

Free · for Phoenix-area residents



Phoenix Survival Guide

The complete guide: heat, blackouts, unrest, economic hardship, evacuation, and what to do after you arrive.

Generated October 11, 2026. General education only, not professional advice. In an emergency, call 911 and follow official instructions. Sources are linked throughout; the web version at the site has live links.

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THE CENTERPIECE GUIDE

Extreme Heat Survival Guide

How to recognize heat illness, cool down (with or without power), and protect the people around you during a Phoenix summer.

Heat exhaustion vs. heat stroke

Heat exhaustion is a warning. Heat stroke is a life-threatening emergency. Knowing the difference, and acting fast, saves lives.

WARNING

Heat exhaustion

Look for:

- Heavy sweating
- Cold, pale, clammy skin
- Fast, weak pulse
- Nausea or vomiting
- Muscle cramps
- Tiredness, weakness, dizziness, headache
- Fainting

Do this:

- Move to a cool place, ideally air-conditioned
- Loosen tight clothing
- Apply cool, wet cloths or take a cool bath
- Sip water

Get medical help right away if they're vomiting, symptoms get worse, or symptoms last longer than an hour.

CALL 911

Heat stroke

Look for:

- Body temperature of 103°F or higher
- Hot, red, dry or damp skin
- Fast, strong pulse
- Headache, dizziness, nausea
- Confusion or acting "not themselves"
- Losing consciousness (passing out)

Do this:

- **Call 911 immediately.**
- Move them somewhere cooler (shade, indoors, AC).
- Cool them fast: cold water, ice packs on neck, armpits, and groin, wet sheets plus a fan, or immersion in cool water if available.
- **Do not** give them anything to drink.

Symptoms adapted from the CDC: Heat-Related Illnesses and Maricopa County: Signs of Heat Illness.

Hydration

- **Drink before you're thirsty.** Thirst is a late signal, especially for older adults.
- **Sip steadily** through the day instead of chugging large amounts at once.
- **Replace electrolytes** if you're sweating heavily for long periods (outdoor work, yard work, walking). Electrolyte drinks or tablets help; water alone isn't always enough.
- **Limit alcohol and stimulants.** They make it harder for your body to handle heat.
- **Check your urine:** pale yellow is good; dark yellow means drink more.
- **Carry water every time you leave home**, even for "quick" errands. Car breakdowns and bus delays happen.
- If your doctor limits your fluids or you take diuretics, **ask them how to adjust in extreme heat.**

Cooling strategies, with or without power

Cool your body

- Wet your skin and clothes, then sit in moving air (fan, breeze, or fanning by hand).
- Cool water on wrists, neck, and feet; a wet bandana or cooling towel on your neck.
- Cool (not ice-cold) showers or foot soaks.
- Loose, light-colored, breathable clothing. Outside in the sun? Cover up loosely: see To Cover Up, Or Not?
- Rest during 10 a.m. to 6 p.m.; do chores at dawn.

Cool your space

- Close blinds and curtains on sun-facing windows during the day; reflective window film or foil helps a lot.
- Stay on the lowest floor and in interior rooms.
- Open windows only when it's cooler outside than inside (usually pre-dawn).
- Avoid using the oven or stove; eat cold meals.
- Once indoor temps get very high, fans alone can't keep you safe. That's the time to **go to a cooling center** or somewhere with AC.

If your AC fails in summer, treat it as an emergency. Call your landlord or a repair service right away, and go somewhere cool while you wait. In 2025, among indoor heat deaths in Maricopa County where an AC unit was present, the unit wasn't working in 72% of cases (MCDPH).

Who's most at risk, and how to help

Older adults

Bodies regulate heat less well with age, and many medications affect heat tolerance. Check in at least twice a day during heat warnings. Make sure AC works and that they'll actually use it, since cost worries keep some people from running it. Point them to energy assistance programs.

Babies & kids

Children heat up faster and can't always tell you something's wrong. Watch for fussiness, lethargy, or fewer wet diapers. Never leave a child in a car. Check playground slides and surfaces before kids touch them.

People experiencing homelessness

Nearly half of heat deaths in Maricopa County are among unhoused people. Offer water, electrolytes, and directions to the nearest heat relief site. If someone seems confused or unresponsive in the heat, call 911.

Outdoor workers

Construction, landscaping, delivery, and other outdoor workers: schedule hard work early, take shade and water breaks, use the buddy system, and ease back in after time away (your body needs days to acclimatize). Know your rights at OSHA: Heat.

People with health conditions

Heart disease, diabetes, kidney disease, mental illness, and substance use all raise risk. Some medications (like diuretics, some blood pressure and psychiatric medications) affect heat tolerance. Ask your doctor or pharmacist.

Pets

Pavement can burn paws. Walk dogs at dawn or after dark, test the ground with the back of your hand, and keep plenty of shade and water. Never leave pets in a parked car. Panting heavily, drooling, or stumbling are emergency signs; call a vet.

Cars, pavement & hot surfaces

- **Never leave a child, older adult, or pet in a parked car, not even for a minute**, and not even with windows cracked. Car interiors heat up dangerously fast.
- **"Look before you lock."** Put your bag or phone in the back seat as a reminder to check for kids.
- If you see a child or pet alone in a hot car, **call 911**.
- **Keep a car heat kit:** extra water, a sunshade, a cooling towel, and a phone charger. A breakdown on a desert road can become dangerous fast.
- Keep your gas tank above half in summer so you can run the AC if you're stuck.
- **Asphalt, concrete, metal, and car surfaces can cause serious burns**, especially if someone falls or collapses on them. Move a person who's down off hot pavement as soon as it's safe.

Check on your neighbors

In Maricopa County's 2025 report, **48% of indoor heat deaths were discovered during a welfare check**, when a neighbor, family member, or EMS was called to check on someone. Earlier check-ins can turn a tragedy into a rescue.

- Make a short list of people to check on: older neighbors, people who live alone, anyone with a disability or illness, and families with newborns.
- Exchange phone numbers *before* summer and agree on a daily check-in time during heat warnings.
- Ask directly: "Is your AC working? Is it running? Is it cool inside?"
- If no one answers and you're worried, call 911 for a welfare check.
- See Community & Conflict for more on organizing neighbors.

Maricopa County cooling & hydration resources

Heat Relief Network

Find cooling centers, hydration stations, and donation sites near you on the regional map, run by the Maricopa Association of Governments.

Dial 2-1-1

Arizona's free, confidential line for community resources, including cooling centers, shelter, food, and utility help.

Call 211 · 211arizona.org

Maricopa County: Extreme Heat

Official county heat resources, illness prevention tips, and data.

maricopa.gov/heat

City of Phoenix Office of Heat Response

City heat programs, cooling centers, and heat response updates.

phoenix.gov/heat

NWS Phoenix heat forecasts

HeatRisk forecasts and Extreme Heat Warnings for the Phoenix area.

weather.gov/psr/heat

Energy bill help

Utility assistance and energy programs for seniors and low-income households.

County energy assistance

Why this matters

Maricopa County Department of Public Health (MCDPH) says it plainly: **all heat-related deaths are preventable**. Yet heat deaths in the county climbed sharply over the past decade.

430

heat-related deaths in 2025, the second straight yearly decline

MCDPH 2025 report

645

deaths in 2023, the record high (608 in 2024)

MCDPH 2024 & 2025 reports

49%

of 2025 heat deaths were among people experiencing homelessness

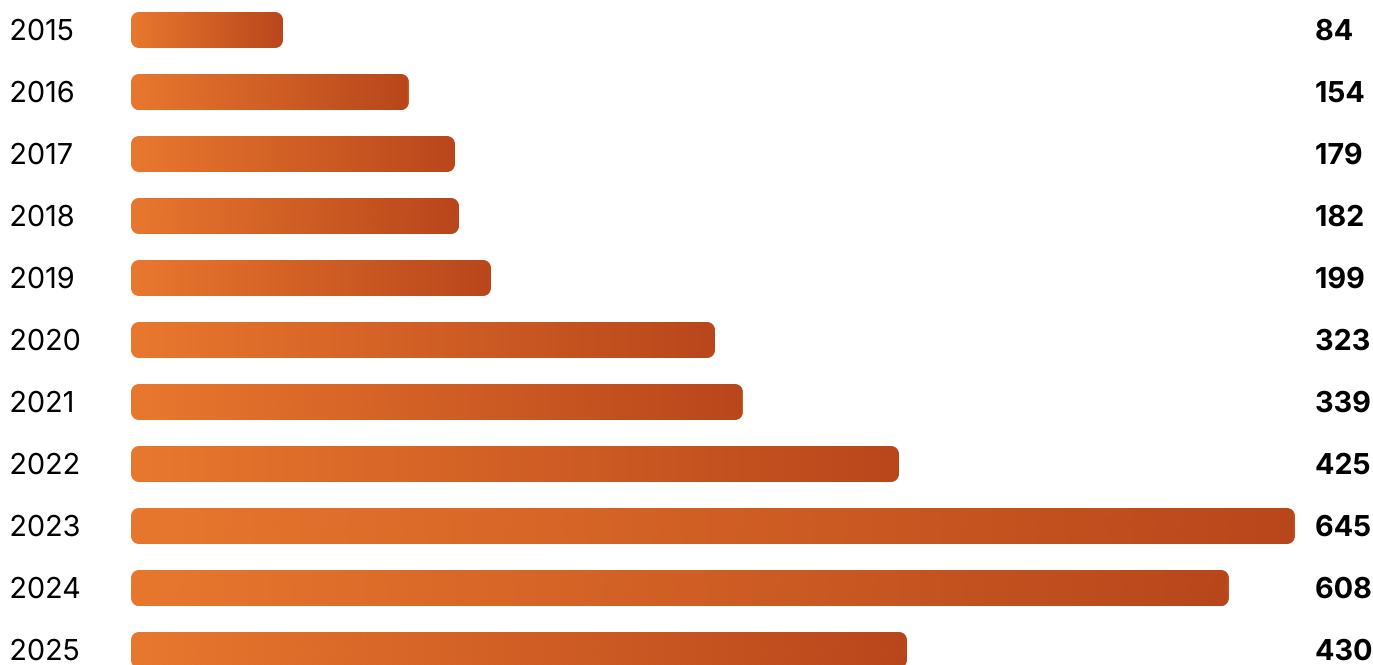
MCDPH 2025 report

85

days in a row with at least one heat death (June 13 to Sept 5, 2025), totaling 357 deaths

MCDPH 2025 report

Heat-related deaths in Maricopa County, 2015 to 2025



Source: MCDPH, 2025 Heat-Related Deaths Report (published April 2026). Includes heat-caused and heat-contributed deaths.

What the data tells us

- **Most deaths happen outdoors:** 74% of 2025 heat deaths occurred outdoors.
- **Age matters:** about 60% of those who died were 50 or older, and roughly 3 out of 4 were men.

- **Broken AC is deadly:** among indoor deaths with an AC unit present, it wasn't functioning in 72% of cases. About 23% of indoor deaths happened in mobile homes or RVs/trailers.
- **Substances raise risk:** 55% of 2025 heat deaths involved substance use.
- **"Moderate" heat days still kill:** 47% of 2025 heat deaths occurred on days when the NWS heat risk level was only moderate.
- **Phoenix is getting hotter:** in 2024 Phoenix set records with **113 consecutive days at or above 100°F** (May 27 to Sept 16) and **70 days at or above 110°F** in one year (NWS Phoenix).
- **Prevention is working:** deaths fell from 645 (2023) to 608 (2024) to 430 (2025), even as heat records keep falling. Cooling centers, outreach, and neighbors checking on neighbors matter.

Sources

1. Maricopa County Department of Public Health, 2025 Heat-Related Deaths Report (April 2026).
2. Maricopa County Department of Public Health, 2024 Heat-Related Deaths Report (final, 2025).
3. Maricopa County, Heat Surveillance & Reports (weekly dashboard during heat season).
4. National Weather Service Phoenix, Historical Extreme Temperatures in Phoenix.
5. Centers for Disease Control and Prevention, Heat-Related Illnesses: Signs and Symptoms.



EMERGENCY CHECKLIST

AC broken? Do this now

In Phoenix summer heat, a broken air conditioner is a medical emergency waiting to happen. Work down this list in order. Get people safe first, then fix the AC.

The short version

- 1 Anyone confused, passed out, or very hot to the touch? Call 911** and start cooling them now.
- 2 Indoors above 90°F, or anyone high-risk and it's getting hot? Leave now** for a cooling center, library, mall, or a friend's home with AC. Dial 211 or use the Heat Relief Network map.
- 3 Cool your body:** wet cloths, cool shower, drink water. Fans help only below 90°F indoors.
- 4 Quick checks:** thermostat on Cool, breaker, filter, drain-pan switch, outdoor fan. Nothing more risky than that.
- 5 Renters:** tell your landlord *in writing* today and keep proof.
- 6 Check on neighbors and pets**, especially older adults living alone.

1. Check yourself and others for heat illness now

Call 911 for heat stroke: confusion, slurred speech, passing out, seizures, or a body temperature of 103°F or higher with hot, red, dry or damp skin. Move the person somewhere cooler and cool them fast with cold water, wet cloths, or ice while you wait. Don't give them anything to drink. (CDC)

Heat exhaustion (heavy sweating, cold clammy skin, weakness, headache, nausea, dizziness, muscle cramps): get to a cool place, loosen clothes, use cool wet cloths, and sip water. Get medical help if the person vomits, gets worse, or isn't better in an hour. See Heat exhaustion vs. heat stroke.

When to leave the house right away

Leave now if...

- It's **90°F or hotter inside**. Above 90°F, CDC says a fan can actually *raise* body temperature, so fans can't keep you safe.
- Anyone at home is **high-risk** and the indoor temperature is rising past the low-to-mid 80s with no fix in sight.
- Anyone shows signs of heat illness.
- You live in a **mobile home, RV, or trailer**: these heat up fastest.

Who's high-risk

- Adults 50 and older, especially 65+. In 2025, **90% of indoor heat deaths** in Maricopa County were people 50 or older.
- Babies, young children, and pregnant people.
- People with heart, lung, or kidney disease, diabetes, or mental illness, or who take medicines that affect sweating or fluids.
- Anyone who lives alone or can't easily leave.

What "too hot" means here: Phoenix and Tucson require rental AC to cool every room to 82°F or below (86°F for evaporative coolers). Above 90°F, CDC says fans stop helping. There's no single safe number for everyone, so if it's above about 82–85°F and climbing and someone at home is high-risk, don't wait.

Why this matters: in Maricopa County's 2025 heat deaths, an AC unit was present in 94% of indoor deaths, and in 72% of those cases the unit wasn't working. About 23% of indoor heat deaths happened in RVs, trailers, or mobile homes, which are only 5% of homes. (MCDPH 2025 report)

2. Go somewhere cool

Even a few hours in air conditioning lowers the risk of heat illness (CDC).

Cooling centers

Free, air-conditioned places to rest, with water. Hours vary; some are open overnight. Find one on the Heat Relief Network map (Maricopa Association of Governments) or on our Resource Map.

Dial 2-1-1

Free and confidential. Ask for the nearest open cooling center, transportation, or emergency shelter. Call 211 · 211arizona.org

Libraries, malls, stores

Public libraries, shopping malls, and large stores are free places to cool off during the day. Bring water and any medicines.

Friends & family

Ask someone with working AC if you can stay for the day or night. Phoenix tenants: the city's Landlord and Tenant Program can help with access to 24-hour cooling centers or emergency shelter (602-262-7210).

Can't get anywhere? Call 211 for a ride. If someone is sick, call 911. Never sit in a parked car with the engine running in a garage (carbon monoxide).

3. Cool down fast while you sort it out

Cool your body

- Wet cloths or a wet T-shirt on your neck, armpits, and head; refresh often.
- Take cool (not ice-cold) showers or baths, or soak your feet.
- Drink water regularly; don't wait until you're thirsty. Skip alcohol.
- **Fans only below 90°F indoors.** Above that, a fan can raise body temperature (CDC). EPA also says not to rely on fans in the mid-90s or higher, and never in a closed room.

Cool your space

- Close blinds and curtains on sunny windows; cover windows with foil or reflective film.
- Pick one room (lowest floor, north side, fewest windows) and close it off.
- Don't use the oven or stove; eat cold food.
- Open windows only when it's cooler outside than inside (usually before dawn).
- A portable or window AC for one room helps a lot while you wait for repairs.

4. Quick checks before you call a technician

These are safe checks anyone can do. **Don't open the outdoor unit's panels:** parts inside can hold a dangerous electrical charge even with the power off.

1. **Thermostat:** set to *Cool*, the temperature set a few degrees below room temperature, fan on *Auto*. Blank screen? Replace the batteries.
2. **Power:** is the power out? See Blackout and check your utility's outage map. Otherwise check the breaker panel for a tripped AC or furnace breaker and the outdoor shut-off box. **Reset a tripped breaker once.** If it trips again, leave it off and call a technician.
3. **Filter:** a clogged filter can stop airflow and freeze the coil. Replace it if it's dirty.
4. **Drain-pan (condensate) switch:** many systems shut off when the drain pan or drain line fills with water. If the pan is full, turn the system off, empty the pan, and clear the outside end of the drain line (a wet/dry vacuum works). Never bypass the switch.
5. **Outdoor unit:** with the AC on, is the fan spinning? Clear weeds and debris from around it. If you see ice on the lines or coil, turn cooling off and run the fan only to thaw it (this can take hours), then call for service.
6. **Vents:** make sure supply vents and the return grille are open and not blocked.

Stop and call a pro if a breaker trips again, you smell burning, the outdoor unit hums or buzzes but the fan won't spin, or water is leaking near electrical parts. Ask the company if they offer emergency or priority service for older adults or medical needs, and go somewhere cool while you wait.

5. Renters: tell your landlord in writing, today

Arizona law requires landlords to keep air conditioning that they supply in good, safe working order (A.R.S. 33-1324). Cooling is an essential service under A.R.S. 33-1364.

1. **Notify your landlord in writing.** Describe the problem and give a reasonable deadline. A letter is best, but Arizona Courts say email or text can count if you can prove it was sent and received. Keep a copy. The courts' self-service center has a notice form and instructions.
2. **Write down indoor temperatures** (with date and time), take photos, and keep every receipt.
3. **Know your local standard.** Phoenix and Tucson: AC must cool every room to 82°F or below, evaporative coolers to 86°F. Tempe: 82°F for AC, 88°F for evaporative. Measured 3 feet above the floor in the middle of the room.

If the landlord doesn't fix it in time

After written notice, if the repair isn't made in a reasonable time, A.R.S. 33-1364 lets you choose **one** of these:

- **Buy reasonable cooling** (for example fans or a window AC) and deduct the actual, reasonable cost from rent.
- **Recover damages** for the reduced value of the home.
- **Get substitute housing** (like a hotel). You don't owe rent for those days, and you may recover up to 25% more of the rent for those days; more if the landlord's failure is deliberate.

Keep receipts. These remedies don't apply if you, your family, or a guest caused the problem. Don't simply withhold rent without following the law. Landlords may not shut off utilities to punish a tenant, even if rent is late (Arizona Attorney General). This is general information, not legal advice.

Free help for renters

- **City of Phoenix Landlord and Tenant Program:** 602-262-7210. Free counseling, plus emergency help (cooling centers, temporary shelter, transportation, coordinating repairs) for eligible Phoenix tenants

when AC rooms are above 82°F (86°F for evaporative coolers). Details and request forms (English and Spanish).

- **Report a Phoenix cooling-code violation:** Neighborhood Services, 602-534-4444.
- **Community Legal Services** (free legal help for eligible low-income renters): 602-258-3434 · clsaz.org
- **Arizona Courts** AC issues: legal info FAQ.
- **Arizona Attorney General** enforces tenant protections; see its AC guidance for renters.

6. Help paying for repairs and bills, and checking on neighbors

City of Phoenix Weatherization

Free, income-qualified program for Phoenix homeowners *and* renters. It can include repair or replacement of heating and cooling equipment after a home assessment. 602-534-4444 · Details

Maricopa County Emergency Home Repair

For low- to moderate-income homeowners (up to 80% of area median income), mainly for broken AC and heating. Covers many communities outside the big cities (not Phoenix, Mesa, Chandler, Glendale, Tempe and others; county islands qualify). 602-506-0589 · Details

Healthy Homes AC Program

Nonprofit AllThrive365 repairs or replaces AC at no cost for eligible metro Phoenix homeowners, focused on older adults and people with disabilities, funded by local utilities (KJZZ, July 2026). allthrive365.org

Energy bills: LIHEAP

Arizona DES helps eligible households pay cooling bills, with extra crisis help if you have a shut-off notice. des.az.gov/liheap · 1-866-494-1981

APS & SRP

APS Crisis Bill Assistance helps with a bill during a temporary hardship, through local community agencies. SRP lists its financial assistance options. Ask about medical-need programs if someone depends on cooling or medical equipment.

Not sure where to start?

Dial 211 and ask for "AC repair assistance" and "utility assistance" in your city. Many cities and community action agencies run their own programs.

Check on neighbors, twice a day during heat waves. In 2025, 48% of indoor heat deaths in Maricopa County were found during a welfare check, when someone was called to check on the person. Knock on the doors of older neighbors and people who live alone, especially in mobile home and RV parks. If someone is confused or very hot, call 911. More in Check on neighbors and Community.

7. Pets

- Take pets with you if you can, or keep them in the coolest room with plenty of fresh water. Many cooling centers only allow service animals, so call ahead or plan a pet-friendly friend's home.
- Cool damp towels, a cooling mat, or a shallow tub of cool water help. No walks on hot pavement.
- **Heatstroke signs in pets:** heavy panting, glazed eyes, drooling, red gums or tongue, vomiting, weakness, collapse. Move the pet somewhere cool, wet it with cool (not ice-cold) water, and call a veterinarian right away.
- Never leave a pet in a parked car, even for a minute.

Sources: Maricopa County pet heat safety tips; Arizona Humane Society.

Sources

1. Maricopa County Department of Public Health, 2025 Heat-Related Deaths Report (April 2026): indoor deaths, AC presence and failure, mobile homes, age, welfare checks.
2. CDC, About Heat and Your Health (fans only below 90°F; heat illness) and Heat and People without Air Conditioning.
3. US EPA, Extreme Heat and Indoor Air Quality (fan safety).
4. National Weather Service Phoenix, heat safety and HeatRisk forecasts.

5. Maricopa Association of Governments, Heat Relief Network map; Maricopa County, Extreme Heat.
6. Arizona Revised Statutes 33-1324 (landlord obligations) and 33-1364 (failure to supply air conditioning or cooling).
7. Arizona Judicial Branch, Air Conditioning (A/C) Issues and What to do if your A/C is broken.
8. Arizona Attorney General, landlord AC obligations.
9. Phoenix City Code 39-5; Tucson City Code 16-11; Tempe City Code 21-34.
10. City of Phoenix, Landlord and Tenant Rights and Weatherization Assistance Program.
11. Maricopa County Human Services, Emergency Home Repair; Arizona DES, LIHEAP; APS Crisis Bill Assistance; SRP financial assistance; KJZZ, Healthy Homes AC Program (July 2026).
12. Carrier, AC unit not turning on: troubleshooting (homeowner checks).

Checked October 11, 2026. Programs, phone numbers and funding change; call to confirm.

PERSONALIZED GUIDE

Find Your Situation

Every household is different. Choose what fits you below and we'll show the advice that matters most for your transportation, part of the Valley, budget, and health needs.

Getting around

CAR WITH FUEL

You have the most options. Use them early.

- Keep the tank at least half full, all summer.
- Pack a car kit: extra water for everyone, a sunshade, cooling towels, phone charger, paper map.
- If you need to leave, go early, before roads clog. See your area's routes below and on Evacuation Routes.
- Your car is a cooling space in an outage. Run the AC in the open, **never in a closed garage**.
- Have room? Offer a seat to a neighbor without a car.

CAR, LITTLE OR NO FUEL

Save fuel for what matters most

- Use what fuel you have for **essential trips only**: getting to a cooling center, a pharmacy or dialysis, or out of a danger zone.
- Don't idle for long periods; use AC only as long as you need to cool down.
- Coordinate with neighbors: **carpool** and pool fuel for one trip instead of several.
- If stations are closed or out, check with 211 and official sources about where fuel or shelter is available before driving around searching.
- Never store gasoline indoors or in a hot car.

NO CAR

Plan your ride before you need it

- **Line up rides now:** a neighbor, friend, or family member who agrees to pick you up in an emergency.
- **Transit:** Valley Metro light rail and buses run across much of the metro when service is operating. Check valleymetro.org for current routes and service changes.
- **Rideshare/taxi** may work but can be scarce and expensive during emergencies. Keep some cash and a charged phone.
- **Dial 211** to ask about cooling sites and help near you.
- **In many cases, staying put is safer** than walking a long way in the heat. See the walking warning below.

Walking or biking in Phoenix heat can kill. Most heat deaths in Maricopa County happen outdoors (74% in 2025, MCDPH). If you must go on foot or by bike:

- **Travel at night or before sunrise**, never in the afternoon heat.
- Carry **more water than you think you'll need** for every person and pet, plus electrolytes. Store at least 1 gallon per person per day at home (Ready.gov).
- Go to the **nearest** cool place (cooling center, library, store, a neighbor with AC), not across town.
- Rest in shade often, wear a hat and light clothing, and travel with someone.
- Watch for heat illness signs and stop at the first sign of dizziness, confusion, or nausea.
- Don't attempt long-distance walking out of the metro. Shelter in place and seek help instead.

NO CAR OR NO FUEL?

Think creatively: wheels and other ways to move

When you can't drive, **pay attention to wheels**. Rolling a load uses far less energy than carrying it, and water (8.34 lb per gallon) is the heaviest thing you'll move. Look around your home, garage, and neighborhood.

Bikes & e-bikes

- **Bikes** cover several times the distance of walking for the same effort.
- **E-bikes** help with hills and heat, but range varies with battery size, load, speed, and terrain. Heavy loads and heat shorten it. In a blackout you can only recharge from a power station, solar panel, or wherever power is still on, so plan trips within one charge.
- **Bike trailers and cargo bikes** can haul water, kids, or supplies.

Things that roll

- **Wagons, garden carts, and hand trucks:** move water jugs to a neighbor or cooling site.
- **Strollers and jogging strollers:** big wheels roll well and carry a child plus water.
- **Wheeled coolers and rolling luggage** for hauling water, food, and meds.
- **Skateboards and kick scooters** for short hops on smooth pavement.

Keep it rolling

- **Pack:** spare tubes, a patch kit, tire levers, a pump, and a multi-tool.
- **Goatheads** (puncturevine) grow throughout Arizona below 6,500 ft. Their spiny burs puncture bike tires (UA Extension). Use thorn-resistant tubes or tire sealant.
- **Travel at night or before sunrise** with front and rear lights and reflective gear.
- **Hot pavement** can be 40–60°F hotter than the air. It softens tires, burns hands on metal, and burns paws.
- **Freeways:** bikes are banned on some urban segments (e.g., I-17 through central Phoenix and all of Loop 101) and allowed on many rural shoulders. Obey posted signs (ADOT policy, ARS 28-733).

Pack animals: what's actually true about horses and donkeys

It's often said that horses and donkeys are poor choices in the desert because they need so much water. **That's true for horses and only partly true for donkeys.**

Horses: yes, a lot of water

A typical 1,100 lb horse drinks about 8 gallons a day idle at 68°F, and about **21.7 gallons a day doing moderate work at 95°F** (NRC data via NDSU Extension). That's about 180 lb of water per day. A hard-working horse in heat can sweat 2–4 gallons an hour (UMN Extension). Horses also need about 1.5–2% of body weight in forage daily, roughly 15–20 lb of hay for a 1,000 lb horse (Penn State Extension).

Donkeys: tougher, but not water-free

Donkeys evolved in semi-arid lands. They can tolerate losing up to about **30% of body weight in water** and recover by drinking 24–30 liters in a few minutes (WikiVet). Being smaller, a working donkey in a hot climate might need about **20 L (~5 gal) a day**, versus 40–60 L for a working horse (ICWE). But **per pound, their needs are similar to a horse's**, and they should be offered water at least every 4 hours in heat (The Donkey Sanctuary).

Bottom line: donkeys handle desert conditions much better than horses, so water alone isn't the main reason they're unrealistic. The bigger barriers for most people are that **you probably don't have one**, handling and packing an animal takes real experience, they need feed and hoof care, they're slow (about walking pace), they can't safely share fast roads with traffic, and freeways can ban non-motorized traffic (ARS 28-733). If you already keep equines, include their water, feed, and a trailer plan in your evacuation plan.

Dogs pulling bikes or wagons

Some dogs can help pull (bikejoring or carting), but **only if they're conditioned, suited, and trained**. That means a fit, healthy, medium-to-large adult dog (sport rules require dogs to be at least 18 months old), a padded pulling harness (never a collar), a shock-absorbing bungee line, a vet check, and a gradual build-up (AKC). Puppies, small breeds, seniors, and flat-faced breeds are poor candidates.

Heat is the big danger for dogs. Exercise is the most common trigger of heat illness in dogs (UK Brachycephalic Working Group). Asphalt can reach about 125°F when the air is only 77°F, and 143°F at 87°F (WSU Vet Med). Use the 7-second test: if you can't hold the back of your hand on the pavement for 7 seconds, it's too hot for paws. Move only in the coolest hours, use booties, rest in shade often, and stop at heavy panting, stumbling, or drooling.

Estimate: water to reach Payson or Flagstaff with a 50 lb dog

All figures are rough planning estimates, not guarantees. Distances are from OpenStreetMap routing (Phoenix city center): **Payson ≈ 89 mi** via Loop 202 and SR-87 (Beeline Hwy), and **Flagstaff ≈ 144 mi** via I-17.

50 lb dog + 1 adult, traveling about 12 miles per night

	Payson (89 mi)	Flagstaff (144 mi)
Days at ~12 mi/day	8 days	12 days
Dog, low (rest baseline 1 oz/lb/day = 50 oz ≈ 0.39 gal/day)	3.1 gal (26 lb)	4.7 gal (39 lb)
Dog, high (hard work in heat ≈ 1.44 gal/day)	11.5 gal (96 lb)	17.3 gal (144 lb)
Adult human (2 gal/day in heat)	16 gal (133 lb)	24 gal (200 lb)
Total, person + dog	19–28 gal (159–230 lb)	29–41 gal (240–345 lb)

How we got these numbers. Dog baseline: about 1 oz of water per lb per day for a resting dog (Whole Dog Journal, citing internal-medicine norms of 50–80 ml/kg/day). Dog high estimate: a study of canine athletes found that hard exercise in hot conditions may require replacing more than 40% of total body water per day (Ruby et al., J Vet Intern Med 2018). With body water at about 60% of body weight, that's ≈24% of 50 lb = 12 lb ≈ 1.44 gal per day. Pace: *our assumption* of about 12 mi/day, similar to the ~19 km/day (≈12 mi) reported for working hunting dogs in that study, walked only in cool night hours. Human: Ready.gov says hot environments can double the 1 gallon per person per day baseline (Ready.gov). NIOSH advises about 1 cup every 15–20 minutes while active in heat, and no more than 48 oz per hour (NIOSH). Water weighs 8.34 lb/gal.

What this means: a 50 lb dog can't haul anywhere near this much water. Even a cart or bike trailer carrying 150–350 lb isn't realistic for one person and a dog. Both routes climb steeply: Payson sits near 5,000 ft and Flagstaff near 7,000 ft, versus about 1,100 ft in Phoenix. Higher ground is cooler, but the climb makes the trip much harder, and long stretches have few or no services. **For nearly everyone without a car, the safer plan is to stay in the Valley:** shelter in the coolest place you can reach, use cooling centers (dial 211), and line up a ride. Treat a long trip on foot, by bike, or with an animal as a last resort that needs pre-arranged water stops.

Your part of the Valley

Nearest highway exits from each area. These are planning notes only. Before leaving, always check AZ511 and Maricopa County Emergency Management for closures and official instructions.

NORTH

North Phoenix, Anthem, Deer Valley & nearby

- **Primary:** I-17 North toward Flagstaff or (via SR-69) Prescott. These are higher and cooler.
- **Alternates:** Loop 303 west to US-60 (Grand Ave) toward Wickenburg / US-93; Loop 101 to other freeways.
- **Watch for:** I-17 backups on the climb north of Black Canyon City; few alternatives if it closes.

SOUTH

South Phoenix, Laveen, Ahwatukee & nearby

- **Primary:** I-10 East toward Casa Grande and Tucson (I-8 West branches off near Casa Grande).
- **Alternates:** Loop 202 (South Mountain Freeway) connects Ahwatukee and Laveen to I-10 on both ends, avoiding downtown; I-10 West to SR-85 South toward Gila Bend and I-8.
- **Watch for:** heavy I-10 traffic toward Casa Grande; dust storms in monsoon season.

EAST

Mesa, Gilbert, Chandler, Scottsdale, Tempe & nearby

- **Primary:** SR-87 (Beeline Hwy) northeast toward Payson. It's higher and cooler.
- **Alternates:** US-60 East toward Superior and Globe; I-10 East from Chandler toward Tucson.
- **Watch for:** US-60 becomes a two-lane mountain road past the metro; SR-87 can close for wildfires.

WEST

Glendale, Peoria, Maryvale, Avondale, Goodyear & nearby

- **Primary:** I-10 West toward Quartzsite and California; SR-85 South to I-8.
- **Alternates:** US-60 (Grand Ave) or Loop 303 northwest toward Wickenburg and US-93; Loop 303 or Loop 101 to I-17 North.
- **Watch for:** long, remote, very hot stretches west of Tonopah and on SR-85. Fill fuel and water before leaving.

