

An aerial photograph showing a wildfire in progress. A yellow and red helicopter is positioned over a large, dark, smoke-filled area of burning vegetation. The helicopter's rotors are visible, and it appears to be dropping water or fire retardant onto the fire. The surrounding landscape is dry and hilly, with some green patches of grass visible. The fire is intense, with bright orange flames and thick black smoke rising into the air. The overall scene is one of a major firefighting operation in a natural setting.

A group of 18 firefighters, including Jason Bland, are posed for a group photo in a forest. They are wearing yellow gear and helmets, and holding tools like axes and pades. The background shows a dense forest of evergreen trees and a range of mountains under a blue sky with scattered clouds. The photo is credited to Jason Bland.

Textron Aviation

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An aerial photograph showing a large wildfire burning along a riverbank. Thick black smoke billows from the fire, which is visible as bright orange and yellow flames. A river flows through the scene, reflecting the light. In the foreground, a map is held up, showing a topographical area with a yellow line indicating a path or boundary. The map has some text, including "Map of the" and "Area". The bottom right corner of the image has the text "Cody Boser".

Cody Bosell



Minnesota DNR

A white and red twin-engine amphibious aircraft, registration N815GV, is shown in flight over a body of water. The aircraft is banking slightly to the right, leaving a large, white, turbulent wake behind it. The water's surface is dark and reflects the sky. The aircraft has red stripes along its fuselage and wings. The tail also features red and white stripes. The registration N815GV is visible on the side of the fuselage. The propellers are in motion, and the landing gear is retracted. The overall scene is dynamic and captures the aircraft in a low-altitude maneuver.

Paul Woods

Paul Wannan.ca

Paul Wannarka

Mark V. Carr

A helicopter with red and white markings is shown in flight, dropping a red fire retardant bucket. A long, straight line of red retardant extends from the bucket to the helicopter, illustrating the application of the retardant. The background is a clear blue sky. The name "Joel Martin" is visible in the bottom right corner.

Joel Martin

Mark Erickso

Protecting Lives, Property and Our Natural Resources

A helicopter is shown in flight, hoisting a person in a red rescue basket over a river. The scene is set in a forested area with mountains in the background. The helicopter has "RESCUE" written on its side. The person in the basket is wearing a red jacket. The river is blue and flows through the forest. The sky is blue with some clouds. The overall scene suggests a rescue operation in a natural setting.

Matt Herberg





United States Department of Agriculture

IF YOU FLY, WE CAN'T



DRONES NEAR WILDFIRES ARE NOT SAFE

- FLYING DRONES OR UAS (UNMANNED AIRCRAFT SYSTEMS) WITHIN OR NEAR WILDFIRES WITHOUT PERMISSION COULD CAUSE INJURY OR DEATH TO FIREFIGHTERS AND HAMPER THEIR ABILITY TO PROTECT LIVES, PROPERTY, AND NATURAL CULTURAL RESOURCES
- FIREFIGHTERS MAY SUSPEND AERIAL FIREFIGHTING UNTIL UNAUTHORIZED UAS LEAVE THE AREA, ALLOWING WILDFIRE TO GROW LARGER.
- CONTACT YOUR NEAREST LAND MANAGEMENT AGENCY OFFICE TO LEARN MORE ABOUT UAS AND PUBLIC LANDS



Forest Service

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Digital Version:


This information can be made available in alternative formats such as large print, braille or audio tape by emailing info.dnr@state.mn.us or by calling 651-296-6157.

