



1998 WILDLAND FIRE OUTBREAK

From April to July, extreme wildland fires raced through Florida (Figure 1) sending residents fleeing for safety and destroying homes, vehicles, and property. Nearly a half million acres burned over the course of the outbreak, while maximum temperature records and precipitation deficits soared. Three lives were lost with many reported health impacts. In July, rainfall aided the massive firefighting response to extinguish the outbreak.

FRIDAY, JUNE 19, 1998

The Florida Times-Union ...

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Day 4 under fire

■ Clinton declares Duval a disaster area ■ Fires controlled, but embers a concern

By Kathleen Sweeney Times-Union staff writer

It's been the worst outbreak of wildfires some fire officials have ever seen, and where they'll strike next is anyone's guess.

Over the scattered showers that passed through some Northeast Florida counties last night didn't bring much hope. It rained briefly on the West side of Jacksonville near Chaffee Road.

Duval and St. Johns counties were two of the eight counties declared a disaster area by President Clinton yesterday. The declaration authorizes federal disaster officials to send money to stricken areas.

All of Duval County's fires were under control last night, and no injuries were reported. An area south of Interstate 10 in Sanderson was evacuated last night.

Winds are carrying hot embers from the wildfires around Northeast Florida and dropping them in hidden places, leaving them to smolder in wooded areas until the next wave of dry, hot wind and low humidity ignites their flames.

"Embers are flying, some as far as a quarter-mile," Jacksonville firefighters said.

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Rainmaking secrets bedevil rainmakers

By John Carter Times-Union staff writer

Centuries ago, Timucuan tribes in Northeast Florida had a unique way of dealing with the stress and anxiety caused by intense heat and drought. They threw up.

And we worry about how we're handling the heat.

When things started going badly, including the environment, the Timucuan would drink cassia, a strong tea made from the parched leaves of a reaper berry, said Craig Morris, park ranger at the Jacksonville Timucuan Ecological and Historic Preservation.

The drink, with five times the caffeine of coffee, made them reuptake.

"The idea was to purify yourself," Morris said. "Get rid of the bad stuff. It was sort of the idea of the sweat lodge, only in the Florida humidity a sweat lodge would have probably killed them."

Morris quoted 18th century ethnographer James Adair, who studied the behavior of American Indians in the Southeast, on the subject: "Irregularities in the weather were believed to be caused by men becoming impure through improper behavior."

When the rain did come, Morris said, Timucuan believed they shouldn't seek cover too quickly or the rain would stop.

According to Adair's 1775

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Gov. Lawton Chiles surveys the forest fires near Wildcat from an Army National Guard UH-60 Blackhawk helicopter yesterday. He says the state's spent up to \$20 million fighting the fires.

— WB Dickery/staff

BY THE NUMBERS

- 17,046 — Acres destroyed in Duval, Nassau, St. Johns and Clay counties by wildfires this week.
- 2,000 — Number of meals American Red Cross has provided to firefighters and evacuated residents in Duval, Nassau and Clay counties this week.
- 100 — Jacksonville residents evacuated.
- 400 — State Forestry Division firefighters battling blazes daily throughout Florida.
- 245 — Jacksonville firefighters battling blazes daily.
- 182 — Homes, buildings, vehicles damaged by wildfires.
- 80 — Fires in Florida over past two weeks.
- 8 — Counties included in President Clinton's federal disaster area declaration.
- 5 — Northeast Florida's fire readiness level, highest possible.
- 0 — Amount of significant rain in Northeast Florida since May 27.

Sources: Florida Department of Community Affairs, Agricultural Commissioner Chiles, National Weather Service.

— Compiled by Dan Beaman

"The flames were from the ground all the way up to the canopy of the trees," said Delaney, a volunteer firefighter in Lake County. Popping, crackling, and whooshing sounds accompanied the flames as they spread from one dry patch to the next. "You'd hear it when it was coming toward you," Jensen said, a Volusia County volunteer firefighter and Casselberry's fire inspector. *The Orlando Sentinel*, June 14, 1998

Figure 1. *The Florida Times-Union*, June 19, 1998.

This touchstone event summary highlights an exceptional weather event, the wildland fire outbreak of 1998, and related health outcomes in Florida. Utilizing the Florida Climate Extremes Index, technical reports, and newspapers, a touchstone event was identified for this priority hazard. It is important to note that these reports were not validated with vital statistics or notifiable disease surveillance data. Experiences and memories from historical events can highlight the importance of public health preparedness and adaptation planning.