CENTRAL / DOWNTOWN

Downtown, Midtown, central Phoenix

- **Options:** all major freeways are close (I-10 East or West, I-17 North, SR-51 to Loop 101).
- **Watch for:** the biggest interchanges, like the "Stack" (I-10/I-17) and the "Mini Stack" (I-10/SR-51/Loop 202), can become choke points. Have a surface-street plan to reach a freeway farther out.
- During unrest, move **away** from the downtown core first. See leaving during unrest.

Household resources

TIGHT BUDGET / RENTING / NO AC

Free and low-cost ways to stay safe

- **Cooling is free:** cooling centers, libraries, and community centers on the Heat Relief Network. Dial 211 for help finding one.
- **Utility help:** APS and SRP both offer income-qualified discounts and payment arrangements. Call before you fall behind. See APS Energy Support and SRP assistance programs, or dial 211.
- **Renters:** if your AC breaks, notify your landlord in writing right away and keep a copy, then go somewhere cool while you wait. Learn your rights through AZCourtHelp or 211 for legal aid referrals.
- **DIY cooling:** wet cloth + any fan, cool showers, blocking windows with cardboard or foil, sleeping on the lowest floor.
- **Kit on a budget:** refill clean bottles with tap water, use a cotton T-shirt as a cooling towel, and write numbers on paper. See the free tips on Gear.
- **Food help:** food banks and SNAP. See Economic Disruption.

MORE RESOURCES

Prepare well, then extend it to others

- **Service your AC** before summer and consider a backup: a portable power station plus fans for outages.
- **Stock for your household plus one:** keep extra water and supplies to share with a neighbor.
- **Make your home a neighborhood cool spot** during outages if you have backup power.
- **Donate** water, electrolytes, and funds to heat relief sites on the Heat Relief Network.
- **Sponsor** an older neighbor's AC tune-up or a power bank for someone on medical equipment.

Every neighborhood in the Valley has people who need help and people who can give it. Preparedness is about resources and planning, not zip codes.

Medical needs

MEDICAL NEEDS

Plan ahead. Medical needs can't wait for power or roads.

- **Medicines that affect heat tolerance:** some medications (for example diuretics, some blood pressure, heart, and psychiatric medications) can make it harder to stay cool or hydrated. Ask your doctor or pharmacist what yours do and how to adjust in extreme heat. Don't stop medication on your own.
- **Insulin & refrigerated meds:** keep a small cooler and ice packs or a medication cooling case ready. Ask your pharmacist how long your medicine stays safe out of the fridge.
- **Oxygen & powered medical devices:** have battery backup and know where you'd go if the power is out for hours.
- **Register with your utility:**
 - APS Medical Care Program: advance notice of planned outages for households that depend on life-sustaining medical equipment (requires a medical professional's sign-off; renew annually). Income-qualified customers may also get a bill discount through Energy Support with Medical.
 - SRP Medical Preparedness Program: advance notice of planned outages for customers using qualifying electric life-support equipment (such as oxygen concentrators, ventilators, dialysis, and feeding pumps), with physician verification.

NO SPECIAL MEDICAL NEEDS

Stay healthy, and stay alert

- Healthy adults die of heat too, especially outdoors, while working, or exercising. Know the signs of heat illness.
- Keep a basic first aid kit and know how to cool someone fast.
- Keep a written list of any medicines you do take, and a few days' extra supply.
- Consider learning first aid or CPR so you can help others.

These programs give **notice of planned outages**. They do not guarantee power, so you still need a backup plan.

- **Dialysis:** ask your center for its emergency plan and a backup location. Know the emergency diet your care team recommends if treatment is delayed.
- **Mobility limitations:** arrange a ride and a helper in advance; keep mobility aids charged and by the door.
- **Medical go-bag:** 7+ days of medicine if possible, a written medication list with doses, doctor and pharmacy contacts, insurance cards, device chargers and batteries, and copies of prescriptions.

Helping others, or getting help

I CAN HELP

Concrete ways to help right now

- **Adopt a neighbor:** commit to checking on one or two older, disabled, or isolated neighbors twice a day during heat warnings and outages.
- **Be the driver:** offer rides to cooling centers, pharmacies, dialysis, or out of an evacuation zone.
- **Help families with young kids:** carry water and supplies, or watch kids so a parent can get to the pharmacy or store.
- **Help people with disabilities** plan an evacuation and practice it with them.
- **Learn first aid/CPR** or take free CERT training.
- **Volunteer or donate** at a heat relief site.

I MAY NEED HELP

It's okay to ask. Set it up now.

- Ask one or two neighbors, friends, or relatives to check on you during heat warnings and outages, and share your phone number.
- Agree on a simple signal that you're okay (for example, blinds open by 9 a.m.).
- Write down who will drive you if you need to leave, and a backup person.
- Dial 211 for local help, or 911 in an emergency.



SCENARIO GUIDE

Blackout & Grid Failure

A power outage in a Phoenix summer is a heat emergency. Here's how to prepare, what to do in the first hours, and when to leave.

Before an outage

- **Know your utility** and bookmark its outage page: APS, SRP, or TEP, depending on where you live. Sign up for outage text alerts.
- **Utility contacts** (checked Oct 10, 2026):

	APS	SRP
Report an outage	602-371-3680 (metro Phoenix) 855-688-2437 (other areas)	(602) 236-8888 / (800) 258-4777, 24/7
Customer care	602-371-7171 / 800-253-9405	(602) 236-8888 (residential, 24/7)
Downed lines & power emergencies	Stay 100+ ft away. Call 911, then APS 602-371-7171	(602) 236-8811 (call 911 first for medical emergencies)
Medical equipment program	Medical Care Program: 602-371-7171	Medical Preparedness Program (link below)
Outage map	aps.com/outagemap	SRP outages & storms

Sources: APS contact us; SRP contact us and SRP outages & storm safety.

- **Medical devices:** if anyone in your home depends on powered medical equipment (oxygen, CPAP, dialysis, refrigerated medication), register with your utility's outage-notification program (APS Medical Care Program or SRP Medical Preparedness Program) and have a battery backup plan. These programs give notice of planned outages but don't guarantee power. See medical needs.
- **Charge power banks** and keep a battery or crank radio, flashlights, and extra batteries. Avoid candles; they're a fire risk.

- **Know where you'll go** if your home gets too hot: a friend or relative with power in another part of town, a cooling center, or a hotel outside the outage area.
- **Learn to open your garage door manually** (find the release cord).
- Keep your car's gas tank at least half full. Gas pumps need power.
- Keep some cash on hand. Card readers and ATMs may be down.

The first hours

1. Check whether it's just you (breaker) or the neighborhood, then report it to your utility.
2. Unplug sensitive electronics and appliances to protect them from surges when power returns. Leave one light switched on so you'll know.
3. Keep the fridge and freezer closed.
4. Close blinds and curtains on sunny windows right away to slow heat gain.
5. Check on neighbors, especially older adults and people with medical needs.
6. Tune into local news radio or check official social accounts for updates on how long it may last.

A summer outage is a heat emergency

Without AC, a Phoenix home can become dangerously hot within hours on a summer day. **Don't wait until you feel sick.** If power is out during the heat of the day and isn't expected back soon, go somewhere cool: a cooling center (dial 211 or check the Heat Relief Network), a library, a mall, a friend's home with power, or your car with the AC running (never in a closed garage).

- Use the cooling methods in the Extreme Heat guide: wet skin + moving air, cool cloths, cool showers if water pressure holds.
- Battery-powered or rechargeable fans help when paired with wet skin or clothing.
- Watch everyone for signs of heat exhaustion and heat stroke.
- Move pets to the coolest area and give them extra water.

Food, water & medicine

- A closed refrigerator keeps food cold for about 4 hours; a full freezer about 48 hours (half-full, about 24). Use a thermometer: throw out perishable food that has been above 40°F for more than 2 hours. Source: FoodSafety.gov.
- **When in doubt, throw it out.** Food poisoning plus dehydration is dangerous.

- Store at least 1 gallon of water per person per day for several days, plus extra for pets and for the heat (Ready.gov).
- Insulin and some other medicines need refrigeration. Ask your pharmacist how long yours is safe without it, and keep a small cooler with ice packs ready.

Backup power safety

Phones down? See Radio Communication for NOAA weather radio, walkie-talkies, and CB. **New to generators?** See Generator Skills for sizing, safe setup, step-by-step operation, and troubleshooting.

Never run a generator, grill, or camp stove indoors, in a garage, or near open windows. Carbon monoxide is invisible and deadly. Keep generators at least 20 feet from your home and install battery-powered CO alarms (CDC).

- Portable power stations (battery "solar generators") are safe indoors and can run fans, phones, CPAP machines, and small fridges.
- Never plug a generator into a wall outlet ("backfeeding"). It can electrocute utility workers. Use a transfer switch installed by a licensed electrician.
- Store fuel safely, away from heat sources. Gas cans in a hot garage or shed are a fire hazard.

If it lasts for days

- Follow updates from Maricopa County Emergency Management and your utility. Officials may open shelters or announce resource sites.
- Consider relocating temporarily, especially for babies, older adults, and anyone with medical needs. See Evacuation Routes; higher-elevation towns to the north are usually much cooler.
- Pool resources with neighbors: share a generator or power station, coolers, and check-ins. See mutual aid.
- Conserve phone battery: lower brightness, turn on low-power mode, and text instead of calling (texts often get through when calls don't).
- Water service may be affected if pumps lose power. Use stored water first for drinking and keep some for cooling.



BLACKOUT SKILLS

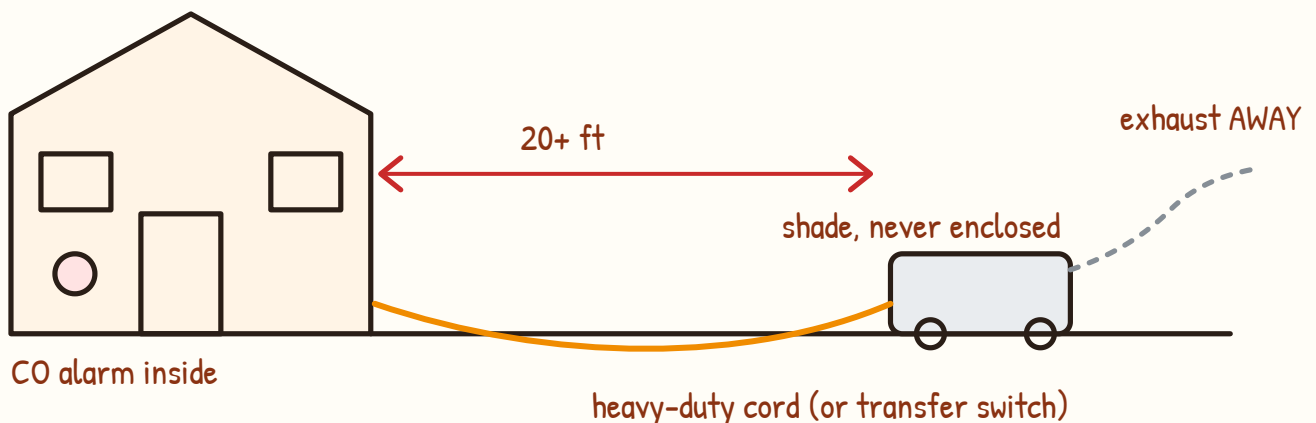
Generator Skills: Choose, Run, Fix, Stay Safe

A generator can keep a fridge, fans, medical devices, and phones going during a long outage. Used wrong, it can kill you with carbon monoxide or electrocute a line worker. Here's how to do it right.

The 3 deadly mistakes

1. **Running it indoors or too close to the house.** Never in a home, garage, carport, porch, or shed, even with doors open. Run it outside, at least 20 ft from the house, with the exhaust pointed away from doors, windows, and vents (CPSC, CDC). Install battery CO alarms on every level and outside sleeping areas.
2. **Backfeeding:** plugging the generator into a wall outlet or the panel without a transfer switch. This can energize utility lines and electrocute line workers and neighbors. Use a transfer switch or interlock installed by a licensed electrician (OSHA).
3. **Refueling while hot.** Shut it off and let it cool first. Fuel spilled on a hot engine can ignite (OSHA).

CO symptoms: headache, dizziness, nausea, weakness, confusion. **Get to fresh air and call 911.**



Outside, far from openings, exhaust away. In summer, give it airflow and shade but never enclose it.

Types of generators

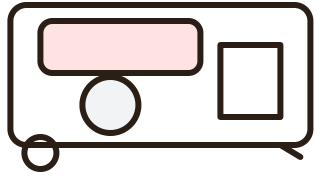
Type	Good for	Watch out for
Portable (open-frame, gas)	Most power per dollar; can run a fridge, fans, and a window AC	Loud, CO exhaust, "dirtier" power for electronics, fuel storage
Inverter	Quieter, more fuel-efficient, clean power for electronics and medical devices	Smaller output; overload lights trip easily on motor starts
Dual-fuel (gas/propane)	Propane stores for years without going stale	Lower output on propane; tanks still need safe outdoor storage
Standby (home, natural gas/propane)	Automatic, can run central AC, permanent installation	Costly; pro install and permits; natural gas supply can also be interrupted
Battery power station (+ solar)	Safe indoors with no fumes; quiet; great for CPAP, phones, fans, and lights	Limited capacity; can't run central AC; recharging needs sun or power

Look for portable generators certified to UL 2201 or PGMA G300 with a CO shut-off feature (CPSC). Prices: see Home Upgrades.

Most popular generators: budget, mid-grade & premium

We chose these from sales and review evidence as of **Oct 10, 2026**: retailer review counts, best-seller data, and major review roundups. We picked the most popular model in each price tier. Prices change often, so check before you buy. (Affiliate links may be added later; see our disclosure.)

Budget · under \$500



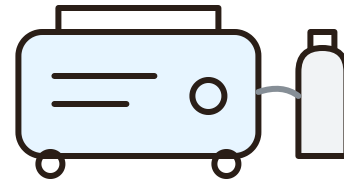
Champion 4375/3500-Watt Portable (201286)

- **Type:** open-frame gas portable (not an inverter), recoil start, CO Shield auto shutoff
- **Watts:** 4,375 starting / 3,500 running
- **Fuel:** gasoline, 4.7 gal tank; up to 12 hr at 50% load
- **Noise:** 68 dBA at 23 ft
- **Price:** \$479.99 at Lowe's / \$498 at Home Depot (as listed Oct 10, 2026)

Why it's popular: 4.8 stars from about 320+ reviews at each of Home Depot and Lowe's, the top-rated popular model under \$500 we found. Its sibling, the Champion 4375W dual-fuel, is Business Insider's 2026 "best budget" pick.

Fits: a fridge, fans, lights, and one window AC. It's louder, and its power is less clean for sensitive electronics, so use a battery or UPS for a CPAP.

Mid-grade · about \$500–\$1,500



Champion 4650-Watt Dual Fuel Inverter (201120)

- **Type:** dual-fuel inverter, electric start, CO Shield auto shutoff
- **Watts:** 4,650 starting / 3,650 running (gas); 3,285 running (propane)
- **Fuel:** gasoline (2.3 gal, up to 14 hr at 25% load) or 20-lb propane (up to 21 hr)
- **Noise:** 61 dBA at 23 ft
- **Price:** about \$867 at Home Depot (as listed Oct 10, 2026)

Why it's popular: about 2,880 Home Depot reviews averaging 4.8 stars, the most of any inverter in this price range we checked (Harbor Freight's Predator 3500 inverter is close behind, with about 2,667 reviews at \$799.99). Champion inverters are also Wirecutter picks for 2026. Propane stores for years, which helps in Phoenix heat where gasoline goes stale.

Fits: a fridge, fans, a 5,000–8,000 BTU window AC, and a CPAP (check starting watts).

Premium · \$5,000+ installed



Generac Guardian 24kW (7210)

- **Type:** permanent home standby with whole-house automatic transfer switch, Wi-Fi monitoring
- **Watts:** 24,000 running on propane (less on natural gas). Can run central AC with load management
- **Fuel:** natural gas or propane (≈3.9 gal/hr LP at full load)
- **Noise:** not listed on the product page we checked; runs a quieter low-RPM self-test
- **Price:** MSRP from \$7,399 (Generac, checked Oct 10, 2026), **plus** professional installation, permits, and gas work

Why it's popular: Generac holds an estimated 68%+ of the U.S. home standby market, and retail tracking of Lowe's, Home Depot, and Amazon (Jan–Aug 2026) ranks its 24kW air-cooled unit as Generac's #1 seller.

Fits: whole-home backup including central AC, the key need in a Phoenix summer outage. Requires a licensed electrician and plumber.

Also popular: the Honda EU2200i (\$1,199 MSRP) is a perennial top pick for quiet, clean power (Bob Vila and Business Insider 2026).

Evidence: Lowe's and Home Depot listings (review counts and prices as shown Oct 10, 2026) · Harbor Freight Predator 3500 · Honda EU2200i · Bob Vila 2026 · Business Insider 2026 · Wirecutter 2026 (top pick: Westinghouse iGen5000DFc, plus two Champion inverters) · Consumer Reports (updated Oct 8, 2026) · Home Depot product listing · Generac 7210 · Grips Intelligence retail data · standby market share (citing GM Insights). Drawings are our own doodles, not product photos. Not an endorsement. Any generator is only as safe as how you use it.

Sizing: running vs. starting watts

Running watts are what a device uses continuously. Motors (fridges, AC compressors) need extra **starting watts** for a moment when they kick on. Add up the running watts of everything you'll run at once, then add the single biggest extra starting surge. Always check the label on your own device.

Use	Device	Running W	Starting W
☒	Refrigerator	150–400	800–1,200
☐	Window AC, 10,000 BTU	900–1,200	1,800–2,400
☐	Window AC, 5,000 BTU	450–600	900–1,200
☒	Box/window fans (up to 2)	50–200 each	none
☐	CPAP with heated humidifier	60–120	none
☐	Oxygen concentrator (typical; check yours)	≈350	≈600
☒	Phone/laptop charging	20–100	none
☒	4 LED bulbs	8–15 each	none
☐	Internet modem/router	10–20	none

Running: **760 W** · Peak (with biggest start): **1,560 W** · Suggested generator (≈20% headroom; hot-weather derating noted below): **1,900 W**

Wattages use the high end of the ranges in **Champion's wattage chart**. The oxygen concentrator figure is a typical value from sizing guides, so confirm with your device's label or supplier. Medical devices should have a battery backup plan too.

Safe setup

- **Placement:** outdoors on level ground, 20+ ft from the house, exhaust away from openings, never under a carport or porch (CPSC).
- **Connecting:** plug appliances directly into the generator, or use undamaged, heavy-duty, 3-prong (grounded) outdoor extension cords rated for the load. Thin cords overheat. For longer runs or bigger loads, use a heavier gauge (lower number, e.g., 12 AWG instead of 16). Use GFCI protection per the manual (OSHA grounding fact sheet).
- **House wiring:** only through a **transfer switch or interlock installed by a licensed electrician**. When connected to a structure through a transfer switch, the generator must be grounded per code (OSHA).
- **Grounding:** follow the manufacturer's instructions for your model.
- **Phoenix heat:** output drops in heat and at altitude. Honda manuals say engine power falls about 3.5% per 1,000 ft of elevation (Honda manual). Generac's GP-series manual cites about 1% per 10°F above 60°F, so at 110°F expect roughly 5% less. Shade the generator from direct sun if you can, but leave plenty of open airflow, and never put it in an enclosure that traps exhaust.
- **Noise & theft:** chain it to something solid, and be considerate of neighbors at night. Inverter models are much quieter.

Fuel & heat

- Gasoline can start to degrade in as little as 30 days. Add fuel stabilizer to stored gas, and run the engine a couple of minutes so treated fuel reaches the carburetor (Briggs & Stratton). Avoid E15 in small engines.
- Store fuel only in approved, vented containers, **never indoors**, away from living spaces and ignition sources (OSHA). Phoenix heat speeds evaporation and builds pressure, so keep cans in shade and open them slowly. Store only modest amounts and rotate them.
- Propane stores longer but must be kept outdoors and upright, away from heat.

Moving fuel safely (siphoning)

Never siphon by mouth. It's easy to cough or choke, and even a tiny amount of gasoline or diesel inhaled into the lungs can cause chemical pneumonia, respiratory failure, coma, or death (Poison Control, MedlinePlus, CDC/ATSDR). If someone swallows fuel and coughs, chokes, or vomits, call Poison Control at 1-800-222-1222 or 911. Don't make them vomit.

- **Use a hand pump or a self-priming "jiggle" siphon hose**, sold at hardware and auto stores, to move fuel between containers or from a mower or generator tank.
- Work **outdoors**, away from flames, pilot lights, sparks, and running or hot engines. No smoking. Keep a fire extinguisher nearby.
- Fill only **approved, labeled fuel containers** set on the ground (not in a truck bed or car), and wipe up spills.
- Many modern cars have anti-siphon screens and rollover valves in the filler neck, so a hose often won't reach the tank. That's a safety feature. Don't try to defeat it, and use a different source.
- **Take fuel only from vehicles and containers you own or have permission to use.**

Gas or diesel? How to tell, and what to do with the wrong one

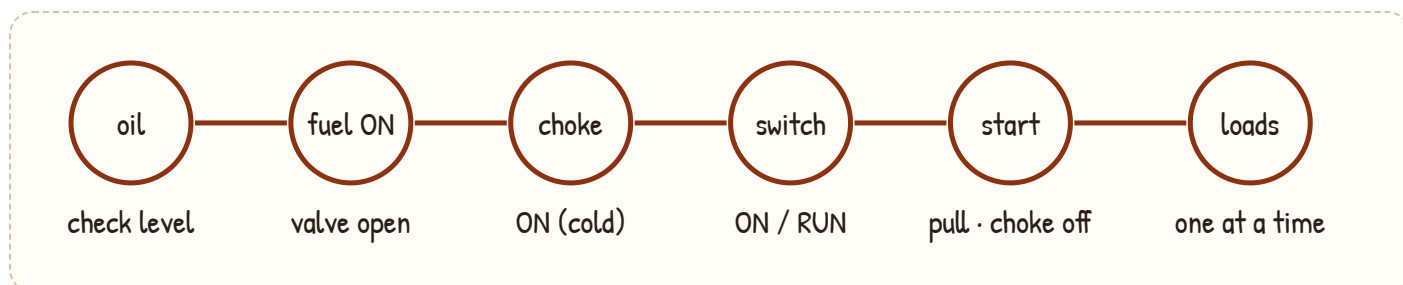
Check	Gasoline	Diesel
Smell	Sharp, solvent-like (like paint thinner)	Heavier, oily (like kerosene or heating oil)
Look	Clear to pale straw, thin like water	Clear to amber or yellow-green, thicker. Off-road diesel is dyed red (IRS-required Solvent Red 164; for nontaxable off-road use only)
Feel	Evaporates fast and feels cold and dry	Oily, slippery, and lingers
Paper test	A few drops on white paper evaporate with no stain	Leaves a greasy, translucent spot
Cans & nozzles	Common convention: red can = gasoline, yellow = diesel, blue = kerosene . Diesel pump nozzles are often larger, sometimes green-handled. Colors vary by brand and station , so always read the label.	

Skin contact: wear gloves, wash with soap and water, and do the paper test outdoors away from flames. Sources: IRS Publication 510 (dyed diesel), Justrite safety-can color coding, Poison Control.

- **Diesel in a gasoline generator** (the common case, since most portables are gasoline): it won't vaporize and ignite properly. Expect hard or no starting, smoke, misfires, and fouled spark plugs. **Don't keep trying to start it.** Drain the tank and carburetor bowl into an approved container, refill with fresh gasoline, and replace the spark plug if it's wet or fouled. If it ran for a while, have a small-engine shop flush it.

- **Gasoline in a diesel engine** is worse. Gasoline lacks diesel's lubricity and can damage high-pressure fuel pumps and injectors. **Do not start it.** If it already ran, shut it off and have the fuel system drained and inspected (manufacturer service bulletin via NHTSA).
- Label every can, and never store fuel in drink or food containers.

Step by step (typical portable; follow your manual)



1. **Pre-start check:** on level ground outside; oil at the full mark; fresh fuel; air filter clean; nothing plugged in; check cords for damage.
2. **Start:** fuel valve ON, choke ON (cold engine), engine switch ON, then pull the cord smoothly (or press electric start). Ease the choke OFF as it warms.
3. **Connect loads one at a time**, starting with the largest motor (fridge or AC) and then smaller items. Don't exceed the rated running watts.
4. **Shut down:** unplug or turn off loads, let it run a minute, engine switch OFF, fuel valve OFF. Let it cool before refueling or covering.

Maintenance schedule (typical; your manual rules)

- **Monthly:** start it and run it under a light load for 15–20 minutes. Check the oil.
- **First oil change** after the break-in period in your manual (often about 20–25 hours), then at the manual's interval. Change more often in heat, dust, or heavy loads (Honda).
- **Air filter:** inspect often in dusty Phoenix conditions (haboobs!). **Spark plug:** inspect and replace at the manual's interval.
- **Storage:** stabilized fuel and a short run, or a fully drained carburetor, to prevent gummed jets.

Troubleshooting

Symptom	Likely cause	Try this	Call a pro if...
Won't start	Fuel valve or engine switch off, low oil (shutdown sensor), stale fuel, choke wrong, fouled plug	Check switch, valve, and oil; use fresh fuel; choke on when cold; inspect or replace the plug	it still won't start with fresh fuel and a good plug
Starts, then dies	Choke left on or off too soon, low oil, clogged fuel vent or filter, stale fuel	Adjust choke, top up oil, open the tank vent, replace fuel	it keeps dying (likely carburetor)
Surging / "hunting"	Partly clogged carburetor jet (stale fuel), dirty air filter, very light load	Fresh stabilized fuel, clean filter, add a small load	surging continues; the carburetor needs cleaning
Runs, but no power output	Tripped breaker, bad cord, overload; on brush-type units, loss of residual magnetism	Reset breakers, test with a known-good device and cord	still no output. "Flashing the field" with a battery is a manufacturer-specific procedure that can damage the unit or shock you, so follow your manual or have a technician do it
Low-oil shutdown	Oil low, or the unit isn't level	Level it, check oil, top up	oil is full but it still shuts down
Breaker trips / overload	Too many watts, motor start surge	Remove loads; start the biggest motor first	it trips with a light load

Symptom	Likely cause	Try this	Call a pro if...
Inverter overload light	Start surge too big for the inverter	Unplug, restart, add loads one at a time; consider a soft-start for AC	it overloads with small loads
Smoke	White/blue: burning oil (overfilled, tipped over); black: too rich (choke on, dirty air filter, altitude)	Check oil level and choke, clean filter. Shut down if the smoke is heavy or smells electrical	smoke persists, or there's any electrical burning smell
Runs rough	Fouled plug, dirty filter, water or stale fuel	Replace plug, clean filter, drain and refill fuel	no improvement
Hard to pull	Load plugged in, engine damage, oil overfilled	Unplug everything and check the oil level	the cord won't pull with no load
Electric start dead	Battery discharged	Charge the battery, or use the recoil pull start	the battery won't hold a charge

Biodiesel and plant oils: the honest version

First, the big caveat: almost every portable generator sold for homes runs on **gasoline** (or propane). Gasoline engines **cannot** use biodiesel or vegetable oil. Plant-oil fuels only matter if you have a **diesel** generator or engine.

What real biodiesel is

Biodiesel is made by **transesterification**: reacting vegetable oil or animal fat with an alcohol (usually **methanol**) and a **lye catalyst** (sodium or potassium hydroxide). The reaction splits the oil into fuel (methyl esters) and a glycerin byproduct (Penn State Extension). At an overview level, Penn State's small-scale guide describes these stages:

1. **Oil prep:** filter used oil and remove water.
2. **Titration:** test the oil's free fatty acid content to work out how much catalyst it needs, then run a small test batch before any larger one.

3. **Reaction:** warm the oil, mix it with a methanol-catalyst solution, and stir.
4. **Separation:** let the glycerin settle out and drain it off. It must be handled and disposed of properly.
5. **Washing and drying:** gently wash the fuel to remove soap, catalyst, and methanol, then dry it thoroughly.
6. **Quality testing:** poorly made fuel can damage engines. Commercial fuel must meet ASTM D6751.

This is chemistry with serious hazards. Methanol is toxic (it can cause blindness or death, including through skin absorption) and highly flammable, with a nearly invisible flame. **Lye** is caustic and causes severe burns, especially to the eyes. You need real ventilation, chemical-resistant gloves, splash goggles, a face shield, a fire extinguisher, and no ignition sources. Local fire codes, zoning, and waste rules apply to storing methanol and disposing of glycerin and wash water. We don't publish recipes. If you're serious, start with Penn State's *Biodiesel Safety and Best Management Practices* and local training.

No safe "primitive" shortcut exists. You can't make true biodiesel without an alcohol and a catalyst, and improvised methods mean handling toxic, flammable chemicals without proper equipment. In a real emergency, that's a way to get burned, blinded, or poisoned.

Realistic low-tech alternatives, and their limits

- **Straight vegetable oil (SVO)** can run some older, mechanically injected diesel engines if it's carefully filtered, dewatered, and **heated**. It's far thicker than diesel and gels when cool. Usual setups start and stop on diesel and switch to heated oil once warm. The DOE warns that SVO causes carbon buildup and dilutes engine oil over time, even at 1% blends, which shortens engine life. Modern common-rail engines and emissions systems are especially vulnerable (DOE: SVO as a Diesel Fuel?, Penn State/eXtension SVO fact sheet).
- **Growing your own oil means low yields.** Farm trials found roughly **66–200 gal/acre** of sunflower oil, **44–132 gal/acre** of canola, and **88–176 gal/acre** of soybean oil, plus pressing equipment (Penn State/eXtension). A generator burning about 0.5 gal/hr for 8 hours a day uses about 120 gallons a month, roughly a full year's oil from one acre. Wild desert seeds yield far less.
- **Cooking oil you already have** is better used as food.
- **Where to get biodiesel legitimately:** see the Resource Map layer "Fuel & biodiesel resources" for public B20+ stations nationwide (DOE AFDC), production plants (EIA), and farm supply stores. For used cooking oil, ask restaurants with UCO recycling programs. Buy, trade, or get permission.

Which generators can use biodiesel blends?

- **B5** (up to 5% biodiesel) meets the normal diesel spec (ASTM D975) and is approved for any diesel engine, including **diesel generators**. It's often in pump diesel without a label (DOE AFDC).

- **B6–B20** must meet ASTM D7467 and works in many diesel engines, but **check your engine maker's approval and warranty** (AFDC Biodiesel Handling & Use Guide).
- **Standby diesel generators:** some makers advise against biodiesel blends because fuel sits for months and degrades. Cummins recommends B0 for standby gensets (Cummins white paper).
- **Gasoline and propane generators** (like the three picks above): no biodiesel, no vegetable oil.

Sources: CPSC Safety Alert, CDC, OSHA 3286, Ready.gov Power Outages, Honda owner's manuals, Briggs & Stratton, and Champion. Always follow your generator's manual. Electrical work on house wiring requires a licensed electrician.

Related: Blackout guide · Home Upgrades



COMMUNICATION

Radio Communication When Phones Fail

Cell networks can jam or go down in blackouts, wildfires, and crises. These radios work without towers, from listen-only emergency broadcasts to two-way family radios and ham radio. Learn them now, while things are calm. Print the 4-panel sheet at 100% (not "fit to page"), cut on the dashed lines, then fold or laminate it.

1. Listen first: NOAA Weather Radio & AM/FM



A battery or hand-crank radio with the **weather band** is the single most useful radio for most families. It only receives (no license needed) and gets official alerts even when the power and internet are out.

NOAA Weather Radio transmitters near you (NWS Phoenix)

Area	Frequency	Weather channel
Phoenix (KEC94, South Mountain)	162.550 MHz	WX1
Payson (Mt. Ord)	162.425 MHz	WX4
Flagstaff	162.400 MHz	WX2
Globe (Signal Peak)	162.500 MHz	WX6
Prescott	162.525 MHz	WX7
Tucson	162.400 MHz	WX2

- Range is about **40 miles** from the transmitter, less in mountains (NWS). For alerts only for your county, buy a radio with **SAME** coding: Maricopa County is **004013**.
- **Emergency radio (EAS stations named by Maricopa County): KTAR 620 AM, KTAR News 92.3 FM, and KMVP 98.7 FM**, plus NOAA Weather Radio from NWS Phoenix (Maricopa

County: Alerting & Notification). KFYI 550 AM is another local news station. AM signals travel farther at night. Official instructions come from Maricopa County Emergency Management and AZ DEMA.

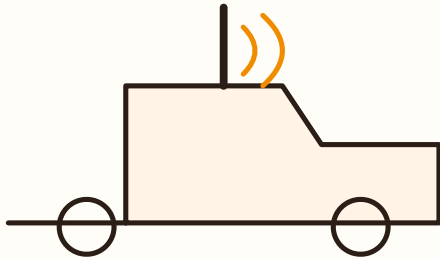
- Wireless Emergency Alerts on phones work only if a tower is up. Radio is the backup (Ready.gov: Alerts).

