



**CLIMATE CHANGE
AND YOUR PET:
HOW TO KEEP YOUR BEST
FRIEND SAFE AND HEALTHY
IN A WARMING WORLD**



The Climate
Reality Project®

INTRODUCTION



The climate crisis is changing the world we live in.

Weather is getting more and more extreme. Seas are rising. Tropical diseases are spreading farther and faster than ever. Many ecosystems and wildlife habitats the world over are on the brink.

But sitting in your backyard with your new puppy, watching her chase tennis balls, you'd be forgiven for not wanting to think too much about it.

Trust us, we get it.

Climate change can feel like an almost overwhelming concern, one that inspires no small amount of anxiety. Especially when we start to consider how it'll impact those we hold most dear—like our four-legged friends.

But it's vital to remember that this crisis is already affecting our pets, putting them at higher risk of vector-borne diseases like heartworm and Lyme disease, heat stress, injury during natural disasters like floods, and so much more.

Luckily, with a little planning, there's plenty of preventative care you can offer to help your pets stay safe in our warming world and live a long and healthy life.

THE PROBLEM



The reason our climate is changing is surprisingly straightforward: Human activities, such as burning coal, oil, and natural gas for electricity, industry, and transportation, have released large amounts of carbon dioxide (in particular), methane, and other greenhouse gases into Earth's atmosphere.

These gases trap the sun's energy as heat, causing our planet to warm. So as we continue to dump more and more of them into the atmosphere, things keep getting hotter and hotter, changing our climate and making storms more violent, summers more sweltering, oceans more acidic, and on and on.

Put even more plainly: Burning fossil fuels has created a climate crisis—one that puts so many lives and livelihoods in very real danger.

That means animal lives, too.

Like us, animals have evolved to live in the relatively stable climate we've enjoyed since the last ice age. And also just like us, their worlds are being thrown out of whack as global temperatures steadily increase at their fastest rates in millions of years.



Already, we're seeing rising temperatures and changing seasons disrupt hibernation patterns for some animals in the wild.

Longer and longer periods of mild weather have turned “kitten season” into a year-long event instead of a spring ritual in many regions. The sad result has been more feral, homeless kittens.

Many natural habitats—indeed, entire ecosystems—are in danger from sea-level rise, wildfires, flooding and drought, and any number of other climate impacts. Already, the Australian government has officially recognized the Bramble Cay melomy as extinct, owing to sea inundation of its home on Bramble Cay, a small island that sits just a few feet above sea level. Some salmon populations are feeling the impact of changing stream flows and warming waters in the US Pacific Northwest. Several species of mountain birds from all over the world are migrating to higher and higher elevations. Puffins are having trouble finding their normal food sources, like white hake and herring, in the Gulf of Maine and elsewhere because of warming ocean waters, leading to poor chick survival rates.

And that's just scratching the surface.

In the pages that follow, we'll discuss some of the most-pressing concerns many household pets face in our warming world. We'll also highlight ways you can take action now to protect the health of your furry family members.

Let's get started!

FLEAS, TICKS, AND OTHER PESTS



As humans burn more and more fossil fuels, heat-trapping gases like carbon dioxide are released into our atmosphere. As a result, we're seeing warmer-than-average years, extreme heatwaves, and heavier rains, creating the perfect conditions for insects, bacteria, viruses, and more to thrive.

Fleas and ticks used to be seasonal problems, confined largely to warm-weather months in much of the world. In many places, however, there are now more of those months, as spring arrives ever-earlier and autumns bleed deeper and deeper into months that once used to welcome the first measurable snowfalls.

VECTOR-BORNE DISEASES are transmitted by “vectors,” typically a biting insect like a mosquito, flea, or parasitic arachnid like a tick. Vectors carry infective pathogens like viruses, protozoa, and bacteria, and transmit diseases or parasites from one animal to another.

Longer-lasting warm weather and milder winters extend the life and breeding cycles of many insects, including fleas and ticks. The result: more disease-carrying vectors out in the world looking for their next meal.