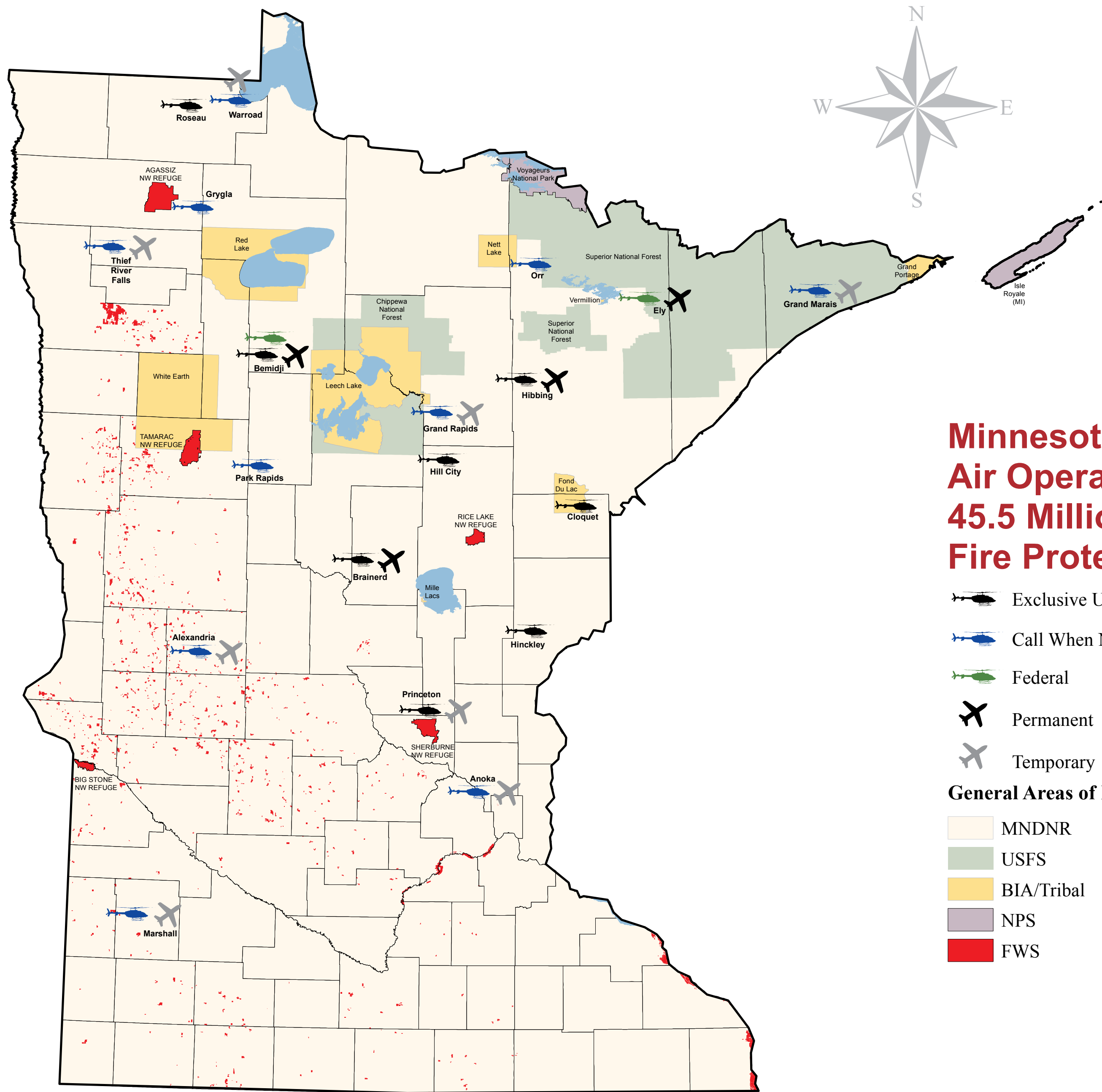
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Minnesota Interagency Air Operations 45.5 Million Acre Fire Protection Area

