

Our Climate Our Health



'JUST THE FACTS' CONGRESSIONAL FORUM
ARLINGTON VIRGINIA CAMPUS, GEORGE MASON UNIVERSITY
MONA SARFATY, MD MPH FAAFP
DIRECTOR, PROGRAM ON CLIMATE AND HEALTH
NOVEMBER 2015

The Health Outlook

- ▶ Climate change could be the greatest health opportunity of the 21st Century
- OR
- ▶ It could wipe out all the progress we have made in human health over the past 50 years.
 - ▶ It is currently causing health problems in the US, including Virginia. These problems will affect larger numbers of people than are affected now over the next 10-20 years

Introduction: 2 Experiences

- ▶ Pennsylvania
 - ▶ Philadelphia is a “non-attainment” area, which means it does not meet EPA standards for clean air.
- ▶ Atlanta (next slide)

Case from Atlanta

- A 18 year old girl moved from Terra Haute, Indiana to Atlanta, Georgia at age 15 to live with her Aunt after her mother passed away.
- In Indiana, she was a high school athlete, playing 5 sports (soccer, basketball, dancing, cheerleading, and track).
- The air quality in Atlanta was poor by comparison to Terra Haute and she developed asthma. She had to stop all outdoor activity, was able to play only 1 sport, indoor volleyball.
- Asthma attacks were more problematic during the increasingly heavy pollen season and when smog alerts, which happened more on hot days).
 - Pollen was visible
 - Highway smog alerts

Is it hard to believe that climate change is causing health effects ?

- ▶ "But I feel fine."
- ▶ So how could this be true?
- ▶ Not everyone is equally likely to be touched by the health effects of climate change
 - ▶ Varies by geography
 - ▶ by age
 - ▶ by income (Socio-economic status)
 - ▶ Underlying health status

Vulnerabilities of climate change vary by region*



N.B. Some states have been little affected so far

Health Effect: Heat



Who is Vulnerable to Heat?

- The Elderly, especially those living alone
- People with chronic diseases (heart, lung, kidney, mental health conditions)
- Infants under the age of 1
- Children, teens, and adults who play outdoor sports
 - (Teenage male athletes, especially football players)
- People working out of doors
- Homeless

