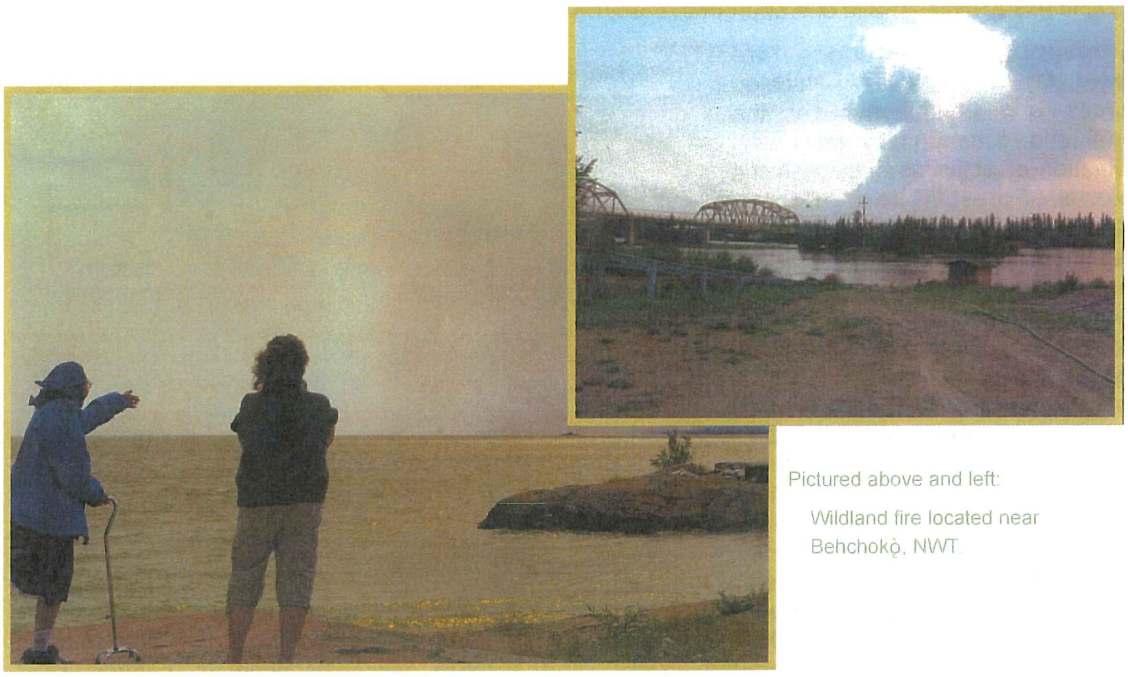
NWT 2008 FOREST FIRE SEASON

DEPARTMENT OF ENVIORNMENT AND NATURAL RESOURCES

October 2008



Pictured above and left:

Wildland fire located near Behchokǫ̀, NWT

The 2008 forest fire season resulted in the highest level of wildland fire activity experienced in the Northwest Territories in the past three years. There were 241 fires that burned almost 310,000 hectares.

Of significance were three severe fire events occurring in the third week of July that threatened communities and major infrastructure. These fires (two in the North Slave Region and one in the South Slave Region), stretched the capacity of territorial resources to their limit. Despite challenges, communities were effectively protected.

As wildland fire and its associated risks increase, controlling the cost of fighting wildland fire continues to be one of our greatest challenges. Managing the risk from wildland fire through effective planning and fuel management is a priority. The success in meeting current and new challenges will be founded in people, planning, and technology. These areas will be the focus in coming months in advancing the fire management program.

Inside this issue:

