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# Global Cooperation in Fire Management: current status and guideposts for future direction

Peter Moore, FAO

Bill de Groot, Canadian Forest Service



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# Introduction

- An overarching goal of this International Wildland Fire Conference series is promoting international cooperation in fire management
- The global fire community has long-recognized
  - The many factors of wildland fire management
  - The critical importance of enhanced international cooperation for
    - Enhancing fire prevention capability
    - Sharing critical fuel, weather and fire intelligence for prevention and pre-suppression planning
    - Improving suppression capacity through sharing of expertise and resource-sharing,
    - Increasing suppression effectiveness sharing advances in training, science and technology transfer.
- Many actors and agencies actively contribute (or can) to greater international collaboration.



# International Collaboration

- Principle is for open access to:
  - Training – sharing expertise
  - Exchanging Science and Technology – sharing knowledge
  - Information sharing and fire intelligence - Fire Danger Rating, active fire locations, area burning, suppression asset locations and availability
- Potentially to consider:
  - Resource sharing of suppression assets as/if value is added

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# United Nations

- The UN has a Disaster Risk Reduction focus (not wildfires explicitly)
  - **UN Office for Disaster Risk Reduction** – focal point and custodian of the Sendai Framework
  - UN has only **FAO** with land and fire management as a technical mandate
  - **World Meteorological Organization**
  - **UN Environment (UNEP)** - Joint UNEP/OCHA Environment Unit responsible for international coordination on environmental emergencies
  - **Advisory Group on Environmental Emergencies** - improve risk reduction, readiness, response
  - **World Health Organization** - Health Guidelines for Vegetation Fire Events 1999
  - **United Nations Development Programme** - fire activities as projects

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# Other International Bodies

- Other international bodies react to wildfires with interventions when the scale, impacts or profile of wildfires creates sufficient attention
  - **The World Bank** – involved in readiness, response and post-disaster recovery and reconstruction
  - **International Tropical Timber Organization** - promotes sustainable development through tropical forest management; ITTO Guidelines on Fire Management in Tropical Forests (1997)
- The international scientific community is active with regular collaboration and connection:
  - **International Union of Forestry Research Organizations** - Unit 8.03.05 “Forest Fire”
  - **Global Observations of Forest and Land Cover Dynamics** - Fire Mapping and Monitoring
- **Global Fire Monitoring Centre** – focus on fire and wildfire management founded in 1998
  - Coordinates a number of groups and mechanisms and regional voluntary networks that support development of fire management policies, and science and technology transfer
  - Provides a valuable global portal for wildland fire documentation, information and monitoring

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# Regional Organizations

- **European Union (EU)**
  - Civil Protection Mechanism that has been used since 2001 includes wildfires
  - Member states are preparing “Modules” of capacity such as Spain
  - EC Forest Fire Expert Group, meets biannually
- **Association of South East Asian Nations** - Agreement on Transboundary Haze Pollution came into force in November 2003
- **Southern African Development Community** – 14 Member States seeks to provide a framework for cooperation on fire management issues



# Exchanges and Study Tours

- Example - study group exchanges US/Canada/Australia and New Zealand for nearly 60 years (1951)
  - Exchanges provide opportunities to share information about programs and experiences.
  - The parties work toward agreements/arrangements on joint training, research, post-fire reviews, assist with fire suppression and post-fire restoration
- There have been:
  - US/Australia/New Zealand: Nine mobilizations of firefighters
    - Total combined participants at 702 personnel and numerous exchange activities
  - Canada has shared resources with Australia, Mexico, New Zealand, South Africa and United States.
    - Total of 1233 personnel supporting Canada, 1804 from Canada to its partners since 2000.
  - This has proven the value of effective, flexible, cooperative and formal relationships.

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# Modeling International Fire Management Cooperation: Does resource-sharing work?

A modeling study to assess if suppression resource-sharing between national fire management agencies is advantageous to individual partnering countries