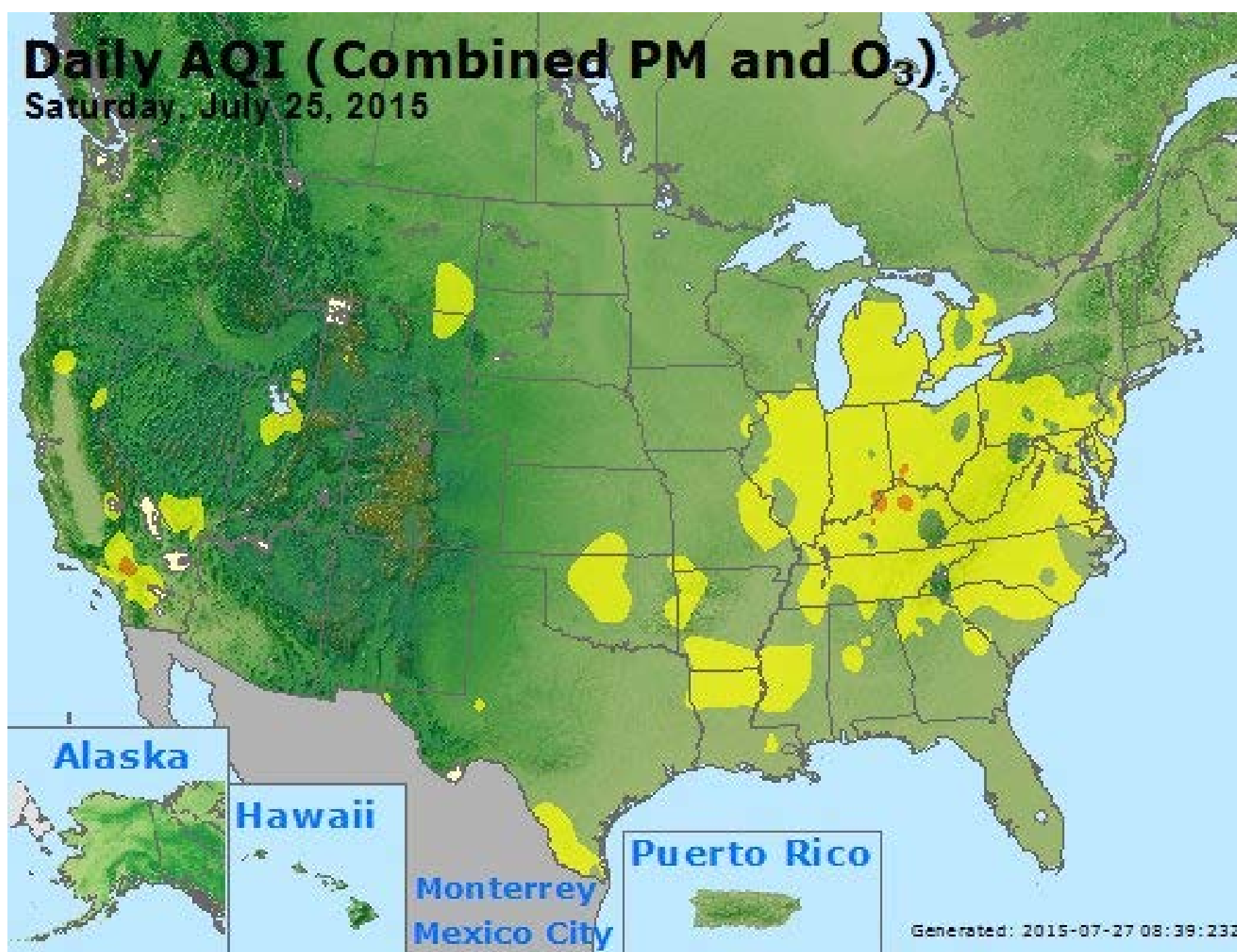
Heat Has a Negative Effect on Air Quality

[Air is ranked Yellow on hot days, green on cool days]



Daily AQI (Combined PM and O₃)

Saturday, July 25, 2015



Who is Affected by Poor Air Quality?

- ▶ **People with chronic health conditions:**

- ▶ Anyone with chronic lung disease
- ▶ Anyone with asthma
- ▶ People with heart disease

- ▶ **Virginia:**

- ▶ 163,942 children + 557,674 adults with asthma
- ▶ More than 420,000 adults with COPD

Why air quality gets worse in the heat?

Two Main Ingredients in Air Pollution

1. Ozone (O_3)

- Ozone directly irritates lungs
- Ozone levels are higher on hot days
- Heat + light cause carbon-based gases to transform into ozone

2. Particulate matter (PM)

- Small particles get into lungs and cause inflammation
- PM in dust, emissions (smokestacks, tailpipes), wildfire smoke
- Increased Power Plant demand and emissions
- Pollen

