

Public Health Agency Drought and Health Activities

February 26, 2020

Presenting To
Southwest Drought and Human Health Workshop | Tucson, AZ

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Epidemiology Program Manager

Climate and Health/Environmental Public Health Tracking/Drinking Water



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PHOENIX 7 DAY FORECAST

The Weather Channel

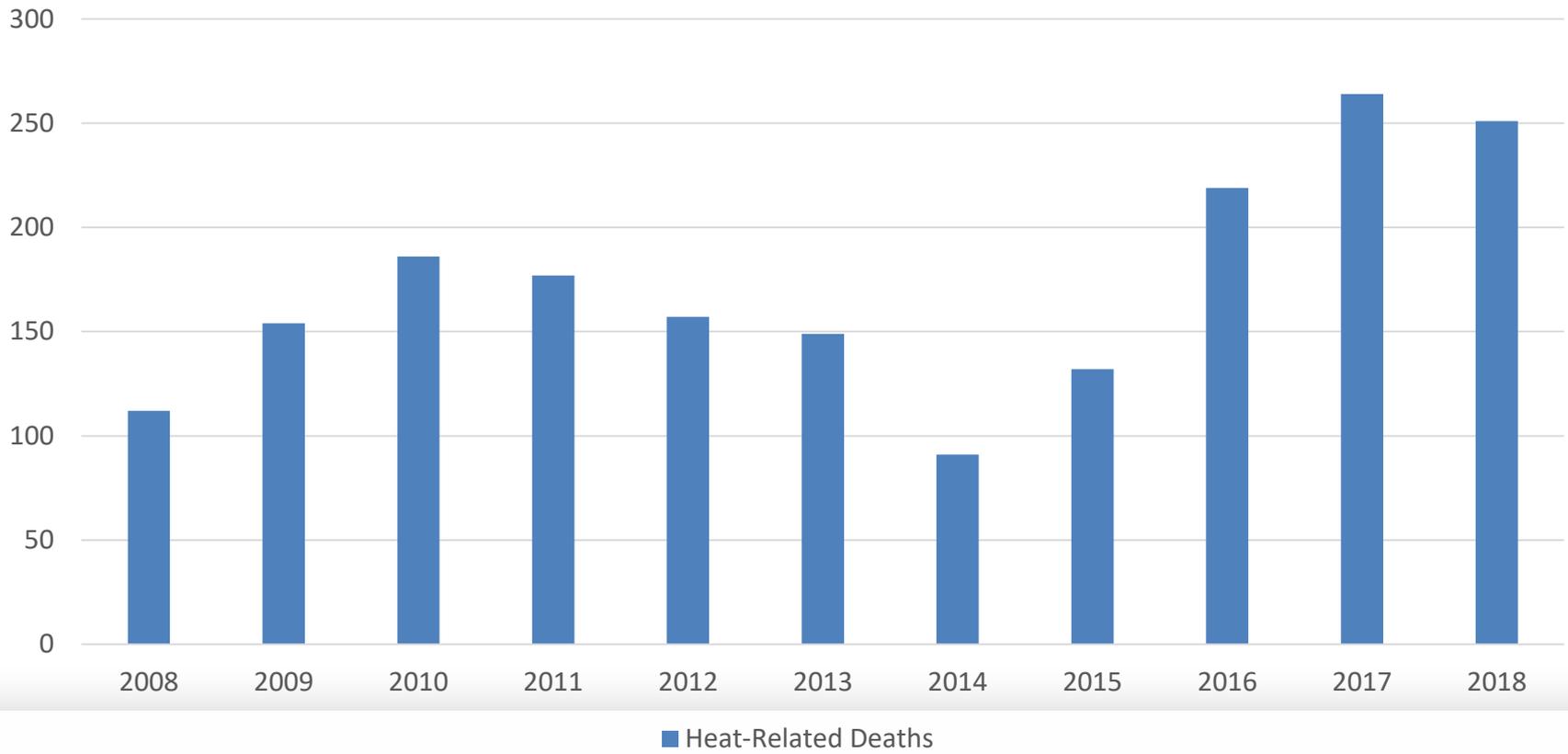
SAT	SUN	MON	TUE	WED	THU	FRI
						
110	114	118	121	119	116	112
80	85	89	89	88	86	86
0%	0%	0%	0%	0%	0%	0%
Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny

AIR QUALITY ALERT

...HIGH POLLUTION ADVISORY FOR MARICOPA COUNTY INCLUDING THE GREATER PHOENIX

Heat Deaths in Arizona

Heat-Related Deaths



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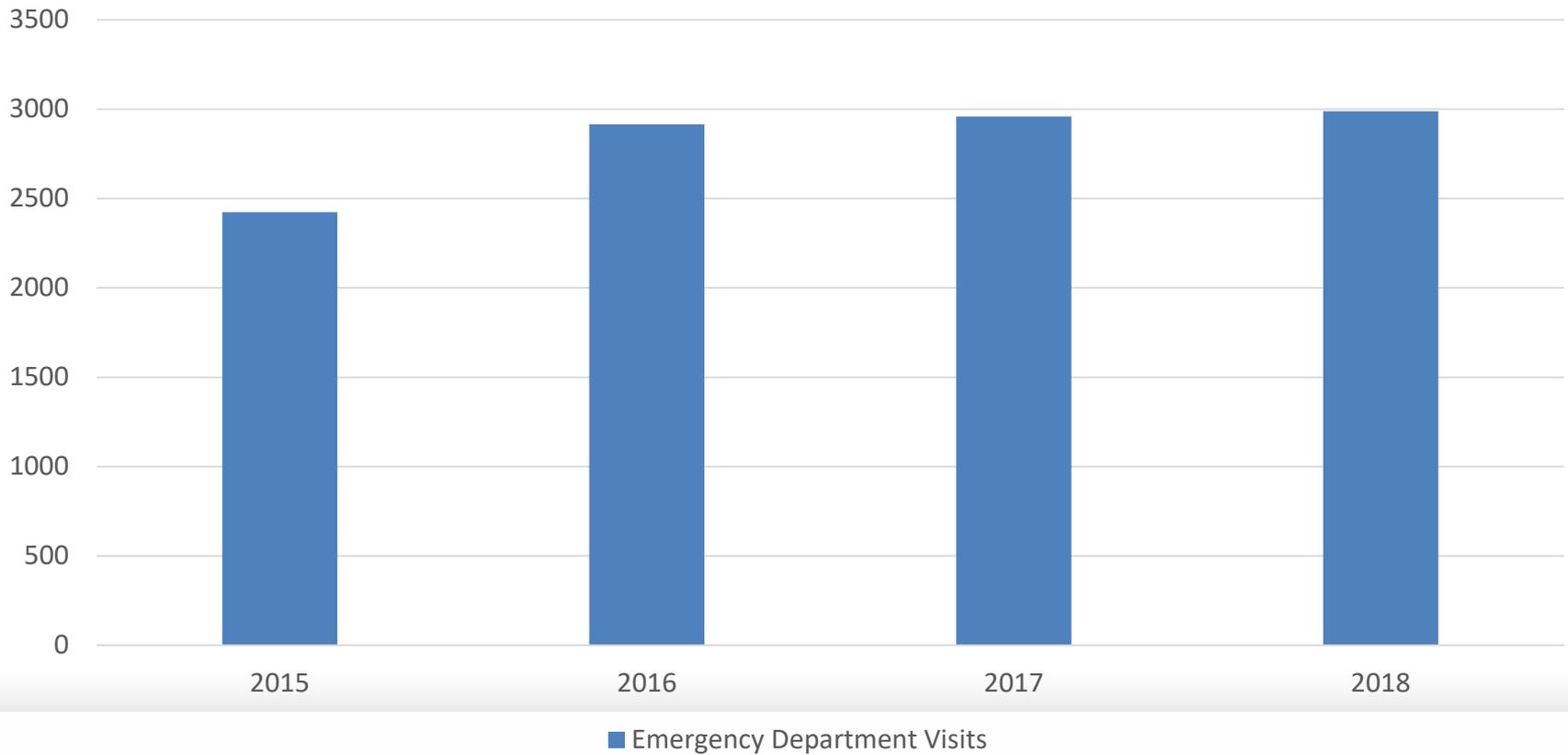
2018 Arizona Heat Deaths Summary

- **75%** were Arizona residents
- **58%** were over 55 years old
- **79%** were Male
- Most Deaths occurred in (Maricopa, Pima, Mohave, and Pinal)
- **98%** of cases occurred from May - September



Heat Illness Emergency Department Visits in Arizona

Emergency Department Visits



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2018 Arizona Heat Illness Summary

- **88%** were Arizona residents
- **45%** were Young Adults 20-44
- **68%** were Male
- Most cases occurred in (Maricopa, Pima, Pinal, and Yuma)
- **93%** of cases occurred from May - September











LIVE WEATHER ALERT

RECORD-BREAKING RAIN IN THE VALLEY

MONSOON STORMS DAMAGE HOMES, ROADS IMPASSABLE

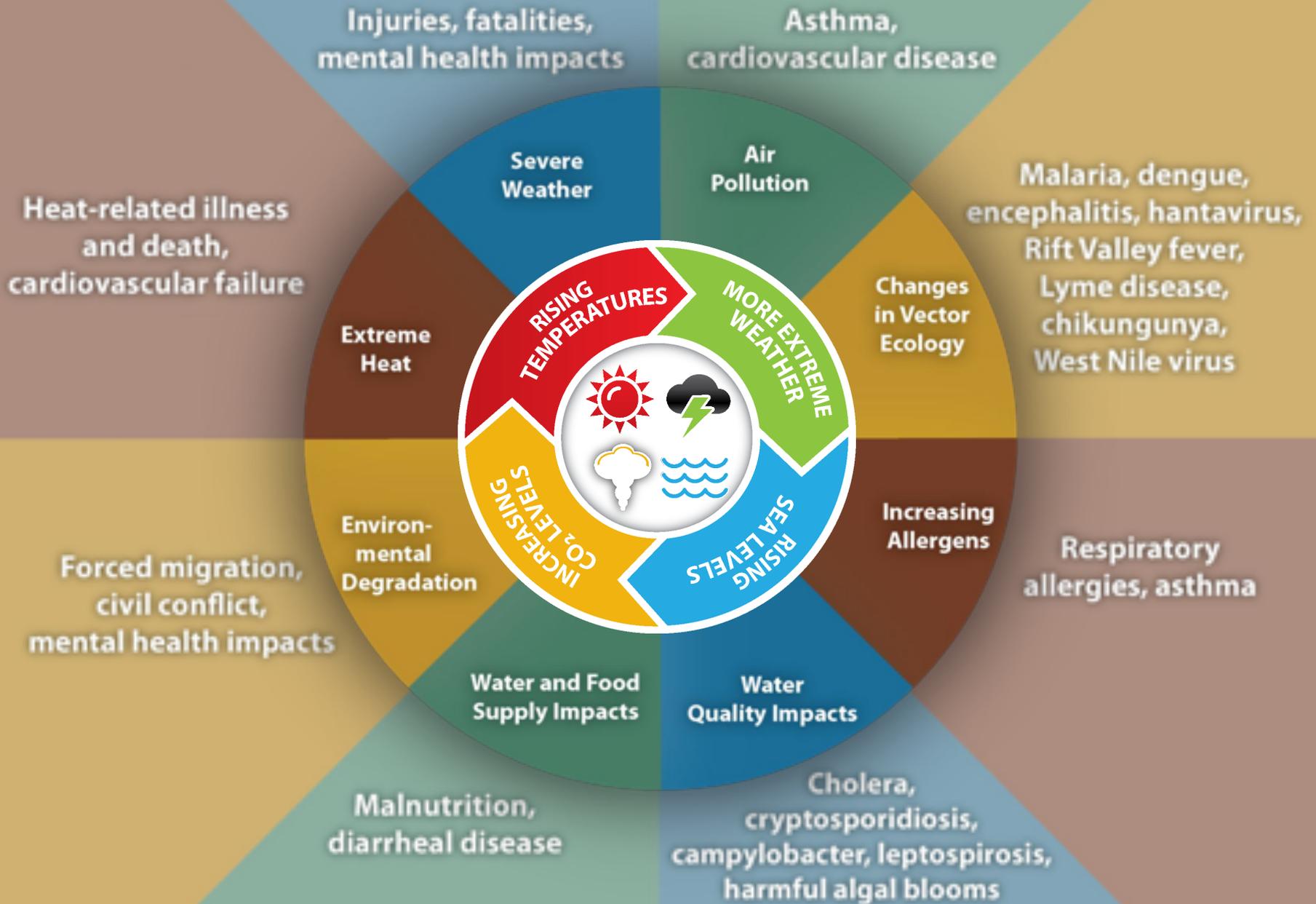
COMMUNITY TOP STORM 75 LIT NORTH: ALL LANES NOW CLEAR AT BUMBLE BEE (MILE 253)



8:49

74°

Impact of Climate Change on Human Health



Health Department Programs Working on Drought Issues

Environmental
Public Health
Tracking

Climate and
Health

Well Water
Safety

Food Safety

Emergency
Preparedness

Environmental Public Health Tracking

azdhs.gov/epht

AZ Environmental Public Health Tracking
Helping Arizonans learn about environmental hazards.

ADHS Home > Public Health Preparedness > Epidemiology & Disease Control > Environmental Health > Arizona Environmental Public Health Tracking - Home

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- Environment
- Health Effects
- Population Characteristics
- Arizona EPHT Explorer
- Metadata
- Newsletter
- Indicators
- Frequently Asked Questions (FAQs)
- Additional Resources

Signup for email updates

Home

- Need help using the data explorer? Check out our [how to video](#)
- What do you think about the data explorer? Please leave us your [feedback](#)
- Sign up for the new Environmental Public Health Tracking Program email list to receive the latest updates and news.