- Exclusive Use
- Call When Needed
- Federal
- Permanent
- Temporary

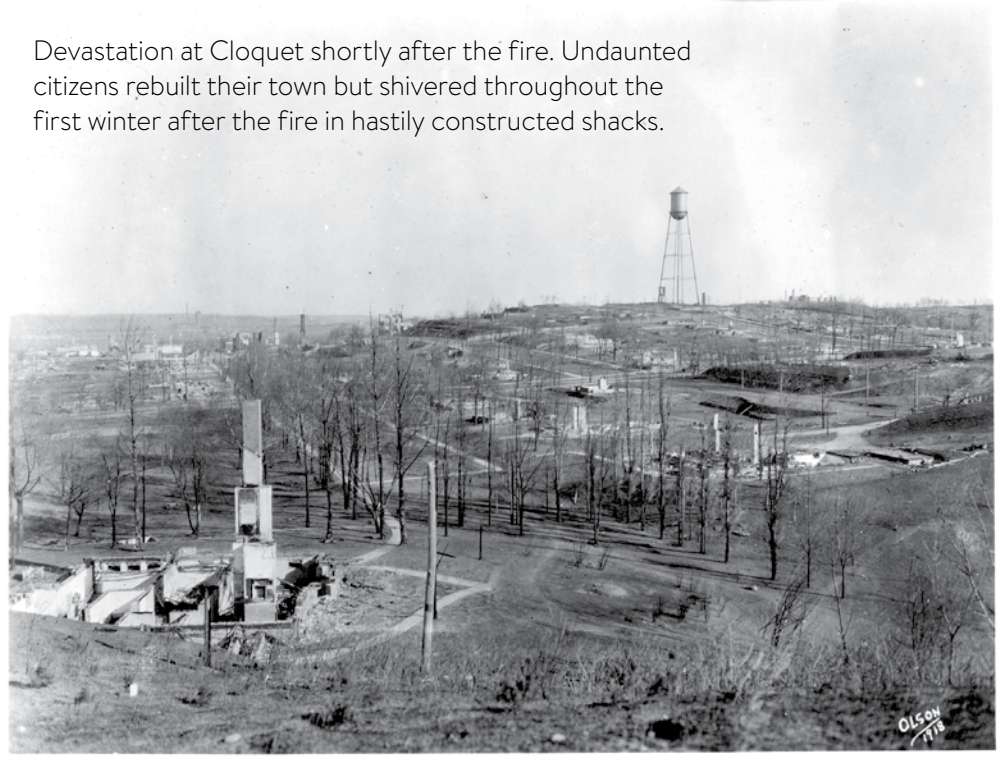
General Areas of Protection

- MNDNR
- USFS
- BIA/Tribal
- NPS
- FWS

Fire History

The Great Lakes States suffered the deadliest wildfires in U.S. history, with the loss of almost 2,500 lives in Minnesota, Michigan, and Wisconsin in four major incidents from 1871 to 1918. The economic loss associated with these fires—timber and structures—was enormous. These disasters were partially the result of the logging and farming practices of the day, and spurred the formation of state forestry agencies with organized fire suppression units.

The Minnesota DNR Division of Forestry was established in 1911, when it was called the Minnesota Forest Service. Many changes in organizational structure and operations have occurred, but one constant is the statutory responsibility for wildfire suppression statewide.



Minnesota Historical Society



Minnesota Historical Society

Historical Large Fires				
1871	1881	1894	1918	2011
The Peshtigo Fire in Wisconsin remains the deadliest in United States history, with 1,500 people killed, and 1.2 million acres burned in one day.	A Michigan fire, The Great Fire of 1881 , charred a million acres and killed 138 people.	In Minnesota, The Great Hinckley Fire burned over 300,000 acres, destroyed 12 towns, and killed 418 people.	The Cloquet Fire in Minnesota; the thriving sawmill town of 12,000 was gutted; timber and property losses estimated at \$30 million; 551 people perished.	The Pagami Creek Fire in the Boundary Waters Canoe Area Wilderness charred 92,682 acres.

Fire Season

Typically, Minnesota experiences an intense spring (April-May) fire season dominated by cured fine fuels such as grass. After green-up, occurrence may taper off, but some of the biggest fires have been summer and autumn events. Wildfires are possible at any time during the snow-free seasons.



Images of the Ham Lake Fire, May 2007.

Minnesota's Wildfire Situation

Annually, the MNICS agencies take action on 1,597 fires for 44,325 acres (2006–2016). Even with significant changes in land use and development over the past century—for example, no more massive clear-cuts and uncontrolled burning—the potential for loss of life and property is still great. This is the result of dramatic population growth, and increasing residential development in what is termed the “wildland-urban-interface.” A wildfire that threatened only vegetation a generation ago, now may also threaten homes and businesses. Aircraft can be a key component of a timely and successful initial attack, protecting lives, property and natural resources.



One of many homesteads destroyed by the Green Valley Fire in 2013.



Landing Zone Requirements

Minnesota wildland fire agencies typically employ Type-III, or “light” helicopters for initial response to fires and other emergencies. The basic landing zone (LZ) or “helispot” dimensions as outlined in the *Interagency Helicopter Operations Guide* for such ships are:

- a 15-foot by 15-foot touchdown pad that should be flat and not endangered by spreading fire or other incident hazards.
- an open area around the pad of 75 feet diameter, free of any obstructions that could impinge on the rotors, both main and tail; communicate LZ information to the pilot.

Ideally, there is also an approach-and-departure path of 300 feet in two directions to avoid high-performance take-offs and landings. It's the task of the pilot and helicopter manager to select appropriate spots, but ground personnel may be requested to provide suggestions in proximity to the incident. As with all operations, establishing effective communications is key. Minnesota DNR wildfire aircraft have radio capability in the AM, FM, and 800Mhz bands, and when working with local agencies (i.e., fire departments, law enforcement) will make every attempt to establish a radio communications link.



Air Tankers and Water Scooping Aircraft

- Air tankers and water scooping airplanes, which are commonly used in Minnesota, are under the control of an Air Tactical Group Supervisor (ATGS).
- The ATGS will inform the Incident Commander of the drop and request confirmation that the line is clear. Personnel should move away 200 feet perpendicular to the drop, and should not take cover behind a tree or snag.
- When drop(s) are completed, the ATGS will report all clear, and firefighters may move in.
- If you are caught in a drop zone, lay on the ground face down, with your head pointed in the direction of the approaching aircraft. Secure your helmet with a chinstrap or with your hand. Keep a firm grip on any tools, extending them away from you and downslope.



Unmanned Aerial Systems

While unmanned aerial systems (UAS), or drones, can pose significant hazards to firefighters in the air and on the ground, they also present opportunities to safely perform dangerous wildfire missions. MNICS agencies are exploring the use of UAS in wildland fire reconnaissance with tools such as infrared cameras. They could be used to map the perimeters in smoke-obscured terrain, or to identify areas of intense heat. The ultimate goal for UAS on wildfire incidents is to supply fire managers with real-time data on size and growth, fire behavior, and to potentially reduce risk to pilots and aircrews.