

SUNDAY • JULY 8, 2018



The San Diego Union-Tribune

# ARE YOU READY?

What you need to do to prepare  
for and survive floods, fires,  
earthquakes, tsunamis and more





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## WHEN FIRE STRIKES

Find out how to prepare yourself when a fire approaches, from creating defensible space at your homes, to knowing where the most vulnerable areas exist in San Diego County. **PAGES 8-15**



## EARTHQUAKES & TSUNAMIS

Find out what to do before, during and after an earthquake strikes. We examine earthquake fault lines and tsunami inundation zones. **PAGES 18-21**



## STORMS & FLOODS

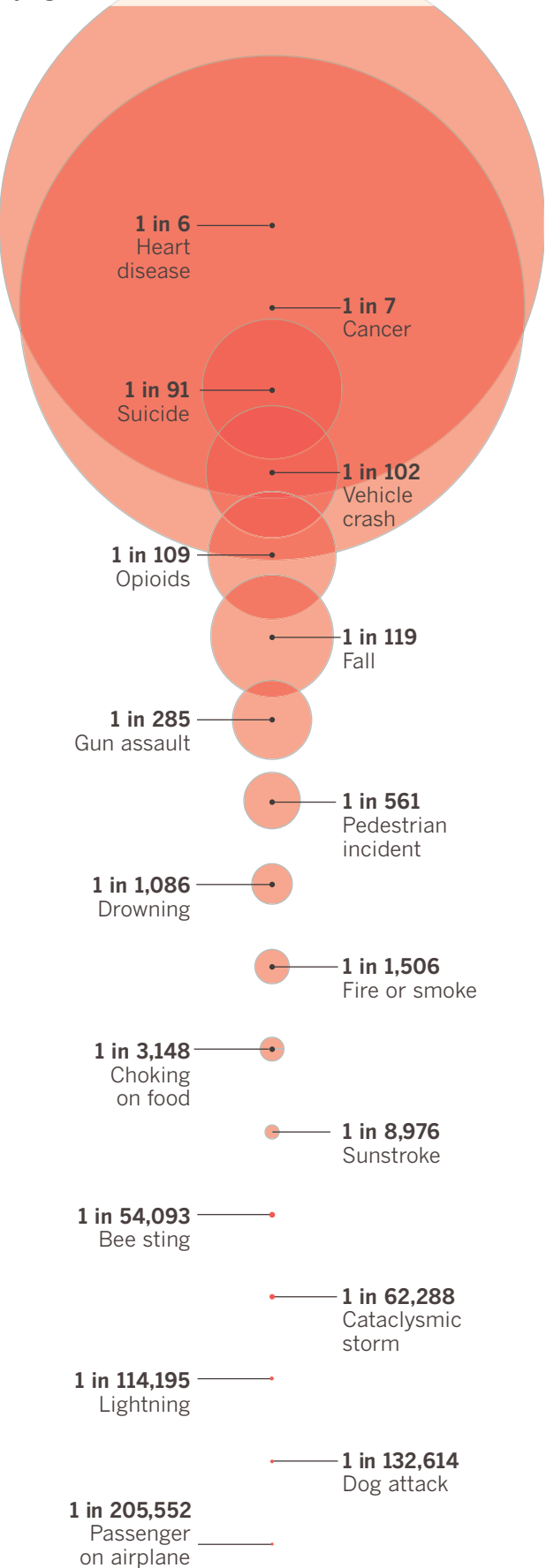
San Diego County doesn't flood often, but when heavy rains and storms strike, find out what to do to keep you and your family safe. **PAGES 22-23**

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**Editor:** Mark Platte **Reporters:** Gary Robbins, Cliff Kapono **Art Director:** Gregory Schmidt **Design Editor:** Michael Price  
**Graphics Editor:** Cristina Byvik **Graphics:** Michelle Gilchrist, Shaffer Grubb, Daniel Wheaton **Photo Editor:** Alma Ceseña

## How am I likely to die?

The circles indicate the lifetime odds of a person dying from selected causes.



Source: National Safety Council

DANIEL WHEATON U-T



# THESE SMARTPHONE APPS WILL HELP YOU GET THROUGH A NATURAL DISASTER

BY CLIFF KAPONO

**M**ost of us carry a smartphone everywhere we go. They can be enormously helpful during a natural disaster. Here's a sample of apps you might want to use to help you cope with everything from wildfires to earthquakes.

## GENERAL DISASTER INFO

### SD Emergency



This app blends concise, useful planning and preparation tips with near real-time disaster information, including maps, news and the location of

emergency shelters.

The app also provides information about how to recover from a disaster, particularly if you're in need of government assistance.

Source: [readysandiego.org](http://readysandiego.org)

## EARTHQUAKES

### QuakeFeed



QuakeFeed monitors earthquake activity throughout the world and presents data in an easy-to-read format. And it can be customized.

For example, you can program the app to list all quakes that occur within a certain radius.

And you can specify the magnitude of the quakes you want to monitor. You'll find it easy to tell the app to alert you to all quakes measuring 3.0 or higher within 200 miles of San Diego.

Source: [itunes.apple.com](http://itunes.apple.com)

### Earthquake Alert!



This app is easy to use, especially when it comes to sending useful alerts and notifications. But what separates Earthquake Alert! from many other apps is the

supplemental information that comes following an event, such as fatality figures and economic impact.

Source: [play.google.com](http://play.google.com)

### Earthquake

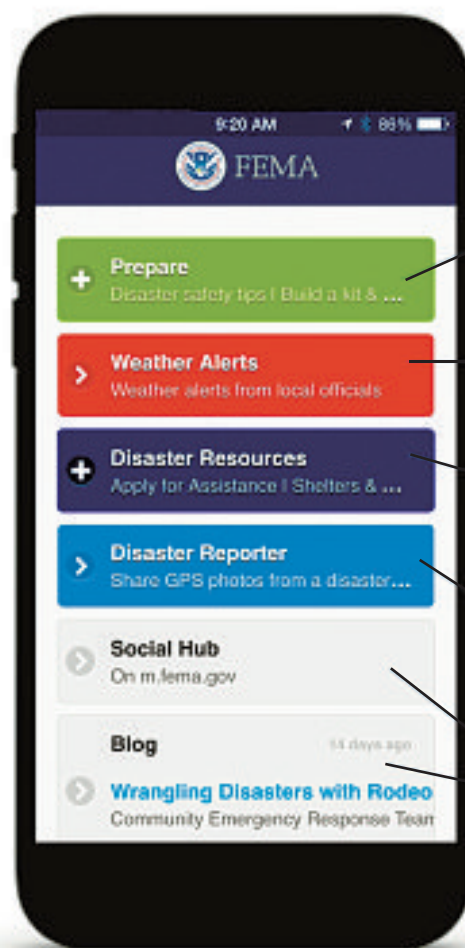


San Diego County has not been hit by a powerful tsunami in recent history. But the region is vulnerable to such events, both from faults just off the coast

and those in other parts of the world.

The Earthquake app does a good job of notifying people when a particular quake has generated a tsunami, and where the waves it generates might come ashore.

Source: [itunes.apple.com](http://itunes.apple.com)



Get tips to survive natural disasters, customize your emergency checklist, and save meeting locations.

Receive alerts from the National Weather Service.

Locate open shelters and Disaster Recovery Centers and apply for assistance.

Upload and share your disaster photos.

Stay connected on social media and the FEMA blog.

Source: FEMA

## GENERAL DISASTER INFO



### FEMA (diagram above)

The Federal Emergency Management Agency app distributes disaster alerts for specific cities, counties and towns and allows you to monitor up to five locations at a time. The app, offered in English and Spanish, also offers tips on preparing for and coping with severe weather events.

Source: [fema.gov/mobile-app](http://fema.gov/mobile-app)

## WILDFIRES

### Cal Fire Ready for Wildfire



This is a "must have" app if you live in wildfire country. The app offers great information on how to prepare your family and property for wildfires, including how to create defensible space around your home. The app also will alert you if there's a fire near your residence or workplace. Cal Fire also provides highly detailed information about all wildfires in California.

Source: [readyforwildfire.org](http://readyforwildfire.org)

### US Fires



The US Fires app provides color-coordinated maps of active fires that are being fought.

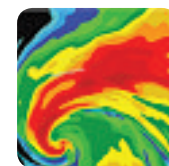
You also can customize the data it

provides. For example, the app lists the number of firefighters that have been dispatched — information that can clarify how bad a wildfire is.

Source: [itunes.apple.com](http://itunes.apple.com)

## SEVERE WEATHER

### NOAA Weather Radar



If you need to know where thunder and lightning are expected to occur, this is the app to use first.

Its data comes directly from NOAA,

which has the most extensive satellite and sensor data in the U.S. Users can easily adjust the screen to see where storm cells are moving over land and water. The data is sometimes specific to streets and neighborhoods.

Source: [itunes.apple.com](http://itunes.apple.com)

### WindAlert



When wildfires erupt, knowing how fast the winds are blowing in specific areas can be a real lifesaver. It helps you decide whether you

need to evacuate, and what routes you should follow to reach a safe place.

WindAlert gives users wind speed and direction data from dozens of sites within a specified region. The app also shows wind graphs and gives forecasts.

Source: [m.windalert.com](http://m.windalert.com)

SPONSORED BY THE **American Red Cross** OF SAN DIEGO/IMPERIAL COUNTIES

# ARE YOU PREPARED FOR THE NEXT DISASTER?

Nearly 60 percent of Americans are unprepared for a disaster of any kind, and 54 percent don't prepare because they believe disasters will not affect them.



Last year's natural disasters, including Hurricanes Harvey, Maria and Irma and the Thomas Fire — the largest California wildfire in history — demonstrated that emergencies can strike anywhere at any time. Are you prepared? Here are three steps you can take to be "Red Cross Ready" for the next disaster.



## 1. GET A KIT

Being prepared means being equipped with proper supplies in the event of an emergency. Keep your items in an easy-to-carry emergency kit that you can "grab 'n go" in case of evacuation. Supplies in your kit should include water (a gallon per person, per day) and easily prepared, nonperishable food. The Red Cross recommends a three-day food and

## Download the free Red Cross Emergency App

water supply for evacuation and a two-week supply should you need to shelter in place in your home. Your emergency kits should also include: tools like tarps, work gloves and breathing masks; copies of personal documents such as proof of address, deed/lease to home, passports, birth certificates, insurance policies and medical documents; a flashlight, batteries and crank radio; cell phones and chargers. You'll also want to include personal items like medications, clothing and special items for children and pets. A full checklist of what to include is available at [preparesandiego.org](http://preparesandiego.org).



## 2. MAKE A PLAN

After a disaster, basic services may be unavailable and assistance may be delayed. Having a plan in place before disaster strikes is vital.

- **Talk:** Sit down with household members and discuss what types of emergencies are most likely to happen where you live, work and play. Identify everyone's role and plan to work together as a team during an emergency. For example: What will you do if disaster strikes while you are at work and your kids are in school?
- **Plan:** Identify two exit routes from



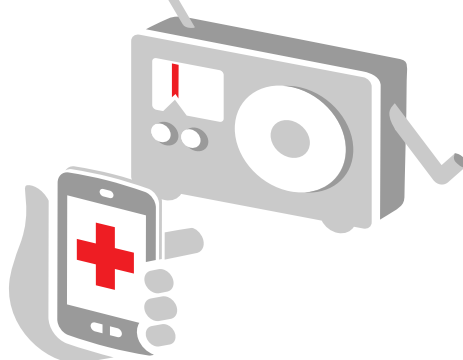


Being prepared brings with it a sense of confidence that becomes an important trait during and after a disaster strikes.

every room in your home and choose two different places to meet up after a disaster: one near your home, and one outside of your neighborhood. Always keep your vehicle's fuel tank at least half full. Select an out-of-area contact to help reconnect your family after an emergency. It may be easier to text or call long-distance if local phone lines are overloaded or out of service. Remember, some members of your family may need special accommodation during an emergency, including senior citizens, people with disabilities, children and pets. This makes planning ahead even more crucial.

• **Practice:**

Practice earthquake and fire drills at least twice a year. Familiarize yourself with the evacuation routes out of your neighborhood and drive these routes regularly. During an emergency, your muscle memory will kick into action!



### 3. BE INFORMED

It's important to recognize your risks and prepare your home and family accordingly. In California, those risks include earthquakes, wildfires, floods and home fires. Determine how you'll be notified of an emergency. Download the free Red Cross Emergency App and get First Aid/CPR/AED certified to be better equipped before disaster strikes.



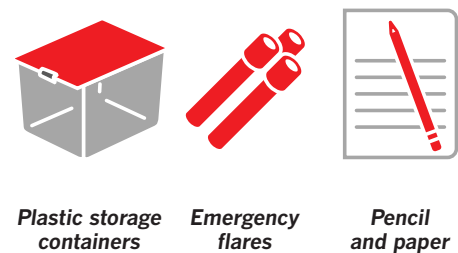
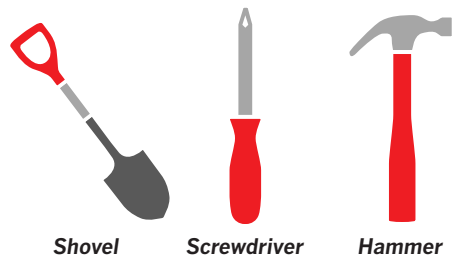
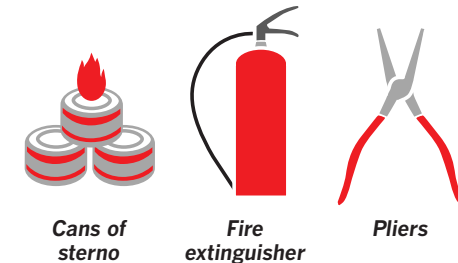
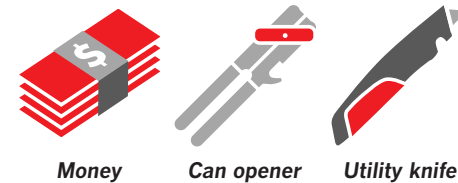
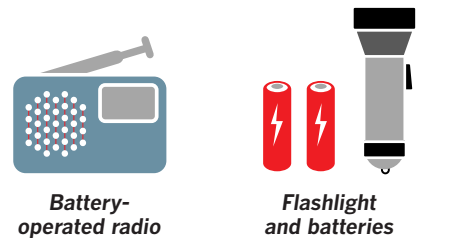
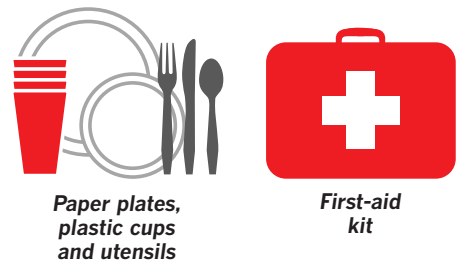
In today's world, disaster preparedness is everyone's responsibility. For more information, resources and tools, **visit [preparesandiego.org](http://preparesandiego.org).**



**American  
Red Cross**



Tools and supplies



Food



# Here's what you should buy for your home before disaster strikes

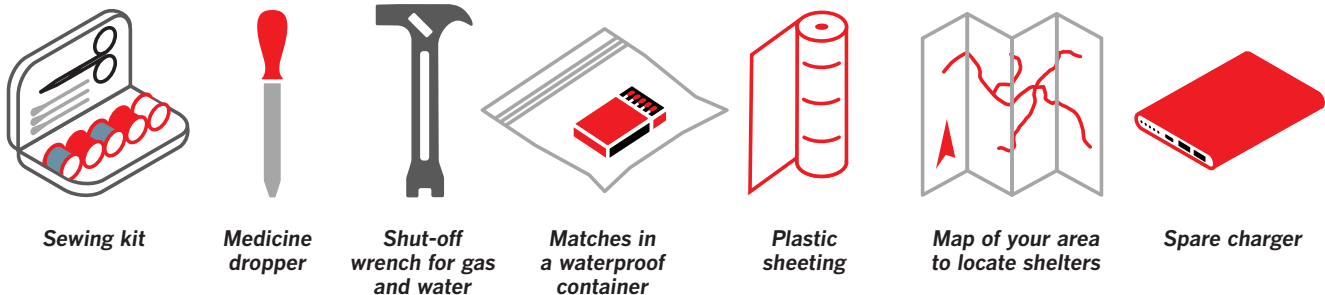
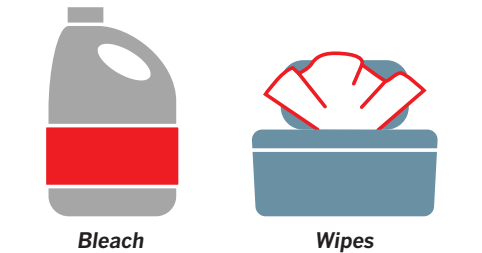
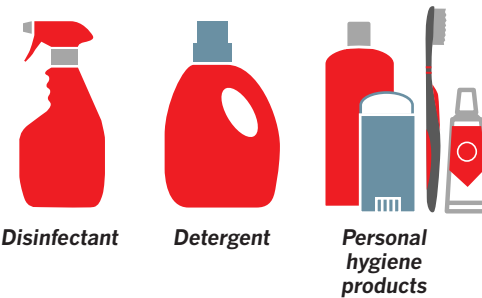
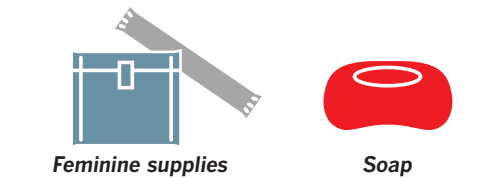
**S**eventy-two hours. That's how long officials said it may take before help begins to arrive if a widespread disaster were to strike San Diego County.