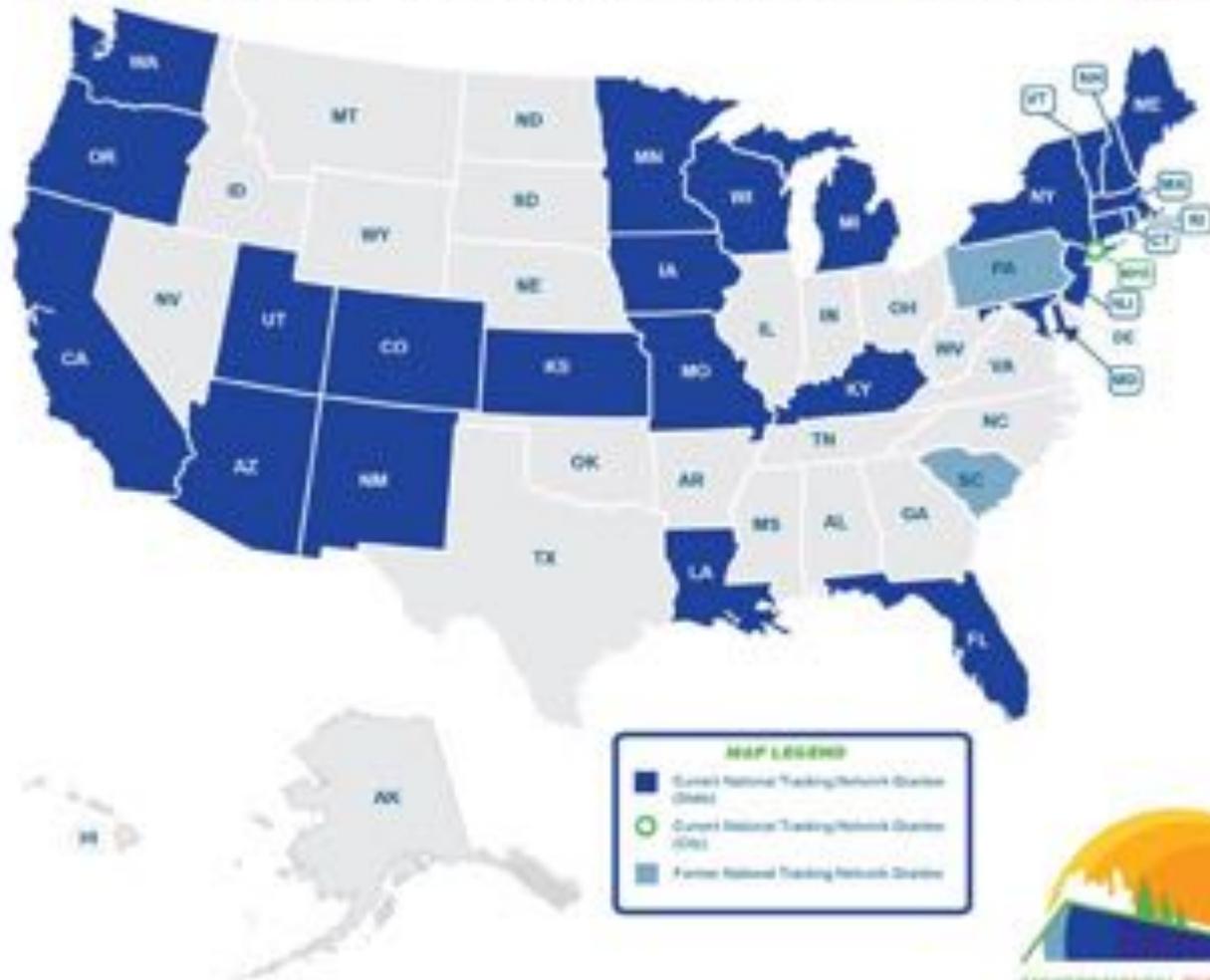
Arizona EPHT Explorer

Maps and datasets on a variety of topics included in the Environmental Public Health Tracking network.

Quick Reports

You can use the quick reports tool to get a snapshot of some of the environmental health issues for your area.

CDC's National Environmental Public Health Tracking Program



August 2017

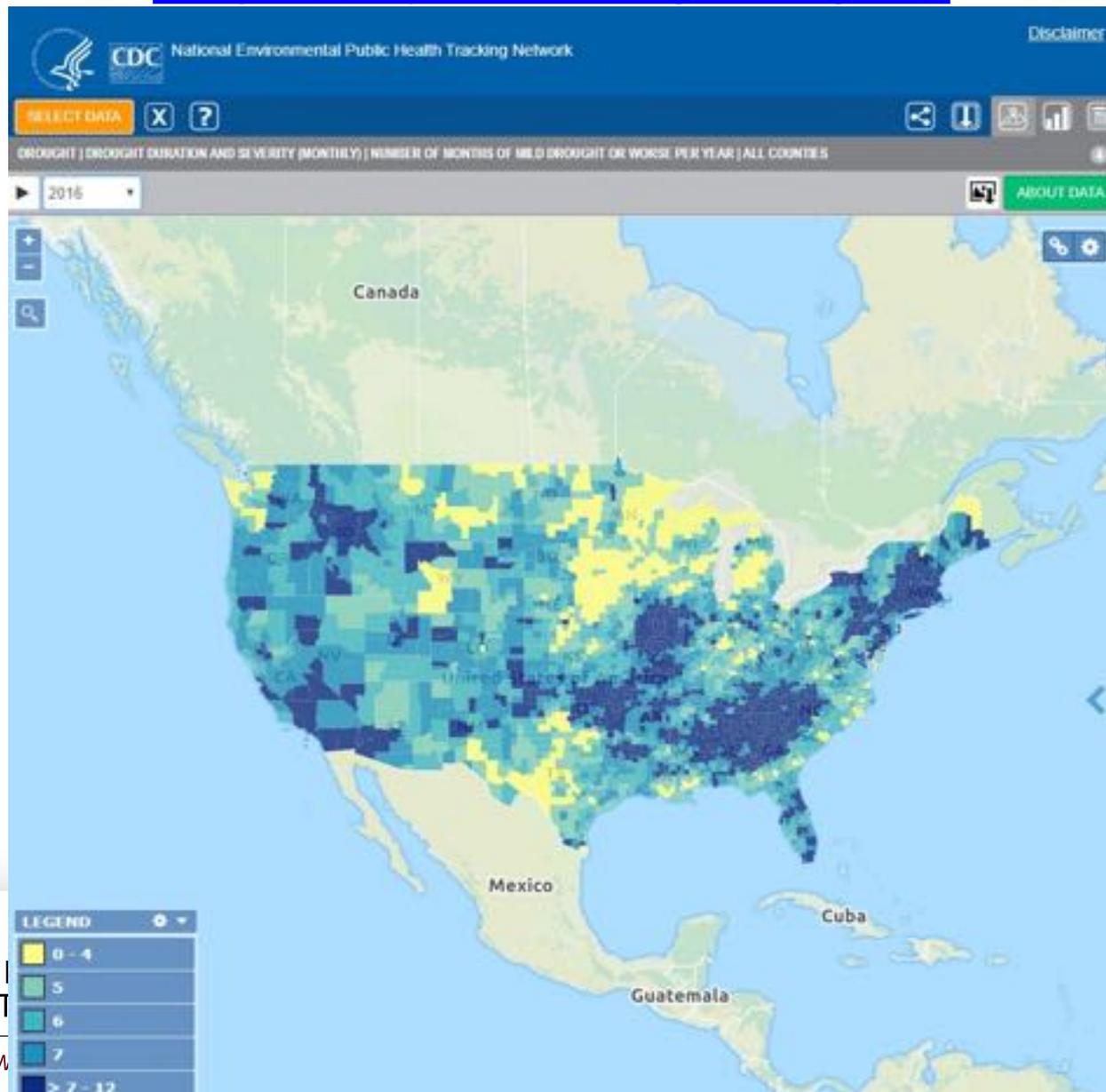


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CDC National Tracking Website Data Explorer

<https://ephtracking.cdc.gov/>



Climate Data

Environmental

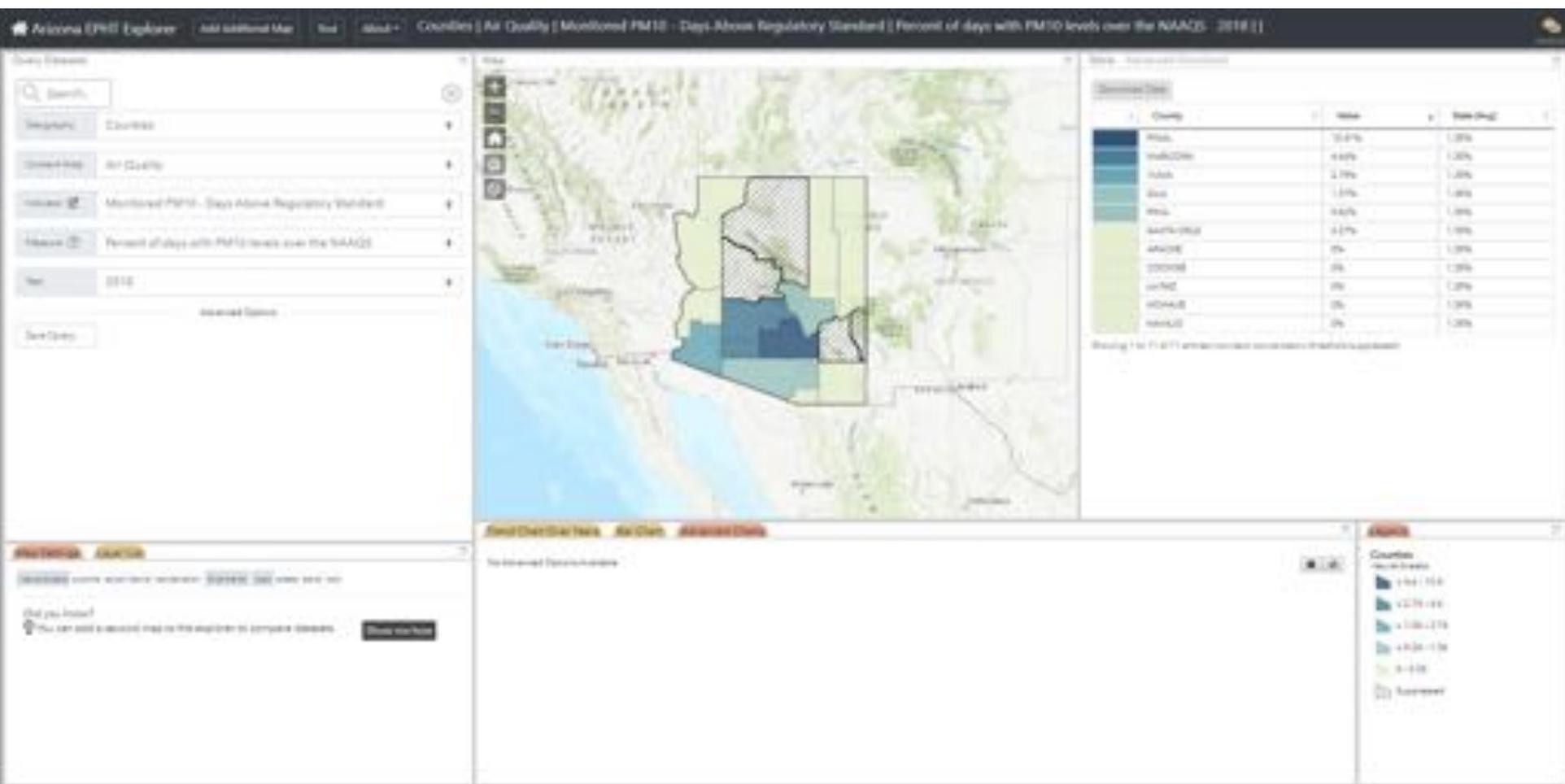
- Drought
- Extreme Precipitation
- Flood Vulnerability
- Temperature
- Heat Vulnerability
- Wildfires
- Hazard Losses
- Air Quality

Health Outcomes

- Asthma Hospitalizations
- Cold Stress Hospitalizations
- Heat Hospitalizations
- Heat Deaths



Percent of Days Annually Above the Air Quality Standard for PM10



Quick Reports Tool

ARIZONA ENVIRONMENTAL PUBLIC HEALTH TRACKING - Quick Reports

The places where you live, work, and play may affect your health.

You can use this **Quick Reports** tool to get a snapshot of scores of the environmental health issues for your area. You will find information at several scales - County, PCAs (sub-county), and Census Tracts.



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Flagstaff, Coconino County

Extreme Heat¹

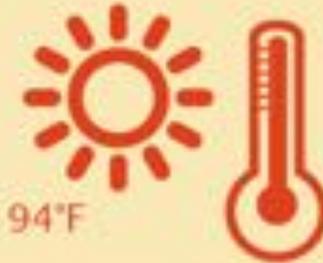


Flagstaff 12.8 Coconino 22.8
Age-adjusted Emergency Department visit rate per 100,000 population

Coconino County had 4 Days with maximum temperatures above 90°F and 29 Heat-related Emergency Department visits during May–September 2016.

Heat-related death or illnesses are preventable if you follow a few simple steps.

- Stay cool.
- Stay hydrated.
- Stay informed.



94°F

2016 Maximum heat event

Extreme summer heat is increasing in the United States, and climate projections indicate that extreme heat events will be more frequent and intense in coming decades. Extremely hot weather can cause illness or even death. Knowing how hot it gets in your area can help you prepare for extremely hot temperatures and prevent heat related illness.

