

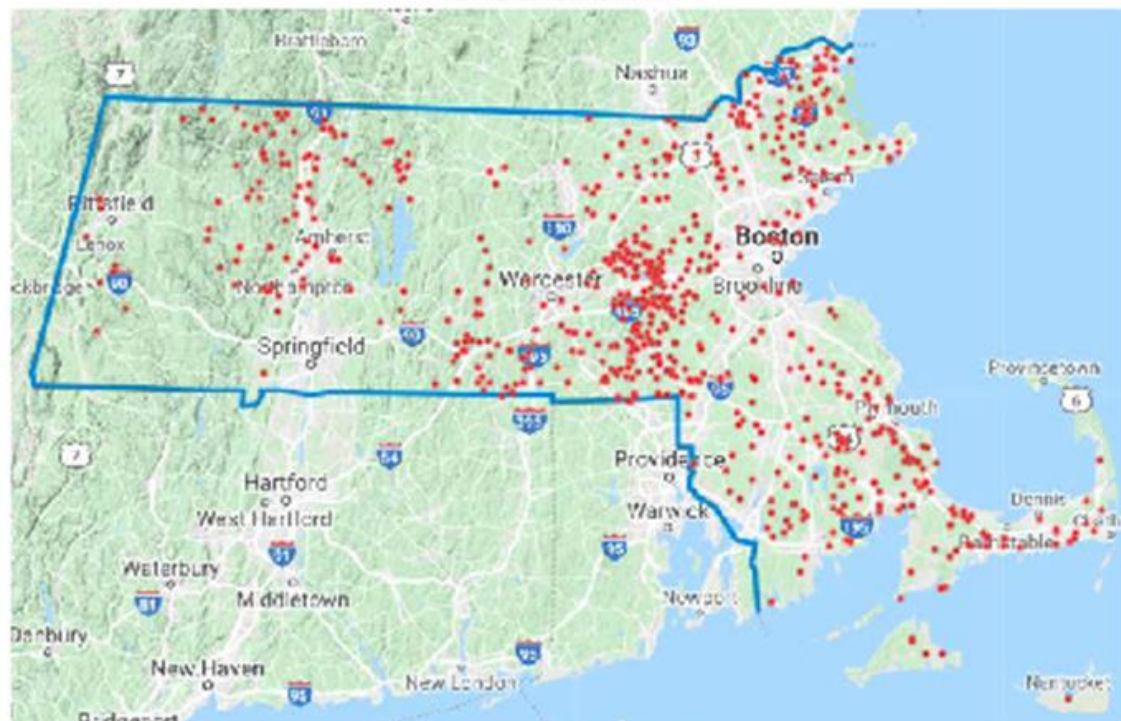
Massachusetts DCR Bureau of Forest Fire Control and Forestry



MASSACHUSETTS WILDFIRE OCCURRENCE MAP

Year to Date 6-22-20

Wildfire Locations

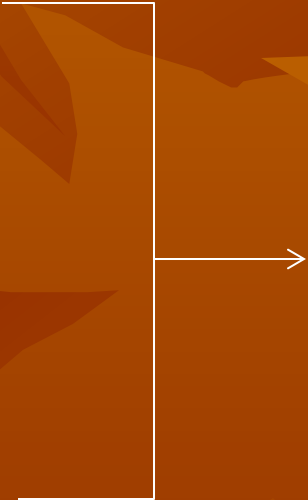


Source: Local Fire Department and DCR Fire District Wildfire Reporting Data

Number of Fires:	706
Acres Burned:	441
Resident Homes Threatened:	114
Resident Homes Damaged:	7
Other Structures Impacted:	77
Number of DCR Fire Responses:	163