For storage, use a portable container such as a large, covered trash receptacle or a duffel bag. If you store your liquids at the bottom of your container, you'll reduce the chance of damage from leaking plastic bottles.

Consult your physician or pharmacist about the storage of prescription medications and keep a smaller version of your kit in your car. Remember to reconsider your emergency needs yearly and to change your food and water supplies every six months.

The following list incorporates many recommendations for a three-day stock of essential home supplies from "Preparing for Disaster," by the American Red Cross, the Department of Homeland Security and the Federal Emergency Management Agency. Additional items were suggested by the San Diego County Office of Emergency Services.

Sanitation





## For your car

The local chapter of the American Red Cross sells various disaster-perparedness products, including 72-hour emergency kits, first-aid kits, training kits for CPR and other procedures, "sandless sandbags" for flood prevention and specialized lighting for power blackouts.

For more information, go to [redcrossstore.org](http://redcrossstore.org).



## Check supplies every 6 months

Now that you've prepared yourself and your family for an emergency, the work isn't over. Make sure you rehearse your family plan regularly and maintain a rotation schedule for food and water from your disaster kit.

The Red Cross gives these guidelines for storing water and some common foods:

### Use within six months

- Powdered milk that's boxed
- Dried fruit (in metal container)
- Dry, crisp crackers (in metal container)
- Potatoes
- Water

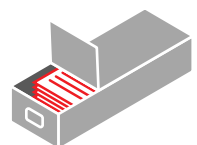
*Store your water in thoroughly washed plastic, glass, fiberglass or enamel-lined metal containers. Never use a container that has held toxic substances. Seal water containers tightly, label them and store in a cool, dark place. Rotate water every six months.*

### Use within one year

- Canned condensed meat and vegetable soups
- Canned fruits, fruit juices and vegetables
- Ready-to-eat cereals and uncooked instant cereals (in metal containers)
- Peanut butter, jelly
- Hard candy and canned nuts
- Vitamin C

### May be stored indefinitely (in proper containers and conditions)

- Vegetable oils
- Dried corn
- Baking powder
- Various dried beans
- Instant drinks
- Salt
- Noncarbonated drinks
- White rice
- Bouillon products
- Dry pasta
- Powdered milk in nitrogen-packed cans



## More essentials to have on hand

### Nonprescription drugs

- Pain reliever (such as ibuprofen, acetaminophen, naproxen sodium)
- Anti-diarrhea medication
- Antacid
- Laxative

### Pet supplies

- Food and water for three days
- Leash

### Special items

#### For babies

- Formula
- Diapers
- Bottles
- Powdered milk
- Medications

#### For adults

- Heart and blood-pressure medications
- Insulin
- Prescription drugs
- Denture needs
- Contact lenses and supplies
- Extra pair of eyeglasses

### Entertainment

- Games, books, deck of cards

### Clothing and bedding

- A change of clothing and footwear for each person
- Sturdy shoes and workboots
- Rain gear
- Blankets or sleeping bags
- Hat and heavy gloves
- Thermal underwear
- Sunglasses



## Valuable documents

- The Insurance Information Network of California recommends creating a "grab and go" box to store essential records, such as mortgage documents, birth certificates, passports, Social Security cards and insurance policy papers.
- Use a waterproof container large enough for file folders.
- As back-up measures, put copies of all important documents in a safety deposit box outside of your home. Also copy those documents onto a disk or flash drive.
- Emergency-response experts suggest photographing your home inventory and packing important phone numbers.
- Foreign nationals may want to pack documents that prove their identity.



## Water sources, storage and treatment

A major earthquake could make water unsafe for drinking, bathing or washing clothes. And floods can contaminate drinking water wells.

The Federal Emergency Management Agency, or FEMA, offers the following tips to make sure that you end up using water that is safe to drink:

- Do not use water you suspect is contaminated. Contaminated water can lead to illness.
- Do not use suspected or contaminated water to wash dishes, brush your teeth, wash and prepare food, make ice, or make baby formula.
- Do not use water from the following: radiators; hot water boilers (part of your home heating system); water beds (fungicides added to the water and/or chemicals in the vinyl may make water unsafe for use).
- Do not try to boil or disinfect water contaminated with fuel or toxic chemicals. If you suspect your water has fuel or chemical contamination, contact your local health department for specific advice.
- Do not drink alcohol, as it dehydrates the body, which increases the need for drinking water.

### Make your water safe by:

Store water in plastic containers such as soft drink bottles. Avoid containers that will break. Set aside at least 1 gallon of water per person per day and keep no less than a three-day supply.

A normally active person must drink at least 2 quarts of water daily. Warm climates and intense activity can double that amount. Children, nursing mothers and sick people need more.

In an emergency, mandatory water rationing and conservation may be imposed. Some officials discourage filling bathtubs and receptacles with available water because hoarding may make the problem worse for all. If water service fails, you may have more water on hand that you think. After purification, you can use supplies from water heaters, toilet tanks and from melted ice in the freezer.

**To purify water:** Purify water before using, not before storing.

**First:** Strain it through a clean cloth to remove any floating matter.

**Second:** Use unscented liquid household chlorine bleach (with 5.25 percent sodium hypochlorite solution) and no other active ingredients at these strengths:

- For clear water, 2 drops per quart, half-teaspoon per 5 gallons.

- For cloudy water, 4 drops per quart, 1 teaspoon per 5 gallons.

**Third:** Mix the solution thoroughly and let stand for 30 minutes. If a slight chlorine odor is not detectable, repeat the dosage and let stand for 15 minutes more. As an alternative, water may be purified by bringing it to a rapid boil for 3 to 5 minutes.



# FIRES

**SAN DIEGO COUNTY IS EXPERIENCING ONE OF ITS DRIEST YEARS IN DECADES, PLACING THE REGION AT RISK FOR A POTENTIALLY CATASTROPHIC WILDFIRE SEASON.**

**The Cedar fire  
burns toward  
homes in Scripps  
Ranch in San Diego  
in Oct. 2003.**



# WHAT TO DO WHEN A MAJOR FIRE ERUPTS

ReadySanDiego.org says you should do the following when trouble strikes

- Alert family and neighbors.
- Ensure that you have your emergency supply kit.
- Stay tuned to media: Visit [SDCountyEmergency.com](http://SDCountyEmergency.com).
- Close all windows and doors, leaving them unlocked.
- Remove flammable window shades and curtains.
- Move furniture to the center of the room.
- Turn off pilot lights and air conditioning.
- Leave inside and outside lights on so firefighters can see your house through smoke.
- Bring patio furniture, children's toys, etc., inside.
- Turn off propane tanks and other gas at the meter.
- Back your car into the driveway to facilitate a quick departure.
- Cover attic and ground vents with pre-cut plywood or commercial covers.
- Call 2-1-1 for all nonemergency inquiries or visit: [211SanDiego.org](http://211SanDiego.org).

## SURVIVAL TIPS: IF YOU ARE TRAPPED

- Call 9-1-1.
- Remain inside your home until the fire passes.
- Shelter away from outside walls.
- Bring garden hoses inside the house so embers don't destroy them.
- Patrol inside your home for spot fires and extinguish any you find.
- Wear long sleeves and long pants made of natural fibers such as cotton.
- Stay hydrated.
- Ensure you can exit the home if it catches fire (remember if it is hot inside the house, it is four to five times hotter outside.)
- Fill sinks and tubs for an emergency water supply.
- Place wet towels under doors to keep smoke and embers out.
- After the fire has passed, check your home and roof. Extinguish any fires, sparks or embers.
- Check inside the attic for hidden embers.
- If there are fires that you cannot extinguish with a small amount of water or in a short period of time, call 9-1-1.

GARY ROBBINS • U-T



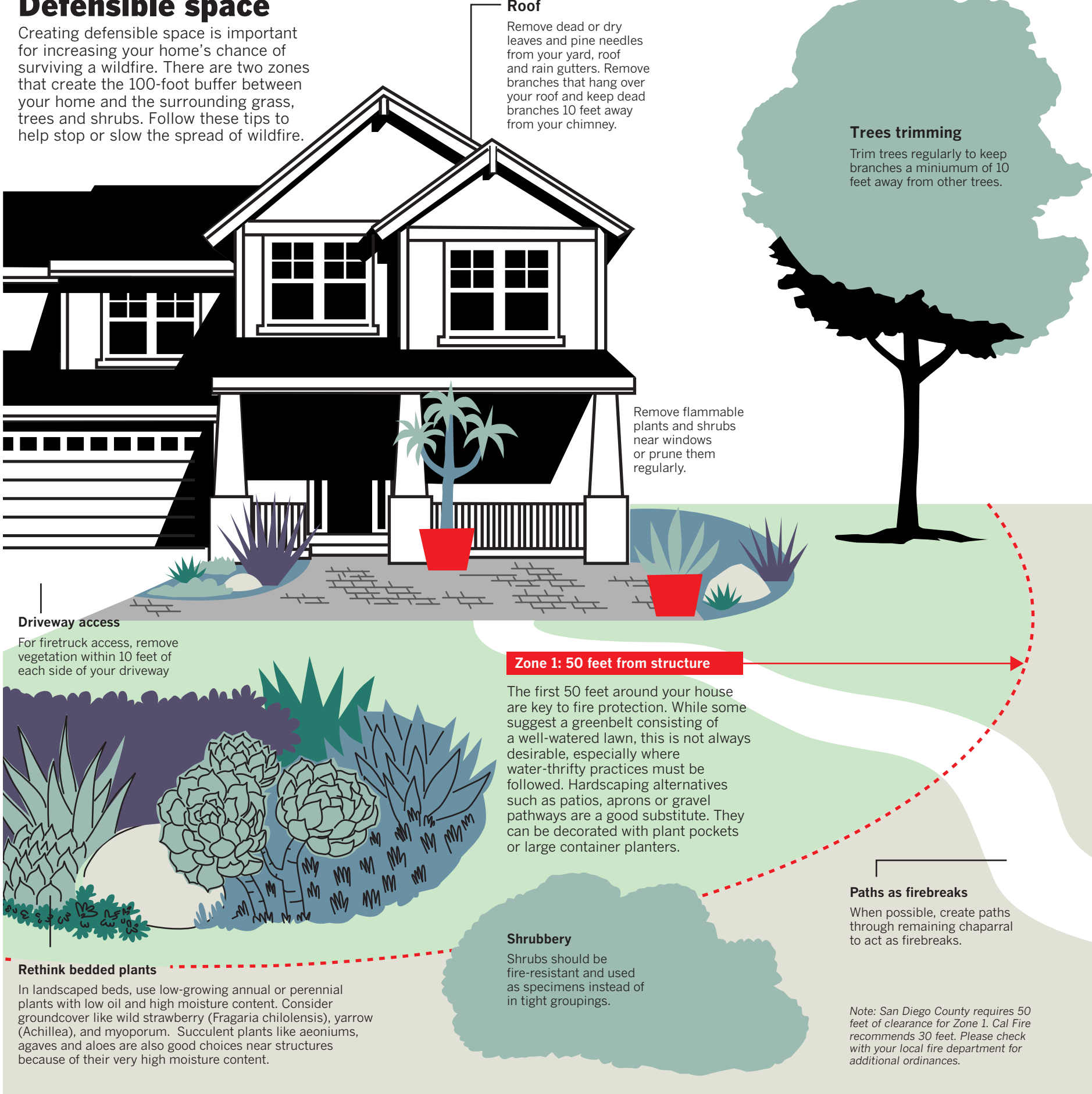
U-T PHOTOS

**At top, firefighters battle in Poway during the 2007 wildfires that destroyed more than 1,300 homes. Above, the Lilac fire burned rows of mobile homes at Rancho Monserate Country Club east of Bonsall in December 2017.**



# Defensible space

Creating defensible space is important for increasing your home's chance of surviving a wildfire. There are two zones that create the 100-foot buffer between your home and the surrounding grass, trees and shrubs. Follow these tips to help stop or slow the spread of wildfire.



## Roof

Remove dead or dry leaves and pine needles from your yard, roof and rain gutters. Remove branches that hang over your roof and keep dead branches 10 feet away from your chimney.

## Trees trimming

Trim trees regularly to keep branches a minimum of 10 feet away from other trees.

Remove flammable plants and shrubs near windows or prune them regularly.

## Driveway access

For firetruck access, remove vegetation within 10 feet of each side of your driveway

## Zone 1: 50 feet from structure

The first 50 feet around your house are key to fire protection. While some suggest a greenbelt consisting of a well-watered lawn, this is not always desirable, especially where water-thrifty practices must be followed. Hardscaping alternatives such as patios, aprons or gravel pathways are a good substitute. They can be decorated with plant pockets or large container planters.

## Rethink bedded plants

In landscaped beds, use low-growing annual or perennial plants with low oil and high moisture content. Consider groundcover like wild strawberry (*Fragaria chilolensis*), yarrow (*Achillea*), and myoporium. Succulent plants like aeoniums, agaves and aloes are also good choices near structures because of their very high moisture content.

## Shrubby

Shrubs should be fire-resistant and used as specimens instead of in tight groupings.

## Paths as firebreaks

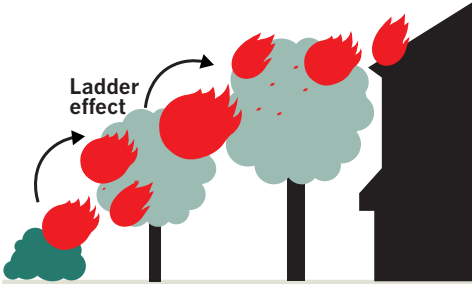
When possible, create paths through remaining chaparral to act as firebreaks.

*Note: San Diego County requires 50 feet of clearance for Zone 1. Cal Fire recommends 30 feet. Please check with your local fire department for additional ordinances.*



### Plant and tree spacing

Keeping shrubs and trees the proper distance away from each other and structures is important so they don't serve as ladders, carrying flames up into a building. See the vertical and horizontal spacing formulas to help you determine this distance.