It gets worse. With warmer weather and milder winters, fleas, ticks, and other vectors can travel further than ever before, reaching regions that used to be too cold for them to live and exposing more people and pets to the diseases they carry.

Then there are the extreme weather events—think, hurricanes and floods—becoming more common and devastating as temperatures rise. And when the winds eventually calm and the waters recede, what's left behind are homes in ruins and debris strewn everywhere. It's heartbreaking for humans, but it's the ideal habitat for rats and the fleas and ticks they carry.

The bottom line: Parasitic pests are in many places more numerous than ever. They're living longer and longer. They're even showing up in locations where they were previously uncommon or entirely absent.

Oh, and now that they're here, they need to eat.

One guess who makes the best snack.

FLEAS AND TICKS

You don't need to be a doctor to know that fleas and tick bites are bad for cats and dogs. Flea bites can cause dermatitis in both animals. Plus, fleas and ticks carry many diseases that are equally terrible for people and pets. These include (but are certainly not limited to) Lyme disease, ehrlichiosis, anaplasmosis, Rocky Mountain Spotted Fever, babesiosis, and hepatozoonosis.

SYMPTOMS OF LYME DISEASE IN DOGS AND CATS

As any pet owner knows, dogs and cats are like apples and oranges. However, when it comes to Lyme disease, both species (and many others) experience similar symptoms.

Here are some things to look for, if you suspect your pet may be suffering from this dangerous illness:

- Swelling/inflammation of joints
- Stiffness when walking
- Reduced energy and lethargy
- Loss of appetite
- Lameness in limbs (can be shifting, intermittent, and/or recurring)
- Fever

Symptoms of Lyme disease, also known as Lyme borreliosis, in both species can progress to serious kidney problems – and in some cases, even fatal kidney failure. If you suspect your pet is suffering from this dangerous bacterial illness, see your veterinarian as soon as possible for an examination and blood test.

Lyme disease in both cats and dogs is treated with an antibiotic, typically administered for several weeks.

MOSQUITOS AND HEARTWORM

Mosquitos aren't just the carrier for a whole host of deadly human diseases. They also carry the parasitic worm called *Dirofilaria immitis* that causes heartworm in pets. Which is a threat to take very, very seriously.

“Heartworm disease is a serious disease that results in severe lung disease, heart failure, other organ damage, and death in pets, mainly dogs, cats, and ferrets . . .

The worms are spread through the bite of a mosquito,” [according to the US Food and Drug Administration \(FDA\)](#).

And thanks to climate change, mosquitos are having a heyday.

Mosquitos are taking advantage of warmer temperatures and changing weather patterns to extend their ranges and reach more and more parts of the world. The excessive rainfall and high humidity that come with climate change enhance mosquito breeding and survival, enabling populations to increase and allowing mosquitos to survive for longer periods of time. Extreme weather events can also leave the pools of standing water mosquitos need to reproduce.

It should come as no surprise then that these factors together can translate into an elevated risk of dangerous heartworm for your pet.

While several different types of animals can get heartworms, as mentioned above, dogs are by far the most vulnerable household pet to these parasites, [which are transmitted](#) through the bite of an infected mosquito *only* and cannot be passed directly from one animal to another. (Cats, for example, can get heartworms but are considered “resistant” hosts because the worms do not typically thrive inside their bodies.)

Heartworm disease has been reported in all 50 US states, including in the desert Southwest and up and down the West Coast, where it used to be *much* less common.



So, what should you look for?

Early symptoms of heartworms in dogs include occasional cough and tiredness after moderate activity. As the conditions worsens, dogs can experience trouble breathing and heart failure, and even what is known as “caval syndrome.” This is where the worm burden becomes so heavy that blood flowing to the heart is physically blocked by a large mass of worms.

Caval syndrome is a life-threatening condition that can only be treated through risky surgery to remove the worms. Caught early, heartworm infection can be treated through veterinarian-prescribed medications, though it’s easy on neither dog nor owner.

“Treatment can be potentially toxic to the dog’s body and can cause serious complications, such as life-threatening blood clots to the dog’s lungs,” [the FDA writes](#). “Treatment is also expensive because it requires multiple visits to the veterinarian, bloodwork, x-rays, hospitalization, and a series of injections.”



