satellite-based remote sensing tools

Wildland Fire Detection and Monitoring

- Ground-based fire detection, including automated systems
- Aerial fire detection and surveillance
- Operational satellite instruments in place

Prescribed Burning

- Principles of prescribed burning for wildfire hazard reduction (fuel management)
- Prescribed burning inside of coniferous forests
- Prescribed burning in open lands between forests, along railroad tracks
- Prescribed burning in nature conservation and landscape management

Appendices

- Illustrations (other t.b.d.)

Wildland Fire Management Glossary

- Selected terms of the FAO / GFMC Wildland Fire Management Terminology

Wildland Fire Management Literature

- Textbooks, handbooks
- Basics in fire management
- Basics in fire ecology
- Websites