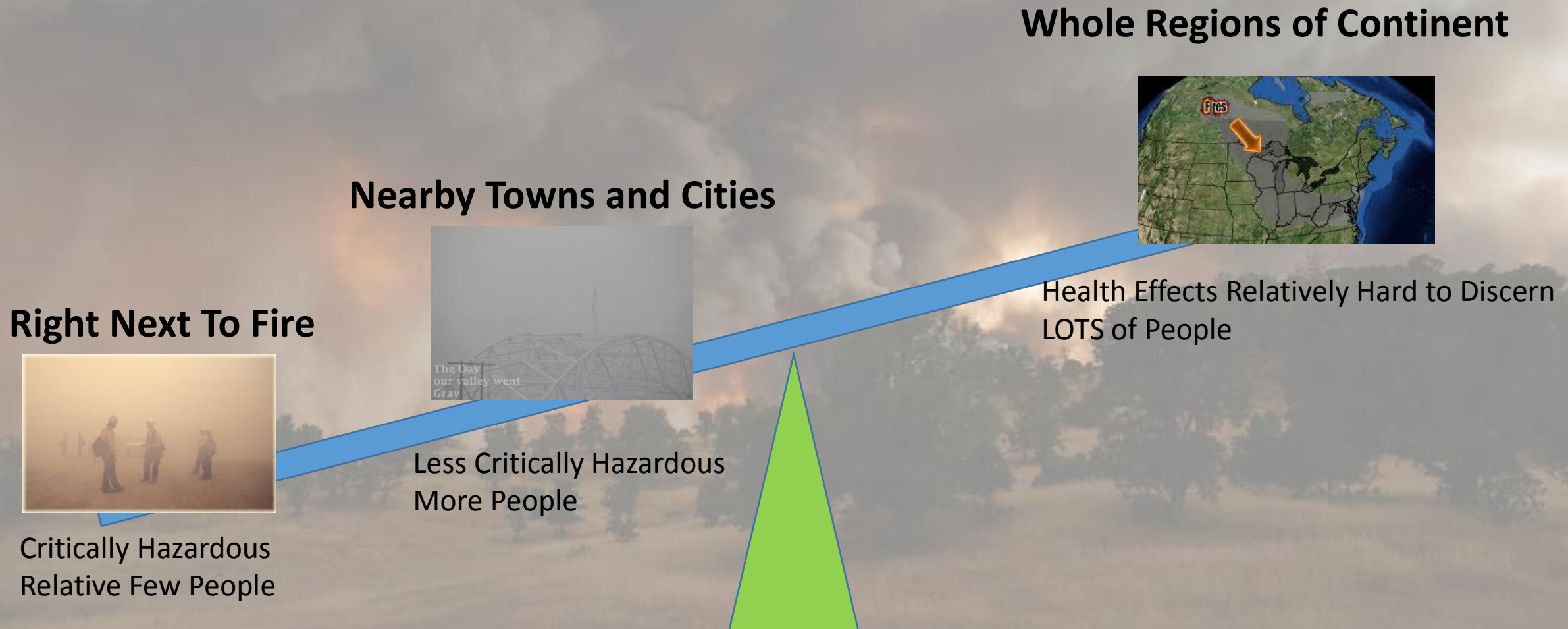




Research Perspectives From an EPA Regional Scientist

Robert Elleman, Ph.D.
Meteorologist
EPA Region 10

Risk: Trade-off of smoke concentration and population exposed

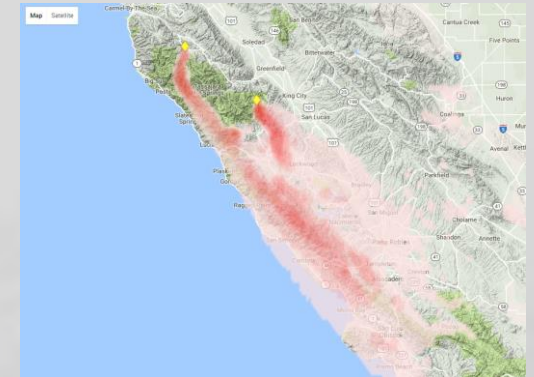


Right Next to Fire

- Pollutants
 - Combustion particles (PM2.5)
 - Carbon monoxide
 - Dust (PM10)
 - Other air toxins: metals, asbestos, and how many others?
- Complications
 - Firefighter safety handled by other agencies
 - Residents not obeying evacuation orders
 - Macho attitude, complacency, relative to past experiences
- Assessment techniques
 - Portable monitors
- Gaps
 - More complete exposure assessments
 - Better understanding of harmful air toxins in smoke

Nearby Towns and Cities

- Pollutants
 - Combustion particles (PM2.5)
- Assessment techniques
 - Temporary monitors
 - Satellite imagery
 - Some help from modeling
- Gaps
 - Unsatisfying advice for health messaging
 - Very hard to get details of the daily emissions right



Whole Regions of Continent

- Pollutants
 - PM2.5
 - Ozone
- Complications
 - Often small contribution but potentially tens of millions of people affected
 - Need to parse smoke from other sources of pollution
 - Exceptional Events
- Assessment techniques
 - Modeling
 - Satellite imagery
 - Particle speciation and source apportionment techniques
- Gaps
 - Parsing out wildfire smoke contribution from what would have been there anyway
 - Emissions of ozone and PM2.5 precursors and regional modeling of photochemistry