How is air quality in Virginia*

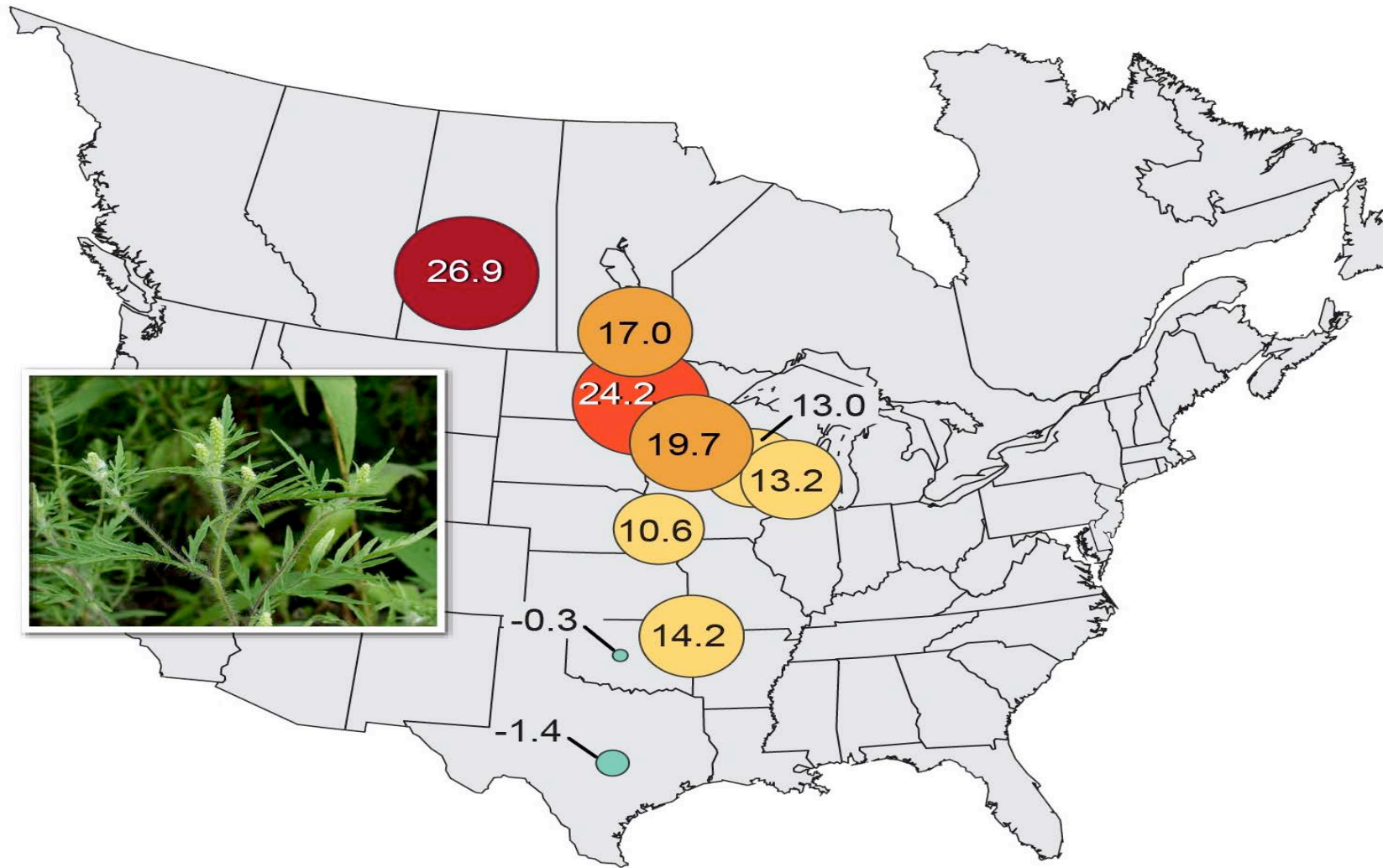
- ▶ 7 out of 24 tested counties in Virginia received air quality rating of D or F in 2015 (ALA).
- ▶ Isn't air quality improving?
- ▶ Clean Air Act (1970) implemented by the EPA *has* improved air quality
- ▶ Rising heat threatens that improvement