Take Action: Cool off at local cooling centers - [Maricopa](#), [Pima](#), [Pinal](#)

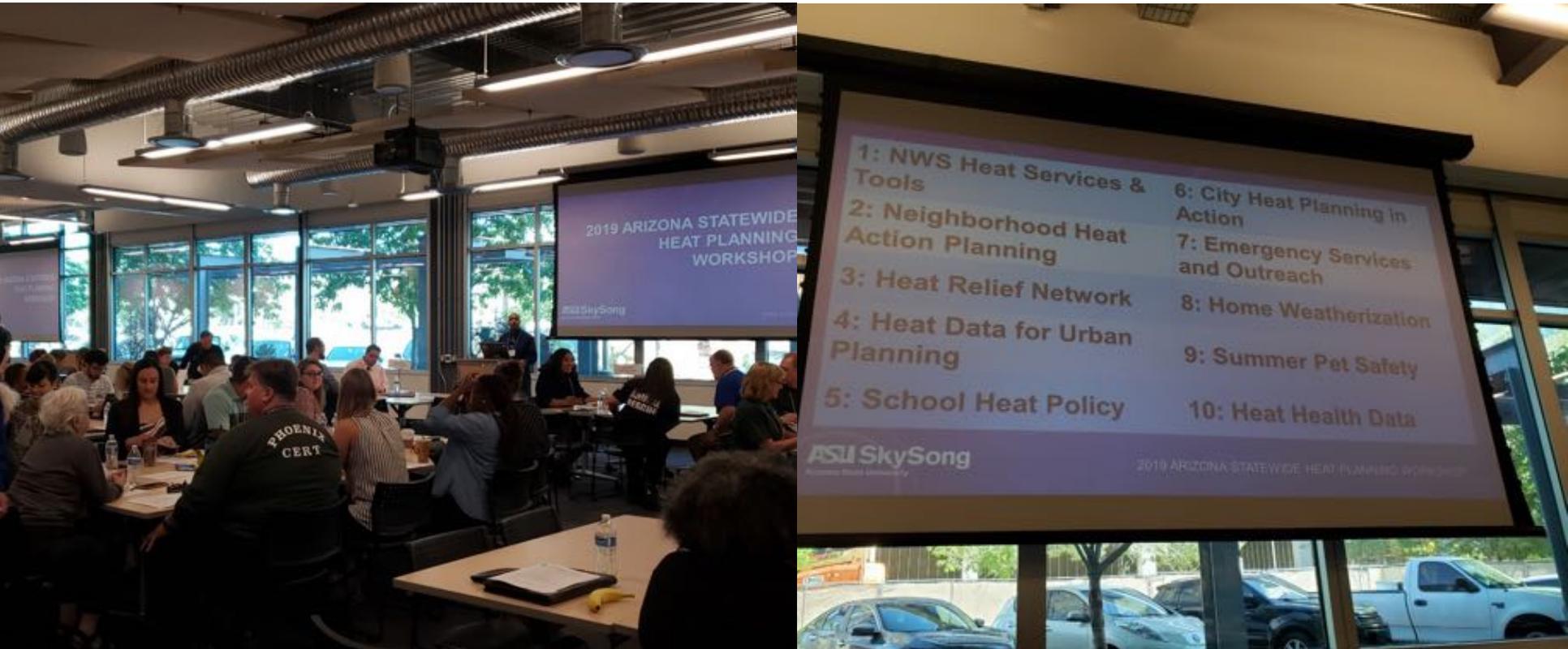
[Discover the data](#) | [More Info](#) | [Export to PDF](#)



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Participate in the 2020 State Heat Planning Meeting (April 13, 2020)



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Climate and Health

Extreme Weather & Public Health

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- [Arizona Extreme Weather Climate and Health Profile Report 2015 - Executive Summary](#)
- [Experts Collaborate to Develop a Standardized Syndrome Definition for Cold-related illness](#)



Heat Safety

Avoid heat-related illness or death in extremely hot weather.



Wildfire Safety

Protect your health and property from the dangers of wildfires.



Monsoon Safety

Health safety tips for dust storms and flooding.



Extreme Cold

Winter weather conditions can lead to snow storms and dangerous driving conditions.



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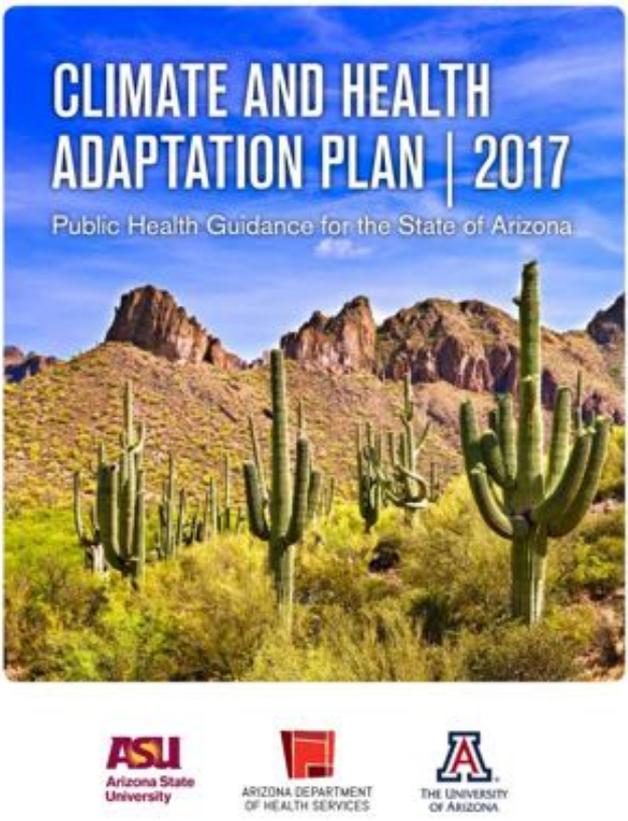
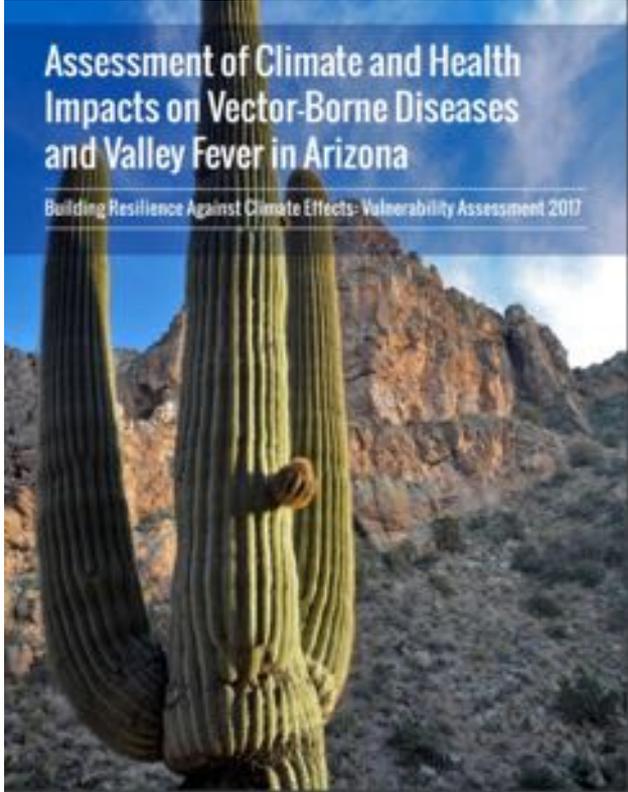
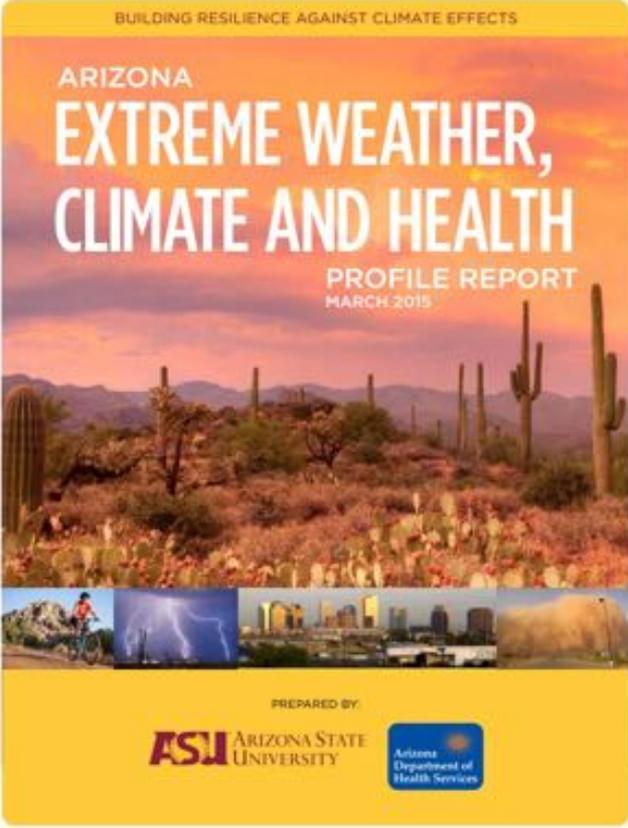
CDC Climate-Ready States & Cities Initiative Grantees



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ADHS Reports



ARIZONA EXTREME WEATHER, CLIMATE AND HEALTH

PROFILE REPORT
MARCH 2015



PREPARED BY:

ASU ARIZONA STATE
UNIVERSITY



EXECUTIVE SUMMARY

Rationale and objectives

Observed and projected changes to the climate (e.g. more/less precipitation and higher temperatures) can pose significant health risks to the residents of Arizona. As in other locations in the Southwest, across the United States, and around the world, these changes are likely to coincide with an increased frequency of drought, flooding, severe heat events, and wildfires; and disruption of civil infrastructure, including transportation, energy, and water systems. These impacts can lead directly to illness and death and are likely to worsen existing health conditions, such as cardiovascular diseases, asthma, and other respiratory illnesses.

A number of other factors are expected to compound these health issues. Achieving air quality goals may be more difficult because of changes

STEP
01

Forecasting climate
impacts and assessing
vulnerabilities

Drivers of Health Risks Associated with Drought

- Climate
 - Atmospheric composition and changes
- Individual
 - Behavior, age, health status, time lived in AZ, pre-existing medical conditions
- Societal
 - Population size, population demographics, interventions/policy efforts

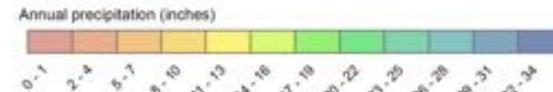
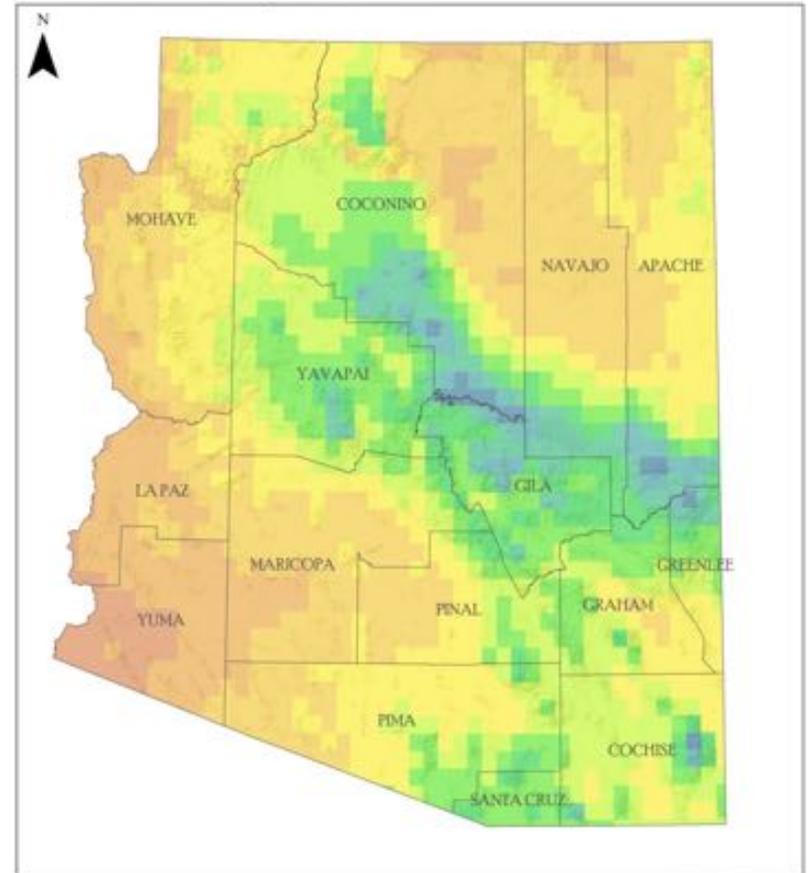


Drought Hazard Risk Categories

- <5 inches*
- 5-10 inches*
- 10-15 inches*
- 15-20 inches
- >20 inches

* High drought exposure

Annual Precipitation in Arizona
Downscaled Climate Model Projections, 2005-2015



Notes: Projections are derived from the U.S. Bureau of Reclamation's Downscaled CMIP5 Climate and Hydrology Projections database. Plotted values represent the CMIP5 ensemble mean projection. Basemap sourced from ESRI.