#### Basics to create defensible space

1. Remove all dead plants, trees and shrubs
2. Reduce excess leaves, plant parts and low-hanging branches. Remove limbs close to the house.
3. Replace flammable plants with fire-resistant plants. Select high-moisture plants with a low sap or resin content.
4. Water landscape sufficiently so plants are green during summer.
5. Use rock, mulch, flower beds and gardens as effective firebreaks.

#### Zone 2: 50-100 feet from structure

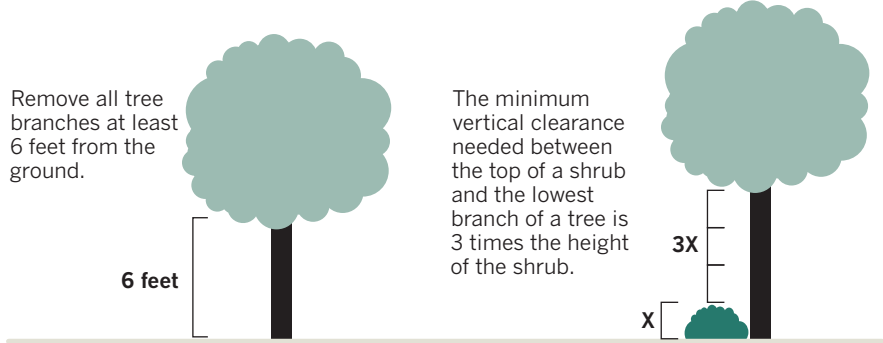
Cut or mow annual grass down to a maximum height of 4 inches. Create horizontal and vertical spacing between shrubs and trees. You are not required to cross your property line in order to clear 100 feet. The neighboring property owner may be required to clear the space by the fire agency.

Place wood piles in Zone 2



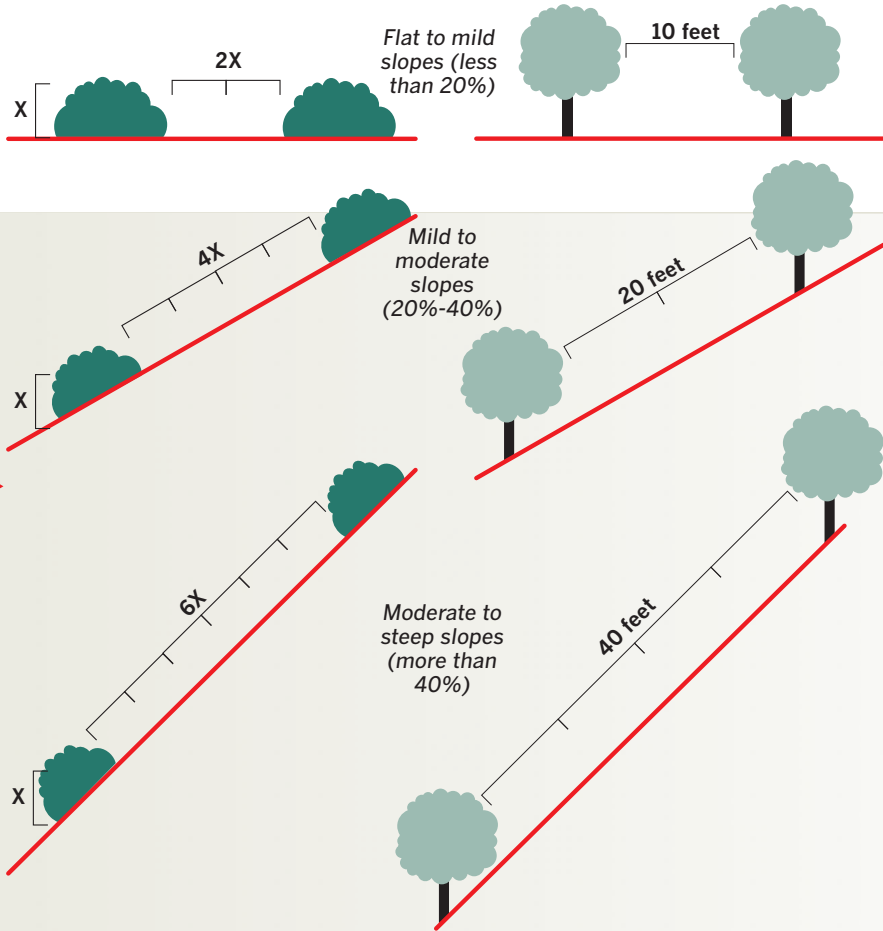
### Vertical spacing

The vertical space between grass, shrubs and trees is critical for reducing the spread of wildfires. See the recommended formula below to calculate the distance between your trees branches and the ground or a shrub.



### Horizontal spacing

The horizontal space between plants is also important for stopping the spread of wildfires. Plants on slopes are particularly dangerous, as flames move faster vertically. The spacing between your plants increases as the steepness of your slope increases.



### Fire-wise plants

A number of plants create attractive, water-thrifty and fire-wise landscapes. Here are some suggestions:

#### Trees

- California sycamore (*Platanus racemosa*)
- Strawberry tree (*Arbutus unedo*)
- Western redbud (*Cercis occidentalis*)

#### Shrubs

- Manzanita (*Arctostaphylos*) 'Dr. Hurd'
- Manzanita (*Arctostaphylos*) 'AustinGriffith'
- Monkey flower (*Mimulus*)
- California lilac (*Ceanothus*) 'RayHartman,' 'South Coast Blue,' 'Julia Phelps'
- Coffeeberry, also called California buckthorn (*Rhamnus californica*)
- Chitalpa tashkentensis

#### Perennials

- Blue-eyed grass (*Sisyrinchium bellum*)
- Red-hot poker (*Kniphofia uvaria*)
- Seaside daisy (*Erigeron glaucus*)
- California fuchsia (*Zauschneria californica*)

#### Ground cover

- California lilac (*Ceanothus*) 'Yankee Point' or 'Joyce Coulter'
- *Ceanothus gloriosus* cultivars (Heart's Desire, Mills Glory, Anchor Bay)
- Manzanita (*Arctostaphylos*) 'John Dourley,' 'Harmony' or 'Pacific Mist'
- Manzanita (*Arctostaphylos edmundsii*) 'Carmel Sur,' 'Pt. Reyes'
- California wild rose 'Bee's Bliss' and 'Dara's Choice'

### Plants to avoid

Plants that store volatile oils should be removed. These are the most dangerous, because they can ignite quickly:

- Acacia trees
- Cedar trees
- Eucalyptus trees
- Juniper trees
- Pepper trees



Sources: U.S. Fire Administration; California Department of Forestry and Fire Protection; Greg Rubin, owner of California's Own Native Plant Design in Escondido; Cal Fire; readyforwildfire.org

CRISTINA BYVIK U-T

# THE WINDS FROM HELL

Santa Anas have the power to quickly turn a devastating wildfire into an inferno

A firefighter battles embers and flames from the wind-stoked fire in Ventura County in December.



WALLY SKALIJ LOS ANGELES TIMES

BY GARY ROBBINS

**W**ildfires in Southern California are often spread by a meteorological phenomenon known as the Santa Ana winds. Steve Vanderburg, a forecaster at SDG&E, explains the nature of this periodic wrinkle in the weather.

## What are the Santa Ana winds?

They are winds that blow from the desert toward the ocean, typically from fall to the spring months. They're associated with hot and dry weather. The winds can quickly accelerate as they move down the mountains and into the valleys. They can reach speeds of over 100 mph.

The highest temperatures in coastal areas coincide with the Santa Anas, although the winds don't reach the coast in all places. You can have strong Santa Anas at the coast in North County, but not in San Diego, due to differences in the terrain.

## Why are they called the Santa Anas?

The most commonly cited reason is that the winds flow through Santa Ana Canyon and down through the Santa Ana River valley.

## Do the Santa Anas pose more of a threat to spreading wildfires than other types of winds?

Absolutely. The Santa Anas are hot, dry gusty winds that can lead to rapid wildfire growth. The beginning of the Santa Ana season coincides with the end of our dry

season, when the vegetation on the hillsides is at its driest point. The hills are usually dry until the winter rains arrive.

## Can the winds damage the power lines that distribute electricity throughout the county?

When the winds reach hurricane force, they have that potential. More often than not, the problem is caused by flying debris. The winds can blow things like sheet metal or Mylar balloons or tree branches against the power lines. In January, the Santa Anas swept a gazebo through the air in Alpine.

## Does SDG&E warn consumers about the onset of the Santa Anas and how hard the winds will blow in specific areas?

If we're expecting extreme fire conditions, yes. We do so if there's a red flag warning (high winds, high temperatures and low humidity.) In parts of our service area, we communicate early and often with customers that strong winds are in the forecast that can lead to outages, and that they should take steps to be ready for that.

gary.robbins@sduniontribune.com

## Santa Ana winds

Every autumn in Southern California, the Santa Ana winds blow from the desert to the ocean, increasing the chances for wildfire to spread. Here's how:

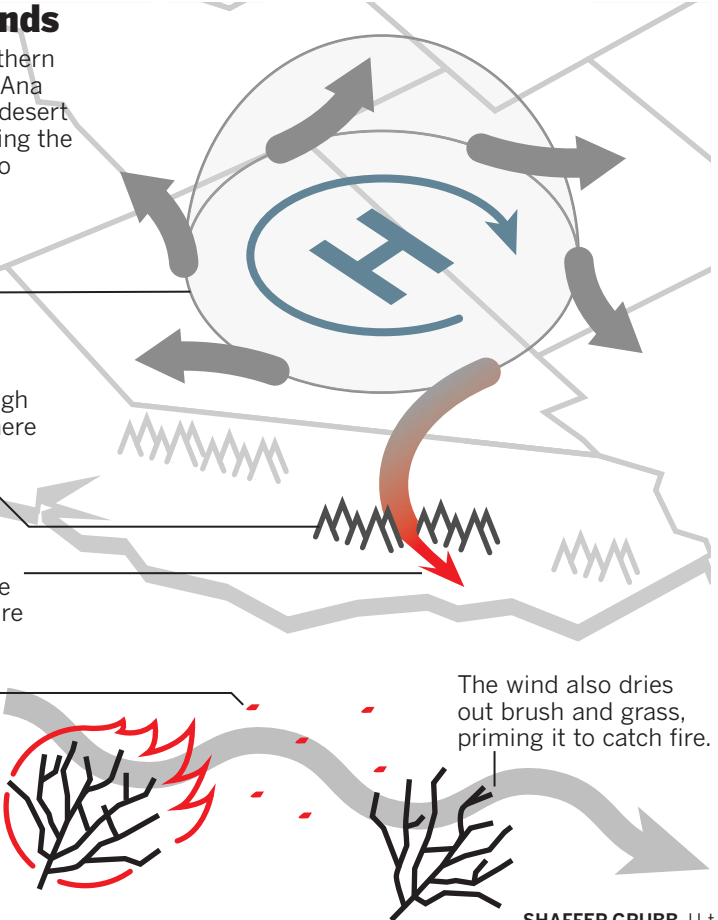
The high-pressure area over the Great Basin produces clockwise winds.

The air funnels through mountain passes, where it picks up speed, sometimes reaching hurricane force.

As the wind nears the coast, the altitude drops and temperature increases.

The swift, dry wind can carry sparks from brush fires far to start other fires.

The wind also dries out brush and grass, priming it to catch fire.



Source: UCLA

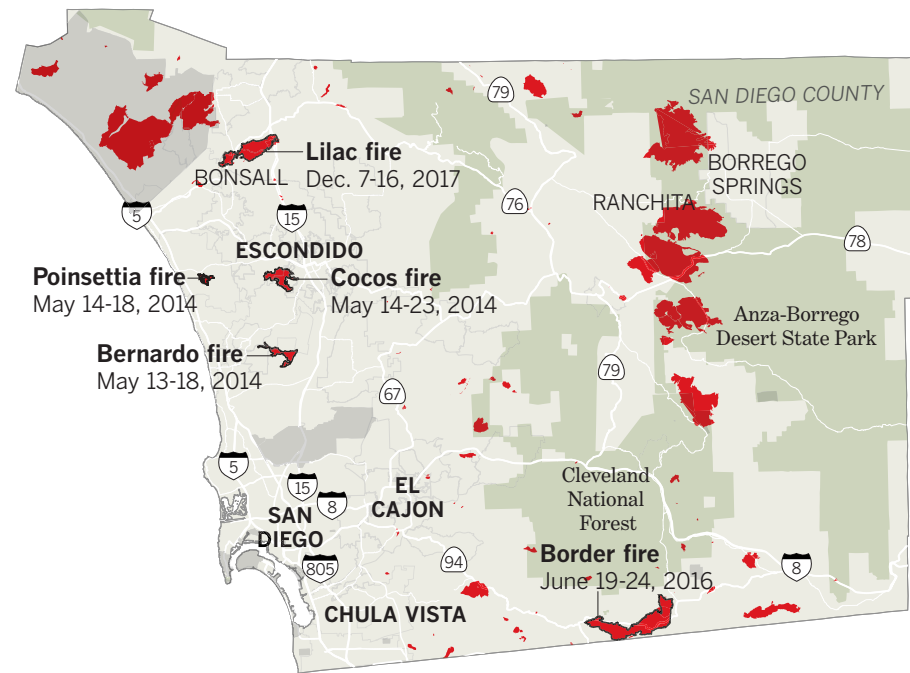
SHAFFER GRUBB U-t



# Wildfires in San Diego County by decade

## 2010-2017

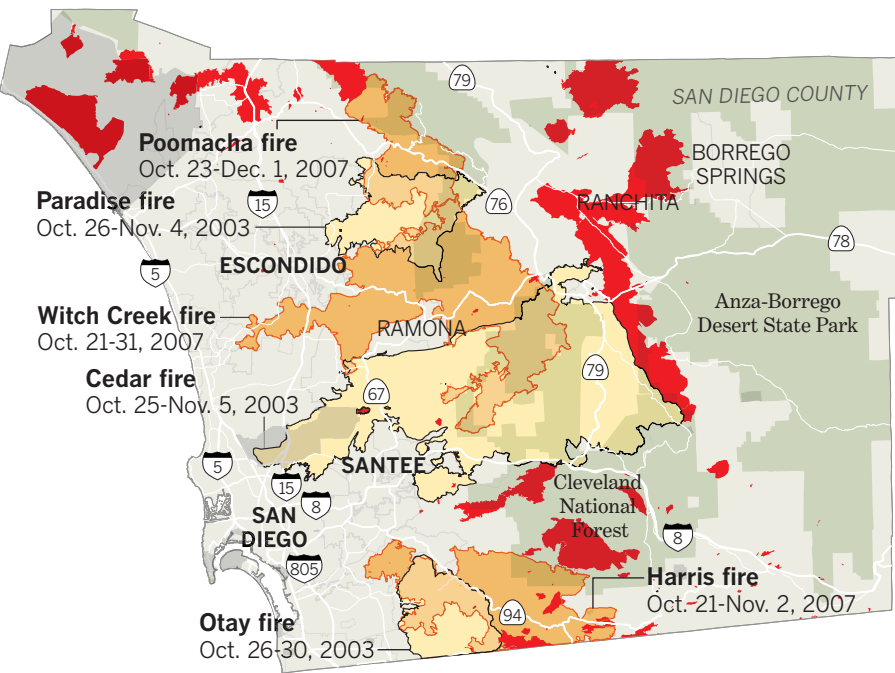
Fourteen wildfires burned almost 27,000 acres one week in May 2014. The Border fire in 2016 claimed two lives and was responsible for the deaths of hundreds of animals and livestock. The Lilac fire burned 4,100 acres in 2017, destroyed 157 structures and damaged 64 others, and 46 horses were killed or went missing.



94 | 110,997  
Wildfires | Acres burned

## 2000-2009

The 2000s were the worst decade for wildfires in San Diego County in recent history. The firestorms of 2003 and 2007 burned a combined 674,173 acres, destroyed 3,928 homes and killed 27 people.