* <http://www.stateoftheair.org/2015/states/virginia>

Allergies



Ragweed Pollen Season Lengthens



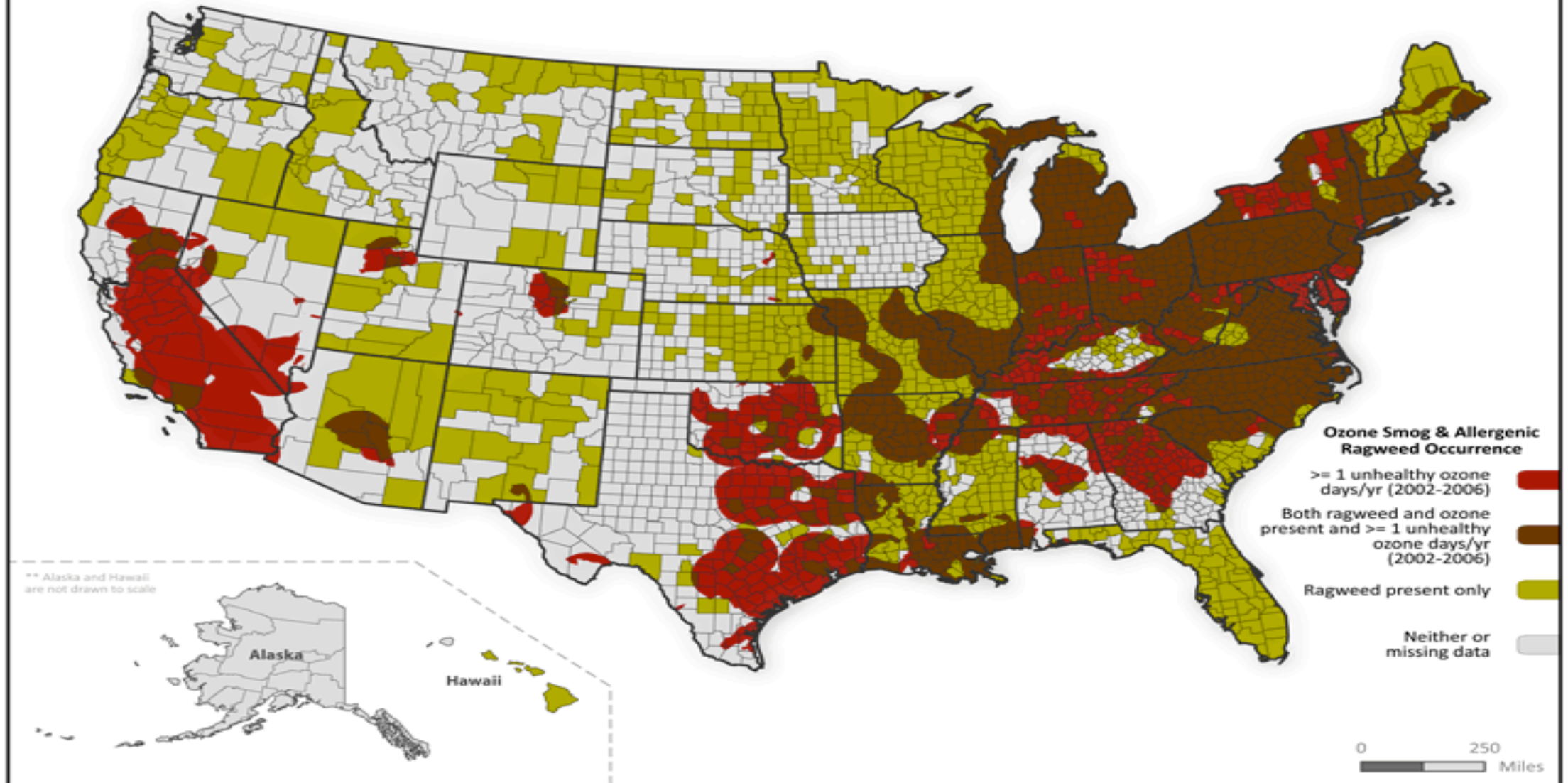
Map shows for how long ragweed pollen season has changed from 1995 to 2005. Many people are allergic to Ragweed.

Change in Ragweed Season Length (Days)