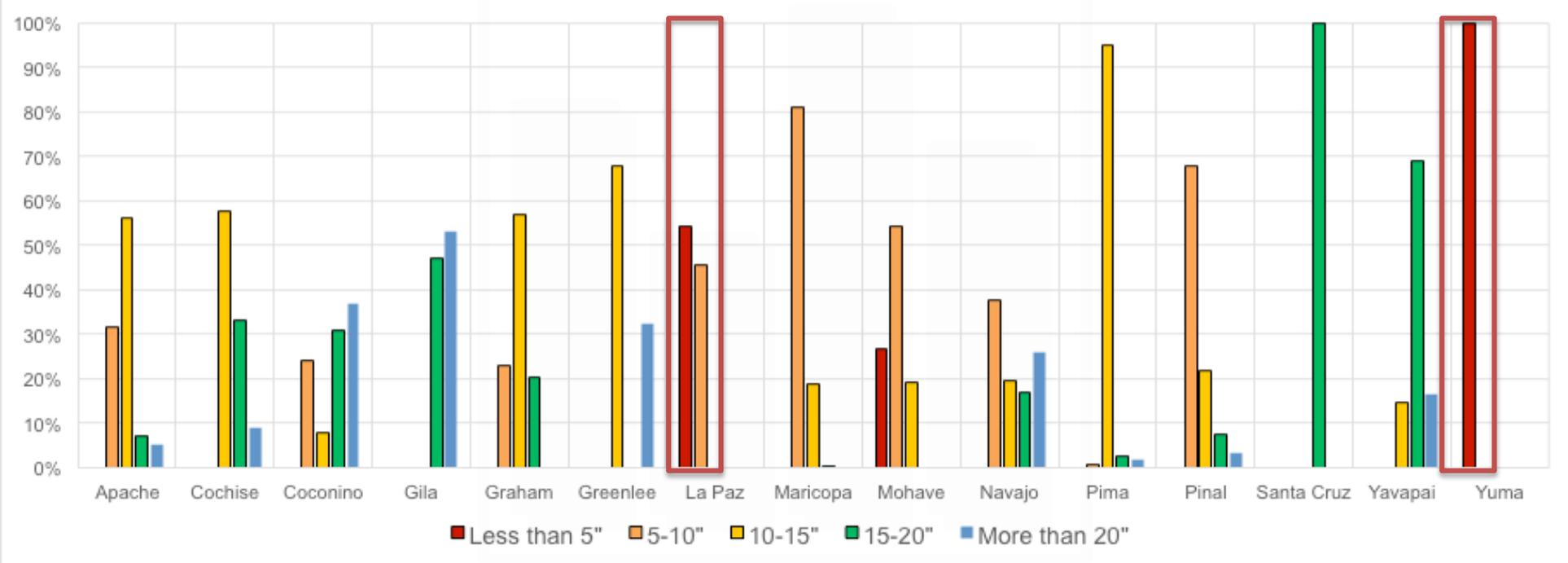


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Precipitation by County

Percent of County Population by Annual Precipitation Totals in Arizona



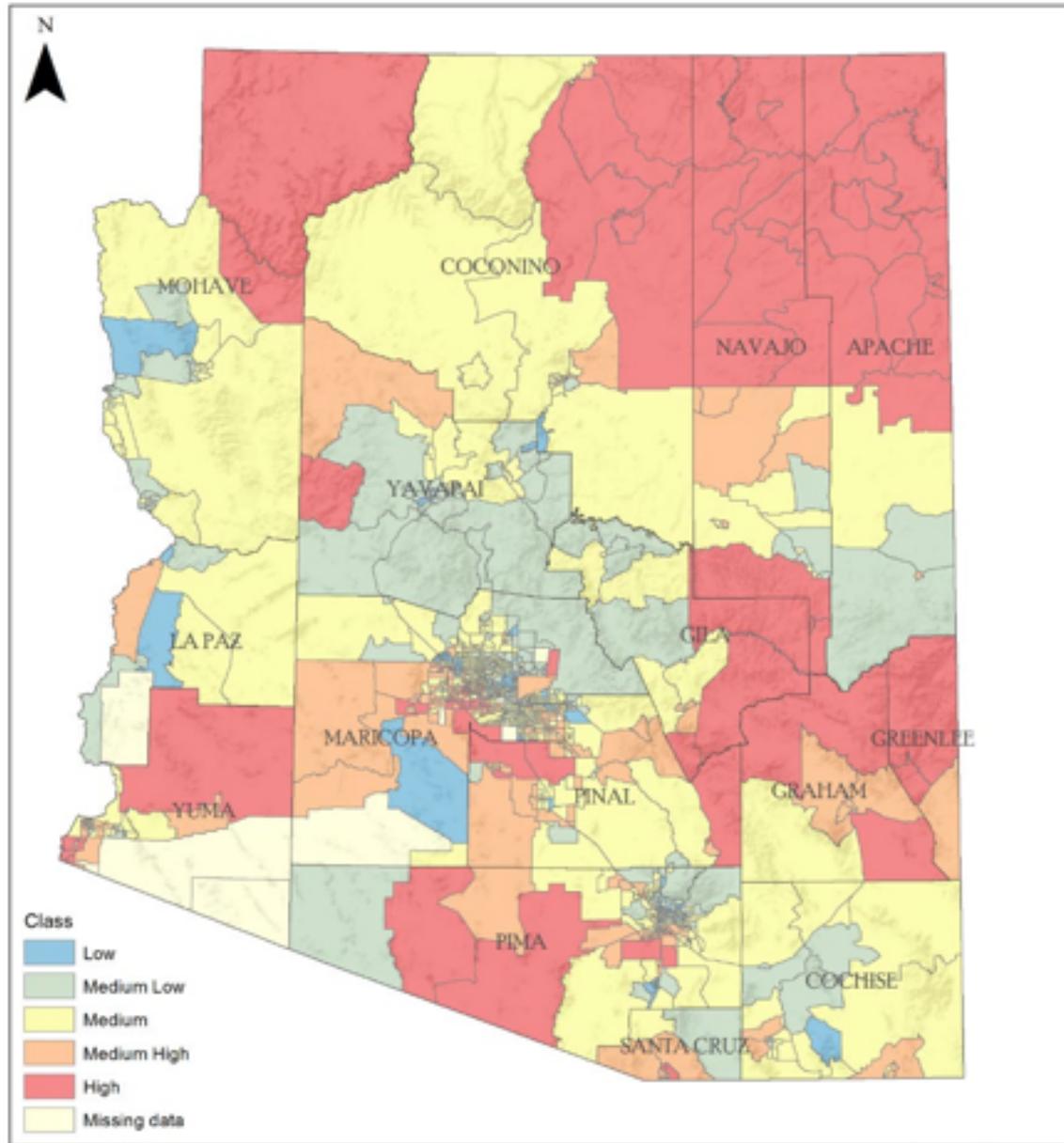
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Social Vulnerability

- Poverty
- Over 65 years of age
- Living alone
- Low education

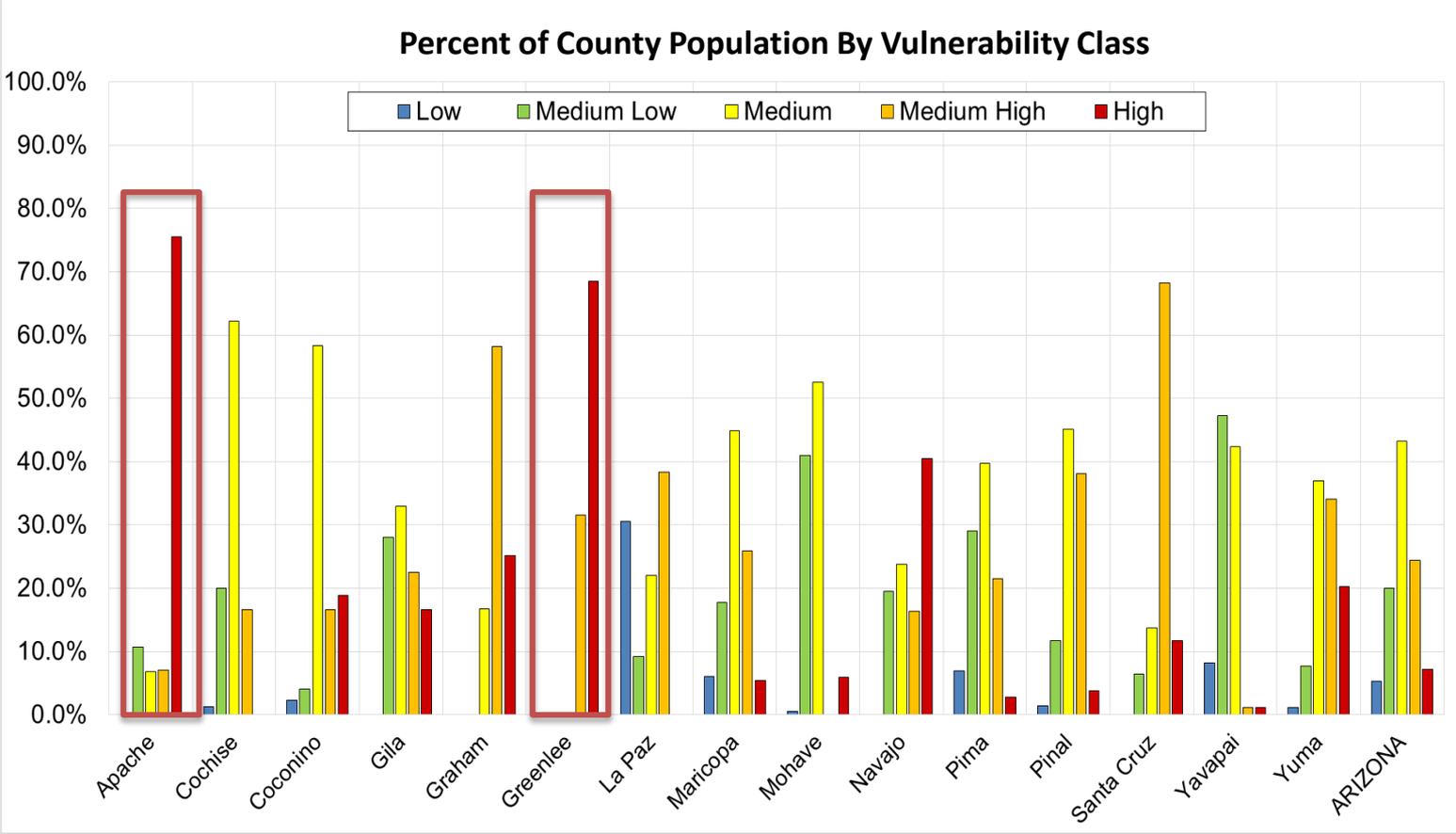
Social Vulnerability to Hazards Index for Arizona



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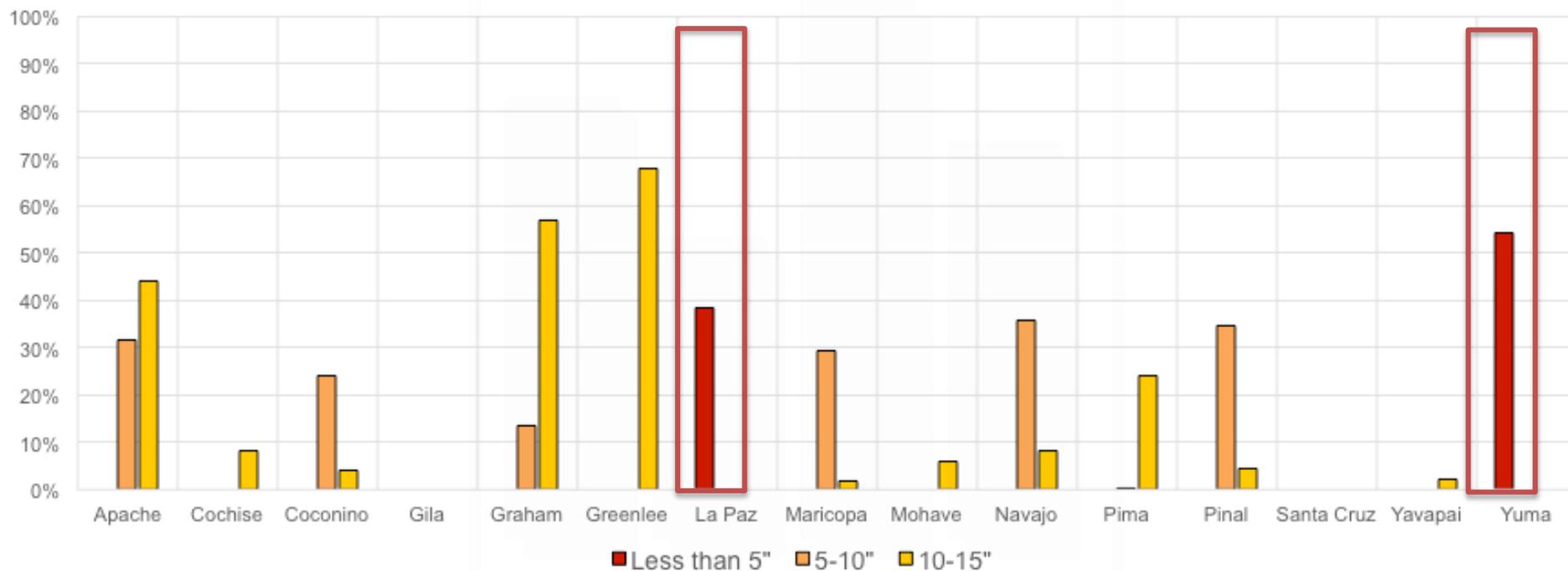
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Arizona Vulnerability Analysis



Social Vulnerability and Drought

Percent of County Population with Exposure to Low Rainfall and High or Medium High Vulnerability



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DUST STORMS



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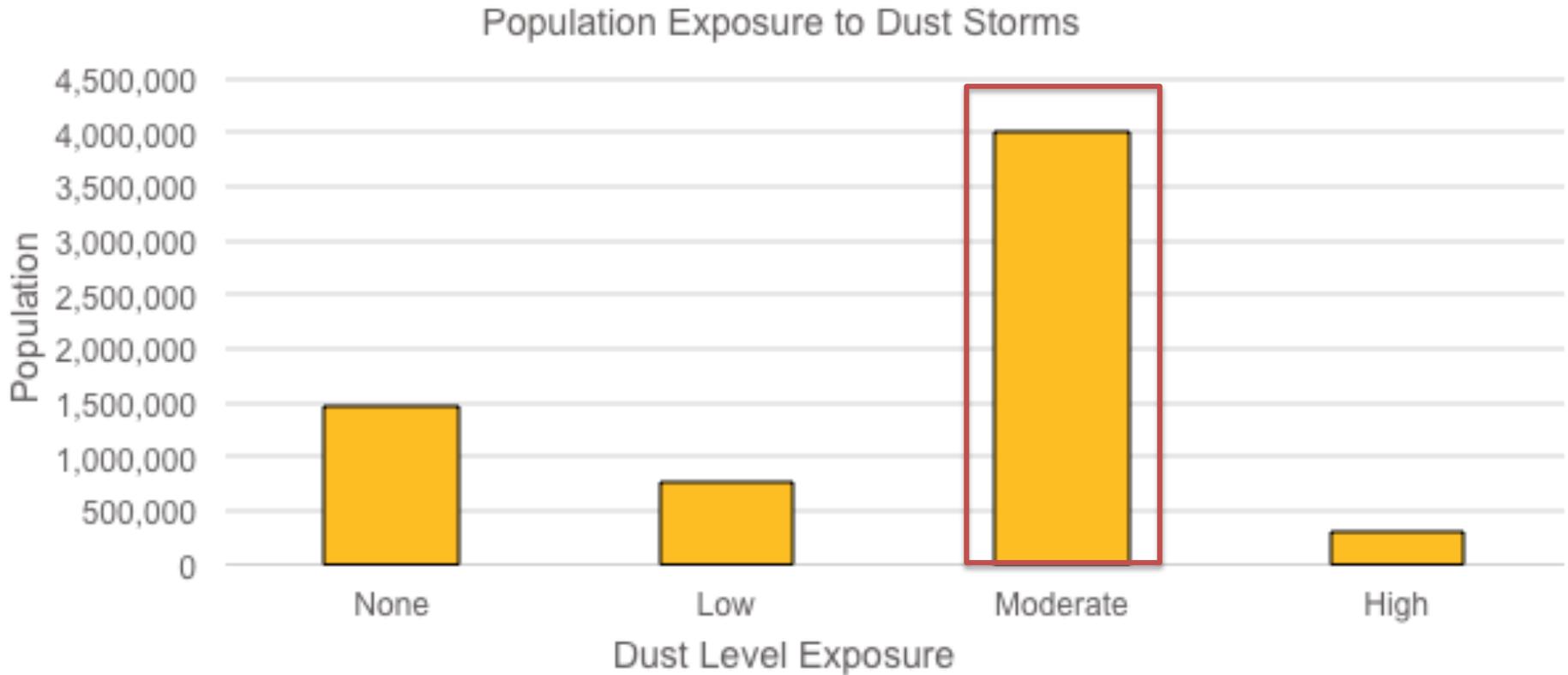
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Motor Vehicle Accidents