WHAT CAN I DO?

Prevention is often said to be the best treatment – and that is certainly the case here.

Vector-borne diseases can present a serious risk to the health of pets and their people. So it’s important that pet owners talk to their veterinarian about the best flea, tick, and heartworm control measures for their pet(s).

Heartworm, in particular, can easily be prevented with appropriate advance measures.

“I don’t know why a person wouldn’t give his dog heartworm pills once a month. That seems like a no-brainer,” Dr. Greg D. Ebel, professor and infectious disease specialist in Colorado State University’s College of Veterinary Medicine, told [Phys.org](#).

For fleas and ticks, be sure to check your pets often, particularly following walks through areas with high grass or through a forest setting. Pay special attention to areas of the animal where fleas and ticks are most common, like the belly and at the base of the tail.

Also, consider working to control the tick and flea populations in your environment. Keeping the areas where your pet or pets most-frequently roam when outdoors—likely led by your own backyard—well-tended and free of high grass can go a long way to keeping fleas and ticks at bay.

If possible, fence the area in, thereby limiting access to some wild animals that may be carrying these pests onto your property. You certainly cannot control everything here—just ask any gardener or hobby farmer how much respect deer have for fences when they spot their favorite treats on the other side. But you can work to reduce or limit exposure.

There are also numerous preventative products available for your pet—from topical treatments and shampoos to sprays and collars that kill and repel ticks, fleas, and other insects.

If your pet has been bitten by a tick, timing is key: “The quicker you remove a tick, the less likely your dog will contract a secondary illness related to tick bites,” [according to the American Kennel Club \(AKC\)](#).

This same logic applies to cats and other pets as well.

Invest in a pair of fine tweezers to be used for this purpose, and consult your veterinarian to learn the proper method of tick removal.

Indeed, consult your veterinarian across the board before beginning any flea or tick prevention regimen. With his or her guidance, you should be able to find the most appropriate pest-repelling products for you and your pet.

And of course, to fight the further spread of these pests and their accompanying diseases in the long-term, [join us to take action to fight the climate crisis in your own community](#).

EXTREME HEAT AND SUPER-CHARGED WEATHER

The climate crisis is throwing natural systems out of balance—to often devastating effect.

What does that mean for us? Events like torrential rains, floods, heat waves, hurricanes, the “polar vortex,” and drought are becoming more frequent and/or intense.

So what’s the connection to pet health?

Well, it’s simple. The direct impacts of climate change-driven extreme weather affect our furry friends in much the same way they do us.

“Obviously, the destruction of homes and displacement of families affect pets’ well-being. While pets can be lost or killed in a severe hurricane, storm, flood or fire, they may also become homeless,” Dr. Debora Lichtenberg, VMD, [writes for Petful](#).

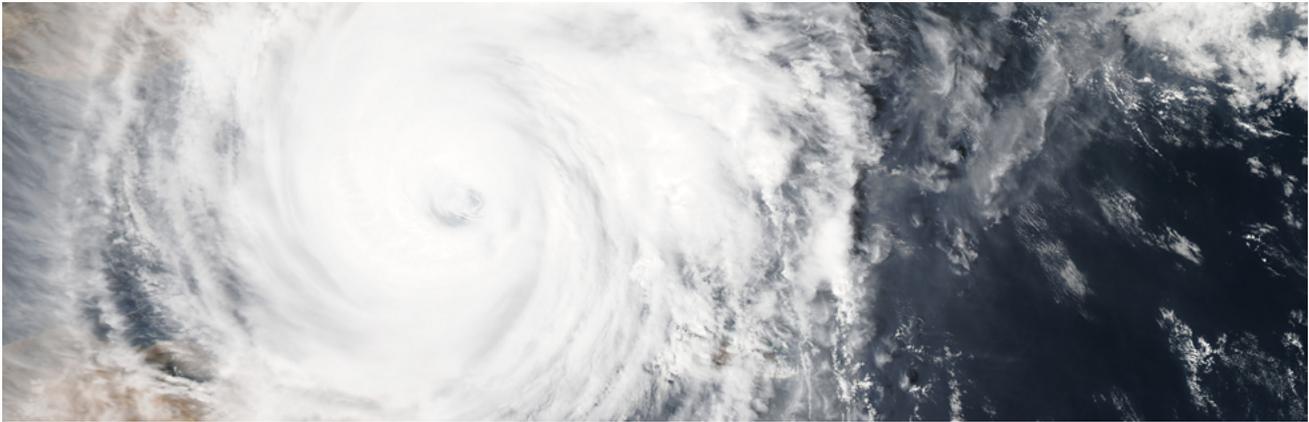
Beyond the tragic fatalities—human and animal—that can result directly, extreme weather events can also damage infrastructure and jeopardize access to critical health care for extended periods of time. They can compromise water quality and food supplies. They can mean power outages, trouble communicating, and *so much more*.