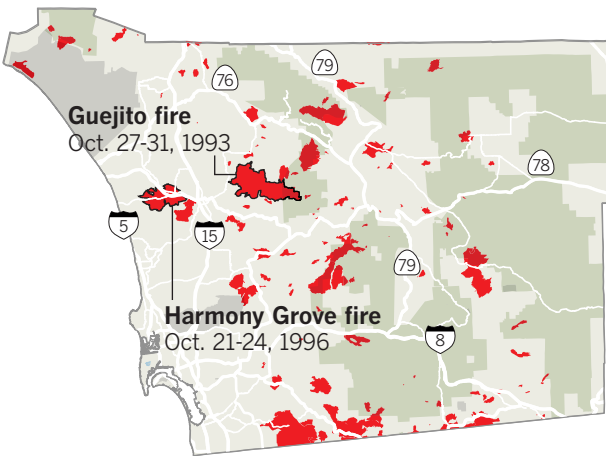


Sources: Cal Fire; ESRI; Tele Atlas; USGS; U.S. Census; The San Diego Union-Tribune

143 | 874,842  
Wildfires | Acres burned

## 1990-1999

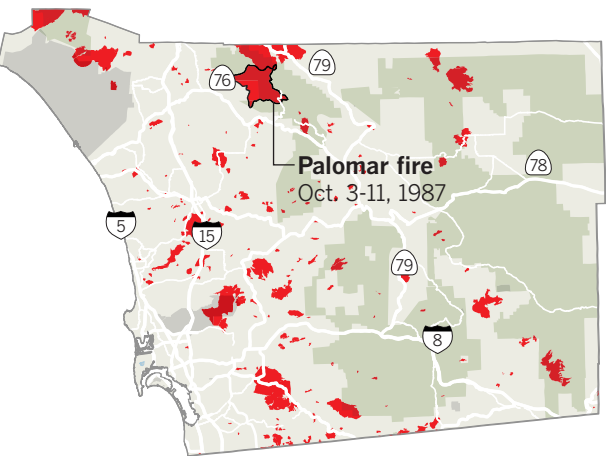
The 1993 Guejito fire was the largest of the decade, burning nearly 18,000 acres and destroying 18 homes. The Harmony Grove fire in 1996 killed one person and burned more than 100 structures.



141 | 176,990  
Wildfires | Acres burned

## 1980-1989

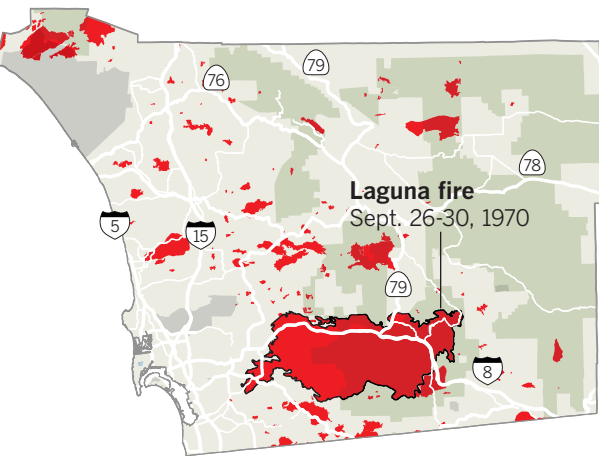
The number of fires in the 1980s was more than the decades before and after it, but almost all were less than 1,000 acres each. The largest was 1987's Palomar fire, which burned almost 16,000 acres.



250 | 205,619  
Wildfires | Acres burned

## 1970-1979

Before the firestorms of the 2000s, the 1970 Laguna fire had been San Diego's most destructive in recorded history. The blaze killed eight people, destroyed 382 homes and burned nearly 175,000 acres.

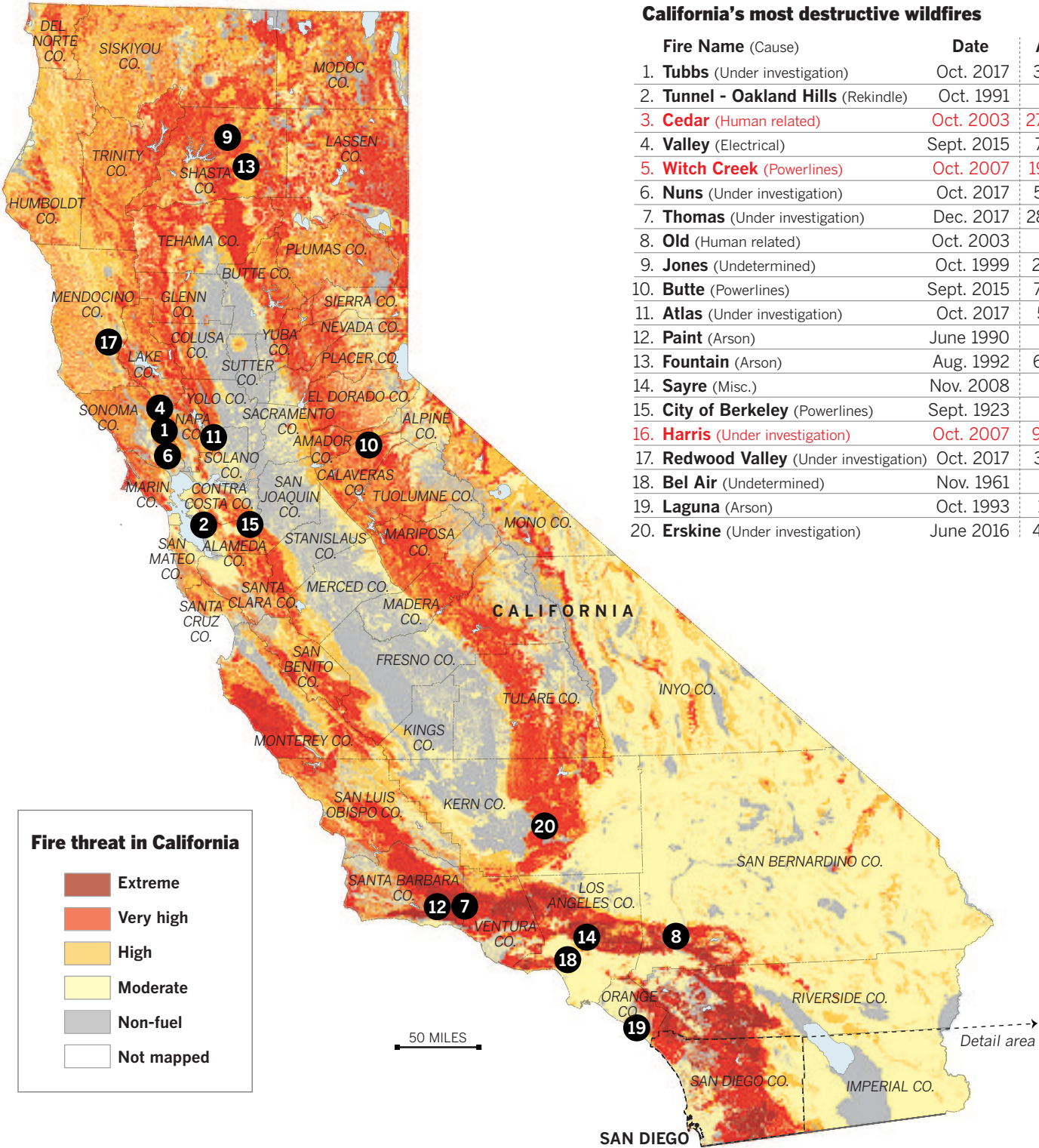


190 | 326,932  
Wildfires | Acres burned

Data from Cal Fire's Fire Perimeters database. Data from 1970 to 2001 include U.S. Forest Service wildfires 10 acres and larger and state Department of Forestry fires 300 acres and larger. Data from 2002 include Bureau of Land Management and National Park Service fires of 10 acres and larger. In 2002, Department of Forestry data expanded to include timber fires 10 acres and larger, brush fires 50 acres and larger, grass fires 300 acres and larger, wildfires destroying three or more structures and wildfires causing \$300,000 or more in damage. In some cases, reported acreage burned varies in official source materials; in such instances, the largest figure is used.

# Wildfire threat in California

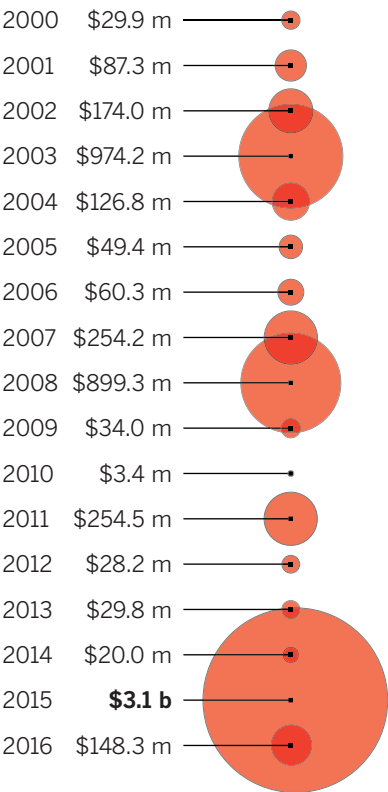
Wildfires have long been a danger to residents up and down California. Increasingly, though, backcountry development and aggressive fire-suppression efforts have created a situation where more people live close to densely forested areas. While few locations are immune to wildfire risk, communities like those in the urban-rural interface are particularly prone to huge conflagrations. In recent years, such major blazes have caused billions of dollars in property damage.



California’s most destructive wildfires

Fire Name (Cause)	Date	Acres	Structures*	Deaths
1. <b>Tubbs</b> (Under investigation)	Oct. 2017	36,807	5,643	22
2. <b>Tunnel - Oakland Hills</b> (Rekindle)	Oct. 1991	1,600	2,900	25
3. <b>Cedar</b> (Human related)	Oct. 2003	273,246	2,820	15
4. <b>Valley</b> (Electrical)	Sept. 2015	76,067	1,955	4
5. <b>Witch Creek</b> (Powerlines)	Oct. 2007	197,990	1,650	2
6. <b>Nuns</b> (Under investigation)	Oct. 2017	54,382	1,355	2
7. <b>Thomas</b> (Under investigation)	Dec. 2017	281,893	1,063	1
8. <b>Old</b> (Human related)	Oct. 2003	91,281	1,003	6
9. <b>Jones</b> (Undetermined)	Oct. 1999	26,200	954	1
10. <b>Butte</b> (Powerlines)	Sept. 2015	70,868	921	2
11. <b>Atlas</b> (Under investigation)	Oct. 2017	51,624	781	6
12. <b>Paint</b> (Arson)	June 1990	4,900	641	1
13. <b>Fountain</b> (Arson)	Aug. 1992	63,960	636	0
14. <b>Sayre</b> (Misc.)	Nov. 2008	11,262	604	0
15. <b>City of Berkeley</b> (Powerlines)	Sept. 1923	130	584	0
16. <b>Harris</b> (Under investigation)	Oct. 2007	90,440	548	8
17. <b>Redwood Valley</b> (Under investigation)	Oct. 2017	36,523	544	9
18. <b>Bel Air</b> (Undetermined)	Nov. 1961	6,090	484	0
19. <b>Laguna</b> (Arson)	Oct. 1993	14,437	441	0
20. <b>Ersine</b> (Under investigation)	June 2016	46,684	386	2

Estimated damages

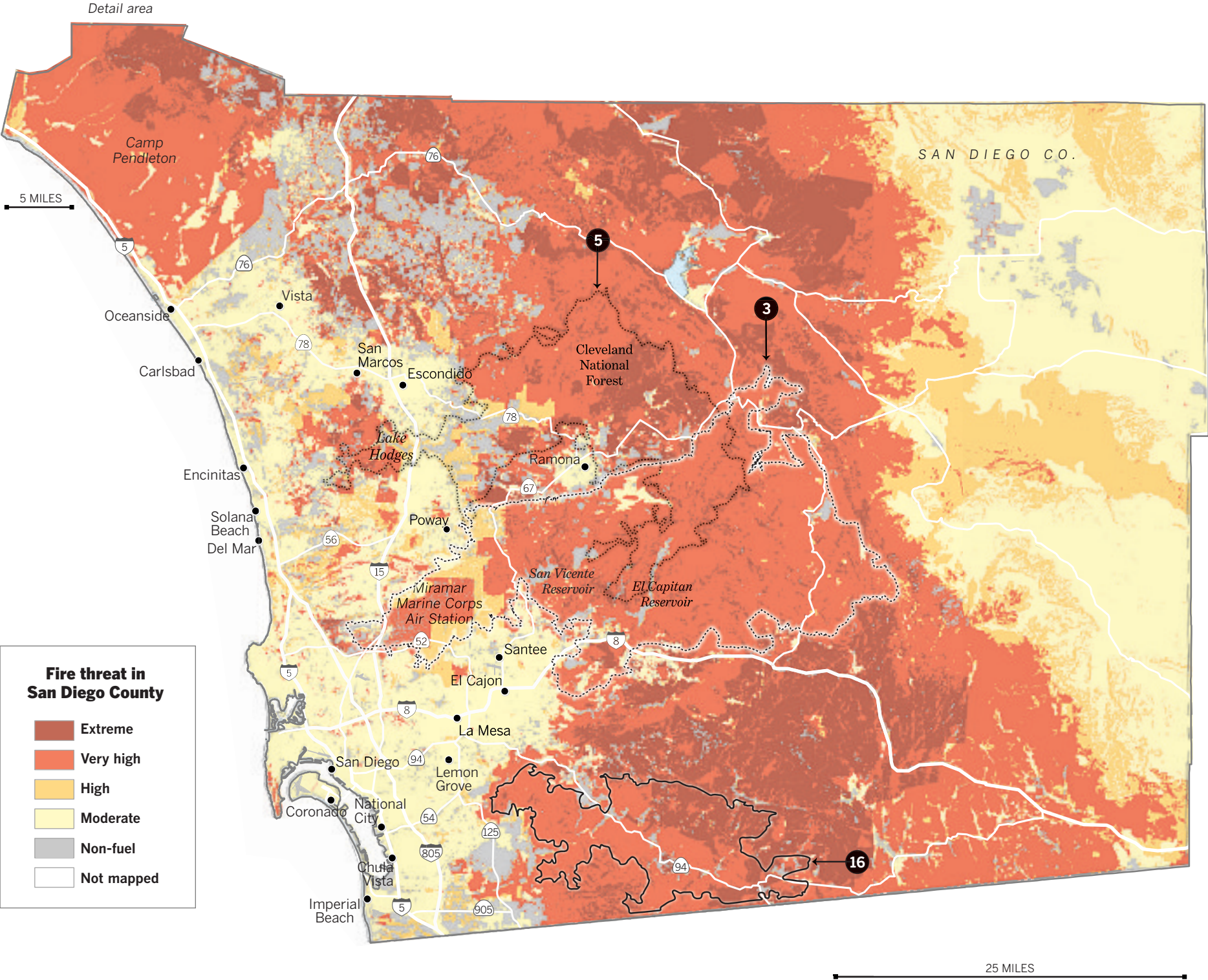


\* “Structures” include homes, outbuildings (barns, garages, sheds, etc.) and commercial properties destroyed. This list does not include fire jurisdiction. These are the top 20 regardless of whether they were state, federal or local responsibility. Estimates are for everything from destruction of homes to vehicles to public infrastructure.



# Wildfire threat in San Diego County

San Diego County is highly susceptible to wildfires this year because there has been less than 4 inches of rain since Oct. 1, which is well below average for this region. The fire threat in the county is spread throughout the area, with extreme fire threats prevalent in East County. San Diego County is home to two of the top five destructive fires in the states' history. Refer to page 14 for information on the fires.



Fire threat is a combination of two factors: 1) fire frequency, or the likelihood of a given area burning, and 2) potential fire behavior (hazard). These two factors are combined to create four threat classes ranging from moderate to extreme.