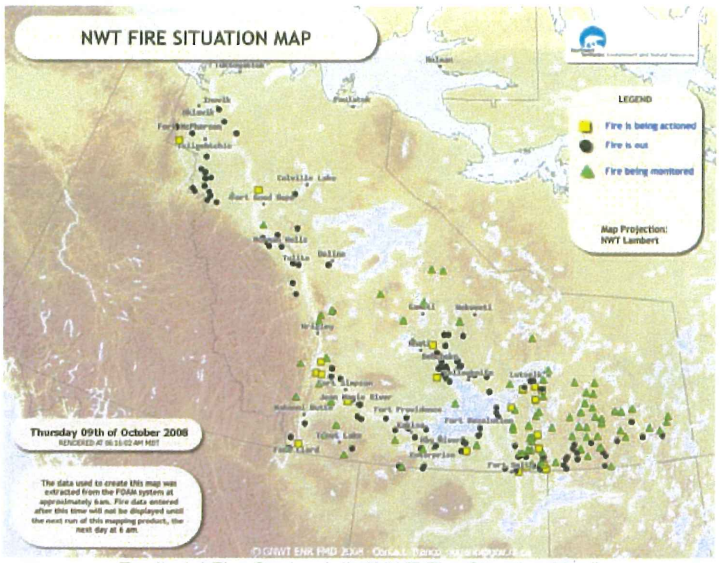
Special points of interest:

- 241 Wildland Fires Reported in 2008
- 89% of all Wildland Fires caused by Lightning
- 78, 315 Lightning Strikes on August 11, 2008

Forest Fire Response

Forest fire response follows the guidelines of the *NWT Forest Fire Management Policy (53.02)* which states *"fire is recognized as a significant and natural phenomenon in the forests of the Northwest Territories"*. Detection is a key to ensuring wildland fires are reported at an early stage, allowing timely assessment and appropriate response.

Fire response operations are delivered by strategically located resources and equipment at the regional and community level with coordination of activities through the Territorial Forest Fire Centre. Located in Fort Smith at the Forest Management Division, the Territorial Forest Fire Centre provides operations support throughout the fire season by analyzing potential fire behaviour and risk of ignition. This information is used to set daily alerts and apply associated guidelines for emergency preparedness and fire occurrence response planning. The potential fire behaviour and risk assessment are derived from analysis of fire weather, forest fuel moisture conditions, and lightning occurrence. The Territorial Forest Fire Centre also coordinates monitoring of forest fire activity on the landscape by collating on-ground, aerial, and satellite reconnaissance in support of values-at-risk analysis and fire threat mitigation planning.



Territorial Fire Centre daily "NWT Fire Situation Map"

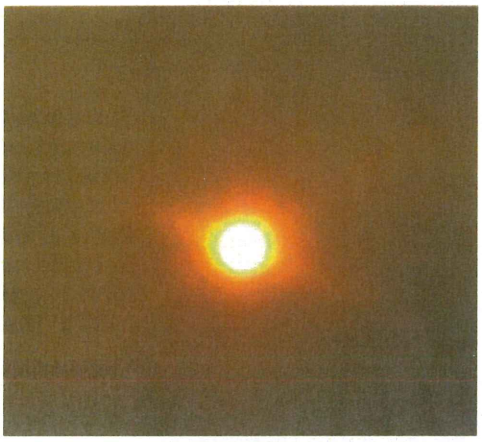
Fire Season Statistics

The Northwest Territories, during the 2008 forest fire season, recorded 241 wildland fires from May 1 to September 30, 2008. Of these fires, 87 fires (36%) received some level of suppression response to protect values at risk, while the remaining 154 fires (64 %) were monitored. All actions were taken in accordance with the *NWT Forest Fire Management Policy (53.02)*. The total forest-land area affected by forest fires in 2008 is approximately 309,067 hectares.

REGION	Lightning	Person Caused	OTHER	Undetermined	TOTAL Fires	TOTAL Hectares (ha)
North Slave	45	5	1	1	52	169,935.39
South Slave	116	4	1	2	123	121,381.75
Dehcho	29	1	1	0	31	7,305.00
Inuvik	17	0	0	2	19	4,947.40
Sahtu	7	2	7	0	16	5,497.65
TOTAL	214 (89%)	12 (5%)	10 (4%)	5 (2%)	241 Fires	309,067.19 ha

Fire Weather

Weather conditions are key factors for determining fire danger and strongly influence fire behaviour. Up-to-date weather forecasts are crucial for determining fire danger and fire behaviour. The Department of Environment and Natural Resources operates an extensive network of fire weather stations to monitor fire hazard in Northwest Territories (NWT) forests and contracts a dedicated meteorologist for daily and spot forecasts. The weather observations from the stations are used to support fire weather forecasting and the Canadian Forest Fire Danger Rating System (CFFDRS).