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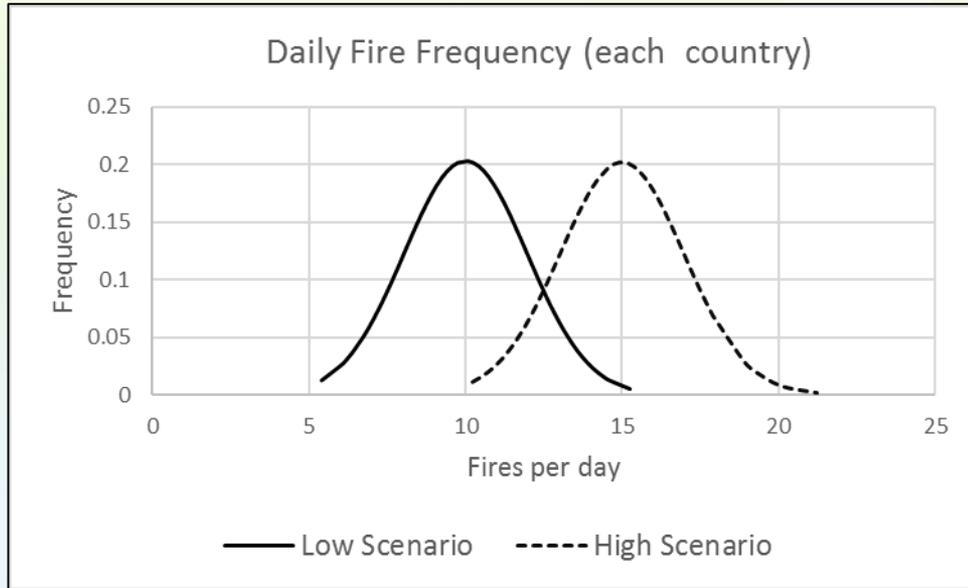
# Study Design

Six countries with the same suppression resource levels and the same fuel and fire regime conditions, were used to test 3 different options:

- No resource-sharing agreement
- Three bilateral resource-sharing agreements
- One resource-sharing agreement between all 6 countries



# Fire Regime Scenarios



Fire Severity Level	Low Scenario	High Scenario
Low	0.50	0.40
Moderate	0.25	0.25
High	0.15	0.18
Very High	0.05	0.10
Extreme	0.05	0.07

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# Suppression Requirements

## Fire Crews

Fire Size Class	Initial Attack		Extra Fire Fighting	
	Crews	Days	Crews	Days
A 0.1 ha	1	1		
B 1 ha	1	2		
C 10 ha	2	5		
D 100 ha			5	10
E 1000 ha			10	20
F 10,000 ha			20	40

## Air Tankers

Fire Size Class	Fire Severity				
	Low	Moderate	High	Very High	Extreme
A 0.1 ha					
B 1 ha					1
C 10 ha				1	2
D 100 ha			1	2	4
E 1000 ha			2	4	6
F 10,000 ha			4	6	8

 Small Initial Attack fires  
 Large Campaign fires

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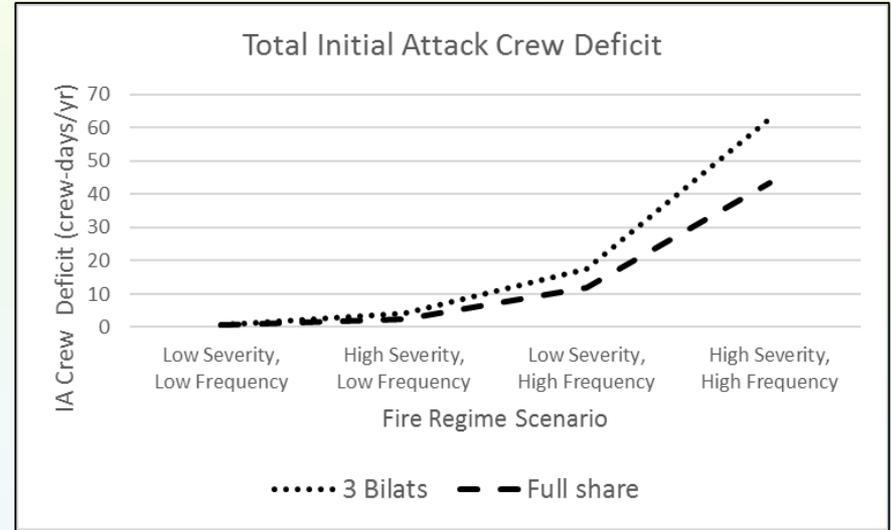
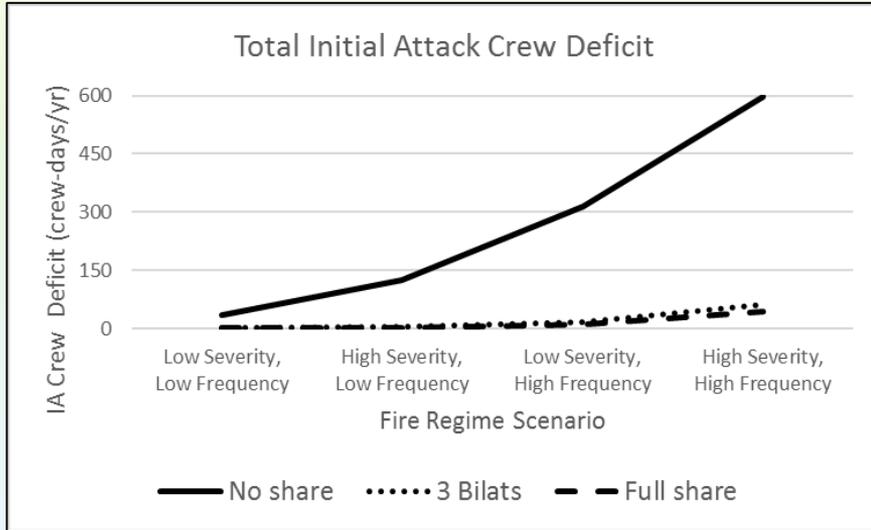
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# Results