Sources: Cal Fire; ESRI

U-T



# COMMITTED TO THE COMMUNITY WE CALL HOME

From inventing one of the most comprehensive and robust fire risk mitigation programs to help protect people, to building an advanced weather network to better prepare for extreme weather events, and investing in innovative technologies and equipment to mitigate the effects of climate change—we're dedicated to taking care of our community, and the planet we all share.

Congratulations to the dedicated men and women of SDG&E®, IBEW, CAL FIRE and others who made this award possible.

**2018 EDISON AWARD WINNER**  
Edison Electric Institute's highest honor

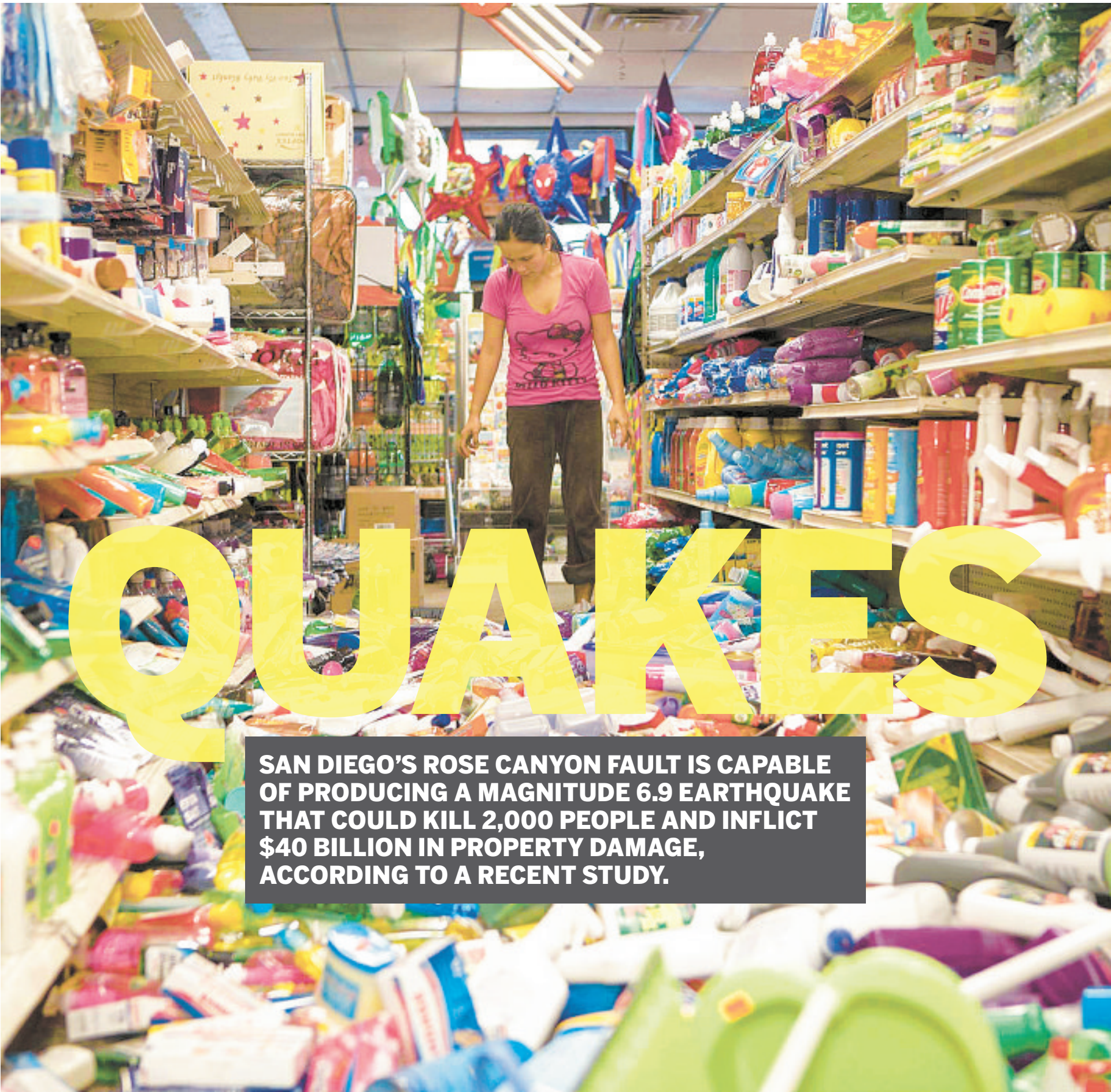
Watch the video at: [sdge.com/EdisonAward](https://sdge.com/EdisonAward)

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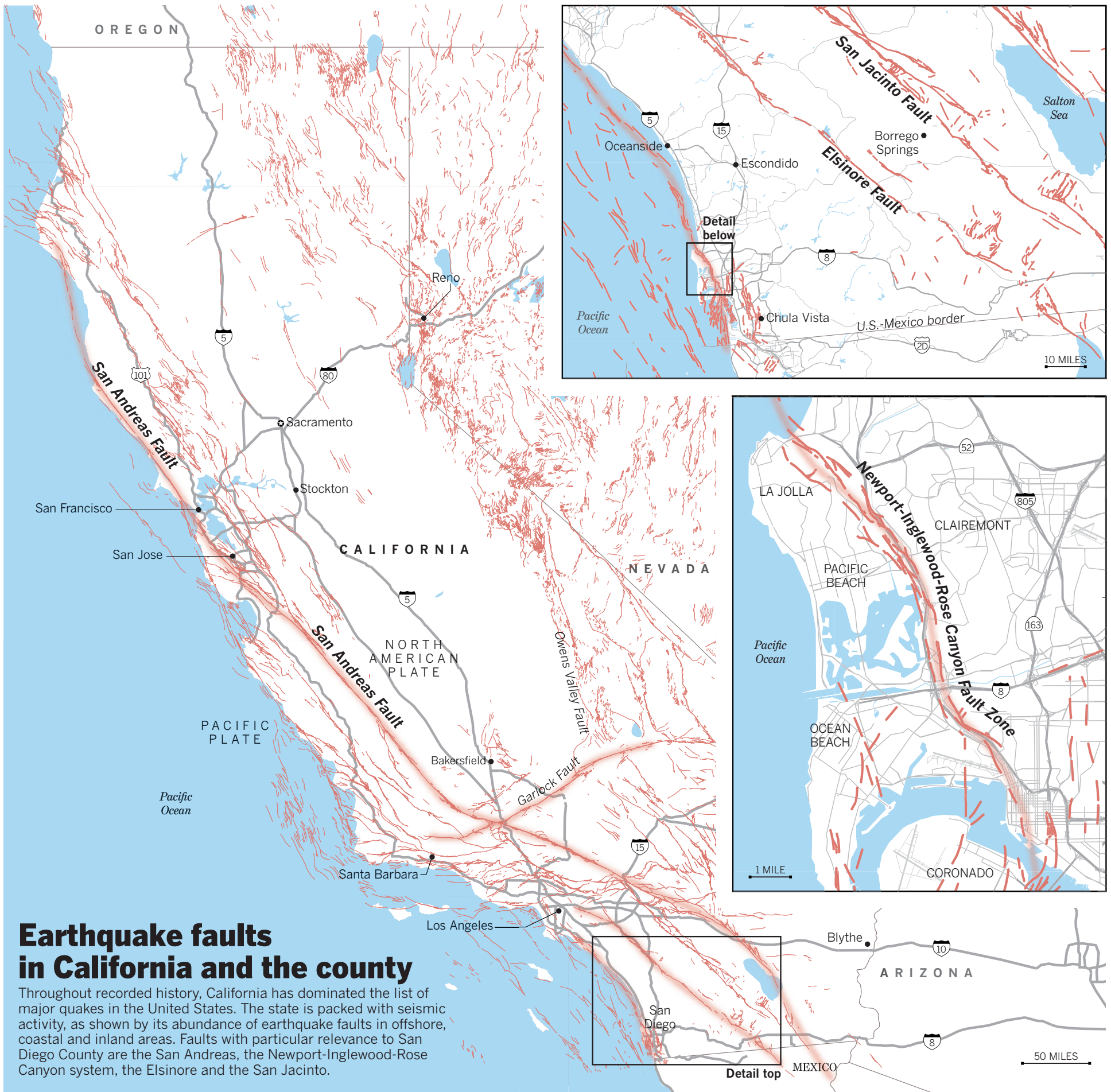




# QUAKES

**SAN DIEGO'S ROSE CANYON FAULT IS CAPABLE OF PRODUCING A MAGNITUDE 6.9 EARTHQUAKE THAT COULD KILL 2,000 PEOPLE AND INFLICT \$40 BILLION IN PROPERTY DAMAGE, ACCORDING TO A RECENT STUDY.**



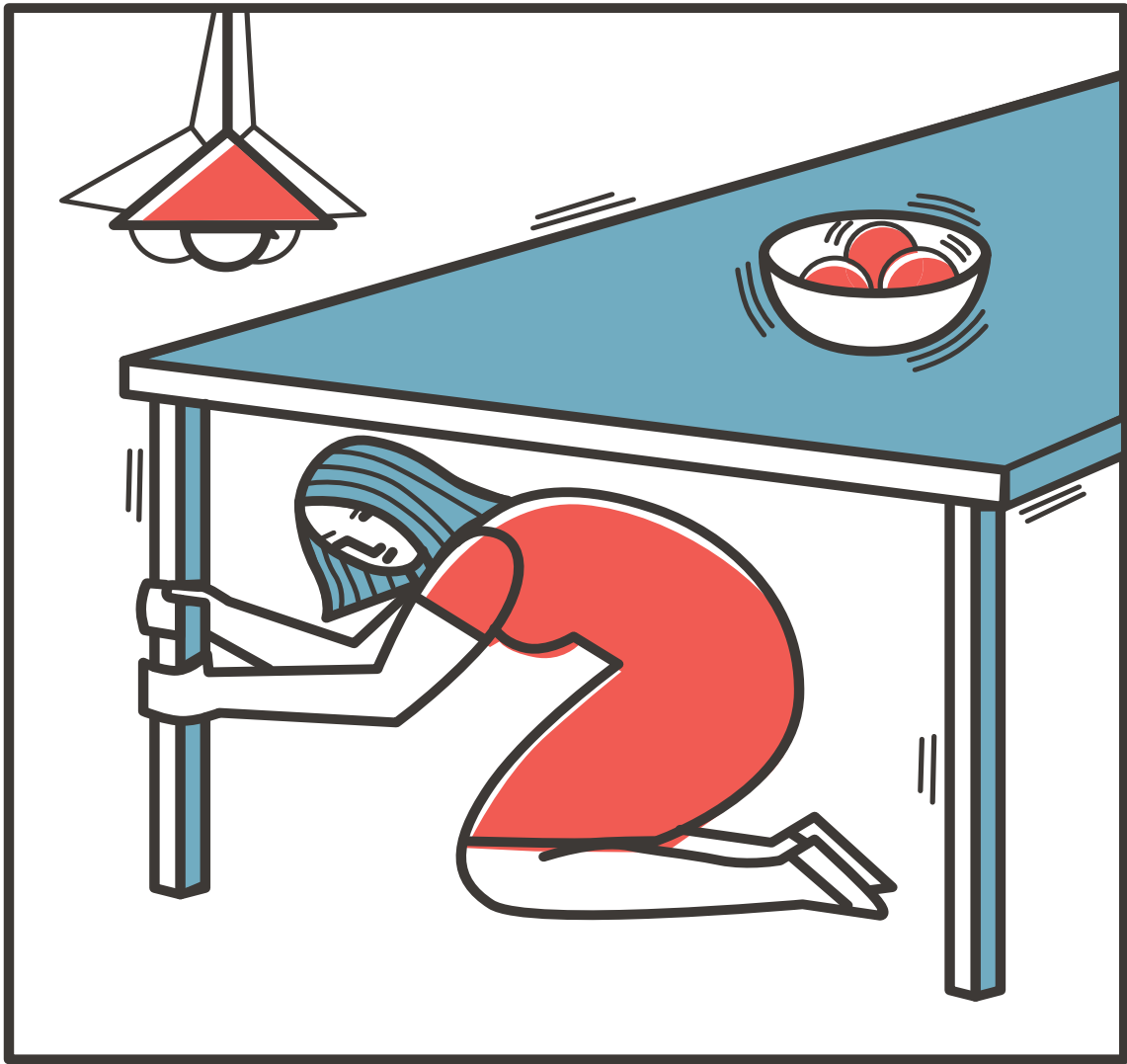




# TIPS TO FOLLOW BEFORE, DURING & AFTER A QUAKE

Newcomers to San Diego often ask, “Where can I buy a home that isn’t located near an earthquake fault?” The answer is, you can’t. Southern California is lined with fault systems that extend from the desert to far off the region’s coastline. One of those systems — the Rose Canyon fault — cuts through downtown San Diego and is capable of producing a 6.9 quake that could kill 2,000 people, says the Earthquake Engineering Research Institute. So it pays to prepare your home for a major temblor. Here are suggestions for things you should do before, during and after a quake.

GARY ROBBINS • U-T



CRISTINA BYVIK U-T

## DURING AN EARTHQUAKE: DROP, COVER AND HOLD

Disaster experts say you should instantly drop, cover and hold when an earthquake strikes. Specifically, ShakeOut.org says:

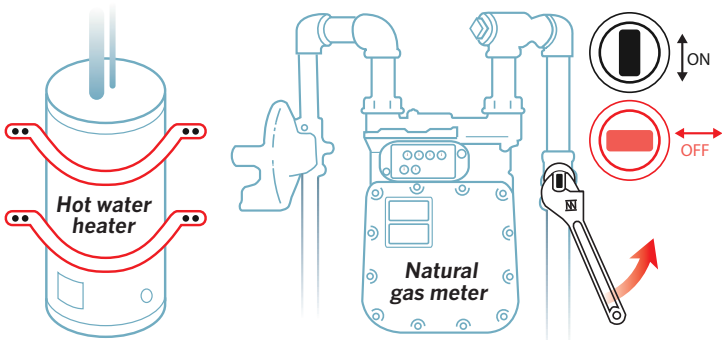
**Drop where you are, onto your hands and knees.** This position protects you from being knocked down and also allows you to stay low and crawl to shelter if nearby.

**Cover your head and neck with one arm and hand.** If a sturdy table or desk is nearby, crawl underneath it for shelter. If no shelter is nearby, crawl next to an interior wall (away from windows). Stay on your knees; bend over to protect vital organs.

**Hold on until shaking stops.** Under shelter: hold on to it with one hand; be ready to move with your shelter if it shifts. No shelter: hold on to your head and neck with both arms and hands. Shaking from a moderate to large earthquake typically lasts from 10 to 30 seconds. Significant aftershocks can occur within minutes or hours of the main shock, so remain aware of your surroundings.

## BEFORE AN EARTHQUAKE: SECURING YOUR HOME

- Repair defective electrical wiring, leaky gas lines, inflexible utility connections (using professional help as needed).
- Bolt down and secure to wall studs the water heater, furnace and other major appliances.
- Place large or heavy objects on lower shelves; fasten shelves, mirrors and large picture frames to walls; brace high and top-heavy objects; anchor overhead lighting fixtures.
- For things that you can’t secure, conduct a “hazard hunt” to determine where they are so you can avoid them in a quake.
- If you smell natural gas or hear a gas leak, turn off the main valve using a 10- to 12-inch wrench. Report the leak to San Diego Gas & Electric from a telephone outside of your home and request a company technician or a licensed contractor to check for leaks and turn on the gas.
- Do not turn the gas back on by yourself and do not turn on electrical switches until you are sure there is no leak. There is no need to turn off the gas if you do not detect any leaks.
- When checking your house, use only flashlights, not lanterns, candles or other flammable light sources because they could ignite a gas leak.