- 2018
 - 150 motor vehicle crashes from blowing sand, soil, dirt
 - 0 fatalities
 - 86 injured



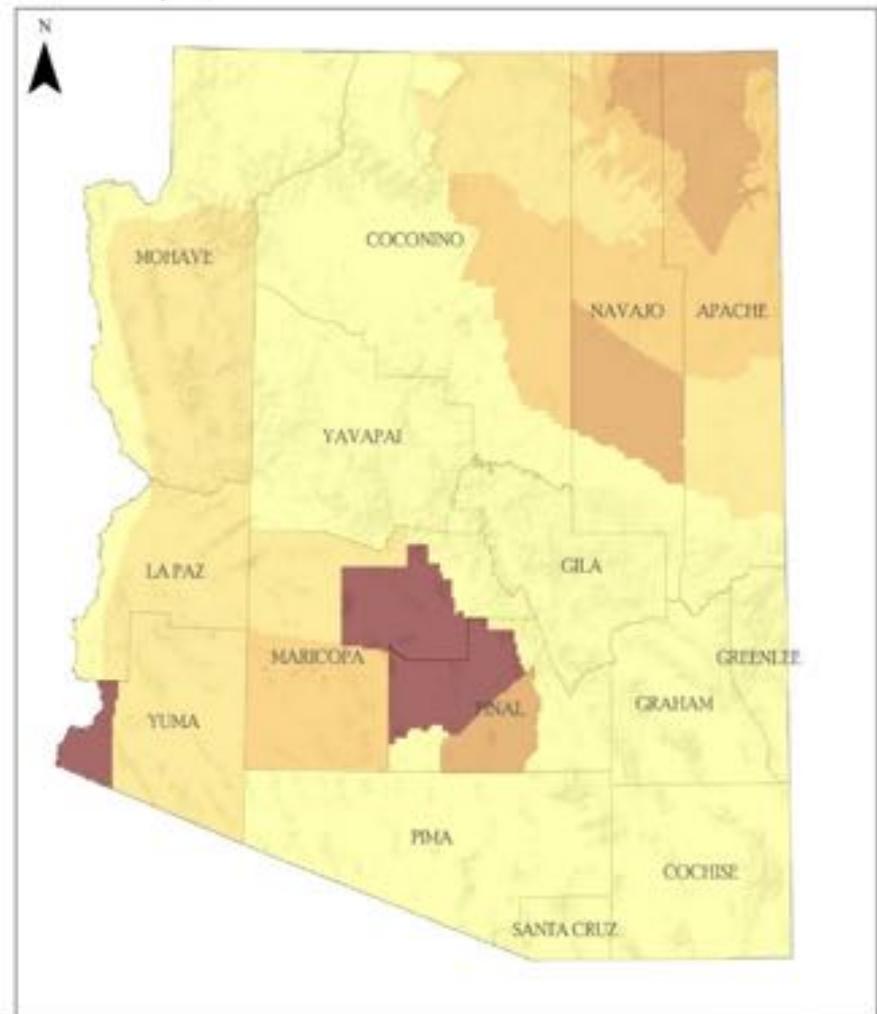
Dust Storms



61% of people live in places with moderate dust storm exposure

Dust Storms in Arizona

NOAA Storm Reports, 1996-2015



Dust storm reports per 1,000 square miles per year



Notes: Dust storm incidence data derived from NOAA Storm Report Database for Arizona. Basemap sourced from ESRI. For reference, Santa Cruz County is 1,237 square miles in area; Coconino County is 18,650 square miles in area.



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Yarnell Hill Fire claims lives of 19 firefighters

Local, state, federal officials express condolences

Mike Leiby - The Independent Jul 2, 2013  0



WILDFIRES

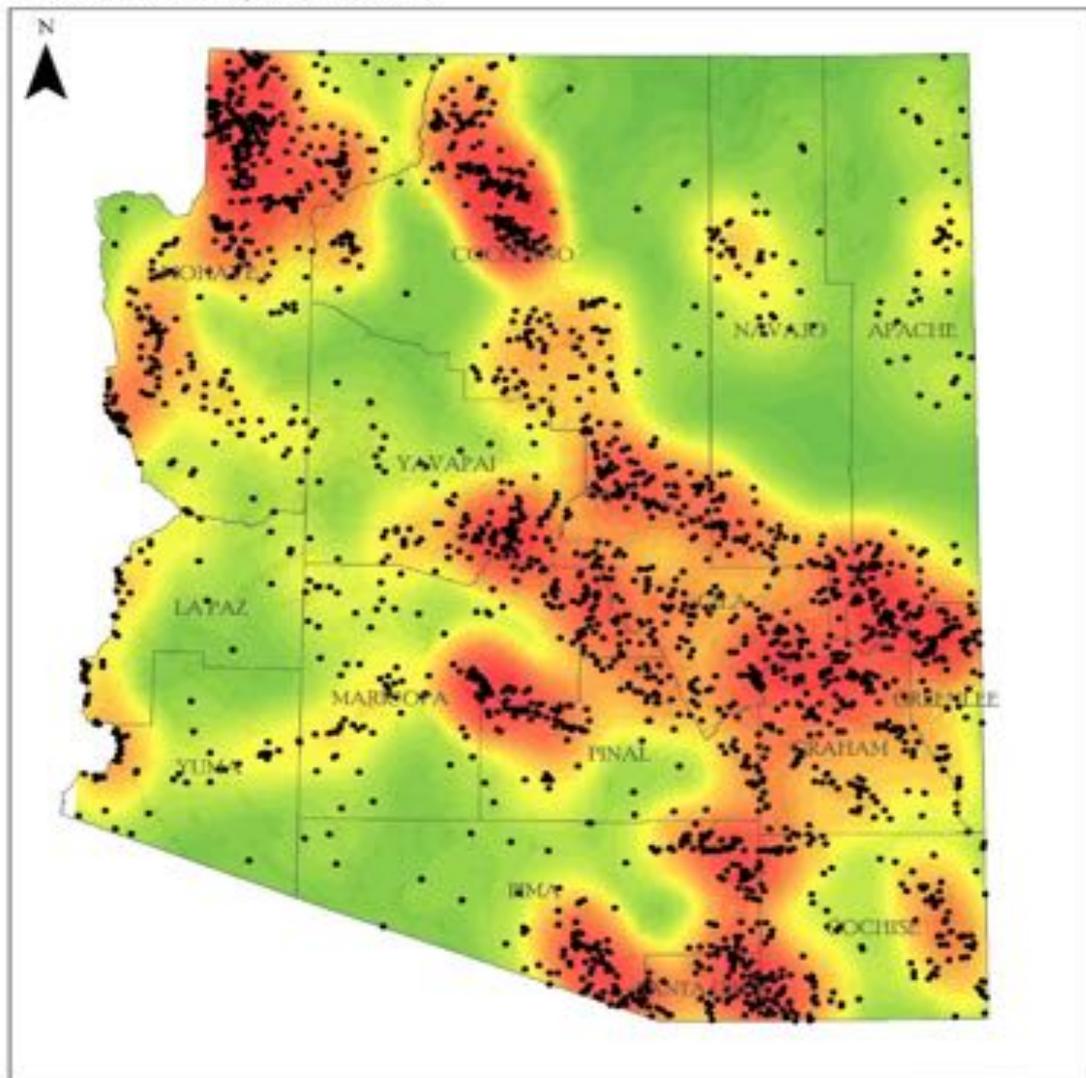


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Wildfires in Arizona

USGS Class D-G Reports, 1980-2013



• Locations of Documented Wildfires

Wildfire Occurrence Density



Notes: Wildfire incidence data sourced from the USGS "all agency" compilation. Only fires of class D or above (100 acres in size) are included in this analysis. Each step in the color gradient corresponds to 5% of all pixels in the state of Arizona; the darkest red corresponds to the 5% of pixels with the highest interpolated wildfire incidence.

Hotspots for wildfire activity:

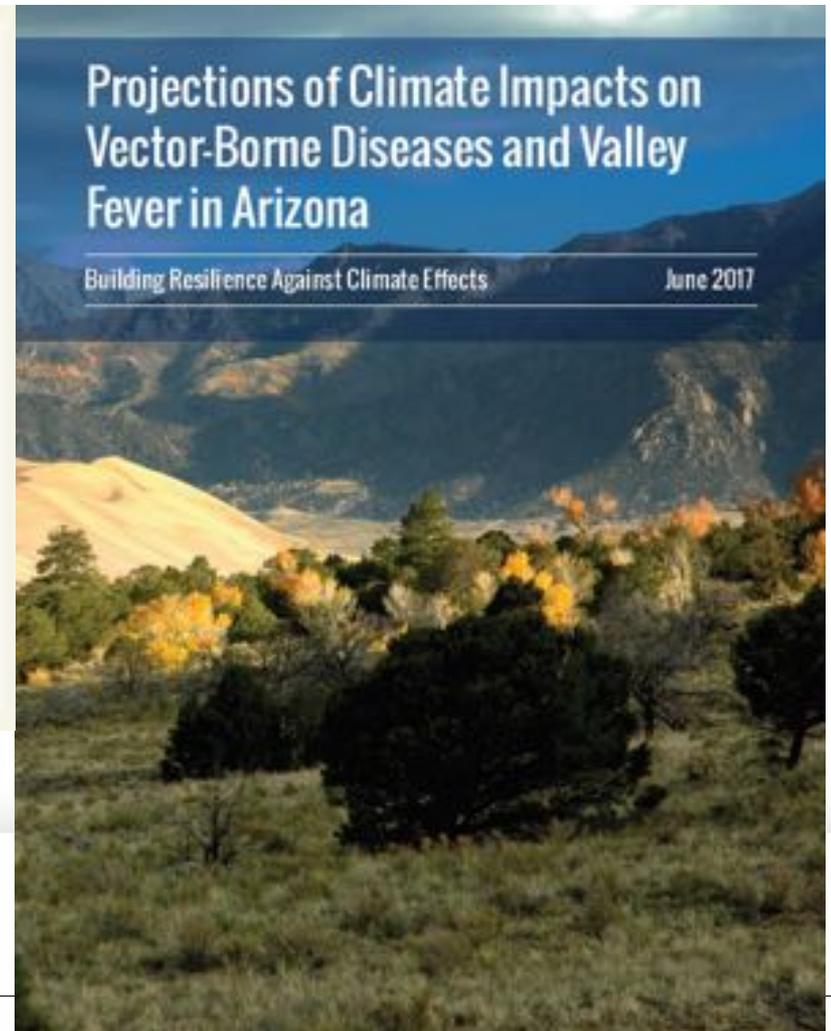
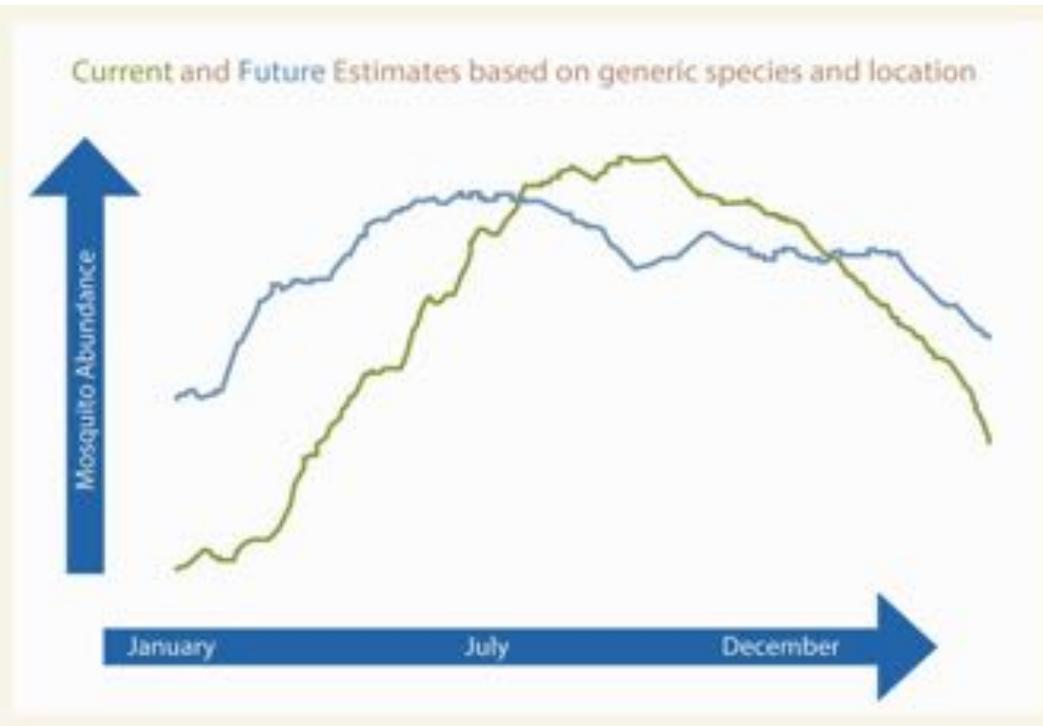
- Northern Mohave County
- Northern Coconino County
- Southern Pima County and Santa Cruz County
- A large section of central and eastern Arizona



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Vulnerable Populations and Projecting the Disease Burden



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Well Water Safety

Well Water Quality

ADHS Home / Public Health Preparedness / Epidemiology & Disease Control / Environmental Health / Environmental Toxicology / Well Water Quality - Home

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- Test Your Well
- Rules & Regulations
- Emergencies
- Maintain Your Well
- Private Well Data
- Resources
- Domestic Well Owner Workshops
- Contact Us

Signup for email updates

Well Water Quality - Home

Water Quality Data for Exempt Wells in Arizona



Test Your Well

Information on private well testing.



