

North American Forest Commission

REPORT OF THE 46th MEETING

ARCADIA, CALIFORNIA

NOVEMBER 27-29, 2012

Fire Management Working Group

**Minutes of the 46th Annual Meeting of the
North American Forest Commission – Fire Management Working Group
Arcadia, California, USA
Angeles National Forest Conference Room
November 27-29, 2012**

Tuesday November 27th, 2012

Hosted by the US Forest Service

1. Welcome

Meeting called to order by Dale Dague of the US Forest Service, who welcomed everyone on behalf of the North American Forest Commission, thanked them for their attendance, and introduced Angeles National Forest Fire Management Officer James Hall.

James Hall, Fire Management Officer, US Forest Service Angeles National Forest expressed his pleasure at having this group on the Angeles National Forest as the inaugural meeting in the newly remodeled training facility located at the Angeles National Forest Headquarters.

2. Introductions

Roundtable introductions completed (see Appendix 1 for list of delegates in attendance) and Dale Dague conducted a review of the agenda and meeting logistics.

3. Meeting Overview

Tuesday, November 27/13

- Country Reports – Mexico, Canada, USA
- Review of 2011 FMWG meeting minutes
- CONANP Membership Proposal
- FMWG Charter Review
- Reducing Emissions from Deforestation and Forest Degradation
- NAFC website proposal
- Review FMWG Work Plan and Action Items
- Hurricane Sandy Report
- International Liaison Committee (ILC) Update
- 6th International Wildland Fire Conference Update

Wednesday, November 28/13

- Field Trip to the Station Fire, Angeles National Forest
- Banquet for meeting delegates

Thursday, November 29/13

- Texas Wildfires of 2011
- Forest Fire Managers Group (FFMG) Update
- NAFC Update
- Travel to San Dimas Technology and Development Center (SDTDC)
- Tour of SDTDC
- Bilateral Wildfire Agreements update
- ICS Glossary Update (French Translation)

4. Chairman's Remarks – Tom Harbour (Director, US Forest Service Fire and Aviation Management)

Thank you everyone for coming, I appreciate your attendance here. Some of you have traveled very far to get here and we are glad for the ability to get together. I wondered what I should say here at the beginning of this session. Folks like Dale who has known me for many decades know I don't have any problem talking. Sometimes I talk a lot longer than what I should talk. I enjoy talking and speaking but I try to make it worthwhile.

So I wondered what to offer to this group because I not only am losing my hearing as I get older, I realize that it's last time I'm going to chair this group. I have a self-imposed ten year term limit on my time as director. And in two more years I'll reach that term limit and it won't be time for me to be hosting this group again in 2015 I guess. I won't be here so you won't have to look forward to another one of my speeches in three years. So this is the last time that I'll address this group as chair and I've had the opportunity to do so more than a couple of times during the eight years I have as director so far.

So as an old man, losing his hearing, coming to an end of a mediocre career, I wondered what I should say to this group because time is valuable. I understand that more and more as I think about things. Time is valuable. And I'll tell you that I think your time and attendance here at this meeting is worth it for the reason of hope, for the reason of hope.

And I offer this place that we are meeting as maybe a metaphorical phoenix that has risen from the ash. For the reason why we continue to meet, why we've continued to meet for fifty years and why though even though I have a very difficult time sometimes understanding the foreign language that those folk to the north speak. I can't understand Kim's accent at times at all. Bill you do pretty good, Kim I can't understand you. Shane, I've been too much with Gary Morgan and I have a hard time. I can pick out a word or two, from Alfredo and others. And so even given the consequences of language that separate us, the reason we meet here is hope.

Because we know and we understand that in the field in which we live, the field in which we've dedicated our professional lives that there are extraordinarily significant problems which affect us from pole to pole here in all the countries of South America, Mexico, the US, and Canada. Because we know that given the future that we see, based on the past we've lived, that this problem of wildfire is not getting any better.

This problem of wildfire in fact is growing increasingly significant to our societies. And in doing so, the folks who lead those societies, the opinion leaders, the elected representatives, the scientists, are all struggling for solutions to the problems that we see that afflict our societies. In essence we view fire as more or less that bothersome and prone to distract us, horsefly, fly, mosquito that buzzes around us. In the context of what our societies face certainly fire management is not one of those issues like the US deficit, like the problems that afflict the Greece economy, like aging populations. Perhaps even like global warming and greenhouse gasses.

But fire management in our world, in our societies, in our countries, is that bothersome fly that shows up periodically and does in fact hurt us. It bothers us as a society. Because acres burn. Because homes and communities burn. People sadly lose their lives, because of this natural force. Our bosses, our societies, our presidents, our leaders, our parliaments, our congress, they look to people like us to make sense of how to deal with the problem.

And so we find ourselves coming together as a group of folks from different nations to talk about this issue of fire. To talk about ideas we may have, to talk about hope that we might find a better future for our children, and for those that go before us. And we do so in the context of this bothersome gnat, this bothersome fly, this bothersome mosquito that only periodically afflicts us.

It's not a constant buzz for us in any of our nations. And our leaders are more than content when there is no more buzzing, when the mosquito doesn't bite us, when the fly doesn't annoy us anymore. They ask us questions and hope that we have solutions that are both simple and cheap. And sadly so far, we have come up with no solutions that are cheap, simple, ecologically acceptable, and societally acceptable. We just haven't found them. So the reason to continue to me, the reason to endure for fifty years, is to continue that dialogue.

As we see what happens south of the boarder, and what you do south of the boarder, and how that may translate into action in the United States. To see maybe if the United States is doing things that maybe can be adapted in the provinces to the north of us. To take a look for us at what happens in Canada and ask if that can be adapted. That's the reason that we are here. It's to engage with one another. It's too hope.

We all understand the complexities of the issue and so it's to listen and to learn and to ponder at the senior levels that we all are. And to see how we might affect a better future.

It has been twenty-five years that this place that we stand here that I've been generally associated with this place here. And twenty-five years ago this unit here had a problem. They were in a place to the west of us here. It was too little, too expensive, not a good place to be. And so they had to take a short term, they had to execute a short term solution. The execution of that short term solution was in fact as Jim said, "To put a bunch of trailers", to put a bunch of temporary buildings on this very site. And to tell us it was only temporary and it was only going to last a few years.

That was about twenty-five years ago. How interesting it was to see the evolution of the desire to build something better out of this site. To get out of those old trailers, those old temporary structures that really were slapped together at the last minute. To have the constituents of the folks that was working in trying to do good things in those temporary buildings. Reminding the managers, you said that this was only going to be for a little bit; you said that you had a long term solution. To have a series of very well intentioned leaders, at the local, the regional and national scale say, well we do have a vision, the time isn't right, and the opportunity isn't right.

And there have been more than, hundreds perhaps employees who came through this place who saw the temporary structures that folks were working in here and at least were happy that they didn't have to work in the same place that these folks here had to work; with the leaks in the roof periodically; with the office pool about who would catch the most mice. I one time in my office over there had the opportunity which I don't know if it has ever been repeated, its much like the story of the seven flies, I one time caught two mice in one trap. Just a lucky guy.

But the fact is now there's a beautiful new building here. The fact is now while it took much, much more time than any of the folks ever worked here ever thought it would take. But now there's a new building, a new structure meant to last for 50, 60, 70 years. And the structures that were here have been adapted.

This building that you're in as Dale and Jim both said, many, many years ago used to be where firefighting supplies were stored. And the ghosts of people that I worked through and with Lou Yazzi and with John Chakarian and many others who spent hours and hours in this building; handing out fire shirts and Nomex pants; hair nets and gut bags. Get somebody on the American side to translate there for you what a hair net and gut bag is. All came out of this building here.

And today we have the opportunity to meet. And certainly for me, to reminisce a little bit about what I see here on this compound compared to what it was. And the metaphor on an old man is not lost. Because the sense and the hope I have is that our fire management policies, while immature and perhaps cobbled together, are perhaps after twenty-five years going to bear fruition. And in their places will have what we've learned from our friends south of the boarder and north of the boarder and learned collectively and unitedly.

That we've got a fire management policy that's set up; we've got fire management practices that are set up; we have fire management protocols and opportunities and equipment and research and science and understanding that are set up for the long term. That's why we come here; that's why we join together as friends and professional associates, as scientists and practitioners. That's why we come and meet and endure for fifty years; because of the sense of hope.

And that's what I hope you remember as we go through these next two or three days; is why old men like me would make the trek out here to be with you. It's because of the hope and aspirations I feel for our collective future.

Couple other things I wanted to tell you; one you may have heard we've just had an election in the United States. There was no activity basically in our congress prior to that election. Now the election is over and this session of congress has in about a month to do what they probably should have working the last year to do.

So I apologize that I won't be with you all of every day. I'll spend I hope the mornings with you and then the afternoons I will be on the phone trying to do our business with our congress since I talk to them about ideas for the future. So, it's not that I don't like you; it's that I like the money and the programs I get from congress better than you (followed by laughter from the group). That's what it is fundamentally. So I'll be with you this morning, I'll be with you tomorrow morning not all day, then I'll be with you Thursday morning.

For those of you who have not spent any time in Southern California you got to go have an In-n-Out Burger. When you're talking Southern California, its surf boards, Beach Boys, and an In-n-Out Burger. So you may have come here this morning thinking that you were going to have a rather fine and nutritious lunch but come on, you've got to go to In-n-Out Burger just down the road. It's an experience that you got to have. It's like southern barbeque, just in a different place.

I also wanted to tell folks how appreciative I am of Dale (Dague) and the work that he and Gordy (Sachs), and Jason (Steinmetz), and Vince (Mazzier) have done in preparing. We've got a very good agenda here, a very worthwhile agenda. Part of that we actually talked about, has it been a year or several months ago, when we talked about where to come. And Jim, you know we were coming here.

Now, also for my Canadian friends, Tim, Kim, and Bill, I want you to remember what the weather is like on the first day of this opening session and next year when we are in Canada. I don't want blizzards, us wandering through forty mile an hour winds, and snow, just because we are in Canada. So it's a marker I'm putting down here. So we are appreciative of being in Southern California with the good weather that we have.

I do want to tell you that the Chief of the Forest Service, Tom Tidwell, mentioned specifically to me a couple of weeks ago how appreciative he is of the work that this group continues to do, and how supportive he is of our international activities. Especially given the fruitfulness of the work that this group has done and the endurance that we've had in terms of developing products, interchanging ideas, and making those kinds of relationships endure over fifty years. It's a notable accomplishment.

So while there likely are a variety of other things that I jotted down as notes, things I wanted to recall as I stood up here. I am getting old, and my brain has faded, and I simply once again want to tell you what an honor it is for me to welcome you here to the United States, to the people's republic of California, that's a joke. Here to Southern California, as we open this session and as we spend the next three days here.

I knew if I kept talking I'd remember. I'm going to spend a half an hour or so, or an hour or so with you tomorrow talking about our field trip as we go up to the Station Fire. We have this field trip scheduled not for an after action about the notable for itself. Not, as perhaps we should, to remember the two men who died on the fire. Not to recall the property loss and the lives that were disrupted. But we talk about this fire in the context of what I see for the future.

I in my own agency, and in fact among many folks inside the belt way, am known as the master of disaster, Doctor Who, where I go the four horsemen of the apocalypse are sure to be proximate to me. And I say that because I tell them that the future that faces us in Mexico, in Canada, and the United States in the context of these emerging climate forces, whatever is happening there. In the context of the ecological forces that we see and the societal pressures. The increasing populations stand to lend more Station Fire occurrences to our immediate future.

So I hope as you go through today and as you listen to the presentations and as we go out to the field trip tomorrow. I hope you do so not in the context of one singular fire and one singular event. But I hope you think about Florida, what happens in Tallahassee. I hope Carlos thinks about the context in terms of the science that he sees. God forbid for Kim, I hope he sees what might happen to the north as populations increase. And for Alfredo and for our friends south of the border, I hope you get the sense again of a frightening prospect of forces that await those who follow us.

So it's for the very reason that this building got built. Because there was a sense of what needed to be done and what could happen. And finally the forces, finally an accumulation of all those things that needed to happen to make this building happen. The money, the plans, the political support, the community support, the organizational support finally all happened and it came together.

Solutions for us and hope for us won't happen in the context of forty ideas and forty different ways to go. Hope for us will happen in the context of what this working group means about unity of some good ideas. And that's the context of the field trip tomorrow and I think that's the context for the meeting.

So once again, thank you. I also welcome you to my old home. As many folks around me say, I may not have been a very good Forest Fire Chief here on the Angeles but I'm a much poorer national leader for the fire program for the Forest Service.

So thank you very much.

5. Country Reports

Mexico

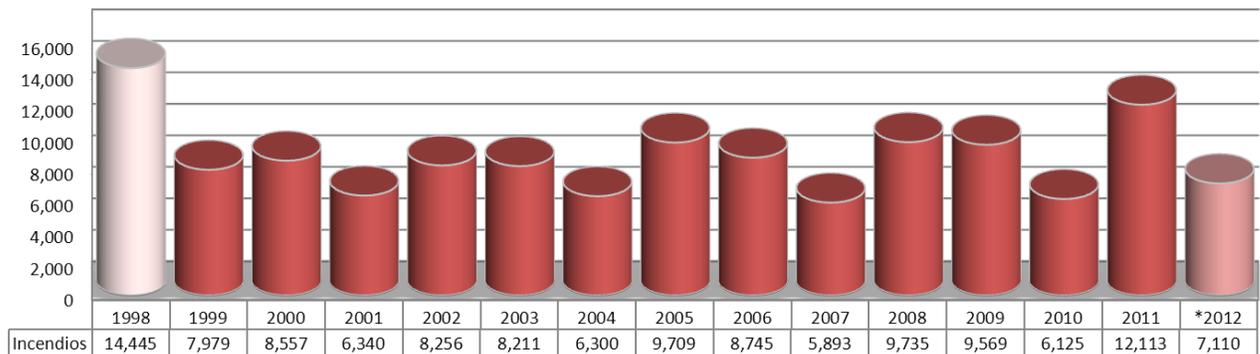
Conservation and Restoration General Coordination – CONAFOR - Alfredo Nolasco Morales

Focus on new Fire Management Policy for Mexico.

- Fire problem is rising in Mexico.
- Working together will help us achieve our goal. Ecosystem Management, Natural Resource Management and Fire Management.

Fire area burned remains normal in Mexico. Having fires start earlier in the season and continuing through the year (January-December). (Trying to deal with the issue of the extended fire seasons.)

Número de incendios forestales 1998 – 2012*



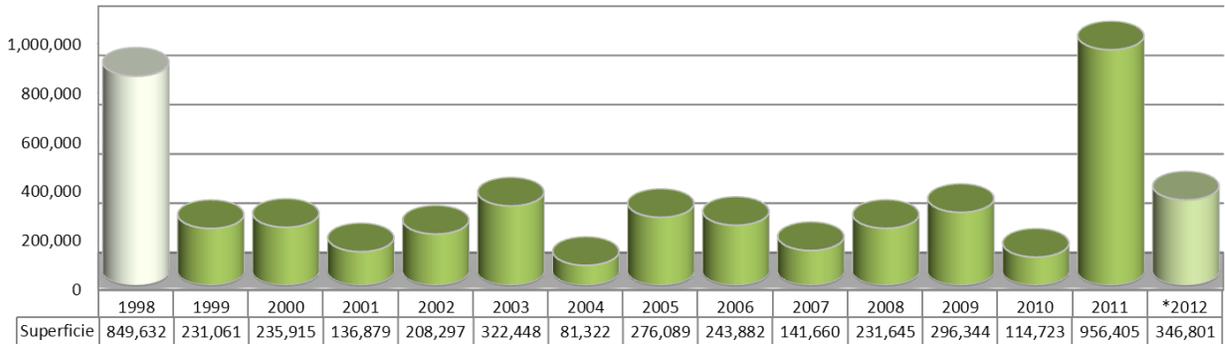
PERIODO	PROMEDIO ANUAL DE NÚMERO INCENDIOS
1998-2011	8,713
2007-2011	8,687
2007-2012	8,424
2012*	7,110

•* Información al 08 de noviembre de 2012.
 • 1998 a 2011 información a al cierre de año.
 • Fuente: Centro Nacional de Control de Incendios Forestales. CONAFOR, 2012.

- In the period 1998-2010 the average was 8,451 fires per year.
- In 2011 there were 12,113 fires representing a 43% greater (3,656 fires) over the 1998-2010 average and 39% greater (3,426 fires), compared to the average 2007-2011.

- Having fires start earlier in the season and continuing through the year (January-December). (Trying to deal with the issue of the extended fire seasons.)