2. Which two-way radio?

Service	License?	Power (max)	Realistic range*	Best for
FRS walkie-talkies	None	2 W (ch 1–7, 15–22); 0.5 W (ch 8–14)	A few blocks to ~1–2 miles	Family nearby, neighborhood, caravans
GMRS	FCC license, no exam, \$35 for 10 yrs , covers immediate family	Up to 50 W (mobile/repeater channels)	1–5+ miles; much farther via repeaters	Families wanting more range
MURS	None	2 W	~1–3 miles	Farm, ranch, small groups (5 VHF channels)
CB (11 m)	None	4 W AM/FM; 12 W PEP SSB	A few miles; varies widely with antenna	Highway info, truckers, rural travel
Ham (amateur)	FCC license with exam	Much higher	Miles to worldwide; repeaters cover the Valley	Emergency nets, long distance, Winlink email

*Typical in real conditions. Box claims like "36-mile range" assume mountaintop to mountaintop with nothing in between. Buildings, hills, and vehicles cut range sharply. Sources:

3. CB ("trucker") radio



Ch 9 = emergencies only

Ch 19 = highway / truckers

40 channels · no license

- **40 channels, no license needed.** **Channel 9** is reserved for emergencies and traveler assistance only. Everyone must give emergency traffic priority on every channel (47 CFR 95.931). **Channel 19** is the informal highway channel for traffic, wrecks, and road conditions.
- **AM vs. SSB:** most CBs are AM (4 W). SSB radios (12 W PEP) reach farther and cut through noise, but only talk to other SSB radios (95.967). Linear amplifiers are illegal on CB.
- **The antenna matters most.** Mount it high, centered on the metal roof if you can. Tune it with an **SWR meter** (aim for about 1.5:1 or lower on ch 1 and 40) so you don't damage the radio. Handheld CBs with stubby antennas have very short range.
- **Etiquette:** listen before you talk, keep it short, no profanity, and give way to emergencies. Common lingo: "*breaker 1-9*" (asking to talk), "*10-4*" (OK), "*what's your 20?*" (location), "*bear*" (police), "*rocking chair*" (middle lane in a convoy).

4. Walkie-talkies: FRS, GMRS & MURS

- **FRS** (22 channels) is license-free. Most blister-pack walkie-talkies are FRS. Channels 1–7 and 15–22 allow 2 W, and 8–14 only 0.5 W (FCC).
- **GMRS** shares many of those channels at higher power with better antennas and can use **repeaters** (a hilltop station that rebroadcasts you for much more range). A license costs **\$35**, **lasts 10 years**, needs no exam, and covers your immediate family (FCC GMRS, 95.1705). Apply through the FCC's online system (ULS). Local GMRS repeaters are listed on community sites like myGMRS.com. Ask the owner before using one.
- **MURS:** 5 VHF channels (151.820, 151.880, 151.940, 154.570, 154.600 MHz), license-free, 2 W. Good in open country (FCC MURS).
- **"Privacy codes" are NOT private.** CTCSS/DCS tones only filter out other people's chatter on your radio. Anyone can still hear you. Never say where valuables or supplies are stored.

- **Pick a default** for your family and neighbors, like "FRS channel 3, no code," plus a backup channel.
- **Batteries in Phoenix heat:** don't leave radios or lithium batteries in a hot car. Carry spare AA/AAA radios or a charged power bank, and store batteries cool.

5. Ham (amateur) radio

Ham radio is licensed, non-commercial radio with far more power and range, from repeaters across the Valley to worldwide on HF. Volunteer hams run emergency networks when other systems fail.

- **Get licensed: Technician class.** It's a 35-question multiple-choice exam from a public question pool. Study with the ARRL Ham Radio License Manual or free practice tests, then find an exam session (in person or online). You'll need an FCC Registration Number (FRN), and the FCC application fee is \$35. Many local clubs offer one-day classes.
- **Starter radio:** a handheld dual-band (2 m / 70 cm) radio. Add a better antenna. A mobile radio in your car goes much farther.
- **National simplex calling frequencies: 146.520 MHz** (2 m) and **446.000 MHz** (70 cm) for radio-to-radio contact with no repeater (ARRL band plan).
- **Using a repeater:** program the output frequency, the **offset** (usually -600 kHz or +600 kHz on 2 m, ± 5 MHz on 70 cm), and the **PL/CTCSS tone** from a repeater directory. Listen first, then say your call sign: "*KxXXX listening.*"
- **Emergency groups:** ARES (Amateur Radio Emergency Service) and RACES (government-affiliated) support emergency management. In Maricopa County, see the Maricopa County Emergency Communications Group. The Arizona Emergency Net, Maricopa holds a monthly net on the ARA linked repeaters. Check their site for current frequencies and times.
- **Winlink** lets hams send email over radio when the internet is down (winlink.org).

The law: transmitting on ham frequencies without a license is illegal, with one exception. In a genuine emergency involving the **immediate safety of human life or immediate protection of property**, when normal communication isn't available, the FCC rules allow any means of radio communication to send that distress call (47 CFR 97.403). Get licensed now, so you know how before you need it.

6. How to call for help on the radio

"MAYDAY, MAYDAY, MAYDAY (or "Emergency, emergency" on CB ch 9 / FRS) — **this is** [name / call sign]."

1. **WHERE:** "I am at [address / cross streets / mile marker / GPS lat-long]."
2. **WHO:** "[number] people. [ages / conditions]."
3. **WHAT:** "[injuries / medical problem / danger, e.g., heat stroke, car broken down, no water]."
4. **NEED:** "We need [ambulance / water / ride / relay to 911]."
5. "Please relay to 911. Over." Then **listen**. Repeat every few minutes. Save battery between calls.

Phonetic alphabet (spell names and street names clearly)

A Alfa · B Bravo · C Charlie · D Delta · E Echo · F Foxtrot · G Golf · H Hotel · I India · J Juliett · K Kilo · L Lima · M Mike · N November · O Oscar · P Papa · Q Quebec · R Romeo · S Sierra · T Tango · U Uniform · V Victor · W Whiskey · X X-ray · Y Yankee · Z Zulu

7. Family comms plan

- **Agree on channels now:** a main channel and a backup for each radio type you own. Write them on the radios with tape.
- **Check-in schedule to save batteries:** radios off most of the time, then on **at the top of every hour for 5 minutes** (or every 3 hours in a long outage).
- **An out-of-area contact:** texts often get through when calls fail. Everyone texts the same person (Ready.gov: Make a Plan).
- **Meeting points** if no one can reach anyone: near home, in the neighborhood, and out of town.
- **Practice once a month**, for example during the NOAA weekly test (Phoenix: Wednesdays, late morning).

Use the personal field guide to print a fill-in channel plan.

Our channel plan (fill in)

Radio	Main channel / freq	Backup	Code/tone
FRS / GMRS			
CB	Ch 9 (emergency)	Ch 19	n/a
Ham (if licensed)	146.520		
NOAA	162.550 (Phoenix)	162.425 (Payson)	SAME 004013

Check-in times:

Call signs / GMRS license #:

Sources: FCC (47 CFR Parts 95 & 97, fee schedule), ARRL, NWS Phoenix NOAA Weather Radio page, Ready.gov, Maricopa County Emergency Communications Group. Related: Blackout · Unrest · Evacuation.





SCENARIO GUIDE

Economic Disruption & Supply Shortages

Job loss, price spikes, or empty shelves are stressful but manageable. Build a buffer now, stretch what you have, and know where help is.

Build a buffer, a little at a time

- **Emergency fund:** even a small cushion helps. Automate a small weekly transfer, if you can.
- **Keep some cash at home** in small bills for times when card systems are down.
- **Know your essentials:** list your must-pay bills (housing, utilities, medicine, transportation) and what you could pause.
- **Refill prescriptions on time** and ask your doctor if a 90-day supply is possible.
- **Skills are savings:** basic repairs, cooking from scratch, gardening suited to the desert (cool-season gardens do well here), and bike maintenance.

A sensible pantry (no hoarding)

Build up gradually by buying one or two extra items each shopping trip. Stock what your household actually eats, and rotate it: oldest first.

- Shelf-stable proteins: canned beans, tuna, chicken, peanut butter.
- Grains: rice, oats, pasta, tortillas (freeze extras).
- Canned fruits and vegetables, shelf-stable milk.
- Water: at least 1 gallon per person per day, more in summer.
- Baby formula, pet food, hygiene and menstrual supplies.
- **Storage tip:** Phoenix garages get extremely hot. Store food and water indoors in the coolest place you can.

Protect your housing & utilities

- **Call your utility before you fall behind.** Ask about payment arrangements and assistance programs. In summer, staying cool is a safety issue.
- **Talk to your landlord or lender early.** Many will agree to a plan if you reach out first.

- Dial 211 for rent, utility, and food assistance referrals across Arizona.

During supply shortages

- **Don't panic-buy.** It creates the shortages it fears and leaves vulnerable neighbors without essentials.
- Prioritize water, medicine, baby and medical supplies, then food.
- Share and swap within your neighborhood: tools, rides, childcare, bulk purchases.
- Keep fuel use efficient: combine trips, carpool, and keep the tank half full in summer.

Where to get help

211 Arizona

Food, rent, utility, and health resources statewide. 211arizona.org or dial 211.

Food banks

St. Mary's Food Bank and other pantries across the Valley. Find locations through 211 or St. Mary's Food Bank.

SNAP & nutrition aid

Apply for food assistance through Arizona DES: des.az.gov.

Unemployment

File a claim with Arizona DES: DES Unemployment Insurance.

Avoid scams

Hard times bring scammers. Be cautious of anyone demanding payment by gift card, wire, or crypto; "government" calls threatening arrest; fake relief or debt-forgiveness offers; and price-gouging sellers. Report fraud to the Arizona Attorney General or the FTC.



SCENARIO GUIDE

Civil Unrest & Security Emergencies

Calm, legal steps for staying safe during unrest, large-scale conflict, or any situation where normal order breaks down. Most of the time, the safest choice is to stay informed, stay put, and avoid crowds.

Core principles

Distance is safety

Avoid crowds, confrontations, and hot spots. Nothing you could gain by going to "see what's happening" is worth the risk.

Follow lawful orders

Obey curfews and instructions from emergency officials. If you disagree, document it and address it later through legal channels.

Don't escalate

Your goal is to get home safely, not to win an argument. See our de-escalation tips.

Remember the heat

Disruption in summer means heat risk too. Carry water, avoid long walks midday, and plan cool places to wait.

Situational awareness

Situational awareness simply means noticing what's going on around you early enough to make good choices. It's not about fear. It's about giving yourself time.

- **Heads up, earbuds out** when you're in public during tense times.
- **Know your exits** wherever you are: stores, transit stations, parking garages, events.
- **Notice the baseline.** What's normal for this place and time? Sudden changes (people running, shops closing early, sirens converging, a crowd forming) are your cue to leave.
- **Trust your gut.** If something feels wrong, leave. You don't need to explain or prove it.

- **Keep your phone charged**, carry water, and have a plan for getting home that doesn't depend on one route.

Recognizing and avoiding hostile crowds

Warning signs

- Shouting, chanting that turns to threats, or people singling out individuals
- Objects being thrown, property being damaged, or fires set
- People covering their faces or picking up improvised weapons
- A crowd that's surging, pushing, or growing fast
- Police in protective gear forming lines, or dispersal orders being given
- Smoke, irritant odors, or people with eye irritation

What to do

- **Leave early**, at the first warning signs, not when it peaks.
- Move **with** the flow toward the edges, then away. Don't fight a surging crowd.
- Avoid narrow spaces, walls, fences, and doorways where people can get crushed.
- If you're with others, hold hands or stay within arm's reach and agree on a meeting point.
- If a dispersal order is given, follow it promptly.
- Don't film up close, argue, or engage. Your only goal is distance.

Avoiding flashpoints

During periods of unrest, some places are more likely to draw crowds or tension. Unless you have to be there, stay clear of:

- **Government buildings:** the State Capitol area, city halls, courthouses, federal buildings, and police headquarters.
- **The downtown core** and other dense centers where marches and gatherings tend to concentrate.
- **Major intersections and freeway interchanges**, which can be blocked or become congested quickly.
- **Stadiums, arenas, and event districts**, especially around game or event times, when large crowds are already present.
- **Large retail centers or gas stations during shortages**, where frustration can boil over.

Travel in groups when you must go out, keep trips short and daytime-only if conditions allow, and let someone know your route. If a situation turns tense, use the de-escalation basics and leave as soon as you can.

Get reliable information

- Rely on official sources: Maricopa County Emergency Management, AZ DEMA, your city, and local police and fire.
- Make sure Wireless Emergency Alerts are turned on in your phone settings.
- Keep a battery or hand-crank radio in case cell networks are overloaded.
- **Be skeptical of viral posts.** Rumors spread faster than facts. Verify before you share or act.

Shelter in place or leave?

Usually stay put if...	Consider leaving if...
Officials advise sheltering in place	Officials order or recommend evacuation
Unrest is in another part of the metro	Fire, violence, or threats are reaching your street
Roads are jammed or unsafe	You have a safe route and a destination
You have water, power/cooling, food, and medicine	You've lost power or cooling in extreme heat, or are running out of medicine

If you leave, go early, tell someone your route, and take your go-bag. See Evacuation Routes.

If you're out when trouble starts

- Move away from the crowd, toward the edges and away from police lines or confrontations.
- Head indoors to a business or public building, or toward home by a route that avoids the area.
- If driving, don't try to push through a crowd or roadblock. Turn around when you safely can.
- Keep your phone charged, your hands visible around law enforcement, and stay calm.
- If you're separated from your group, go to your agreed meeting point.

Route planning: leaving the city during unrest

Check official sources before and during your trip. Follow evacuation orders and instructions from Maricopa County Emergency Management and AZ DEMA, and check live closures on AZ511 (or dial 511).

- **Head away from the urban core first.** Choose routes that move you outward rather than through downtown. See routes by area.
- **Plan at least two or three alternates** for your part of the Valley, including surface streets to reach a freeway entrance farther out.
- **Avoid choke points when they're congested:** major interchanges (such as the I-10/I-17 "Stack" and the I-10/SR-51/Loop 202 "Mini Stack"), river and canal crossings with few alternatives, and single-road mountain corridors.
- **Day vs. night tradeoff:** nighttime is much cooler, which is safer if your car breaks down or you have to walk, but visibility is lower and help is farther away. Daytime offers more visibility and open services, but extreme heat makes a breakdown dangerous. In summer, early morning is often the best compromise. Whatever you choose, carry plenty of water.
- **Travel together.** Convoy with a neighbor or family, and keep phones charged and a paper map.
- **Don't drive into crowds or roadblocks.** Turn around when it's safe and take an alternate.
- **Fuel and water first:** leave with at least a half-full tank and enough water for everyone, including pets.
- **Know your destination** and share your route and expected arrival time with someone outside the area.

Full route details: [Evacuation Routes](#).

Securing your home

- Lock doors and windows, close blinds, and keep a low profile. Don't post your location or supplies publicly.
- Keep exterior lights on at night and know your exits.
- Keep a fire extinguisher accessible and know how to shut off utilities if instructed.
- Have a "safe room" in the interior of the house with water, a phone charger, and first aid.
- Get to know your neighbors now. Watching out for one another is one of the most effective protections there is.

Family communication plan

1. Pick an out-of-area contact everyone can text to check in.
2. Choose two meeting places: one in your neighborhood, one outside it.
3. Write key phone numbers on paper. Phones die.
4. Know the emergency plans at your kids' schools and at your workplace.
5. Practice the plan once a year. Ready.gov has a free plan template.



When phones fail: agree on radio channels and check-in times with your family and travel group. See Radio Communication (CB channel 19 for highway info, channel 9 for emergencies).



PLAN YOUR WAY OUT

Evacuation Routes Out of the Phoenix Metro

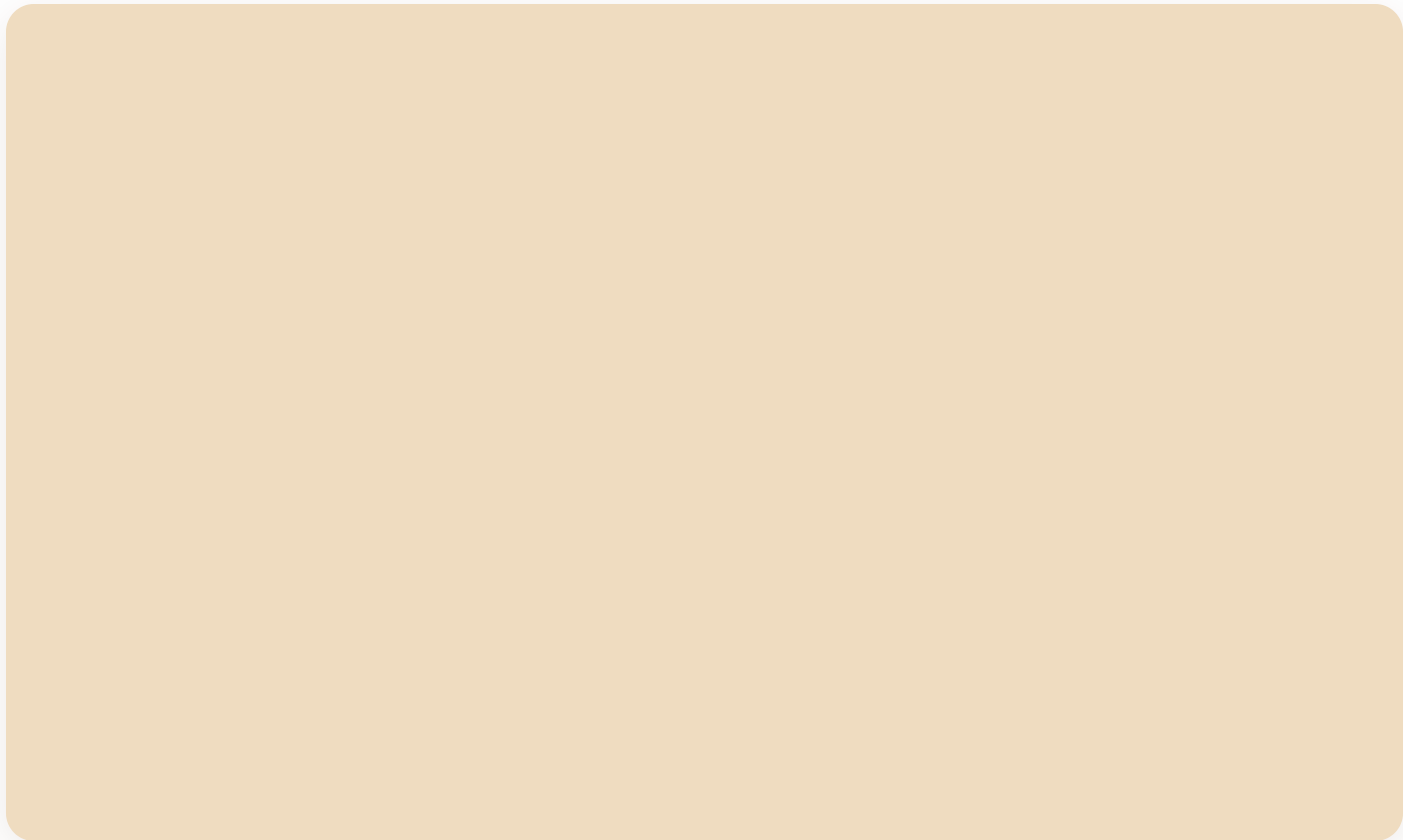
The main highways leaving the Valley, what to expect on each, and how to plan for desert travel in an emergency.

Always check official guidance first

This page is for **planning only**. In a real emergency, routes may be closed, contraflowed, or unsafe. Follow instructions from emergency officials and check:

- Maricopa County Emergency Management: local evacuation orders and shelters
- Arizona Dept. of Emergency & Military Affairs (DEMA): statewide emergencies
- ADOT AZ511 (or dial 511): live road closures, crashes, and traffic cameras

Map



View larger map (OpenStreetMap) · Live conditions on AZ511. Distances below are approximate, measured from central Phoenix.

Main routes

I-17 North

I-17 North: toward Flagstaff (and Prescott via SR-69)

~145 mi to Flagstaff

Big elevation gain = much cooler

The fastest way to cooler, high-country air: Flagstaff sits at about 7,000 ft. Expect steep grades north of Black Canyon City that strain engines and AC in summer, and frequent crash-related backups. Limited alternate routes if the freeway closes. Exit at Cordes Junction for SR-69 to Prescott.

**SR-87
NE**

SR-87 (Beeline Highway): toward Payson and the Mogollon Rim

~90 mi to Payson

Cooler, higher elevation

Good East Valley option

Leaves the northeast Valley past Fountain Hills to Payson (about 5,000 ft). Mountain driving with long climbs; few services between the Valley and Payson. Wildfire season can close this corridor, so check AZ511.

**US-60
East**

US-60 East: toward Superior and Globe

~85 mi to Globe

Mountain road, tunnel

The Superstition Freeway runs through the East Valley to Apache Junction, then becomes a two-lane mountain highway through Superior, the Queen Creek Tunnel, and Miami/Globe. Scenic, but slow and easily blocked by one crash.

**I-10
East**

I-10 East: toward Casa Grande and Tucson

~115 mi to Tucson

Heavy traffic

Hot, low desert

The main corridor to Tucson and points east, with connections to I-8 West near Casa Grande. Often congested between the Valley and Casa Grande, and dust storms in monsoon season can cause sudden zero-visibility conditions. Tucson is hot too, so this route is better for reaching family or services than for escaping heat.

**I-10
West**

I-10 West: toward Quartzsite, Blythe, and Southern California

~125 mi to Quartzsite

Long, remote stretches

Passes Buckeye and Tonopah, then long empty desert stretches with few services. Extremely hot in summer. Fill up on fuel and water before leaving the West Valley, and make sure your vehicle's cooling system is in good shape.

SR-85 to I-8

SR-85 South to I-8 West: toward Gila Bend, Yuma, and San Diego

~70 mi to Gila Bend

Remote desert

From I-10 at Buckeye, SR-85 runs south to Gila Bend, where it meets I-8 heading west to Yuma and San Diego. A useful alternate if I-10 West is jammed, but very remote and extremely hot. Carry extra water.

US-60 W / US-93

US-60 West (Grand Ave) / US-93: toward Wickenburg, Kingman, and Las Vegas

~60 mi to Wickenburg

Northwest option

Grand Avenue (or Loop 303) heads northwest to Wickenburg, where US-93 continues toward Kingman and Las Vegas. Lots of traffic signals in the metro section; use Loop 303 to reach US-60 faster from the West Valley.

Planning considerations

Heat

A breakdown in the desert in summer can be life-threatening. Travel during cooler hours when you can, carry extra water for everyone (including pets), and stay with your vehicle if stranded. It's easier for rescuers to find, and it gives you shade.

Fuel

Keep your tank at least half full at all times. In an evacuation, stations may run out or lose power. Know where fuel stops are on your route.

Water

Pack at least 1 gallon per person per day, and more in summer. Add electrolytes, a cooler, and wet towels for cooling.

Traffic

Everyone will try the same freeways. Know at least two routes and have a paper map in case phones and GPS fail.

Timing

Leave early, before an order becomes mandatory and roads clog. Waiting for certainty often means waiting too long.

Destination

Know where you're going: a friend, family member, hotel, or official shelter. Tell someone your route and expected arrival.

Need a go-bag? See the Survival Gear checklist.

When phones fail: agree on radio channels and check-in times with your family and travel group. See Radio Communication (CB channel 19 for highway info, channel 9 for emergencies).



AFTER YOU ARRIVE

Payson & Flagstaff: First Steps and Where Next

Reaching the high country is a milestone, not the finish line. Here's how to check in, stay safe in a colder and smaller place, and decide calmly whether to stay or keep moving. Always follow official guidance where you are.

Bring someone with you. If you have a seat, a spare water jug, or the ability to walk at someone else's pace, take a neighbor, an older adult, a child, or someone with a disability who can't leave alone. How to do it well →

Arriving in Payson (Gila County)

Payson is a town of about **16,351 people** (2020 Census) at roughly 5,000 ft, about 89 miles from central Phoenix via SR-87.

1. **Check in with officials.** Gila County Office of Emergency Management: 928-402-8789, ReadyGila.com. Sign up for ReadyGila Alerts (text, email, or phone).
2. **Find a shelter** through the Red Cross open-shelter finder or by dialing 211 (Arizona 211 covers the whole state).
3. **Medical care:** Banner Payson Medical Center, 807 S. Ponderosa St., open 24 hours, (928) 471-3222. It's a **25-bed critical access hospital**, so serious cases may be flown or driven elsewhere. Call 911 for emergencies.
4. **Conserve supplies.** Refill water first, then fuel if available. Expect lines and limits at stores and gas stations.

Arriving in Flagstaff (Coconino County)

Flagstaff is a city of about **76,831 people** (2020 Census) at about 6,900 ft, roughly 144 miles from central Phoenix via I-17.

1. **Check in with officials.** Coconino County Emergency Management (emergencymanagement@coconino.az.gov). Sign up for Coconino County alerts.
2. **Shelter:** Red Cross shelter finder or dial 211.

3. **Medical care:** Flagstaff Medical Center Emergency Department (Northern Arizona Healthcare), 1200 N. Beaver St., 928-773-2113. It's northern Arizona's Level I Trauma Center.
4. **Conserve supplies** and expect stretched services, just as in Payson.

Cold, altitude, and fire: the high country is different

- **Cold:** Flagstaff regularly gets snow and below-freezing nights from fall through spring, and Payson is much cooler than Phoenix. Pack the warm layer from your bug-out bag list, plus a hat, gloves, and a blanket or sleeping bag. Watch for hypothermia in older adults and children. Check NWS Flagstaff forecasts.
- **Altitude:** CDC says the risk of acute mountain sickness generally begins for unacclimatized people sleeping at about **8,000 ft or higher** (CDC Yellow Book). Payson and Flagstaff are below that, but coming from about 1,100 ft you may still feel short of breath, tired, or headachy at first. Drink water, take it easy the first day or two, and get medical help if symptoms worsen. People with heart or lung disease should talk to a clinician.
- **Wildfire:** both towns sit in fire-prone pine forest (Tonto and Coconino National Forests). Follow fire restrictions, never start open fires during bans, and keep alerts turned on. You may need to evacuate again.

Small towns fill up fast

Payson has one small hospital and about 16,000 residents. A wave of evacuees from a metro of millions can quickly overwhelm fuel, groceries, lodging, and medical care. **Please still seek help if you need it.** Shelters and hospitals are there for you. But if you are healthy, have fuel, and have somewhere safe to go, **moving on** frees up local resources for people who can't. Be a good guest: follow local instructions, don't camp where it's prohibited, and pack out your trash.

Where next? By scenario

There's no single right answer. These are principles plus real routes. Check AZ511 for road conditions and official instructions before you move. Distances are approximate driving miles from OpenStreetMap routing.

Onward routes

From	Route	To	≈ Miles
Payson	SR-260 east	Show Low / White Mountains	90
Payson	SR-260 east, then US-60	Springerville	136
Payson	SR-87 north	Winslow (I-40)	90

From	Route	To	≈ Miles
Flagstaff	I-40 east	Holbrook / Gallup, NM / Albuquerque, NM	90 / 185 / 323
Flagstaff	I-40 west	Kingman	148
Flagstaff	US-89 north	Page	134
Flagstaff	I-17 south, then SR- 169/SR-69	Prescott	95

Civil conflict or unrest

- Move **away from population centers and flashpoints** (government buildings, large protests, major interchanges) toward communities where you have **family, friends, or faith/community ties**.
- Smaller towns along SR-260 or US-89 are less likely to see large crowds, but they also have fewer services.
- Travel in daylight on main highways in groups when you can, and follow law enforcement instructions. See our unrest route-planning guide.

Pandemic or disease outbreak

- **Follow public health orders** from ADHS and your county. Travel may be restricted.
- **Avoid crowding:** staying with one household is often safer than a mass shelter. If you use a shelter, follow its health screening.
- **The tradeoff:** rural dispersal reduces exposure but puts you far from hospitals (Payson's is small). People at high risk may be safer staying close to care.
- Bring masks, a thermometer, medications, and hand hygiene supplies. See Ready.gov: Pandemic and ADHS.

Extended blackout or grid failure

- Arizona is part of the **Western Interconnection**, the grid that spans most of the western US. The Eastern Interconnection and Texas (ERCOT) are separate (EIA). A local failure may only affect one utility, so a town served by a different utility, or simply cooler weather, may be enough.
- Cooler, higher places (Flagstaff, the White Mountains) make life without AC far safer than the low desert in summer, but colder in winter.
- Fuel pumps need power. Fill up wherever stations are working, and don't count on the next town.

Economic collapse or supply disruption

- Go where you have **family and community ties**, housing, and a way to contribute. Relationships matter more than location.
- Look for places with **reliable water**, local agriculture, and lower costs. Many rural Arizona towns have strong mutual-aid traditions.
- See our Economic Disruption guide for building a buffer.

By ability level

Can travel far

You have a vehicle with fuel and are healthy.

- Keep moving to a planned destination (family, friends, or a booked room) rather than stopping in the first small town.
- Top off fuel and water whenever you can, and carry paper maps.
- **Offer seats** to people who can't drive.

Limited travel

Bikes, short daily distances, older adults, or a vehicle low on fuel.

- Move in short stages between towns with services. Plan water stops, since long stretches have none.
- Travel in cool hours and rest often. See wheels and other ways to move.
- Ask the county and 211 about transport help, and don't push past safe limits.

Should stay put and shelter

Medical needs, mobility limits, dialysis, oxygen, or frailty.

- Staying near your care team and pharmacy is often safest. Register with your utility's medical program and with 211.
- Make staying viable: a cool room, backup power for devices, 2 weeks of meds and water, and a neighbor check-in plan (see Community).
- Connect with local aid: county emergency management, Red Cross, faith groups, and mutual-aid networks.

New terrain, new wildlife: Payson and Flagstaff have black bears, elk on the roads, Arizona black rattlesnakes, plague-carrying fleas on prairie dogs, and deadly look-alike plants. See the Wildlife Field Guide.

Bring someone with you

Many of the people most at risk in an emergency can't leave on their own. If you can, bring one of them.

- **Share supplies:** plan water for every person (about 1 gallon per day, 2 in heat, per Ready.gov), plus their meds and a change of clothes.
- **Set the pace** to the slowest person. Take more breaks, more shade, and more water.
- **Carry their medical list:** conditions, medications and doses, allergies, doctor and pharmacy phone numbers, and an emergency contact.
- **Mobility aids and chargers:** walker, wheelchair, hearing-aid batteries, phone and device chargers.
- **Tell someone** where you're going and when you expect to arrive.

[Back to Evacuation routes](#) · [Find your situation](#) · [Resource map](#)



FIELD SKILLS

Basic Bushcraft & Desert Survival

Simple, proven skills for staying alive in the Sonoran Desert and Arizona's high country if you're stranded or have to move on foot. Practice them on a cool day, long before you need them.

1. Survival priorities: the "rule of 3s"



3 min

AIR



3 hrs

SHELTER*



3 days

WATER*



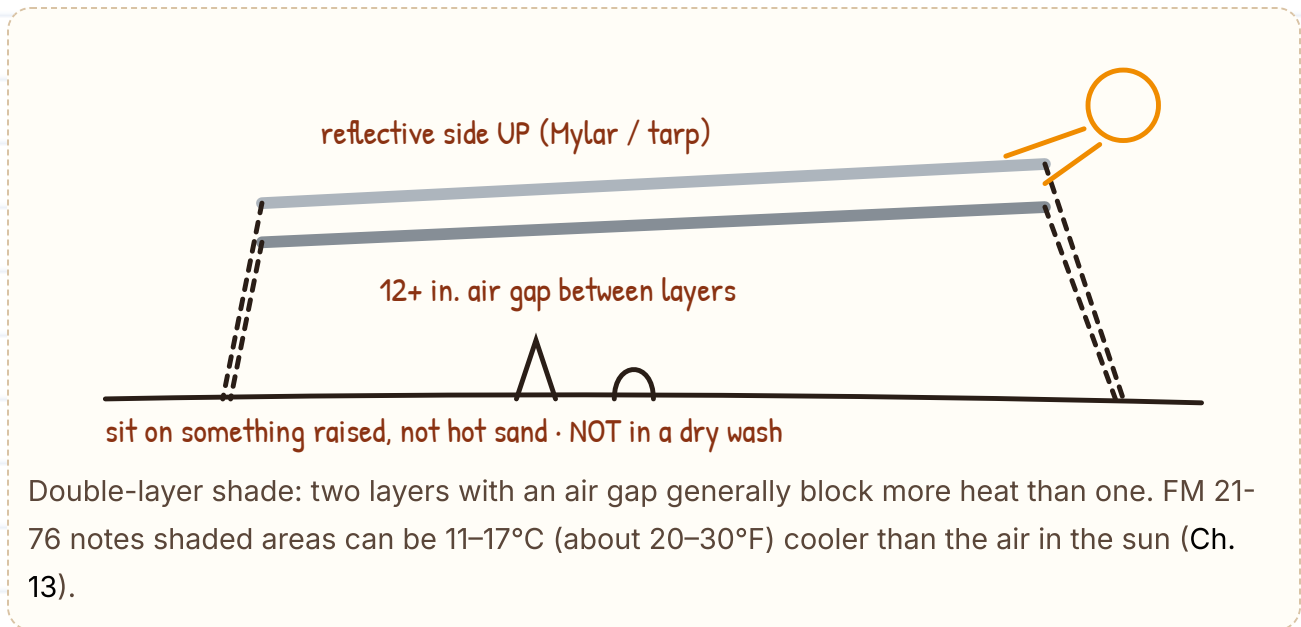
3 wks

FOOD

A memory aid, not a medical fact. *In Phoenix summer heat, exposure and lack of water can kill in **hours**, not days.

The "rule of 3s" is a popular memory aid for setting priorities: deal with breathing and bleeding first, then protection from the environment, then water, then food. The numbers are rough. Children, older adults, and anyone in extreme heat have far less time. In the desert, **shade and water come first, and food comes a distant last**. Also: **tell someone your plan**, and if you're lost, **stay with your vehicle** when it's safe. A car is easier to spot than a person, and it gives you shade.