Rules & Regulations

Information to understand the rules that apply to your well or property.



Emergencies

What to do during/after a flood, wildfire, or other emergency.



Maintain Your Well

Tips to keep your private well healthy and germ free.



Private Well Data

Information about common groundwater contaminants in well owners basins.



Resources

Resources and materials for well owners.



Workshops

Attend a Domestic Well Owner Workshop in your area.

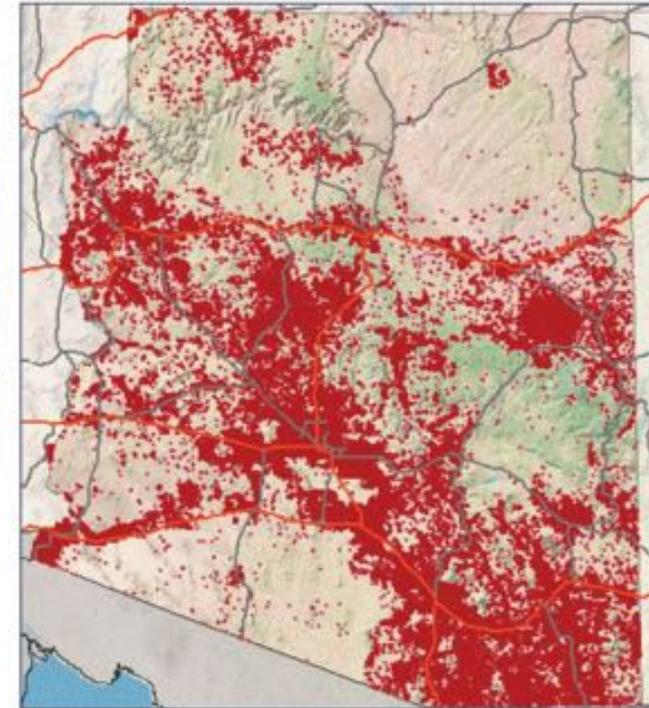


FIGURE 5.1 Domestic wells in the ADWR database.

ARIZONA

WELL OWNER'S GUIDE

TO WATER SUPPLY
 SECOND EDITION

6

Janick F. Artiola, Ph.D.
 Kristine Uhlman, RG
 Gary Hix, RG

ice, the water becomes more acidic, which dissolves parts of the carbonate-based scale and kills some of the bacteria. The agitation of the bubbling dry ice in the well casing may also loosen some of the particulate scale. The agitation caused by dry ice can become violent, throwing columns of water high into the air. A well should never be capped or sealed when dry ice is used as an agitator as it can produce very high pressures.

Municipal water systems are beginning to use pressurized carbon dioxide gas to sanitize their well systems. The downside of using carbon dioxide is that acidifying the water can corrode metal plumbing.

Because microbial growth and chemical precipitation happen simultaneously while the well is being used, it requires a carefully planned program of well rehabilitation from time to time to prevent bacterial slime growth and screen blockage. Any decline in the performance of the well may indicate the need for rehabilitation. If the cost for operating the well has been slowly increasing, it may be time to investigate it for biofouling, sediment buildup, or a sustained drop in the water table. It takes a trained professional with the proper equipment to remove and install pumps in wells and to safely handle the chemicals used to rehabilitate wells.

DROUGHT

Water tables often drop seasonally or during severe droughts, and some low-yield aquifers that don't recharge quickly may be responding to a drought that started decades ago. Take these steps to help protect your water supply during a drought:

- Monitor your pump for rapid cycling.

One sign of lowered water tables is the rapid turning on and off of the pump over short periods. This rapid cycling can burn out the motor, and the heat generated by a submersible pump can damage the drop-pipe if it is made of PVC. Allow the pump to rest, or, if possible, reduce the pumping rate.

- Listen to the pump. If pumping causes the sounds of "sucking air," turn the pump off and allow it to rest.
- If the pump is rapidly cycling, consider the installation of a pump/motor protection device, which monitors load and power conditions. Some systems monitor and diagnose motor load to prevent pump or motor failure due to conditions such as low-flow wells, pump damage, clogging, or power surges.
- Check for sand in the toilet tank. When the water table is drawn down below the screen, the well may begin to produce sand. This is the fine sediment that is eroded out of the aquifer and drawn into the well. If you notice sand in the toilet tank, the well is in danger of going dry and the pump will likely be damaged.
- Watch for milky water. Water that appears milky at first and then clears after standing can be caused by the pump drawing air and may indicate that the water table has dropped.
- Consider lowering the pump. Depending on the depth of the well, lowering the pump may be an option. Check with a licensed pump installer.
- Have the water tested. As the water table drops and pulls air into the aquifer, the chemistry of the water will change. Sometimes exposing the aquifer to



Food Safety

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- Arizona Sanitarials' Council >
- Arizona Food Safety Regulations >
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- School Garden Program >
- Safe Food Handling in Your Home
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- Food Equipment Cleaning and Sanitizing >
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Sierra Soups Issues Allergy Alert on Undeclared Gluten in "Pasta e Fagioli" Soup

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- Starting a Business? Here's what to do.
- How to Report a Foodborne Illness
- Small Business Bill of Rights

 <p>AZ Sanitarials' Council</p> <p>Detailed info and news for becoming a R.S. in the State of Arizona.</p>	 <p>Arizona Food Safety Regulations</p> <p>Detailed info and news for becoming a R.S. in the State of Arizona. AZ Sanitarian's Council Explore and reference</p>	 <p>Cottage Food Program</p> <p>Start an opportunity making & selling Cottage Food.</p>	 <p>School Garden</p> <p>Turn school grown produce into menu options in the cafeteria.</p>
 <p>Safe Food Handling at Home</p> <p>Fact sheets and other helpful tips for handling food at home.</p>	 <p>Food Processing & Handling Basics</p> <p>ID and address foodborne illness risk factors in a food facility.</p>	 <p>Food Equipment & Cleaning</p> <p>Discover correct & effective methods of proper cleaning.</p>	 <p>Additional Resources</p> <p>County Health Department contact info & other topics.</p>



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Arizona Drought Preparedness Plan

OPERATIONAL DROUGHT PLAN



Governor's Drought Task Force Governor Janet Napolitano

October 8, 2004

Nutrition and Hygiene

In Arizona, the major drought impact related to nutrition and hygiene are the impacts on food establishments and schools, due to insufficient quality or quantity of water supplies for food preparation and personal hygiene. The Arizona Department of Health Services has a guidance document that describes how to safely operate food establishments and schools during a

⁴ Relating to or constituting any infectious disease that can be transmitted from animals, both wild and domestic, to humans. The word is derived from Greek words zoon (animal) and nosos (disease).

ARIZONA DROUGHT PREPAREDNESS PLAN
Operational Drought Plan 10-08-2004

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GOVERNOR'S DROUGHT TASK FORCE

community water outage. The guidance documents are located on the Department's website at <http://www.hhs.state.az.us/phs/oeh/fses/index.htm>.



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Arizona Drought Preparedness Plan

OPERATIONAL DROUGHT PLAN



Health

Mental Health

Air Pollution

Zoonotic Diseases

Nutrition and Hygiene

Emergency Preparedness

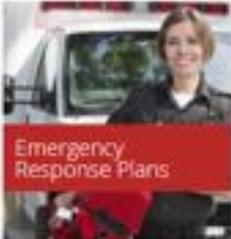
Public Health Emergency Preparedness

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Emergency Response Plans

Health Emergency Response Plans of the Arizona Department of Health Services.



Training & Exercise Resources

Learn more about available training resources.



Conferences & Events

Get information on current projects and conferences.



Healthcare Coalitions

Learn more about the Arizona Healthcare Coalitions.



Volunteer Health Professionals Registration (AZ-ESAR-VHP)

AZ Emergency System for the Advanced Registration of Volunteer Health Professionals.



just in case arizona

Just in Case Arizona

Learn more about Arizona Emergency and Disaster Preparedness.



Publications

Check out preparedness newsletters and other materials and sign up to receive more info.



Information Sharing

Learn about several avenues for sharing information with our partners in regards to emergency response.



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State of Arizona Hazard Mitigation Plan

2018



Arizona Department of Health Services Wildfire Incident Annex



Hazard Analysis Summary

The likelihood of a wildfire in the State of Arizona remains extremely high as drought conditions remain in effect and has been identified as one of the top five public health threats in the state.

Capability Assessment

In 2011 the Centers for Disease Control and Prevention (CDC) created the *Public Health Preparedness Capabilities: National Standards for State and Local Planning* to bridge the gap between public health and emergency preparedness by adapting names and definitions from the U.S. Department of Homeland Security Target Capability List. These capabilities are used to assist public health departments in developing annual and long-term preparedness plans to guide their preparedness strategies and investments. These standards will be refined over time as emerging evidence becomes available to advance our preparedness knowledge. In alignment with the Public Health Preparedness Capabilities, the Assistant Secretary for Preparedness and Response (ASPR) and the Department for Health and Human Services (HHS) developed a set of capabilities



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Arizona Department of Health Services

It Takes A Village...Multi-Organization Effort

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Drought in the Southwest

Prolonged dry conditions are a natural part of life in the Southwest. The region has experienced protracted "mega" droughts that lasted about 50 years. The Colorado Plateau made it difficult to minimize its impacts on human activity. The Colorado Plateau the affect of several consecutive years of below-average stream flows, and drought can appear rapidly after just one season provides fodder for livestock do not grow in abundance or with

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Drought

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Arizona is especially sensitive to the adverse effects of drought. Water is scarce here even during wetter years, and population growth continues to increase our demand for water.

At any given time, usually one or more areas of the state are in a moderate to severe drought. We may not be able to control the weather, but through proper planning and preparedness, we can greatly reduce the severity of impacts.

Drought also creates environmental conditions that increase the risk of other hazards such as wildfire, flash flood, and landslides and debris flow.

 **BE Prepared**
 **TAKE Action**
 **BE Informed**

BE Prepared

You can help reduce Arizona's drought vulnerability by practicing a low water-use lifestyle.

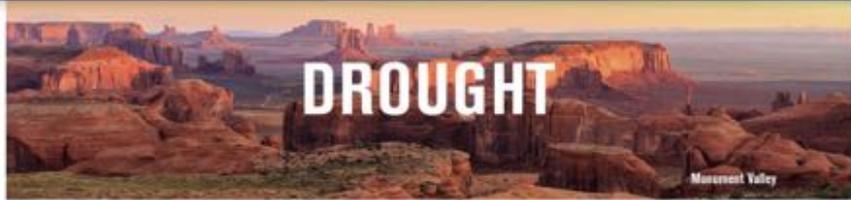
- Replace high water using plumbing and fixtures with low-flow fixtures.
- Conduct home water audits and leak detection. Fix leaking faucets and replace faulty fixtures.

Arizona Department of Water Resources
Protecting & Enhancing Arizona's Water Supplies For Current And Future Generations.

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DROUGHT

[DROUGHT INTERAGENCY COORDINATING GROUP](#)

The Interagency Coordinating Group (ICG) is an advisory body to the governor on Arizona drought issues. Comprised of state, federal and non-governmental organizations, this group meets twice a year to evaluate drought conditions and consider recommendations to the governor. Arizona has had a Drought Emergency Declaration (in effect since June 1999) and a Drought Declaration (*Executive Order 2007-10*) has been in effect since May 2007. In the last ICG meeting on May 29, 2018, the Group advised the Governor that both declarations be kept in place. The Fall meeting of the state Drought Interagency Coordinating Group will be held on November 28, 2018 at ADWR.

[MEETINGS SUMMARIES](#)

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[2012](#)
[2011](#)
[2010](#)
[2009](#)
[2008](#)
[2007](#)

[ICG Members](#)

Interagency Coordinating Group Fact Sheet	2018	Ongoing
and Consequences	2017	Ongoing
Modeled Soil Moisture Time Series	2017	Ongoing

Drought



Health Implications of Drought

Water

Food and Nutrition

Air Quality

Sanitation and Hygiene

Recreational Risks

Infectious Disease

Chronic Disease

Diseases Transmitted by Insects
and Animals



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Health and Wellness for all Arizonans

CDC Resources on Drought

<https://www.cdc.gov/nceh/drought/default.htm>



Drought and Health



Drought affects communities differently depending on

- Who lives in the community, because some people are more affected by drought than others based on things like health conditions and age
- What kind of water system the community has
- What rules the community has about water use
- Other economic and social factors

Severe drought can also affect air quality by making wildfires and dust storms more likely. [Smoke from wildfires](#) and [particle pollution](#) from dust storms can make anyone sick, but some people are at higher risk.

Drought is what happens when rainfall is lower than normal for a long time. Droughts can last a single season, a whole year, or for many years and can affect a few hundred or millions of square miles.