## AFTER AN EARTHQUAKE: ASSESSING YOUR HOME

- Perform a safety check of your living quarters, wearing sturdy shoes, gloves and a dust mask or wet handkerchief if damage is extensive.
- Some chimneys may collapse and others may be weakened and should be approached with caution. Do not use a damaged chimney.
- If you find damaged electrical wiring, shut off the power at the control box. Do not touch downed power lines. If the power is out, unplug sensitive electronic equipment, such as computers, to protect them from a power surge. Leave a lamp on so you will know when power is restored.
- There is generally no need to turn off the main power switch if there is no damage. To shut off electricity, turn off all small breakers and then shut off the main circuit breaker. For a home equipped with a fuse box, remove all small fuses and then turn off the main using the knife switch handle.
- If the power is out, first eat foods that will spoil quickly, such as those in the refrigerator and freezer. Generally, they’re safe to eat as long as they’re refrigerator-cool. Freezer items may be refrozen if ice chips are still evident. When in doubt, throw it out.
- Operate portable generators outdoors only. Use only with appliances that can connect directly to the generator by extension cords and do not plug a generator into a household outlet. That could send electricity back into the main utility system and cause possible injury.
- For leaks and spills, check water lines in the kitchen, bathrooms, laundry room and the landscaping system. Check the main line connection at the street and house. Turn off the valves as needed. Immediately clean up any spilled medicines, drugs and hazardous materials, such as gasoline or bleach.
- Cleaning homes and yards after a disaster can be a big job. Let professionals handle complicated and dangerous repair work, such as a cracked foundation, downed power lines or gas leaks.

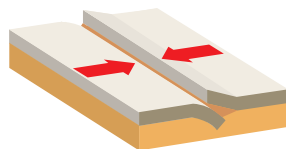
Sources: American Red Cross, ShakeOut.org, University of Utah

# Conditions needed for a tsunami to happen in Southern California

A tsunami here likely would be caused by an earthquake just off the coast at a depth shallow enough for displacement of water to reach the surface and move laterally. Ideal tsunami conditions and the local geography:

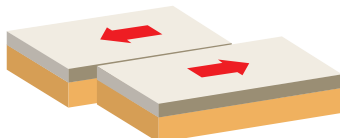
## Subduction zones

One plate dives below another, pushing it up and displacing water. In a big temblor, enough water is displaced to cause a tsunami.



## Strike-slip fault

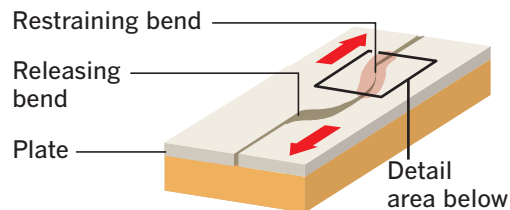
... However, none of our known underwater faults is likely to cause a tsunami. Strike-slip faults — like those found locally — move laterally, causing little displacement of water.



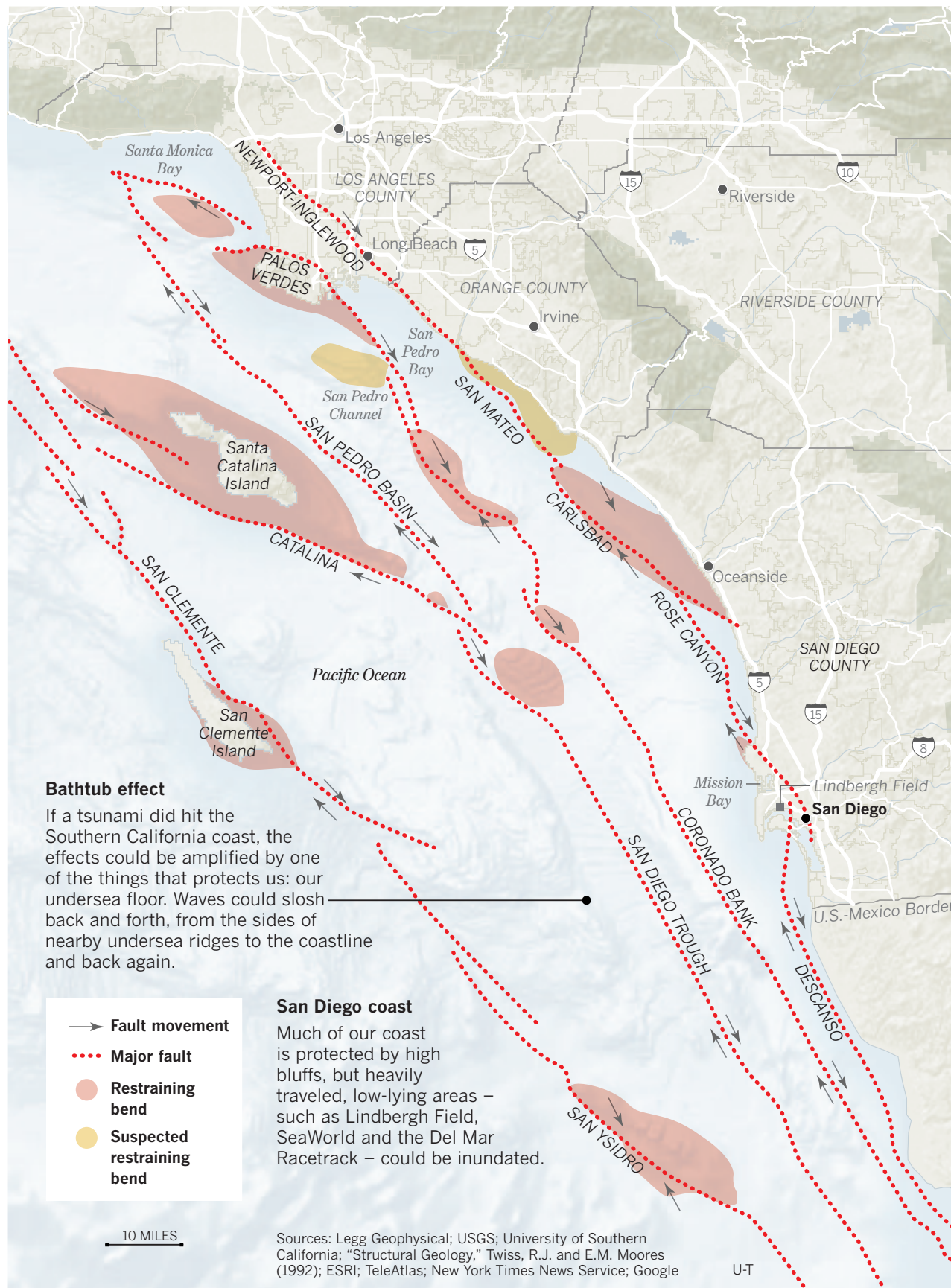
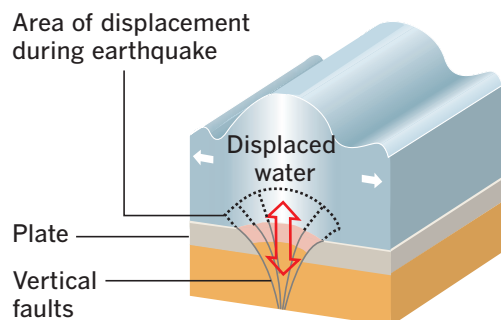
## Restraining bends

Some large bends in our local fault lines could cause a tsunami.

When a strike-slip curves, a restraining bend or releasing bend can occur. Restraining bends push the seafloor upward; the phenomenon created Catalina Island.



During an earthquake, restraining bends shift vertically. Researchers believe the restraining bend movement could displace enough water to cause waves. If the quake also generates an underwater landslide, a narrow — but damaging — tsunami could result.





A storm  
floods  
South  
Mission  
Beach  
in 2012.



**ON AVERAGE, THE SKIES ARE CLEAR 146 DAYS A YEAR IN SAN DIEGO. AND THE CITY AVERAGES LESS THAN 11 INCHES OF RAIN ANNUALLY. FLOODING WOULDN'T SEEM TO BE A PROBLEM. BUT SOMETIMES, IT IS.**



# W

inter storms in San Diego can unleash enough rain to cause cliffs and hillsides to erode and collapse.

Flash flooding can produce dangerous driving conditions at traffic intersections. The rain is often enough to close some intersections, particularly one that leads into Fashion Valley in Mission Valley.

Flooding also periodically occurs along parts of the Santa Margarita River in Camp Pendleton and the San Luis Rey River in Oceanside.

Disaster officials strongly urge people to stay away from those waterways during and immediately after a storm. And they urge motorists to avoid flooded areas.

Sometimes, that's not possible. Progressive Insurance offers the following advice for driving in a flood:

- Pay attention to barricades. Don't ignore them by driving past them.
- Do not drive through standing water on roads or in parking lots.
- The average automobile can be swept off the road in 12 inches of moving water, and roads covered by water are prone to collapse.
- Attempting to drive through water also may stall your engine, with the potential to cause irreparable damage if you try to restart the engine. If you come upon a flooded street, take an alternate route.
- Take extra precautions if you're forced to drive through water. If no alternate route exists and you have no other reasonable alternative, carefully drive through standing water.
- Do your best to estimate the depth of the water (if other cars are driving through, take note of how deep the water is).
- Drive slowly and steadily through the water.
- Avoid driving in water that downed electrical or power lines have fallen in — electric current passes through water easily.
- Watch for items traveling downstream — they can trap or crush you if you're in their path.

If you have driven through water up to the wheel rims or higher, test your brakes on a clear patch of road at low speed. If they are wet and not stopping the vehicle as they should, dry them by pressing gently on the brake pedal with your left foot while maintaining speed with your right foot.

If your vehicle stalls in the deep water, you may need to restart the engine to make it to safety. Keep in mind that restarting may cause irreparable damage to the engine.

If you can't restart your vehicle and you become trapped in rising water, immediately abandon it for higher ground. Try to open the door or roll down the window to get out of the vehicle. If you are unable to get out safely, call 911 or get the attention of a passerby or someone standing on higher ground so they may call for help.



Homes on Lemon Crest Drive in Lakeside were in danger of flooding in January 2017, while a car was nearly submerged (top).



# NEGOTIATE INSURANCE BEFORE DISASTER STRIKES

**Fire. Flood. Earthquake. Insurance against these disasters come in three policies for homeowners and renters. Flood and earthquake — unlike fire — are typically not covered under a standard homeowners or renters insurance policy. Buying and understanding such insurance can be daunting. But it's better to take the time now — before a disaster strikes — to make sure you have the right policies and coverage in place. Here's are some things you should consider:**

## EARTHQUAKE INSURANCE



The biggest thing to keep in mind when it comes to earthquake coverage is that it's not included in your typical homeowners policy. But it's definitely something to check out.

Last year, UC San Diego highlighted the potential dangers of quakes when it released a study that says a fault system runs from San Diego to Los

Angeles that could produce a magnitude 7.4 quake. Such a temblor could kill thousands of people.

The California Earthquake Authority, which writes about two-thirds of residential quake-insurance policies, has used these kind of scenarios to try to get homeowners to buy policies.

The nonprofit agency also has tried to make buying these policies comparatively easy.

The CEA offers dwelling deductibles, which are never paid out of pocket but instead are deducted from a policyholder's claim check for covered damage, at 5, 10, 15, 20 and 25 percent. The dwelling coverage includes attached garages but not detached garages, pools or fences.

For instance, if a house is insured for \$500,000 with a 5 percent deductible (\$25,000) and an earthquake causes \$80,000 in covered damage, the claim payment would be \$55,000.

The CEA gave homeowners the option to have separate deductibles for their dwelling and personal property. You can choose between 5 to 25 percent for your personal property deductible, which may allow you to receive a personal property claim payment even if your house is not badly damaged. Renters are also given the same deductible options.

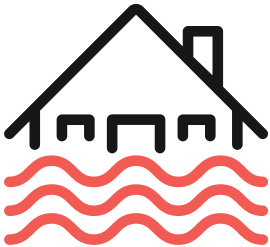
Personal property claims are settled by CEA at replacement cost — what it would cost to replace your property with no deduction for depreciation — not actual cash value.

What's the difference? One method takes into consideration depreciation, while the other does not.

If you have to live elsewhere after the earthquake, the CEA will cover up to \$100,000 in additional living expenses for homeowners and renters.

BY U-T  
STAFF

## FLOOD INSURANCE



Flood insurance is another policy you won't find in your homeowners coverage. But help is available.

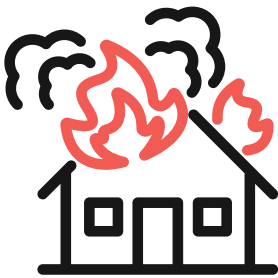
The government's National Flood Insurance Program (NFIP) offers a policy that, up to a point, covers your home and its contents. If you need more than that, you can buy excess flood insurance policies.

Many people buy such insurance in anticipation of an El Niño, a periodic weather phenomenon that can produce unusually wet winters. Then many people drop the policies after the El Niño ends. Insurers understand that. But they remind people that floods can occur unexpectedly; They can be caused by everything from a fire hydrant explosion to a break in a city water pipe.

NFIP, which is part of the Federal Emergency Management Agency, says more than 20 percent of flood claims come from properties outside the high-risk flood zone.

The federal flood program doesn't cover living expenses if you have to relocate while your home is being repaired.

## FIRE INSURANCE



San Diego County has been ravaged by wildfires.

Two of the top 10 costliest U.S. wildfires were local: the 2007 Witch fire and 2003 Cedar fire, according to the Property Claim Services.

When purchasing fire insurance, do not use the price of the home because that figure includes the value of the land, which will still be there after a disaster.

Only insure the structure.

Personal possession coverage is often 50 percent to 75 percent of the dwelling limit. For example, if the home is insured for \$100,000, you would have \$50,000 to \$75,000 for personal property.

If you have paintings or jewelry, you may find that the standard homeowners insurance policy may have limits on those valuables. That's where an insurance rider may help.

An insurance rider — also referred to as a floater or an endorsement — is an optional add-on to an insurance policy. A common type of rider is scheduled personal property coverage, which may provide additional coverage for things you own that are worth more than the per-item limit of your homeowners or renters insurance policy, according to Allstate.

There are two basic types of coverage for contents: replacement cost and actual cash value. Actual cash value coverage is less expensive.

Use a smartphone to record what's inside the home and store the video in an email or the cloud, so you don't have to rely on memory when filing a claim.

If your home is uninhabitable, your homeowners insurance policy will pay the extra expense of living elsewhere until your home has been repaired or rebuilt. Typically the limit for living expenses outside the home is also a percentage of the dwelling coverage.

Renters insurance covers belongings against perils such as fire and provides additional living expense if you must move while your place is being repaired.

Homeowners should ask insurers about discounts if they have a sprinkler system or fire retardant roof, for example.



**T**he monsoonal moisture that flows into San Diego County during the summer generates lightning that can spark fast-moving wildfires, especially in the mountains, where thunderstorms are most likely to erupt.

Lightning also can disrupt the power supply, and it can be deadly for people caught outside when the skies light up.

The U.S. Centers for Disease Control and Prevention offers the following lightning safety tips:

**The main lightning safety guide is the 30-30 rule.** After you see lightning, start counting to 30. If you hear thunder before you reach 30, go indoors. Suspend activities for at least 30 minutes after the last clap of thunder.

**Safe shelters include** homes, offices, shopping centers and hard-top vehicles with the windows rolled up.

**If you are caught in an open area, crouch down in a ball-like position** (feet and knees together) with your head tucked and hands over your ears so that you are down low with minimal contact with the ground.

**Do not lie down.** Lightning causes electric currents along the top of the ground that can be deadly over 100 feet away. Crouching down is the best combination of being low and touching the ground as little as possible.

**If you are in a group during a thunderstorm, separate from each other.** This will reduce the number of injuries if lightning strikes the ground.

**Avoid open vehicles such as convertibles, motorcycles, and golf carts.** Be sure to avoid open structures such as porches, gazebos, baseball dugouts and sports arenas. And stay away from open spaces such as golf courses, parks, playgrounds, ponds, lakes, swimming pools and beaches.