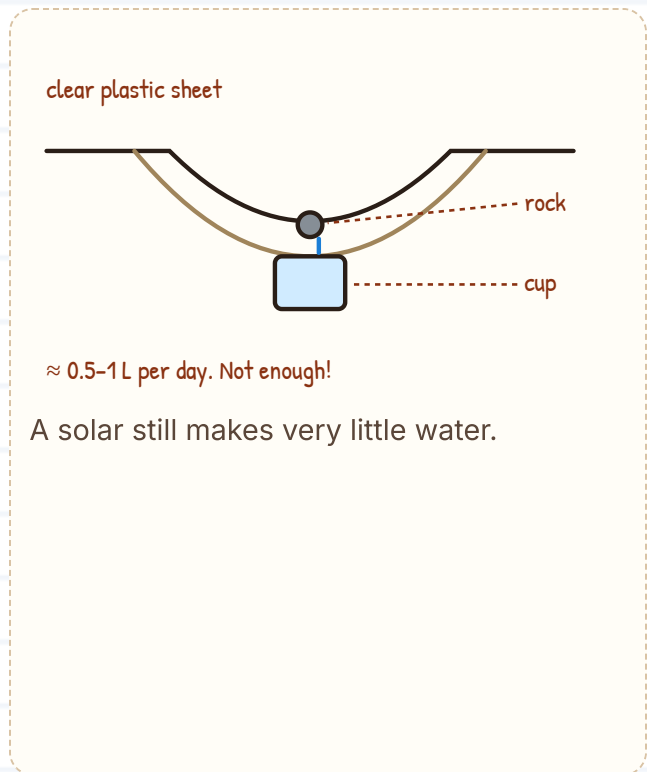
2. Desert shelter & shade



- **Get out of the sun during the hottest hours.** Rest in shade and move in the early morning, evening, or night.
- **Use what you have:** a car (windows cracked and a sunshade up), a tarp, an emergency blanket, or the shade of rocks or trees. Don't lie directly on hot ground. The surface can be far hotter than the air.
- **Never shelter in a dry wash or arroyo.** Monsoon storms miles away can send a flash flood through with little warning (NWS: Turn Around, Don't Drown).
- **At night and at elevation it gets cold.** Use an emergency blanket and dry layers.

3. Water: finding, collecting & purifying

- **Carry it.** No desert technique replaces water you brought. Ration sweat, not water: FM 21-76 warns "Do not ration your water!" Drink what you need and cut sweating by resting in shade during the heat of the day (Ch. 13).
- **Where water may be:** mapped springs and tanks (often dry), rivers and lakes, catchment from rain (a tarp or poncho), and green vegetation that hints at moisture below.
- **Purify everything: boiling** is best, a rolling boil for 1 minute (3 minutes above 6,500 ft). Next best is a **filter** labeled for parasites followed by **chemical disinfection** (chlorine dioxide tablets, or unscented bleach as directed). Treatment doesn't remove chemical contamination (CDC, CDC emergency water).



Solar stills are a poor plan. FM 21-76 says one takes about 24 hours to make 0.5 to 1 liter, and you'd need at least 3 to meet one person's daily needs (FM 21-76, Ch. 6). A 2025 review found solar stills averaged under 0.6 L/day and cost 375-500 kcal of effort to build, which means sweat (medRxiv review). Digging one in the heat can cost more water than it makes.

4. Fire

- **Methods:** a lighter (carry two), waterproof matches, or a ferro rod with dry tinder (cotton balls with petroleum jelly, commercial tinder).
- **Check fire restrictions first.** Arizona's forests often ban campfires, and even stoves may be limited during high fire danger. A wildfire you start can kill you and others. Check the national forest or Arizona Dept. of Forestry & Fire Management before using fire.
- In summer you rarely need fire for warmth in the low desert. Use it for signaling or boiling water only when it's legal and safe: clear the ground, keep water nearby, and drown and stir it cold before leaving.

5. Signaling for help



3 blasts = help



signal mirror



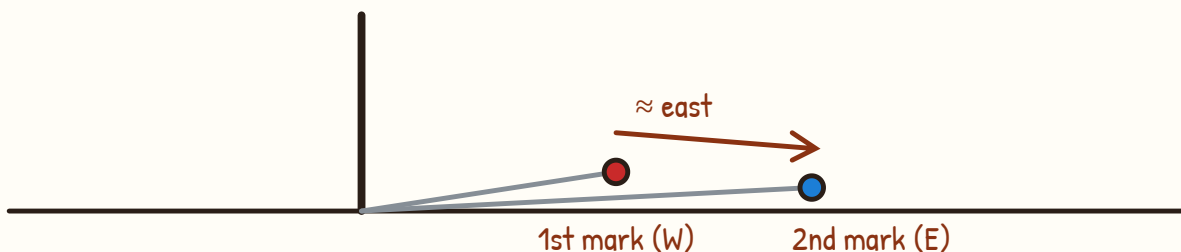
V = need help



X = medical help

- **Three of anything** (whistle blasts, fires, flashes) is a widely recognized distress signal. FM 21-76 calls three fires in a triangle, or three columns of smoke, the international distress signal. A whistle carries farther than your voice and uses less energy.
- **Signal mirror:** aim the flash at aircraft or distant vehicles. On a sunny day it can be seen for miles.
- **Ground-to-air symbols:** make them large (10+ ft) and high-contrast with rocks, clothing, or branches. **V** = require assistance, **X** = require medical assistance (FM 21-76, Ch. 19).
- **Phones:** text 911 if a call won't go through (where supported). Texts often get through when calls can't. Save battery by turning on airplane mode between checks.

6. Navigation



Shadow-tip method: mark the shadow tip, wait 10–15 minutes, and mark again. The first mark is always west and the second roughly east (FM 21-76, Ch. 18).

- **Paper map and compass** work with no signal. Mark your route and turnoffs before you go. In the Valley, the mountains help: South Mountain to the south, the McDowells and Four Peaks to the east, the White Tanks to the west.
- **Sun:** rises roughly east and sets roughly west. At midday in Arizona it's to the south.

- **Stars:** Polaris (the North Star) sits almost due north. Find it from the two "pointer" stars at the end of the Big Dipper's cup.
- **Follow known features** like roads, power lines, and canals rather than cutting across open desert.

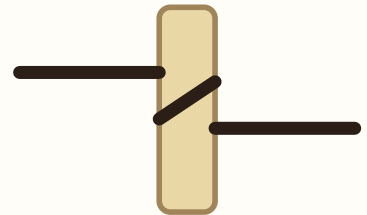
7. Four useful knots



Square knot: joins two ends of equal rope ("right over left, left over right"). Not for critical loads.



Bowline: a fixed loop that won't slip or jam. Good for tying around a post or a person in a rescue.



Clove hitch: quick hitch to a pole or tree for tarp lines.



Taut-line hitch: an adjustable loop to tighten tarp guy lines.

These are simplified sketches. Practice with real rope using step-by-step guides such as [Animated Knots](#) or a hands-on class.

8. Basic tools & knife safety

- A fixed-blade or locking folding knife, a multi-tool, duct tape, cord, and work gloves cover most needs.
- **Cut away from your body** and keep others outside your "blood circle" (arm's length plus the blade). Close or sheath the knife when you aren't using it, and never catch a falling knife.

- A cut far from help is serious. Pack a bleeding-control kit and know how to use it (Stop the Bleed).

9. Field first aid

- **Heat illness:** see our Heat guide. Heat stroke (confusion, very hot skin, collapse) is a 911 emergency. Cool the person immediately with water, shade, fanning, and ice on the neck, armpits, and groin.
- **Rattlesnake bite:** get to emergency care right away. Keep the person calm and still, and remove rings and tight items. **Do NOT** use a tourniquet, cut the wound, suck out venom, apply ice, or give alcohol or pain relievers like aspirin or ibuprofen (CDC/NIOSH). Suction kits don't work.
- **Bark scorpion sting:** wash with soap and water, apply a cool compress, and call Poison Control at 1-800-222-1222 right away, especially for a child or if symptoms spread. Never use a tourniquet (Banner Poison Center, Poison Control).
- **Cactus spines:** use tweezers for big spines and tape or glue for tiny glochids.
- **Bee attack (Africanized bees):** run to a building or car while covering your face. Don't swat, and don't jump into water. Seek care after many stings or any allergic symptoms (UA Extension).

Dressing for the sun: why loose full coverage beats bare skin, how to turn a bed sheet into a sun wrap, and desert footwear: To Cover Up, Or Not to Cover Up.

Full species guide: the Wildlife Field Guide covers every venomous animal and toxic look-alike on the route, plus edible plants and game with photos.

10. Food: water matters more

Digestion uses water, and you can go weeks without food but only hours to days without water in heat. **If water is short, eat little.** Native foods are real, but take skill and the right season:

- **Prickly pear:** young pads (nopales) and ripe fruit (tunas) are edible once the spines and tiny glochids are removed. Use tongs or gloves (UA Extension).
- **Mesquite pods:** pick dry, rattly pods from the tree (never from the ground) before monsoon rains, and discard moldy or spotted pods to reduce aflatoxin risk (UA Extension).

- **Saguaro fruit, palo verde, and desert ironwood seeds** are traditional foods, but harvest is seasonal and protected-plant rules apply. Never cut or damage a saguaro.
- **Poisonous look-alikes and toxic plants:** **datura** (sacred datura/jimsonweed: big white trumpet flowers and spiny seed pods) and **oleander** (a common landscaping shrub) are seriously toxic. If you aren't 100% sure, don't eat it. Call Poison Control at 1-800-222-1222.
- **The law:** collecting is banned or restricted in many parks, preserves, and monuments. Arizona's native plant law requires permits to take protected plants from state or public land, and landowner permission on private land (ARS 3-908). Tribal lands need tribal permission.

11. Dangerous wildlife & plants in Arizona

Rattlesnakes

Most active in warm months, often at dusk and night. Watch where you put your hands and feet, and give them space.

Bark scorpions

Small, tan, and good climbers. They hide in shoes, bedding, and dark damp spots. Shake out your gear and use a UV flashlight at night.

Africanized bees

They defend their hives aggressively. Avoid buzzing cavities and loud engines near hives, and run if attacked.

Gila monsters & black widows

Gila monsters are rarely aggressive, so leave them alone. Black widows hide in woodpiles and sheds. Wear gloves.

Cholla & other cacti

"Jumping" cholla segments stick with the slightest touch. Carry a comb to flick them off and tweezers for the spines.

Datura & oleander

Both are highly toxic if eaten. Keep kids and pets away.

Sources: U.S. Army FM 21-76 *Survival* (public domain; chapters 6, 13, 18, 19), CDC, NIOSH, NWS, UA Cooperative Extension, Banner Poison & Drug Information Center, Arizona Revised Statutes. This page is general education, not a substitute for training or professional medical care.





WILDLIFE FIELD GUIDE

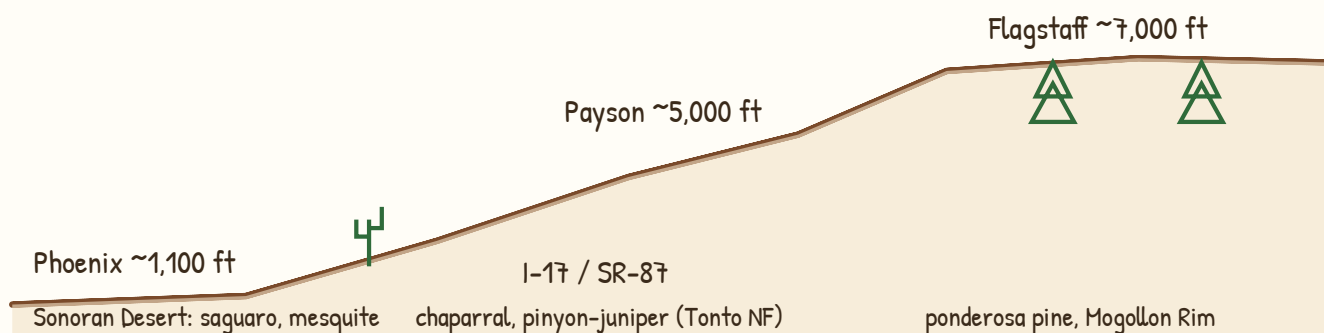
Wildlife Field Guide: Edible & Dangerous

What can hurt you, what you can eat, and how to tell them apart, from the Phoenix desert up the I-17 and SR-87 corridors to Payson and Flagstaff. 33 dangerous species, 16 edible animals, and 24 edible plants, with photos and first aid.

Golden rules

1. **Water before food.** In Arizona heat you can die of dehydration in a day; you can go weeks without food. Digesting protein uses water. Don't forage when water is short (water skills).
2. **If in doubt, don't eat it.** Identify with certainty: at least two features plus the look-alike check. One mistake with death camas, water hemlock, or a mushroom can kill.
3. **The "universal edibility test" is not reliable** for the plants that matter most here. Deadly plants such as death camas, water hemlock, poison hemlock, and amatoxin mushrooms may taste fine and cause no symptoms until hours or days later (US Army FM 21-76 itself warns it isn't for every plant). Use positive ID instead.
4. **No wild mushrooms.** Low calories, deadly risk.
5. **Respect the law.** Hunting and fishing need AZGFD licenses, seasons, and limits. **Tribal lands are off-limits** without tribal permits. Never take protected species (Gila monster, desert tortoise, native fish, eagles and most birds). Many native plants are protected (A.R.S. 3-908). National parks and monuments prohibit collecting.
6. **Normal times vs. emergencies:** foraging is not a plan to feed a family. Pack food and water (bug-out bag) and use food banks and shelters first. The law does not stop applying in an emergency.
7. **Leave dangerous animals alone.** Most bites happen when people try to catch, kill, or move snakes and lizards. Walk around them.
8. **Save the numbers:** 911 · Poison Control **1-800-222-1222** (Banner Poison & Drug Information Center, Phoenix, 24/7: 602-253-3334) · AZGFD to report wildlife issues.

Emergency first: for any bite, sting, or plant/mushroom ingestion call **911** if the person is very sick, otherwise **Poison Control 1-800-222-1222** (free, 24/7). For rattlesnake bites go straight to a hospital: **no cutting, suction, tourniquet, or ice** (AZ Poison Center, Banner).



Species change with elevation. Each card shows where it lives: **Desert** (Phoenix metro, Sonoran Desert), **Corridor** (I-17 and SR-87 through the Tonto NF, chaparral, and pinyon-juniper), **High country** (Payson, the Mogollon Rim, and Flagstaff's ponderosa pine).

Kid-friendly forage

What the badge means. We give it only to plants that meet *all* of these:

- Easy to recognize with no **dangerous** look-alike in these regions (or one an adult can rule out by checking the tree or plant itself).
- The edible part needs no risky preparation (no leaching, no toxins to cook out, no knives beyond an adult's).
- Common, legal to gather in small amounts with permission, and not protected as "highly safeguarded".
- Hazards (spines, glochids, mold) are things an adult handles.

Adult supervision always. An adult confirms the plant, does the cutting, peeling, and mold checks, and decides what is eaten. Only four plants earned it: prickly pear fruit, mesquite pods (from the tree, before monsoon), pinyon nuts, and dandelion.

Dangerous animals

Snakes & lizards

Western diamondback rattlesnake

Crotalus atrox · Snakes & lizards

Dangerous

Desert

Corridor



Whole animal
Photo: Daderot, CCO

IDENTIFY

Arizona's largest rattlesnake (to about 5.5 ft). Gray-tan with dark-edged diamond blotches peppered with dark specks; **black and white tail bands of equal width** ("coon tail"); light eye stripe runs down to the lip.

WHERE & WHEN

Desert to about 5,300 ft below the Mogollon Rim: desert flats, washes, hillsides, and neighborhoods at the desert edge. Active spring through fall; at night in summer heat.

DANGER

Responsible for many of Arizona's venomous snakebites. Pain, swelling, bleeding problems; can be life-threatening.

FIRST AID

Call 911 and get to a hospital with antivenom; car keys and phone are the best snakebite kit. Keep still and calm, remove rings, watches, and tight clothing, and keep the limb near heart level. **No** cutting, suction or "extractors", tourniquets or tight bands, ice, electric shock, or alcohol. Don't try to catch or kill the snake; treatment is the same for every Arizona rattlesnake. Poison Center: 1-800-222-1222.

LOOK-ALIKES

Harmless gopher snake (no rattle, round pupils, narrow head) mimics rattlesnakes by hissing and shaking its tail. Mojave rattlesnake has narrower black tail bands.

LEGAL STATUS

Nongame reptile. Some rattlesnakes can be taken only with a valid AZ hunting license under Commission Order 43, and several Arizona species are closed. Killing snakes is unnecessary: walk around them.

Sources: AZ Poison & Drug Info Center: Rattlesnakes · Banner Poison & Drug Info Center: Rattlesnake bites · Poison Control (poison.org): Rattlesnake bites · CDC/NIOSH: Venomous snakes · The Reptiles and Amphibians of Arizona (reptilesfaz.org)

Mojave rattlesnake

Crotalus scutulatus · Snakes & lizards

Dangerous

Desert

Corridor



Whole animal
Photo: Lvthn13 at English Wikipedia
(Original text: Self-Created), Public domain

IDENTIFY

Greenish-gray to tan with diamonds; **white tail bands wider than the black ones**; eye stripe passes above the corner of the mouth. Often confused with the diamondback.

WHERE & WHEN

Open desert flats and grassland, mostly below 5,000 ft; along I-17 north of Phoenix and open desert around the metro.

DANGER

Venom can be strongly neurotoxic in some populations (trouble breathing, weakness) as well as causing tissue damage. Treat every bite as serious, even if it looks mild at first.

FIRST AID

Call 911 and get to a hospital with antivenom; car keys and phone are the best snakebite kit. Keep still and calm, remove rings, watches, and tight clothing, and keep the limb near heart level. **No** cutting, suction or "extractors", tourniquets or tight bands, ice, electric shock, or alcohol. Don't try to catch or kill the snake; treatment is the same for every Arizona rattlesnake. Poison Center: 1-800-222-1222.

LOOK-ALIKES

Western diamondback (equal tail bands, more speckled blotches).

LEGAL STATUS

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Sidewinder

Crotalus cerastes · Snakes & lizards

Dangerous

Desert



Whole animal

Photo: derivative work: Victorrocha (talk · contribs) Crotalus_cera, CC BY-SA 3.0

IDENTIFY

Small (under 2.5 ft), pale sandy color, **raised hornlike scale above each eye**; moves sideways, leaving J-shaped tracks.

WHERE & WHEN

Sandy flats and dunes of the low desert, mainly west and southwest of Phoenix (e.g., toward Buckeye and Gila Bend). Mostly nocturnal.

DANGER

Painful, swelling bite; less venom than larger species but still a medical emergency.

FIRST AID

Call 911 and get to a hospital with antivenom; car keys and phone are the best snakebite kit. Keep still and calm, remove rings, watches, and tight clothing, and keep the limb near heart level. **No** cutting, suction or "extractors", tourniquets or tight bands, ice, electric shock, or alcohol. Don't try to catch or kill the snake; treatment is the same for every Arizona rattlesnake. Poison Center: 1-800-222-1222.

LEGAL STATUS

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Black-tailed rattlesnake

Crotalus molossus · Snakes & lizards

Dangerous

Desert

Corridor

High country



Black-tailed rattlesnake

Photo: Juan Carlos Fonseca Mata, CC BY-SA 4.0

IDENTIFY

Yellow-olive to greenish with dark crossbands; **solid black tail** and usually a dark snout.

WHERE & WHEN

Rocky slopes, canyons, and woodland from desert mountains up through chaparral and pine-oak; common along SR-87 and in the Tonto NF.

DANGER

Venomous; bites are medical emergencies.

FIRST AID

Call 911 and get to a hospital with antivenom; car keys and phone are the best snakebite kit. Keep still and calm, remove rings, watches, and tight clothing, and keep the limb near heart level. **No** cutting, suction or "extractors", tourniquets or tight bands, ice, electric shock, or alcohol. Don't try to catch or kill the snake; treatment is the same for every Arizona rattlesnake. Poison Center: 1-800-222-1222.

LOOK-ALIKES

Arizona black rattlesnake (darker overall, higher elevations).

LEGAL STATUS

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Tiger rattlesnake

Crotalus tigris · Snakes & lizards

Dangerous

Desert



Whole animal

Photo: Ltshears, CC BY-SA 3.0

IDENTIFY

Small head for its body, gray to pinkish with **narrow dark crossbands** (tiger stripes) rather than diamonds.

WHERE & WHEN

Rocky Sonoran Desert foothills and canyons around the Phoenix area mountains (South Mountain, McDowells, Superstitions).

DANGER

Small venom yield but very potent venom. Medical emergency.

FIRST AID

Call 911 and get to a hospital with antivenom; car keys and phone are the best snakebite kit. Keep still and calm, remove rings, watches, and tight clothing, and keep the limb near heart level. **No** cutting, suction or "extractors", tourniquets or tight bands, ice, electric shock, or alcohol. Don't try to catch or kill the snake; treatment is the same for every Arizona rattlesnake. Poison Center: 1-800-222-1222.

LEGAL STATUS

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Southwestern speckled rattlesnake

Crotalus pyrrhus (formerly *C. mitchellii*) ·

Snakes & lizards

Dangerous

Desert



Whole animal

Photo: Athene cunicularia (talk) 16:54, 28 March 2008 (UTC). Orig, CC BY-SA 3.0

IDENTIFY

Color matches local rock (pinkish, tan, gray) with **speckled, salt-and-pepper bands**; rough-looking scales.

WHERE & WHEN

Rocky desert mountains, especially west of Phoenix (e.g., White Tank and Sierra Estrella areas) and western Arizona.

DANGER

Venomous; medical emergency.

FIRST AID

Call 911 and get to a hospital with antivenom; car keys and phone are the best snakebite kit. Keep still and calm, remove rings, watches, and tight clothing, and keep the limb near heart level. **No** cutting, suction or "extractors", tourniquets or tight bands, ice, electric shock, or alcohol. Don't try to catch or kill the snake; treatment is the same for every Arizona rattlesnake. Poison Center: 1-800-222-1222.

LEGAL STATUS

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Arizona black rattlesnake

Crotalus cerberus · Snakes & lizards

Dangerous

Corridor

High country



Dark adult

Photo: TheLoneStarState, CC BY-SA 4.0

IDENTIFY

Adults very dark: black to dark brown or gray, often with lighter crossbars; young are lighter and blotched. Can darken and lighten.

WHERE & WHEN

Mountains of central Arizona along the Mogollon Rim, Tonto NF, Payson area, Mazatzal and Sierra Ancha; chaparral, pine-oak, and ponderosa forest.

DANGER

Venomous; medical emergency. Often found near trails and rock outcrops in the high country.

FIRST AID

Call 911 and get to a hospital with antivenom; car keys and phone are the best snakebite kit. Keep still and calm, remove rings, watches, and tight clothing, and keep the limb near heart level. **No** cutting, suction or "extractors", tourniquets or tight bands, ice, electric shock, or alcohol. Don't try to catch or kill the snake; treatment is the same for every Arizona rattlesnake. Poison Center: 1-800-222-1222.

LOOK-ALIKES

Grand Canyon rattlesnake (pinkish, Grand Canyon only, not on the route).

LEGAL STATUS

Nongame reptile. Some rattlesnakes can be taken only with a valid AZ hunting license under Commission Order 43, and several Arizona species are closed. Killing snakes is unnecessary: walk around them.

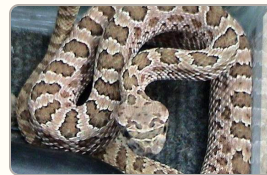
Sources: AZ Poison & Drug Info Center: Rattlesnakes · Banner Poison & Drug Info Center: Rattlesnake bites · Poison Control (poison.org): Rattlesnake bites · CDC/NIOSH: Venomous snakes · The Reptiles and Amphibians of Arizona (reptilesfaz.org) · AZ Poison Center: Rattlesnakes of Arizona

Prairie rattlesnake (incl. Hopi rattlesnake)

Crotalus viridis · Snakes & lizards

Dangerous

High country



Whole animal

Photo: Unknown (see source page), CC BY-SA 2.5

IDENTIFY

Greenish-tan to brown with dark blotches that become bands near the tail; light stripes on the face.

WHERE & WHEN

Grasslands and open pinyon-juniper of northern Arizona, including the Flagstaff area's open country and prairie-dog towns.

DANGER

Venomous; medical emergency.

FIRST AID

Call 911 and get to a hospital with antivenom; car keys and phone are the best snakebite kit. Keep still and calm, remove rings, watches, and tight clothing, and keep the limb near heart level. **No** cutting, suction or "extractors", tourniquets or tight bands, ice, electric shock, or alcohol. Don't try to catch or kill the snake; treatment is the same for every Arizona rattlesnake. Poison Center: 1-800-222-1222.

LOOK-ALIKES

Gopher snake (round pupils, no rattle).

LEGAL STATUS

Nongame reptile. Some rattlesnakes can be taken only with a valid AZ hunting license under Commission Order 43, and several Arizona species are closed. Killing snakes is unnecessary: walk around them.

Sources: AZ Poison & Drug Info Center: Rattlesnakes · Banner Poison & Drug Info Center: Rattlesnake bites · Poison Control (poison.org): Rattlesnake bites · CDC/NIOSH: Venomous snakes · The Reptiles and Amphibians of Arizona (reptilesfaz.org) · AZ Poison Center: Rattlesnakes of Arizona

Sonoran (Arizona) coral snake

Micruroides euryxanthus · Snakes & lizards

Dangerous

Desert

Corridor



Whole animal

Photo: David Jahn, CC BY-SA 2.0

IDENTIFY

Small (usually under 2 ft), slim, with **red, yellow (or white), and black rings that go all the way around the body**; black head. Red touches yellow.

WHERE & WHEN

Rocky desert and grassland, often under rocks; mostly active at night or after summer rains.

DANGER

Neurotoxic venom, but bites are rare and no deaths have been attributed to the Arizona species. Symptoms can be delayed 1–7 hours.

FIRST AID

Don't handle it. If bitten, go to a medical facility without delay even if you feel fine, and call 1-800-222-1222.

LOOK-ALIKES

Sonoran mountain kingsnake and shovel-nosed snakes are harmless look-alikes. The color rhyme is a rough guide only; never handle banded snakes.

LEGAL STATUS

Nongame reptile; leave it alone.

Sources: AZ Poison Center: Arizona coral snake · The Reptiles and Amphibians of Arizona (reptilesfaz.org)

Gila monster

Heloderma suspectum · Snakes & lizards

Dangerous

Desert

Corridor



Whole animal

Photo: Theo Kruse / Burgers' Zoo, CC BY-SA 4.0

IDENTIFY

Heavy lizard (to about 22 in) with **beadlike skin** in black and pink, orange, or yellow patterns; fat tail; slow-moving.

WHERE & WHEN

Desert foothills, washes, and rocky slopes; mostly underground, active on spring mornings and after summer rains.

DANGER

Venomous bite that holds on; extremely painful, with swelling, nausea, and sometimes breathing trouble. There is no antivenom.

FIRST AID

Remove the lizard quickly (pry the jaws open with a strong stick while it keeps its feet on the ground). Irrigate the wound with water, keep the limb at heart level, call 1-800-222-1222, and go to a medical facility (broken teeth may be in the wound; check tetanus).

LEGAL STATUS

Legally protected in Arizona. Never capture, harass, kill, or eat a Gila monster. Watch from a distance; it will walk away.

Sources: AZ Poison Center: Gila monster · The Reptiles and Amphibians of Arizona (reptilesfaz.org) · AZ Game & Fish: Hunting regulations

Spiders, scorpions & insects

Arizona bark scorpion

Centruroides sculpturatus · Spiders, scorpions & insects

Dangerous

Desert

Corridor



Whole animal

Photo: Matt Berger, CC BY 4.0

IDENTIFY

Small (to about 1.5 in), straw-yellow to tan, with **slender pincers and a thin tail**. Climbs walls and ceilings; glows under UV light.

WHERE & WHEN

Throughout the Phoenix metro in homes and yards, under bark, rocks, and debris; lower desert canyons. Active on warm nights.

DANGER

The only scorpion in Arizona regarded as life-threatening. Intense pain, numbness, and tingling; small children are at highest risk of severe reactions (jerky movements, wild eye movements).

FIRST AID

Wash with soap and water, apply a cool compress, keep the limb comfortable, and use over-the-counter pain relief. Call 1-800-222-1222 to decide if a hospital visit is needed; go immediately for young children or severe symptoms.

LOOK-ALIKES

Giant desert hairy scorpion (large, thick pincers) and stripe-tailed scorpion: painful but not considered dangerous.

Sources: AZ Poison Center: Scorpions · Banner Poison Center: Bark scorpions

Western black widow

Latrodectus hesperus · Spiders, scorpions & insects

Dangerous Desert Corridor High country



Female
Photo: Dllu, CC BY-SA 4.0

IDENTIFY

Female glossy black, round abdomen with a **red or orange hourglass underneath**. Messy, strong, irregular web low to the ground. Males are small and brown.

WHERE & WHEN

Woodpiles, sheds, rock walls, outdoor furniture, and utility boxes everywhere along the route.

DANGER

Painful bite followed by cramping and stiffness in the back, chest, or belly; nausea, headache, high blood pressure. Worse for small children.

FIRST AID

Wash with soap and water, cool compress, keep the limb near heart level, OTC pain relief. Call 1-800-222-1222; children under 5 and adults with severe symptoms may need hospital care.

LOOK-ALIKES

Brown widow (non-native, brown with orange hourglass) also occurs in Phoenix.

Sources: AZ Poison Center: Bees, spiders & other bugs

LOOK-ALIKES

Many harmless brown spiders look similar; most "spider bites" are actually other skin infections.

Sources: AZ Poison Center: Bees, spiders & other bugs

Africanized honey bees

Apis mellifera (Africanized) · Spiders, scorpions & insects

Dangerous Desert Corridor High country



Bee
Photo: Scott Bauer, USDA Agricultural Research Service, Public domain

IDENTIFY

Look the same as ordinary honey bees; only behavior tells: they defend a wide area around the hive and chase people for a long distance.

WHERE & WHEN

Common throughout southern and central Arizona. Hives in walls, meter boxes, rock crevices, old tires, and tree hollows.

DANGER

Mass stinging attacks can be fatal; one sting can kill a person with a bee allergy.

FIRST AID

Run to a car or building, covering your face; don't swat or stop, and don't jump into water (bees wait). Remove stingers within seconds by any means. Call 911 for many stings or any allergy signs (welts, trouble breathing); otherwise 1-800-222-1222.

Sources: AZ Poison Center: Bees, spiders & other bugs · UA Cooperative Extension: Africanized honey bees (AZ1846)

Arizona brown spider (recluse relative)

Loxosceles arizonica · Spiders, scorpions & insects

Dangerous Desert Corridor



Violin mark on a recluse spider (brown recluse shown; Arizona has related species)
Photo: Robert Webster, CC BY-SA 4.0

IDENTIFY

Light tan to brown, about nickel-to-quarter size with legs; **violin-shaped mark** on the front body; six eyes in pairs. Shy.

WHERE & WHEN

Dry, undisturbed places: packrat nests, woodpiles, closets, under rocks. The true brown recluse lives in the Midwest, not Arizona.

DANGER

Bites may become a slow-healing "bull's-eye" sore with dead skin, sometimes with flu-like symptoms.

FIRST AID

Keep the bite clean with soap and water and get medical treatment; call 1-800-222-1222.

Kissing bugs (conenose bugs)

Triatoma rubida and relatives · Spiders, scorpions & insects

Dangerous Desert Corridor



Kissing bug feeding (South American species shown)
Photo: Photo Credit: Content Providers(s): CDC/World Health Organiz, Public domain

IDENTIFY

About 1/2-1 in, dark with orange-red marks along the edge of a flat body; **long cone-shaped head**.

WHERE & WHEN

Packrat nests; drawn to lights on summer nights and bite sleeping people and pets.

DANGER

Bites are painless at first, then itchy swelling; repeat bites can cause severe allergic reactions, including anaphylaxis. They can carry the parasite that causes Chagas disease, but human infection from Arizona bugs is rare.

FIRST AID

Wash with soap and water. Seek care for allergic signs; people with severe reactions may be prescribed an epinephrine kit. Call 1-800-222-1222.

LOOK-ALIKES

Harmless leaf-footed and assassin bugs look similar.

Sources: AZ Poison Center: Bees, spiders & other bugs · CDC: Chagas disease

DANGER

Painful bite with local swelling, usually short-lived.

FIRST AID

Most bites can be handled at home: clean the bite. If pain is severe or lasts more than 12 hours, seek care. Call 1-800-222-1222.

Sources: AZ Poison Center: Bees, spiders & other bugs

Giant desert centipede

Scolopendra heros / *S. polymorpha* · Spiders, scorpions & insects

Dangerous Desert Corridor



Whole animal
Photo: John, CC BY 2.0

IDENTIFY

Long, flat, segmented, one pair of legs per segment; up to 6–8 in. Often orange or red with a dark head and tail.

WHERE & WHEN

Under rocks and logs; active on warm, wet nights.

Tarantula hawk wasp

Pepsis spp. · Spiders, scorpions & insects

Dangerous Desert Corridor



Whole insect
Photo: Alicia Di Rado, CC BY 4.0

IDENTIFY

Large (to 2 in) blue-black wasp with **bright orange wings**; seen on milkweed and mesquite flowers in summer.

WHERE & WHEN

Desert and grassland, summer days.

DANGER

One of the most painful insect stings, but rarely dangerous unless allergic. Not aggressive; leave it alone.

FIRST AID

Clean the sting, cool compress; seek care for allergic signs. Call 1-800-222-1222.