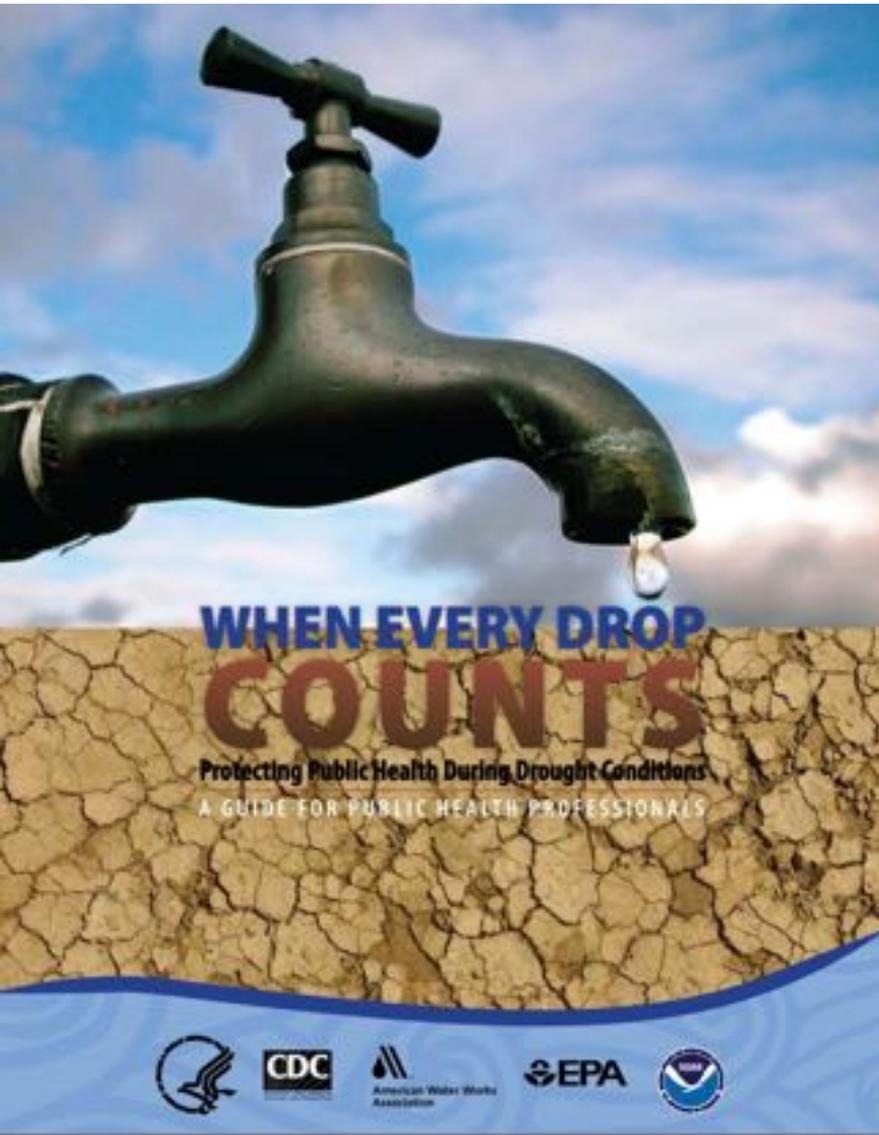


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ARIZONA DEPARTMENT
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Health and Wellness for all Arizonans

CDC Drought Communication Toolkit

<https://www.cdc.gov/nceh/drought/toolkit/default>

Drought and Health

Drought

Facebook Twitter LinkedIn YouTube RSS

Home Drought

Health Implications of Drought

Drought Communication Toolkit

- Be Prepared
- Be Aware
- Be Safe
- Homeowners
- Industry
- Recreational Facilities
- Vulnerable Populations
- Watch for Signs
- E-Learning Materials

Drought Communication Toolkit

Excerpt from the toolkit

Experts from the Centers for Disease Control and Prevention, and the National Public Health Information Coalition (NPHIC) developed this drought communication toolkit to provide materials about the public health effects of drought.



Be Prepared

- Monitor dry weather conditions
- Learn about water resources
- Learn about potential behavioral health needs
- Plan ahead

Be Aware

- Monitor drought conditions
- Monitor air quality
- Monitor water usage
- Monitor local water levels
- Monitor food supply and nutrition

Be Safe

- Follow sanitary guidelines
- Prevent fire hazards
- Protect water supply



Homeowners



Recreational Facilities



Industry



Vulnerable Populations



EVACUATION OF YOUR PETS

As soon as you hear you may have to evacuate, move larger animals to safety, confine pets in the house, and have leashes, carriers, trailers, and medicines ready. Evacuate your pets with you, if you are headed for a hotel, call ahead and ask if they will waive "no-pet" policies.

If you are unable to keep your pets with you and need to find temporary housing for your pets, contact your county health department or local humane society.

CROWDED SETTINGS AND YOUR HEALTH

Minimize the spread of disease

- Wash hands and use hand sanitizer frequently
- Cover coughs and sneezes
- Wear hard soled shoes to avoid wounds and infections
- **DO NOT** share things such as food, drinks, utensils, and pillows even with family members

Maintain good general health

- Drink and cook with bottled water unless officials have determined that the tap water is safe for use
- Stay active and talk to each other about your experiences
- Follow advisories from health officials

Visibility in Miles	PM _{2.5} or PM ₁₀ (µg/m ³), 1 to 24 hr avg	Health Category (AQI)	Cautionary Statements
10+	0-30	Good (0-50)	None
5-10	31-80	Moderate (51-100)	Unusually sensitive people should consider reducing prolonged or heavy exertion.
3-5	81-130	Unhealthy for Sensitive Groups (101-150)	People with heart or lung disease, older adults, and children should reduce prolonged or heavy exertion.
1.5-3	131-250	Unhealthy (151-200)	People with heart or lung disease, older adults, and children should avoid prolonged or heavy exertion. Everyone else should reduce prolonged or heavy exertion.

WHAT TO DO DURING A WILDFIRE

This brochure was produced by Arizona Department of Health Services, Office of Environmental Health

INTERVENTIONS

Dust Storm

- Forecasting and warning systems
- Public Service Announcements
- Pull Aside Stay Alive
 - Turn off car lights



DON'T DRIVE INTO A DUST STORM

PullAsideStayAlive.org

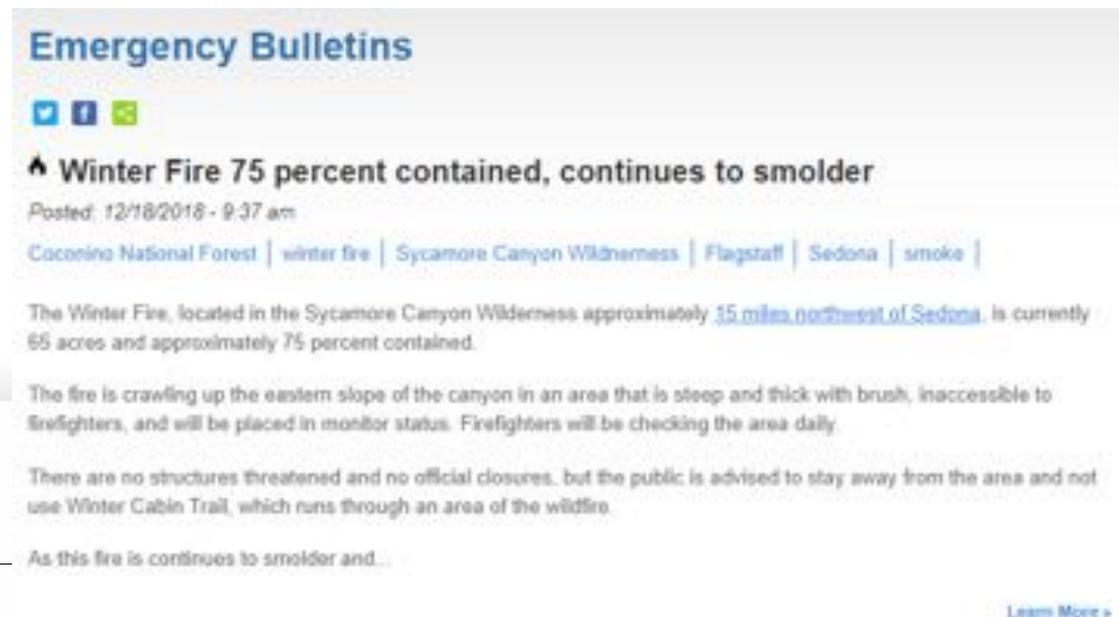
ADOT

Wildfire Preparedness

- Evacuation Procedures
- Air Filtration
- Forecasting and warning systems
- Public Service Announcements

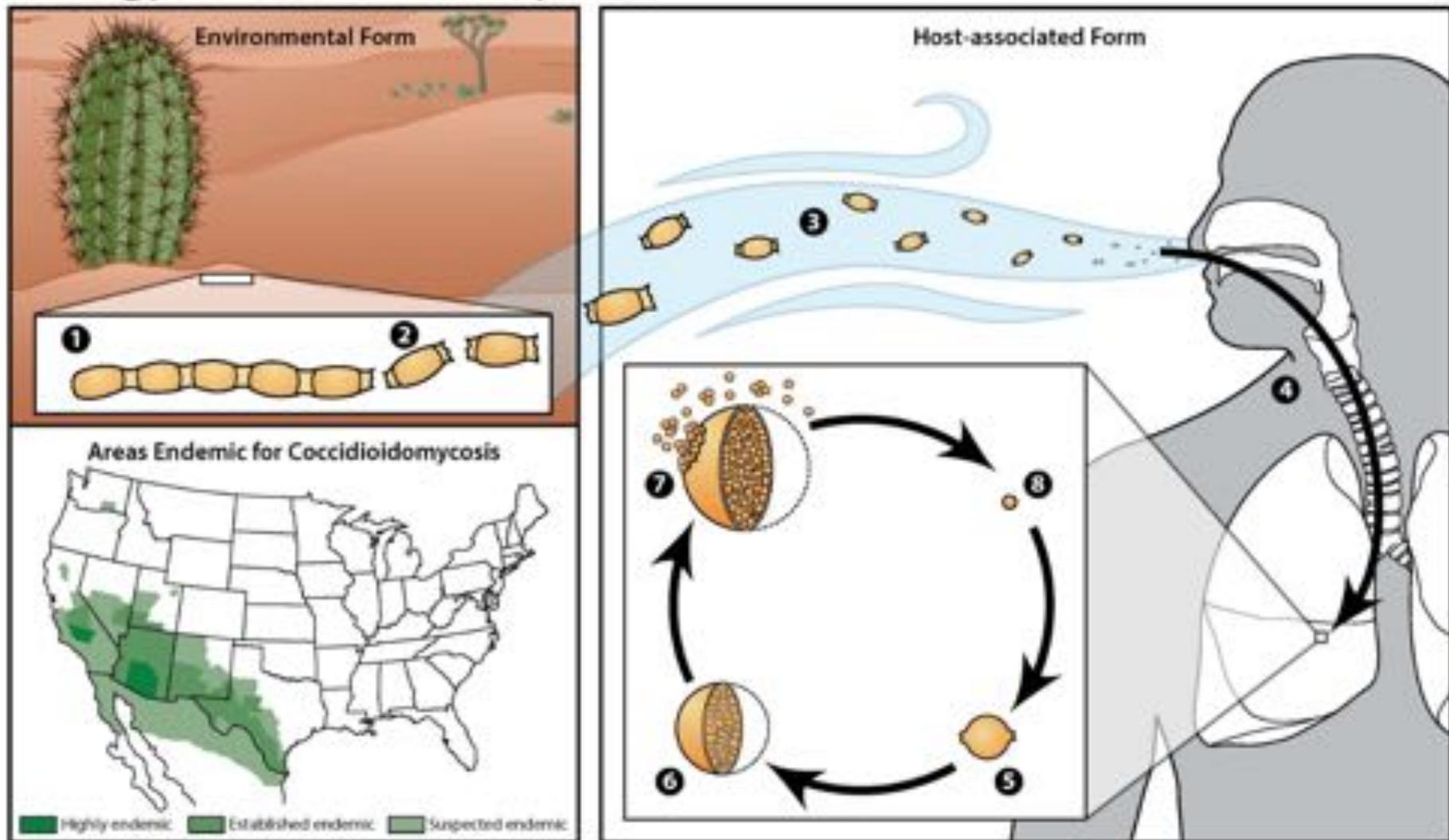


The screenshot shows the ADEQ website's Phoenix Forecast page. At the top, the ADEQ logo is visible, along with a search bar and navigation links for HOME, ABOUT, PERMIT AND COMPLIANCE ASSISTANCE, PROGRAMS, FOR BUSINESSES, MY COMMUNITY, RECORDS CENTER, and DMAPS. Below the navigation is a large banner image of a cityscape with the text "PHOENIX FORECAST" overlaid. Underneath the banner, there is a section titled "Air Quality Hourly Forecast | Phoenix" with a sub-header "Updated On: 11/13/2019 - 8:00 AM". A navigation bar below this section allows users to click on each day to view the forecast: Wednesday, Thursday, Friday, Saturday, and Sunday. To the right of the main content, there is a sidebar with a "AQI FORECAST" section, which includes links for "Phoenix", "Yuma", "Flagstaff", and "Tucson", and a link to "Understanding the Hourly Forecast".



The screenshot shows an "Emergency Bulletin" from the Arizona Department of Environmental Quality. The title is "Winter Fire 75 percent contained, continues to smolder". Below the title, there are social media sharing icons for Twitter, Facebook, and Email. The post is dated "Posted: 12/18/2018 - 9:37 am" and includes tags for "Coconino National Forest", "winter fire", "Sycamore Canyon Wilderness", "Flagstaff", "Sedona", and "smoke". The main text of the bulletin states: "The Winter Fire, located in the Sycamore Canyon Wilderness approximately [15 miles northwest of Sedona](#), is currently 65 acres and approximately 75 percent contained." It further explains that the fire is crawling up the eastern slope of the canyon in an area that is steep and thick with brush, inaccessible to firefighters, and will be placed in monitor status. Firefighters will be checking the area daily. It also notes that there are no structures threatened and no official closures, but the public is advised to stay away from the area and not use Winter Cabin Trail, which runs through an area of the wildfire. The bulletin concludes with "As this fire is continues to smolder and..." and a "Learn More" link.

Biology of Coccidioidomycosis (Valley Fever)



In the environment, *Coccidioides* spp. exists as a mold (1) with septate hyphae. The hyphae fragment into arthroconidia (2), which measure only 2-4 μm in diameter and are easily aerosolized when disturbed (3). Arthroconidia are inhaled by a susceptible host (4) and settle into the lungs. The new environment signals a morphologic change, and the arthroconidia become spherules (5). Spherules divide internally until they are filled with endospores (6). When a spherule ruptures (7) the endospores are released and disseminate within surrounding tissue. Endospores are then able to develop into new spherules (6) and repeat the cycle.

