March 10, 2020

**Fire Potential Index**

The Fire Potential Index (FPI) is a tool that is used to estimate fire potential across the landscape based on weather and fuel (vegetation) conditions. The weather component of the index consists of sustained wind speed and dew point depression (dryness of the air), while the fuels component incorporates the state of green-up or curing of the annual grasses, live fuel moisture, and dead fuel moisture. In addition, the FPI considers fuel loading which is the amount of vegetation on the ground. The index is calculated at the circuit level twice a day out to 5 days at a 3-hourly temporal resolution. The following formula is used to calculate FPI:

**FPI =**

Where DL is the dryness level which is comprised of the Energy Release Component[[1]](#footnote-1) and the 10-hour dead fuel moisture time-lag[[2]](#footnote-2), LFM is the moisture content of the living vegetation, G is the degree of green-up of the annual grass based on the Normalized Difference Vegetation Index (NDVI), FLx is the fuel loading modifier associated with low, moderate, and heavy fuel loading corresponding to 5., .75, and 1 respectively, and Wx is the weather component which references a matrix consisting of winds speed and dew point depression values.

The FPI output ranges from 1 to 17 which has been broken in three categories: Normal (1-11), Elevated (12-14), and Extreme (15+).

A screenshot of a cell phone

Description automatically generated







1. Energy Release Component (ERC) is a measure of potential energy (BTU) at the flaming front of a fire and is a composite of fuel moisture from various dead and live fuels. [↑](#footnote-ref-1)
2. The time required for dead vegetation (1/2” diameter) to respond to changes in ambient temperature and humidity. [↑](#footnote-ref-2)