FIRE BEHAVIOR ENVIRONMENTAL FACTORS

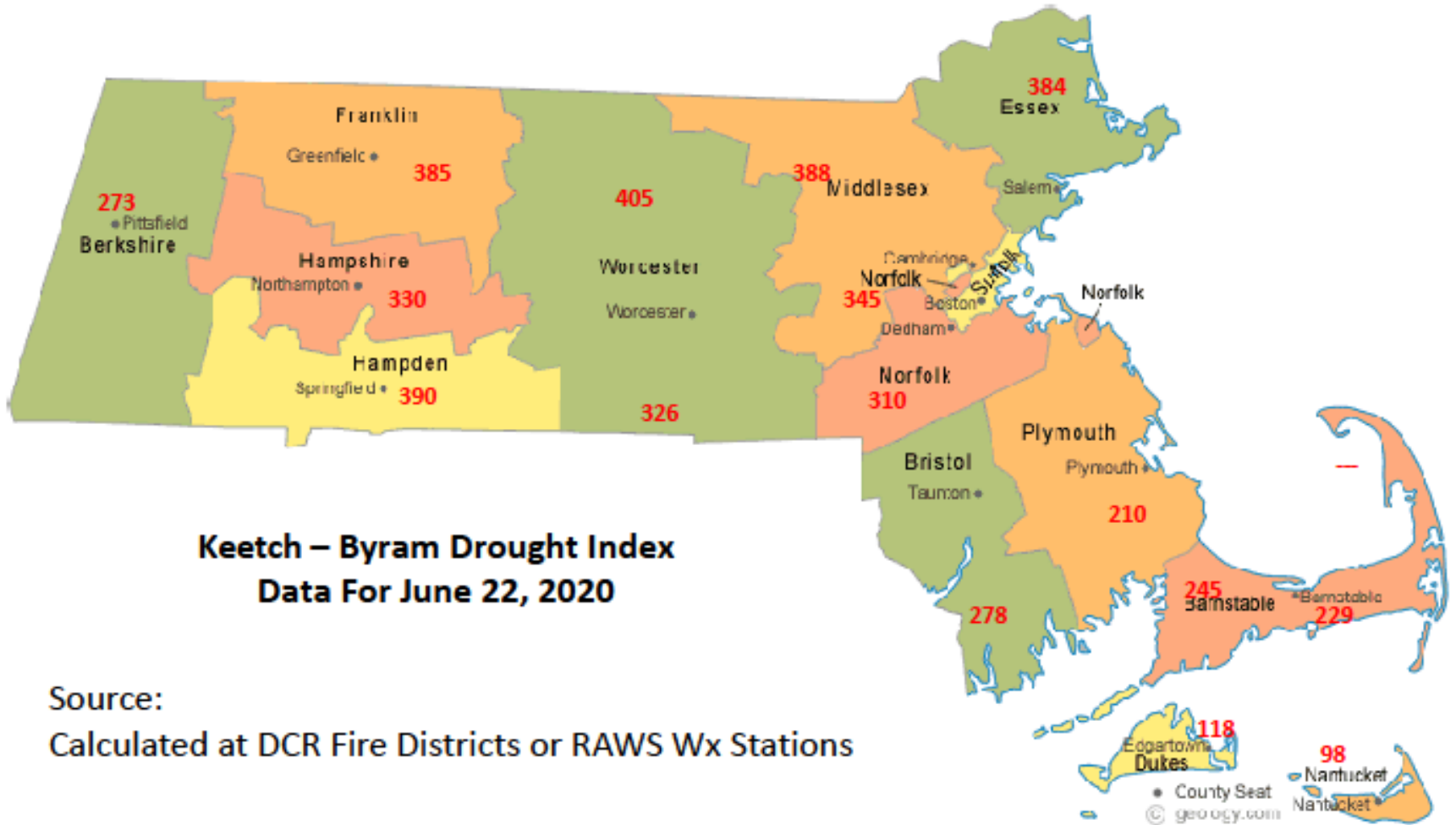
■ FUELS

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- FUEL TYPE
 - SIZE CLASS
 - FUEL MOISTURE
 - ARRANGEMENT
 - LOADING
 - LIVE OR DEAD

FIRE BEHAVIOR ENVIRONMENTAL FACTORS

■ WEATHER

- AIR TEMP
- WIND Speed/Dir
- RELATIVE HUMIDITY
- PRECIPITATION
- DROUGHT (KBDI)
- T~STORMS / COLD FRONTS
- LIGHTNING ACTIVITY



Keetch-Byrum Drought Index

Keetch and Byram (1968) designed a drought index specifically for fire potential assessment. Focuses on ground fuels in the soil.

- **Continuous index, relating to the flammability of organic material in the ground.**
- **Attempts to measure the amount of precipitation necessary to return the soil to full field capacity. INPUTS: MAX TEMP, 24 hr PRECIPITATION over .20 inches**
- **Closed system ranging from 0 to 800 units and represents a moisture regime from 0 to 8 inches of water through the soil layer.**
- **Zero is the point of no moisture deficiency and 800 is the maximum drought that is possible. At any point along the scale, the index number indicates the amount of net rainfall that is required to reduce the index to zero, or saturation.**

Keetch-Byrum Drought Index

KBDI = 0 - 200: Soil moisture and large class fuel moistures are high and do not contribute much to fire intensity. Typical of spring dormant season following winter precipitation.