Picture of the sun surrounded by smoke from an active wildland fire near Sandy Lake

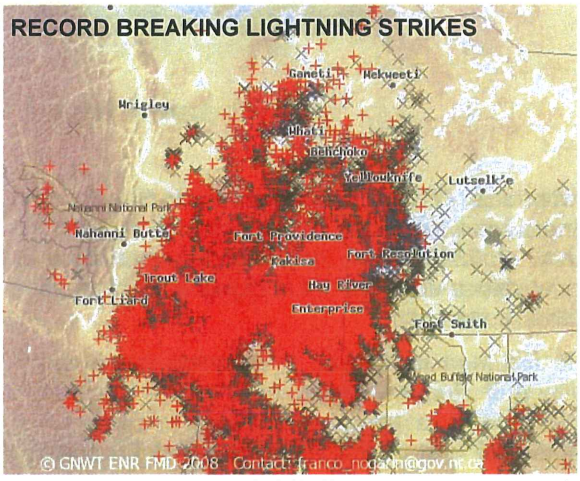
The CFFDRS is the primary fire management decision aid in Canada. With it, fire managers can assess the potential for ignition, spread, and burning intensity. This information is used for making fire prevention, preparedness and suppression decisions, as well as other general fire management decisions.

The Department also operates a lightning detection system. This network of sensors enables fire managers to monitor cloud-to-ground lightning activity on a territorial basis and provides real time lightning data that can be tracked for the prediction of wildland fire starts.

"From mid to late July, fire weather conditions became severe across southern NWT."

2008 Fire Weather Conditions

The 2008 fire season opened with normal conditions in all regions of the NWT with the exception of the Inuvik Region where conditions indicated an underlying moisture deficit. Fire weather conditions during mid to late July however changed becoming particularly severe across the southern NWT. Conditions combined to produce blow-up fire weather in late July rarely experienced in the NWT at that time of the season. Temperature values remained above seasonal, with a very low RH regime for a significant period of time. These factors resulted in extreme fire weather conditions across the North Slave and South Slave Regions.



NWT 24 Hour Lightning Map generated on Monday, August 11, 2008. Within the 24 hour period, a total of 78, 315 lightning strikes were reported within the Dehcho, North Slave and South Slave Regions.

During August, the NWT continued to experience unusual weather conditions with unseasonably warm and very dry weather over the southern NWT. Temperatures were nearly 10 degrees Celsius above seasonal across the North and South Slave Regions, well into mid August. The amount of lightning during that time was an occurrence not usually experienced that late in the season.

Similar conditions have not been experienced since 1989 when the NWT reported 220 new fires between the second week of August and the end of the fire season.

Severe Wildland Fire Situations

Sandy Lake (SM-013-08)

SM-013-08 Sandy Lake, NWT

The South Slave Region's wildland fire SM-013-08 was the result of lightning occurring on July 19, 2008. The wildland fire ignited between Hay River and Fort Smith and threatened the community of Sandy Lake. The Department responded by working with Parks Canada to establish a unified Type 1 Incident Command Team to manage the fire. The fire caused multiple closures of the NWT Highway 5 and disrupted power to Hay River when it overran NWT Power Corporation hydro transmission lines.

The wildland fire was declared out at just over 40,000 hectares.

ZF-013-08 Behchokǫ̀, NWT

The North Slave Region's wildland fire ZF-013-08 was ignited by a lightning strike. The fire burned in a remote area south east of the NWT Highway 3 between Fort Providence and Behchokǫ̀. On July 18, 2008, the fire grew north-eastward, closing NWT Highway 3 and threatening the community of Behchokǫ̀. The fire exhibited extreme fire behaviour. The power of the fire was so great that it created its own weather system. Lightning erupting from the fire's convective column ignited a new fire east of Behchokǫ̀. A Territorial Type 1 Incident Command team was assigned to this fire and it was called under control in early August, having burned nearly 71,000 ha.

Behchokǫ̀ (ZF-013-08)

Snare Hydro Complex (ZF-030-08)

ZF-030-08 Snare Lake Hydro

The North Slave Region's ZF-030-08, located north of Behchokǫ̀ and west of the Snare Lake Hydro facility, was caused by lightning and reported on July 17, 2008. Initially, the fire was monitored as there were no priority values-at-risk, and fire in higher-valued areas fully committed available resources.