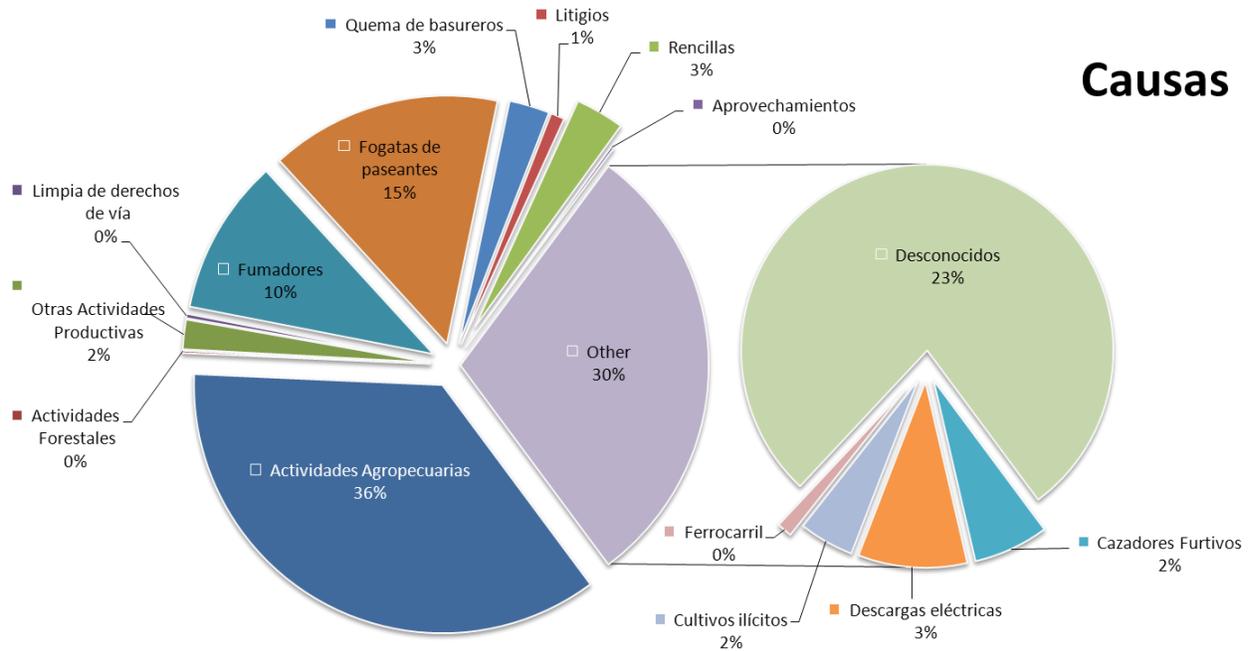
Superficie afectada (ha) 1998 – 2012*



PERIODO	PROMEDIO ANUAL DE SUPERFICIE AFECTADA (Ha)
1998-2011	309,022
2007-2011	348,155
2007-2012	347,930
2012*	346,801

* Información al 08 de noviembre de 2012.
 • 1998 a 2011 información a al cierre de año.
 • Fuente: Centro Nacional de Control de Incendios Forestales. CONAFOR, 2012.

- In the period 1998-2010 the average was 259,223 hectares affected by year.
- In 2011, 956,405 hectares affected (317,000 in the two large fires in Coahuila), representing an increase of 268% (695,578 ha), compared to the average 1998-2010.
- In 2011 only 7% involvement was in areas with adult trees.
- 98% of fires are caused by human activities and natural causes 2%.



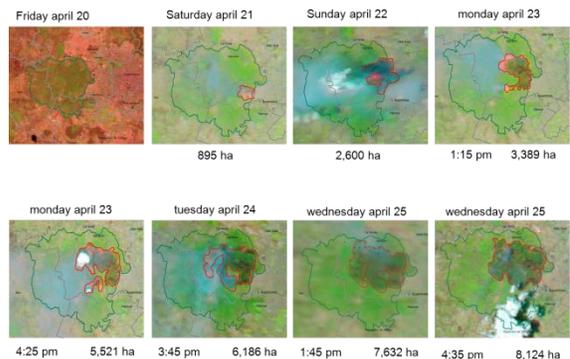
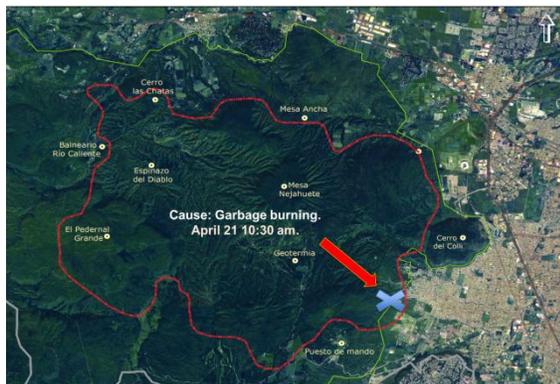
- El 98% de los incendios forestales son causados por actividades humanas y el 2% por causas naturales.
- En 2012, el 36% de los incendios forestales (4,397), fueron causados por actividades agropecuarias.

* Información al 08 de noviembre de 2012.
 Fuente: Centro Nacional de Control de Incendios Forestales. CONAFOR, 2012.

- In 2011, 36% of forest fires (4,397) were caused by agricultural activities.

Four northern states have lightning as the primary cause of fire. All others the main fire cause is human activity.

La Primavera Fire started on April 21, 2012 and burned through the 25th of April and burned just over 8000 ha. Numerous infrastructure (airport, roads and schools) closures due to the fire and smoke. Federal law does not allow the federal agencies to go to the press to discuss the information and actions taking place on the incident. This was due to it being an election year in Mexico. Wildland urban interface issues on this incident. Going to see more WUI issues in the future as the population moves into the forested areas.



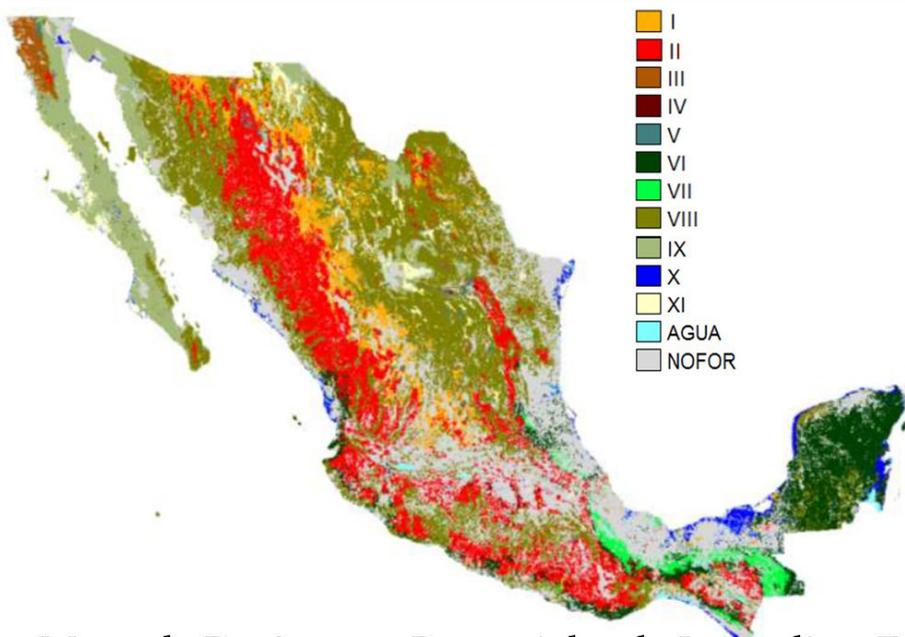
Source: satellite images Aqua and Terra MODIS Sensor

Three research projects completed.

Physical Properties of Fuels in Mexican Forest Ecosystems.

Fire Regimes in Mexican Forest Ecosystems.

Prototype designs and technical specifications of the vehicles for Firefighters transportation.



Mapa de Regímenes Potenciales de Incendios, E. Jardel et. all., 2011.



USFS/CONAFOR/CONANP

- Meeting at College Station, Texas. Review and alignment CONANP-CONAFOR Fire Management Strategies
- Establishment of a National Incident Management Team at Yucatan Peninsula and Chiapas.
- Assist CONAFOR to promote the use of ICS in partnership with other agencies.

Establishment of a National Incident Management Team in Yucatan Peninsula and Chiapas.

Assist CONAFOR to promote the use of ICS in partnership with other agencies.

USFS/CONAFOR

- Signature of letter of Intent between the Department of the interior, and the Department of Agriculture, Forest Service of the United States of America and the Secretariat of Environment and Natural Resources and the National Forestry Commission of Mexico.
- ICS 100-200 Translation.
- ICS 300 and 400 Translation.
- Firefighting support at Santa Cruz, Sonora (Zone of mutual assistance)
- Research and development of a classification system for fuel forest ecosystems of Mexico.
- Creating a model for quantifying carbon emissions from wildland fires.

USFS/CONAFOR/CONANP/FMCN

- Implement two pilot sites to apply National Fire Management Analysis System –SINAMI.
- Field guide for protected areas fire management plans.
- Updating the Fire Management Plan of Calakmul
- IV International Symposium on fire economics, planning and policy: climate change and wildfires.

Canada/CONAFOR

- Was signed the letter of Intent Between THE CANADIAN INTERAGENCY FOREST FIRE CENTRE INC. AND THE NATIONAL FORESTRY COMMISSION OF MEXICO

Challenges

- New Federal administration change coming in Mexico
- Finalized negotiations between USA, Canada and Mexico in order to achieve bilateral agreements.
- To continue the cooperation agenda with focal points from Mexico

Strategy and guidelines Fire Management of Protected Areas in Mexico Francisco Javier Medina Gonzalez (National Commission of Natural Protected Areas DG Regional Operation)

Mexico is considered the sixth richest country in lifestyles. The accumulation of environments and life forms known as mega-biodiversity. Mexico accounts for about 10% of the known species on the planet. CONANP mission is the conservation of mega diversity in the country.

National Commission of Natural Protected

- Mission
 - Conserving the natural legacy of Mexico through the Protected Areas and other forms of conservation, promote a culture of conservation and sustainable development of the communities living in their environment.
- Vision
 - CONANP in six years will be articulated terrestrial, aquatic, marine, coastal and island biodiversity. The system will involve the three levels of government, civil society and rural communities and indigenous

AP Number	Category	Surface (ha)
41	Biosphere Reserves	12.652.787
67	National Parks	1.432.024
5	Natural Monuments	16.268
8	Area of Natural Resources of Protection	4.440.078
36	Area of Flora and Fauna Protection	6.684.771
18	Sanctuaries	140.254
175		25.372.182*

* This amount corresponds to 12.9% of the total territory of Mexico.

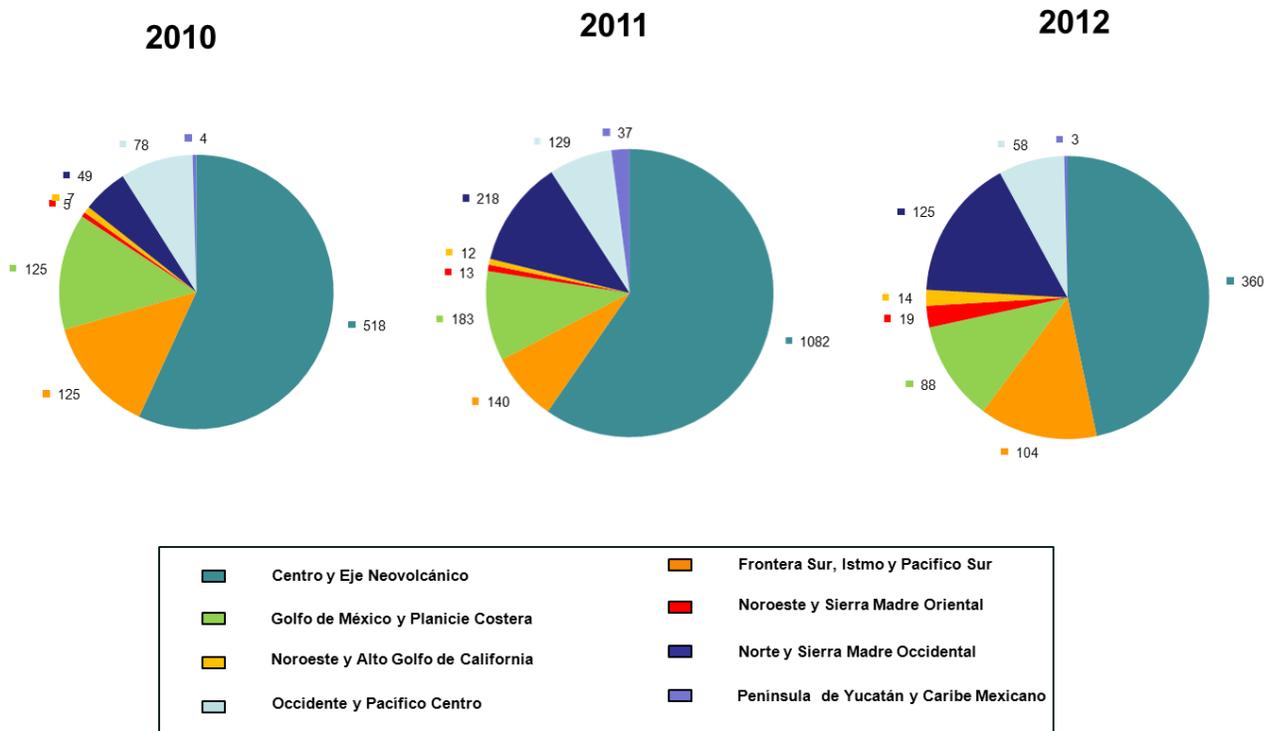
Fire Regimes in Mexico

- Fire independent ecosystems, those in which fire plays a minor role. This ecosystem is cold, wet or dry to burn.
- Fire-dependent ecosystems are resistant to recurrent fires, so this element is essential for their persistence, because the main species have developed adaptations to respond to it.
- Fire-sensitive ecosystems, fire is an important factor, is absent due to the lack of vegetation or ignition sources. Species in these areas are not adapted to respond to fires and mortality is high even when fire intensity is very low.
- Fire-influenced ecosystems, vegetation types are often found in the transition zone between the fire-dependent ecosystems and sensitive ecosystems or independent of him. (Myers, 2002).

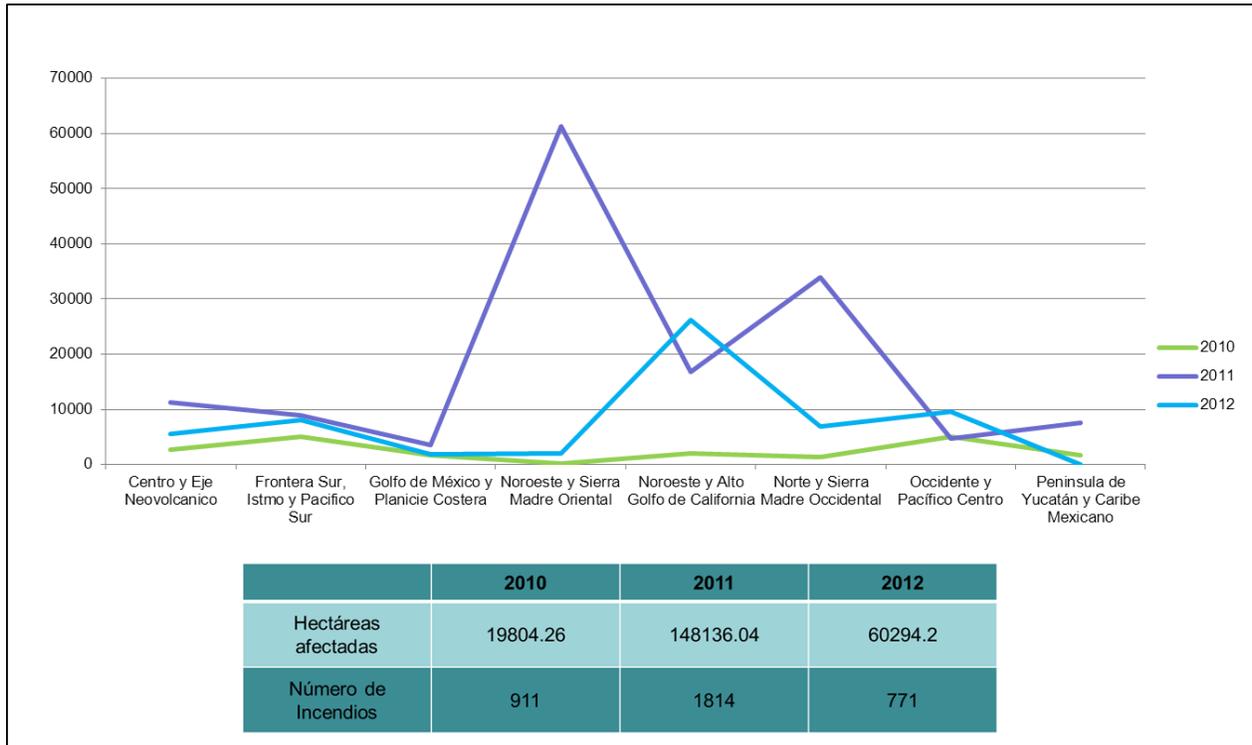
Climate Variability and Forest Fires

- The climate variation affects the frequency and scope of fire due to the alteration of factors such as temperature, rainfall, humidity in the atmosphere, wind, the risk of ignition, fuel charges, the composition of the species, the structure of the vegetation, and soil moisture.
- Catastrophic fires
- Rapid decline of forest resources
- Loss of function of ecosystems
- Reduction of environmental goods and services
- Problems for conservation

Amount of Fire Submitted in Regional CONANP 2010-2012



Hectares Affected by Fire in Regional CONANP 2010-2012



National Policy Management Fire in Mexico



Strategy and Guidelines for Fire Management in Protected Areas

- Contains the conceptual foundation legal and operational to attend the threat of wildfires.
- Promotes the positive effects of forests fires and other forms of preservation of natural in Mexico, and operates and acts in a manner consistent with the National Policy of Fire Management.
- Strategic lines
 1. Forest fire protection
 2. Planning for fire management
 3. Restoration and rehabilitation of ecosystems affected by wildfires
 4. Culture and community participation in fire management
 5. Research and knowledge
 6. Implementation of integrated fire management.

Mexican Fund for the Conservation of Nature (FMCN) - Juan Manuel Frausto

- Fund for Fire Management and Restoration (FOMAFUR)
- International Cooperation Program-US Forest Service
- Learning Community for Fire Management (CAMAFU) (PPT and Recording need to be transposed.)