KBDI = 200 - 400: Typical of late spring, early growing season. Lower litter and duff layers are drying and beginning to contribute to fire intensity.

KBDI = 400 - 600: Typical of late summer, early fall. Lower litter and duff layers actively contribute to fire intensity and will burn actively.

KBDI = 600 - 800: Often associated with more severe drought with increased wildfire occurrence. Intense, deep burning fires with significant downwind spotting can be expected. Live fuels can also be expected to burn actively at these levels.

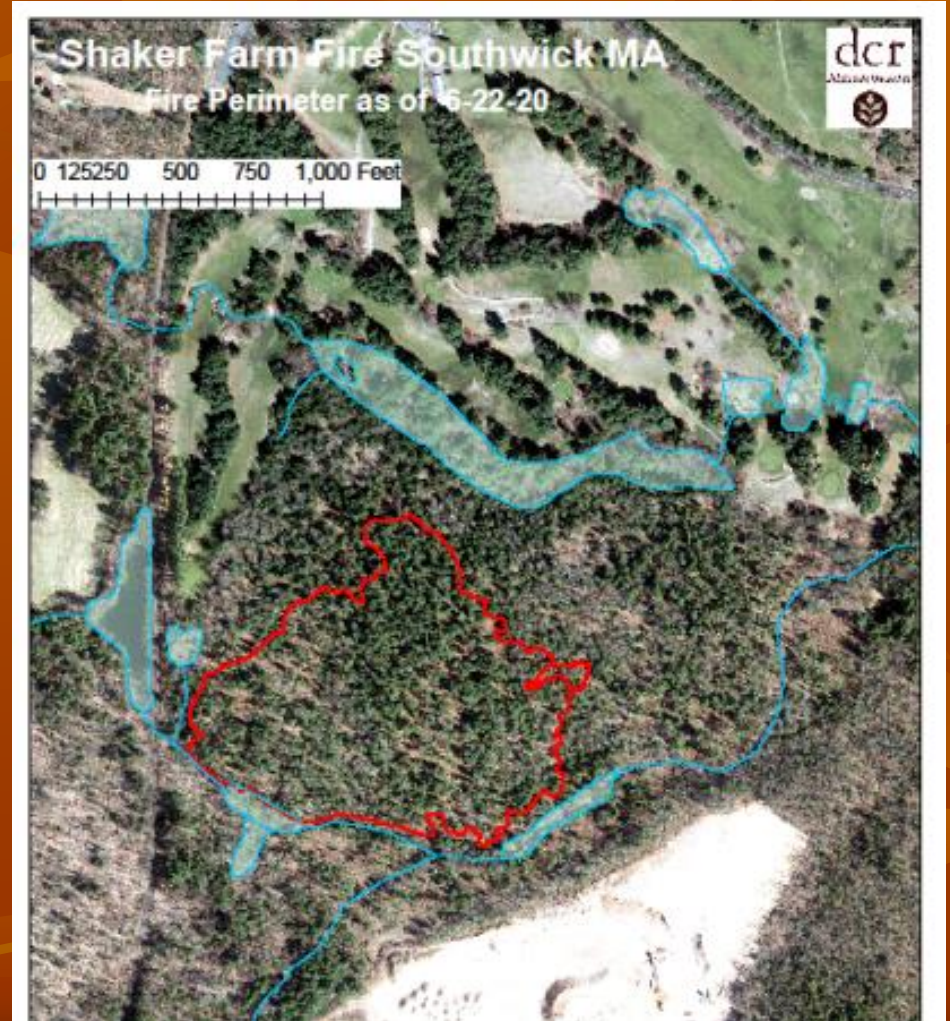
DROUGHT IMPACTS ON FIRE MANAGEMENT:

- **FIRE FIGHTER SAFETY**
- **WATER AVAILABILITY FOR FIRE SUPPRESSION**
- **DEMANDS TACTICS AND STRATEGY ADJUSTMENTS**
- **POTENTIAL DRAIN ON RESOURCES**
- **FINANCIAL STRAINS ON FIRE DEPARTMENTS**
- **SMOKE IMPACTS ON COMMUNITIES**

Shaker Farms Fire 6-20-20

Southwick, MA

24.7 Acres



Shaker Farms Fire 6-20-20

Southwick, MA



Fire Behavior



Drought induced burn severity



Smoke / Air Quality Impacts

THANK YOU

QUESTIONS???

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