Northern Highlands

FUEL MODEL X

FIRE DANGER CARD

January - December

Avery, Mitchell, Yancey, Watagua, Ashe, Alleghany Counties – NCFS, Appalachian, Grandfather RD – USFS, Blue Ridge Parkway

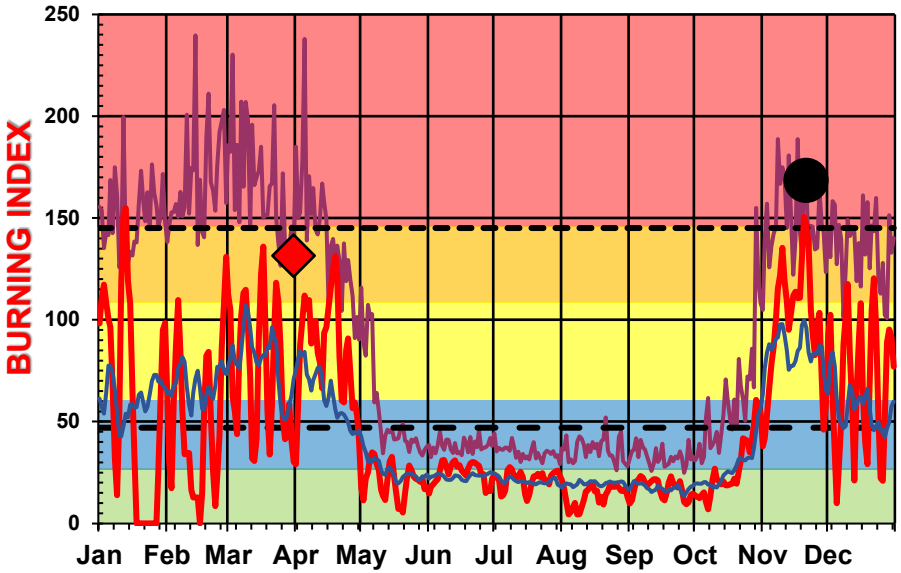
NWS Forecasting Offices

NWS Greenville/Spartanburg, SC (GSO)
NWS Blacksburg, VA (RNK)

RAWS

Laurel Springs – 310101
Upper Mountain Research – 310141
Busick - 313402

All stations meet NWCG Weather Station standards



MAXIMUM: Highest BI by day for 2006-2020.
AVERAGE: Shows mean daily BI value through the period.
2016: Representative fire season BI.
97th PERCENTILE: Only 3% of the days from 2006-2020 had a BI above **145.**
67th PERCENTILE: Represents a BI level of **47** where large/multiple fire occurrences increase.

BURNING INDEX

Fuel Model X	Average Seasonal Value	Average Highest Value	Highest Observed Value
January	61.8	90.4	199.6
February	68.4	102.5	239.7
March	79.4	109.5	230.3
April	63.3	86.8	238
May	26.5	44.7	115.8
June	23.2	28	46.1
July	20.8	26.8	44.4
August	19.6	30.4	52.1
September	17.4	25.9	41.9
October	27.2	41.3	154.9
November	84.5	102.5	188.8
December	57.5	83	161.1

Burning Index (BI): relates to the contribution of fire's behavior in containing the fire. The difficulty of containment is directly proportional to the fireline intensity. BI can be a cross reference to fireline intensity & flame length. It assists in assessing spotting & crown fire potential as well as suppression resource needs & tactical considerations. Doubling the burning index indicates that twice the effort will be required to contain a fire, providing all other parameters are held constant.

Remember what Fire Danger tells you:

Fire danger gives general conditions across the entire FDRA. Watch for localized conditions and variations across the landscape--Fuel, Weather, Topography. Listen to weather forecasts--especially RH and wind.

Local Weather and Fuel Thresholds That Shout WATCHOUT:

Combinations of any of these 4 factors can greatly increase fire behavior. Wind speed over **5 MPH**, RH less than **30%**, Temperature over **58°**, FFM less than **12%.**

Local Watch Outs

- When wind and topography are in alignment – Rapid uphill fire spread
- Post passage of a dry Cold Front – Gusty winds and low Relative Humidity
- 1000-hour FMC below 18% - Greatly contributes to fire behavior, intense mop-up