FOMAFUR is an FMCN's endowment to fund projects selected through a call for proposals to develop fire management capacities

- Since 2004, has supported a total of 26 projects (US\$1,780,000)
- 2013: 8 Projects, 5 States, 8 NPA's and about US\$ 450,000 Mexican Fund for the Conservation of Nature

Achievements

- Strengthening local NGO and community involvement in Wildfire Protection and Fire Management.
- Support coordination and communication protocols
- Develop local and regional fire management plans
- Incorporate fire ecology concepts into local processes
- Strengthen local preparedness for risk and fire management

Role of FMCN

- Articulate NGO and community with GOM programs and policies
- Facilitate capacity building and technical assistance
- Funding
- Promote research and knowledge transfer

International Cooperation Program with CONAFOR and USFS

- The program has enabled improvement of national capacities and adoption of new approaches, such as fire management in protected areas, risk management and fire economics
- The program contribute to the development of strategies for medium and long term: National Fire Planning, capacity building and involvement of professionals working together with GOM

Capacity Building Processes

- Coordinated Program for fire prevention, fire-fighting and recovery of affected areas in Coahuila
- System for the economic evaluation of defense programs against forest fires (SINAMI)
- Incident Command System training for NGO's and locals

Printed Materials

- **Guidelines for Fire Management Programs in Natural Protected Areas and other sites of interest** (and field guide). Collaboration with CONAFOR and CONANP
- **Research priorities in fire management in Mexico**. New edition supported by National University of Mexico
- **Characterization and quantification of forest fuels**. Outcome of a decade of technical collaboration with Universities of Guadalajara and Washington, FERA and GOM

Learning Community for Fire Management

- Created in 2002 by recommendation of USAID's midterm WPRP assessment.
- It has become a useful tool to share information among government, NGO's , local communities, academics and practitioners involved in natural resources management of, specially fire,
- CAMAFU works under a participatory approach that tends to self-management, through face to face exchanges and an online portal
- The learning community supports capacity building and explores raising issues such as REDD+/climate change, NPA's and fire and public policies

Statistics

- 200 Topics
- 1,286 Articles
- 2,349 Objects of Knowledge
- 1,140 Active Contacts

País/territorio	Visitas	Duración media de la visita
Mexico	121.412	00:01:46
Colombia	13.956	00:00:57
Venezuela	7.682	00:00:53
Peru	5.251	00:00:54
Argentina	4.274	00:01:05
Chile	4.266	00:00:59
Ecuador	3.781	00:01:00
Guatemala	2.775	00:01:06
United States	2.659	00:01:23
Spain	2.298	00:00:57



FMCN's General Contributions

- Support, strengthen and expand systems of communication, coordination and early warning in order to incorporate key actors and promote best use of the capabilities and resources
- Leverage funding for fire management initiatives: FOMAFUR, Parks Canada, Fomento Ecológico BANAMEX (Bank Fund)

Strengthen and feedback of public policy related to fire management

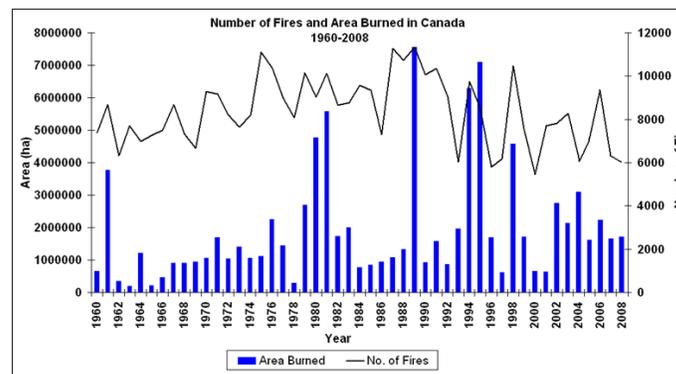
- Participation in Technical Committees: Protection and Conservation (National Forestry Council) and REDD+ (CONAFOR)
- Contributions to National Forest Strategic Plan & National Strategy REDD+ relating fire
- Systematize, share, improve, adapt and incorporate practices and knowledge to facilitate the adoption of fire management through CAMAFU and technical assistance

Canada

Addressing strategic wildland fire issues through collaboration and innovation – Tim Sheldon (Director General of the Northern Forestry Centre (Edmonton, AB); Co-chair, Canadian Council of Forest Ministers)

The challenge of Wildland Fire in Canada

- Wildland Fire is an important disturbance in Canadian ecosystems.
- 8000 fires annually burn 2.1 million ha of forests, most of this is in the boreal forest;
- On average, each year 20 communities and 70,000 people are threatened by large fires; 10 communities and 5500 people are evacuated.
- Average suppression costs are \$500 million to \$1 billion annually



Collaboration in wildland fire operations and research

- Wildland fire suppression is a provincial responsibility, however, it requires a strategic approach, a coordinated national effort; the sharing of fire suppression resources, information, and tools.
- The Canadian Interagency Forest Fire Centre (CIFFC) coordinates exchange of fire-fighting crews and equipment between:
 - Provinces and territories
 - Canada and other nations
 - Funded by the Canadian Forest Service (CFS) and provinces/territories
- CFS role includes providing research, information and tools that support the strategic and operational of CIFFC and its member agencies.

Role of CFS/Natural Resources Canada (NRCan) in wildland fire management in Canada

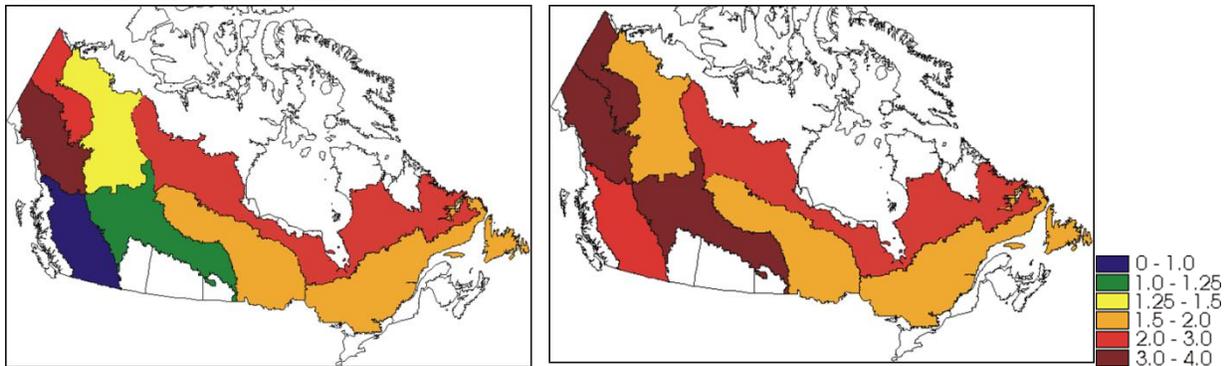
- Canadian Forest Fire Danger Rating System (CFFDRS) is the standard for fire preparedness in Canada and many places in the world;
- Current CFS/NRCan research includes a focus on continual improvement of the CFFDRS;
- Additional areas of focus:
 - developing a better understanding of the effects of climate change on wildland fire;
 - Understanding the impacts of wildland fire and knowledge the promotes mitigation (i.e. wildland-urban interface);
- CFS/NRCan provides a strategic coordination function that provides cohesion and alignment across jurisdictions;
- CFS/NRCan ultimately is the “insurer of last resort”, in maintaining the safety and security of Canadians;

- CFS/NRCan works actively with international partners through agreements (NAFC) and international requests for assistance.

NRCan-CFS Response to Fire Emergencies

- Legislation drives emergency response
 - Emergency Management Act (2007, replaces Emergency Preparedness Act of 1985);
 - Emergencies Act (1988)
 - Departmental Planning Responsibilities for Emergency Preparedness (1995)
 - Government Emergency Book (1995)
- NRCan sectors (e.g. CFS) feed information into NRCan plans
 - Emergency Response Plans (e.g. Forest Disturbances)
 - NRCan Situational Awareness System
- NRCan plans feed government-wide systems
 - Public Safety Canada’s Federal Emergency Response Plan
 - Multi-agency Situational Awareness System

What does the future hold?



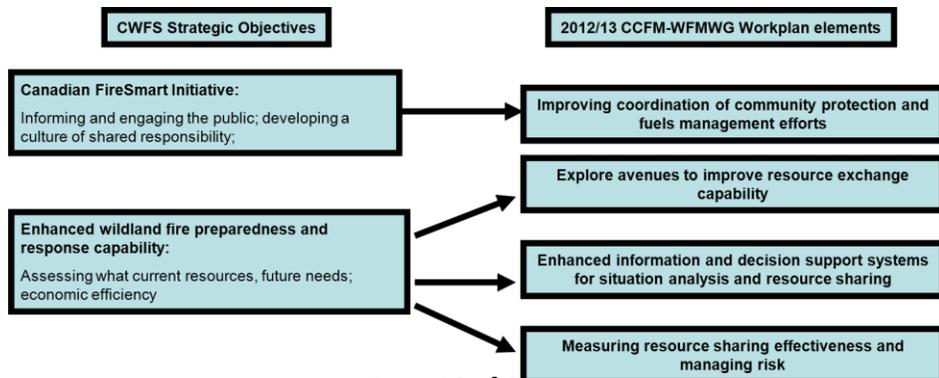
- Recent studies suggest area burned will increase significantly this century due to climate change. The work above suggests a doubling of current fire activity by 2100 but other studies suggest a 6 fold increase.

Canadian Wildland Fire Strategy

- Signed in 2005 by the Canadian Council of Forest Ministers
- Jurisdictions agreed to high level national priorities
 - Enhanced Wildfire Preparedness and resource capability
 - A Canadian FireSmart Initiative
 - Public Awareness , policy and risk analysis
 - Innovation in wildland fire management

Taking action on strategic challenges of wildland fire management in Canada

- Canadian Council of Forest Ministers – Wildland Fire Management Working Group (CCFM-WFMWG) heading up the implementation of the CWFS;



CCFM – WFMWG: selected achievements

- Development of a baseline of resource capacity and fire load over the last 3 decades; basis for annual updates;
- Initiating work that will modernize and better integrate information and decision support systems;
- Promotion of community wildland fire protection efforts at the community level – expanding FireSmart to more communities and more Canadians;
- Sharing of best practices in fuels management to mitigate the risk from wildland fire;
- Re-invigorating the CWFS.

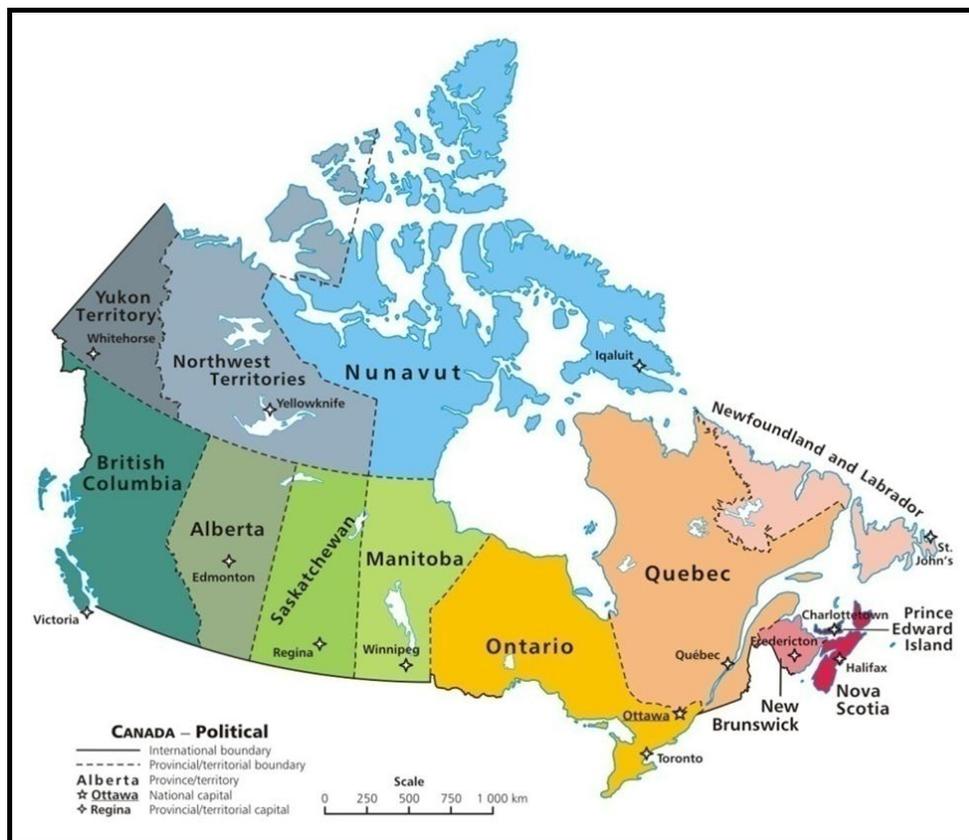
Much more work to do

- Continue to grow the partnership in wildland fire management;
- Can we improve and expand our resource sharing capability and decision process to meet this challenge?
- WFMWG recognizes that we have to move incrementally towards the National Plan concept;
- Continuing to strengthen relationships with international partners in wildland fire.
- Wildland Fire Research (Background)

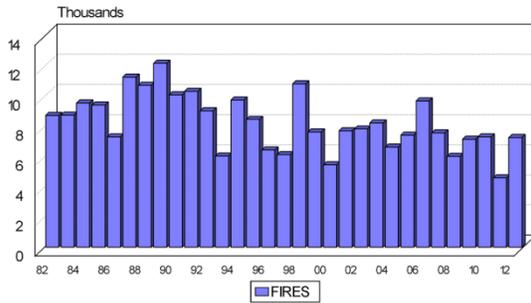
Canada's Operational Report - Kim Connors (Canadian Interagency Fire Center – Director)

Annually

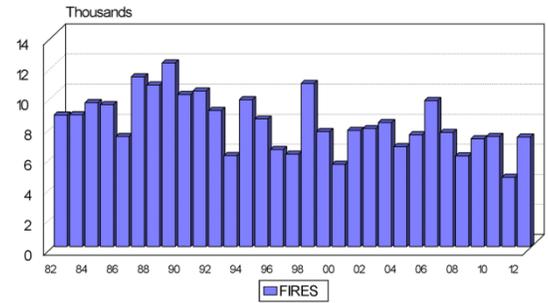
- 7,500 fires
- 2.0 million ha.
- \$750 million



Fires by Year



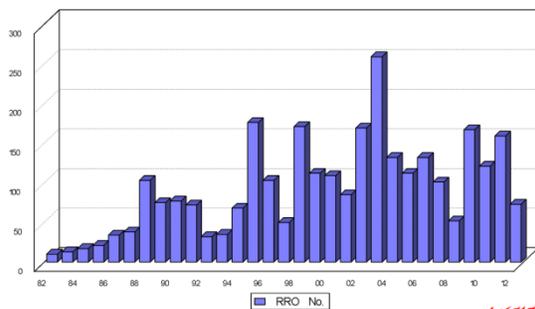
Fires by Year



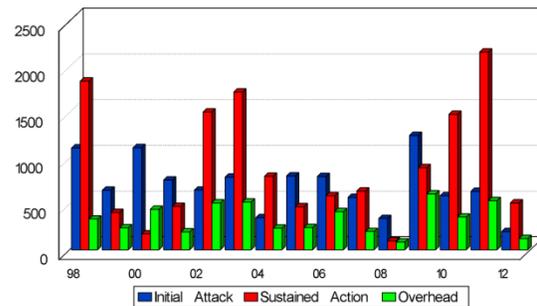
CIFFC Stats (Compact exchanges not captured)

- 7,288 Fires (as of Sept 12)
- 1,921,372 Hectares
- 73 Resource Orders
 - 835 personnel
 - 50 power pumps
 - 7,000 lengths of hose
 - 29 skimmers + 10 land based aircrafts
 - (+5 CV-580's to US)
- 2012 Personnel avg. 12.0 days/deployment

Resource Request Orders



Personnel Mobilized 1998-2012



Fire by Month

- May – 1,316
- June – 757
- July – 2,392
- August – 1,413



July 2013

- 23 days – APL 2+
- 5 days @ NPL 4
- 7 days @ NPL 3
- 5 days w/ 100+ fires (7 in-total for 2012)
- UTF - 20/4p. T1 IA crews
 - 8/20p. T1 SA crews
 - 2 OH
 - 1 skimmer group
- July 11, contacted New Zealand
- July 23, 2 Australia liaisons

Operational Undertakings 2012

- Implementation of the type I fitness program for national exchange
- Increase use of technology
- Integrated wildfire information systems including dispatch and resource tracking (SK)
- Smart phone applications trial (AB)
- Mobile office networks (NB)
- Finalize full automation of Wx network (NS)
- Wildfire Behavior Service Centre (AB)
- Managing longer and continuous fire seasons
- Policies & Protocols
 - Integration of new forest regimes (QC)
 - More cohesive comms protocols (PE)
 - Automated public burning permission system (SK)
 - Unit Crew/IA review (AB)
 - Implementation of program review outcomes (NT)
- Resource Sharing
 - Higher demand for type aircraft in the US
 - Record resource export out of Prov (SK)
 - Jalisco, AB exchange continued
- Continued expansion of Fire Smart program in some areas

Operational Challenges

- Impacts of climate change
- Human Resources
 - Availability for domestic and exchange(all)
 - Shrinking budgets, increased demand (all)
 - Maintaining experience to participate in export (Atlantic)
 - Demographic balance (all)
 - Competing with gas/oil industry (AB+)
 - Ability of aging workforce to meet fitness requirements
- Infrastructure and Resources (non-human)
 - Engine replacement (PE)
 - Base/office closures – increased response time (NB,QC)
 - Aging/depleting infrastructure and associate budget pressure (all)
- Effects of forest health (insect and disease)
- Increase in fire intensity & complexity

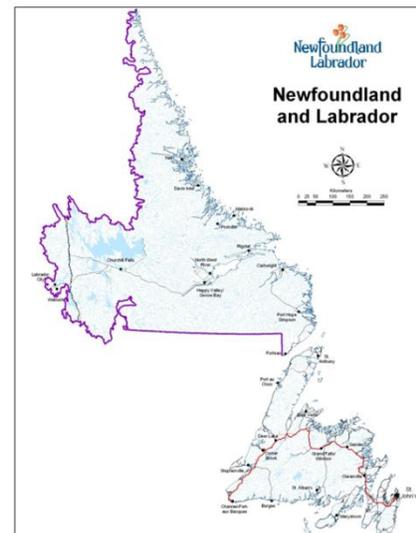
- Maintaining partnerships internal and external
- Landscape Fire Management
 - Increase and complexity of WUI (most)
 - Maintaining natural fire management policies – caribou species at risk impact (SK/AB/others)
 - Rx fire use
 - Requirement for increased prevention initiatives - Fire Smart et al (NS, AB, NT)
 - Debris management (AB)
- Policy and Protocols
 - Implementing 21 recommendations of Flat top Report (AB)
 - Advancing safety programs and systems to prevent injuries and catastrophic events (ON)

CIFFC Milestones

- Move to newly renovated office location and upgraded Coordination Centre
- Greater integration of science staff and associated tools offered by Canadian Forest Service to the operations community
- Closer involvement with the broader Canadian emergency management community;
 - Leading the ICS Canada project
 - Appointment to Canadian Safety and Security advisory board

Newfoundland and Labrador

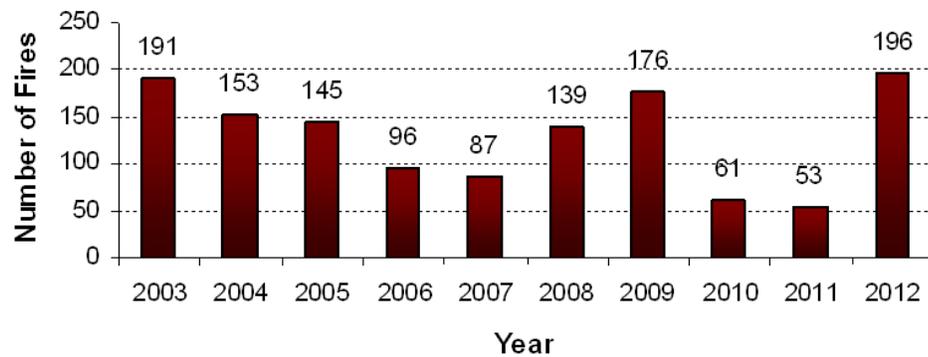
- NL is the most easterly province of Canada and is comprised of an Island (Newfoundland) and Labrador (attached to the mainland of Canada). While the population is relatively small (520,000 people) the landmass is quite large (about the size of NS + NB + PEI)
- The island has a landmass of 11.1 million ha of which 5 million is forested. Labrador is much larger at 29.3 million ha with 18 million forested.
- The province has a huge number of lakes and ponds (some 2.8M ha) making it ideal for skimming aircraft
- Forest Fire Management is coordinated by the NL Department of Natural Resources, HQ located in Corner Brook. Suppression activities are managed through 21 District offices and 3 Regional offices.
- Air Services Division of Dept. of Works Services & Transportation is responsible for all aircraft used in suppression activities.



