



7th International Wildland Fire Conference

Statement of the International Fire Aviation Working Group – An Input Paper to the Conference Statement

30 October 2019

Introductory Remarks

Used effectively, aircraft provide a valuable specialised support capability for fire management. Aviation forms an important component of the preparedness and response capacity required to address apparent and predicted changes in wildland fire regimes, and to meet increased expectations of communities regarding effective response.

The use of aerial means to support fire and emergency management has continued to develop and grow over recent years. Capabilities have been introduced or expanded, including higher capacity firebombing aircraft and the ability to operate safely and effectively at night. Significant advances have been made in the use of specialist airborne assets to acquire and deliver information and intelligence products to fire managers, in turn allowing them to better plan responses to emergencies and disasters and to keep communities informed. The use of remotely piloted aircraft has increased dramatically.

Aviation can be expensive and requires close attention to management of risks. Competent management supervision, along with effective support systems, is required to assure the safety, effectiveness and efficiency of aircraft operations.

There is increasing pressure on response agencies to generate efficiencies while addressing additional demands. Transboundary sharing of aviation resources offers potential to generate considerable economic benefits and to improve the effectiveness and efficiency of fire prevention and response. Aviation resources are mobile and versatile and are often well suited for sharing between jurisdictions.

The International Fire Aviation Working Group (IFAWG) is an international group of aerial fire management specialists who lead and manage the use of aircraft for fire management in their jurisdictions. This group comprises representatives from states around the world who regularly utilize aerial means in managing fire, including for firefighting.

The IFAWG aims to ensure that aviation provides effective support to fire management by improving the safety and effectiveness of aerial means through sharing of information, experience and resources.

The genesis of the IFAWG may be found at the 4th International Wildland Fire Conference, in Seville, Spain. During that conference a thematic Aviation Management workshop was held with the aim of identifying opportunities for multilateral cooperation to improve the safety, effectiveness and efficiency of aerial firefighting. The recommendations expressed a need to:

- continue to identify opportunities for sharing of information and resources;
- establish frameworks to properly evaluate the net benefit (including accounting for benefits of prevention of losses) of applying of aerial means;
- ensure that aerial operations are managed, supervised and supported to a high standard, and are properly integrated with other aspects of fire operations;
- establish a formal network to facilitate the continued sharing of information, with a priority on safety-related information;
- standardize approaches to integrated management of aerial means.

The IFAWG operates as a Working Group of the Wildland Fire Advisory Group (WFAG), which is serving as a liaison between the Global Wildland Fire Network (GWFN) and the United Nations International Strategy for Disaster Reduction (UNISDR) through its Secretariat, the UN Office for Disaster Risk



Reduction (UNDRR). Through the International Wildfire Preparedness Mechanism (IWPM) IFAWG is a Voluntary Commitment to the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030. Formal Terms of Reference for the IFAWG were adopted in 2010.

IFAWG joined the preparation, organization and follow-up of the UNECE/FAO Regional Forum on Cross-boundary Fire Management in 2013 and contributed the international consent-based, voluntary guideline for use of aviation means in fire management.

IFAWG has continued to develop, voluntary guidelines, known as the Fire Aviation Guidelines. The Fire Aviation Guidelines provide a collaboratively developed set of guidelines that are available for reference and voluntary adoption.

Specific issues

The global fire management community continues to observe areas where there is scope to improve and optimize the application of aerial means to support fire management activities.

Safety

Improving the safety of aviation operations remains the highest priority. Worldwide, the safety record for aerial firefighting is poor compared to other sectors, evidenced by a high number of fatalities per hours flown. Many accidents and incidents appear to be related to human factors and could be classed as avoidable. It is not clear if the safety record is improving over time. Currently it remains difficult to establish a clear statistical picture of safety issues in aerial fire management. There would be benefit in establishing a consolidated international database of aviation accidents and incidents specifically in fire and emergency management, including the lessons learned from investigations. This would assist with directing pro-active accident prevention and provide focus and prioritization for safety promotion.

Appropriate investment in aerial means

Used properly, aviation resources deliver important support for fire management and deliver outcomes for communities that may not be feasible without the use of aerial means. Aviation resources can however be relatively expensive and may, at times, be limited in effectiveness. There is potential for the use of aerial means to divert funding from other means of wildfire prevention and mitigation. Commercial pressures from suppliers can also influence the engagement and application of aerial resources. Care is needed to ensure that an appropriate, balanced level of investment is made in aerial means.

The establishment of frameworks to properly evaluate the net benefit of applying of aerial means remains challenging. It is important to continue to develop economic evaluation frameworks to compare costs and benefits of different aerial resources as well as to identify the overall net benefits of applying aerial means. These frameworks should consider all benefits that flow from the use of aerial means including avoided costs and downstream benefits.

Effective application of aerial means

Many jurisdictions make very effective use of aviation resources to perform a wide range of fire management tasks. However, the wildland fire community is aware of instances where aerial means have been applied inappropriately or inefficiently. There is evidence to suggest that relatively costly aerial resources could be utilized more effectively in many circumstances. Amongst other things, improving the utilization of aerial resources requires:

- fully integrating of the use of aerial means with other means, as part of overall strategies to combat emergencies and disasters;
- provision of high-quality management, supervision and support for aerial operations;
- conveying realistic expectations to fire managers, communities and politicians about what aerial resources can achieve.



IFAWG are continuing the process of developing the Fire Aviation Guidelines. These voluntary guidelines are intended to assist communities across the globe to manage fire and to build resilience to the effects of wildfire by improving the effectiveness of fire aviation as a specialized support capability. The guidelines aim to assist adopting states to develop and manage appropriate, effective, high-quality aviation capabilities by providing guidance regarding recommended minimum standards and appropriate best-practices.