Sources: AZ Poison Center: Bees, spiders & other bugs

Amphibians

Sonoran Desert toad (Colorado River toad)

Incilius alvarius · Amphibians

Dangerous Desert Corridor



Whole animal
Photo: Holger Krisp, CC BY 3.0

IDENTIFY

Very large toad (to 7 in), smooth olive skin, **big kidney-shaped glands behind the eyes** and white warts at the corners of the mouth.

WHERE & WHEN

Near water, irrigated yards, and canals during and after the summer monsoon; active at night.

DANGER

Its skin and gland toxins are poisonous. Dogs that mouth one can collapse, seize, or die. Never lick it or try to use its secretions: they can cause seizures and heart problems, and they contain a controlled substance (5-MeO-DMT).

FIRST AID

Dog exposure: rinse the mouth sideways with a hose (nose pointed down so it doesn't swallow), wipe the gums, and go to a vet immediately. Human exposure: wash skin, rinse eyes, call 1-800-222-1222.

LOOK-ALIKES

Smaller Great Plains and red-spotted toads; still wash hands after touching any toad.

LEGAL STATUS

Not edible. Do not collect.

Sources: The Reptiles and Amphibians of Arizona (reptilesfaz.org) · AZ Poison Center: Bees, spiders & other bugs

Mammals

Mountain lion (cougar)

Puma concolor · Mammals

Dangerous **Desert** **Corridor** **High country**



Whole animal
Photo: Saguaro National Park, CC BY 2.0

IDENTIFY

Large tawny cat, long thick tail with a dark tip; tracks show four toes and no claw marks.

WHERE & WHEN

Statewide where deer live: desert mountains edging Phoenix, the Tonto NF, the Rim, and Flagstaff forests. Most active dawn and dusk.

DANGER

Attacks on people are very rare but serious; small children and running people are most at risk.

FIRST AID

Don't run. Pick up small children, face the lion, look big, back away slowly, and shout. If attacked, fight back hard (rocks, sticks, fists). Report to AZGFD; call 911 for injuries.

LEGAL STATUS

Big-game species: hunting only by AZGFD license and season.

Sources: AZ Game & Fish: Living with wildlife · AZ Game & Fish: Hunting regulations

Black bear

Ursus americanus · Mammals

Dangerous **Edible** **Corridor** **High country**



Whole animal
Photo: NPS, Public domain

IDENTIFY

Black, brown, or cinnamon (color doesn't tell the species); no shoulder hump; tall ears. Grizzlies do not live in Arizona.

WHERE & WHEN

Chaparral, Mogollon Rim, Payson area, and ponderosa and mixed-conifer forest. Drawn to trash, coolers, and pet food, especially in drought years.

DANGER

Rare but real attacks in Arizona; food-conditioned bears are the biggest risk.

FIRST AID

Never feed bears; store food and trash in your car or bear boxes. If you meet one, give it space, stand tall, make noise, back away; don't run. **Fight back** if a black bear attacks. Report to AZGFD.

LEGAL STATUS

Big-game species: AZGFD license and season only. Bear meat often carries *Trichinella*; it must be cooked to at least 160°F (CDC).

PREPARATION

Legal hunters must cook bear meat thoroughly (160°F) because of trichinellosis; freezing does not reliably kill the parasite in wild game.

Sources: AZ Game & Fish: Living with wildlife · AZ Game & Fish: Hunting regulations · CDC: Trichinellosis

Javelina (collared peccary)

Pecari tajacu · Mammals

Dangerous **Edible** **Desert** **Corridor**



Herd
Photo: ALAN SCHMIERER, CCO

IDENTIFY

Pig-like, grizzled gray-black with a pale "collar"; travels in herds; strong musky smell. Not a pig (a separate family).

WHERE & WHEN

Desert, chaparral, and edges of Phoenix-area neighborhoods, Payson's lower edges. Often in yards where people feed them.

DANGER

Usually avoid people but will defend themselves and attack dogs; sharp tusks.

FIRST AID

Give them an escape route; keep dogs leashed. Never feed them (feeding wildlife other than birds and tree squirrels is illegal in Maricopa County, A.R.S. 13-2927). Clean bites well and seek care (infection, rabies risk).

LOOK-ALIKES

Feral hogs (rare in this area) are larger, with a straight tail.

LEGAL STATUS

Big-game species: hunting only with an AZGFD javelina tag in season (draw).

PREPARATION

Field dress promptly. Remove the **scent gland on the lower back** carefully without cutting into it, and keep hair off the meat. Cook to 160°F; slow braising suits the lean meat.

Sources: AZ Game & Fish: Living with wildlife · AZ Game & Fish: Hunting regulations · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures · Penn State Extension: Proper processing of wild game and fish · A.R.S. 13-2927: Unlawful feeding of wildlife

Coyote

Canis latrans · Mammals

Dangerous Desert Corridor High country



Whole animal
Photo: Henry from Arizona, United States, CC BY 2.0

IDENTIFY

Gray-tan dog-like animal, bushy tail held low, large pointed ears.

WHERE & WHEN

Everywhere, including city parks and neighborhoods.

DANGER

Rarely bite people; may take small pets. Bold or sick animals can carry rabies.

FIRST AID

Haze them: make noise, wave arms, throw objects near (not at) them. Keep pets inside at night. Any bite: wash 15 minutes with soap and water and get medical care for rabies shots.

LEGAL STATUS

Nongame predator under AZGFD regulations; not recommended as food.

Sources: AZ Game & Fish: Living with wildlife · CDC: Rabies

Toxic plants & mushrooms

Don't eat, don't burn, learn the look-alikes

Death camas

Toxicoscordion (Zigadenus) spp. · Toxic plants

Dangerous Corridor High country



Flower spike
Photo: Jason Hollinger, CC BY 2.0

IDENTIFY

Grass-like leaves from an onion-like bulb; spike of small cream-white six-petaled flowers with a greenish spot at the base of each petal. **No onion smell.**

WHERE & WHEN

Meadows and open pine forest in the high country, spring to early summer.

DANGER

All parts are highly toxic; a few bulbs can kill. Easily mistaken for wild onion when not in flower.

FIRST AID

Call 1-800-222-1222 or 911 immediately after any suspected ingestion.

LOOK-ALIKES

Wild onion (always smells of onion). If it doesn't smell like onion, don't eat it; and onion smell on your hands can fool you after handling real onions.

Sources: USDA PLANTS Database · SEINet Arizona-New Mexico plant atlas · US Army FM 21-76 Survival, Ch. 9 (plants; edibility test)

Sacred datura / jimsonweed

Datura wrightii, D. stramonium · Toxic plants

Dangerous Desert Corridor High country



Flowers
Photo: Dlarsen, Public domain

IDENTIFY

Sprawling plant with large gray-green leaves, big white trumpet flowers that open at dusk, and **spiny round seed pods**. Foul smell.

WHERE & WHEN

Roadsides, washes, and disturbed ground from the desert to Flagstaff.

DANGER

All parts poisonous (anticholinergic): hallucinations, very high heart rate, fever, seizures, death. People are poisoned trying to use it as a drug or mistaking it for edible plants.

FIRST AID

Call 911 or 1-800-222-1222 right away.

LOOK-ALIKES

Moonflower (cultivated, also toxic).

Sources: AZ Poison Center: Poisonous plants

Water hemlock

Cicuta douglasii · Toxic plants

Dangerous Corridor High country



Plant and flowers

Photo: Unknown (see source page),
Public domain

IDENTIFY

Tall plant in wet ground with umbrella-shaped white flower clusters; leaflets with veins ending in the notches; **chambered, hollow base** that may ooze yellow oily liquid.

WHERE & WHEN

Stream banks, wet meadows, and ditches in the Rim country and around Flagstaff.

DANGER

Considered the most toxic plant in North America; a small piece of root can cause violent seizures and death within hours.

FIRST AID

Call 911 immediately.

LOOK-ALIKES

Wild carrot, wild parsnip, water parsley, and cow parsnip. **Don't eat any wild plant in the carrot family** (white umbrella flowers).

Sources: USDA PLANTS Database · SEINet Arizona-New Mexico plant atlas · US Army FM 21-76 Survival, Ch. 9 (plants; edibility test)

Poison hemlock

Conium maculatum · Toxic plants

Dangerous Corridor High country



Plant

Photo: Krzysztof Ziarnek, Kenraiz, CC BY-SA 4.0

IDENTIFY

Tall (to 8 ft) with fern-like leaves, white umbrella flowers, and **smooth stems with purple blotches**; musty "mousy" smell.

WHERE & WHEN

Moist, disturbed ground, roadsides, and stream banks; naturalized in Arizona.

DANGER

All parts deadly (paralysis, respiratory failure).

FIRST AID

Call 911 immediately.

LOOK-ALIKES

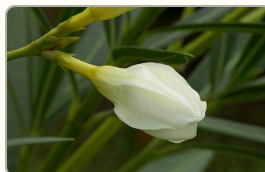
Wild carrot / Queen Anne's lace (hairy stem, no purple blotches), fennel. Avoid the whole carrot family.

Sources: USDA PLANTS Database · SEINet Arizona-New Mexico plant atlas

Oleander

Nerium oleander · Toxic plants

Dangerous Desert



Shrub in flower

Photo: Joaquim Alves Gaspar, CC BY 2.5

IDENTIFY

Common Phoenix hedge shrub with narrow leathery leaves and white, pink, or red flowers.

WHERE & WHEN

Yards, freeway landscaping, and parks throughout the metro.

DANGER

All parts contain heart toxins. Don't eat any part, use the stems as skewers, or burn it (smoke is irritating).

FIRST AID

Call 1-800-222-1222 or 911 for any ingestion.

Sources: AZ Poison Center: Poisonous plants

Castor bean

Ricinus communis · Toxic plants

Dangerous Desert



Plant

Photo: Filo gén', CC BY-SA 4.0

IDENTIFY

Large shrub with big star-shaped (palmate) leaves, often reddish; **spiny seed capsules** holding mottled brown seeds.

WHERE & WHEN

Escaped along canals, washes, and vacant lots in the Phoenix area.

DANGER

Seeds contain ricin; chewed seeds can be deadly.

FIRST AID

Call 1-800-222-1222 or 911.

Sources: AZ Poison Center: Poisonous plants

Tree tobacco & desert tobacco

Nicotiana glauca, *N. obtusifolia* · Toxic plants

Dangerous Desert Corridor



Tree tobacco

Photo: Miwasatoshi, CC BY-SA 4.0

IDENTIFY

Tree tobacco: lanky shrub with smooth blue-green oval leaves and tubular yellow flowers. Desert tobacco: low, sticky plant with small white tubular flowers.

WHERE & WHEN

Washes, roadsides, and disturbed ground below about 3,000–5,000 ft.

DANGER

Tree tobacco contains anabesine; people have died after cooking its leaves as greens.

FIRST AID

Call 911 or 1-800-222-1222.

LOOK-ALIKES

Some people mistake young tree tobacco leaves for edible greens.

Sources: AZ Poison Center: Poisonous plants

Texas mountain laurel

Dermatophyllum secundiflorum · Toxic plants

Dangerous Desert



Flowers

Photo: Kretzen at Flickr, CC BY 2.0

IDENTIFY

Landscape shrub with glossy dark leaflets, grape-scented purple flowers in spring, and gray woody pods holding **bright red seeds**.

WHERE & WHEN

Common in Phoenix yards and parks.

DANGER

Seeds are highly toxic if chewed. A reason not to eat "bean pods" from landscape plants you can't name.

FIRST AID

Call 1-800-222-1222.

LOOK-ALIKES

Palo verde and mesquite pods (edible) grow on very different trees; know the tree, not just the pod.

Sources: AZ Poison Center: Poisonous plants

Silverleaf nightshade & other nightshades

Solanum elaeagnifolium and relatives · Toxic plants

Dangerous Desert Corridor High country



Flowers and leaves

Photo: Nikolai Bulykin, CC BY-SA 4.0

IDENTIFY

Silvery, wavy-edged leaves, purple star-shaped flowers with yellow centers, and yellow-orange round berries that look like tiny tomatoes.

WHERE & WHEN

Roadsides, fields, and vacant lots up to about 5,000 ft.

DANGER

Berries and leaves are poisonous, especially to children.

FIRST AID

Call 1-800-222-1222.

LOOK-ALIKES

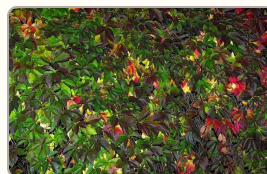
Wolfberry (also in the nightshade family): learn both before picking any red or yellow berry.

Sources: AZ Poison Center: Poisonous plants

Virginia creeper

Parthenocissus spp. · Toxic plants

Dangerous Corridor High country



Five-leaflet leaves

Photo: Bff, CC BY-SA 4.0

IDENTIFY

Climbing vine with **five leaflets** radiating from one point; small blue-black berries on red stems.

WHERE & WHEN

Moist canyons and roadsides at about 3,000–7,000 ft.

DANGER

Berries are toxic (oxalates).

FIRST AID

Call 1-800-222-1222.

LOOK-ALIKES

Wild grape (single, heart-shaped toothed leaf, tendrils, juicy grapes).

Sources: AZ Poison Center: Poisonous plants

Wild mushrooms (Amanita and others)

Amanita phalloides group, *A. muscaria*, and many others · Toxic plants

Dangerous Corridor High country



Fly agaric

Photo: Katja Schulz from Washington, D. C., USA, CC BY 2.0

IDENTIFY

Many deadly mushrooms look ordinary: white gills, a ring on the stem, a cup at the base. Fly agaric (red with white spots) grows under Flagstaff pines.

WHERE & WHEN

Ponderosa pine and oak forest after summer monsoon rains.

DANGER

Amatoxin mushrooms cause liver failure days after eating; symptoms start late, after damage is done.

FIRST AID

Call 1-800-222-1222 immediately after eating any wild mushroom, even if you feel fine. Keep a sample.

LOOK-ALIKES

Every edible mushroom has a toxic look-alike.

LEGAL STATUS

Don't forage mushrooms at all for this guide's purposes. They are low in calories and the risk is deadly.

Sources: AZ Poison Center: Poisonous plants · US Army FM 21-76 Survival, Ch. 9 (plants; edibility test)

Disease risks from wildlife

Disease	Where it comes from	Prevention & what to do	Source
Rabies	Bats, skunks, foxes (also bobcats, coyotes). A bat found in a room with a sleeping person counts as an exposure.	Never handle wild animals or bats. Wash any bite or scratch 15 minutes with soap and water and get medical care the same day; rabies shots work if given in time.	CDC: Rabies
Plague	Fleas from prairie dogs, rock squirrels, and other rodents; endemic in northern Arizona including the Flagstaff area (Coconino County reported a prairie-dog die-off and a pneumonic plague death in July 2025).	Avoid rodent burrows and sick or dead animals; use repellent and tuck pants into socks; treat pets for fleas and keep them leashed. Fever and swollen glands after exposure: see a doctor immediately (antibiotics work). Report die-offs: Coconino County 928-679-8756.	CDC: Plague · Coconino County HHS: Prairie dog die-off & plague alert (2025) · CDC MMWR: Fatal pneumonic plague, Coconino County, July 2025

Disease	Where it comes from	Prevention & what to do	Source
Hantavirus	Deer mouse droppings and urine in cabins, sheds, and vehicles, especially in the high country.	Don't sweep or vacuum droppings. Ventilate 30 minutes, soak with bleach solution (1 part bleach to 10 parts water), wait, then wipe up with gloves.	CDC: Hantavirus
Tularemia	Rabbits, hares, rodents; ticks and deer flies; untreated water.	Wear gloves to skin rabbits and rodents; never handle animals found dead; cook game thoroughly (freezing doesn't kill the bacteria). Many hunters discard any rabbit with white or yellow spots on the liver, but a clean liver is not a guarantee.	CDC: Preventing tularemia
Valley fever	A fungus in desert soil (Coccidioides). Maricopa County has some of the highest rates in the U.S. Spread by breathing dust after digging or dust storms.	Wet soil before digging; wear an N95 in dust; see a doctor for cough, fever, and fatigue lasting more than a week and ask about Valley fever.	CDC: Valley fever
Trichinellosis	Undercooked bear, wild boar, and other wild carnivores or omnivores.	Cook to 160°F and check with a thermometer. Freezing does not reliably kill wild-game Trichinella.	CDC: Trichinellosis

Edible animals

Every animal here requires an AZGFD license, season, and limits. They're listed so you can identify them, handle them safely, and know the rules, not as permission.

Game, fish & others

Desert cottontail

Sylvilagus audubonii · Small game

Edible Desert Corridor High country



Whole animal
Photo: Holly Cheng, CC BY-SA 3.0

IDENTIFY

Small gray-brown rabbit with a white fluffy tail and medium ears; freezes, then zigzags.

WHERE & WHEN

Desert scrub, washes, golf-course edges, and brushy areas statewide; most active dawn and dusk.

LEGAL STATUS

Small game. Requires a valid AZGFD hunting license (and tags or permits where required), legal season, legal methods, and bag limits. Seasons change every year: check the current AZGFD regulations.

PREPARATION

Tularemia precautions: never take a rabbit that acts sick or is found dead. Wear gloves, keep hands away from your face, and wash hands, knives, and boards afterward. Skin it, remove the guts, and inspect the liver: many hunters discard any rabbit with white or yellow spots. Rinse, chill quickly, and cook to **160°F** (USDA). Good stewed or braised.

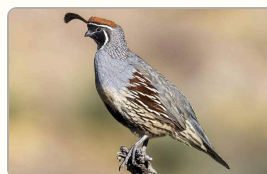
Sources: AZ Game & Fish: Hunting regulations · CDC: Preventing tularemia · USDA FSIS: Rabbit from farm to table · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures

Sources: AZ Game & Fish: Hunting regulations · CDC: Preventing tularemia · USDA FSIS: Rabbit from farm to table

Gambel's quail

Callipepla gambelii · Game birds

Edible Desert Corridor



Male
Photo: Polinova, CC BY-SA 4.0

IDENTIFY

Plump gray bird with a **forward-curling black head plume**; males have a rusty cap and black face. Travels in coveys.

WHERE & WHEN

Desert scrub and washes, including Phoenix neighborhoods; lower edges of the corridors.

LEGAL STATUS

Upland game bird. Requires a valid AZGFD hunting license (and tags or permits where required), legal season, legal methods, and bag limits. Seasons change every year: check the current AZGFD regulations.

PREPARATION

Pluck or skin, remove the crop and guts, rinse. Cook to **165°F** (all poultry and game birds). Roast whole or split and grill.

Sources: AZ Game & Fish: Hunting regulations · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures · USDA FSIS: Wild game handling ("Roasting those other holiday meats")

Black-tailed jackrabbit

Lepus californicus · Small game

Edible Desert Corridor High country



Whole animal
Photo: Chuck Homler d/b/a Focus On Wildlife, CC BY-SA 4.0

IDENTIFY

Large hare with very long black-tipped ears and a black stripe on top of the tail; long powerful legs.

WHERE & WHEN

Open desert, grassland, and farm edges statewide.

LEGAL STATUS

Jackrabbits are regulated by AZGFD; a valid hunting license and current season and limits apply.

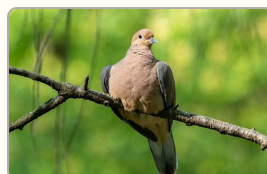
PREPARATION

Same tularemia precautions as cottontail (gloves; discard sick animals; inspect the liver). Meat is darker and tougher: braise or stew, cook to **160°F**. Summer jackrabbits may carry botfly larvae (warbles) under the skin; trim the area.

Mourning dove & white-winged dove

Zenaida macroura, *Z. asiatica* · Game birds

Edible Desert Corridor



Mourning dove
Photo: Rhododendrites, CC BY-SA 4.0

IDENTIFY

Mourning: slim, tan, pointed tail, black wing spots. White-winged: stockier with a **white stripe along the wing edge**, blue eye-ring; arrives in summer to feed on saguaro fruit.

WHERE & WHEN

Desert, farms, and neighborhoods; white-wings mainly April–September.

LEGAL STATUS

Migratory game birds: AZGFD license **plus** the federal migratory bird (HIP) requirement; specific dove seasons only.

PREPARATION

Breast out the bird, rinse, cook to **165°F**; grill wrapped or pan-fry.

Sources: AZ Game & Fish: Hunting regulations · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures

Mule deer & Coues white-tailed deer

Odocoileus hemionus, *O. virginianus couesi* ·

Big game

Edible Desert Corridor High country



Mule deer

Photo: NPS, Public domain

IDENTIFY

Mule deer: big ears, black-tipped rope-like tail, bounding gait. Coues whitetail: small, with a broad tail that flashes white; brushy mountains.

WHERE & WHEN

Mule deer statewide (desert to forest); Coues whitetail in chaparral and oak woodland along the Rim and Tonto NF.

LEGAL STATUS

Big game: hunting only with an AZGFD tag in the hunt unit and season you drew.

PREPARATION

Field dress quickly (open the belly without puncturing guts, remove organs, prop open to cool), keep the meat below 40°F, and keep it clean. Cook venison and ground venison to **160°F** (USDA). In Arizona, check AZGFD guidance on chronic wasting disease (CWD) testing if hunting near state borders.

Sources: AZ Game & Fish: Hunting regulations · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures · USDA FSIS: Wild game handling ("Roasting those other holiday meats") · Penn State Extension: Proper processing of wild game and fish

PREPARATION

Large animal: field dress immediately and cool quickly (quarter if needed). Cook like venison: ground meat to 160°F.

Sources: AZ Game & Fish: Hunting regulations · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures · Penn State Extension: Proper processing of wild game and fish

Merriam's wild turkey

Meleagris gallopavo merriami · Game birds

Edible High country Corridor



Male turkey

Photo: Frank Schulenburg, CC BY-SA 4.0

IDENTIFY

Large dark bronze bird; males have a bare red-blue head and a beard; tail feathers tipped white.

WHERE & WHEN

Ponderosa pine forest around Payson, the Rim, and Flagstaff.

LEGAL STATUS

Spring and fall seasons by AZGFD permit-tag only.

PREPARATION

Pluck or skin, remove guts and crop, chill. Cook to **165°F** in the innermost thigh and thickest breast.

Sources: AZ Game & Fish: Hunting regulations · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures · USDA FSIS: Wild game handling ("Roasting those other holiday meats")

Elk

Cervus canadensis · Big game

Dangerous Edible High country



Bull elk

Photo: Spencer-Nagy, CC BY-SA 4.0

IDENTIFY

Very large deer, tan body with a dark brown neck and pale rump patch; bulls bugle in fall.

WHERE & WHEN

Ponderosa and meadows around Flagstaff and the Mogollon Rim; often on roads at night (major collision risk on I-17 and SR-87).

DANGER

Collisions with elk on I-17 and SR-87 are a serious crash risk at dawn, dusk, and night. Cows with calves and rutting bulls can charge.

LEGAL STATUS

Big game: limited-entry draw tags only.

Tree squirrels (Abert's) & rock squirrels

Sciurus aberti, *Otospermophilus variegatus* ·

Small game

Edible Corridor High country



Abert's squirrel

Photo: Alejandro Gómez Nísino, CC BY-SA 4.0

IDENTIFY

Abert's: gray with **tall ear tufts**, lives in ponderosa pines. Rock squirrel: large mottled gray-brown ground squirrel among rocks.

WHERE & WHEN

Abert's in ponderosa forest (Flagstaff, Payson). Rock squirrels on rocky slopes from desert to forest.

LEGAL STATUS

Tree squirrels are small game with a set season; rock squirrels are regulated separately. Check current AZGFD regulations.

PREPARATION

Plague and tularemia carriers: rock squirrels and other ground squirrels carry plague fleas in northern Arizona, so avoid handling them; in an emergency, gloves on, kill fleas (bag the carcass briefly), skin, and cook to 160°F. Never take a squirrel found dead or acting sick.

Sources: AZ Game & Fish: Hunting regulations · CDC: Plague · CDC: Preventing tularemia · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures

Channel & flathead catfish

Ictalurus punctatus, *Pylodictis olivaris* · Fish & crayfish

Edible Desert Corridor



Channel catfish
Photo: Fishes of Texas team, CC BY-SA 4.0

IDENTIFY

Scaleless with whiskers (barbels). Channel: forked tail, spots when young. Flathead: flat head, jutting lower jaw, square tail.

WHERE & WHEN

Salt and Verde rivers, Saguaro, Canyon, Apache, Roosevelt, and Bartlett lakes, and Phoenix-area community fishing waters.

LEGAL STATUS

Requires a valid AZGFD fishing license; follow statewide and water-specific limits. Fish may not be transported alive from the water where caught.

PREPARATION

Careful of the sharp spines on the back and side fins. Kill, cut around the head, skin with pliers, gut, rinse. Cook fish to **145°F** or until flesh is opaque and flakes. Check ADEQ fish consumption advisories for the lake you're fishing: Roosevelt and Apache lakes are among the waters with current mercury advisories (ADEQ, revised June 2026).

Sources: AZ Game & Fish: Statewide fishing regulations (eRegulations) · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures · AZ Dept. of Environmental Quality: Fish consumption advisories

Largemouth & smallmouth bass

Micropterus salmoides, *M. dolomieu* · Fish & crayfish

Edible Desert Corridor



Largemouth bass
Photo: USFWS Mountain Prairie, Public domain

IDENTIFY

Largemouth: green with a dark side stripe; jaw reaches past the eye. Smallmouth: bronze-brown with vertical bars.

WHERE & WHEN

Salt River lakes, Bartlett, Horseshoe, Roosevelt, and the Verde.

LEGAL STATUS

Requires a valid AZGFD fishing license; follow statewide and water-specific limits. Fish may not be transported alive from the water where caught.

PREPARATION

Scale or fillet, remove the guts and gills, rinse. Cook to **145°F**. Check ADEQ advisories: Roosevelt and Apache lakes currently have mercury advisories.

Sources: AZ Game & Fish: Statewide fishing regulations (eRegulations) · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures · AZ Dept. of Environmental Quality: Fish consumption advisories

Sunfish (bluegill, green sunfish)

Lepomis spp. · Fish & crayfish

Edible Desert Corridor



Bluegill
Photo: Fredlyfish4, CC BY-SA 3.0

IDENTIFY

Small, deep-bodied panfish; bluegill has a dark ear flap and blue cheek; green sunfish has a bigger mouth and blue-green lines on the face.

WHERE & WHEN

Canals (where fishing is allowed), community ponds, lakes, and rivers; easy to catch from shore.

LEGAL STATUS

Requires a valid AZGFD fishing license; follow statewide and water-specific limits. Fish may not be transported alive from the water where caught.

PREPARATION

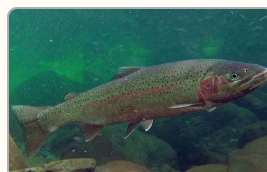
Scale and gut, or fillet; pan-fry whole. Cook to 145°F.

Sources: AZ Game & Fish: Statewide fishing regulations (eRegulations) · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures

Rainbow trout (and other stocked trout)

Oncorhynchus mykiss · Fish & crayfish

Edible Corridor High country



Rainbow trout
Photo: USFWS, Public domain

IDENTIFY

Silvery with small black spots and a pink stripe along the side.

WHERE & WHEN

Rim lakes and streams (e.g., East Verde, Tonto Creek, Woods Canyon and Willow Springs lakes), Oak Creek, and winter community waters in Phoenix.

LEGAL STATUS

Requires a valid AZGFD fishing license; follow statewide and water-specific limits. Fish may not be transported alive from the water where caught. **Native Gila trout and Apache trout are protected or under special rules;** learn to tell them apart and release them unless regulations allow take.

PREPARATION

Gut and rinse; cook whole over coals or in a pan to 145°F.

Sources: AZ Game & Fish: Statewide fishing regulations (eRegulations) · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures

Crayfish (invasive)

Faxonius virilis, *Procambarus clarkii* · Fish & crayfish

Edible Desert Corridor High country



Northern (virile) crayfish
Photo: D. Gordon E. Robertson, CC BY-SA 3.0

IDENTIFY

Small lobster-like crustaceans, 3–5 in, in streams, lakes, and canals. Not native to Arizona; they damage native fish and frogs, and removing them is encouraged.

WHERE & WHEN

Salt and Verde rivers, Rim streams and lakes, Oak Creek, canals.

LEGAL STATUS

A valid AZGFD fishing license is required. You may keep them, but **it's illegal to transport live crayfish away from the water where caught** (kill them on site) or move them to other waters.

PREPARATION

Kill on site, keep cool, rinse well. Boil 5–10 minutes until shells turn red and meat is opaque; eat the tail meat. Discard any that smell bad.

Sources: AZ Game & Fish: Statewide fishing regulations (eRegulations) · Ariz. Admin. Code R12-4-316 (live crayfish) · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures

American bullfrog (invasive)

Lithobates catesbeianus · Fish & crayfish

Edible Desert Corridor High country



Bullfrog
Photo: Cephas, CC BY-SA 3.0

IDENTIFY

Large green-brown frog with a big round eardrum and no ridges down the back; deep "jug-o-rum" call.

WHERE & WHEN

Ponds, stock tanks, and slow rivers; invasive and harmful to native leopard frogs and garter snakes.

LEGAL STATUS

Take with a valid fishing license per AZGFD Commission Order 41. Native leopard frogs (e.g., Chiricahua leopard frog) are protected; learn the difference.

PREPARATION

Kill humanely, skin the hind legs, rinse, cook to 145°F or until opaque. Wash hands; amphibians can carry Salmonella.

Sources: AZ Game & Fish: Statewide fishing regulations (eRegulations) · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures

Grasshoppers & other edible insects

Orthoptera and others · Insects

Edible Desert Corridor High country



Grasshopper
Photo: Bill Bouton from San Luis Obispo, CA, USA, CC BY-SA 2.0

IDENTIFY

Grasshoppers are the most practical: catch them in cool mornings when they're slow. Skip brightly colored or bad-smelling insects, hairy caterpillars, and anything that stings or bites.

WHERE & WHEN

Grassy areas and roadsides in summer and fall.

LEGAL STATUS

No license needed, but avoid insects from sprayed lawns, golf courses, roadsides, and farm fields (pesticides).

PREPARATION

Remove legs and wings (spiny legs can scratch the throat). **Always cook** (roast or boil) to kill parasites; never eat raw.

Sources: US Army FM 21-76 Survival, Ch. 9 (plants; edibility test)

Rattlesnake as food (not recommended)

Crotalus spp. · Snakes & lizards

Dangerous Edible Desert Corridor High country

IDENTIFY

See the rattlesnake cards above.

DANGER

Killing a snake is when many bites happen, and a severed head can still bite by reflex for hours. The meat is small for the risk.

LEGAL STATUS

Rattlesnakes are regulated reptiles (license, open species, and limits only). Several species are closed.

PREPARATION

Eating rattlesnake is possible, but **killing snakes is dangerous and unnecessary; prefer walking away**. If a legally taken snake is used, bury the head deep without touching it, skin and gut with gloves, and cook thoroughly (Salmonella and parasites).

Sources: AZ Poison & Drug Info Center: Rattlesnakes · Banner Poison & Drug Info Center: Rattlesnake bites · AZ Game & Fish: Hunting regulations

Edible plants

Positive ID, the right season, the right preparation, and permission to gather. Check every look-alike note.

Fruits, seeds, nuts & greens

Prickly pear (pads and fruit)

Opuntia engelmannii and others · Cacti & succulents

Edible Kid-friendly forage Desert Corridor



Ripe fruit
Photo: H. Zell, CC BY 3.0

IDENTIFY

Flat, paddle-shaped pads with spines **and tiny hair-like glochids**; fruit (tunas) ripen deep red-purple.

SEASON

Young pads (nopalitos) in spring; fruit in late summer to fall (Aug-Oct).

WHERE & WHEN

Desert and grassland, and many yards (landscape plants are the easiest legal source with permission).

LOOK-ALIKES

No toxic look-alikes among Arizona prickly pears, but cholla and other spiny cacti have worse spines.

LEGAL STATUS

Cacti are protected native plants; fruit and seeds of non-highly-safeguarded plants may be collected under A.R.S. 3-908, but taking living pads from state or public land needs a permit. On public land, follow the land manager's rules (national parks and monuments generally ban collecting). On private land, get permission.

PREPARATION

Use tongs and thick gloves. Glochids are the hazard: burn them off over a flame or scrub under running water, then peel.

Fruit: halve and scoop, or simmer and strain through cloth to make juice (strain twice to remove seeds and stray glochids).

Pads: pick young ones, cut off the edge and spine bumps, slice, boil or grill (they're slimy like okra).

KIDS

Adult supervision always. Adults remove the glochids and peel the fruit; kids help spot ripe fruit and strain juice.

Sources: UA Extension: Prickly pear cactus, food of the desert · Arizona Revised Statutes 3-908 (protected native plants) · UA Extension: Arizona Native Plant Law (AZ1506)

Cholla buds

Cylindropuntia acanthocarpa, *C. versicolor* · Cacti & succulents

Edible Desert Corridor



Buckhorn cholla
Photo: Stan Shebs, CC BY-SA 3.0

IDENTIFY

Branching, jointed cylinder cacti. Buckhorn and staghorn cholla flower buds are the traditional food (Tohono O'odham ciolim).

SEASON

Flower buds, about April-May, before they open.

WHERE & WHEN

Sonoran Desert flats and slopes.

LOOK-ALIKES

Teddy-bear cholla is not used (dense spines). Avoid jumping-cholla injuries: use a comb to flick joints off skin.

LEGAL STATUS

Protected native plant group; get permission (private land) or follow land-manager rules. On public land, follow the land manager's rules (national parks and monuments generally ban collecting). On private land, get permission.