Resources

- 110 seasonal (May to Sept) forest fire fighters located in 26 depots
- 6 airtankers (four CL415's and two CL 215's) located in 5 bases
- 5 contract helicopters (additional charters available if required)
- One Cessna 337 spotter aircraft
- Fire equipment bank and hose complex in Central NL (in addition to resources at each fire depot)
- \$4M base suppression budget & \$4M aircraft budget (additional funds sought through special warrant)

Newfoundland and Labrador Forest Fires 2003 to 2012



10 year avg. 130 fires

- Average 130 fire/yr.; mainly lightning and human related ignition (above average season in 2012)
- Primarily aerial attack with airtankers followed by ground suppression and mop-up.
- Shoulder seasons expanding

Challenges

- Aging CL215's and availability of avgas at all bases
- Aging workforce and ability to meet provincial and national fitness requirements
- Timely filling of vacancies in program
- High variations in yearly fire activity and ability to match budgets to needs
- Impact of anticipated climate change on fire activity

Opportunities

- Increased emphasis on training, fitness and adoption of ICS
- Participation in CIFFC for deployments (much needed experience and training opportunities)
- Faster response times and expanded capabilities with the four CL415's
- Movement on Fire Smart initiatives and improved public awareness
- Fire Suppression Program review and implementation of improvements by 2015

Canada Fire Research Report – Bill De Groot (Canada Fire Research)

CFS Projects with Fire Research

- International Forest Sector (5 components)
- Forest Ecosystems (2 components)

- Forest Carbon Research (1 components)
- Climate Change Impacts and Adaptation (1 components)
- Science and Technology in Support of the Canadian Wildland Fire Strategy (23 components)
- Integrated Pest Management (2 components)

Next Generation Canadian Forest Fire Danger Rating System

- CFFDRS Research started in the 1920's
- Many experimental burning projects
- Fire problem is more complex now
- Re-tooling CFFDRS to address current and future fire issues

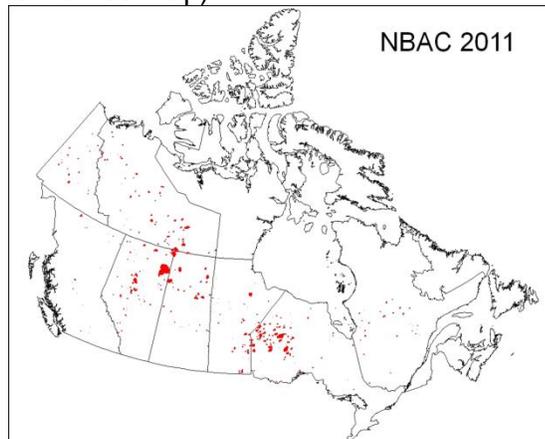
Canadian Wildland Fire Information System (downloading from approx. 1500 wx stations)

<http://cwfis.cfs.nrcan.gc.ca>

- Background Information
- Current conditions:
 - fire danger, fire behavior, hotspots, area burned maps, weekly statistics
- Historical analyses:
 - fire weather, fire behavior, large fire database

Fire Emissions Monitoring, Accounting, and Reporting System (FireMARS)

- Outcomes (Annual Area Burned Map)

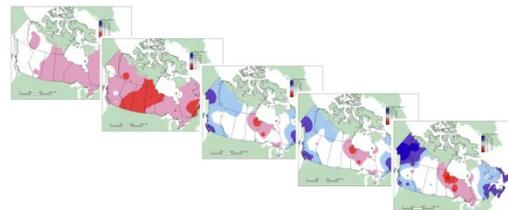


Modernized Canadian Forest Fire

- Dynamic models of Canadian forest fuels
 - The FIRETEC (LANL) computation fluid dynamic model provides a means of conducting virtual prescribed burn experiments to study fire behavior
 - This work will provide a basis for including stand characteristics in the Canadian Forest Fire Behavior Prediction (FBP) System

Canadian Wildland Fire Information System

- Monthly forecasts of fire danger
 - Forecasts based upon CWFIS and Environment Canada's seasonal predictions.
 - These contribute to North American seasonal outlooks and Canada's emergency preparedness plan



- BIGFOOT
 - BIGFOOT is a web-based fire-growth model that provides fire managers a first look at potential fire growth.
 - Hotspot data are used to approximate active fire zones and fire perimeters.
 - Weather forecasts are included using Environment Canada products.
 - Prometheus is used to produce the fire growth projections.

An Assessment of Wildland Fire Impacts on the Canadian Forest and Wildland Urban Interface

- Smoke Management
 - Developing smoke forecasting models will be beneficial to Canadians as well as the international community.
 - Collaborators include:
 - Environment Canada,
 - BC Ministry of Environment,
 - Alberta Ministry of Environment,
 - Alberta SRD
 - UBC
 - USDA Forest Service

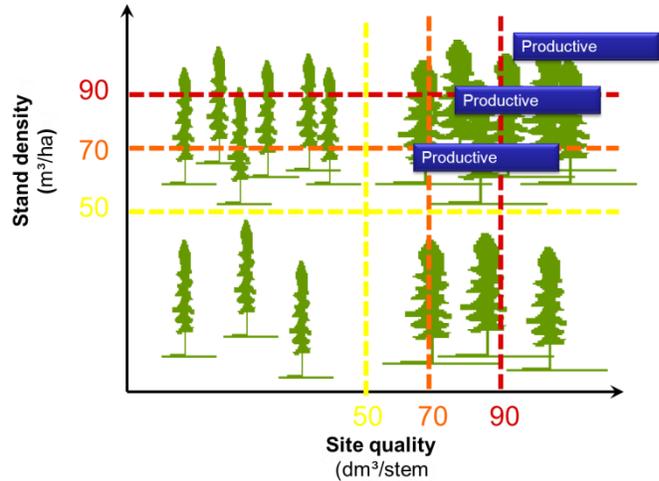
Stand vulnerability to fire risk depends on its productivity

- As climate variability is affecting the annual area burned, forest fires represent highly variable and uncertain losses of timber supply. These uncertainties have hampered the inclusion of fire risk into the planning process. When forest fires are taken into account during timber supply analyses, planned harvest targets are necessarily lower to prevent future deficits in harvestable volume.
- Currently, from an economic point of view, unproductive forests are excluded of the calculation of the AAC because they cannot produce a sufficient volume of trees of a minimum size in a reasonable period of time. However, areas assigned for timber production often include low- or marginally productive stands, namely when they are mixed with more productive stands. Such stands reach their minimum harvest age later than any other stand in the timber production area, hence they are more exposed, i.e. more vulnerable, to fire between two successive harvests. Beyond a certain proportion of marginally productive or vulnerable stands, action is required to minimize or at least to reduce potential fire losses.
 - Vulnerability : probability of being burned before reaching the size to be harvested
 - A low productivity stand is longer exposed to fire risk compared to a high productivity stands
 - High risk of not finding the expected wood volume due to fire damage
 - Should we therefore exclude low productivity stands from the AAC calculation?
- Double threshold to define productivity
 - A minimum harvesting threshold is defined as a sufficient density of trees of a minimum size. In other words, it requires a minimum mean merchantable stem volume (dm³/stem) and a minimum merchantable stand volume (m³/ha). To cover the observed range of stand productivity in the entire area, we chose to contrast three harvesting thresholds: 50-50, 70-70, and 90-90 (dm³/stem – m³/ha). The lowest harvesting threshold (50-50) is considered loosely constraining (MRNFQ, 2003), because a large proportion of forest stands will satisfy this harvesting threshold. The harvest of these stands however provides very narrow economic benefits. The highest harvesting threshold (90-90) brings greater economic benefits per unit area, but is very restrictive for this particular

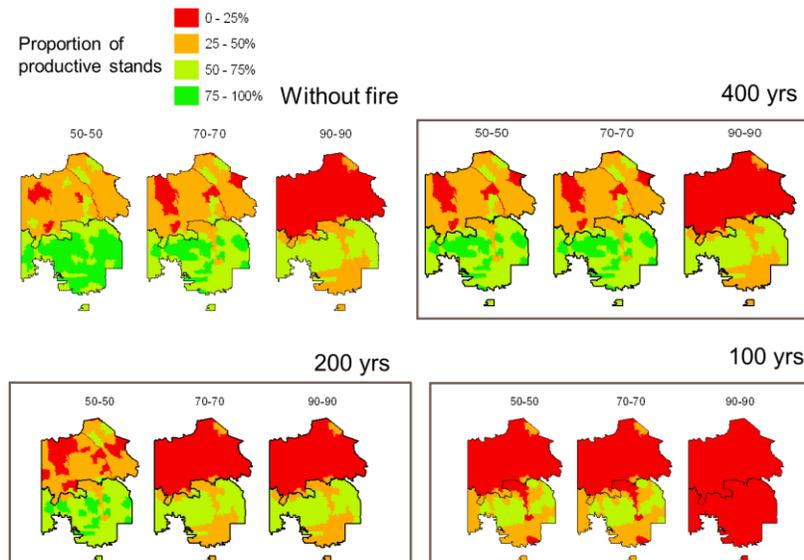
management unit, as it would exclude a very significant proportion of the actual timber production area.

- A stand is declared vulnerable to fire if it has less than 66% of chances to reach its merchantable age considering the given double threshold. Vulnerable stands should be eliminated from the productive area.

When taking fire into consideration:	
Prob. reaching harvesting age	
■	p > 0.99 : very certain
■	p > 0.90 : certain
■	p > 0.66 : probable
■	p < 0.66 : - These stands are considered vulnerable



- Without taking fire into account, both forest zones will be considered productive as long as the production goals remain below 90 m3 and 90 dm3.
- The current fire cycle (400 yrs.) does not really affect the productivity of both zones when subjected to a fire risk assessment.
- Future fire cycles will likely be shorter implying that the less productive zone is vulnerable even with modest production goals.



Spatial variability in Canada's fire regime

- Eco-regions are not a good indicator for fire regimes. Not homogenous.
- There are numerous ecological classifications that were developed in Canada, to suit several different purposes. One of the best-known classifications is the National Ecological Framework of Canada (NEFC) which is a multipurpose classification.
- To be efficient, broad-scale is sometime better than fine scale. Scale compromises have to be taken.
- However, is the recent fire regime accurately predicted by the NEFC classification?
- If we superimpose the ecozones to these spatial patterns, it seems that, e.g., the annual area burned is clearly not homogeneous, at that scale, within ecozones. Predictions or observations of fire regime at that scale, if performed using ecozones or other similar large-scale multi-purpose units, may not be accurate.
- There is a need to define regions where fire regime is homogeneous

Ecozones vs. HFR zonation

- Through spatially constrained clustering analyses, we identified a total of 16 Homogeneous Fire Regime (HFR) zones throughout Canada which explained 47.7% of the heterogeneity in annual area burned (AAB) and fire occurrence (FireOcc) for the 1959-1999 period. Compared to ecozones, with roughly the same number of units, HFR zones thus captured much more the spatial heterogeneity in the fire regime than ecozones; the latter multipurpose zonation failed to identify regions with peculiar fire regime compared to their surroundings as oppose to HFR zones.

Projected fire regimes

- HFR zones were used to project future fire regime based on an A2 scenario. HFR zones projected a 4.4 and a 3.0 increase in AAB and FireOcc respectively by the end of the 21st century. Changes would be rather heterogeneous throughout the study area in the greatest absolute increases occurring in zones located in central and northwestern Canada.
- Very high spatial discrepancies over extensive areas were noted between projection based on HFR zones and those based on ecozones. As a consequence, the HFR zonations should provide much more spatially accurate estimates of future large scale biodiversity patterns, energy flows and carbon storage than those assessed from multi-purposes classification schemes.

1901-2002 Trends in Seasonal Fire Danger

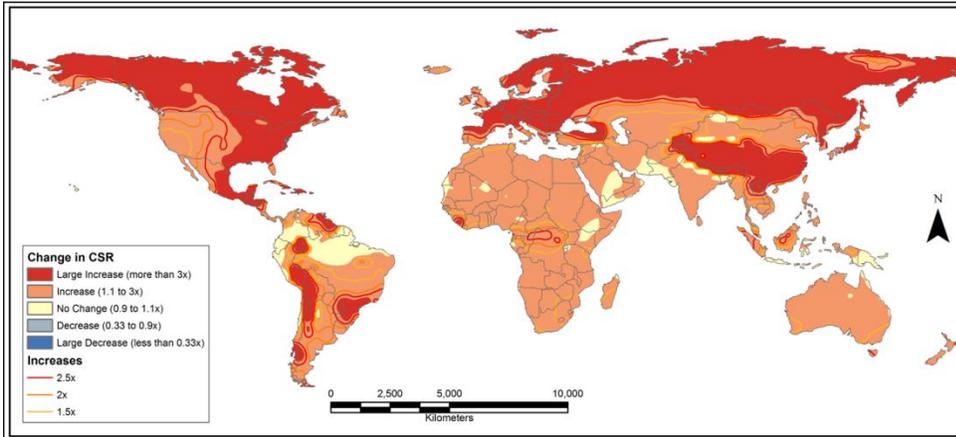
- Change in Monthly Drought Code
- 28 fire history studies

Effects of Climate Change on Wildland Fire

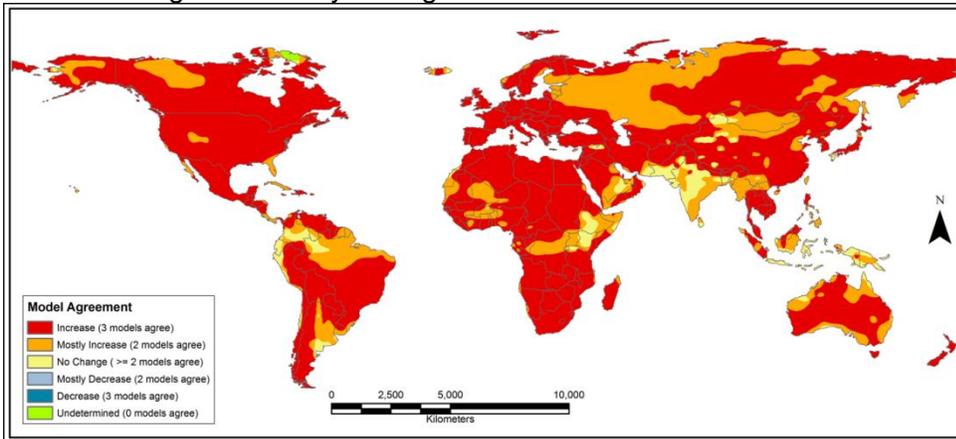


- This core likely spans several millennia, and will be used to examine the various factors that affect fire disturbance through time, including changes in vegetation and climate