These impacts can affect the health and well-being of dogs, cats, and other pets as acutely as they do us.

STORMS AND DISTEMPER

As mentioned in the previous section, numerous pests—and their attendant diseases—can crop up en masse in the wake of an extreme weather event, like a major hurricane. Plus, contaminated flood waters following storms can leave animals particularly susceptible to bacterial and viral diseases.

[One of most common](#) diseases found in pets following many natural disasters is distemper, a highly contagious viral disease. Though they share a name, [feline distemper \(also known as feline panleukopenia\)](#) and [canine distemper](#) are caused by different viruses.



Both diseases, however, show up in the wake of events like major hurricanes when rescue and aid efforts create ideal conditions for the respective viruses to thrive and spread.

This may sound counterintuitive, but when animals are rescued and placed in shelters, factors like living in close proximity to many other animals; sharing food and water bowls, bedding, and other equipment; and volunteers touching numerous different pets in short periods of time all combine to pass viruses easily from one animal to the next.

Sadly, puppies and kittens are particularly vulnerable to their species' respective forms of distemper.

In cats, "The first visible signs an owner might notice include generalized depression, loss of appetite, high fever, lethargy, vomiting, severe diarrhea, nasal discharge, and dehydration. Sick cats may sit for long periods of time in front of their water bowls but not drink much water," according to the [American Veterinary Medical Association \(AMVA\)](#).

Dogs share some (but not all) of these symptoms, and suffer from some unique ones as well. At the onset of the illness, they will develop watery or pus-like discharge from their eyes, followed by fever, nasal discharge, coughing, lethargy, reduced appetite, and vomiting.

"As the virus attacks the nervous system, infected dogs develop circling behavior, head tilt, muscle twitches, convulsions with jaw chewing movements and salivation ('chewing gum fits'), seizures, and partial or complete paralysis," [AMVA explains](#). "The virus may also cause the footpads to thicken and harden, leading to its nickname 'hard pad disease.'"

Distemper in both species is often fatal. Luckily, you can vaccinate your pet against the condition. (Read on for more on how to keep your pet safe during and after extreme weather events.)



HEATWAVES AND HEATSTROKE

Though they doesn't tend to drive headlines with quite the same immediacy as a hurricane or flood, climate-driven extreme heat and heat waves are becoming [more and more common](#), creating a real threat to the health of pets (and their human companions).

Indeed, extreme heat is more deadly than any other weather-related hazard — on average causing more human deaths annually than tornadoes, floods, or hurricanes

According to a study published in the journal [Nature Climate Change](#):

“Around 30 percent of the world’s population is currently exposed to climatic conditions exceeding a deadly threshold (where daily mean surface air temperatures and relative humidity become deadly) for at least 20 days a year.”

The study goes on to note that by 2100, as much as 74 percent of the world’s population could be exposed to potentially deadly heat for 20 days or more each year, if fossil fuel emissions continue to rise.

Among humans, extreme heat elevates the rate of death from illnesses like heart attack, heat stroke, organ failure, and more. **The same is true for many other animals.**

Older pets, those with preexisting heart or respiratory diseases, and animals that are overweight or not used to prolonged exercise are especially vulnerable to heat extremes. As are certain breeds of dogs and cats with short muzzles (think boxers, pugs, shih tzus) and pets with coats that are dark colored or thick. And just like us, they can experience potentially deadly heat stroke as a result.

