



# VISTAS Wildland and Prescribed Fire Forecasts

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# Emission Forecast Issues

- Several unique issues are involved with the forecasting of emissions from the fires categories
  - uncertainty associated with the magnitude of emissions (i.e., acres burned and fuel loading)
  - associated temporal and spatial uncertainty
    - especially wildfires

# Emission Forecast Methodology

- Through consultation with fire experts participating in the VISTAS Fire Special Interest Workgroup, an agreed upon method was developed to generate the initial forecast of fire emissions for 2018
  - initial forecast of fire emissions based on a planning baseline or “typical year” acreage of fires at the State or county level of aggregation

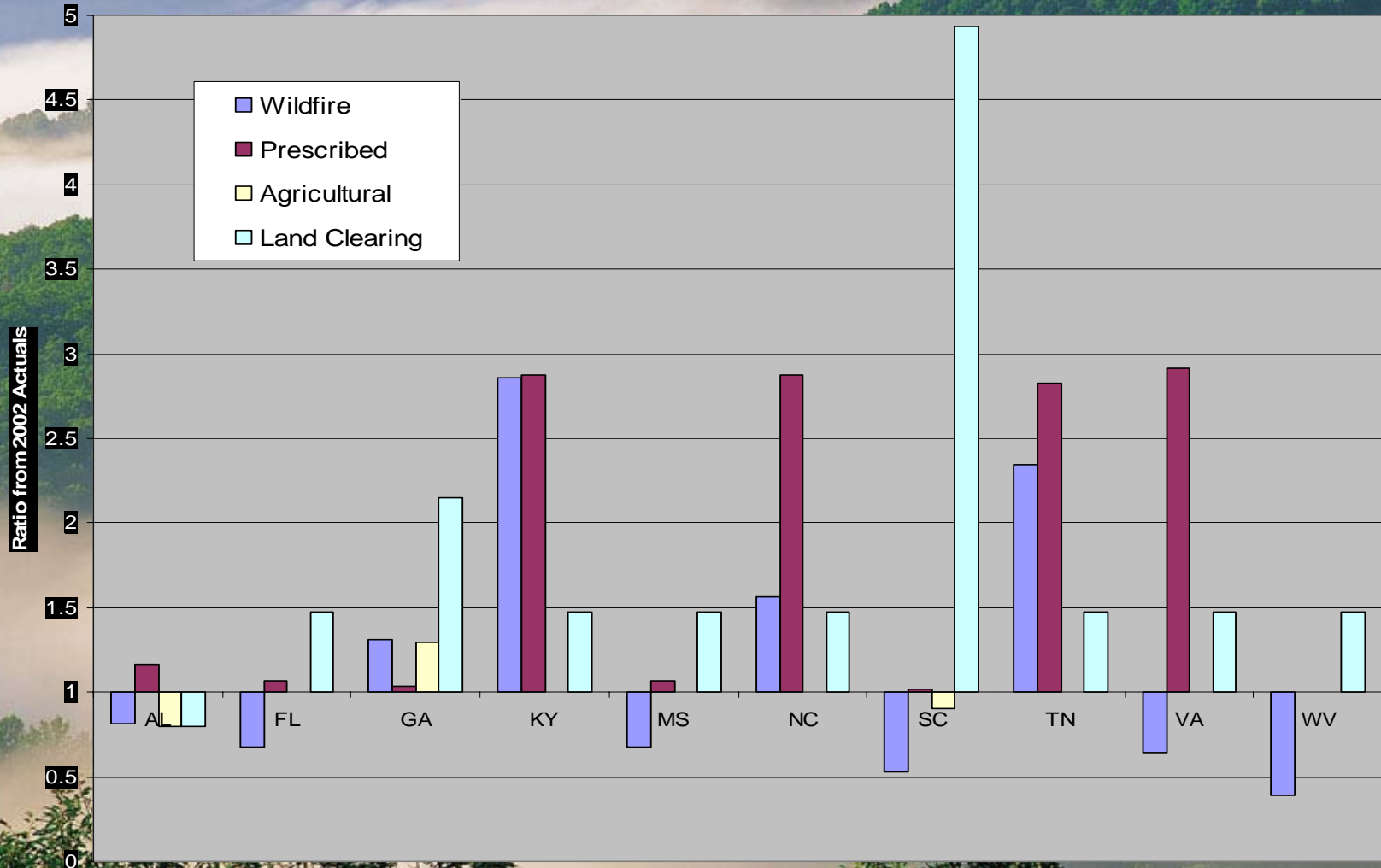
# Emission Forecast Methodology

- VISTAS collected these acreage estimates for recent time periods
  - thought to be representative of the conditions of the planning base year
  - readily available to stakeholders participating in the process
- The goal was to try and obtain a minimum of five years worth of data
  - develop an average number of acres per State for each fire type
  - used to normalize the 2002 base year inventory to “typical” conditions
- Seven VISTAS States were able to provide historical wildfire data
- Six States had prescribed fire data readily available for this purpose

# Emission Forecast Methodology

- Methods very similar to that of EGU forecasts
  - “Go with what you know”
- Multiplied the current 2002 base year emissions by the estimated normalization factor
  - accounts for deviations from planning base in the acreage burned for each fire type
- In most general application, this method assumes that the following are representative of the planning base:
  - fuel loading/characteristics
  - spatial distribution of the emissions
  - temporal variability of emissions

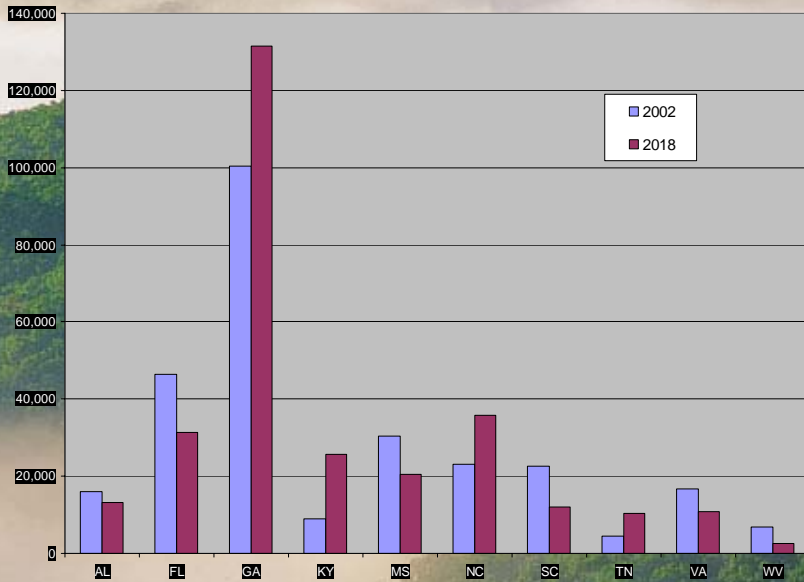
# “Planning” vs. Actual VISTAS Fire Profile Development



# Annual Emissions

## Wildfires

## Prescribed Fires



# Spatial Distribution

- How to we characterize distribution of emissions in future year?
  - Use previous acres?
  - Use non-burned acres?
  - How soon before burns again?
  - What GIS information available to use?
    - Polygon-based coverage recommended
    - Lat/lon available

# Temporal Distribution

- Initial application for Jan/Jul episodes
  - No needs for annual distribution but needed to keep in mind for future applications
- Same meteorological data in future year
  - Initial method to used similar temporal distribution

# We Are Also Here for Your Help!

- Refine forecasts for annual period
  - Temporal
  - Spatial
  - Loading
  - Plume Rise
  - Speciation