PREPARATION

Use tongs. Roll buds in gravel or screen to knock off spines, then boil or steam about 15 minutes and rinse; can be dried for storage.

Sources: UA Extension: Arizona Native Plant Law (AZ1506) · Arizona Revised Statutes 3-908 (protected native plants) · SEINet Arizona-New Mexico plant atlas

Mesquite pods

Prosopis velutina and relatives · Trees & shrubs

Edible Kid-friendly forage Desert Corridor



Tree
Photo: Adbar, CC BY-SA 3.0

IDENTIFY

Thorny tree with feathery, twice-divided leaves; long bean pods that turn tan, yellow, or red-striped and **snap** when ripe.

SEASON

Late May–early July, **before the summer monsoon rains.**

WHERE & WHEN

Washes, desert flats, and Phoenix streets and parks.

LOOK-ALIKES

Texas mountain laurel and other landscape trees also have pods (toxic seeds). Know the tree first.

LEGAL STATUS

Mesquite is a protected (salvage-assessed / harvest-restricted) native tree, but pods are fruit; pick with permission or per land-manager rules.

PREPARATION

Pick dry, brittle pods **from the tree, never from the ground**, before rains; don't wash or wet them. Taste one: it should be sweet; skip bitter or chalky trees. Discard moldy, damp, or insect-damaged pods (aflatoxin risk: even invisible mold can be harmful). Dry further (low oven) and grind into flour, or simmer pods for a sweet syrup.

KIDS

Adult supervision always. Kids pick dry pods off a known mesquite tree with an adult; adults check every pod for mold and decide what's kept.

Sources: UA Extension: Mesquite (AZ1644) · UA Southwest Center: Mesquite training manual (aflatoxin, harvest timing) · Savor the Southwest / Desert Harvesters: Harvest mesquite safely · UA Extension: Arizona Native Plant Law (AZ1506)

Saguaro fruit

Carnegiea gigantea · Cacti & succulents

Edible Desert



Ripe fruit

Photo: Quinn Dombrowski, CC BY-SA 2.0

IDENTIFY

The giant columnar cactus; green fruit ripen to split open and show red pulp with black seeds.

SEASON

June–July.

WHERE & WHEN

Sonoran Desert, including Phoenix-area mountain parks.

LEGAL STATUS

Highly safeguarded plant. Fruit and seeds can't be collected from state or public land without a permit (A.R.S. 3-908); state trust and state park land generally prohibit it. Saguaro National Park allows small amounts for immediate eating only. On private land, get written permission. Tohono O'odham harvest traditions take precedence on tribal land.

PREPARATION

Traditionally knocked down with a long saguaro-rib pole. Scoop the pulp; eat fresh or simmer and strain into syrup.

Sources: Arizona Revised Statutes 3-908 (protected native plants) · UA Extension: Arizona Native Plant Law (AZ1506) · NPS Saguaro National Park

Palo verde seeds

Parkinsonia florida, *P. microphylla* · Trees & shrubs

Edible Desert



Foothill palo verde

Photo: Stan Shebs, CC BY-SA 3.0

IDENTIFY

Green-barked trees with tiny leaves and yellow spring flowers; pods bulge over the seeds.

SEASON

Young green pods in late spring (May–June); dry seeds after.

WHERE & WHEN

Desert washes and slopes; very common in Phoenix landscaping.

LOOK-ALIKES

Texas mountain laurel and other landscape legume trees (toxic red seeds). Be sure the tree is a palo verde (green bark).

LEGAL STATUS

Protected (salvage-assessed) native tree; seeds are fruit, gather with permission or per land rules.

PREPARATION

Eat young green seeds raw or blanched like peas. Dry seeds are hard: sprout, or boil until soft, or roast and grind.

Sources: UA Extension: Arizona Native Plant Law (AZ1506) · SEINet Arizona New Mexico plant atlas

Desert ironwood seeds

Olneya tesota · Trees & shrubs

Edible Desert



Tree in bloom

Photo: Rufous-crowned Sparrow, CC BY-SA 4.0

IDENTIFY

Gray-barked, thorny tree with small leaflets and lavender pea flowers in late spring; short pods with a few seeds.

SEASON

Early summer.

WHERE & WHEN

Washes in the low desert, mostly south and west of Phoenix.

LOOK-ALIKES

Other legume pods (see palo verde).

LEGAL STATUS

Protected (salvage-assessed and harvest-restricted) native tree; don't cut wood.

PREPARATION

Traditionally roasted or parched; boiling or roasting is recommended over eating raw. Small harvest only.

Sources: UA Extension: Arizona Native Plant Law (AZ1506) · SEINet Arizona-New Mexico plant atlas

Agave (roasted hearts)

Agave spp. · Cacti & succulents

Edible Desert Corridor



Agave rosette
Photo: Diego Delso, CC BY-SA 3.0

IDENTIFY

Rosette of thick, spine-tipped leaves; flowers once on a tall stalk, then dies.

SEASON

Traditionally harvested just before the stalk shoots up.

WHERE & WHEN

Rocky slopes from the desert into the chaparral.

LOOK-ALIKES

Century plants in landscaping are also agaves (same irritant sap).

LEGAL STATUS

Agaves are protected native plants and some species are highly safeguarded; removal needs a permit and landowner permission (A.R.S. 3-908). Don't harvest wild agave.

PREPARATION

The heart must be **roasted for one to several days** in a pit to become edible and sweet. Raw agave sap irritates skin and mouth (calcium oxalate and saponins). Not a realistic emergency food.

Sources: Arizona Revised Statutes 3-908 (protected native plants) · UA Extension: Arizona Native Plant Law (AZ1506) · AZ Poison Center: Poisonous plants

PREPARATION

Roast or bake the fruit, then peel and remove seeds. Flower petals can be eaten after a short boil (bitter raw); remove the inner parts.

Sources: UA Extension: Arizona Native Plant Law (AZ1506) · SEINet Arizona-New Mexico plant atlas

Desert chia

Salvia columbariae · Seeds & greens

Edible Desert



Flower heads
Photo: Krzysztof Ziarnek, Kenraiz, CC BY-SA 4.0

IDENTIFY

Small annual sage with lobed leaves at the base and stacked spiny purple-blue flower balls on the stem.

SEASON

Spring after wet winters (seeds in late spring).

WHERE & WHEN

Open desert and slopes.

LOOK-ALIKES

Other mints and sages; chia's stacked spiny whorls are distinctive.

LEGAL STATUS

On public land, follow the land manager's rules (national parks and monuments generally ban collecting). On private land, get permission.

PREPARATION

Shake dry flower heads into a bag; winnow. Soak seeds in water to make a gel drink, or toast and grind.

Sources: SEINet Arizona-New Mexico plant atlas · USDA PLANTS Database

Banana yucca (fruit and flowers)

Yucca baccata · Cacti & succulents

Edible Corridor High country



Plant
Photo: Stan Shebs, CC BY-SA 3.0

IDENTIFY

Clump of stiff, sharp blue-green leaves with curly fibers on the edges; thick, banana-shaped green fruit.

SEASON

Flowers in spring; fruit late summer.

WHERE & WHEN

Grassland, chaparral, and pinyon-juniper along I-17 and SR-87.

LOOK-ALIKES

Soaptree yucca has thin leaves and dry fruit; roots of all yuccas are soapy (saponins) and not food.

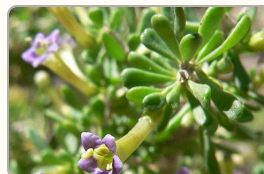
LEGAL STATUS

Harvest-restricted native plant (fiber); fruit for personal use with permission or per land rules.

Wolfberry (desert thorn)

Lycium spp. · Trees & shrubs

Edible Desert Corridor



Shrub with berries
Photo: Stan Shebs, CC BY-SA 3.0

IDENTIFY

Thorny shrub with small fleshy leaves, tubular purple-white flowers, and **small red-orange berries** like tiny tomatoes.

SEASON

Spring (after winter rains).

WHERE & WHEN

Desert washes and flats.

LOOK-ALIKES

Nightshade berries (yellow-orange, on non-thorny plants with purple star flowers) are toxic. Learn both before eating any red berry.

LEGAL STATUS

On public land, follow the land manager's rules (national parks and monuments generally ban collecting). On private land, get permission.

PREPARATION

Eat ripe berries fresh, or dry them. Eat only fully ripe berries.

Sources: SEINet Arizona-New Mexico plant atlas · AZ Poison Center: Poisonous plants

LEGAL STATUS

On public land, follow the land manager's rules (national parks and monuments generally ban collecting). On private land, get permission.

PREPARATION

Shell, then **leach the tannins**: grind and soak in many changes of cold water (or boil in changes of water) until no longer bitter. Emory acorns are sweet and need little leaching. Dry and use as flour or roast.

Sources: SEINet Arizona-New Mexico plant atlas · USDA PLANTS Database

Hackberry

Celtis pallida, *C. reticulata* · Trees & shrubs

Edible Desert Corridor



Desert hackberry
Photo: Arianza1, CC BY-SA 4.0

IDENTIFY

Desert hackberry: thorny, zigzag branches, small leaves, orange berries. Nettleleaf hackberry: small tree with rough netted leaves and orange-brown berries along streams.

SEASON

Fall.

WHERE & WHEN

Desert washes (desert hackberry) and canyon bottoms up into the corridors (nettleleaf).

LEGAL STATUS

On public land, follow the land manager's rules (national parks and monuments generally ban collecting). On private land, get permission.

PREPARATION

Eat ripe berries fresh (thin sweet pulp over a big seed) or crush whole and dry into cakes.

Sources: SEINet Arizona-New Mexico plant atlas · USDA PLANTS Database

Pinyon pine nuts

Pinus edulis · Nuts & seeds

Edible Kid-friendly forage Corridor High country



Tree
Photo: Krzysztof Ziarniak, Kenraiz, CC BY-SA 4.0

IDENTIFY

Short, bushy pine with needles in pairs and small round cones that open to show wingless brown seeds.

SEASON

September–October (crops vary a lot by year).

WHERE & WHEN

Pinyon-juniper woodland along I-17 and around Flagstaff.

LOOK-ALIKES

Ponderosa pine seeds are small and winged; juniper is not a pine. No dangerous look-alike nuts.

LEGAL STATUS

Small personal-use gathering on national forests is generally allowed; commercial collecting needs a permit. Check the Coconino or Tonto ranger district.

PREPARATION

Collect fallen nuts or open cones (pitchy, wear gloves). Roast in the shell, then crack. Discard empty or moldy nuts.

KIDS

Adult supervision always. Kids collect fallen nuts with an adult; adults roast and crack them. Pine pitch is sticky; bring gloves.

Sources: USDA Forest Service: Coconino National Forest · USDA Forest Service: Tonto National Forest · SEINet Arizona-New Mexico plant atlas

Acorns (Emory & Gambel oak)

Quercus emoryi, *Q. gambelii* · Nuts & seeds

Edible Corridor High country



Emory oak leaves
Photo: User:pompilid, CC BY-SA 3.0

IDENTIFY

Oak trees: Emory oak (evergreen, pointed shiny leaves, sweet acorns) in the Rim country; Gambel oak (deeply lobed leaves) in pine forest.

SEASON

Late summer to fall.

WHERE & WHEN

Chaparral, oak woodland, and ponderosa forest; Payson and Flagstaff.

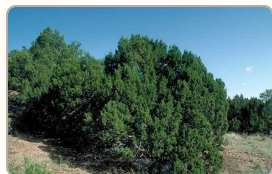
LOOK-ALIKES

Buckeyes (not common here) are toxic; acorns have a cap.

Juniper berries (caution)

Juniperus monosperma, *J. osteosperma* · Nuts & seeds

Edible Corridor High country



One-seed juniper

Photo: Dave Powell, USDA Forest Service, Bugwood.org, Public domain

IDENTIFY

Shrubby trees with scale-like leaves and blue, waxy, berry-like cones.

SEASON

Fall into winter.

WHERE & WHEN

Pinyon-juniper woodland.

LOOK-ALIKES

Some juniper species are more toxic; when unsure, skip.

LEGAL STATUS

On public land, follow the land manager's rules (national parks and monuments generally ban collecting). On private land, get permission.

PREPARATION

Use only a few as seasoning or tea; they're strong and resinous. Not a staple food. Avoid if pregnant or with kidney problems.

Sources: SEINet Arizona-New Mexico plant atlas · USDA PLANTS Database

Sources: SEINet Arizona-New Mexico plant atlas · USDA PLANTS Database · US Army FM 21-76 Survival, Ch. 9 (plants; edibility test)

Purslane

Portulaca oleracea · Seeds & greens

Edible Desert Corridor High country



Purslane

Photo: ZooFari, CC BY-SA 3.0

IDENTIFY

Low, sprawling plant with **thick, juicy paddle-shaped leaves** and reddish stems; tiny yellow flowers. Clear (not milky) sap.

SEASON

Summer monsoon season.

WHERE & WHEN

Gardens, sidewalk cracks, fields.

LOOK-ALIKES

Spurge (Euphorbia) grows flat in the same places but has **milky white sap** and is toxic. Break a stem: milky = spurge.

LEGAL STATUS

Avoid sprayed areas.

PREPARATION

Rinse well; eat raw or cooked. High in oxalates, so eat in moderation.

Sources: SEINet Arizona-New Mexico plant atlas · USDA PLANTS Database

Wild onion

Allium spp. · Seeds & greens

Edible Corridor High country



Nodding onion flowers

Photo: Fritzflohreynolds, CC BY-SA 3.0

IDENTIFY

Grass-like leaves from a small bulb, umbrella of pink or white flowers, and **a strong onion or garlic smell** when crushed.

SEASON

Spring to early summer.

WHERE & WHEN

Meadows and pine forest in the high country.

LOOK-ALIKES

Death camas is deadly and grows in the same places. It has no onion smell. Crush each plant and smell it; if your hands already smell of onion, you can be fooled. When in doubt, don't.

LEGAL STATUS

On public land, follow the land manager's rules (national parks and monuments generally ban collecting). On private land, get permission.

PREPARATION

Eat bulbs and leaves raw or cooked, like scallions.

Amaranth (pigweed)

Amaranthus palmeri and others · Seeds & greens

Edible Desert Corridor



Plant

Photo: Yercaud-elango, CC BY-SA 4.0

IDENTIFY

Upright weed with oval leaves and dense bristly flower spikes; tiny shiny black seeds.

SEASON

Greens in summer; seeds in fall.

WHERE & WHEN

Fields, vacant lots, and roadsides, especially after monsoon.

LEGAL STATUS

Avoid farm fields and sprayed lots.

PREPARATION

Boil young leaves (discard water; they can hold nitrates and oxalates, especially in fertilized fields). Thresh and winnow seeds; toast or cook as porridge.

Sources: SEINet Arizona-New Mexico plant atlas · USDA PLANTS Database

Lamb's quarters

Chenopodium album and relatives · Seeds & greens

Edible

Desert

Corridor

High country



Plant

Photo: Rasbak, CC BY-SA 3.0

IDENTIFY

Diamond-shaped, toothed leaves with a **whitish mealy coating**, especially on young growth.

SEASON

Spring through summer.

WHERE & WHEN

Gardens, disturbed ground, and fields.

LEGAL STATUS

Avoid sprayed areas.

PREPARATION

Cook like spinach; boil and drain to reduce oxalates.

Sources: SEINet Arizona-New Mexico plant atlas · USDA PLANTS Database

Manzanita berries

Arctostaphylos pungens · Trees & shrubs

Edible

Corridor

High country



Shrub and bark

Photo: Stan Shebs, CC BY-SA 3.0

IDENTIFY

Shrub with **smooth, red-mahogany bark**, upright oval leaves, and small apple-like berries.

SEASON

Summer to fall.

WHERE & WHEN

Chaparral along SR-87 and below the Rim.

LEGAL STATUS

On public land, follow the land manager's rules (national parks and monuments generally ban collecting). On private land, get permission.

PREPARATION

Berries are dry and mealy: crush and soak in cold water for a tart cider, or grind. Eat only a few raw (they can be constipating).

Sources: SEINet Arizona-New Mexico plant atlas · USDA PLANTS Database

Cattail

Typha spp. · Seeds & greens

Edible

Desert

Corridor

High country



Plant with seed heads

Photo: Dominicus Johannes Bergsma, CC BY-SA 4.0

IDENTIFY

Tall marsh plant with long flat leaves and a brown sausage-shaped seed head.

SEASON

Shoots in spring; pollen early summer; roots all year.

WHERE & WHEN

Canals, ponds, and stream edges.

LOOK-ALIKES

Young iris leaves (toxic) look similar before flowering; iris leaves are flat and fan-shaped without cattail's spongy core. Without the brown seed head nearby, skip it.

LEGAL STATUS

On public land, follow the land manager's rules (national parks and monuments generally ban collecting). On private land, get permission.

PREPARATION

Peel young shoots and eat the tender core cooked. Pollen can be mixed into flour. Rhizomes: crush in water to release starch. **Collect only from clean water** (cattails take up pollutants); cook everything.

Sources: SEINet Arizona-New Mexico plant atlas · US Army FM 21-76 Survival, Ch. 9 (plants; edibility test)

Canyon grape (Arizona grape)

Vitis arizonica · Trees & shrubs

Edible

Corridor

High country



Vine and leaves

Photo: Stan Shebs, CC BY-SA 3.0

IDENTIFY

Climbing vine with tendrils, **single heart-shaped toothed leaves**, and clusters of small dark grapes.

SEASON

Late summer to fall.

WHERE & WHEN

Canyon bottoms and streamsides from about 2,000 to 7,500 ft.

LOOK-ALIKES

Virginia creeper (five leaflets, toxic berries). Check the leaf: one leaf = grape, five leaflets = creeper.

LEGAL STATUS

On public land, follow the land manager's rules (national parks and monuments generally ban collecting). On private land, get permission.

PREPARATION

Eat ripe grapes fresh or cook into juice. Young leaves can be cooked.

Sources: SEINet Arizona-New Mexico plant atlas · AZ Poison Center: Poisonous plants

Dandelion

Taraxacum officinale · Seeds & greens

Edible Kid-friendly forage High country Corridor



Flower and seed head
Photo: Kitten Goes Meow, CCO

IDENTIFY

Rosette of toothed leaves, hollow stem with one yellow flower, puffball seed head; milky sap.

SEASON

Spring through fall.

WHERE & WHEN

Lawns, meadows, and roadsides, especially in Payson and Flagstaff.

LOOK-ALIKES

Look-alikes (cat's ear, chicory) are not dangerous. Avoid sprayed lawns and roadsides.

LEGAL STATUS

Avoid sprayed lawns and roadsides.

PREPARATION

Young leaves raw or cooked (older ones are bitter: boil).
Flowers can be eaten or fried.

KIDS

Adult supervision always. Pick from an unsprayed place an adult knows is safe; wash before eating.

Sources: USDA PLANTS Database · SEINet Arizona-New Mexico plant atlas

SEASON

Winter and spring in Phoenix.

WHERE & WHEN

Yards, vacant lots, and disturbed ground.

LEGAL STATUS

Avoid sprayed areas.

PREPARATION

Leaves cooked as greens or in soups (thickening); seed wheels eaten raw or cooked. Can accumulate nitrates in heavily fertilized soil.

Sources: USDA PLANTS Database · SEINet Arizona-New Mexico plant atlas

Watercress

Nasturtium officinale · Seeds & greens

Edible Corridor High country



Plant in water
Photo: Krzysztof Ziarnek, Kenraiz, CC
BY-SA 4.0

IDENTIFY

Floating or creeping plant in cold flowing water with compound leaves of round leaflets; peppery taste; small white flowers.

SEASON

Most of the year in spring-fed streams.

WHERE & WHEN

Spring-fed creeks along the Rim and Oak Creek.

LOOK-ALIKES

Water hemlock and water parsley grow in the same streams (see toxic plants); watercress has round leaflets and no umbrella flowers.

LEGAL STATUS

On public land, follow the land manager's rules (national parks and monuments generally ban collecting). On private land, get permission.

PREPARATION

Cook it. Wild watercress can carry liver flukes and Giardia from livestock water; don't eat it raw.

Sources: USDA PLANTS Database · CDC: Water treatment for hiking and camping

Cheeseweed / common mallow

Malva parviflora, *M. neglecta* · Seeds & greens

Edible Desert Corridor High country



Plant
Photo: Juan Carlos Fonseca Mata, CC
BY-SA 4.0

IDENTIFY

Round, scalloped leaves on long stems, small pale pink-white flowers, and **flat "cheese wheel" seed pods**.

Protected: never take

- **Gila monster:** Closed season: never take, kill, possess, or eat.
- **Desert tortoise (Sonoran):** Closed; don't pick up (they can lose water stores and die). Captives require AZGFD adoption.
- **Native fish: Gila trout, Apache trout, razorback sucker, Gila topminnow, spokedace, loach minnow, roundtail and Gila chub:** Protected or special regulations; release unharmed.
- **Chiricahua leopard frog and other native frogs:** Protected or closed; don't confuse with bullfrogs.

- **Bald and golden eagles, owls, hawks, songbirds:** Federally protected (Migratory Bird Treaty Act); never take.
- **Twin-spotted, ridge-nosed, and other closed rattlesnakes; Mexican wolf:** Closed or federally listed.
- **Saguaro, some agaves, and other highly safeguarded plants:** Fruit and seeds can't be collected on state or public land without permits (A.R.S. 3-908).

See AZGFD Commission Orders in the current hunting and fishing regulations, and A.R.S. 3-908.

Processing & cooking safely

Field dressing basics (legally taken game)

1. Gloves on. Don't take animals that look sick or that you find dead (CDC).
2. Dress right away: open the belly skin shallowly without cutting the gut, remove the organs, and keep hair and dirt off the meat.
3. Cool fast: prop the cavity open, keep meat in shade and **below 40°F** as soon as possible (ice chest) (USDA FSIS). Arizona heat spoils meat within hours.
4. Wash hands, knives, and boards with soap and hot water. Bury or bag the waste away from camp and water.
5. Follow AZGFD rules on evidence of sex/species and transport.

Cleaning fish

1. Kill fish before leaving the water (live transport is illegal).
2. Scale or skin, cut from vent to gills, remove guts and gills, rinse in clean water.
3. Keep on ice; leave a patch of skin so species can be identified (AZGFD rule).

Cook to a safe internal temperature

Food	Minimum internal temp
Rabbit and venison (deer, elk), wild or farmed	160°F (71°C)
Ground game meat and sausage	160°F (71°C)
Game birds and wild turkey (whole, parts, ground)	165°F (74°C)
Bear, javelina, and other omnivores (Trichinella)	160°F (71°C) , measured
Fish	145°F (63°C) or opaque and flakes
Crayfish, frogs	Shells red, meat opaque; 145°F

Food	Minimum internal temp
Leftovers, soups, stews	165°F (74°C)

Sources: FoodSafety.gov, USDA FSIS rabbit, Penn State Extension, CDC trichinellosis. Use a thermometer; color isn't reliable. Freezing does not reliably kill wild-game parasites or tularemia bacteria.

Cooking without a kitchen

- **Boil or stew** small game: safest and stretches food with greens and seeds.
- **Roast on coals** in foil or on a green-stick spit, turning often; check the thickest part.
- Cook in the cool of the day and follow fire restrictions (AZ DFFM).

Related: Bushcraft skills · Resource map (public lands, fishing waters, tribal lands) · After you arrive.

Sources: all safety, legal, and preparation statements cite the sources on each card: AZ Poison & Drug Info Center: Rattlesnakes · Banner Poison & Drug Info Center: Rattlesnake bites · AZ Poison Center: Bees, spiders & other bugs · AZ Poison Center: Poisonous plants · AZ Game & Fish: Hunting regulations · AZ Game & Fish: Statewide fishing regulations (eRegulations) · FoodSafety.gov (USDA/FDA): Safe minimum internal temperatures · CDC: Preventing tularemia · CDC: Plague · UA Extension: Prickly pear cactus, food of the desert · UA Extension: Mesquite (AZ1644) · Arizona Revised Statutes 3-908 (protected native plants) · US Army FM 21-76 Survival, Ch. 9 (plants; edibility test). Range notes follow reptilesfaz.org and the AZ Poison Center species list. Photos: Wikimedia Commons under CC0, CC BY, CC BY-SA, or public domain; see photo credits. Checked October 10, 2026.



To Cover Up, Or Not to Cover Up When Trekking Through the Desert

Bare skin feels cooler for a minute. Here's what the research, the Army, dermatologists, and desert peoples who've done this for millennia say, plus how to make a full-body sun wrap from a bed sheet and what to put on your feet.

Short answer: cover up, loosely.

In direct desert sun, **loose, breathable, full coverage** (long sleeves, long pants or a long robe, and a wide hat or headwrap) generally wins: it cuts the sun's heat load and sweat loss and prevents sunburn, which itself impairs sweating ^{[3][4][2]}. Bare skin helps mainly in shade, at night, or when you need maximum evaporation.

1. Skin exposure vs. covering: what actually happens

Factor	Bare skin	Loose full coverage
Radiant heat from sun and ground	Absorbed directly into skin.	Absorbed or reflected by fabric, much of it carried away by air before reaching skin ^{[1][3]} .
Hot air (above ~92–95°F skin temperature)	Gains heat from the air; sweating is the only way left to lose heat ^[4] .	Fabric slows heat gain from hot air and wind.
Sweat and water loss	Higher in full sun; in WWII desert tests, scantily clothed men lost more sweat above 90°F ^[3] .	Lower sweat loss: the Army's desert manual says loose garments "will also reduce sweat loss" ^[4] .

Factor	Bare skin	Loose full coverage
Evaporative cooling	Most efficient: sweat evaporates right on the skin.	Slightly less efficient if sweat wicks into fabric and evaporates away from the skin ^[10] ; loose, thin, breathable fabric keeps the penalty small.
Sunburn	Phoenix midday summer UV Index often hits 11+ ("extreme") ^[9] . A sunburn reduced local sweating on burned skin 24 hours later in a US Army study ^[2] .	Prevents burns. Even a plain white T-shirt is only about UPF 5–7 (about UPF 3 when wet), so tighter weaves, layers, or UPF-rated fabric help ^{[8][7]} .
Skin cancer	UV is the main cause of skin cancer; damage adds up ^{[7][6]} .	Clothing is one of the most effective sun protections and doesn't sweat off like sunscreen ^{[7][6]} .
Vitamin D	Made in sun-exposed skin.	Not a concern over days or weeks of travel; food and supplements also supply it ^[12] .

Fabric and color

- **Loose, light, breathable** (cotton, linen, thin synthetics) is NIOSH's heat advice; avoid non-breathable synthetics ^[5]. For sun protection specifically, tighter weaves block more UV ^{[6][7]}: a loose, tightly woven, light layer gets you both.
- **The Bedouin black-robe finding:** a 1980 *Nature* study in the Negev measured that a Bedouin gained **the same total heat in a loose black robe as in a white one**; the black robe absorbed more sun but that extra heat was carried off by air moving through the loose robe before it reached the skin ^[1]. The lesson is that **fit and airflow matter more than color**. For snug clothing or still air, white reflects more and is the safer choice ^[3].

Wet-cloth cooling

Wetting a shirt or headwrap adds evaporation that the body doesn't pay for with its own water. In a lab study at 42°C (108°F), a water-soaked shirt lowered core temperature by about 0.2°C at rest ^[11], and the Army recommends a wet neck cloth in extreme dry heat ^[4]. It works best in dry air with a breeze, wears off as the cloth dries, and wet thin fabric blocks less UV ^[8].

When less covering can make sense

- **In deep shade, at night, and at dawn**, when air is cooler than skin: opening up lets heat leave by convection as well as sweat. Roll sleeves up in shade, down in sun.
- **Humid monsoon days**: sweat evaporates poorly, so maximize airflow: the loosest, thinnest coverage you have, vents open, and more shade breaks. Still cover against direct sun.
- **During hard work in shade**, when evaporation is the main limit.

Bottom line: in direct desert sun, loose full coverage generally wins; shade and water win over everything.

2. How desert peoples cover, and why

Clothing traditions carry cultural, religious, and personal meaning, not just heat physics. These notes describe what sources say about function; they aren't costumes or a single "desert style."

Arabian Peninsula and Bedouin

The **thobe / dishdasha / kandura** is a loose, ankle-length robe, and the **ghutra** (plain white) or **keffiyeh** (often checkered) is a square cotton headcloth folded and held by an *agal* cord ^{[13][14]}. Worn loose, they shade head and neck and can be pulled across the face against blowing sand ^[13]. The Negev study above found loose robes shed absorbed heat through airflow ^[1].

Tuareg and the Sahara

Tuareg men wear the **tagelmust** (also called cheche or litham), a long indigo or white cloth wrapped as a turban with a fold across the face, often meters long ^{[17][16]}. It protects against sun and wind-blown sand, and long loose gowns (*daraa, boubou*) are described as letting air flow and helping conserve body water ^[15]. The veil is also a strong marker of adult male identity and respect ^[16] ^[17].

Sonoran Desert: O'odham

For the Akimel and Tohono O'odham, survival in this desert emphasized **shade and timing**: open-air **wa:ato** (ramadas) of mesquite, ocotillo, and saguaro ribs shaded daily life and even camps during the saguaro harvest ^[18], and families historically moved between summer field villages and winter villages near mountain springs ^[19]. We didn't find a reliable source on specific traditional O'odham sun garments, so we don't describe any.

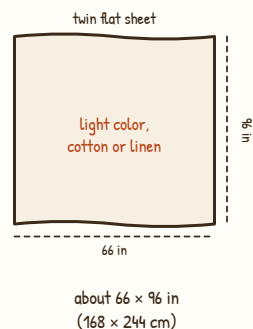
What they share

- Loose, layered, long cloth.
- Head and neck covered; face fold for sand.
- Moving and working around the heat of the day; shade first.

3. Tutorial: turn a bed sheet into a full-body sun wrap

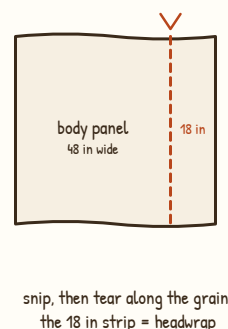
Goal: shade your shoulders, torso, arms, head, and neck with loose, light fabric, keep your legs free to walk, and carry a few small items, using only a flat bed sheet and something to tie with. Practice at home on a cool day first.

You need: a twin flat sheet (about 66 × 96 in) · a cord, belt, rope, or a torn fabric strip for your waist · optional: a knife or scissors, 2–4 safety pins, water to wet the headwrap.



1 Pick the sheet

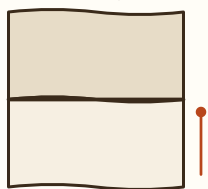
A **twin flat sheet** (about 66 × 96 in / 168 × 244 cm) in a light color. Cotton or linen breathes best; avoid heavy flannel and slick polyester. A full sheet (about 81 × 96 in) also works and gives longer sleeves.



2 Tear off a headwrap strip

Snip the hem about 18 in (45 cm) from one long edge and tear along the grain the full length. You now have an **18 × 96 in strip** for your head and a **48 × 96 in body panel**. No scissors? Fold the sheet corner instead (see the headwrap note).

fold in half,
short ends together

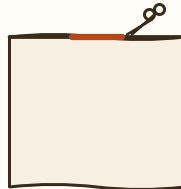


≈ 48 × 48 in,
fold at the top

3 Fold the body panel

Fold the body panel in half with the short ends together, so it's about 48 × 48 in with the fold at the top.

cut a 12 in slit
on the fold

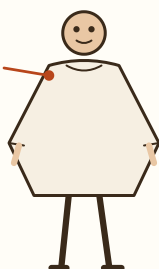


head hole: start small,
you can always cut more

4 Make a head slit

Cut or tear a **12 in (30 cm) slit** along the middle of the fold. Start small; you can always make it bigger. No blade? Skip the slit and drape the panel over one shoulder like a sash, tied at the opposite hip.

shoulders

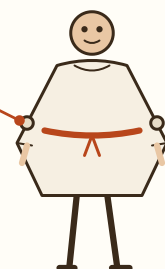


head through the slit;
front & back hang down

5 Put it on

Head through the slit. The front and back panels cover your shoulders, chest, back, and upper arms like a poncho.

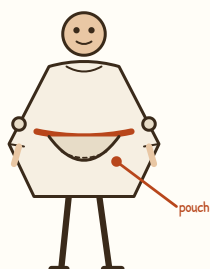
corner
knot



cord or belt at the waist;
knot the side corners

6 Belt it, knot the sides

Tie a cord, belt, rope, or a torn strip around your waist over the panels. Then pinch the front and back side corners together under each arm and tie a small knot: these make **loose sleeves** that shade your arms but leave a vent. No pins needed (safety pins are fine if you have them).



Lift the front hem and tuck
it under the belt = pouch

7 Make the carry pouch

Lift the front hem up to the belt and tuck it under, all the way across. The folded-up fabric forms a **kangaroo pouch** at your belly for light items (map, snacks, phone). Or gather one corner around small items and tie it off like a furoshiki bundle. Keep it light: under about 2 lb.

wet headwrap

legs
free



check: stride, climb, sit;
nothing drags or binds

8 Head wrap and final check

Add the headwrap (diagram below). Then check: take long strides, step up onto a rock, sit and stand. Nothing should drag, catch, or bind your knees. Hike the hem higher under the belt if it does.