METEOROLOGICAL SET-UP

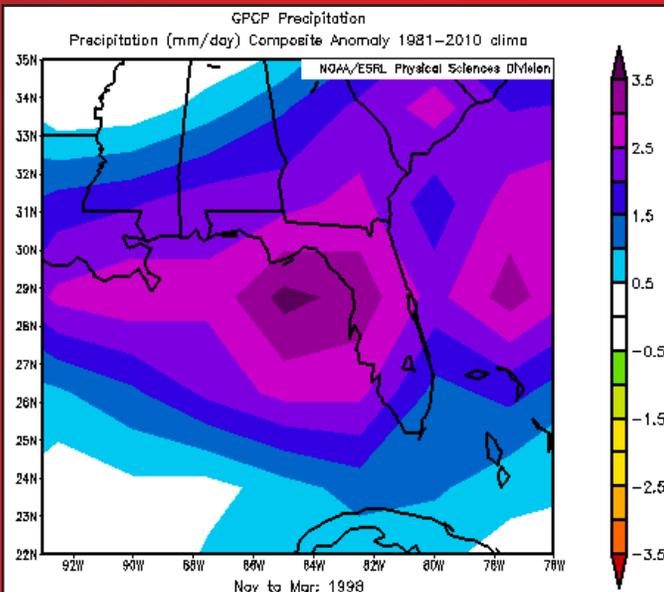


Figure 2. Precipitation Anomalies (mm/day) November 1997 to March 1998
Earth Systems Research Laboratory, NOAA

The winter of 1997/1998 consisted of mild temperatures and above average rainfall due to the presence of a strong El Niño. This supplied much growth to underbrush and vegetation (Figure 2).

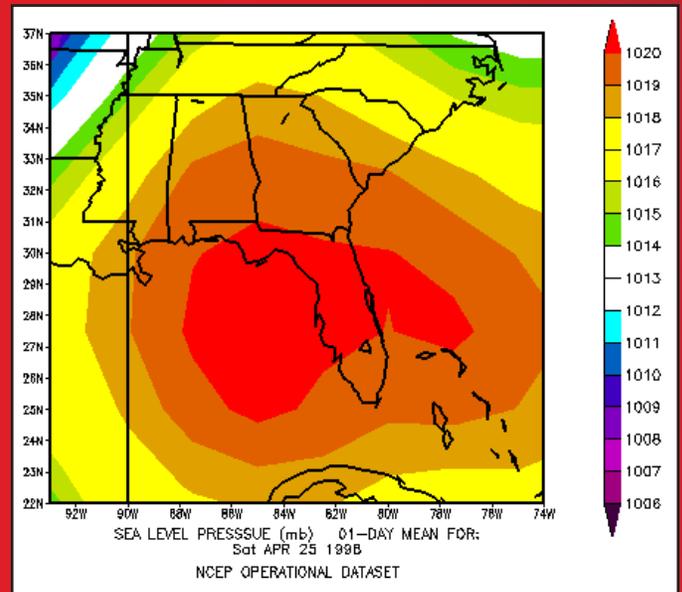
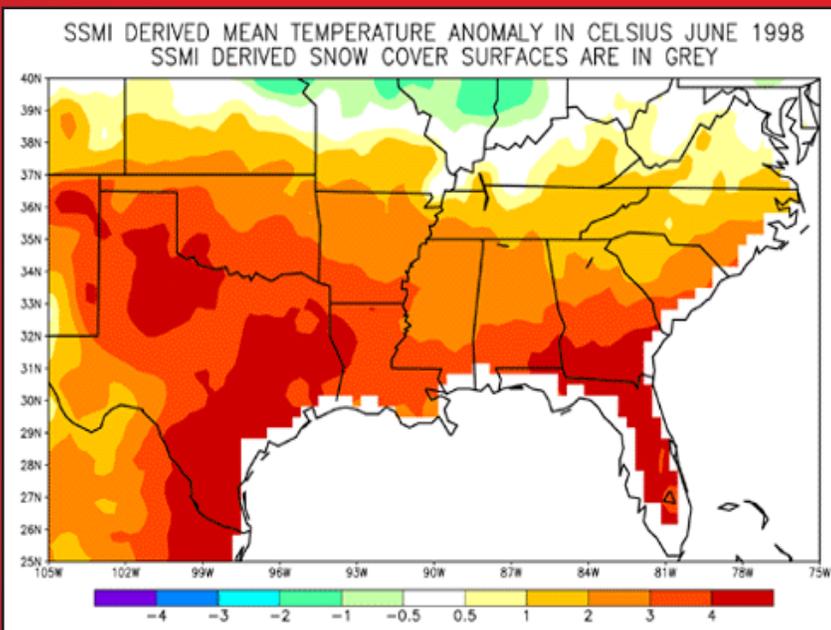


Figure 3. Sea Level Pressure (mb) April 25, 1998
Earth Systems Research Laboratory, NOAA

High pressure remained over Florida from late April to early July, causing a drought from May to June (Figure 3).