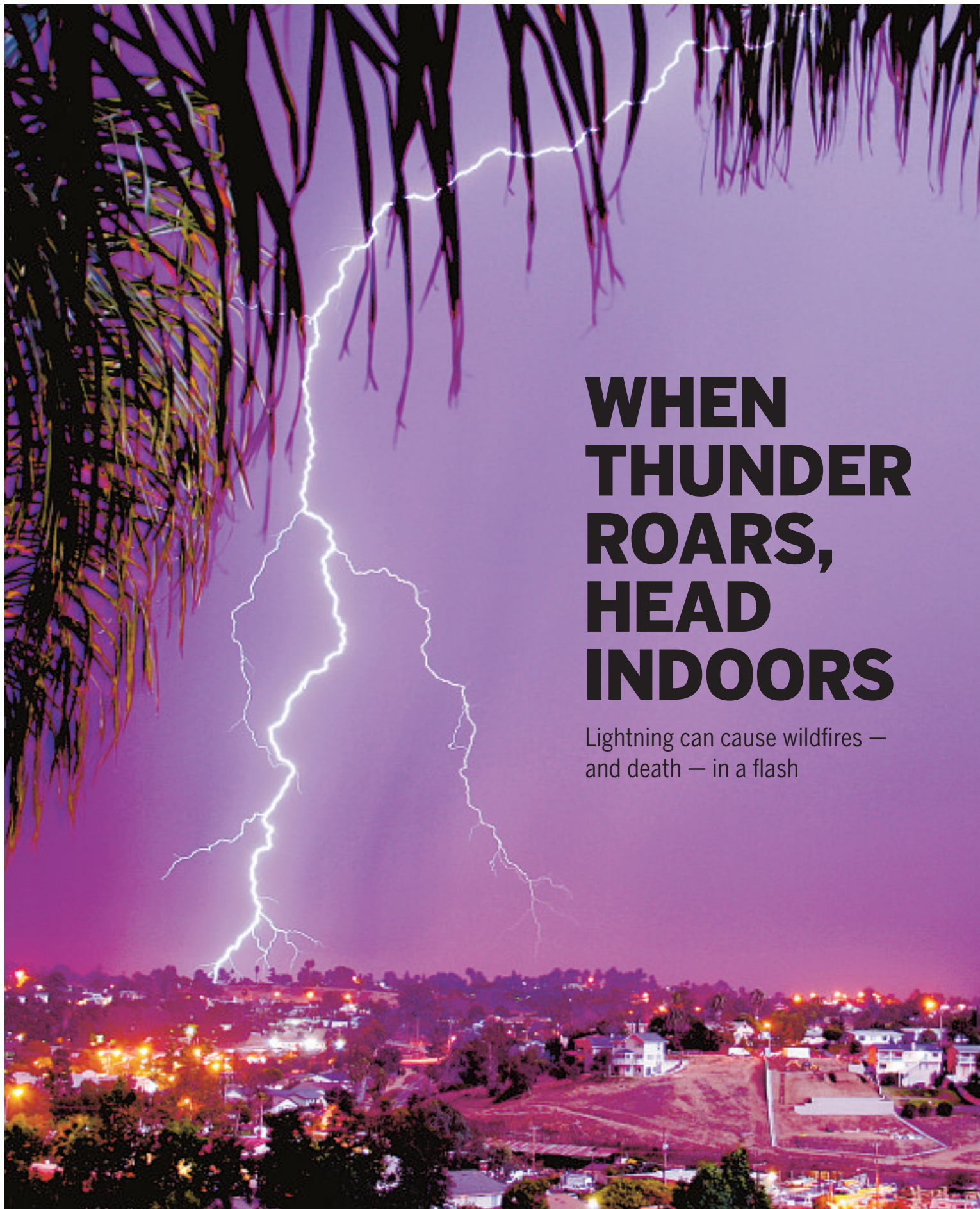
**Avoid water during a thunderstorm.** Lightning can travel through plumbing.

**Avoid electronic equipment of all types.** Lightning can travel through electrical systems and radio and television reception systems.

**Avoid corded phones.** However, cordless or cellular phones are safe to use during a storm.

# WHEN THUNDER ROARS, HEAD INDOORS

Lightning can cause wildfires — and death — in a flash

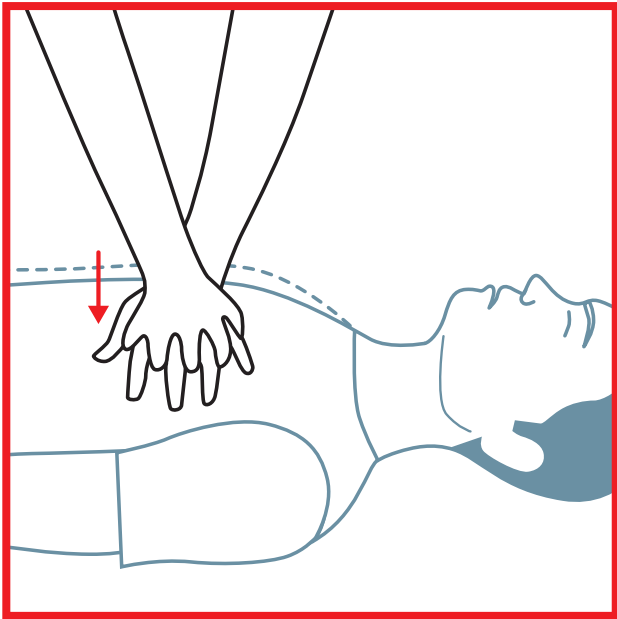


SKYAK GETTY IMAGES



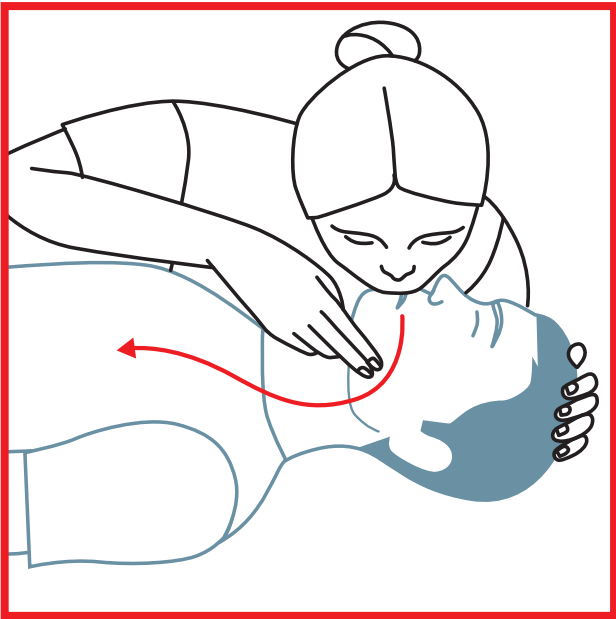
# BASIC CPR AND FIRST-AID PROCEDURES

It's essential that you have some fundamental first-aid skills to be able to cope with disaster. The American Red Cross and other safety and service agencies say these are a few of the things that you need to know.

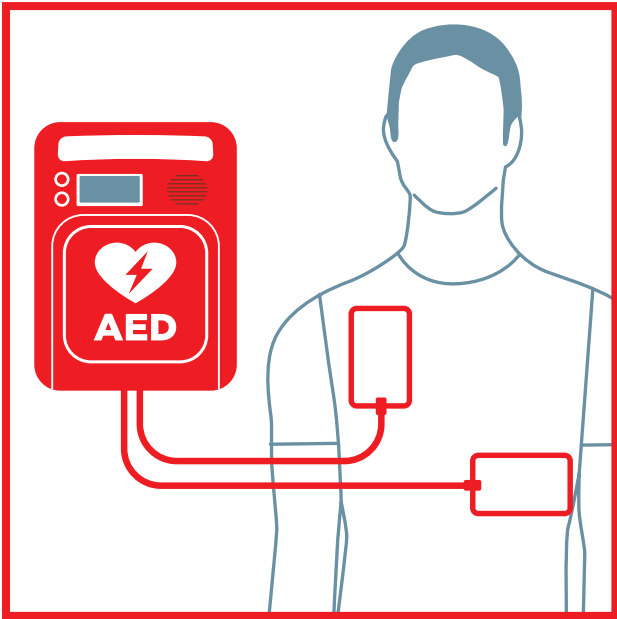


### PERFORMING CPR

**1** Place your hands, one on top of the other, in the middle of the chest. Use your body weight to help you administer compressions that are at least 2 inches deep and delivered at a rate of at least 100 compressions per minute.



**2** With the person's head tilted back slightly and the chin lifted, pinch the nose shut and place your mouth over the person's mouth to make a complete seal. Blow into the person's mouth to make the chest rise. Deliver two rescue breaths, then continue compressions. If the chest does not rise with the initial rescue breath, re-tilt the head before delivering the second breath. If the chest doesn't rise with the second breath, the person may be choking. After each subsequent set of 100 compressions, and before attempting breaths, look for an object and, if seen, remove it.



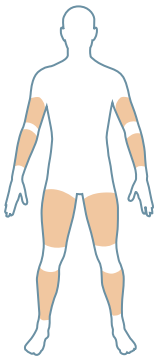
**3** Keep performing cycles of chest compressions and breathing until the person exhibits signs of life, such as breathing. Or continue until an automated external defibrillator machine becomes available, or EMS or a trained medical responder arrives on the scene. End the compression cycles if the scene becomes unsafe or you cannot continue performing CPR due to exhaustion.

### CONTROLLING BLEEDING

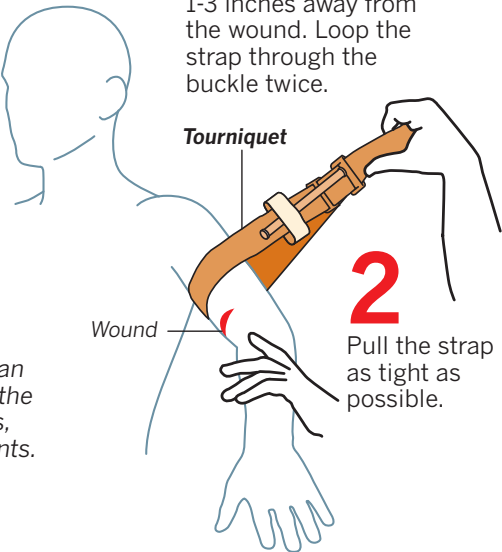
- Apply direct pressure on wound with a sterile dressing (if available).
- Elevate injured area above the heart if possible.
- Secure dry, sterile dressings with bandages.
- Cleanse minor injuries thoroughly with plain soap and water (clean your hands first).
- If evidence of infection appears, see a doctor.

### APPLYING A TOURNIQUET

Tourniquets are designed to wrap tightly around an arm or a leg to stem bleeding. They should not be used on the neck or torso, where stuffing gauze is best to slow blood flow.



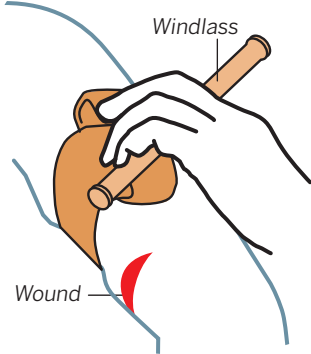
**Areas tourniquets can be used**  
Tourniquets can be placed on the arms and legs, but not on joints.



**1** Place the strap between the wound and the torso, staying 1-3 inches away from the wound. Loop the strap through the buckle twice.

**2** Pull the strap as tight as possible.

**3** Twist the windlass up to three times or until bleeding stops.



**4** Note the time the tourniquet was applied. If bleeding has not stopped, a second tourniquet can be applied directly above the first.

### TREATING FRACTURES

- Do not move the victim.
- Keep the broken bone ends and adjacent joints from moving.
- If an open wound is present, control the bleeding.
- Apply splints.

### TREATING SHOCK

- Keep the victim lying down.
- Cover the victim with only enough material to keep him from losing body heat.
- Obtain medical help as soon as possible.

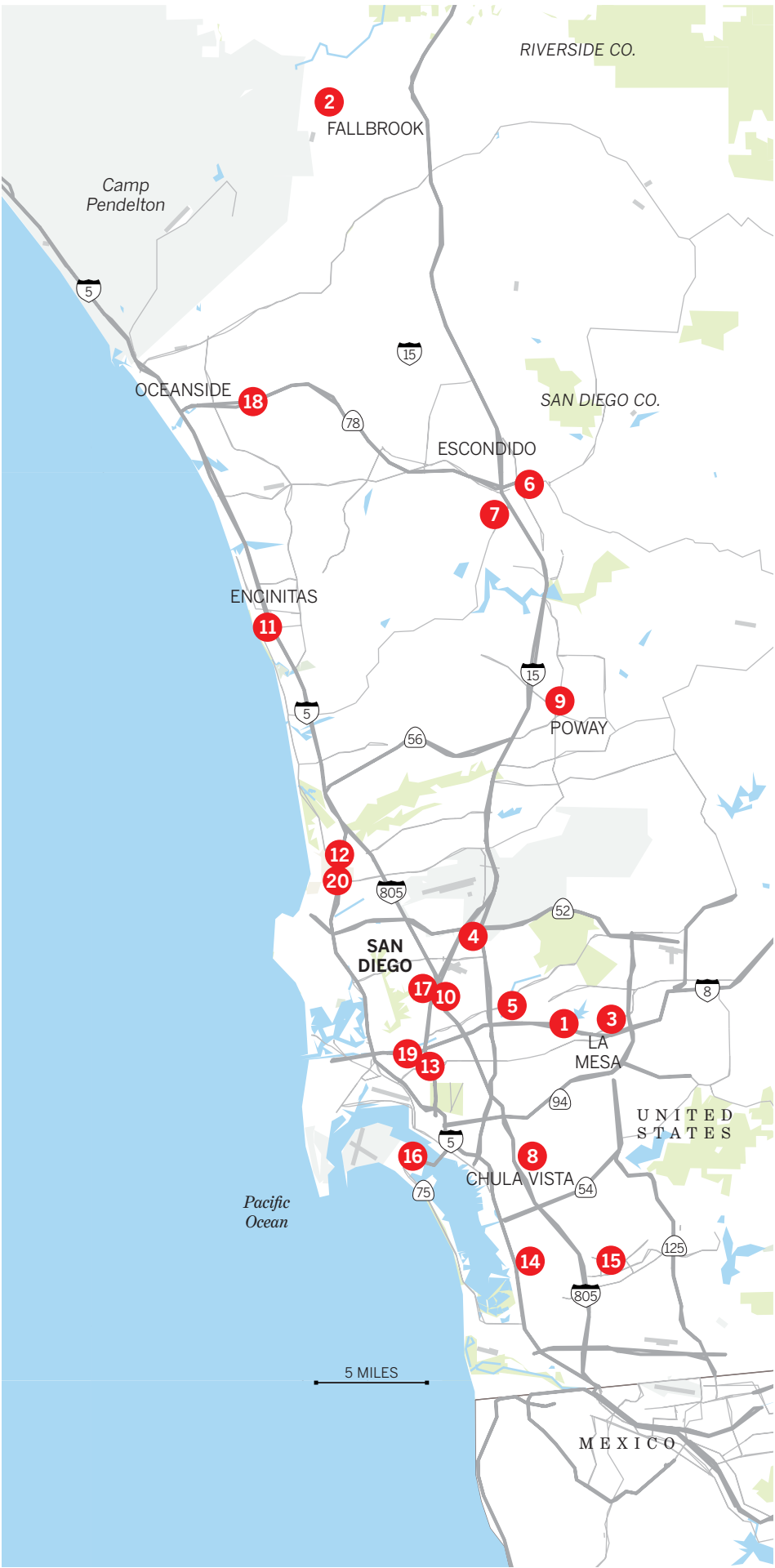
# EMERGENCY ROOMS IN SAN DIEGO COUNTY



EDUARDO CONTRERAS U-T

Tri-City Medical Center in Oceanside is one of 20 locations in the county where an emergency room is available 24/7 for immediate medical care.