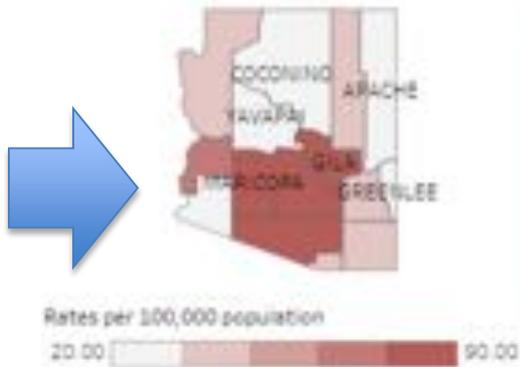


ADHS Valley Fever Surveillance

Which counties have the largest burden of valley fever?

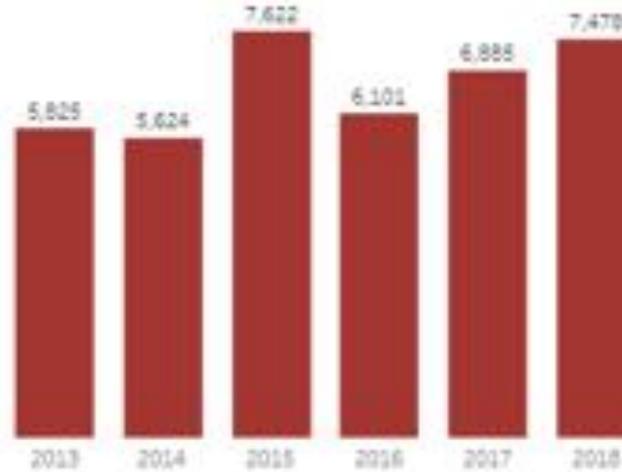
Select a county below to filter the graphs

2018



Which years have the highest number of valley fever cases in Arizona?

All



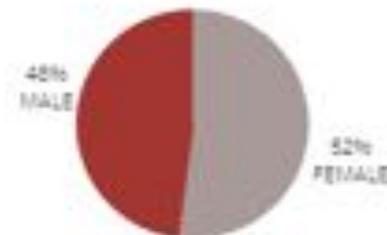
Which age groups are most affected by valley fever in Arizona?

All | 2018



Which sex is most affected by valley fever in Arizona?

All | 2018

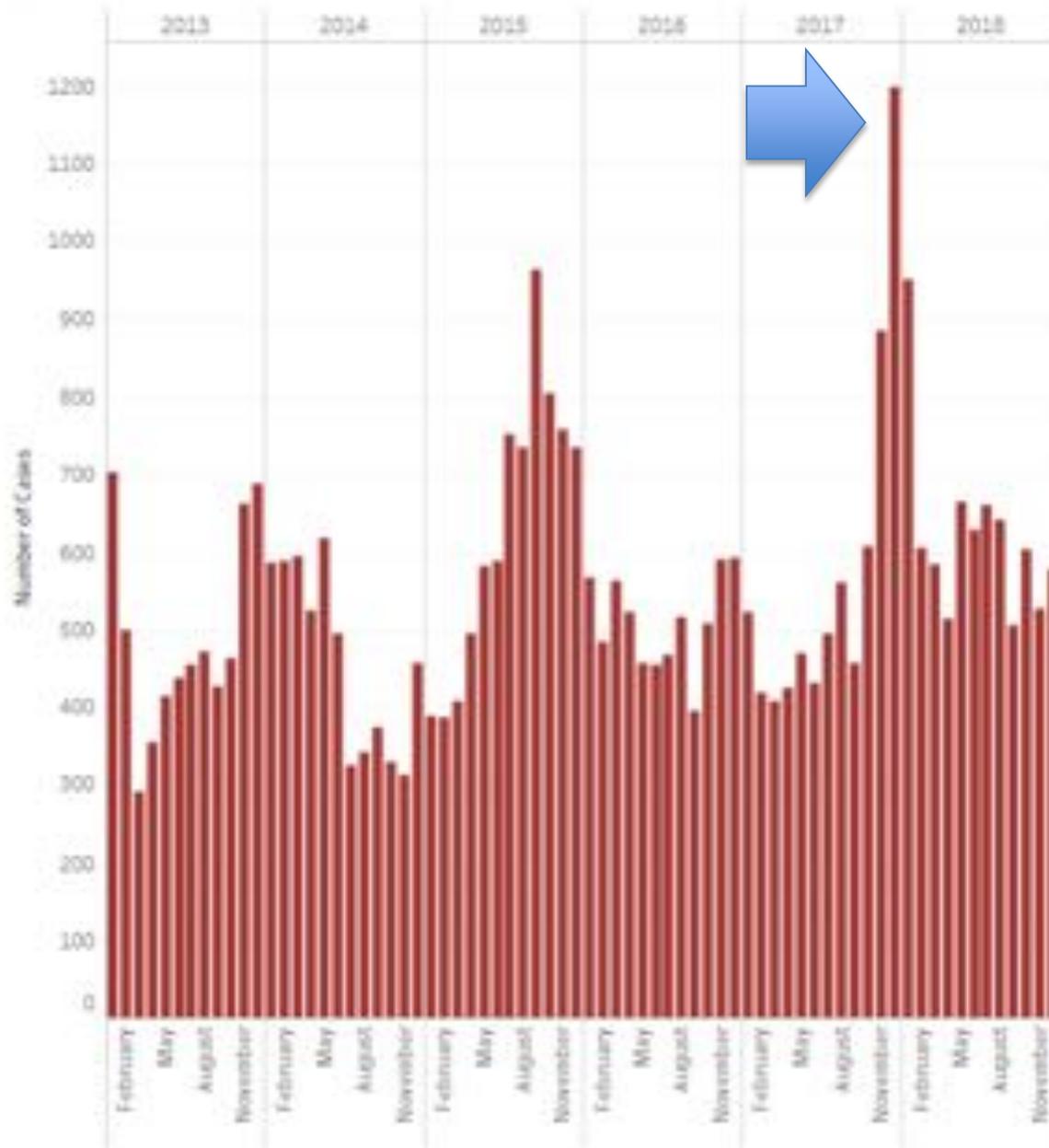


Which months saw the highest proportion of valley fever cases?

Hover over the icon to get more information on the valley fever data in this dashboard.

All

Select a county below to see the differences by county.



- All
- APACHE
- COCHISE
- COCONINO
- GILA
- GRAHAM
- GREENLEE
- LA PAZ
- MARICOPA
- MOHAVE
- NAVAJO
- PIMA
- PINAL
- SANTA CRUZ
- YAVAPAI
- YUMA



A look at hospital inpatient and Emergency Department visits in Arizona.

Hover over the icon to get more information on the valley fever data in this dashboard.

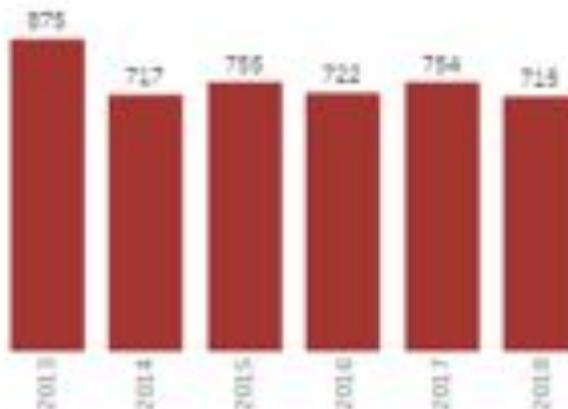
Which counties have the highest number of hospital visits for valley fever?

2018 | Inpatient



Which year had the highest number of hospital visits for valley fever?

Inpatient



Select a year below to see how cocci numbers have changed over time.

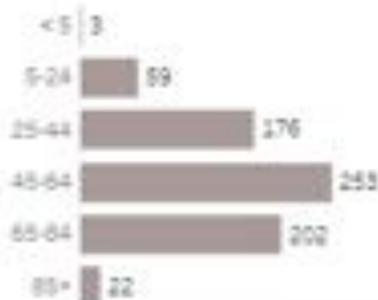
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018

Select between inpatient hospital visits and ED hospital visits.

- Inpatient
- ED
- Both Inpatient and ED

Which age group had the highest number of hospital visits for valley fever?

2018 | Inpatient



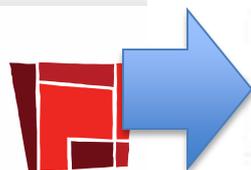
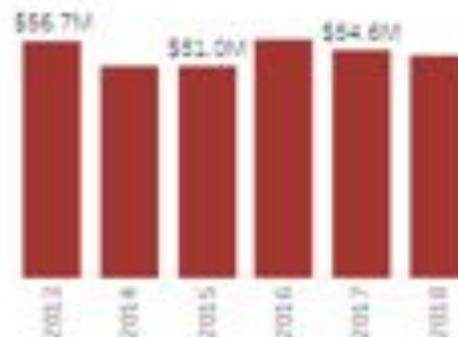
Which sex had the highest number of hospital visits for valley fever?

2018 | Inpatient



What were the charges for hospital visits for valley fever?

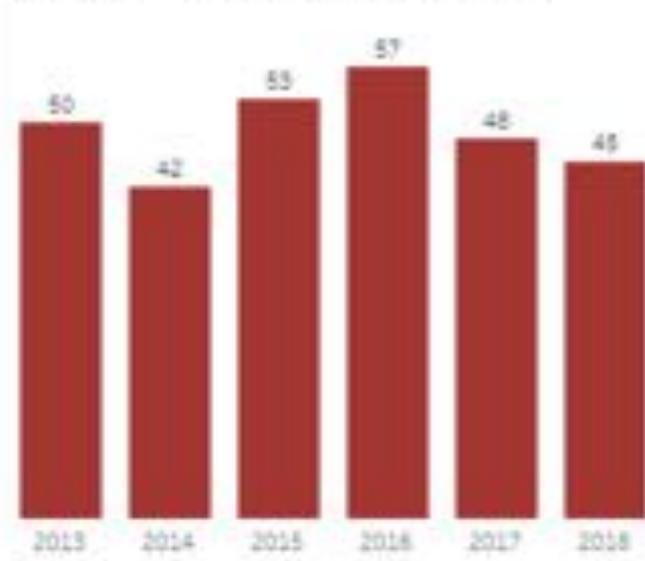
Inpatient



A look at valley fever-associated deaths in Arizona.

Hover over the icon to get more information on the valley fever data in this dashboard. 

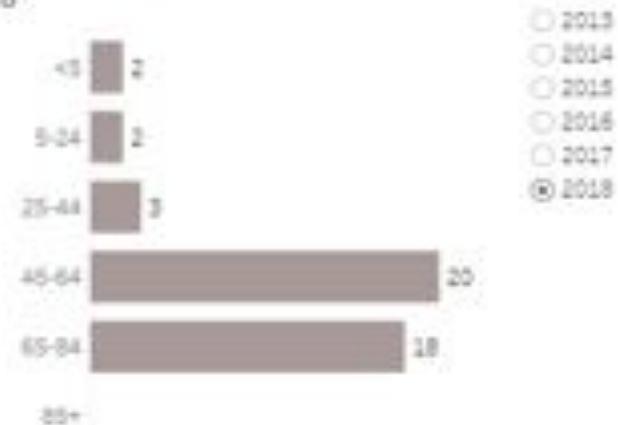
Which years had the highest number of deaths associated with valley fever in Arizona?



Which age groups had the highest number of deaths associated with valley fever in Arizona?

Select a year below to see how cocci numbers have changed over

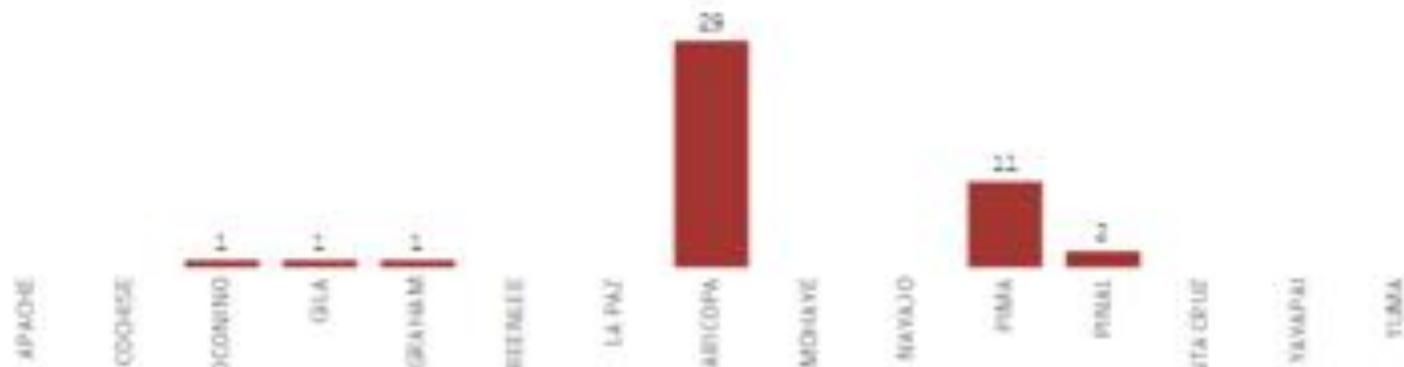
2018



- 2013
- 2014
- 2015
- 2016
- 2017
- 2018

Which counties had the highest number of deaths associated with valley fever in Arizona?

2018



Best Practices

- Multi-organizational approach
- Collaborate with local Environmental Public Health Tracking Programs to showcase data on health department interactive dashboards
- Collaborate with local BRACE Programs to get drought hazard information into climate adaptation plans
- Discuss drought interaction with environmental hazards such as wildfires



Gaps

- What are the health costs of drought impacts?
- Is there drought and health data missing from tribal lands?



Conclusions

- Consider applying the BRACE framework to prioritize environmental hazards
- Consider the following health effects related to drought:
 - mental health, physical injury, and respiratory exacerbation
- Consider the following environmental effects related to drought:
 - dust storms and wildfires



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- **Disclosure:** Contents of this presentation are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention of the U.S. Department of Health and Human Services.



Thank You for Attending!



THANK YOU

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