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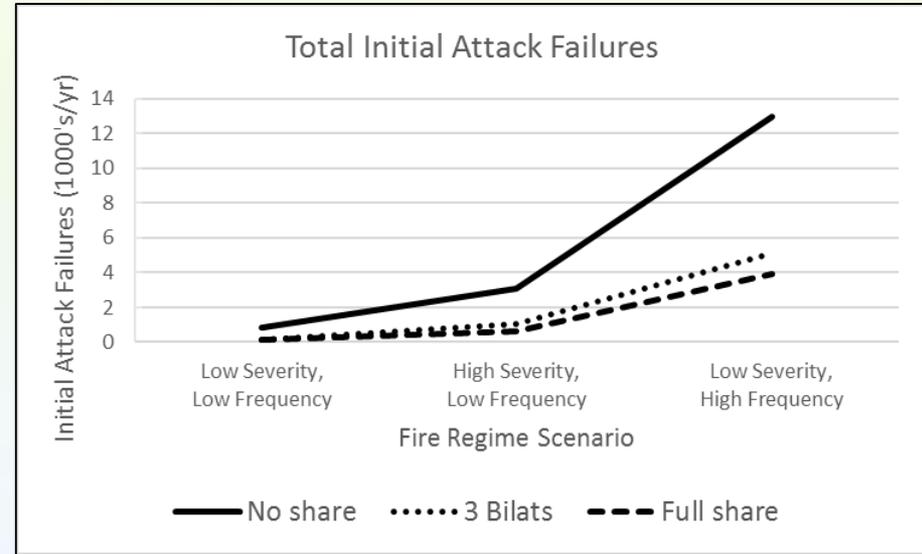
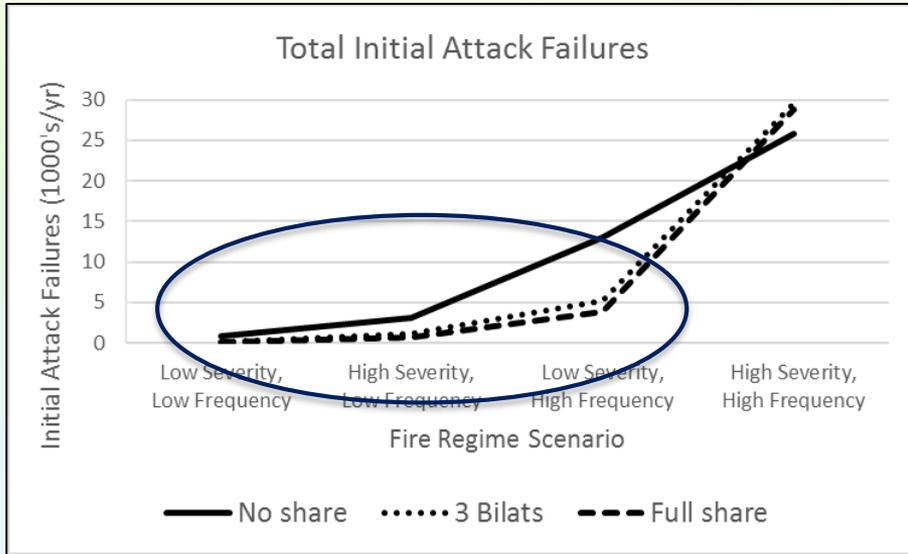
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# Results