When the wildland fire burned northward, threatening the Snare Lake Hydro facility and Fortune Minerals, a modified Type 1 Incident Command Team was assigned to manage the fire. A burnout plan commenced to protect the NWT Power Corporation hydro infrastructure.

The wildland fire was declared out at just over 67,000 ha.

Resources

The Department of Environment and Natural Resources (ENR) employs 29 Type 1 Wildland Fire Crews in 20 communities throughout the five Regions. Twenty of these crews are contract resources while the other nine crews are seasonal employees of ENR.

Fort McPherson Type 1 Crew (Crew C)

During the 2008 fire season, ENR was able to manage fire response with the number of crews available within the Northwest Territories. However, to meet incident management demands, especially for the three critical fire events, it was necessary to import command personnel through the Canadian Interagency Forest Fire Centre (CIFFC) under the Mutual Aid Resources Sharing (MARS) Agreement. This included a Plans Section Chief, Air Attack Officers, and Territorial Duty Officer Support.

Aircraft are an important tool for forest fire suppression in the north. ENR owns four CL-215 water skimmer air tankers and each season contracts for the services of two DC-4 land based air tankers and four Bird Dog aircraft. Air tankers are used primarily for initial attack, to hold the fire from spreading until ground forces are brought in.

ENR also contracts for the services of five Intermediate helicopters. These helicopters serve as reconnaissance, transport of fire equipment and personnel, direct attack, and command platforms.

These aviation resources are deployed across the territory based on current fire suppression requirements. When the need arises, additional helicopters and fixed wing aircraft are contracted on a short-term as needed basis.

List of Resources to protect 33 million hectares of land (8% of Canada's entire forested area):

- **1—Territorial Fire Centre**
- **5—Regional Fire Centres**
- **29—Type 1 Fire Fighter Crews**
- **4—CL-215 Air Tankers**
- **2—DC –4 Air Tankers**
- **5—Intermediate Helicopters**

CL-215 Air Tanker w/ Bird Dog

DC-4 Air Tanker

Intermediate Helicopter

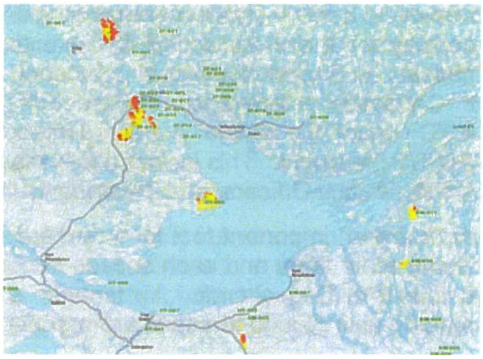
Technology

Although fighting wildland fire requires resources on the ground, including forest fire fighters with hand tools, the battle is increasingly being fought using advanced science and technology. The Northwest Territories (NWT) has placed a major focus on the development and use of technology for fire management. This includes the development of new models, tools, and systems to provide better decision support for delivering a cost effective and efficient forest fire management program.

The Department of Environment and Natural Resources (ENR) has developed and continues to develop the use of technology that includes a lightning network, an automatic weather network, a satellite fire detection system, an aircraft tracking system, and a new financial tracking and suppression management system called EMBER.

Satellite Fire Detection

ENR has been using Moderate Resolution Imaging Spectroradiometer (MODIS), a satellite fire monitoring system provided by US Department of Agriculture (Forest Service) as an additional means of fire detection for nearly five years. During the summer of 2008, MODIS accounted for finding 53 (22%) fires, the highest number since its inception. This increase is explained by the unusual numbers of fires occurring in remote areas of the Caribou Range and North Slave regions in late summer. MODIS is used to monitor fire growth and activity and has proven to be an effective yet cost-saving measure.