Headwrap (keffiyeh / cheche style)



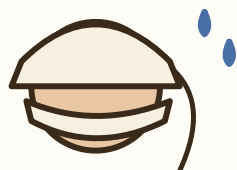
1. drape it,
long tail left



2. wrap the long
tail around



3. fold across
face, loosely



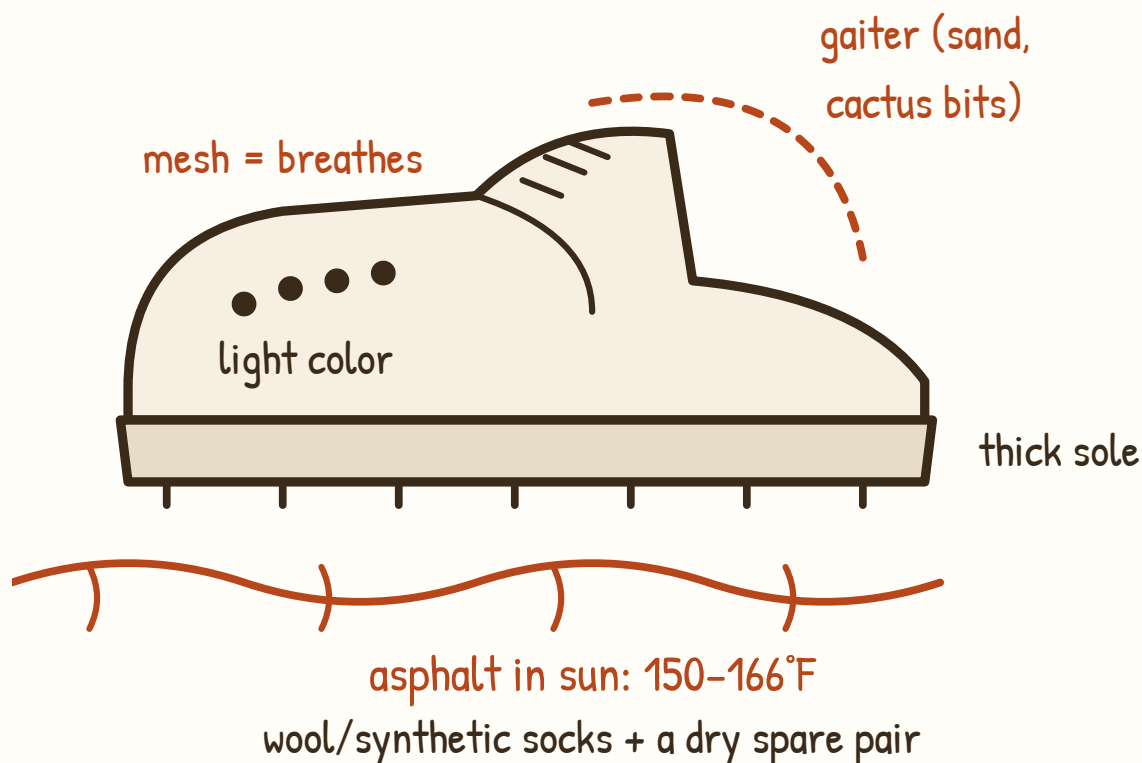
4. tuck the end;
wet it

Use the 18 × 96 in strip. Center it over your head with one tail much longer, wrap the long tail around your head, bring a loose fold across your nose and mouth when it's dusty or windy, and tuck the end in. No strip? Fold one corner of the whole sheet into a triangle and drape it over your head before belting, a looser version of the same idea.

Wrap safety

- **Legs free.** Nothing below the knee that can catch your feet, cholla, or rocks. Re-tuck the hem if it drags.
- **Keep loose fabric away from fire,** stoves, and engines; cotton burns fast. Tuck tails in near flames.
- **Wet the headwrap** (and neck fold) for evaporative cooling in dry heat; re-wet as it dries. Wet thin cotton blocks less UV, so stay out of direct sun when you can.
- **Light colors** are the safer choice for a snug or windless wrap; loose fit and airflow matter most.
- **It doesn't replace shade and water.** Rest in shade in the hottest hours, drink, and watch for heat illness anyway: confusion, stopping sweating, hot skin, vomiting, or fainting means heat stroke: call 911 and cool the person fast (Heat guide).
- Kids: an adult checks fit, knots, and that the face fold never covers the nose tightly.

4. Footwear for a desert trek



Breathable, light-colored, broken-in shoes with thick soles, gaiters for sand and cactus, and good socks.

Shoes vs. boots

- **Broken-in beats new.** Never start a long walk in new shoes; wear them on short walks first ^[28].
- **Hot and dry favors breathable trail runners or hiking shoes.** Mesh uppers are cooler and dry faster; waterproof membranes trap heat and sweat (more blisters) ^{[23][24]}.
- **Boots** make sense for heavy loads, rough off-trail terrain, or weak ankles. Stability comes mostly from a stiff sole, not just a high collar ^[24]. Mesh-paneled, light-colored boots are a middle ground.
- **Thick soles.** Sunlit asphalt in Phoenix averaged about 150°F in a City/ASU study and peaked at 166°F in a desert burn-center study, with rock up to 170°F ^{[20][21]}. Phoenix burn doctors found asphalt hot enough for a second-degree burn in 35 seconds from 10 a.m. to 5 p.m. in summer ^[22]. Thin soles and sandals cook feet; walk on dirt edges and in shade where you can.
- **Gaiters** (even low ankle gaiters) keep sand, gravel, and cholla bits out of shoes.

Sandals: pros and cons

Pros: cool, dry fast, good for camp and water crossings. Cons: cactus spines and cholla joints, scorpion and snake exposure at night, sunburned tops of feet, and burns from hot rock and pavement. Use them for camp, not as your only trekking shoe.

Socks & blisters

- **Wool or synthetic, never cotton.** Synthetic (acrylic) socks produced fewer and smaller blisters than cotton in a controlled trial; double-layer systems (thin liner + sock) cut blisters in military studies ^{[25][26]}.
- **Pack a dry spare pair.** Hikers in wet socks had about twice the blister risk ^[27]. Swap at midday and dry the first pair on your pack.
- **Treat hot spots immediately** with tape (even paper tape) or moleskin, before they blister ^[26]. Foot powder or antiperspirant on the feet can reduce moisture.
- **Blister care:** leave small intact blisters alone and pad around them. If a large one must be drained, clean it, use a sterilized needle at the edge, keep the roof on, and cover. Watch for infection (spreading redness, pus, fever).

Only bad shoes?

- Line thin soles with **cardboard insoles** (several layers, replaced as they crush) or a folded rubber floor-mat piece.
- **Wrap feet in cloth** (torn sheet strips) over socks to pad and protect from hot ground, wrapping from toes to ankle without wrinkles; tie off at the ankle, not tight.
- Travel at dawn, dusk, and night when the ground is cooler; rest in shade with shoes off and feet up.

Check for scorpions

Shake out shoes, socks, and clothing every time before putting them on, especially in the morning; scorpions hide in boots and bedding ^{[4][29]}. Keep shoes inside your shelter or hung up at night.

What should we write about next?

You know this city better than any guide. If there's a question, risk, or skill you feel Phoenix-area residents need covered, from monsoon dust storms to keeping elders cool on a budget, we'd love to hear it.

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29. Banner Poison & Drug Information Center: Bark scorpions

Checked October 10, 2026. This article is general information, not medical advice.

Related: [Extreme heat](#) · [Bushcraft](#) · [Bug-out bag](#) · [Wildlife](#) · [All articles](#).



GRAB AND GO

Bug-Out Bag for Phoenix

A bug-out bag (or "go-bag") is a packed bag that lets you leave home in minutes and get by for about 72 hours. In Phoenix, the deciding factor is **water and heat**, and almost every pre-made kit falls short on both. Compare ready-made options below, then use the printable checklist to fill the gaps.



Affiliate disclosure: Product links on this page may become affiliate or referral links. If you buy through them, Phoenix Survival Guide may earn a small commission at no extra cost to

you. Prices change often. They are shown as checked on Oct 10, 2026, so confirm before you buy.

Ready-made bags compared

These are real, currently sold kits that reviewers rate well, across price tiers. No pre-made kit includes enough water for Phoenix: the kits below include roughly 1.5 to 4 liters of packaged water for two people (the SEVENTY2 Pro relies on a filter and bottle instead), versus about 6 gallons (~23 L) for two people for three days at Ready.gov's 1 gallon per person per day, or double that in extreme heat.



BUDGET STARTER

Ready America 2-Person 3-Day Emergency Kit (#70280)

\$54.99 list price at readyamerica.com. Home Depot and Walmart listings showed \$39.44 in search results the same day. (checked Oct 10, 2026)

Pros

- Very cheap way to get a basic kit into every closet and car
- 5-year shelf life food bars and water pouches
- Small and light (about 7.75 lb)

Cons

- Only 12 × 4.2 oz water pouches (about 50 oz total) for two people for three days, far below Phoenix needs
- Basic first aid, no tools, radio, or real light (just lightsticks)
- Treat it as a starter to upgrade, not a finished bag



BUDGET-MID

EVERLIT Storm II Emergency Kit, 2-Person

\$165.95 at everlitsurvival.com (checked Oct 10, 2026)

Pros

Cons

- About 20 lb as shipped

- 200-piece first aid kit plus a C-A-T tourniquet
- Hand-crank radio with flashlight and phone charging
- Water purification tablets, paracord, multi-tool, emergency shelters; MOLLE pack with room to add items
- Only 24 × 125 ml water pouches (3 L total for two people), so you must add a lot of water
- Tactical-style pack and knife may not suit everyone



MID-RANGE

Sustain Supply Co. Comfort Kit, 2-Person (Comfort2)

\$249.99 at readyamerica.com. A Home Depot listing (model 70491) showed \$180.87 in search results the same day. (checked Oct 10, 2026)

Pros

- Real meals (emergency meal kits) plus a small wood stove and cookware
- 2 survival filter straws and 4 × 1 L long-shelf-life water
- 107-piece first aid kit, Mora knife, lantern; often named a best-value 2-person kit by reviewers

Cons

- Heavy: about 20.65 lb
- Open wood fires may be banned during fire restrictions, which are common in Arizona
- 4 L of water is still only a fraction of what two people need in Phoenix heat



PREMIUM

Uncharted Supply Co. SEVENTY2 Pro Survival System

\$629.00 at unchartedsupplyco.com (checked Oct 10, 2026)

Pros

- Waterproof 36 L roll-top pack with a well-organized, labeled insert
- 60+ quality items for two people, including a water filter, tent, and first aid
- Frequently rated the best-organized pre-made kit by reviewers

Cons

- Expensive
- Limited room left for personal meds and clothing
- Like all kits, it needs extra water added for Phoenix



BUILD YOUR OWN (EMPTY PACK)

5.11 Tactical RUSH24 2.0 Backpack 37L

\$140.00 at 511tactical.com (some colorways on sale for \$99.49) (checked Oct 10, 2026)

Pros

- Durable 37 L pack with a 2 L hydration-bladder pocket
- Lots of organization; you choose every item, so nothing is wasted
- Empty weight 3.85 lb, which leaves weight budget for water

Cons

- Empty: you still have to buy and pack everything
- Heavier than many hiking packs, and the tactical look may draw attention
- Any comfortable hiking pack you already own can work just as well

Contents, weights, and prices are from the manufacturer or retailer product pages (checked Oct 10, 2026). Reviewer consensus is drawn from Emergency Gear Lab, Survival Stockup, and Trail & Kale. We haven't independently tested these kits.

How heavy should it be?

A common backpacking rule of thumb is to keep a loaded pack at or under about **20% of your body weight** (about 30 lb for a 150 lb adult), per REI. Water weighs **8.34 lb per gallon**, so 2 gallons is already about 17 lb. That's why you shouldn't plan to *walk* long distances in summer heat.

- Kids, older adults, and anyone with health conditions should carry much less. Put the heavy water in a wagon, cart, stroller, or car (see wheels and other ways to move).
- Pack heavy items (water) close to your back and centered.
- Do a test walk with your full bag on a cool morning before you ever need it.
- Wear broken-in shoes and pack wool/synthetic socks plus a light sheet or long-sleeve layer for sun: see our desert cover-up & footwear article.

Car bag vs. home bag

In an ASU/UC San Diego study in Tempe, cars parked in the sun reached an average **116°F inside after one hour**, with dashboards at **157°F** (ASU News). That heat damages kit contents:

- **Medications:** CDC warns insulin, inhalers, and epinephrine auto-injectors can degrade or malfunction in hot cars (CDC). Keep meds in your home bag, and grab them when you leave.
- **Water bottles:** an ASU study found PET plastic bottles release more antimony as temperature rises, potentially exceeding the EPA limit after about 38 hours at 65°C (149°F) (Westerhoff et al., ASU). Rotate car water often, keep it shaded, or use stainless steel bottles.
- **Batteries & power banks:** heat speeds permanent lithium-ion capacity loss (Battery University). Don't store power banks in a summer car.

Our suggestion: keep the full bag (with meds and electronics) at home near the door. Keep a smaller heat-tolerant car kit with water you rotate, a sunshade, a hat, Mylar blankets, a first aid kit, and walking shoes.

What to pack and why: Phoenix checklist

Water & hydration

- ☐ **Water: at least 1 gallon per person per day, and plan for 2 in summer heat**
Ready.gov says hot environments can double water needs. Most pre-made kits carry only 1–4 liters total.
- ☐ **2–3 sturdy bottles or a 2–3 L hydration bladder**
Easier to carry and ration than many small pouches.
- ☐ **Water filter (squeeze or straw) plus purification tablets**
Lets you refill from taps or other sources if bottled water runs out. Treat all natural water.
- ☐ **Electrolyte packets or tablets**
Sweat removes salt. Drinking only plain water for many hours can be dangerous, and NIOSH advises no more than 48 oz per hour.
- ☐ **Collapsible water container (1–5 gal)**
For refills at cooling centers, shelters, or a friend's house.

Heat protection

- ☐ **Wide-brim hat**
Shades face, ears, and neck. Baseball caps leave the neck exposed.
- ☐ **Cooling towel or bandana**
Wet it and drape it on your neck. Evaporation cools you.
- ☐ **UV sun sleeves or a lightweight long-sleeve shirt**
Covered skin stays cooler and doesn't burn. Sunburn makes it harder for your body to cool itself.
- ☐ **Sunscreen SPF 30+ and lip balm with SPF**
Reapply every two hours outdoors.
- ☐ **Sunglasses**
Glare and UV off pavement and sand are intense.
- ☐ **Reflective emergency (Mylar) blankets**
Rig one as a sun shade over your head or a car window. Reflective side faces the sun.
- ☐ **Small spray/mister bottle**
Mist your skin plus moving air speeds cooling.

First aid & medications

- ☐ **First aid kit (bandages, gauze, tape, gloves, burn gel, blister care)**
Burns from hot surfaces and foot blisters are common on the move.
- ☐ **7-day supply of prescription meds and a printed med list**
Pharmacies may be closed or out of stock. Keep meds in an insulated pouch.
- ☐ **Instant cold packs (2–4)**
Fast cooling on the neck, armpits, and groin for heat illness while you wait for help.
- ☐ **Pain/fever reducer, antihistamine, anti-diarrheal**
Common problems that can stop you in your tracks.
- ☐ **Spare glasses or contacts**
You may not get back home for days.

Food

- ☐ **3 days of no-cook, high-calorie food (bars, nut butter packets, jerky, dried fruit)**
No cooking and no fire needed. Choose foods that won't melt into a mess.
- ☐ **Salty snacks (crackers, pretzels, nuts)**
Help replace salt lost in sweat and encourage you to drink.
- ☐ **Manual can opener and spoon**
If you pack cans or pouches.

Navigation & communication

- ☐ **Paper map of the Valley and Arizona road map, with routes marked**
GPS and cell data may fail. Mark at least two routes out (see Routes).
- ☐ **Compass**
Works with no battery or signal.
- ☐ **Battery or hand-crank NOAA weather radio**
Emergency alerts and news when cell service is down.
- ☐ **Phone power bank (10,000+ mAh) and charging cables**
Keeps your phone, flashlight, and maps alive.
- ☐ **Written list of emergency contacts and an out-of-area contact**
You may not remember numbers when your phone is dead.
- ☐ **Whistle**
Signals for help using far less energy than shouting.

Light

- ☐ **Headlamp plus spare batteries**
Hands-free light. Cooler night hours are the safest time to move in summer.
- ☐ **Small flashlight**
Backup if your headlamp fails.
- ☐ **Lightsticks**
Mark your location or your group at night.

Tools

- ☐ **Multi-tool or folding knife**
Cutting, opening, small repairs.
- ☐ **Duct tape (a small flat roll)**
Fixes gear, blisters, and shade rigs.
- ☐ **Paracord (50 ft)**
Hang a shade tarp or secure a load.
- ☐ **Work gloves**
Protect your hands from hot metal, debris, and cactus spines.
- ☐ **N95 masks**
Dust storms (haboobs) and wildfire smoke.

Documents & cash

- ☐ **Copies of ID, insurance cards, prescriptions, and deeds/lease in a waterproof pouch**
Speeds up shelter check-in, pharmacy refills, and insurance claims.
- ☐ **Cash in small bills**
Card readers and ATMs fail during power outages.
- ☐ **USB drive or secure cloud copy of documents and photos of your home**
Backup for claims and proof of identity.

Hygiene

- ☐ **Hand sanitizer and wet wipes**
Clean hands when water is too precious to wash with.
- ☐ **Toilet paper and small trash bags**
Shelters and rest stops run out.
- ☐ **Toothbrush, toothpaste, deodorant**
Small comforts matter on day three.
- ☐ **Menstrual products**
Hard to find in an emergency.

Clothing

- ☐ **Sturdy, closed-toe shoes with thick soles (broken in)**
Summer pavement can be far hotter than the air and can burn feet through thin soles.
- ☐ **2–3 pairs of moisture-wicking socks**
Wet socks cause blisters. Change them often.
- ☐ **Lightweight, light-colored, loose clothing**
Reflects sun and lets sweat evaporate.
- ☐ **A warm layer (fleece or jacket)**
Desert nights and higher-elevation destinations (Payson, Flagstaff) get cold.
- ☐ **Rain poncho**
Monsoon storms arrive fast.

Add-ons: kids, pets, older adults & medical needs

- ☐ **Kids: formula/baby food, diapers, wipes, comfort toy, extra water**

Children overheat faster than adults and depend on you to drink.

- ☐ **Pets: water (about 1 oz per lb per day at rest, much more in heat), food, bowl, leash, records, dog booties**

Hot pavement burns paws. Many shelters require vaccination records.

- ☐ **Older adults: extra meds, mobility aids, hearing-aid batteries, simple written care plan**

Older adults are at the highest risk of heat illness.

- ☐ **Medical: backup power for devices (CPAP, oxygen concentrator), insulin cooling case, extra supplies**

Plan device power before an outage. See medical needs.

Sources: Ready.gov Build a Kit · Ready.gov Water · NIOSH Heat Stress: Hydration · AKC on hot pavement · our Heat guide.



BUILD YOUR KIT

Survival Gear Checklist

The items that make the biggest difference in a Phoenix emergency, organized by category. Check items off as you go; your progress is saved only in this browser.

Affiliate disclosure: Some of the "Buy" links on this page are affiliate or referral links. If you make a purchase through them, Phoenix Survival Guide may earn a small commission at no additional cost to you. This helps keep the site free. We only list items we believe are genuinely useful for staying safe in Phoenix, and you don't need to buy anything to use this guide. Many items can be found at local stores or may already be in your home.

Your kit: 0 of 30 items ready

Need a grab-and-go bag? Compare ready-made kits and print our Phoenix packing list on the Bug-Out Bag page.

Jump to: [Water & Hydration](#) · [Cooling](#) · [Power & Light](#) · [First Aid & Health](#) · [Food](#) · [Communication](#) · [Documents & Money](#)

Water & Hydration

ESSENTIAL

Water storage containers

Stackable 5–7 gallon jugs or a water storage barrel. Aim for at least 1 gallon per person per day, more in summer.

ESSENTIAL

Portable water filter

Filter bottle or gravity filter for treating water if supply is disrupted.

☐ I have this

☐ I have this

ESSENTIAL

Electrolyte tablets or powder

Replaces salts lost to sweat. Key for outdoor work and long heat exposure.

☐ I have this

RECOMMENDED

Insulated water bottle

Keeps water cold for hours in a hot car or on a walk.

☐ I have this

Cooling

ESSENTIAL

Rechargeable / battery fan

Pair with wet skin or a damp cloth for real cooling during outages.

☐ I have this

ESSENTIAL

Cooling towels

Soak, wring, and drape on your neck. Cheap and effective.

☐ I have this

RECOMMENDED

Reflective window film / shades

Blocks solar heat so rooms stay cooler, with or without AC.

☐ I have this

RECOMMENDED

Misting spray bottle

Mist skin plus moving air speeds evaporative cooling.

☐ I have this

RECOMMENDED

Car windshield sunshade

Keeps cabin and steering wheel temps down.

☐ I have this

Power & Light

RECOMMENDED

Portable power station

Battery power station that's safe indoors (no fumes). Runs fans, phones, CPAP, and small fridges.

☐ I have this

OPTIONAL

Foldable solar panel

Recharges a power station during long outages. Phoenix sun is a resource!

☐ I have this

ESSENTIAL

Phone power banks

Keep two charged. Communication is safety.

☐ I have this

ESSENTIAL

LED flashlights & headlamps

Safer than candles. Keep one in every room plus extra batteries.

☐ I have this

ESSENTIAL

Battery CO alarm

Required protection if you ever use a generator or fuel appliance.

☐ I have this

First Aid & Health

ESSENTIAL

ESSENTIAL

Comprehensive first aid kit

Bandages, burn gel, gauze, gloves, tweezers, pain relievers.

☐ I have this

Digital thermometer

Check for fever or high body temperature in heat emergencies.

☐ I have this

ESSENTIAL

Instant cold packs

Rapid cooling for heat illness when ice isn't available.

☐ I have this

RECOMMENDED

Medication cooling case

Keeps insulin and other meds safe during outages.

☐ I have this

RECOMMENDED

Sunscreen, hat & sunglasses

Sunburn reduces your body's ability to cool itself.

☐ I have this

Food

ESSENTIAL

Shelf-stable food supply

No-cook foods your family actually eats: beans, tuna, nut butters, crackers.

☐ I have this

ESSENTIAL

Manual can opener

Electric ones don't work in a blackout.

☐ I have this

RECOMMENDED

OPTIONAL

High-performance cooler

Keeps food and medicine cold for days during outages.

☐ I have this

Camp stove (outdoor use only)

For cooking during long outages. Never use indoors.

☐ I have this

Communication

ESSENTIAL

Hand-crank / NOAA weather radio

Get alerts and news when cell service and power are down.

☐ I have this

OPTIONAL

Two-way radios (FRS)

Keep in touch with family and neighbors nearby without cell service.

☐ I have this

RECOMMENDED

Emergency whistle

Signals for help using far less energy than shouting.

☐ I have this

RECOMMENDED

Arizona road map

Paper backup for when GPS and phones fail.

☐ I have this

Documents & Money

ESSENTIAL

Waterproof / fireproof document pouch

IDs, insurance, prescriptions, deeds, and pet records, plus copies on a USB drive.

RECOMMENDED

Encrypted USB drive

Digital copies of key documents and photos.

☐ I have this

☐ I have this

ESSENTIAL

Go-bag backpack

A ready-packed bag for each person in case you need to leave fast.

☐ I have this

No budget? Start free. Refill clean bottles with tap water, wet a cotton T-shirt for a cooling towel, write emergency numbers on paper, and photograph your documents. Preparedness doesn't have to cost money. For a full basic kit list, see [Ready.gov/kit](https://www.ready.gov/kit).



COOL YOUR HOME

Home Upgrades for Heat & Blackouts

28 ways to keep your home cooler, cut summer bills, and ride out power outages, from free fixes renters can do today to big-ticket projects. Sort and filter to find what fits your home and budget.

Start with the cheapest heat you never let in. In Phoenix, the order that usually pays off: shade windows on the east, west, and south sides; seal and insulate the attic; keep your AC maintained; then think about bigger systems and backup power. A home energy assessment can tell you where your house leaks the most.

Rebates & tax credits (checked Oct 10, 2026): SRP currently offers rebates on shade screens and window film (\$1/sq ft), cool roofs (30¢/sq ft, up to \$600), attic insulation (75%, up to \$600), duct repair (up to \$400), high-efficiency AC and heat pumps (\$75–\$225/ton), smart thermostats (\$50 + \$25/yr), and free shade trees. Most SRP rebates run through April 30, 2027. **APS** scaled back its efficiency incentives after a December 2025 regulatory decision. Its Cool Rewards thermostat program (\$50 + \$35/season) is still listed. Check aps.com for anything current. **Federal:** the 25C energy-efficiency and 25D clean-energy tax credits ended for property placed in service after December 31, 2025 (IRS). **Income-qualified households** may get help through the Home Electrification and Appliance Rebates (HEAR) program via Efficiency Arizona and through the federal Weatherization Assistance Program. Programs change often, so confirm with your utility before you buy.

Sort by

Recommended order



Price tier

Any price



Show only

- ☐ Renter-friendly
- ☐ DIY-able
- ☐ Helps in outages

Showing all 28 upgrades.

Price tiers are our rough estimate of a typical whole-home project, based on the cited cost ranges. Costs are national averages from cost guides unless they're marked Arizona. Get several local quotes. Effectiveness (1–5) is our editorial rating of each upgrade's impact on indoor heat and outage resilience in Phoenix, based on the cited figures.

Exterior solar screens



Mesh screens on the outside of sun-facing windows that block much of the sun's heat before it reaches the glass.

Cost \$50–\$150 per window installed

Effectiveness ★★★★★

About 50% of the heat entering a home comes through windows (SRP), and exterior screens stop it outside the glass. SRP's rebate requires screens that block at least 80% of solar heat gain.

COMMON

DIY OR PRO

RENTERS: ASK LANDLORD

HELPS IN OUTAGES

Rebates / credits: SRP: \$1 per sq ft rebate on qualifying shade screens or window film (by Apr 30, 2027).

Sources: HomeGuide cost · SRP rebate

Solar-control window film



Thin film applied to glass that rejects solar heat and UV while letting light through.

Cost \$6–\$15 per sq ft installed (about \$500–\$1,200 for a typical project)

Effectiveness ★★★★★☆

About 76% of sunlight hitting standard double-pane windows becomes heat indoors (DOE). Film cuts that at the glass, though less than exterior shading.

COMMON

DIY OR PRO

RENTERS: ASK LANDLORD

HELPS IN OUTAGES

Rebates / credits: SRP: \$1 per sq ft (film with SHGC ≤ 0.4 on sun-struck windows; by Apr 30, 2027).

Sources: HomeGuide cost · DOE window attachments · SRP rebate

Awnings & exterior window shades



Fixed or retractable awnings over south- and west-facing windows and patios.

Cost \$200–\$3,000 manual; \$1,000–\$6,000 motorized

Shade sails over patios & walls



Tensioned fabric sails that shade patios, play areas, and sun-baked walls or windows.

Cost \$150–\$500 installed (\$1–\$2 per sq ft)

(installed)

Effectiveness ★★★★★☆

DOE: awnings can reduce summer solar heat gain by up to 65% on south windows and 77% on west windows.

MODERATELY COMMON

DIY OR PRO

OWNERS

HELPS IN OUTAGES

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: HomeGuide cost · DOE window attachments

Effectiveness ★★★★★☆

Shading walls, windows, and outdoor living space reduces heat absorbed by the home (DOE recommends shading roofs, walls, and windows in hot-arid regions). Effect depends on placement.

COMMON

DIY

RENTERS: ASK LANDLORD

HELPS IN OUTAGES

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: HomeGuide cost · DOE landscaping

Cool / reflective roof coating

\$\$

A white or reflective coating (or cool-rated roofing) that reflects sunlight instead of absorbing it.

Cost About \$0.75–\$2.50 per sq ft for acrylic coatings (contractor estimate)

Effectiveness ★★★★★☆

A reflective roof can stay more than 50°F cooler than a conventional roof in the sun (DOE). EPA says cool roofs can cut peak cooling demand 11–27% in air-conditioned homes.

MODERATELY COMMON

DIY OR PRO

OWNERS

HELPS IN OUTAGES

Attic insulation

\$\$

Add insulation on the attic floor to slow heat moving from a 150°F+ attic into your rooms.

Cost \$1,000–\$2,700 typical attic (\$1–\$4 per sq ft)

Effectiveness ★★★★★★

ENERGY STAR estimates sealing and insulating saves an average 15% on heating and cooling costs. SRP estimates about 10%. It also keeps the home cooler longer during an outage.

COMMON

PRO

OWNERS

HELPS IN OUTAGES

Rebates / credits: SRP: 75% of cost, up to \$600, through a participating BPI-certified contractor (with air sealing).

Rebates / credits: SRP: 30¢ per sq ft, up to \$600, for qualifying CRRC-rated products on low-slope roofs (by Apr 30, 2027).

Sources: Origin Roofing cost guide · DOE cool roofs · EPA cool roofs · SRP rebate

Sources: HomeGuide cost · ENERGY STAR · SRP rebate

Attic radiant barrier



Reflective foil installed in the attic (usually under the roof deck) that blocks radiant heat from the hot roof.

Cost \$0.30–\$2.00 per sq ft installed

Effectiveness ★★☆☆☆

DOE: some studies show radiant barriers can reduce cooling costs 5–10% in warm, sunny climates.

MODERATELY COMMON

DIY OR PRO

OWNERS

HELPS IN OUTAGES

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: HomeGuide cost · DOE radiant barriers

Attic ventilation / attic fan



Vents or a powered or solar attic fan that exhaust superheated attic air.

Cost \$369–\$914 typical installed (avg ~\$625)

Effectiveness ★★☆☆☆

Mainly lowers attic temperature. It does far less for living spaces than insulation and air sealing, which stop the heat getting in.

MODERATELY COMMON

PRO

OWNERS

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: HomeAdvisor cost

Air sealing & weatherstripping



Caulk gaps and weatherstrip doors and windows so hot outside air stays out and cool air stays in.

Duct testing & sealing



Find and seal leaky AC ducts (often in the hot attic) so cooled air reaches your rooms.

Cost \$270–\$500 per duct run repaired

Cost \$130–\$470 to weatherstrip an average home; \$350–\$3,000 to air-seal an attic

Effectiveness ★★★★★

DOE: caulking and weatherstripping often pay for themselves in a year or less. Combined with insulation, ENERGY STAR estimates 15% heating and cooling savings.

COMMON

DIY

RENTER-FRIENDLY

HELPS IN OUTAGES

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: HomeGuide cost · DOE air sealing · ENERGY STAR

Effectiveness ★★★★★

About 20% of the air moving through a typical duct system is lost to leaks, according to ENERGY STAR (cited by SRP). In Phoenix, those leaks dump cooled air into a superheated attic.

MODERATELY COMMON

PRO

OWNERS

Rebates / credits: SRP: covers up to \$400 in qualified duct repairs.

Sources: HomeGuide cost · SRP rebates blog

Ceiling fans (and portable fans)



Moving air makes you feel cooler, so you can set the thermostat higher.

Cost \$150–\$500 to replace an existing ceiling fan; \$400–\$1,000 for new wiring

Effectiveness ★★★★★

DOE: a ceiling fan lets you raise the thermostat about 4°F without losing comfort. Fans cool people, not rooms, so turn them off when you leave.

COMMON

DIY OR PRO

RENTER-FRIENDLY

HELPS IN OUTAGES

No verified APS/SRP rebate or federal credit found (Oct 2026).

AC tune-up, filters & maintenance



Yearly professional tune-up plus regular filter changes and a clear outdoor coil.

Cost \$70–\$200 per tune-up; filters are inexpensive DIY

Effectiveness ★★★★★

DOE: dirty, clogged filters reduce airflow and efficiency. Reliability is the big reason: in 2025, among indoor heat deaths in Maricopa County with an AC unit present, it wasn't working in 72% of cases (MCDPH).

COMMON

DIY OR PRO

RENTER-FRIENDLY

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: HomeGuide cost · DOE fans

Sources: HomeGuide cost · DOE AC maintenance · MCDPH 2025 report

Smart thermostat & pre-cooling



Schedule and pre-cool the house before peak hours, and control it remotely.

Cost \$225–\$400 installed (unit alone \$100–\$250)

Effectiveness ★★☆☆☆

DOE: setting the thermostat back 7–10°F for 8 hours a day can save up to 10% a year. Pre-cooling before peak pricing can also cut bills on time-of-use plans.

COMMON

DIY

RENTERS: ASK LANDLORD

Rebates / credits: SRP Bring Your Own Thermostat: \$50 bill credit per thermostat (max 2) + \$25/yr. APS Cool Rewards: \$50 one-time + \$35 per season.

Sources: HomeGuide cost · DOE thermostats · SRP BYOT · APS Cool Rewards

High-efficiency heat pump / AC upgrade



Replace an aging system with a high-efficiency (ideally variable-capacity) heat pump that cools and heats.

Cost \$4,236–\$7,942 typical (avg ~\$6,087), more if ductwork is needed

Effectiveness ★★★★★

DOE: high-efficiency heat pumps also dehumidify better than standard central ACs, giving more comfort for less energy. A new system is also less likely to fail mid-summer.

COMMON

PRO

OWNERS

Rebates / credits: SRP Cool Cash: \$75–\$225 per ton depending on efficiency tier (by Apr 30, 2027). Income-qualified households: see Efficiency Arizona (HEAR).

Sources: HomeAdvisor cost · DOE heat pumps · SRP Cool Cash

Evaporative (swamp) cooler



Cools by evaporating water into dry outdoor air, then blowing it through the house with windows cracked.

Cost \$1,200–\$3,600 installed; portable units \$100–\$1,500

Shade trees on the west & south sides



Desert-adapted trees that shade walls, windows, and the AC unit as they grow.