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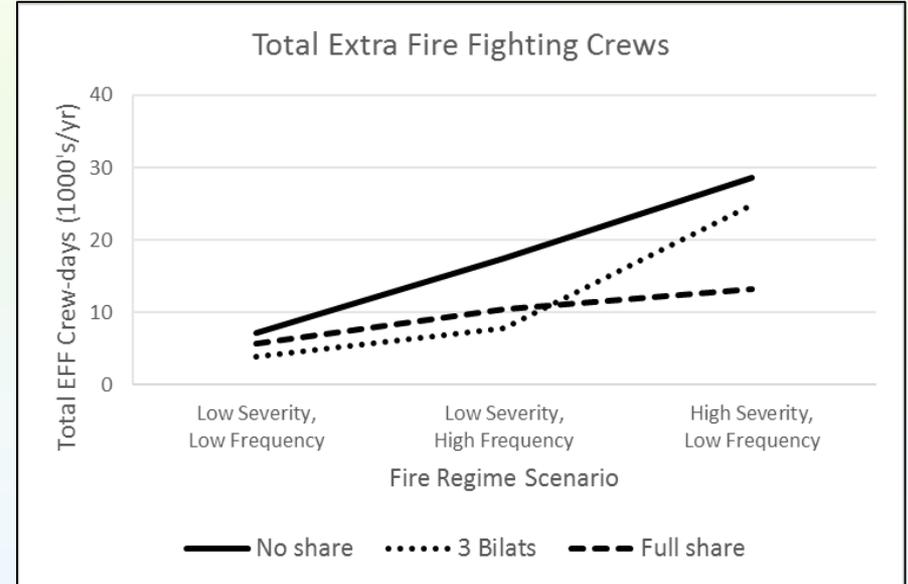
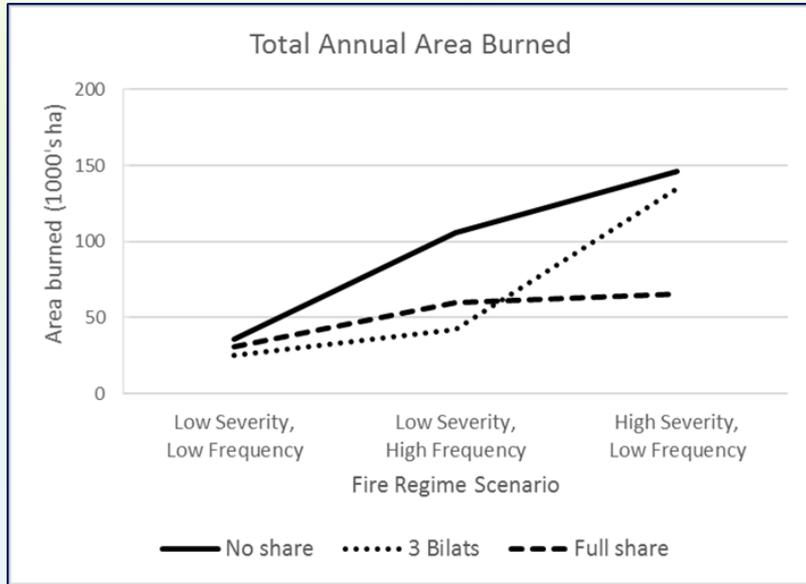
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# Results



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# Study Conclusions

- Any resource-sharing agreement is beneficial to all participating countries by:
  - reducing initial attack crew and air tanker deficits
  - reducing initial attack failures
  - reducing total area burned
  - reducing total EFF costs
- Multi-agency sharing agreements are more beneficial than bilateral agreements

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# Study Conclusions

- Under increased fire frequency, Initial Attack crew sharing is most important
- Under increased fire weather severity, air tanker sharing is most important
- There is an upper threshold of extreme burning conditions (i.e., fire severity and frequency) above which all suppression resources are overwhelmed



# Summary - 1

- Has been a large number of efforts, initiatives and bilateral arrangements related to international cooperation.
  - Very few, if any, of these matured into stable relationships over time.
- Long term mandated collaborative efforts include:
  - Silva Mediterranea Working Group on Forest Fires – 2002 & earlier
  - NAFC Fire Management Working Group – 53<sup>rd</sup> meeting upcoming
  - EC Expert Group on Forest Fires 40<sup>th</sup> Meeting in December
- Fire research seems to have a better track record of cooperation
- Fire managers focus on local/provincial/national context and hence have less opportunity?



# Conclusions - Cooperation

- International cooperation in resource sharing appears to come in part from ‘familiarization’ or trust”
  - Not really about the logistical mechanics or science/technical, but human relationships
- Successful long term efforts appear to include in common:
  - Agencies with a mandate from their countries on fire management
  - Topics and issues of focus on which to share ideas and practices and improve
  - Support for representatives to attend meetings, or funding to support regular meetings
  - Building connection and creating relationships over time needs regular interaction
- Its conferences like this that provide the opportunity to build the trust that serves as the foundation for international cooperation.



# Thank you for listening!

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