MODIS Fire Detection19:00 hours on July 20, 2008

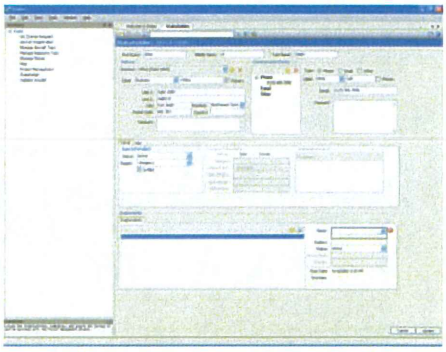
Tracking a CL-215 on July 9, 2008

Aircraft Tracking System

A new initiative for 2008 is the Aircraft Tracking System. This system provides a satellite tracking system for any aircraft in western Canada that is enabled with a satellite transmitter. The system put in place for aircraft safety and management provides help when moving aircraft over great distances, or tracking aircraft in normal fire operations or looking for additional aircraft assistance outside of NWT borders.

EMBER

A project to develop a new fire management system, EMBER is underway. The first module of EMBER will be operational for the 2009 forest fire season. This system will replace the outdated FOAM system (Fire Operations and Administration) and the NWT Fire Management System. EMBER will provide better and faster access to financial administrative data for fire managers. Several other layers will be integrated into this system during 2009/2010 including forest fire reporting, fire weather, and a fire operations GIS system for values-at-risk, forest fuels data, fire history and other important elements within fire management. When fully operational, the system will provide the same information to all regions across the NWT.



EMBER Database Display

2008 Initiatives

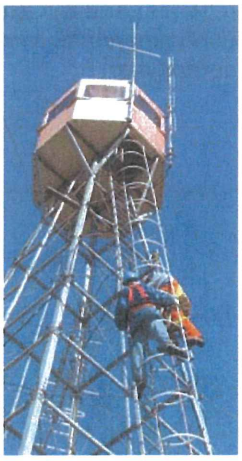
Fitness

To fight forest fires safely and effectively within the Northwest Territories (NWT) and Canada, and to avoid injuries, all wildland fire fighters must be "certified" as physically fit. Forest fire fighting is a physically and psychologically demanding occupation and requires a high level of energy output over long periods under adverse conditions. Beginning May 1, 2008, the Department of Environment and Natural Resources (ENR) Type 1 wildland fire fighters employed or contracted in operational positions are required to successfully pass a Wildland Fire Fighter Work Capacity Test. This test must be passed on an annual basis to maintain that ability to be considered eligible for continuing employment as a Type 1 wildland fire fighter in wildfire operations.

Training

Intermediate Fire Behaviour Course in Fort Smith, NWT

Training, re-training, and certification are essential to ensure the effectiveness and safety of wildland firefighters and support staff. A comprehensive training program is in place to ensure NWT Fire Management personnel are trained and meet national standards related to the Incident Command System that the NWT operates under. New training programs are being developed and delivered to ensure that the NWT continue to meet or exceed national level requirements.



Fire Tower Rescue Training

Wildland Type 1 Crews using fireline equipment.

Fire Equipment

Fireline equipment is an important part of fire fighting. ENR has a significant inventory equipment that must be maintained, replaced, and upgraded on an ongoing basis. The equipment also must meet national standards to enable resource exchanges with other wildland fire fighting agencies nationally and internationally. Off-season, pumps are checked over by a qualified technician, radios are tested and checked, and automatic weather stations are tested each spring. During the summer of 2008, all existing small pumps were replaced with Mercedes Textile Wickman 100 pumps, a diverse pump capable of doing a multitude of jobs from firefighting to running sprinklers and mobile showers.

Moving Forward...

The forest management program continues to seek out best practices through practical research (Fort Providence Community Fire Project), working with other fire management agencies, and practical application of new technologies to provide an efficient cost-effective forest fire management program.

Issues of interest and concern to the program include wildland fire hazard and risk mitigation in community areas, and climate change. The former will be addressed through consistent effective planning to provide communities with sound direction on measures that will address their critical capacity. The latter is the subject of scientific study and discussion on the potential effect of climate change on fire regimes, and by extension on the capacity of governments to manage wildfire under new paradigms.

For further information, please contact:

FOREST MANAGEMENT DIVISION

Environment and Natural Resources
Government of the Northwest Territories
PO BOX 7
Fort Smith, NT Canada
X0E 0P0

Telephone: (867) 872-7700

To Report a Forest Fire, please call: 1-877-NWT-FIRE

Northwest Territories