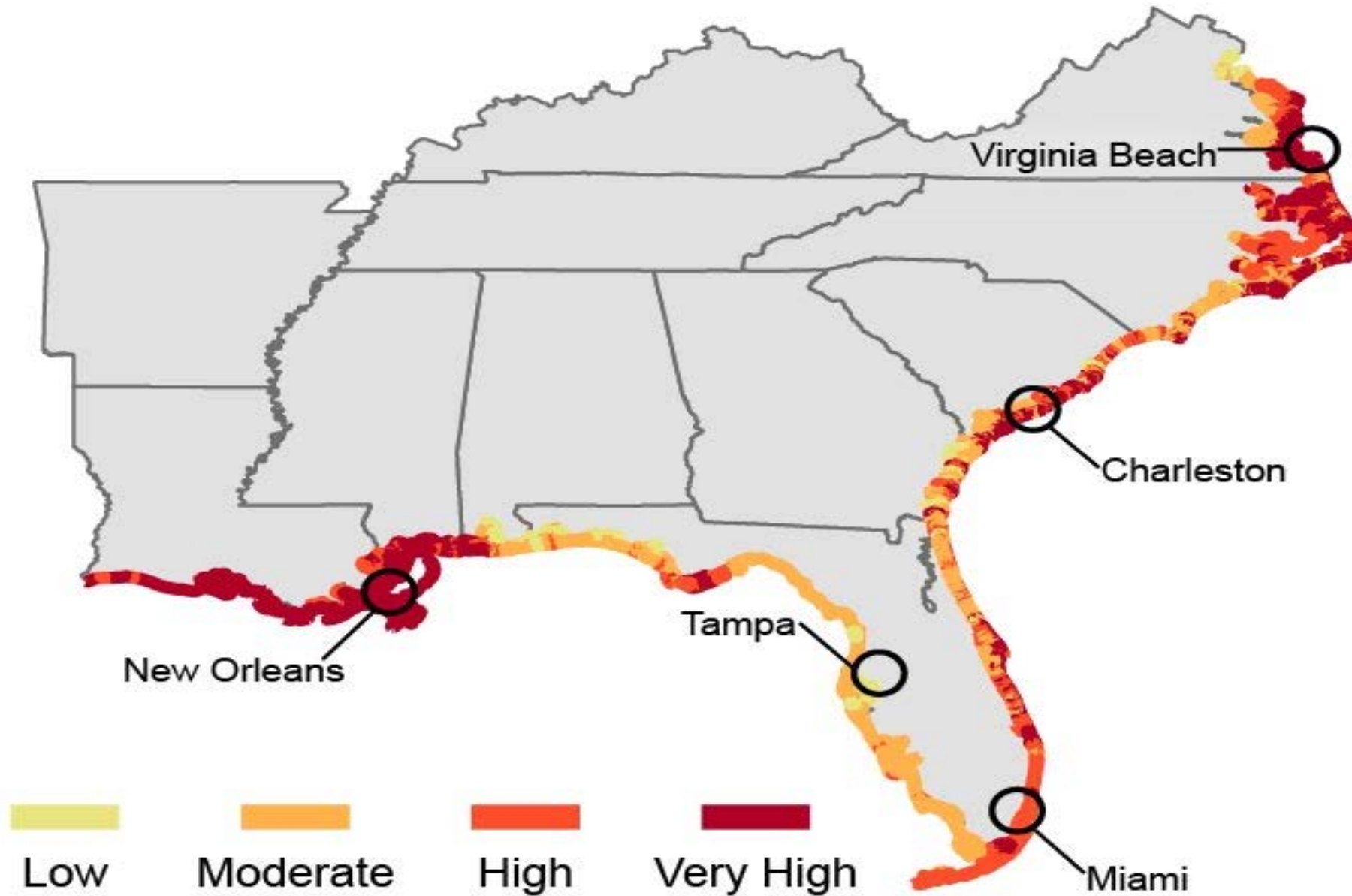
<http://www.ars.usda.gov/> &
U.S. National Climate Assessment

Air Pollution Vulnerability in the US, 2002-2006: Ozone Smog and Allergenic Ragweed



N.B. 75% of people with hayfever are allergic to ragweed

Vulnerability to Sea Level Rise



Allergens: Mold

- Mold growth is enhanced by moisture
 - Increase in precipitation/floods
 - Increase in temperature and/or humidity
 - Plant biomass decay (leaf litter)
 - Improper installation or management of air conditioning
- Mold can cause coughing, wheezing, nasal & throat conditions, and adversely affect persons with asthma or weakened immune systems



Extensive mold contamination of ceiling and walls

(Source Terry Brennan, <http://www.epa.gov/mold/moldcourse/imagegallery5>.



Richmond Times-Dispatch

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LYME SPREAD

New Lyme disease estimate: 300,000 cases a year

■ Survey finds 10 times more cases a year than doctors had reported

Story

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VICTORIA AROCHO

FILE - This is a March 2002 file photo of a deer tick under a microscope in the entomology lab at the University of Rhode Island in South Kingstown, R.I. Lyme disease is about 10 times more common than previously

Posted: Tuesday, August 20, 2013 12:00 am

From staff and wire reports

Lyme disease is about 10 times more common than previously reported, health officials said Monday.