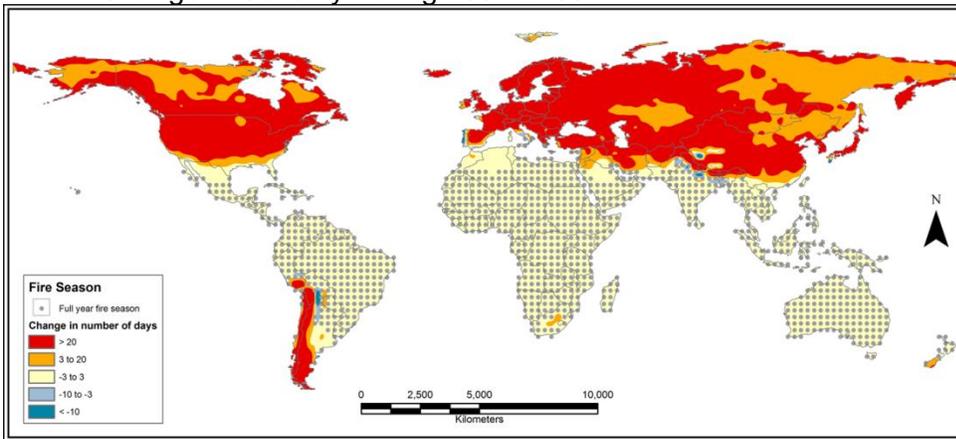
Change in Severity rating. French IPSL



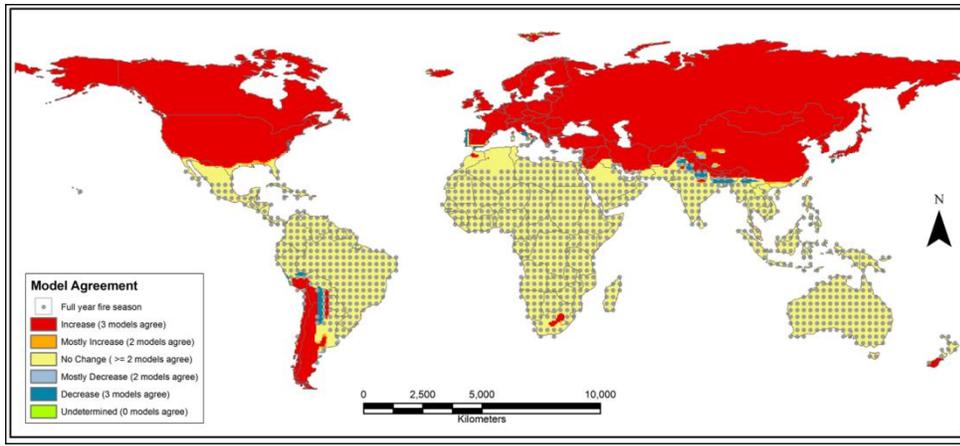
- Change in Severity Rating 2091-2100 IPSL-CM4 A2



- Change in Severity Rating 2091-2100 A1B



- Change in Fire Season Length 2091-2100 Hadley CM3 B1



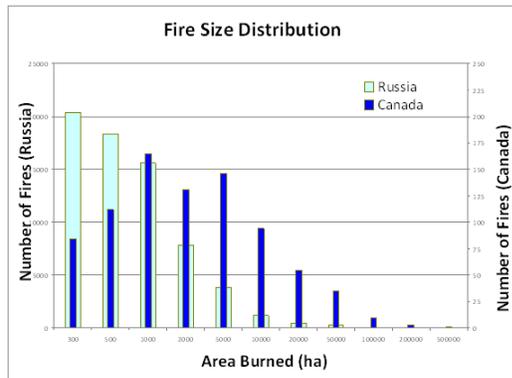
- Change in Fire Season Length 2091-2100 A1B

Forest Area

- Global forest cover: 3.95 B ha (FAO 2006)
- Boreal forest cover: 1.35 B ha
- Study Area Boreal Forest Comparison

	Canada	Russia
Total forest area (M ha)	306	884
Spruce (%)	35	14
Fir (%)	9	4
Pine (%)	22	28
Larch (%)	<1	30
Poplar/Birch (%)	16	18

- Comparison of Russian and Canadian Boreal Fire Size



- 2001-2007 Boreal Fire Study Results

	Canada	Russia
Large Fire Frequency (#/yr/100M ha)	94	1442
Area Burned (M ha/yr/100M ha)	0.56	1.89
Ave. Fire Size (ha)	5930	1312
Mean Fire Return Interval (yrs)	180	53
Crowning Fires (%)	57.1	6.5
Ave. Fire Intensity (kW/m)	6047	4858
Ave. Fuel Consumption (kg/m ²)	5.7	3.7
Ave. Carbon Emission (10 ³ Mt/yr/100M ha)	15.8	35.0

Global Early Warning System for Wildland Fire

- Reduce disaster fire occurrence and impact
- Provide daily fire danger information to countries that do not have a fire danger rating system
- Provide a common metric to implement international resource-sharing agreements

Wildland Fire Canada Conference Series

- Conference Themes:
 - People and Fire
 - Post-fire Community Recovery
 - Living in the Shadow of Fire -
 - FireSmart 2.0
 - Fire Operations
 - Fire Across the Landscape

Fire Research Issues

- Expanding Wildland Urban Interface
- Increasing fire activity:
 - Changing fire regimes
 - Fuel load buildup in some areas
 - Fuel type (land use) change in some areas
 - More people across the landscape (ignitions)
- Health and safety of Canadians – evacuations – smoke (mercury)
- Carbon and fire management
- Traditional approaches to fire suppression (e.g., crews, air tankers) are reaching their limit of economic and physical effectiveness

United States of America

US Wildland Fire Season Summary – Gordy Sachs (Emergency Management Specialist - Disaster & Emergency Operations – USFS Fire & Aviation Mgmt.)

2012 Fire Season Report

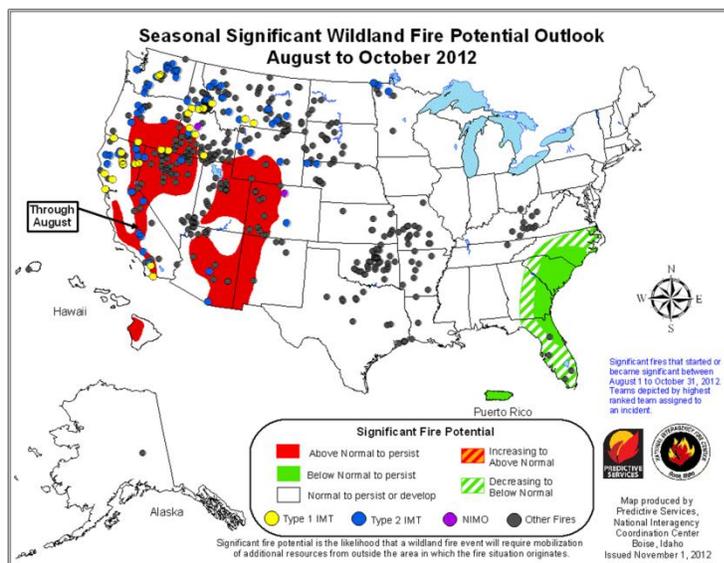
The dry conditions in the interior of the contiguous U.S. intensified and spread. By the end of August, severe to exceptional drought had spread to over 40 percent of the nation, with the worst conditions centered on the Plains and the mid- and upper Mississippi Valley. In the West, drought expanded rapidly to encompass most of the region, except the far Northwest. Meanwhile, improvement occurred along the Gulf States where rain from two tropical systems largely eliminated drought conditions from the upper Texas coast to the Carolinas with only central Georgia and eastern Alabama still in extreme to exceptional drought.

- Drought conditions covering 40% of the country.
- Plains states and Mississippi Valley
- 23 states had the hottest summer on record
- 3rd warmest summer on record
- Warmest July on record

The summer pattern over the United States was largely dominated by a ridge over much of the western and central states and a weak trough that lingered over the southeastern states. This led to a much warmer than normal summer for most of the country with the Southeast falling below normal. The heat in the West and central U.S. placed 23 states in their top ten warmest summers on record, including seven New England states. Colorado and Wyoming recorded their warmest on record. Alaska had near normal temperatures for the summer. Nationally, the

summer was the third warmest on record and included the warmest July on record in the United States.

Precipitation deficits continued across the interior of the nation, while the corners of the country experienced above normal precipitation during the summer months. Record to near record dryness affected most of the central U.S. where eight states recorded summers among their top ten driest including: Wyoming and Nebraska (driest); Iowa (second); Missouri (third); South Dakota (fourth); Illinois (sixth); Kansas (seventh); and New Mexico (eighth). At the other extreme, the Northwest, Southwest, Southeast and Northeast all had above normal precipitation. Florida recorded its wettest summer ever with the help of Tropical Storm Debby in June and Hurricane Isaac in August. Two other southern states recorded summers among their top ten wettest – Mississippi (fourth wettest) and Louisiana (seventh wettest). Even Maine had a very wet summer, recording its 11th wettest on record. Alaska recorded above normal precipitation.



- This map depicts the Seasonal Wildland Fire Potential outlook with the significant fires reported during the same period.

The National Seasonal Significant Wildland Fire Potential Outlook for June through August called for above-normal significant fire potential through much of Arizona, western New Mexico, western Colorado, south central Wyoming, the mountains of central Utah, southwestern Idaho, southeastern Oregon, western and northern Nevada, and the southern mountains of California. Above normal potential continued on the western side of Hawaii.

Worsening drought conditions in the West led to below normal live and dead fuel moisture and above normal Energy Release Component indices extending from New Mexico west through California and north to southern Oregon, Idaho and Wyoming. Additionally, many of these areas saw increased fine fuel loading from lingering dead, standing fuels and below normal snowpack. In the northwestern quarter of the U.S., mild and moist conditions through the spring kept fuels somewhat moist, except the fine fuel areas. Greater than normal fire behavior and rates of spread were experienced in areas where fine fuels were dominant across the West, leading to fire burning a large number of acres relative to the number of fires that occurred. Some drought remained across the Great Lakes region. Periodic precipitation events continued across the Southeast.

By October 31, a total of 1,171 large fires were reported to the National Interagency Coordination Center (including fires managed for multiple objectives). This is down from the

1,620 large fires reported for the same period in 2011, and well below the record 1,748 large fires reported for the same period in 2006. Comparing earlier years, the number of large fires reported by October 31 include: 675 in 2002; 821 in 2003; 597 in 2004; 895 in 2005, 1,227 in 2007; 1,051 in 2008; and 1,063 in 2009. August alone had 313 new large fires reported (201 is average for the month).

By October 31, 35 fires exceeded 50,000 acres in size. The Whitewater-Baldy fire was the largest wildfire in New Mexico history. The Long Draw and Holloway fires were among the largest in Oregon history.

Three of eleven Geographic Areas were well above average, while four were slightly above or slightly below the average number of fires. The other Geographic Areas experienced below average numbers of fires, with the Southern and Southwestern Areas, which were both well above average in 2011, experiencing well below the average number of fires in 2012.

Nationally, by the end of October 2012, 51,811 fires had occurred, burning 9,003,581 acres (3,643,620 hectares).

- This represents 78 percent of fires, but 129 percent of total acres burned, compared to the 10-year national average. By comparison, last year 63,821 fires had occurred, burning 8,229,183 acres (3,330,232 hectares) as of October 31 – more than twice the 10-year average acres burned over an entire year.
- Ten year historical average is 4,109,599 acres (1,663,096 hectares). (Note: 2011 burned 8,706,852 million acres (3,523,538 hectares).)
- Scientists expect the trend to continue

As of October 31, planned prescribed fire ignitions were 111 percent of the 10-year average to that point. Accomplished acres were 85 percent of the 10-year average.

- The 10-year average prescribed fire ignitions is 13,080.
- The 10 year average acres burned is about 2,280,000 acres (922,683 hectares).

On May 15 the national preparedness level was elevated from 1 to 2, where it remained until June 11, when it was elevated to 3. On June 27, the preparedness level was raised to 4, but returned to 3 on July 17. It dropped to 2 on July 26, but went back up to 3 on August 2, where it remained until August 8 when it was again elevated to 4 for the remainder of August. On September 2 the preparedness level was again reduced to 3 until October 1 when it dropped to 2. On October 16 the preparedness level was reduced to 1.

The national preparedness level has not reached PL 5 since 2008. In 2012, it was at PL 4 for 45 days, compared to only 7 days in 2011 and none the prior two years. The ten-year average for days at PL 4 or 5 is 34 days.

International Assistance

- Through the National Interagency Coordination Center, Canada provided five air tankers and three aerial supervision modules (“Bird Dogs”) from British Columbia, Alberta and Saskatchewan (including two liaison officers). The first aircraft were mobilized between June 6 and June 12 from British Columbia and Saskatchewan. Another air tanker and Bird Dog were mobilized July 9 from Alberta. These aircraft flew missions in many western states. The last aircraft were released back to Canada July 12 due to increasing fire activity in that country.

Next Generation Large Airtankers

- Modernize the fleet by contracting aircraft with increased performance, newer technology and capability
- Capacity 3000 to 5000 gallons
- 300 knots cruise speed
- Turbine – Fan or prop
- Meet Contract Airworthiness Requirements
- Retardant delivery system approval

US Department of the Interior Report – Vince Mazzier (Emergency Management Coordinator - DOI Office of Wildland Fire)

Department of Interior – Office of Wildland Fire

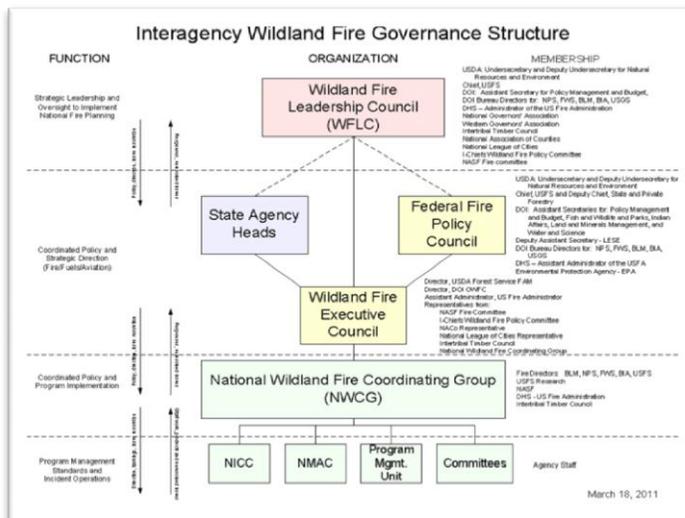
- Wildland fire management in the United States is an integrated effort between the:
 - Department of the Interior Bureaus (BIA, BLM, FWS, NPS, BOR, and USGS)
 - Department of Agriculture Forest Service (USFS)
 - National Association of State Foresters
 - International Association of Fire Chiefs
 - The Nature Conservancy
 - Western Governors’ Association
 - Inter-Tribal Timber Council

Wildland Fire Leadership Council –

- Provide strategic leadership to ensure policy coordination, accountability, and effective implementation of wildland fire management policy
- Provide strategic oversight of long-term strategies to address wildfire suppression, assistance to communities, hazardous fuels reduction, habitat restoration, and rehabilitation of the Nation’s forests and rangelands

Federal Fire Policy Council

- Establish national policy guidance
- Formulate, coordinate, and integrate wildland fire policy
- Provide policy direction for the formulation of the wildland fire budgets
- Provide a forum to consider and resolve inter- and intra-departmental policy issues
- Ensure that program goals are identified and that results are measured for wildland fire
- Maintain national level fire activity situational awareness



Office of Wildland Fire Department of the Interior (DOI) Organization

- Secretary of the Interior
 - Asst. Secretary for Policy Management and Budget
 - Deputy Asst. Secretary of Public Safety, Resource Protection, and Emergency Services
 - Director of the Office of Wildland Fire

Office of Wildland Fire Mission

- Coordinate the Department's wildland fire program among the six DOI Bureaus (BIA, BLM, BOR, FWS, NPS, USGS) and with other Federal and non-federal partners
- Establish departmental policies and budgets that are consistent and within the bureaus' statutory authorities and constraints.
- Provides the strategic leadership and oversight that result in a safe, cohesive, efficient, and effective wildland fire program for the nation.

Office of Wildland Fire Organization

- Budget and Performance Management Division
 - Budget is appropriated through Congress
 - Budget is assigned to the Office of Wildland Fire for the entire DOI fire program. This process is unique in DOI.
 - OWF then coordinates and apportions that budget out to the separate Bureaus.
 - The process is priority driven
- Policy Division
 - Cohesive Wildland Fire Strategy – is a collaborative, science-based approach to wildland fire management that depends on active involvement of all levels of government and non-governmental organizations, as well as the public. It seek equitable solutions to wildland fire management issues focusing on strategic policies and actions in order to address the three primary factors:
 - Restoring and maintaining resilient landscapes
 - Creating fire –adapted communities
 - Responding to wildfires
 - Coordinating functions and topical areas:
 - Hazardous Fuels Reduction (HFR)/Biomass Program –provides coordination to bureau HFR efforts.
 - Fire Science -Joint Fire Science Program, smoke management, EPA liaison
 - Fire Response – coordinating policies on fire information, preparedness, suppression, safety, and outlooks.
 - Emergency Stabilization and Rehab
 - Emergency Response
 - International Cooperation
- Enterprise Systems and Decision Support Division
 - Managed Systems
 - Fire Program Analysis (FPA) – provides a common interagency, systematic approach for developing and allocating budgets.
 - Integrated Reporting of Wildland Fire Information (iRWIN)- provides inter relational capability for entering fire reporting information between different reporting systems
 - LANDFIRE- (Landscape Fire and Resource Management Planning Tools) is an interagency vegetation, fire, and fuel characteristics mapping program. LANDFIRE has produced a comprehensive and consistent

suite of data and geospatial data layers for the entire 50 United States (completed mapping all 50 United States in 2009).

- National Fire Plan Operations & Reporting System
 - (NFPORS) - is used to manage the National Fire Plan, a mandated program that was begun in 2001 to provide accountability for hazardous fuels reduction, burned area rehabilitation projects, and community assistance activities.
- Wildland Fire Decision Support System
 - (WFDSS)- is a consolidated system that integrates various applications into a web-based decision making tool used to manage all types of wildland fires. It utilizes a variety of information such as fire management strategic objectives, fuel conditions, fire danger and weather analysis, fire history, probability of fire reaching a planning area boundary, projections of values to be protected and stratified cost. It uses a wide variety of spatial data and models such as but not limited to: LANDFIRE, National Weather Service, USGS and Google Maps, infrared heat data, Fire Spread Probability (FSPPro), Stratified Cost Index (SCI) and Rapid Assessment Values at Risk (RAVAR) products.