Cost Free through the SRP Shade Tree Program (eligible SRP customers);

Effectiveness ★★☆☆☆

DOE: evaporative coolers cost about half as much to install as central AC and use about a quarter of the energy, but only work well in low humidity. They lose much of their punch during Phoenix's humid monsoon season.

MODERATELY COMMON

PRO

RENTERS: ASK LANDLORD

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: HomeGuide cost · DOE evaporative coolers

otherwise nursery prices vary

Effectiveness ★★★★★

DOE: carefully positioned trees can save up to 25% of the energy a typical household uses. Benefits grow over the years as the canopy fills in.

COMMON

DIY

RENTERS: ASK LANDLORD

HELPS IN OUTAGES

Rebates / credits: SRP: two free trees after a free workshop. See Shade & Grow.

Sources: DOE landscaping · SRP Shade Tree Program

Light-colored exterior paint



Repaint dark exterior walls a light, reflective color.

Cost \$1,819–\$4,551 typical (pro exterior paint job)

Effectiveness ★★☆☆☆

Light colors reflect more sunlight (DOE notes white roofing reflects about 60–90%). Walls get less direct sun than the roof, so expect a smaller effect than a cool roof.

MODERATELY COMMON

DIY OR PRO

OWNERS

HELPS IN OUTAGES

Insulated / blackout curtains



Thick, light-backed curtains you close on sunny windows during the day.

Cost Blackout panels \$10–\$250 each; \$50–\$500 per window with pro install

Effectiveness ★★★★★

DOE: medium-colored draperies with white plastic backings can reduce heat gains by 33%. Interior coverings work best combined with exterior shading.

COMMON

DIY

RENTER-FRIENDLY

HELPS IN OUTAGES

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: Angi cost · DOE cool roofs

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: HomeGuide cost · DOE window attachments

Cellular (honeycomb) shades

\$

Shades with air-trapping cells that insulate the window.

Cost \$70–\$350 per window installed

Effectiveness ★★☆☆☆

DOE: tightly fitted cellular shades can reduce unwanted solar heat through windows by up to 60%.

MODERATELY COMMON

DIY

RENTER-FRIENDLY

HELPS IN OUTAGES

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: HomeGuide cost · DOE window attachments

Dual-pane low-E replacement windows

\$\$\$

Replace old single-pane or failing windows with dual-pane, low-E, low-SHGC units.

Cost \$450–\$1,500 per window; \$4,500–\$22,500 for 10–15 windows

Effectiveness ★★☆☆☆

DOE: heat gain and loss through windows account for 25–30% of residential heating and cooling energy use. Expensive per degree saved compared with shading existing windows.

COMMON

PRO

OWNERS

HELPS IN OUTAGES

Rebates / credits: SRP says it does not rebate windows (consider shade screens instead).

Sources: HomeGuide cost · DOE windows · SRP rebates blog

Whole-house fan

\$\$

A large attic-mounted fan that pulls cooler outdoor air through open windows and pushes hot air out the attic.

Rooftop solar

\$\$\$

Panels that generate electricity and offset your bills.

Cost \$900–\$2,500 installed
(industry estimate)

Effectiveness ★☆☆☆☆

Only helps when outdoor air is cooler than indoor air. That makes it useful in Phoenix spring and fall nights, but not on summer nights that stay hot, or during dust and smoke events.

LESS CONVENTIONAL PRO

OWNERS

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: WholeHouseFan.com cost guide

Cost \$2.53–\$4.31 per watt in
Arizona; \$15,200–\$43,100
for a 6–10 kW system
(before incentives)

Effectiveness ★★☆☆☆

Cuts bills, but most grid-tied systems shut off during an outage for line-worker safety unless they're paired with a battery, so on its own it adds little blackout resilience.

MODERATELY COMMON PRO

OWNERS

Rebates / credits: Federal 25D (30%) residential clean energy credit ended for systems installed after Dec 31, 2025.

Sources: HomeGuide cost · IRS OBBB FAQ · EnergySage storage guide

Solar + home battery backup

\$\$\$

A home battery (often paired with solar) that keeps critical circuits running during an outage.

Cost ~\$15,647 average for a
typical 13.5 kWh battery
installed (before
incentives)

Effectiveness ★★★★★

Keeps fans, fridge, medical devices, lights, and possibly some AC running in a blackout. Running central AC for long periods needs large capacity and solar recharging.

LESS CONVENTIONAL PRO

Portable power station

\$

A rechargeable battery box (no fumes) for fans, phones, CPAP, lights, and a small fridge.

Cost About \$150–\$1,500 for
typical consumer units,
depending on capacity
(manufacturer guide)

Effectiveness ★★★★★

Safe indoors, unlike generators. Can't run central AC, but keeps fans, medical devices, and communication going during outages.

MODERATELY COMMON DIY

RENTER-FRIENDLY HELPS IN OUTAGES

OWNERS

HELPS IN OUTAGES

Rebates / credits: Federal 25D credit ended after Dec 31, 2025. APS's Bring Your Own Device pilot and SRP's Battery Partner Program pay rewards for letting batteries support the grid. Check current terms.

Sources: EnergySage cost · KJZZ on APS programs

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: UDPOWER price guide · Phoenix Survival Guide: Blackout

Generator (with CO safety)

\$\$

Portable or standby generator for longer outages. Always used outdoors with CO alarms inside.

Cost Portable \$500–\$2,500 (unit) or \$900–\$4,000 connected to the house; standby natural gas \$6,000–\$11,000 installed

Effectiveness ★★★★★

Can power essentials (and AC, with a large standby unit) for days. Carbon monoxide is deadly: CDC says never run one indoors or in a garage, and keep it at least 20 feet from windows and doors.

MODERATELY COMMON

PRO

OWNERS

HELPS IN OUTAGES

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: HomeGuide cost · CDC carbon monoxide

Cool surfaces & xeriscape near the house

Varies

Replace dark rock, pavement, or bare dirt next to walls with shade plants, mulch, or lighter, cooler materials.

Cost Varies widely by project (no reliable range found)

Effectiveness ★★★☆☆

Hot surfaces next to the house radiate heat onto walls and windows. EPA notes shaded surfaces can be 20–45°F cooler than unshaded ones at peak.

COMMON

DIY

RENTERS: ASK LANDLORD

HELPS IN OUTAGES

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: EPA trees & vegetation

Designated cool room



Choose one interior, low, shaded room as the household's refuge: blackout curtains, fans, a power station, water, and medical supplies ready.

Cost Low: mostly uses things you already own

Effectiveness ★★★★★

Focusing limited cooling and backup power on one well-shaded space is more achievable than cooling a whole house during an outage. Leave for a cooling center if it gets too hot.

LESS CONVENTIONAL

DIY

RENTER-FRIENDLY

HELPS IN OUTAGES

No verified APS/SRP rebate or federal credit found (Oct 2026).

Sources: Phoenix Survival Guide: Heat

Home energy assessment



A pro inspection (often with a blower-door test) that finds your home's biggest heat leaks.

Cost \$200–\$600 typical

Effectiveness ★★★★★

Doesn't cool anything by itself, but tells you which upgrades will matter most in your house before you spend money.

MODERATELY COMMON

PRO

OWNERS

Rebates / credits: SRP offers a Home Energy Assessment program. Check SRP for current pricing.

Sources: HomeGuide cost · SRP Customer Programs Report

Safety first: see Generator Skills before buying or using one. Never run a generator, grill, or camp stove indoors or in a garage. Use a licensed electrician for transfer switches and battery systems. If your home gets dangerously hot and you can't cool it, go to a cooling center (dial 211) and see the Heat guide.



PEOPLE ARE THE BEST PREPAREDNESS

Community & Conflict

Hard times bring out stress in everyone. Here's how to keep situations calm, look out for each other, and protect your own mental health.

De-escalation basics

Heat, hunger, fear, and exhaustion shorten everyone's fuse. Most conflicts can be cooled down if one person stays calm.

Do

- Keep your voice low and slow.
- Give space: stay at least two arm's lengths away.
- Keep your hands visible and relaxed.
- Listen, and repeat back what you hear:
"So you're worried there won't be enough water."
- Offer choices: "Would it help if we... or...?"
- Look for a way for everyone to save face.

Don't

- Argue, lecture, or try to "win."
- Make threats or ultimatums.
- Point, stand over someone, or block their exit.
- Mock, dismiss, or laugh at their fear.
- Touch someone who is agitated.
- Stay if it's turning violent. Leave and call 911.

Heat can look like hostility. Confusion, irritability, and aggression can be signs of heat illness, dehydration, or a medical problem. If someone outdoors in the heat seems unusually agitated or confused, offer water and shade, and call 911 if they get worse.

Protecting yourself without escalating

- **Awareness first:** notice exits, people, and changes in mood around you. Leaving early is the best defense.

- **Walk away from bait.** Insults and provocations cost you nothing if you don't respond.
- **Don't flash supplies or cash.** Share quietly and through organized channels.
- **Travel in pairs or groups** during tense times, and let someone know your plans.
- **Know the law.** Understand Arizona's laws on self-defense and on carrying any item you choose to carry, and remember that using force has serious legal and personal consequences. De-escalation and leaving are almost always the better options.
- **Document, don't confront.** If you witness a crime, get to safety, then report what you saw to police.

Checking on neighbors

Nearly half of indoor heat deaths in Maricopa County in 2025 were discovered during a welfare check (MCDPH). Regular check-ins can catch problems in time.

1. **Introduce yourself now**, before an emergency. A simple note with your name and number goes a long way.
2. **Create a block contact list** (with permission) and a group text.
3. **Agree on signals**, for example "blinds open by 9 a.m. means I'm OK."
4. **During heat waves or outages**, check on older adults, people living alone, and anyone with medical needs at least twice a day.
5. **Ask specific questions:** "Is your AC running? Do you have water? Are your medicines OK?"
6. **If you can't reach someone and you're worried**, call 911 and ask for a welfare check.

Mutual aid: neighbors helping neighbors

Share skills

Nurses, electricians, mechanics, cooks, translators: knowing who's on your block multiplies everyone's resilience.

Share stuff

Generators, power stations, coolers, tools, and vehicles. Set up a simple sign-up sheet or group chat.

Share cool space

If you have power or AC and a neighbor doesn't, opening your home for a few hours can save a life.

Want to help more broadly? Volunteer with established groups so your effort goes where it's needed: American Red Cross Arizona, local food banks, or heat relief donation sites listed on the Heat Relief Network. You can also take a free CERT (Community Emergency Response Team) training.

Mental health during hard times

You don't have to be in crisis to reach out. Call or text **988**, the Suicide & Crisis Lifeline, any time, day or night. Free and confidential. More at 988lifeline.org.

- **Limit doomscrolling.** Check trusted sources at set times, then step away.
- **Keep routines:** sleep, meals, movement in the cool hours, and time with people you trust.
- **Heat affects mood and sleep.** Keep your sleeping space as cool as you can, and be patient with yourself and others.
- **Talk with kids** in simple, honest terms, and give them a job in the family plan. It helps them feel in control.
- **Watch for warning signs** in yourself and others: withdrawing, hopelessness, heavy drinking or drug use, or talk of self-harm. Reach out, and call 988 together if needed.



LONG-TERM RESILIENCE



Shade & Grow

Trees cool our streets and homes. Gardens feed our families. Here's how Phoenix residents can get free shade trees, grow food in the low desert, and what it really costs in water.

Why shade matters for heat

Pavement, rooftops, and bare ground soak up sun all day and release heat at night. This "urban heat island" effect keeps cities like Phoenix hotter than the surrounding desert, especially after dark, when bodies need to recover. Trees fight back by blocking sun and cooling the air through their leaves.

20–45°F

cooler: shaded surfaces compared with the peak temperatures of unshaded materials

U.S. EPA

Up to 30°

difference that shade can make in Phoenix's hottest months

City of Phoenix

Up to 25%

lower energy costs from strategically planted shade trees

SRP

13°F

hotter: some Phoenix neighborhoods vs. others, and the hottest tend to have the fewest trees

APS, citing The Nature Conservancy

Plant smart: utilities recommend planting shade trees on the **south, west, or east** sides of your home, roughly 15–20 feet from walls and windows (SRP). Choose desert-adapted species, and **call Arizona 811 before you dig** to locate underground lines.

Free & low-cost shade tree programs

Programs change from year to year. Check each official page for current dates and eligibility.
Information verified October 2026.

SRP CUSTOMERS

SRP Shade Tree Program

What: two free desert-adapted shade trees (such as mesquite, palo verde, desert willow) after a free online workshop, run with the nonprofit Trees Matter. Workshops are bilingual (English/Spanish).

Who: current residential SRP electric customers who have the legal right to plant, can care for the trees, plant on the south/west/east side of the home, and haven't received SRP trees for that property before.

[SRP Shade Tree Program](#) →

CITY OF PHOENIX RESIDENTS

Phoenix Community Canopy (Tree & Shade Programs)

What: the City's Office of Heat Response & Mitigation has provided up to two free trees, *planted by the city*, with a care kit, in low-canopy priority neighborhoods. Phoenix also adopted the **Shade Phoenix Plan**, the nation's first city shade plan.

Status: the grant is **closed to new individual applicants**, but plantings continue through 2028 and some funded neighborhoods are still signing up residents. Check the page for future rounds.

[Phoenix Tree & Shade Programs](#) → · [Tree grant FAQ](#)

COMMUNITY GROUPS (APS AREA)

APS Community Tree Program

What: grants of **\$1,000–\$10,000** to buy trees, stakes, and ties for community planting projects in high-need, low-canopy areas.

Who: organizations, not individuals. Nonprofits, Title 1 schools, neighborhood associations, block watches, and municipalities in limited-income areas of APS territory get priority. A great option for organizing a neighborhood planting.

APS Community Tree Program →

EVERYONE

Trees Matter

What: Phoenix-based nonprofit (formerly the Valley Permaculture Alliance) that runs utility shade-tree workshops and distributions, school and community plantings, tree education, and volunteer opportunities.

treesmatter.org → · Utility shade tree programs

LEARN & CONNECT

Arizona Community Tree Council

Statewide nonprofit supporting community forestry: education, events, and resources for planting and caring for trees in Arizona.

aztrees.org →

NEIGHBORHOOD GIVEAWAYS

Neighborhood tree events

Neighborhood associations, block watches, and other cities in the Valley periodically host free tree giveaways and plantings, often funded by the programs above. Ask your neighborhood association, follow your city's sustainability or heat office, or dial 211.

Growing food in the Phoenix low desert

Phoenix can grow food nearly year-round, just not on the same calendar as the rest of the country. Start small, build soil, and plant for the season.

Two main planting seasons

Cool season (fall into winter)

Our most productive vegetable season.

Leafy greens, lettuce, kale, chard, broccoli, cabbage, carrots, beets, radishes, peas, onions, garlic, and herbs like cilantro and parsley.

Warm season (late winter into spring)

Plant early so crops mature before extreme heat: tomatoes, peppers, squash, cucumbers, beans, melons, corn. Heat lovers like okra, black-eyed peas, Armenian cucumber, and sweet potatoes keep going into summer.

Use the UA Cooperative Extension Vegetable Planting Calendar for Maricopa County for exact planting windows by crop.

Desert-adapted & native food plants

Mesquite

Native shade tree. Pods can be ground into a sweet, nutritious flour. Fixes nitrogen in soil.

Prickly pear

Native cactus. Edible pads (nopales) and fruit (tunas), on almost no supplemental water once established.

Citrus

Oranges, lemons, grapefruit, and mandarins thrive here, with a winter harvest when other food is scarce.

Pomegranate

Very heat- and drought-tolerant. Fruits in fall.

Fig

Productive and well suited to the Valley. Give afternoon shade when young.

Moringa

Fast-growing, heat-loving "drumstick tree" with edible, nutritious leaves. Protect from frost.

Dates, grapes & jujube

Other long-time desert performers for larger spaces or arbors.

Native seeds

Tepary beans, Sonoran wheat, and native squashes are adapted to heat and low water. Find them at [Native Seeds/SEARCH](#).

Backyard vs. community garden

Backyard

- Start with one raised bed or a few large containers near a hose.
- Pick a spot with morning sun and afternoon shade; use **shade cloth** over beds in summer.
- Put in drip irrigation on a timer, which is more efficient than hand watering.
- Add one fruit tree in a basin that captures rain.

Community garden

- No yard? Rent a plot. Find one on the [Maricopa County Seed Library, School & Community Garden Map](#).
- Share tools, compost, seeds, and know-how with experienced growers.
- Community gardens build the neighbor networks that matter most in emergencies.

Soil, mulch, compost & chickens

- **Mulch everything** (wood chips, straw, leaves) to keep roots cooler and cut evaporation. Keep mulch a few inches away from tree trunks.
- **Compost** kitchen scraps and yard waste to build our typically low-organic desert soils. Keep the pile moist and shaded in summer.
- **Backyard hens** provide eggs and manure for compost. Arizona law (A.R.S. 9-462.12) generally lets residents of single-family homes on lots of half an acre or less keep up to six fowl in the backyard, and cities may ban roosters. In Phoenix, enclosures must not be in the front yard and must be at least 20 feet from neighboring property lines unless neighbors give written consent (City Code 8-7). Check your city and HOA rules, and give hens deep shade and water in summer.

Long-term benefits: fresh food when supply chains are strained, shade that lowers cooling costs and protects your home, healthier soil that holds rainwater, and a stronger neighborhood network. A garden is preparedness you can eat.

Water harvesting & greywater

- **Rainwater earthworks:** shape shallow basins around trees and swales along slopes so rain soaks in where plants need it. Direct roof downspouts into planted basins. Phoenix averages about **7.22 inches** of rain a year (NWS 1991–2020 normals), much of it in monsoon storms, so every drop counts.
- **Rain math:** 1 inch of rain on 1,000 sq ft of roof is about 623 gallons. Real-world capture is lower once you account for splash, evaporation, and full tanks.
- **Cisterns and rain barrels** store water for dry spells. Cover openings so mosquitoes can't breed.
- **Greywater (Arizona rules):** under ADEQ's Type 1 general permit, households using **less than 400 gallons per day** can reuse water from washing machines, showers, tubs, and bathroom sinks without applying for a permit. You may **not** use kitchen sink, dishwasher, or toilet water. Apply it by drip or flood/basin (no spraying), avoid standing water and human contact, and **don't use it on food crops except citrus and nut trees**. See the ADEQ gray water brochure and the full rule (R18-9-D701).
- Learn more from rainwater-harvesting educator Brad Lancaster: HarvestingRainwater.com.

Water cost vs. harvest value

Does growing food in Phoenix pay off? Here are worked examples using official water rates, University of Arizona water-use data, published yield studies, and U.S. average grocery prices. **All results are estimates.** Your soil, sun, variety, skill, and weather will change them.

Phoenix water rates used

Season (City of Phoenix, inside city)	Volume charge per CCF	+ Environmental charge	Cost per 1,000 gallons
Low: Dec–Mar	\$4.93	\$0.62	\$7.42
Medium: Apr, May, Oct, Nov	\$5.65	\$0.62	\$8.38
High: Jun–Sep	\$6.13	\$0.62	\$9.02

1 CCF = 748 gallons. Rates effective March 1, 2025 (City of Phoenix Water & Sewer Rates). Assumes garden water is billed beyond the monthly allowance (5 CCF Oct–May, 8 CCF Jun–Sep) that's included in the service charge; excludes sales tax. Residents outside Phoenix city limits or in other cities pay different rates.

Worked examples

Scenario	Water / year	Est. water cost	Est. harvest	Est. grocery value
100 sq ft raised bed , one cool season (~20 weeks, Oct–Feb), 1 inch of water/week	~1,250 gal	~\$10	~75 lb vegetables (0.75 lb/sq ft)	~\$148 (at \$1.98/lb)
One mature orange tree , 14 ft canopy, watered per UA Extension table	~5,560 gal	~\$48	~165–332 lb oranges	~\$282–\$567 (at \$1.71/lb)
Small food forest : 3 mature orange trees (14 ft canopy) + one 100 sq ft bed	~17,940 gal	~\$154	~495–996 lb citrus + ~75 lb vegetables	~\$994–\$1,850
Add rain harvesting : 1,000 sq ft roof in an average year	Up to ~4,500 gal captured (theoretical max)	Saves up to ~\$33–\$41	Plus deep-watered trees, less runoff, and a buffer during water restrictions	

Assumptions & sources

- Vegetable water:** "Vegetable crops need about an inch of water per week," University of Arizona Cooperative Extension, [Backyard Vegetable Garden Irrigation](#). 1 inch over 1 sq ft = 0.623 gal. Phoenix summers often require more, and the cool season is the most water-efficient time to grow.
- Citrus water:** monthly gallons/day by canopy size from UA Cooperative Extension, [Irrigating Citrus Trees \(AZ1151\)](#): mature citrus use about 60 inches of water per year. Lemons and grapefruit use about

20% more than oranges; mandarins about 10% less. Costs use each month's seasonal rate.

3. **Vegetable yield:** 0.75 lb per sq ft measured in community garden plots: Algert, Baameur & Renvall (2014), "Vegetable Output and Cost Savings of Community Gardens in San Jose, California," *Journal of the Academy of Nutrition and Dietetics*. A related 2016 study of home gardens found about 1.23 lb/sq ft. Yields in Phoenix may differ.
4. **Orange yield:** mature navel orange trees produced about 165–332 lb per tree in the 2008–09 University of Arizona cultivar trial at Waddell, AZ (west Valley): Wright, G.C., "Cultivar Selection Trials of Navel Orange in Arizona", UA Citrus Research Report. Commercial trial trees may be larger and better managed than backyard trees, and young trees produce much less.
5. **Grocery prices:** U.S. city average retail prices, August 2026: navel oranges \$1.709/lb (BLS APU0000711311), lemons \$2.114/lb (BLS APU0000711412), field-grown tomatoes \$1.977/lb (BLS APU0000712311), used here as a stand-in price for mixed vegetables. Greens and herbs often cost far more per pound, so this is conservative.
6. **Rain:** 7.22 in/year normal at Phoenix Sky Harbor (NWS); $1,000 \text{ sq ft} \times 7.22 \text{ in} \times 0.623 = \sim 4,500 \text{ gal}$ theoretical maximum.
7. **Not included:** startup costs (beds, soil, drip system, trees), fertilizer, your time, sales tax, and the extra value of shade lowering your cooling bill.

Garden water & value calculator

Defaults match the worked examples above. Change any number to fit your yard. Estimates only; nothing is saved or sent.



gallons of water needed / year



estimated water cost / year (after rain offset)



estimated grocery value of harvest / year



estimated value minus water cost

Water cost uses Phoenix inside-city rates (effective March 1, 2025), billed beyond the monthly allowance. Citrus costs use month-by-month rates; rain/greywater offsets are valued at the medium rate. Startup costs aren't included.

Learn from locals

Enlightenment Garden: a Phoenix-area channel documenting the transformation of a half-acre backyard into a food forest with 100+ edible and medicinal trees (tropical, subtropical, and stone fruit), and trials of more than 80 fig varieties. Tours, plant highlights, and how-tos for hot desert climates.

More Valley growers worth following:

- Growing In The Garden: low-desert vegetable and fruit growing from a garden in Mesa, with monthly planting guides.
- Shamus O'Leary: growing tropical fruit trees (mango, avocado, banana) in Phoenix.
- The Green Yard: building a home food forest and touring others around the Valley.
- Greg Peterson / The Urban Farm: longtime Phoenix urban-farming educator (urbanfarm.org).

Local resources

Maricopa County Master Gardeners

UA Cooperative Extension volunteers answering local garden questions, with classes and publications.

Maricopa Master Gardeners · Maricopa County Extension

Planting calendar

When to plant each vegetable in Maricopa County.

Vegetable Planting Calendar

Community gardens & seed libraries map

Find community gardens, school gardens, and seed libraries across the county.

Garden & seed library map

Phoenix Public Library Seed Library

Borrow free vegetable, fruit, and flower seeds with a library card, and find growing instructions.

Seed Library

Native Seeds/SEARCH

Tucson-based nonprofit conserving and selling arid-adapted Southwest crop seeds.

nativeseeds.org

Desert Botanical Garden classes

Adult classes on low-desert gardening, edible gardens, and landscaping.

DBG Adult Education

Trees Matter

The Valley's tree nonprofit (formerly Valley Permaculture Alliance): shade tree programs, education, and volunteering.

treesmatter.org

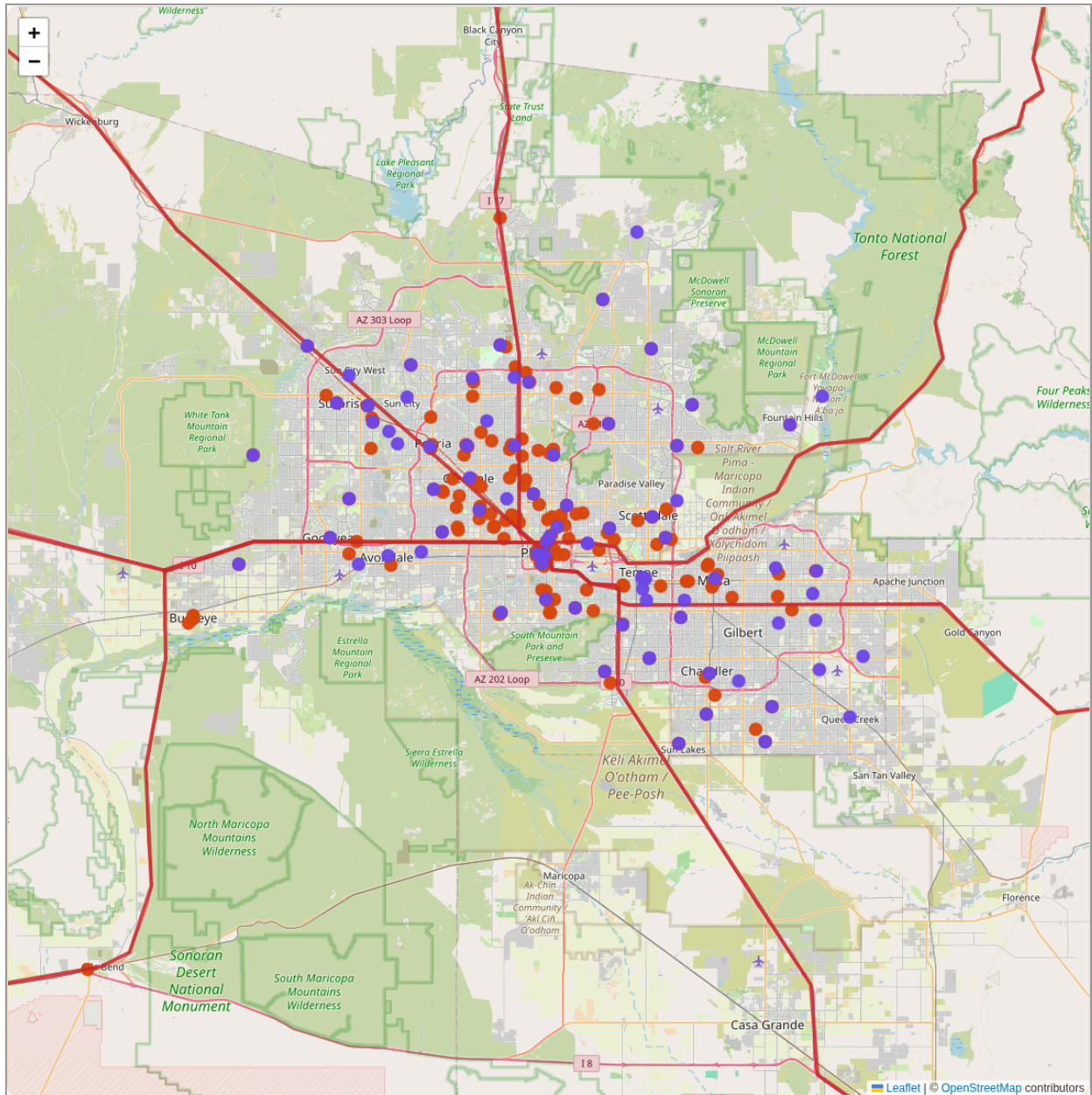
AMWUA watering guides

Arizona Municipal Water Users Association landscape watering schedules for the Valley.

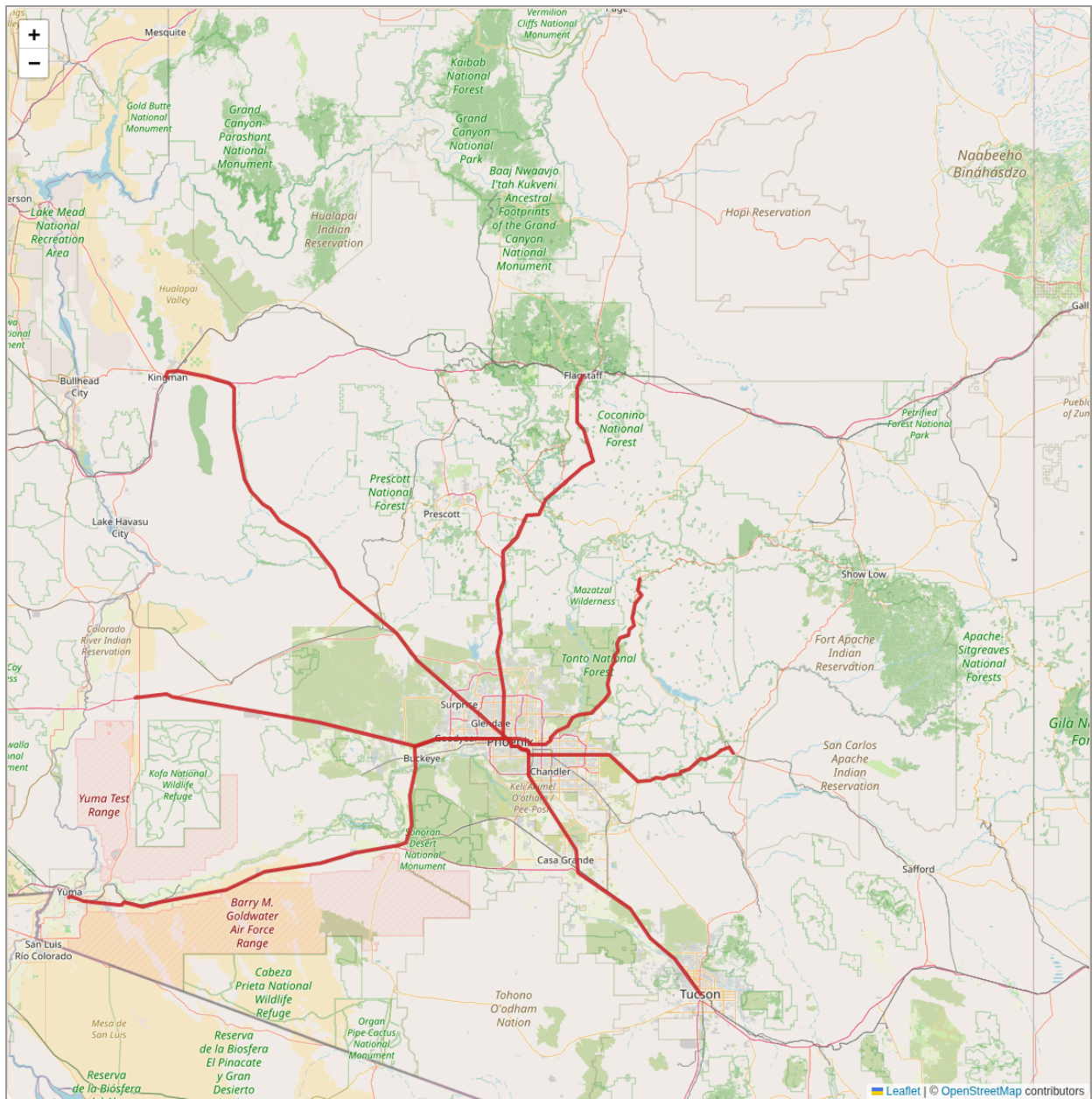
Watering schedules



Printable maps



Phoenix metro: heat relief sites (orange), public libraries (purple), and evacuation routes (red), Oct 2026. Map data © OpenStreetMap contributors; Heat Relief Network (MAG).



Evacuation routes out of Phoenix, including Payson (SR-87) and Flagstaff (I-17). Approximate geometry; check AZ511. © OpenStreetMap contributors.



Emergency numbers

- **911:** emergencies (heart stroke, fire, crime in progress). Text 911 where supported if you can't call.
- **211:** Arizona community resources, cooling and shelter info
- **988:** Suicide & Crisis Lifeline (call or text)
- **1-800-222-1222:** Poison Control (scorpions, snakebites, toxic plants)
- **511:** Arizona road conditions (az511.gov)
- **APS outages:** 602-371-3680 (metro) / 855-688-2437 · downed lines: 911, then 602-371-7171
- **SRP outages:** 602-236-8888 / 800-258-4777 · power emergencies 602-236-8811 (911 first for medical)
- **Gila County Emergency Mgmt (Payson):** 928-402-8789 · **Coconino County (Flagstaff):** 928-679-8311
- **Red Cross shelters:** 1-800-RED-CROSS (1-800-733-2767)

People to call

Name	Relationship	Phone

Out-of-state contact (everyone checks in here):

Medications & medical needs

Person	Medication / device	Dose / settings	Pharmacy / doctor

Person	Medication / device	Dose / settings	Pharmacy / doctor

Allergies:

Meeting points

Near home (e.g., a neighbor's door):

In the neighborhood (e.g., library, school):

Out of town (e.g., a relative in Payson or Flagstaff):

Home & utilities

Electric utility (APS outage 602-371-3680 (metro) / 855-688-2437 (other areas); SRP outage 602-236-8888 / 800-258-4777; other):

Water shutoff location:

Neighbors I check on / who check on me:

Pets (vet, microchip #):