As many as 300,000 Americans are diagnosed with Lyme disease each year, the [U.S. Centers for Disease Control and Prevention](#) announced.

Usually, only 20,000 to 30,000 illnesses are reported each year. For many years, CDC officials have known that many doctors don't report every case and that the true count was probably much higher.

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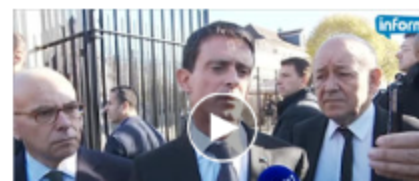
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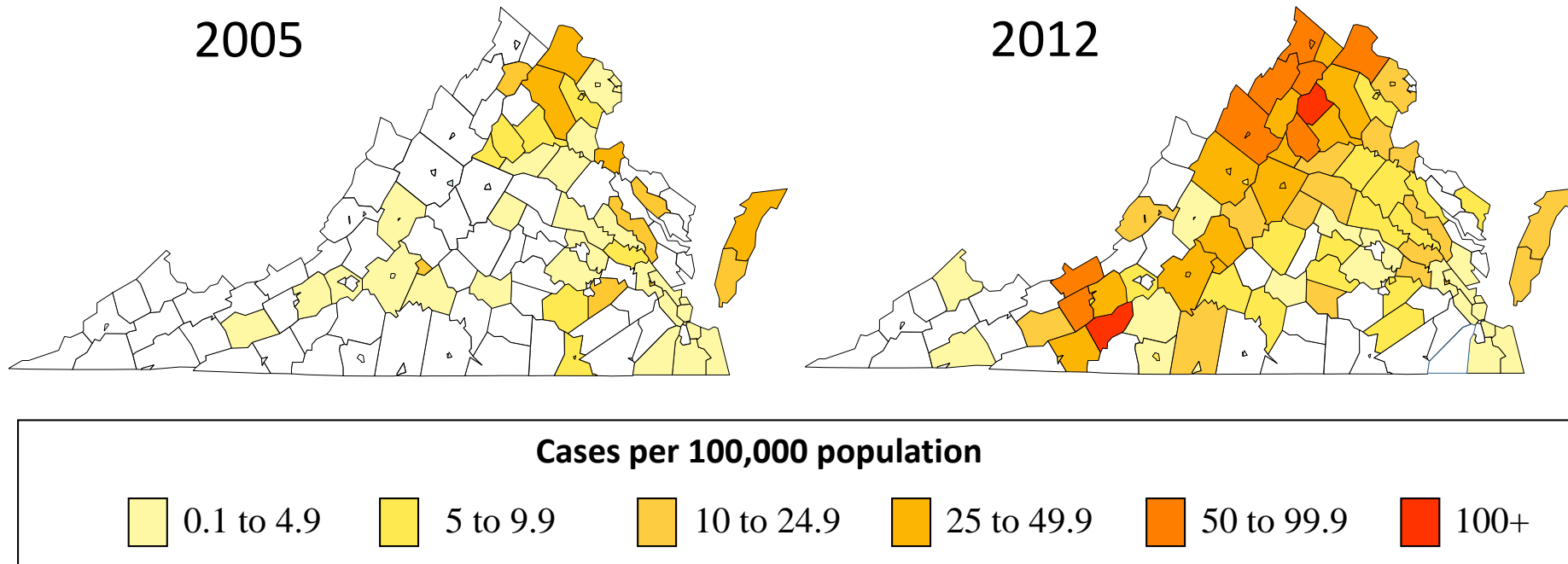
VIDEOS

France Launches 150 'War With
Terrorism' Raids
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inform



Lyme Disease Incidence in Virginia, 2005 & 2012



Our Choice

- ▶ We can continue to take dirty fossil fuel out of the ground and burn it, causing a warmer climate, pollution in the air and in the water....
- ▶ OR
- ▶ We can leave much of the fossil fuel in the ground and use clean energy instead which leaves us with less warming, healthier air, and healthier water.

Thank You!
Questions?

msarfaty@gmu.edu