

The Animals At Risk



Koala

Koalas live in the woodlands of Australia. Thick fur and skin make it difficult for them to adapt to rising temperatures. Increased CO₂ in the air produces less protein in the eucalyptus leaves, forcing the Koala to search for other sources of food and, in times of high heat, water. On the ground, the slow moving Koalas are prey to wild dingoes and domestic dogs, or are hit by cars as they cross roads. Their habitats are also being destroyed by drought, bush fires and development.



Ringed Seal

All populations of Ringed Seals are expected to be adversely affected by climate change because of dependence on sea ice and snow dens for breeding, protecting pups, moulting and resting. Early warming causes pups to separate prematurely from their mothers. As sea ice declines, other threats are fisheries by-catch, increased shipping, tourism and development. Seals are vulnerable to disease from heavy concentrations of pollutants that have accumulated in the Arctic food web.



Shenandoah Salamander

The Shenandoah Salamander lives in an isolated, high altitude region of Shenandoah National Park, USA. Like all amphibians who have thin, permeable skin, salamanders are very sensitive to environmental changes. If average temperatures or moisture increase, this salamander, restricted to its cool micro-climate, will be at risk—having no place to go but to lower, even warmer, altitudes. If warming causes other species of lower altitude salamanders to migrate higher, they will compete for the Shenandoah's cool, moist habitats.



Polar Bear

Polar Bears live only in the Arctic. Loss of sea ice has a critically adverse effect on Polar Bears. They hunt from the edge and build snow dens on the ice for resting and raising their cubs. Sea ice decline could open the Arctic to shipping and tourism, further disturbing Arctic habitats. Other threats are oil development and industrial pollution that reaches the Arctic through air and ocean currents.



Whooping Crane

Before 1800 there were an estimated 10–20,000 Whooping Cranes in North America. By 1941, because of hunting and habitat destruction, there were fewer than 20. There are now approximately 350–380 in the wild. The wild Whooping Crane population has only one winter habitat—a wildlife refuge on the Gulf Coast in Texas; and one spring breeding habitat—a prairie wetlands in Alberta. Severe storms, sea level rise, drought, industrial development and oil spills threaten these habitats. Another significant threat to young Whooping Cranes is colliding with power lines in their migration corridor.



Black-footed Albatross

Almost all Black Footed Albatrosses live in the Hawaiian Islands. Like all species of albatrosses that breed on low lying beaches and slopes, they are highly susceptible to sudden flooding from sea level rise and storm surges. Thousands each year are caught by longline fishing and they are also threatened by pollution and ingesting plastics that float in the ocean.



Bicknell's Thrush

The breeding habitat of Bicknell's Thrush is primarily restricted to mountain spruce forests of Northeastern US and Canada. They winter in the Caribbean and spring migration north is cued by day length. If spring arrives early in the north and the Thrushes arrive at their normal time, the abundance of food—insects and fruit—would already have peaked. Warming temperatures also produce an abundance of spruce and fir cones—feeding and increasing the population of Red Squirrels, a main predator of eggs and chicks. Storms and hurricanes threaten the Thrush's tropical winter habitat. Pollution, logging and deforestation threaten their spring breeding and winter habitats.



Tufted Puffin

Tufted Puffins are threatened by sea level rise and storm surges which destroy habitats and breeding areas. In some areas of North America warming seas are causing the fish that the Puffins feed on to migrate farther north, making it difficult for them to find adequate food. Other threats are entrapment in fishing nets, oil spills, pollution, ingestion of plastic, human disturbance of breeding colonies and introduced predators such as rats and foxes.



Adelie Penguin

In winter, the sun doesn't rise south of the Antarctic Circle. If Antarctic sea ice decreases and does not extend far enough to the north, Adélie Penguins, during their winter migration, may not be able to reach the sunlight needed to navigate, hunt and avoid predators—they won't dive in the dark. Other threats are oil pollution, fishing and disturbance of colonies from research stations and aircraft.



Beluga

Belugas live in Arctic and Sub-Arctic waters. Impacts from climate change include: an increase in ship traffic as sea ice declines, oil exploration and extraction, fisheries by-catch, and disruption of the food web. As Arctic waters warm and currents change, the Humpback (a competitor) and the Orca (a predator) may move north and stay longer. Some Beluga populations are also threatened by hunting, pollution and habitat loss.



Bramble Cay Melomys

The Bramble Cay Melomys was the first species to be declared extinct because of climate change. Sea level rise and storm surges washed away its habitat, food and the last of the population. In 2014 scientists went searching in the hopes of starting a breeding program but were unable to find a pair. Other sea birds and turtles that live on the Cay are also threatened by storm surges and sea level rise.



American Pika

Pikas live primarily in cool micro-climates on rocky slopes, feeding in adjacent meadows. Warmer temperatures and reduced snowpack are the main threats. Some Pikas may move to higher, cooler regions if there is enough vegetation. Pikas living in lower, warmer regions are at risk if they attempt to move to other regions as they are extremely sensitive to heat—more than two hours in temperatures over 78 °F can be lethal. Without enough winter snow for insulation, Pikas will freeze.