National Association of State Foresters - Jim Karels (State Forester/Director – Florida Forest Service – Fire Committee Chair NASF)

Wildland Fire in the United States

- When you talk about wildland fire in the US it's mostly federal.
- States have a huge role also
 - Especially in the eastern half of the country
 - Alaska is also a big state jurisdiction

Fires as of this week

- 54,405 fire in the US as of the beginning of this week
- 9.1 million acres burned
- Of those 54,405 fires the states had jurisdiction of about 38,000
- Nationally there are about 70,000 fire annually for around 7.4 million acres burned
- States have many more fires but less acres burned
 - Approximately 1.9 million acres from the 38,00 fires
 - This is because of the fires burning on private land and the process
 - No let burn policies
 - Managing for a different purpose
 - Aggressive fire attack

Fire Cause

- 90% of the fire stats in the southeast are human caused
- Florida also has a significant number, 30% of lightning caused fires
- In the west, more that 50% of fires are lightning caused
- Nationally approximately 80% - 85% of fires are human caused

Resource Sharing

- Canada did an excellent job supporting the states through compacts
- One system of ordering with two categories
 - ROSS (Federal)
 - Compacts (State to State)
 - What do we need to do to improve the system?
 - Alliance (Representatives from every compact)

National Cohesive Strategy

- Focus on resilient landscapes
- Emphasize prescribed burning
- Firewise Communities
- Effective and efficient fire response

Incident Management Team Succession Planning

- States and Feds are working together
- Setting a process as to how to do a better job of planning for the future with these teams

State to State Billing

- Working on how to do a better job ensuring that our cost distribution and breakdowns of who pays what on fires is adequate, fair, and appropriate
- USFS picks up the bill initially
 - Then bills the state
 - The struggle has been that the money comes out of the USFS budget then goes back to the large general coffers of the federal government
 - Working to change this

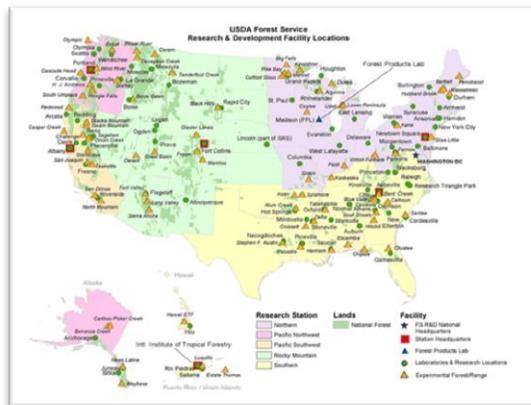
Large Airtanker Program

- Need to adequately move this program forward

Overview of Wildland Fire Research in the United States - Carlos Rodriguez-Franco (Director, Forest Management Sciences Research and Development)

Forest Service Fire Research

- Conducted across 5 Research Stations, 3 Fire Labs, 1 Lab and 1 Institute
- Combination of fundamental and applied research
- Long history of success
 - Fire Behavior Prediction
 - Fire Danger Rating
 - Incident Command System
 - Fire Ecology



Fire Research Collaboration

- USFS/DOI
 - Fuel Mapping, fire hazard (NASA, NOAA)
 - Fire Behavior (DOE, NIST)
 - Fire Monitoring (NASA, NOAA, DOD)
 - Fore Emissions (EPA, NASA, NOAA)

- Ecosystem Effects (NIFA, NSF, NASA)
- Carbon Cycle (NIFA, NSF, NASA)
 - 90 U.S. colleges and universities; 30 nongovernmental; organizations such as The Nature Conservancy; more than 50 State and local governments; industry partners; and internal organizations.

Fire Research Programs in the US

- Federal fire research in FS since 1928
- Forest Service base fire research
- Joint Fire Science Program (1998)
- National Fire Plan (2001)
- US Geological Survey
- Other agencies and Universities

National Fire Plan Research

- Started in 2001
- Four major emphasis areas
- 78 teams funded for 5 years
- Internal peer review process
- Conducted by FS scientists and collaborators
- Focus on applied research, deliverables and useful products

NFP Fire Research Areas of Emphasis

- Improve Prevention and Suppression
 - Fire weather/behavior prediction
 - Fire and smoke monitoring
- Reduce Hazardous Fuel
 - Fuel treatment effectiveness
 - Biomass and small tree utilization
- Restore Fire-adapted Ecosystems
 - Rehabilitation effectiveness
 - Invasives management and protection
- Promote Community Assistance
 - Structure vulnerability
 - Community policies and attitudes

Joint Fire Science Program

- Started in FY 1998
- Managed by 10 Person Governing Board, FS and DOI
- Focus on fuel management, fire management, restoration, and rehabilitation, demonstration projects and local science needs
- Competitively funds individual 2-3 year projects thru external peer review

Forest Service Fire and Fuels R&D Strategy for the Future

- Work with Managers to Identify Priority Topics
- Manage Research with a Portfolio Approach
- Increased Emphasis on Science Application in Partnership with Managers
- Reinvigorated Science Leadership
- Apply These Concepts to both Base and NFP Research

Forest Service Fire and Fuels R&D Strategy for the Future

- Three Strategic Goals
 - Research: Advance the biological, physical, social, economic, and ecological sciences.

- Science Application: Develop and facilitate use of knowledge and tools that policy makers, wildland fire managers, and communities use to plan for their jobs, to do their jobs, and learn from what they have done.
- Leadership: Provide leadership for collaborative, coordinated, responsive, and forward looking wildland fire-related R&D for all ownerships.
 - Within Goal 1 Four Portfolios
 - Core Fire Science
 - Ecological And Environmental Fire Science
 - Social Fire Science
 - Integrated Fire And Fuels Management Research
 - Within Goal 2
 - Science Application

Recent Accomplishments

- Last 10 years scientists have published 5,346 publications. The number of reviewed publications was 3,725.
- In 2012 the number of all publications was 461, and the number of per reviewed was 395.
- The average number of scientists per year working in this program is 128 of a total workforce of + 500 scientists.
- Synthesis of recent scientific research to guide revision of land and resource management plans on the National Forests of the Sierra Nevada. This summarized advances inform landscape-scale management strategies for sustainable forest management including an analysis and design of treatments that reduce the extent of undesirably severe wildfire while avoiding impacts to sensitive species.
- The Rocky Mountain Research Station led a series of workshops to identify the most important resources and assets that could be impacted by fire. Coupled with estimates of wildfire likelihood and intensity, this information was integrated into a wildfire risk assessment framework to describe likely fire-related benefits and losses across the landscape.
- At the beginning of FY 2012, the JFSP had 106 active projects, 36 of which were completed in FY 2012. In addition, 47 new projects were initiated based on proposals funded in FY 2012.
- FS scientists worked with numerous stakeholders including federal agencies, regional planning organizations, state agencies, air quality regulators, and the EPA to significantly improve the national emissions inventory for wildland fire. The inventory now significantly improves overall estimates of fire size, fuel loading, fuel consumption, and emissions
- FS scientists and partners interviewed more than 130 people to collect best management practices from existing community wildfire protection plans (CWPP). It is one of the most successful tools for addressing wildfire fire management in the WUI and these best management practices are foundational for at risk communities in developing their plans

What is next?

- Hire a new National Program Leader.
- Review of the last 10 years of research Wildland Fire and Fuels research Program (underway collection of information).
- Continue supporting the implementation of the Cohesive Strategy.
- Focus on impacts of extreme events such as drought and its relationship with fires, as well as restoration of these extreme impacts.

2014 IUFRO Congress

- Sustaining forests, sustaining people
 - The role of Research
- <http://www.iufro2014.com/>
- Salt Lake City, Utah October 5-11, 2014.

Alexandra Zamecnic (Bilateral cooperation program with Mexico)

Promoting Sustainable Landscapes in Mexico

- A Technical Program:
 - Establish MRV systems for reducing emissions from deforestation and forest degradation
 - Strengthen institutional and technical capacity with respect to REDD+
 - Develop and test climate mitigation tools, technologies and methodologies key to implementing REDD+

Background on USFS Mexico Program

- USFS/IP has had a long history of collaboration with USAID Mexico and CONAFOR and other Mexican partners
- Collaboration between technical experts are strengthened by the North American Forest Commission (NAFC) and the Commission for Environmental Cooperation
- Improving the management and prevention of wildfires has been a flagship topic of this collaboration
- Other important themes have included: watershed management, Monarch butterfly conservation, soil restoration, improved protected area management

Capacity Building: USFS/USAID Strengths in Mexico

- USAID funds are leveraged by significant (approx. 20%) financial support from the Forest Service
- The USFS has vast expertise available to support needs for scientific, technical, and resource management assistance
- The USFS has a long-term commitment to USAID/Mexico programs and the people with whom we work
- A substantial portion of USAID funds to USFS go directly to Mexican institutions through USFS grants (nearly 50%)

Basic facts of the 2012 USFS Mexico Program

- Budget for FY12 \$1,000,000
- Collaboration between the USFS and USAID is implemented through a PAPA (Participating Agency Program Agreement)
- 24 USFS Experts came to Mexico to work with counterparts
- More than 200 people received training in REDD+
- 4 Mexican and 1 US grant were awarded

USFS Partners

- USAID, CONAFOR, CONANP, CONABIO, Protección Civil, (government)
- Colegio de Posgraduados, Centro de Investigacion Cientifica de Yucatan, ECOSUR, UC Davis, U. of Florida, Universidad Autonoma Agraria Antonio Narro, Universidad Autonoma de Baja California (Academic)
- Fondo Mexicano de la Naturaleza, Pronatura Sur A. C. and BIOMASA A. C. (NGOs)

Support to Climate Change Demonstration sites strengthened

- Sites in Hidalgo (Pine forest under management), Mérida (tropical forest), and Calakmul (Bosque tropical subperennifolio)

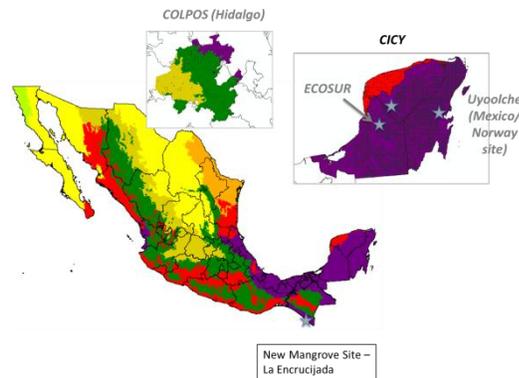
- Flux towers at Hidalgo and Mérida
- Each site has a network of forest plots with biometric measurements to calculate emissions factors
- Data from the sites support strategic management analysis, student training and graduate projects



- These intensive sites produce information at three different levels that feed into validation of broader data (like remote sensing) – helping to validate Mexico’s MRV component of REDD. Got the grants started, testing the equipment, installed the field plots. Training on field methods and data management. Started field data collection. Working with communities and developing forest management practices. It helps communities make management decisions – for example if they wanted to get carbon credits

Intensive and Demonstration Sites, USAID and USFS Programs in Mexico

- Collaboration with USAID M-REDD may include additional intensive sites
- Establishing and maintaining intensive sites require collaboration among many parties



Mexican National Forest Inventory Improved

- Implement the use of data recorders to improve data quality
- Improve data management and distribution of information
- Support the first international conference of inventory data users
- Support participation in the December U.S. forest inventory symposium
- National forest inventory serves as a countries and state’s baseline of information on their forests. Without this basic information, countries, like Mexico, can’t have a REDD program and it’s hard to make strategic management decisions (for example there is no way to know changes in forests growth, harvest and mortality). USFS and USAID have assisted Mexico with their NFI, the first one was in 2004 and now they are in the process of re-measuring every 5 years (same plot). Mexico has the longest running continuous forest inventory in tropical countries.
- 100s of different variables – such as tree dimension, tree species, and forest type, crown area, insects etc.

Improve Data on Effects of Ecosystem Disturbances on Carbon Flows

- Development of basic biometric measurements of tree biomass and other carbon pools and conduct field studies of disturbance effects on ecosystem carbon pools
- Principal disturbances are: deforestation, hurricanes and wildfires

- MX has sparse data on effects of disturbances and it is insufficient for an MRV system so USFS fills in gaps through data from our sites and inventory.

Support Training in Lidar and other Remote Sensing

- Flew Lidar over the demonstration sites in Hidalgo and Mérida
- Provide training on processing Lidar from sites with experts from the USFS Remote Sensing Application Center
- Lidar data will contribute toward developing biomass maps and detecting forest degradation

International Workshops on Common Protocols and Analysis of Validation Data (South-South Collaboration)

- Third annual “carbon measurement workshop” took place in Hidalgo, Mexico (30 July to 3 August, 2012)
- Develop common protocols for field measurements of forest carbon
- Organize a Western Hemisphere network of forest carbon monitoring verification sites
- This grew out of the Mexico program. Collaboration with Sillvacarbon – is a US government initiative (between USFS, USAID, State, USGS, NASA, Smithsonian, NOAA, EPA) to provide a coordinated MRV processes across countries
-

Expand knowledge and use of Inter-agency Coordination for Wildfires

- Wildfires contribute to Carbon emissions
- A key component to reducing carbon emissions from wildfires is better coordination among firefighting actors
- Incident Command System (ICS) experts from different parts of the Western US shadowed Mexico’s first Incident Management Team (IMT) in Chiapas, Mexico
- Translated the new versions of ICS 100-200.
- The USFS provided guidance and evaluated the command and general staff members of the Mexican IMT.
- An incident command post was established adjacent to the incident and for the first time ever, an ICS Incident Action Plan (IAP) was utilized and implemented completely in an incident. The Mexican team utilized ICS processes during a real incident under an Interagency Incident Management Team.

Develop capacity to implement Fire Management Programs in Protected Areas

- Review CONANP’s FM Strategy and identify clear lines of action
- Align CONANP’s FM Strategy with the National Strategy currently being created by CONAFOR.
- Conclude the FM Plan Guide and finalized the Calakmul FMP
- Implementation of the Fire Management Economic and Efficiency Analysis System (SINAMI) in México at two pilot sites. (Calakmul Biosphere Area in Campeche and Manantlan Biosphere Area in Jalisco)
- Supported the University of Saltillo in providing a basic fire management and leadership course to local community FF’s and CONANP personnel

Fuel classification for Mexico’s forest types and quantification of emissions from wildfire

- USFS worked with Baja California Fire Management Working Group member institutions and CONAFOR to devise a protocol that would allow measurement of forest fuels and carbon stocks in in the Parques Nacionales Constitución de 1857 (Constitución), and Sierra San Pedro Mártir (Mártir)
- Provided guidance on the research and development of a fuel classification system for Mexico’s vegetation types.

- Created a quantification model of emissions for wildfire. GHG Emissions Measurement Project
- via the installation of permanent plots that can be visited periodically to measure trends
- Trained field personnel from the parks and UABC in the field protocols and sampled the initial plots.

Some Anticipated Highlights for 2013

- Data from demonstration sites inform MRV assessments
- Increased knowledge of carbon stocks and uptake of Mexico's mangroves (new site in La Encrucijada, Chiapas)
- Strengthened technical knowledge and understanding of the different methodologies for carbon analyses (i.e. remote sensing, Lidar, field measurements)
- Stronger CONAFOR NFI with better quality data and support for users
- Community forest monitoring methodology that allows participation in carbon initiatives

Review of 2011 FMWG meeting minutes-Bill de Groot (Quebec City, Canada)

Sent out the minutes last year

- Not many comments

Main Points

- Meeting held last year in Quebec City
- Host at the time was Quebec Ministry of Natural resources and Wildlife, and Parks Canada (joint cooperation)
- Went through the country reports at the beginning of the meeting
- Bilateral agreements
 - A fair bit of discussion about this
 - A response letter was drafted and sent out afterwards
 - It was up to the three individual countries to work on the bilateral agreements
- Went through the work plan and action items
- Tour on the second day
- Guest speakers on the last day
 - Brian Stocks was presented an award for Outstanding Service
 - Talked about the Slave Lake Fire
 - Fire Management in Canada's National Parks
 - Fire Management in Costa Rica
 - National Policy in Australia, Vision and Principles in Fire Management
- Dale gave a review of the International Fire Conference in South Africa
- Vince gave a presentation of the South African Study Tour
- Planning for the North American Study Tour for the Australasian Fire Management Group
- New MOU between NAFC-FMWG and Australasian Fire Management Group
 - Background information
 - Summarize MOU
 - Currently sending people to each other's meetings
- International Wildland Fire Conference Series
 - Started by this Working Group
 - Since 1988 or 1989 in Boston
- Study Tours
 - With the Australasians
 - Sharing a lot of information

- Went through the work plan
- Not aware of any changes

CONANP Membership Proposal (Alfredo Nolasco Morales)

CONAFOR and CONANP are the two federal agencies in Mexico charged with wildland fire management.

- Working together strengthens each agency's ability to provide those services.
- Maybe reduce the Mexican delegation and also include/incorporate CONANP to the working group?
- CONANP will be added to the working group in place of the Sub-manager of Forest Fire Prevention, National Forest Commission.

Proposal accepted.

FMWG Charter Review

The only change is to the Mexican Delegation.

