

# **Fuels and Fire Behavior Advisory**

## **Minnesota's Forests and Grasslands**

*Effective July 1 2021 Valid for 14 Days*

**Subject:** Minnesota's Forests and Grasslands are primed by record heat and drought for an abnormal summer fire season and especially problematic fire behavior.

**Discussion:** An overall dry pattern has been in place going back as far as late winter 2020 in Minnesota and has amplified the fire environment for the early half of 2021. The spring fire season started early and the transition to early summer, typically a time of lush green up, was overlapped with unseasonably warm and dry conditions bringing an early summer fire season unlike any other experience by most of today's fire fighters.

A ~10-day wetter pattern brought some temporary relief to end the month of June. However, fires starting before this pattern were observed burning deep into the duff layers in forest fuel types even after ample amount of rainfall. Additionally, several fires in grass fuel types occurred during periods of relatively high RHs (e.g. >50%) which indicates near full curing on many of the grass fuels in the state.

Early indications of a protracted hot and dry start to July coupled with notable behavior observations through the wetter period in late-June should be considered to be a very serious alignment of forces. High levels of fire occurrence are likely, fires will spread well under moderate to high winds, high levels of intensity will be common bringing high risk of large catastrophic type fires and resource intensive small to medium fires.

**Difference from normal conditions:** Fire danger indices from the Canadian Forest Fire Danger Rating System (CFFDRS) and the National Fire Danger Rating System (NFDRS) have been setting new record maximums already this year and the late-June wet pattern only brought them down to near maximum or above average daily values. It is extremely rare to see anything like this in the first half of summer in Minnesota. Typically, when a summer fire season does occur in Minnesota it begins to trend upward in July with most historic large fires occurring in August and September.

### **Concerns to Firefighters and the Public:**

- Expect increasing ignitions from lightning in forest fuels. Human caused ignitions from fireworks and equipment will be common as grass fuels typical to human habitation are cured and receptive.
- Deep burning fires in duff layers of forest fuels and organics soils common to lowland grasses will require intensive mop up and monitoring to ensure line security.
- Water from the air (aircraft or rainfall) will do little other than slow the forward spread of fires.
- Control lines in heavy duff/organic fuels may need reinforcement due to the possibility for smoldering fires to rekindle and escape.
- Existing build up, hot and dry conditions, and an extended amount of summer remaining will bring a very high risk of large catastrophic fires to the state.

### **Mitigation Measures:**

- Staff resources adequately to deal with increased fire occurrence and advanced fire behavior.
- Consider indirect and extended attack when making tactical decisions related to line placement and type.
- Discuss options locally, like mineral soil breaks using heavy equipment or indirect attack, to mitigate the amount of effort needed to create high levels of line security.
- Mop up and monitor fire lines thoroughly, don't underestimate the potential for holdovers in duff and organic soils.
- Brief out of state resources on current and expected fire behavior and familiarize them to the local fire environment.

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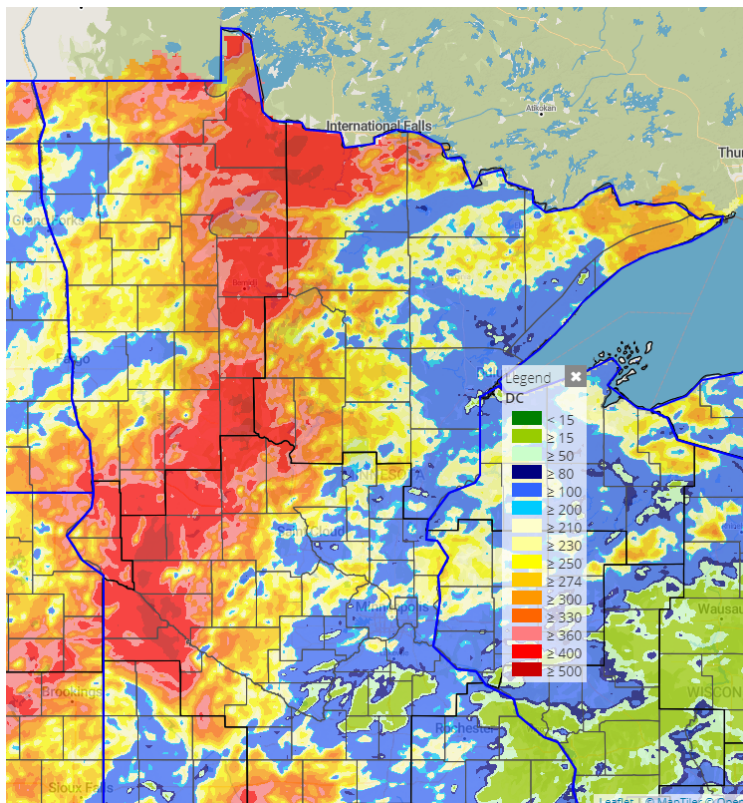
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Observed fire behavior from early June near Bigfork, MN.  
Credit Tom Heffernan MN DNR



Drought Code (DC)  
July 1, 2021