The ongoing development of the Fire Aviation Guidelines is a collaborative project requiring contributions of best practice doctrine from the wildland fire community.

Sharing of aviation resources

Transboundary sharing of aerial resources offers potential to generate economic benefits, makes efficient use of resources and provides jurisdictions with capacity to respond to situations beyond their normal means.

There are many examples of highly effective cross-border sharing of aerial resources to support response to wildfire emergencies and wildfire disasters. Sharing of aerial resources between jurisdictions has increased overall in the past four years. However, various barriers remain. These include, for example:

- absence of interoperability, standardization and common terminology; along with the use of different procedures and systems;
- lack of specific pre-planning and preparedness for the exchange of aircraft resources;
- incompatible regulatory frameworks.

The Fire Aviation Guidelines developed by the IFAWG also aim to enhance the opportunities for transboundary cooperation through the sharing of aviation capabilities between states or jurisdictions by:

- a. developing common standards and common operating practices for fire aviation that will enhance inter-operability; and
- b. providing recommended procedures and supporting information for effective sharing of fire aviation resources.

Remotely Piloted Aircraft (RPA, UAV or Drones)

The capabilities and accessibility of Remotely and Optionally Piloted Aircraft have increased significantly in recent years. The fire management community already utilizes RPA extensively and recognizes that RPA capabilities offer many possibilities for further development. On the other hand, the proliferation of RPA overall and the increased potential for unauthorized presence of RPA at fire management operations poses significant risks to the safety of aerial and ground activities.

The rapid expansion of the RPA sector and its capabilities requires that regulatory frameworks are constantly updated. In some states and jurisdictions, regulation of RPA activity may restrict beneficial use of RPA, while at the same time offering only limited protection from risks arising from unwanted use of RPA.

Overall there is a need for states and jurisdictions to implement standard, safe operating procedures for effective application of RPA technology. Procedures and regulation will require relatively short revision cycles, as the technology continues to rapidly develop. There is also a need to ensure appropriate mitigation against unwanted and inappropriate use of RPAVs. This is likely to require regulatory controls and effective enforcement as well as education of the public regarding the risks involved.



Main advances since the last International Wildland Fire Conference

IFAWG has focused its efforts on the continuing the development of the voluntary Fire Aviation Guidelines.

Part I of the Guidelines constitutes the Framework Document, which has been subject to international discussion and inputs since 2014. The first edition was finalized in 2015. Part I provides Core Principles as well as basic strategies and key guidance for consideration by jurisdictions which are developing or maintaining a fire aviation capability.

Work has continued on developing Part II of the Guidelines, which provide more detailed guidance in the form of the *International Manual of Common Rules for Fire Aviation*. Although Part II is not yet finalized, the completed sections are available for consideration and feedback and may be adopted if desired. Further technical guides will be added as they are required and developed.

Since 2018 completed sections of Fire Aviation Guidelines have been published on a publicly available website at <http://www.ifawg.org/information/>. The website provides a facility for comments and feedback and to receive further contributions to the Guidelines.

Recommendations

The IFAWG encourages the participants of the conference to consider inclusion of the following points and recommendations in the Conference Statement or appropriate publication.

Used effectively, aircraft provide a valuable specialised support capability for fire management. Aviation is an important component of the preparedness and response capacity required to address apparent and predicted changes in wildland fire regimes, and to meet increased expectations of communities regarding effective response.

Many states make very effective use of aircraft in a wide range of roles. There is, however, evidence to suggest that aviation resources could be utilised more effectively in some circumstances.

The need for transboundary cooperation to share information and resources is particularly compelling in the case of capabilities such as fire aviation and cross-border sharing of aircraft is likely to be an increasing feature of wildland fire management. There are opportunities to enhance resource sharing by establishing common operating procedures and standards and by embedding robust resource exchange procedures into pre-planned inter-jurisdictional agreements.

The conference recommends:

- Agencies with fire management responsibilities continue to develop methodologies and procedures to ensure that aerial means, including remotely piloted aircraft, are safely applied as part of an integrated approach to fire and forest management, and are deployed according to assessed risk and sound economic principles; and
- Agencies continue to develop frameworks for assessment of the economic benefits and costs of using aviation means. Frameworks should account for avoided costs and should allow for comparison between different aviation means as well as assessing overall cost benefit of using aviation means.
- Agencies and groups collaborate to further develop the voluntary Fire Aviation Guidelines in order to promote best management practices and in order to support safe and effective sharing of aviation resources between jurisdictions;
- Agencies continue to develop bi-lateral and multi-lateral agreements, where appropriate, that set out pre-planned arrangements and operating practices to facilitate safe and effective sharing of aerial means between jurisdictions;



- The conference supports the adoption of the Fire Aviation Guidelines for independent endorsement and application by individual operators and agencies, or within the framework of bi-lateral and multi-lateral agreements;
- The conference suggests that any wider agreements on international cooperation incorporate and promote the Fire Aviation Guidelines where appropriate.
- That agencies and groups support the establishment of a publicly accessible, international repository for information regarding aviation accidents and incidents related to fire and emergency management operations, including the outcomes of investigations and recommended corrective actions.
- Aviation regulatory authorities ensure that regulation of remotely or optionally piloted aircraft is contemporary to the extent that it:
 - a. enables effective application and development of the technology by fire and emergency management agencies; and
 - b. mitigates the risks to fire and emergency operations from unwanted or unauthorised use of remotely piloted aircraft.