Reducing Emissions from Deforestation and Forest Degradation (Juan Manuel Frausto)

Wildfires within the REDD+ framework

REDD+ includes 5 activities:

- Reducing emissions from deforestation
- Reducing emissions from forest degradation
- Sustainable forest management
- Conservation of forest C stocks
- Enhancement of C stocks

Fire and REDD+ activities

- Fire threatens REDD+ activities and the intended additional environmental and social benefits
- Forest fires have increased due to the spread of fire-dependent agriculture (slash and burn), the increase of forest fragmentation and degradation and extreme climatic events

Impacts of fires on C stocks

- Increase of fires in tropics threatens permanence of C stocks
- Fires cause a long-term reduction of forest biomass:
 - Tree mortality continues for years after a fire
 - Repeated fires reduce the rate at which forests are able to accumulate C
 - Burned forests change species composition compromising the maintenance of C stocks

Carbon emissions from wildfires can exceed emissions from deforestation

- Deforestation emissions = 0.2 Pg C year⁻¹
- Wildfire emissions = 0.81- 2.6 Pg C year⁻¹

Impacts of fires on REDD+ Additional benefits

- As well as meeting their primary target of emission reductions, REDD+ schemes could also deliver important additional benefits
 - Biodiversity
 - Fire alters the composition of species with an increase in pioneer ones and loss of mature forest sp
 - Species richness reduction
 - Human Health and Livelihood
 - Increase of respiratory illnesses
 - Reduction of timber for harvest
 - Pioneer species favored by fire have little \$ value

Wildfires and REDD+

- Despite the prevalence and importance of forest fires, they have received little attention in REDD+ negotiations, capacity building and pilot work
- Fire prevention is fundamental to the success of REDD+ but is dependent on a good implementation
- There are opportunities to strengthen Fire Management policies and resources under REDD+ umbrella

Is avoiding deforestation enough to reduce the risk of fires?

- Reducing deforestation can
 - Reduce fragmentation rates
 - Reduce agricultural fire use
 - Prevent reductions in regional rainfall
- Reducing deforestation does not always lead to a reduction in fire
 - 2000-2007 fires increased by 59% in areas of the Amazon experiencing a reduction in deforestation
 - C credits from avoided deforestation could be negated by increased fire emissions from remaining forested areas

REDD+ in Mexico

- Mexico's net deforestation has decreased equivalent to a 55% (FAO)
- Drivers of deforestation are related to: 1) forest land converted to grassland, 2) slash-and-burn agriculture, 3) illegal logging (CONAFOR)
- Agricultural burning can produce wildfires and intensive emissions
- Fire is the least expensive and most used method of clearing land and converting forest biomass into nutrients
- Wildfire suppression, could efficiently reduce carbon emissions and enhance uptake
- Deforestation is associated with both forest fragmentation and an increase in ignition sources.
- The risk of large fires increases during droughts when canopy cover decreases
- In 2009, the Special Program on Climate Change incorporated REDD+ under the land use national policy chapter
- 30% of total GHG emission reductions for 2012 are expected to come from agriculture, forests and other land uses.
- Mexico has developed important climate change and forestry policy instruments and is currently in its REDD readiness phase.

Conclusions

- Forest fires are one of the most important forms of tropical forest degradation
- Reducing the risk of forest fires is necessary to achieve REDD+ objectives
- Fire reduction presents challenges in agricultural practices, development of monitoring and careful consideration of the livelihoods of rural people
- REDD+ opens:
 - opportunities to strengthen fire management policy
 - a negotiation channel for new technical and financial resources
- Mexico is building two key planning processes: The 2012-2025 Forest Strategic Plan and a National REDD+ Strategy; that can be improved by information and technical advice

Suggestions

- FMWG provides information and knowledge inputs to strengthen fire policy under REDD+ GOM initiatives regarding:
 - Emissions from wildfires in different ecosystems

- Wildfire monitoring and relationship to MRV systems
- Role of fire in increasing and maintaining C stocks and reducing emissions from fire management
- Contribution of fire management to conserve biodiversity and improve + co-benefits
- A paper giving information about fire management contribution to REDD+

NAFC Website Proposal (Rick Scott, NAFC liaison)

Proposal to give the responsibility for website updates to the individual working groups instead of submitting updates to the web manager for NAFC. Wiki pages type of web site instead of the current page.

- Need a better plan for the proposed webpage design with a solid implementation plan if a wiki type of webpage is used. The system needs to be clear.
- The proposal is a bit vague at this time. Rick will get back with the web manager for clarification on the proposal.
- Would like to maintain common look and feel of the website for all of the working groups under NAFC.

Work plan and action items (Dale Dague and Bill de Groot)

See Appendix

Australia/New Zealand Study Tour Update (Dale Dague, Kim Connors)

Conducted in September and October

- 3 weeks in the United States
- 2 weeks in Canada

USA tour

- Southern California
- Central California
- Boise, Idaho
- Missoula, Montana
- Tallahassee, Florida (Prescribed Fire Training Center)
- Washington DC

Canada tour

- Winnipeg
 - CSF Fire Research
 - Fire Carbon Council
- Quebec
- Ontario
- Manitoba
- Edmonton
- Alberta
- Various National Parks

International Liaison Committee (ILC) Update (Dale Dague)

Met with the South Korea Conference Organizing Committee

- 6th international Wildland Fire Conference Proposed for South Korea
- October 12-15, 2015
- Tentative location is the Alpencia Pyeongchang Resort, about 2 hours outside of Seoul, South Korea

- The theme will be “Fire in the Past, Fire in the Future. Learning and Adapting to a Changing World of Fire.”

Wednesday, November 28, 2012

Station Fire Tour (James Hall ANF-FMO)

Outline for the days tour

Tom Harbour - Station Fire Overview

Providing a context from his point of view.

- Engender conversation on broad scale national issues for fire management.
- Experimentation on the forest trying to grow trees in the 1950's with Mediterranean pines species.
- In the late 1800's, 1892 the land was reserved in the national estate for the protection of the watershed.
- Combination of brush, steep rugged terrain and weather produces floods and fire.
- Prototype of national scale problems we face.
- Air quality issues for prescribed fire.
- Largest fire in recorded history on the Angeles National Forest.
 - Precipitated by human action and management of the land.
 - Fulfilling a social mandate.

Thursday, November 29, 2012

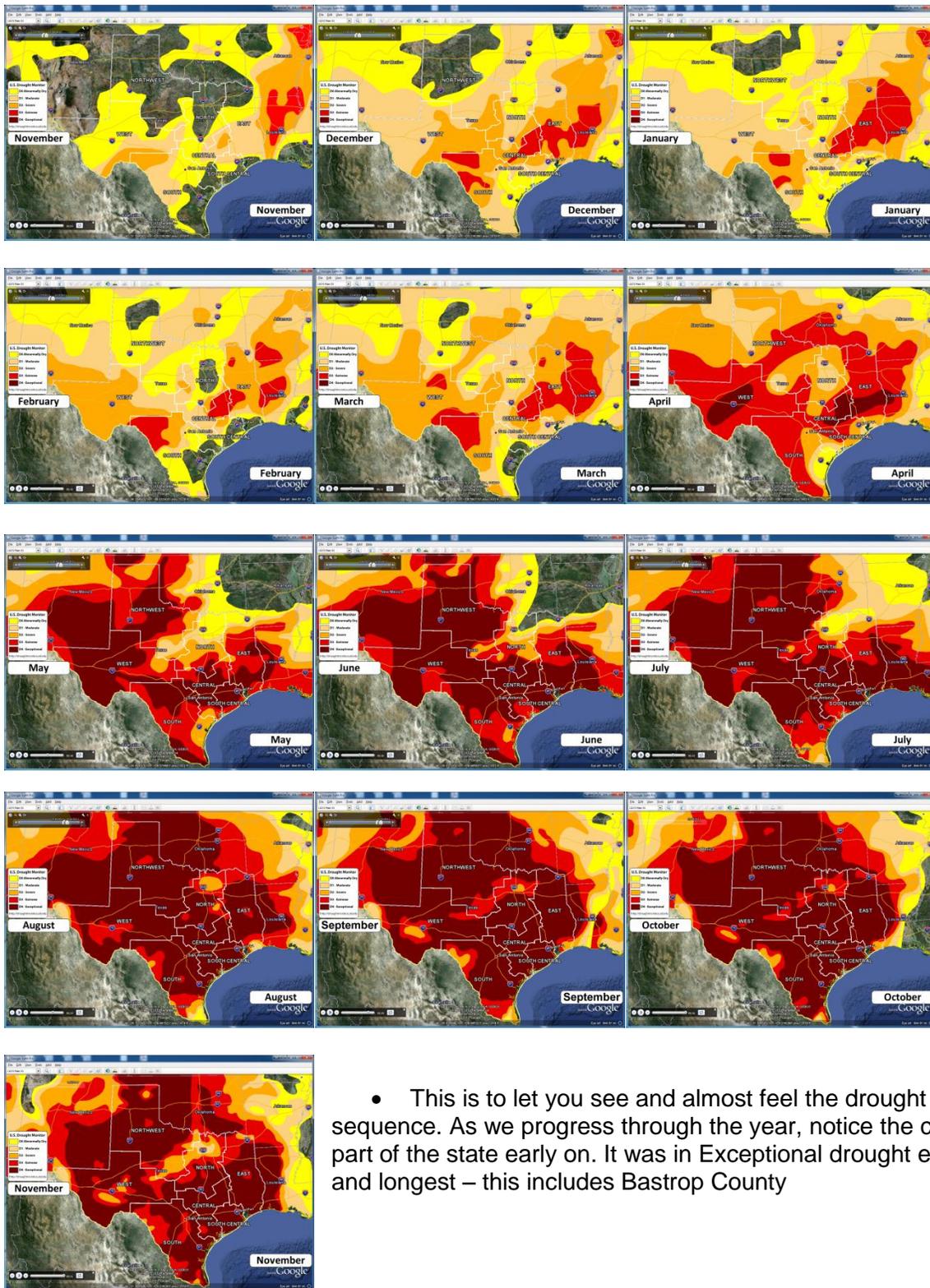
Texas Wildfires 2011 Tom Boggus (State Forester and Director Texas State Forest Service) and Mark Stanford (Fire Chief – Texas State Forest Service)

The Year of Fire

- We call it the “Year of Fire” in Texas
- But – Actually – it was really only 351 continuous days

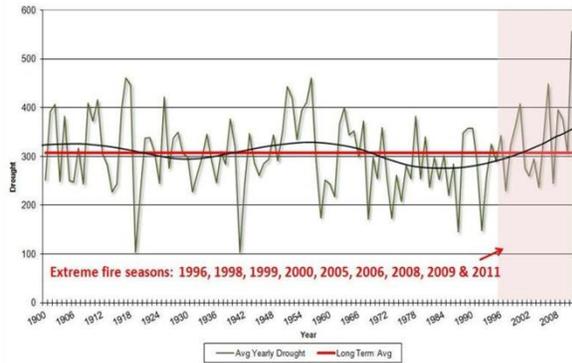
So what happened to set us up for this historic fire season?

- Late summer and early fall rains – some places over 200 & 300 % of normal rain amounts.
- Hurricane Alex went south and west
- Tropical Storm Hermine when up the middle
- Normally, we can “regionalize” a fire season based on time of year or fuel loading – Texas has over 167 million acres separated by long distances.
- This time, the heavy fuel loading was statewide – unprecedented levels.
- State Climatologist stated that the drought began September 28, 2010.
- It wasn't long after the rains stopped that the headlines started.
- The end result was a state with 99.9% in some sort of drought
- Most of it extreme or exceptional.



- This is to let you see and almost feel the drought sequence. As we progress through the year, notice the central part of the state early on. It was in Exceptional drought earliest and longest – this includes Bastrop County

Texas Average Yearly Drought Cycle 1900 – 2011



- Important to note about this drought is that we didn't get here over night.
- Part of a long history of 25 to 30 year dry and wet cycles.
- According to our Predictive Services bunch and meteorologists, we entered this cycle in 1996 – hopefully, we've peaked!

But in 2011

- Late Heavy Rains plus Historic Drought

- = "The Absolute Perfect Storm"

TFS, State and Interagency Response

- 10% of wildfires burn 70% of the acreage

Causal Factors

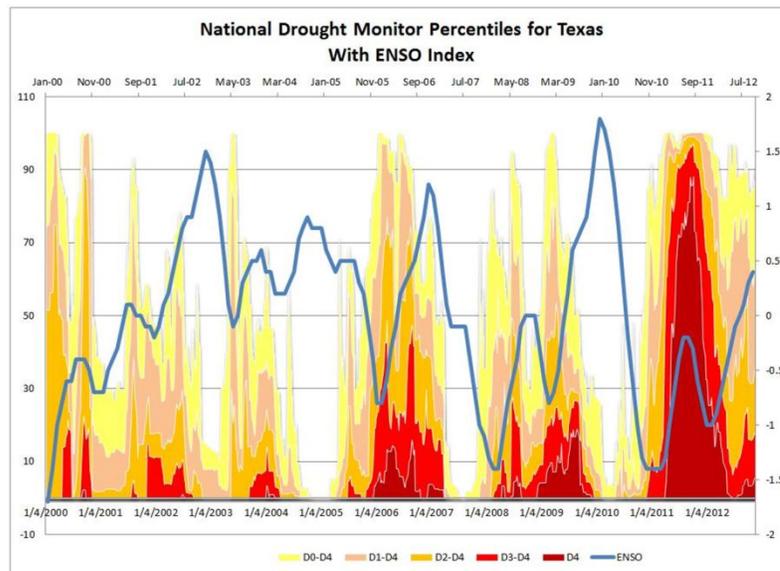
- Population
- Weather cycle
- Changes in land use – Fuels

Population

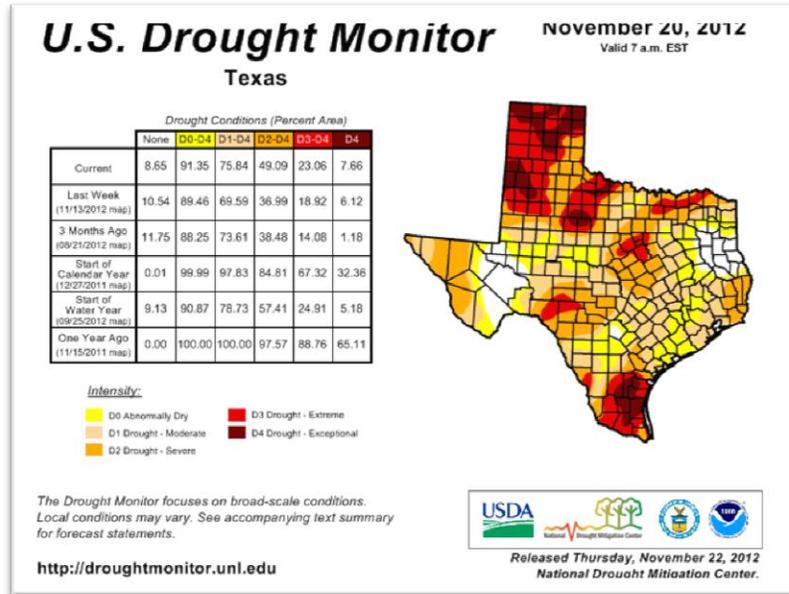
- Based on Point of Ignition, 80% of Texas wildfires occur within 2 miles of a community
- Total Homes Lost: 2,947
- Counties Affected: 136

Weather Cycle

- El Nino Southern Oscillation



- Current Drought



Changes in Land Use

- The Early Years



- East Texas Today

- Cross Plains



- December 27, 2005
- 3 fatalities
- 116 homes destroyed

Southern Plains Wildfire Outbreak (SPO)

Fire Season	# of SPOs	Fires	Acres	Homes Lost	Fatalities
2005-2006	6	449	1,254,407	228	16
2008	2	332	498,829	11	1
2009	2	314	204,812	152	5
Sub-Total	10	1,095	1,958,048	391	22
2011	9	1,233	1,307,193	339	2
Total	19	2,328	3,265,241	730	24

Predictive Services & Early Warning

- TLETS Early Warning
- April 9, 2011
 - FIRE RATES OF SPREAD IN GRASS FUELS COULD REACH 4 MILES PER HOUR WITH FLAME LENGTHS 10 TO 12 FEET
 - THIS EQUATES TO FLAMES THE HEIGHT OF A ONE STORY BUILDING BURNING THE LENGTH OF A FOOTBALL FIELD IN A MINUTE.
 - FIRE SUPPRESSION AIRCRAFT CANNOT FLY WHEN SUSTAINED WINDS REACH 35 MPH
 - EVACUATIONS HAVE BEEN COMMON UNDER THESE CONDITIONS
 - ALL RESPONDERS AND EMERGENCY PLANNERS SHOULD PLAN TO REACT ACCORDINGLY WITH OPERATIONAL AND EVACUATION PLANNING

SPO TFS Operational Plan of Action

- Plan:
 - Accept that multiple ignitions will occur
 - Active notification of the public and local emergency responders
 - Work with local elected officials to prepare to evacuate
- Respond:

- Communicate clearly with forces:
- Leader's intent –burning conditions, safety & operational expectations
- Plan for defensive operations with offensive tactics when practical
- Accept that aircraft will be grounded
- Reinforce:
 - Prepare to shift to the offensive when conditions change
 - Ready reserve from Texas Intrastate Fire Mutual Aid System (TIFMAS) for organized reinforcement

TIFMAS Mobilizations

- 13 mobilizations of 432 engines and 1,538 firefighters from 142 fire departments
- Supported by local All-Hazard Incident Management Teams – Plans & Logistics

Response – Where, When, What & Why

- Task Force Configuration
 - 3 - 4 dozers
 - 1 - 2 engines
 - Fireline Supervisor
 - Safety Officer
 - Logistics

Scope of Response

- 660 Miles North to South
- 640 Miles East to West

Resources at height of wildfire season

- 04/25/2011
 - 166 fire supervisors
 - 122 dozers
 - 139 engines
 - 22 hand crews
 - 18 air attack/lead planes
 - 5 air tankers
 - 14 SEAT's
 - 7 IMT's
 - 27 helicopters
 - Peak staffing: 2,296 personnel

Forest Fire Managers Group Update (Australasian - FFMG) Shane Wiseman – Manager, Fire management Branch – Department of Environment, Water & Natural Resources – South Australia

Australian Fire Management Peak Industry Bodies

- Australasian Fire and Emergency Services Authorities Council (AFAC)
- Forest Fire Management Group (FFMG)
- National Aerial Fire Fighting Centre (NAFFC)