Pets with these characteristics are also likely to have an especially difficult time breathing, more generally, in situations of extreme heat and humidity.

It's vital to keep humidity in mind: Many animals, including dogs, do not sweat through their skin the way we do – instead, they pant to take heat away from their bodies and cool down. However, if the humidity is very high, they are unable to cool themselves sufficiently by panting, and their temperatures can climb to dangerous levels quickly.

So as average global temperatures rise, warm-weather seasons lengthen in many places, heat waves become more frequent and severe, and higher humidity reaches regions that previously have not dealt with it, taking steps to help your furry family members stay safe and cool is crucial.



WHAT CAN I DO?

KEEP YOUR PET COOL AND SAFE

First things first, never ever leave your pet in a parked vehicle on a warm day. The interior temperature of a car, truck, or SUV can rise very quickly – for example, on a 70-degree Fahrenheit day, the inside of a [car can heat](#) up to 89 degrees in just 10 minutes... and to 104 in 30 minutes.

Now, consider how these same exponential temperature increases could play out in the even higher heat many places will experience because of the climate crisis. After only 10 minutes when the outside temperature is 95 degrees, the interior of a vehicle can reach 114 degrees – and by 30 minutes, the temperature will have soared to 129 degrees.

Temperatures like these can cause irreversible organ damage or death in animals.

Luckily, this is the easiest high-heat impact to avoid—*just don't do it!*

Access to cool, clean water is, of course, vital to the health of your pet in situations of high heat – and in general. The same is true of making sure your pets have access to well-ventilated shade to protect them further from the sun and heat. Keep in mind that air flow is not obstructed by the shade offered by trees or tarps and is thus ideal, whereas an enclosed outdoor shelter like a doghouse may actually retain heat and make matters worse.

Please also keep in mind that most animals respond to heat differently than we do. This means that fans are not always terribly effective at cooling animals off quickly, though just like us they will benefit from being in a cooled space like an air-conditioned room.

If your pet begins to show symptoms related to heat stress (see the breakout box at the top of page 16), there are several things you can do to cool them off quickly, including wrapping them in cool wet towels, placing ice packs wrapped in towels on the pet, and splashing or spraying them with cool water.

If symptoms of heat stress do not start to subside within about five minutes or begin to worsen, the pet should be taken to their veterinarian immediately.

High temperatures and humidity can cause **HEAT STRESS** in animals, just like they do in people. Symptoms of heat stress in animals include excessive panting, difficulty breathing, excessive water consumption, vomiting, diarrhea, weakness, incoherent or aggressive behavior, collapse, or seizure. In extreme cases, animals, also like humans, can die from heat stress.

PLAN AHEAD

Extreme weather events and climate-related natural disasters can come seemingly out of nowhere, but there are many steps you can take (before and after) to limit the trauma your pet experiences.

[The US Centers for Disease Control \(CDC\) advocates](#) that you keep a pet disaster kit ready at all times, so you can be immediately responsive to your pets' needs in the event of an emergency – without endangering your own safety or theirs by needing to scramble after an event or evacuation order has been issued.

“When making the kit, think about your pet’s basic needs, prescriptions, and paperwork,” [the CDC writes](#). It recommends some of the following for your kit:

- Harness, leash, and collar with ID
- Appropriate-sized carriers with bedding and toys
- Enough food, water, and any appropriate medications for two weeks, stored in airtight waterproof containers or cans
- Plastic bags and cleaning supplies
- Key documents, including photocopied veterinary records, registration and microchip information
- Recent photos of your pet
- A pet first aid kit



The best thing you can do to keep your pets safe and healthy during and after a natural disaster is to plan ahead. For more information on the best ways how, check out the **Humane Society of the United States'** emergency preparedness recommendations below.

The [Humane Society of the United States](#) (HSUS) provides direct care to more than 100,000 animals each year – more than any other animal welfare organization – through its sanctuaries, veterinary programs, emergency shelters, and rescues. The HSUS further protects animal well-being through its education and training programs.