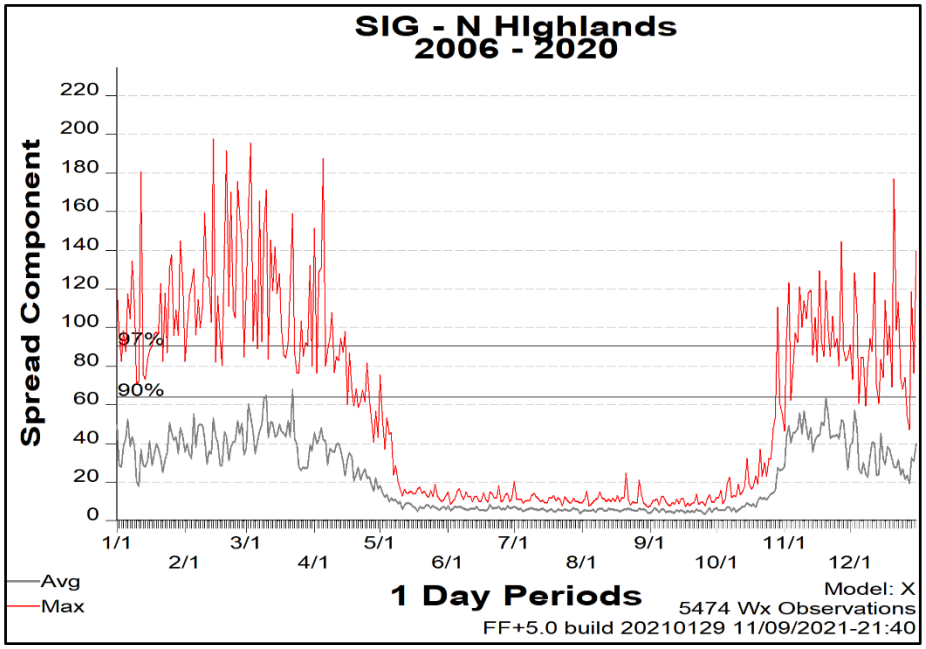
Memorable Fires

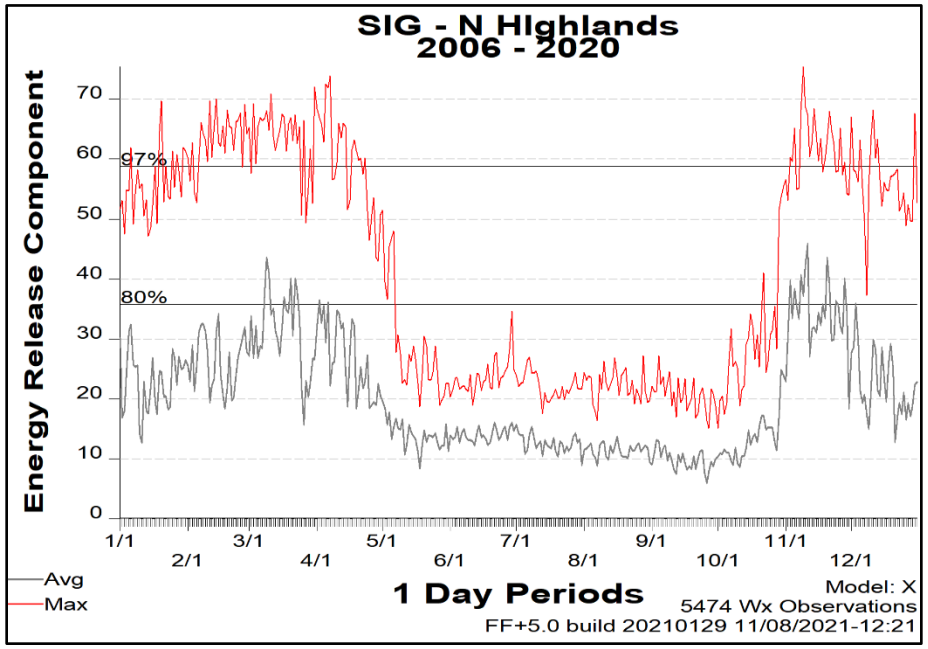
◆ **Poplar:** 3/31/2015, Mitchell Co/Appalachian RD, 651 ac. BI-131, IC-28, ERC-49, 1000-hr FMC – 20, 1-hr FMC – 11.9. Strong surface fire run the first day, short range spotting

● **Horton:** 11/21/2016, Watauga Co, 1378 ac. BI-168, IC-18, ERC-68, 1000-hr FMC – 16.7, 1-hr FMC – 9.7. Critical surface fire w/ torching and spotting, Intense mop-up

Updated – 10/2021

This card is based on 15 years of data





Spread Component (SC) - A rating of the forward rate of spread of a head fire. It integrates the effect of wind, slope, fuel bed and fuel particle properties. The daily variations are caused by the changes in the wind and moisture contents of the live fuels and the dead fuel moisture time lag classes of 1, 10, and 100 hour. ***The higher the SC, the less likely that direct attack at the head of the fire will succeed.***

Ignition Component (IC) – The probability a firebrand will cause an "***actionable***" fire and requires suppression action. **IC** is more than just a probability of a fire starting. The fire must have the potential to spread. **IC** can be an aid in assessing spotting potential***. An IC value of greater than 10 (87th Percentile) is a critical threshold value. Expect short range spotting to occur above this value.***

Energy Release Component (ERC) - is a number related to the available energy (BTU) per unit area (square foot) within the flaming front at the head of a fire. The **ERC** reflects the contribution of all live and dead fuels to potential fire intensity. As live fuels cure and dead fuels dry, the **ERC** will increase. Each daily calculation considers the past 7 days in calculating the new number. Daily variations of the ERC are relatively small as wind is not part of the calculation. ***An ERC value of 35 (80th Percentile) is a critical threshold value. At this value, large (>10 ac.) and multiple (>4) fires begin to occur within the FDRA***