

Fuels and Fire Behavior Advisory

North Dakota, Eastern Montana, Northwest South Dakota

April 27, 2021



Subject: An early and active onset to fire season is underway in North Dakota, eastern Montana, and northwestern South Dakota. Fires have the potential for rapid rates of spread and other extreme fire behavior due to persisting drought conditions resulting in deficient soil moisture and abnormally dry fuels, including cured grasses and dormant live fuels. In addition to the readily available and vertically continuous fine fuels, fires are carrying in all other fuel types and classes, including active nighttime burning, even with high relative humidity values. Hot fires (high radiant heat) and limited water sources constrain firefighting options.

Discussion: Due to limited to nonexistent snowpack this past winter, springtime fuelbeds feature erect fine fuels carried over from last year. Grasses and forbs are fully cured out or remain dormant, and recent fires have become resistant to control even with moderate windspeeds (under 15 MPH). With higher windspeeds and the spring wind events that are common in this area, fires have grown at abnormal rates of spread and exceeded the capacity of local IA resources. Due to the lack of moisture during the winter and spring months, plus abundant ladder fuels beneath shrub and tree canopies, all fuels types and classes are available for combustion. Even in low-lying wetlands, large downed woody fuels are already being completely consumed.

Difference from normal conditions: This spring's fire season is ahead of the normal progression by two months. There has been a long-term trend of warmer than average temperatures in this area, and for the same time period, precipitation amounts have been just 20 to 50 percent of average. Little if any snowpack was observed during the late fall through spring months, and the only significant snow event occurred in late October following record warmth in August and September. Severe to Extreme drought (D3-D4) exists across more than 70 percent of North Dakota, where the Governor has declared a statewide drought disaster. These conditions extend further west into eastern Montana and in some cases the rangelands of central Montana as well.

Concerns to Firefighters and the Public: Expect fires to ignite easier, spread faster, and burn hotter. With excessively dry fine fuels, abundantly and continuously distributed across both the vertical and horizontal profile, fires may spread very rapidly, up to four to five times faster the normal rate for this time of year. Radiant heat alone may cause spotting over 30 feet into adjacent, receptive fuels. Fire growth and spread direction can be fuels-driven (in addition to the normal influences of terrain and wind), while radiant heat will limit opportunities for direct attack. Standard suppression actions such as wet-tracking and remote drafting may not be viable options. Some helicopter dip-sites (riparian) are completely dry or unavailable. Active fire behavior can extend well into nighttime and early morning hours even with moderate RH recovery. With the early start to the season, intense burning, and likelihood for a prolonged season, it is important to be mindful of and manage fatigue for all resources. Ensure everyone, every day, returns home safely.

Mitigation Measures: All local and out-of-area resources should be well briefed on the long-term trend, current fuel conditions, and expected fire behavior. Suppression actions should shift to indirect attack when high winds events are forecasted. Firefighting resources need to be aware of the potential for short range spotting from fire brands and radiant heat. Ground resources should be fully aware of increased radiant heat due to increased vertical arrangement of light and heavy fuels. Previously established water sites may not be available to support assigned resources, so alternate water sources should be identified.

Base all actions on current and expected fire behavior and be particularly wary of the potential for rapid rates of spread. Use the flexibility allowed by the ICS system to adjust resources and tactics to best accommodate changes to burning conditions and fire status. Establish LCES and make escape routes and safety zones known to all resources. Multiple lookouts may be needed as any fire situation can escalate quickly.

Short duration precipitation events will bring little relief, given the baseline environmental conditions and extremely dry fuels. Take advantage of favorable windows to also manage fatigue and rehabilitate resources.

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Area of Concern: As shown on the following map, this advisory applies to the entire state of North Dakota and lands in eastern Montana bounded to the west by a line drawn from a point east of Ashland to Miles City to Lewistown to Havre to the US/Canadian border. It also includes the portion of NR PSA 16 within the northwest portion of the state of South Dakota. If regular seasonal green-up does not occur, this advisory will likely be expanded to include of all eastern Montana.