The HSUS advises pet owners to take several precautionary steps to keep their pets safe during a natural disaster:

- Make sure your pets have up-to-date identification.
 - They should be wearing collars and tags – this will be key if they are found by an everyday person and not an animal-rescue professional. Be sure to include your cell phone number on your pet's tag(s).
 - Have them microchipped, and make sure the microchip registration is in your name.
- If an evacuation order is issued (or you simply choose on our own to evacuate), leave as early as possible and be sure to take your pets with you.
- Never assume you will be permitted to bring your pet or pets to an emergency shelter or hotel.
 - Contact your local office of emergency management to verify that there are shelters available that take people and their pets.
- In the event that you need to leave your immediate area, verify with any hotels and motels where you might seek refuge if they accept pets.
 - Inquire about any limits on number of pets allowed, as well as size and species restrictions.

If you are unable to evacuate with your pet or pets, consider:

- Arrangements with friends or relatives to provide temporary care.
- Boarding facilities and/or veterinary offices that offer shelter services during disaster situations.
- Your local animal shelter, which may provide foster care or shelter for pets during an emergency.



AFTER A CLIMATE EVENT

In the aftermath of a climate-related extreme weather event, keep in mind that the lay of the land will be as different for your pet as it is for you—perhaps even more so, depending on the animal. Dogs, as just one example of many, are well-known for relying on their keen senses of smell to guide them. Following a natural disaster like a flood, places with a once-familiar scent may seem entirely foreign and/or disorienting.

Because of this—as well as the likelihood of debris and other physical dangers—it is best to not let your pets roam loose. When outside, dogs should be kept on leashes and cats and other small pets in carriers. You should also be vigilant of unexpected wildlife that may have sought refuge in or around your home, yard, or in nearby parks.

It is also important to be patient with your pet as they acclimate to their newly altered surroundings.

“Try to get them back into their normal routines as soon as possible,” [the HSUS advocates](#). “Be ready for behavioral problems caused by the stress of the situation. If these problems persist, or if your pet seems to be having any health problems, talk to your veterinarian.”

As the old saying goes, “An ounce of prevention is worth a pound of cure.”

Taking preventative action to avoid the worst is far easier and more effective than repairing the damage or injury inflicted after an extreme weather event has happened. By speaking with your veterinarian and local emergency preparedness officials before disaster strikes, you can rest assured that your pet(s) will be taken care of as best they can be in the event of an emergency.

THE NEXT STEP



The point is: Climate change doesn't just affect the world we humans live in. It also affects the world and health of some of our best friends—the animals like cats, dogs, turtles, and more that we share our lives with.

And of course, natural disasters and dangerous heat waves are bound to occur—as disheartening as it is, that's Mother Nature at work, particularly in our warming world.

It's also true that even if we completely stopped emitting carbon pollution today, we'd continue to experience climate change impacts for a considerable time to come. The pollution behind our current crisis stays in the atmosphere for a very long time.

But even if we can't stop climate change in its tracks immediately, we can still act boldly and decisively to leave fossil fuels behind and prevent the worst of it. For us as well as our furry family members... and the families and pets of the future.

That's why we're here to make urgent climate action a necessity. In politics. In business. In every aspect of our lives. Everywhere.

[Will you join us?](#)



The Climate Reality Project[®]

Founded and chaired by former US Vice President and Nobel Laureate Al Gore, The Climate Reality Project is dedicated to catalyzing a global solution to the climate crisis by making urgent action a necessity across every level of society.

Today, climate change is standing in the way of a healthy tomorrow for all of us. But we know that practical solutions are right in front of us. We can create a healthy, sustainable, and prosperous future by making a planet-wide shift from dirty fossil fuels to clean, reliable, and affordable renewable energy. At Climate Reality, we combine digital media initiatives, global organizing events, and peer-to-peer outreach programs to share this good news with citizens everywhere and build overwhelming popular support for policies that accelerate the global transition to a clean energy economy.

To learn more, visit www.climaterealityproject.org