Australasian Fire and Emergency Services Authorities Council (AFAC)

- Peak industry representative body of Australasian fire and emergency services (Metropolitan and rural fire services and state emergency services (SES))
- Non-statutory body
- Funded by member agencies
- Cannot develop 'policy' or 'standards'
- Can only develop 'positions'
- AFAC Conference 2013 Melbourne

Forest Fire Management Group (FFMG)

- Is a collection of Australian and New Zealand forest and land management agencies with fire management responsibilities
- Reports to Forest and Forest Products Committee (FFPC)
- FFPC is a sub-committee of the Primary Industries Ministerial Council (Federal Government)
- Role – To increase and enhance forest fire management practices and interoperability across agencies in forests and rangelands
- Can develop ‘policy’ and ‘standards’
- Fire equipment Working group (FEDOG)

National Aerial Fire Fighting Centre (NAFFC)

- Federal Government funded
- Sources aerial firefighting resources and manages contract arrangements
- Allocates resources to States based on risk
- Can relocate resources
- States may acquire additional resources
- States fund operating costs incurred for suppression operations

Australian Fire Management Framework – Overview

- Federal Government is not a land manager
- Each State and Territory is responsible for it’s own emergency services and response capabilities
- Consists of Metropolitan Fire Services, Rural Fire Services, Land/Forest Management agencies with support from Police, SES, Ambulance.....
- Funded at a State or Local Government level
- Some land managers have legislated fire management responsibilities
- Fires are typically of short duration but high impact in Southern Australia

South Australia Example

- MFS - paid firefighting resource
- SACFS – rural fire service, volunteer base
- DEWNR - paid staff and seasonal firefighters
- Forestry – paid staff and season firefighters
- Legislation to develop landscape scale, tenure blind risk based fire management plans

DEWNR Initiatives

- Have developed:
 - Risk based FMP’s for public lands (zoned)
 - Ecological Fire Management Guidelines
 - Fuel Hazard Classification system based on fuel characteristics
 - Fire Information Management System
 - Fire spread modeling tool (Phoenix)

Recent Influences

- Realization that bushfires cannot be eliminated from the landscape
- However there is potential to reduce impacts
- Recent Inquiries have identified fuel management is vitally important
- Increased focus on prevention
- Victorian Bushfire Royal Commission - that the state commit to an annual rolling program of prescribed burning to treat 5% of public lands annually
- That a risk based approach be adopted

Current key FFMG business

- National Bushfire Management Policy for Forests and Rangelands
- Policy Statement Implementation Plan
- National approach to prescribed burning
- National Fuel Classification
- Agreements (National / International)

National Burning Project

- Jointly commissioned by FFMG and AFAC
- Objective:
 - Establishing best practice guidelines for prescribed burning nationally
 - Greater interoperability between fire agencies
 - Risk management and monitoring frameworks
 - National Fuel hazard classification system

National Burning Project - Key Elements

- Analyze existing operational frameworks within which prescribed burning is conducted currently
- Review existing knowledge (gap identification)
- Prepare Best Practice Guideline
- Deliver national position
- Review operating doctrine, competency, training, etc.

National Policy Statement- Status

- Has been signed by all State Premiers and Territory Chief Ministers
- Endorsed by COAG including Local Government Assoc.
- Commits governments to implementing as a priority
- Principles will be reflected in all individual and fire management agencies Codes of Practice

National Policy Statement- Vision

- Fire regimes are effectively managed to enhance the protection of human life and property, and the health, biodiversity and benefits derived from Australia's forests and rangelands

National Policy – Strategic Objectives

- Effectively managing the land with fire
- Involved and capable communities
- Strong land, fire and emergency services partnerships and capability
- Actively and adaptively managing risk

National Policy – Principles

- Learning to live with fire – bushfires are understood, accepted and respected.
- Shared and individual responsibility.
- Protection of lives as the highest consideration.
- Consistency of purpose and unity of command.
- Manage fire according to landscape objective.
- Decisions within a risk management framework.
- Integration of learning & knowledge
- Monitoring performance (incl. implementation plan).

Agreements

- Existing:
 - DSE (Victoria) – British Columbia
 - DSE – CIFFC
 - DSE – United States
 - FFMG Agency Agreements

- In development:
- FFMG and United States (nearly there)
- FFMG and Canada (Oh so close!)

USA / Canada FFMG Study Tour (Fire Study Tour)

- 5 week tour
 - Visited – California, Boise, Missoula, Tallahassee, Washington DC, Winnipeg, Edmonton, Hilton/Jasper, Kananaskis, attended Canadian Wildland Fire Conference
- Extremely valuable for knowledge sharing, relationships and increased international cooperation and collaboration
- Thank you to the hosts and host agencies for their enthusiastic support and contribution to the success of the tour

Margaret River Bushfires (WA)

- November 2011- approx. 7,500 acres
- Prescribed burn undertaken Dept. of Environment and Conservation
- Result of re-ignition in unburnt fuels within burn perimeter
- 32 houses, 9 chalets and 4 other buildings destroyed, other damage sustained
- No lives lost
- Government quickly accepted full responsibility
- Independent inquiry established
- Terms of Reference -
 - To examine and report on:
 - The causes of the Margaret River Bushfire
 - The basis for and circumstances leading up to the prescribed burn
 - Compliance with departmental policy and standard operating procedures
- Outcome
 - Final Report titled “Appreciating the Risk”
 - 10 recommendations made
 - Prescribed burning can only be conducted in narrow windows – pressure to complete burning programs
 - Can never be risk free – significant higher risk in interface areas
 - Greater risk to communities if not done
 - Highly skilled and complex operation
 - Criticism likely to impact on decision makers and staff undertaking prescribed burning operations.
 - Succession planning vital
 - Government support for prescribed burning re-affirmed

Royal Commission and Senate Inquiry Bushfire CRC contribution

- The Royal Commission “...benefited from the extensive research conducted by the Bushfire CRC...”
- Senate Recommendation 13: “At the conclusion of the current Bushfire CRC ...the Commonwealth establish a new permanent bushfire research institute.

Gaps in bushfire knowledge - A new beginning

- Community safety
- Understanding bushfire risk
- A shared responsibility in learning to live with fire
- Ensuring sustainable ecosystems with climate change
- Making the best use of systems and technology
- Sharing the scientific knowledge

- Involving collaboration across multiple disciplines and jurisdictions

For the Future

- Health and Safety
 - There are many unknowns about air toxics emitted from wildfire and prescribed burning, from structures and vegetation. Agriculture and chemical use, construction materials and manufacturing: all can contribute to the toxic load of smoke.
 - What are the new threats in fire management?
- Climate Change
 - A warming planet: greater fluctuations in climatic cycles, extremes of wet and dry with more associated natural hazards.
 - More drought, increased severe weather events, more fire, more flood.
 - What changes must we plan for?
- Demographic Change
 - Cities merge further into forested, bushland and agricultural country.
 - Sea and tree-change trends bring more city people in rural areas, people unfamiliar with how individuals and communities manage risk and respond to threat.
 - How profound is this shift?
- Fire in the Landscape
 - Key issues for land management in coming decades:
 - Reducing the risk of catastrophic wildfires in forests whilst delivering more high quality water and an improved carbon balance.
 - Managing the land all year round for a balanced range of uses and users.
 - How is this balance achieved?
- Technology
 - How do we know when the technology is right?
 - What comes next?
 - Where are the answers – in technology or behavior change? When does cost outweigh benefit in managing fire risk, suppression and recovery?

Challenges

- Climate change
- Greater interoperability between agencies, states (e.g. common hose couplings)
- Developing fire educated and 'fire savvy' communities
- Influencing planning and development
- Decline in the availability of volunteers
- Managing increased accountabilities and expectations
- Managing the media
- Succession planning and staff retention
- Conservation vs. Prevention – striking the balance
- Common Incident Management System

NAFC Update (Rick Scott)

Commission Meeting Quebec City

- The Twenty-sixth Session of the North American Forest Commission (NAFC) was held in Quebec City, Quebec, Canada, from 8 to 9 May 2012, at the invitation of the Government of Canada. The session was attended by participants from the three member countries of the Commission. The chairpersons and vice-chairpersons of the regional Forestry Commissions for Asia Pacific, Europe and Near east, as well as the

secretaries of the Africa and Latin America and Caribbean Commissions also attended the session as observers.

Country Reports on Challenges they are Facing

- Mexico
 - Enhance institutional capacity
 - Align and integrate forest policies and programs
 - Strengthen intersectoral coordination for promoting sustainable forest management, conservation and restoration; including rural development to diversify forest goods, alleviate poverty, increase economic, social, and environmental benefits
- United States
 - Drought, wildfire, invasive species, insect and disease, climate change, explosion of urban environments, and the loss of wildlife habitat
 - Fire management is a key issue for the USFS. Main objective is the restoration of ecosystems at the landscape scale. Developing a national wildland fire management strategy.
- Canada
 - To support innovation in the forest sector
 - Forest science – enhance inventory systems
 - Bio-products – Nano crystalline cellulose
 - Bio-energy – bio-methanol, cogeneration of energy
 - Next generation of wood products
 - Roll of Canadian Forest Service is to foster that innovation and encourage development and commercialization of new technologies and diversify markets.
 - Identified future areas of collaboration: linking forest science to market needs, defining sustainability criteria for bioenergy and bio-products and harmonizing standards of development.

FAO Presented: Strengthening International Cooperation

- Eduardo Briaes Rojas spoke to the relevant recommendations of the 20th Session on Forestry and related follow up actions. He concluded by noting the need for including fire management in the broader sustainable land use and landscape policies and invited the Commission to consider the development of a Multi-Donor Trust Fund thereby creating resources to adequately respond to countries requests for fire management assistance.
- Country responses focused primarily on the proposed trust fund. Canada noted that they would review the proposal prior to the next COFO meeting and key to the success of such a proposal would be developing a strong plan that showed how efficiency would be created and how other agencies would be involved. Chief Tidwell of the US asked about the proposed budget, work plan, outcomes, and how FAO was engaging other international organizations like the World Bank. Mexico stressed the program should avoid creation perverse incentives such as discouraging engagement of countries in fire management and financing. There should be a focus on capacity building, sharing of technical and scientific information, experiences and the like.

BOA Report

- Integrated meeting in Ottawa
- Reporting and work plan format
- NAFC History and Working Group Publications

Working Group Reports and Feedback from the Commissioners (Working Group Presentation are on the NAFC web site)

- Fire Management Working Group

- CONAFOR and the US Forest Service as well as CONAFOR and the Canadian Interagency Fire Center signed letters of intent to strengthen cooperation in the area of fire management.
 - The Commission acknowledged the need to expand science, technology in order to address fire management in North America and globally.
 - Juan Manuel Torres remarked that Mexico's capacity to respond to fire management incidents and issues has greatly improved over the last decade and he recognized the contributions of Canada and the USFS in this effort.
 - The Commission recognized the FMWG 50 years of service by noting that the work they are doing today is just as relevant as it was at the time the WG was established.
 - The other working group reports are on the web site or soon will be.
 - Disbanded the Watershed WG
- Other items (all can be found in the final report on the NAFC web site)
- Discussion of FRA (how certain types of forest are characterized)
 - Regional priorities for FAO/Forestry
 - Meeting concluded with the election of officers and the US is the Commission Chair now through the next meeting in 2013/2014.

BOA Conference Call

- Approved several funding requests (genetics and fire working group requests)
- Will meet in Santa Fe, New Mexico next year in April to set Commission Agenda and deal with business as needed

Meeting Dates

- Commission meeting in late 2013 or early 2014
- BOA, April 2013 in Santa Fe, New Mexico
- Working Groups
 - Insect, Disease and Invasive Plants: Jamie Villa, October 2013 in Canada
 - Forest Genetic Resources: Jesus Vargas, June/July 2013
 - Silviculture: Mary Ann Fajvan, Late June 2013. Quality Hardwood Management and Oak Silviculture. Will meet in western PA and West Virginia. Best access is to fly into Pittsburg. They would welcome your participation.
 - Fire: Tom Harbour, November 2013, Arcadia, California
 - Inventory and monitoring: Carlos Zermeno, no date set yet.
 - Atmospheric Change and Forest: David Pare, December 3, 2012 in San Francisco, California.

Wildland Fire Agencies' Response to Superstorm Sandy (Gordy Sachs)

Superstorm Sandy

- The weather event known as "Superstorm Sandy" was created due to the unique convergence of weather features:
 - A hurricane
 - A cold front
 - A low pressure system
- Essentially, Superstorm Sandy was a hurricane trapped inside a nor'easter.

Superstorm Sandy Timeline



- Peak strength: 110 mph winds (177 km) (Category 2)
- Largest Atlantic hurricane on record.
- Diameter over 1,000 miles (1,600 km)
- Strength at landfall: 90 mph (145 km/hr.) (Category 1)

Superstorm Sandy Affects

- Death toll:
 - Total: 199
 - U.S.: 121
- Missing:
 - Total: 16
 - U.S.: 1
- Damage estimate:
 - Total: \$65 Billion
 - U.S.: \$50 Billion

Wildland Fire Agency Response

- More than 1200 firefighting personnel were mobilized, including:
 - 43 20-person fire crews from 17 states
 - 10 Incident Management Teams
 - 30 liaisons with the Federal Emergency Management Agency (under the National Response Framework)

Wildland Fire Agency Response

- Although our firefighters are most well known for their wildland firefighting, Forest Service crews have skills applicable to all types of emergencies and have significant experience with hurricane response.
- For example, our IMTs operated mobilization centers, managed staging areas, coordinated emergency response, and supported local and state Emergency Operations Centers.
- A key mission is clearing roads to provide first responder access for search and rescue and other emergency response missions. Providing access is also the essential element in allowing power companies to restore electricity and for the delivery of life-sustaining commodities and supplies to occur.

Crew Missions

- Emergency Road Clearing
- Support for Power Restoration
- Points of Distribution

Response Coordination

- Interagency Coordination
- Liaison to FEMA

San Dimas Technology and Development Center (Ralph Gonzales)

Introduced John Fehr, Director of T&D.

- John gave a brief history and mission of the Technology and Development Program of the US Forest Service.

Introductions of the working group to T&D staff attending the meeting.

- T&D Overview
- Projects
- Tour

Bilateral Agreements (Vince/Dale)

Decided to stay with bilateral agreements and not going to trilateral agreements.

- Work through many levels of government.

- Still a lot of input and work needed from both countries.
- Mexican/Canadian agreement was worked on quite a bit this past summer.
 - Canada ready to sign, waiting for the Mexican government.

ICS Glossary Update (Kim Connors)

Need to have the French translation reviewed.

- Continued

47th FMWG Meeting in Mexico (Alfredo)

Somewhere in central Mexico

- Mexico State
- Toluca?
- Sometime in October/November
- Alfredo will make arrangements for conference call
 - Also will discuss REDD+ at this time
 - White paper (Juan Manuel can prepare some notes on the issue and will distribute in January)

Funding Request from Bill/Alfredo

- Funding request to work on Fire Information System in Mexico
 - Funding request will be sent to the Chair's representative on the BOA with a copy sent to Rick Scott so that he can track it for the working group.

Alfredo Nolasco

- Possible position change due to new administration
 - Asking for support for anyone who may be filling the position to continue the good work of the committee
 - Will keep the committee advised
 - Will continue with current commitments

Objective	Activity	Deliverable	Timeline	Responsible
Improve cooperation on wildland fire between Canada, Mexico, & USA	Develop glossary of common wildfire management terms	Initial review/draft proposal	Completed	Dale Dague
		1) Develop NA fire science directory (web accessible) 2) Send Canadian contacts	1) Ongoing 2) Mar 2013	1) USFS vice-Hilbruner 2) Bill de Groot
		Mexico Fire Management Information System	Proposal completed, CONABIO /SMN developing; present in 2013	Alfredo Nolasco Bill de Groot
	Developing bi-lateral agreements	1)Draft response 2)Schedule followup meeting/discussions 3) Review existing US/Mexico and US/Canada agreements	Report at 2013 meeting	Alfredo Nolasco, Vince Mazzier, Kim Connors
	Mexico Fire Management Information System/EWS	CONABIO present update at next FMWG meeting	Cancelled	Alfredo Nolasco Isabel Cruz
	2013 FMWG meeting	Plan 2013 FMWG meeting		Alfredo Nolasco
Undertake and/or support cooperative global fire activities	Implement Recommendations from 2009 Study Tour of Australia and New Zealand	Recommendation 3: Create task force of researchers to write a white paper on fostering international collaborative research	Deferred	Vice-Hilbruner Bill de Groot INIFAP, Univ. of Chapingo
	Australia/New Zealand study tour of North America.	Organize study tour of Mexico, USA and Canada	Completed	Kim Connors Dale Dague Vince Mazzier Alfredo Nolasco Arturo Raygoza

Undertake and/or support cooperative global fire activities (cont'd)				
	ILC	Meeting - Freiburg	Completed	Dale Dague
	ILC	Meeting-South Korea	TBD	Dale Dague
	6 th IWFC	Location TBD	July 2015	Dale Dague
	Letter to COFLAC	Send letter of invitation	Completed	Bill de Groot
	FMWG-FFMG collaboration	Attend FFMG meeting	Continuing	Dale Dague
	Crisis Response Journal	Prepare article for Johann to submit	Completed	Bill de Groot
Conduct FMWG business	Meeting minutes and Workplan	Send out minutes and Workplan	Jan. 2013	Dale Dague
	Conduct a mid-term conference call	Update on action items	Feb 2013	Alfredo Nolasco
	FMWG Charter	sign updated charter from Oct 6 2011; send copy to Bureau of Alternates	Jan 2013	Tom Harbour Bill de Groot Alfredo Nolasco
	Develop a North American report summarizing key components of country reports	Draft template for annual summary report.	Post links to country fire statistics on FMWG website by Jan 2013; include a pop-up of new links on website	Bill de Groot

	Update website	Upload copy of new charter		
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List of Delegates

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