Record high temperatures set in by summer, drying out vegetation creating massive amounts of fuel for fires (Figure 4).

Ignited by lightning and arson, catastrophic fires lasted well into July.

Figure 4. Mean Temperature Anomalies (°C) June, 1998 (4°C ≈ 7°F difference)
NOAA

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IMPACTS

- » Nearly 500,000 acres were burned over the course of the outbreak.
- » Fires or emergency status was reported in all 67 Florida counties, with north and central Florida having the largest concentration of fires (Figure 5).
- » Governor Chiles declared a state of emergency on June 18, 1998.
- » An estimated total of \$620 million in losses and damages was attributed to the fires.

The wildland fires affected large portions of Florida, including heavily populated areas, resulting in three indirect deaths with many reports of health outcomes:

- » Burns
- » Heat-related illnesses
- » Injuries
- » Mental health impacts
- » Respiratory issues
- » Traffic accidents

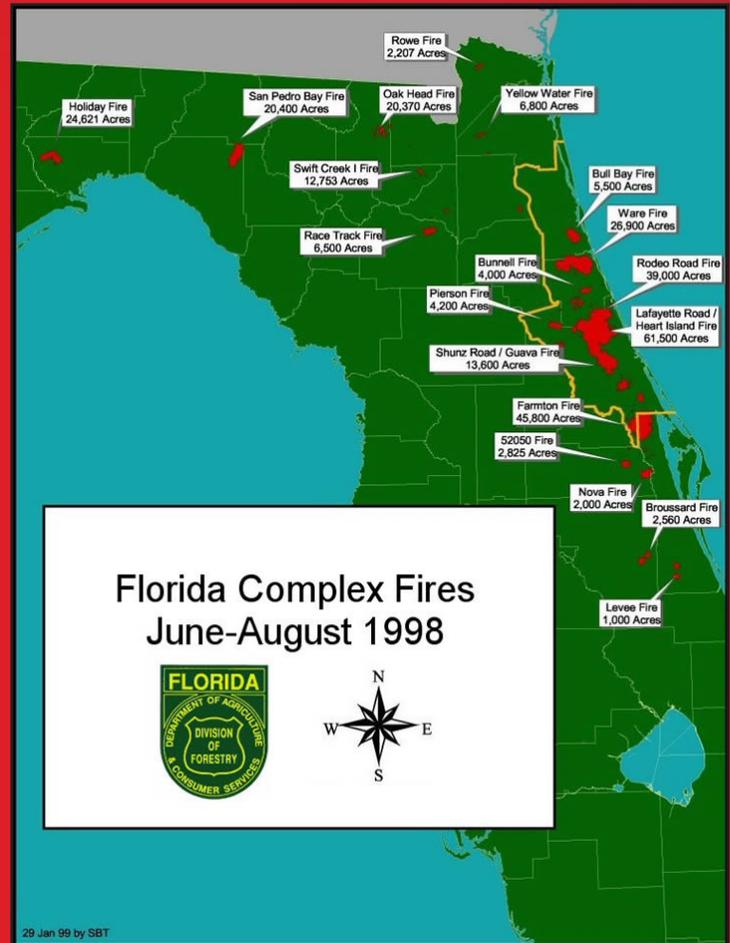


Figure 5. June-August 1998 Fire Location and Acreage Map, Florida Forest Service

MASSIVE RESPONSE

To combat the widespread fires, aid and resources from many different local, state, and federal agencies were mobilized.

- » Over 10,000 firefighters responded.
- » 40 U.S. states sent supplies and reinforcements.
- » It was the largest aerial fire suppression operation in the U.S. to date.
- » The magnitude and complexity of the operations challenged existing incident management systems.



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EVACUATIONS AND EXPERIENCES

Over 120,000 Florida residents evacuated, which included entire counties at a time (Figure 6). Evacuees were directed to other counties, shelters, or hotels, unable to return to their homes for days, not knowing if they would return to anything at all (Figure 7). Meanwhile, large portions of I-95, U.S. 1, and Florida A1A were at high risk due to nearby smoke and fires, which resulted in closures of some sections.