1. **Alvarado Hospital Medical Center:** 6655 Alvarado Road, San Diego
2. **Fallbrook Hospital District:** 624 East Elder St., Fallbrook
3. **Grossmont Hospital:** 5555 Grossmont Center Drive, La Mesa
4. **Kaiser Foundation Hospital, Clairemont Mesa:** 9455 Clairemont Mesa Blvd, San Diego
5. **Kaiser Foundation Hospital, Zion:** 4647 Zion Ave., San Diego
6. **Palomar Health Downtown Campus:** 555 E. Valley Parkway, Escondido
7. **Palomar Medical Center:** 2185 W. Citracado Parkway, Escondido
8. **Paradise Valley Hospital:** 2400 East Fourth St., National City
9. **Pomerado Hospital:** 15615 Pomerado Road, Poway
10. **Rady Children's Hospital, San Diego:** 3020 Children's Way, San Diego
11. **Scripps Memorial Hospital, Encinitas:** 354 Santa Fe Drive, Encinitas
12. **Scripps Memorial Hospital, La Jolla:** 9888 Genesee Ave., La Jolla
13. **Scripps Mercy Hospital:** 4077 Fifth Ave., San Diego
14. **Scripps Mercy Hospital, Chula Vista:** 435 H St., Chula Vista
15. **Sharp Chula Vista Medical Center:** 751 Medical Center Court, Chula Vista
16. **Sharp Coronado Hospital and Healthcare Center:** 250 Prospect Place, Coronado
17. **Sharp Memorial Hospital:** 7901 Frost St., San Diego
18. **Tri-City Medical Center:** 4002 Vista Way, Oceanside
19. **UCSD Health Hillcrest, Hillcrest Medical Center:** 200 West Arbor Drive, San Diego
20. **UCSD Health La Jolla, Jacobs Medical Center & Sulpizio Cardiovascular Center:** 9300 Campus Point Drive, La Jolla





**R**eady.gov/senior recommends these steps to help prepare for a disaster such as an earthquake or a wildfire:

**Get informed**

**Know what disasters could affect your area**, which could call for an evacuation and when to shelter in place.

**Keep a NOAA weather radio tuned to your local emergency station** and monitor TV, radio and follow mobile alerts and mobile warnings about severe weather in your area.

**Download the FEMA app**, and sign up for weather alerts from the National Weather Service for up to five locations anywhere in the United States.

**Make a plan**

**Create a support network** of family, friends and others who can assist you during an emergency, sharing and practicing your disaster plans with them. Make sure they have an extra key to your home, know where you keep your emergency supplies and how to use lifesaving equipment or administer medicine.

**If you undergo routine treatments** administered by a clinic or hospital, find out their emergency plans and work with them to identify backup service providers.

**If you have a communication-related disability**, note the best way to communicate with you.

**Don't forget your pets** or service animals. Not all shelters accept pets, so plan for alternatives.

**Consider loved ones** or friends outside of your immediate area.

**Prepare an emergency kit** for your pet.

**Get your benefits electronically**

**A disaster can disrupt mail service for days or weeks.** If you depend on Social Security or other regular benefits, switching to electronic payments is a simple, significant way to protect yourself financially before disaster strikes. It also eliminates the risk of stolen checks. The U.S. Department of the Treasury recommends two safer ways to get federal benefits:

**Direct deposit to a checking or savings account.** Federal benefit recipients can sign up by calling (800) 333-1795 or sign up online.

**The Direct Express prepaid debit card** is designed as a safe and easy alternative to paper.



# HOW SENIORS CAN PREPARE

When a disaster strikes, elderly people can be especially vulnerable



**D**isaster medication management should always start with a simple understanding of the threats you're likely to face.

In Southern California, recent history shows that wildfires are the most likely threat, though power outages and earthquakes are also very real possibilities.

Experts from the U.S. Food and Drug Administration to the Federal Emergency Management Agency all advise the same simple approach: If you're taking a medication you need to stay alive, have a plan and keep it up-to-date.

Thinking ahead and ordering larger quantities of medication can increase the likelihood that you will have enough supply on hand to make it through a weeklong disaster where pharmacy access is limited. If you're taking something expensive that your health insurance won't let you order in large quantities, you're not necessarily out of luck. The federal government operates an extensive medical corps that is dispatched into disaster areas as quickly as possible. These teams have expedited access to needed medications.

Loss of electricity is the other big issue. Many life-saving medications such as insulin require constant refrigeration to maintain their potency, so if you're on a prescription that requires refrigeration, it's a good idea to make a plan now for how you will keep those drugs cold if your power goes out.

Insulin, interferon and most antibiotics are common examples of meds that require refrigeration.

Lucky for you, a wide range of portable, battery-powered medication coolers are available. Just Google "portable medication cooler battery powered" to get started. Make sure to look for one that can charge its battery using your vehicle's 12-volt cigarette lighter plug.

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## SOME EMERGENCY MEDICATION MANAGEMENT TIPS

**Keep a list of every medication each person in your family** is currently taking and exactly what the prescribed doses are. This comes in handy if you need to get a missing medication in a hurry.

**The Mayo Clinic recommends you have the following medications in your disaster first-aid kit:** Aloe vera gel, calamine lotion, anti-diarrhea medication, laxative, antacids, antihistamine, pain relievers such as Tylenol and ibuprofen, hydrocortisone cream and cough and cold medication.

Remember, all of this stuff expires. If you're storing it in a kit, you will need to replace it eventually. Set a reminder in your smartphone calendar to let you know when it's time to freshen up the supply.

**Pay attention to where your emergency medicine stash is stored.** While you don't need to refrigerate them, you do want to keep over-the-counter medications out of areas that get extremely hot, cold or humid or that have exposure to chemicals.

**Don't forget the backups.** Extra glasses, a backup

cane, hearing-aid batteries or other disability-related necessities should be accounted for in any household disaster plan.

**Though a good HEPA-certified dust mask** is always a good item for a Southern California emergency kit, it's vital medical equipment for anyone who has asthma. Take the time to invest in this resource now. Good masks disappear quickly from home-improvement store shelves once smoke is in the air.



BY CLIFF KAPONO

**C**ircumstances would dictate how to coordinate traffic flow out of an affected area, but here are a few general guidelines:

**Unless there is immediate danger, stay at home, work, school or elsewhere** until officials signal where it is safe to go. Keep any driving to a minimum to make room for emergency vehicles and other necessary travel.

**If an evacuation is ordered,** the sheriff's office or other law enforcement agency will announce details, what routes to take, where to go for shelter and care, and how long the emergency and the evacuation may last.

**Freeways**

Freeways, offramps and bridges could become unstable in an earthquake. Traffic managers recommend stopping as soon as possible to make sure it's safe to proceed. Be wary when driving. Changes to directional flow on freeways and other roads could be made.

**Mass transit**

Transit agencies, school bus fleets, vans and ambulances stand by to assist in relocating people unable to leave on their own. Details on accessing emergency transit would be broadcast to the public along with a phone number to request special assistance.

**Vehicles**

**Keep your vehicle's fuel tank full.** Depending on the type of emergency, gasoline may not be available.

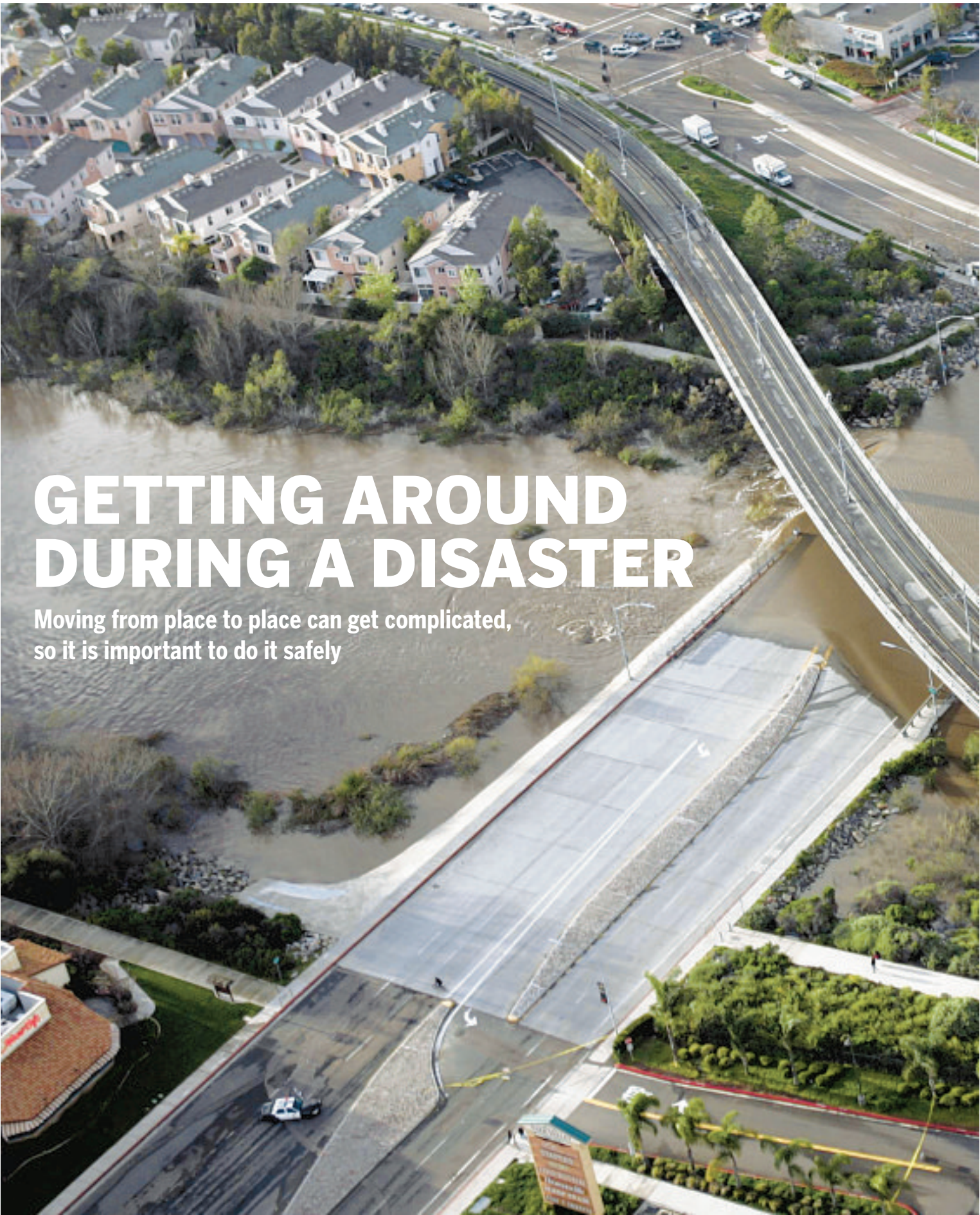
**Create or buy a disaster-preparedness kit** for your car in case you're tied up in traffic or unable to reach your destination because of road closures.

The San Diego/Imperial Counties chapter of the American Red Cross sells ready-to-go kits and emergency backpacks for vehicles, boats and campers. Filled with the essentials for survival, they are available in one-person packs for \$40, two-person kits for \$45 and four-person kits for \$85. They contain items such as blankets, 2,400-calorie food bars, ponchos, light sticks, tissues, first-aid kits, trash bags and foil packets containing water.

The kits are available from 8:30 a.m. to 5 p.m. Monday through Friday at the Red Cross headquarters at 3950 Calle Fortunada, San Diego; (858) 309-1200 or sdarc.org.

# GETTING AROUND DURING A DISASTER

Moving from place to place can get complicated, so it is important to do it safely







# BOOKS THAT WILL HELP YOU UNDERSTAND AND PREPARE

REED SAXON ASSOCIATED PRESS

At the California Institute of Technology in Pasadena, seismologist Dr. Lucy Jones describes how an early warning system would alert people of an earthquake.

BY GARY ROBBINS

**S**outhern Californians were drifting off to sleep on April 22, 1992, when the earth began to shake, causing alarm from San Diego to Los Angeles to Santa Barbara.

A fault near Desert Hot Springs had slipped, producing a magnitude 6.1 earthquake that was fairly brief but seemed endless to many.

Less than an hour later, a woman holding her 1-year-old son appeared on television and calmly explained what had just happened, and what might occur in the hours before dawn.

It was seismologist Lucy Jones, who didn't have time to find a baby sitter before the cameras began rolling.

The moment underscored the importance of having thoughtful people explain the forces of nature to the masses. Jones — known widely as the “Earthquake Lady” —

has made a career of it, connecting with people not only on TV, but in print. She recently released a well-received book, “The Big Ones: How Natural Disasters Have Shaped Us (and What We Can Do About Them).”

Jones covers everything from earthquakes to tsunamis, demystifying nature and pointing to ways to prepare for trouble. “Big Ones” is but one of many books and television programs that help people understand nature, natural disasters and the value of preparedness.



DOUBLEDAY

**“The Big Ones: How Natural Disasters Have Shaped Us (and What We Can Do About Them)”**

## YOU MIGHT ALSO WANT TO READ

**“Earthquake Survival: Prepare for & Survive an Earthquake”**  
by James Kavanagh

**“Living With Earthquakes in California: A Survivor’s Guide”**  
by Robert S. Yeats

**“A Crack in the Edge of the World: America and the Great California Earthquake of 1906”** by Simon Winchester

**“Richter’s Scale: Measure of an Earthquake, Measure of a Man”**  
by Susan Hough

**“Fire Smart Home Handbook: Preparing for and Surviving the Threat of Wildfire”** by Clyde Soles

**“California Wildfires Survival Stories”** by Thomas K. Adamson and Heather Adamson

**“The Fire Outside My Window: A Survivor Tells the True Story of California’s Epic Cedar Fire”** by Sandra Millers Younger

**“Wildfires”** by Kathy Furgang (children’s book)

**“Ghosts of the Tsunami: Death and Life in Japan’s Disaster Zone”**  
by Richard Lloyd Parry

**“Tsunamis (Earth in Action)”** by Mari C Schuh (children’s book)



20171207 Lilac Fire in San Diego County multi-camera time lapse animation



SDG&E

SDG&E uses dozens of cameras placed around the county to identify and track wildfires that are monitored from an operations center (below) in Kearny Mesa.

# CONSTANTLY ON THE WATCH FOR THREATS

If a wildfire roars to life in San Diego's backcountry, SDG&E will be among the first to know about it.

The utility uses dozens of cameras to monitor the landscape, looking for potential threats to the infrastructure of the region's largest power company.

In less than a decade, SDG&E has put together a weather center that now has four full-time forecasters who pay special attention to the wind — notably the Santa Anas.

The Santa Anas can gust 50 mph to 70 mph in some inland valleys and foothills. And there are occasional gusts to 90 mph or above at Sill Hill, a peak in East County.

Such winds can damage power lines and disrupt operations in SDG&E's service area, which is nearly as large as Connecticut.

In December 2017, the Santa Anas

turned a small brush fire in Bonsall into a conflagration that burned about 4,100 acres, destroyed or damaged more than 220 structures, killed dozens of horses and forced thousands of people to evacuate their homes in North County.

SDG&E monitored and analyzed the blaze from an emergency operations center in Kearny Mesa that can hold more than 50 people. The utility uses retired firefighters to help it deal with such events.

The analysis included the use of software that combines current readings with forecast models to predict how the weather will play out locally.

The data "tells us, on the landscape, hour by hour, where the greatest potential for wildfire growth will be," said Steve Vanderburg, an SDG&E forecaster. "We are exploring what information can be shared, and how, with the fire agencies."

GARY ROBBINS • U-T



SAN DIEGO COUNTY EMERGENCY OPERATIONS CENTER