Figure 6. *St. Petersburg Times*, July 4, 1998.

Figure 7. *St. Petersburg Times*, July 3, 1998.

“It seemed like nothing was really stopping it. It was just so intense,” said Jensen, a Volusia County volunteer firefighter and Casselberry’s fire inspector. “There was fire all around you.”

The Orlando Sentinel, June 14, 1998

Coleen Harris scrambled to load up her family and her horse, Primo, as the flames approached her Rory Lane home. “I went to the front door and saw the fire was real, real close,” she said. “In 10 minutes we had the horse loaded up, got the kids and the dogs and got the heck out of there.”

The Orlando Sentinel, June 11, 1998



WILDLAND FIRE VULNERABILITY IN FLORIDA

Florida has historically been vulnerable to wildland fire, although this hazard takes a different form in the state than in other parts of the continental U.S. Projected increases in dry days and warmer temperatures could lead to increased vulnerability to wildland fire in the future.

To assess vulnerability to wildland fire, the Wildland Fire Suppression Index (WFSI), developed by the Florida Forest Service, was used to determine the probability of an acre of land burning if ignited.

The WFSI model is broken down into three components measuring susceptibility to wildland fire ignition:

- » Probability of fire occurrence
- » Fire behavior
- » Fire suppression effectiveness

Wildland fire threat is greatest across the central portion of the state where vast fields of livestock and citrus, along with numerous federal, state, and county parks and scenic areas are located (Figure 8). Among the most at-risk counties with tracts in the medium threat category are Charlotte (18%), Highlands (18%), Lee (9%), Marion (10%), Osceola (15%), and Polk (19%). Overall, approximately 515,000 people living in 19 counties are at high or medium risk of wildland fire.

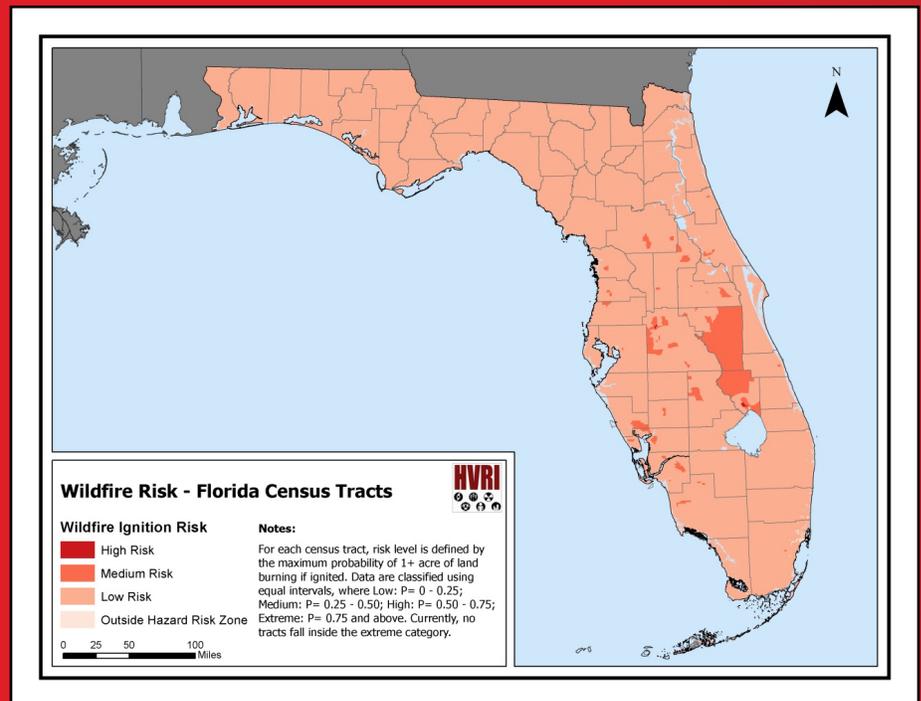


Figure 8. Wildland Fire Ignition Risk in Florida. Source: C. Emrich, University of South Carolina Hazards and Vulnerability Research Institute, 2014.

Locations that are both physically and socially vulnerable are places where a combination of hazard and social adaptation practices can maximize positive outcomes. For more information, please see the Florida BRACE Vulnerability Assessment Report.

For more information, please contact the Florida Department of Health BRACE Program or visit www.floridahealth.gov.