Leatherback Sea Turtle

Climate change impacts the Leatherback in two main ways: an increase in the temperature of nesting sands causes a greater proportion of females to hatch, destabilizing future populations; and sea level rise and stronger, more frequent storms erode nesting beaches and wash

away eggs and hatchlings. The Leatherback is also threatened from fisheries by-catch, egg collection, coastal development, pollution and ingestion of floating plastics.



Hawksbill Sea Turtle

Climate change may affect Hawksbill Turtles in various ways because they live in different habitats at different stages of life: open ocean, beaches, lagoons and coral reefs. Rising sand temperature of nesting beaches produces more females and other abnormalities in baby turtles. Adults live primarily in coral reefs—threatened by rising ocean temperature and acidity. Since ancient times the Hawksbill has been exploited for its shell. They are also threatened from fisheries by-catch, development, and a high sensitivity to oil spills. The population has decreased by an estimated 80% in the last 100 years.



Narwhal

The Narwhal lives mainly in the Atlantic Arctic. Because of specialized habitat, narrow range and limited diet (Arctic cod and halibut), it is one of the Arctic species most vulnerable to climate change. The Narwhal breeds in bays and fjords, moving offshore during winter to areas of heavy ice pack, breathing through the few cracks. Sudden or extreme temperature change can cause these cracks to freeze shut, trapping the whales. Other threats are illegal hunting, industrial activities, and risks from oil development, exploration and shipping in the Arctic.



Rusty Patched Bumble Bee

The Rusty Patched is the first bee to be listed as endangered in the US. Populations have declined as much as 87% from habitat loss, disease and pesticides. Climate threats include: warming and precipitation, early snow, late frost and drought. Bees and butterflies are important agricultural pollinators. In 2016, 40% of invertebrate pollinators (bees and butterflies) were listed as threatened with extinction.



Monarch Butterfly

The annual North American migration of the Monarch is listed as a "threatened phenomenon." Climate related threats include: drought, storms, changes in precipitation and dependence on temperature to trigger migration and reproduction. The Monarch feeds and lays eggs exclusively on milkweed plants, so it is also highly vulnerable to herbicides and habitat destruction.



Sockeye Salmon

For decades wild salmon populations have been in decline from human causes: over fishing; habitat degradation—logging, mining, agriculture and dams; pollution; and interaction with hatchery or farmed salmon. These conditions and threats may hinder their ability to adapt to the effects of climate change. Salmon thrive at specific freshwater temperatures—warming air raises water temperature. Early snow melt and increased rains cause physical changes to spawning streams.



Staghorn Coral

In the last 30 years the Staghorn Coral population has decreased by 80% from disease, pollution, development and damage. Climate change is increasing the risk of extinction. Corals live in symbiotic (mutually beneficial) relation with algae. The coral receives nutrients and oxygen from algae, and the algae receive nutrients and carbon dioxide from the coral. Rising sea temperature increases algae growth

so oxygen levels become too high for the coral, causing "bleaching"—the coral expels the algae and dies. Higher ocean acidity contributes to bleaching and also reduces the ability of corals and other marine animals to build hard shells. Other threats from climate change are sea level rise, changes in currents and storm damage.



Common Clownfish

Clownfish live in the shallow waters of coral reefs where they have a mutually beneficial relation with a few species of sea anemone. The anemone protects the Clownfish, and the fish's swimming aerates the water around the anemone. Clownfish are unable to move long distances, and rising ocean temperature and acidity is a threat to their coral reef habitats. Increased acidity also seems to impair their ability to navigate to their home anemones.



Emperor Penguin

In 50 years, the mean temperature of western Antarctica has risen nearly 3 °C—more than any other region—reducing the extent and thickness of winter ice. The Emperor Penguin is dependent on the ice for breeding, raising chicks and moulting. Less sea ice decreases zooplankton (krill) which feed on algae that grow on the underside of the ice. Krill are an important part of the food web for the Emperor and other Antarctic marine species.



Western Glacier Stonefly

Since 1960, the average summer temperature in Glacier National Park has increased by around 1 °C and glaciers have declined by 35%. By counting Stoneflies, scientists can determine how quickly glaciers are melting and the temperature of streams. In a two year search begun in 2011, scientists found the Stonefly in only one of the six streams it had previously occupied and discovered that it had retreated to two different streams at higher altitudes. Satellite data confirm that the world's glaciers are declining, affecting the availability of fresh water for humans, animals and plants, and contributing to sea level rise.



Ivory Gull

Ivory Gulls are almost entirely dependent on sea ice and glaciers for nesting and food foraging. They feed on fish and shellfish that thrive near the edge of the ice, and on the remains of seals left by Polar Bears. Seal blubber is a source of heavy contaminants—Ivory Gull eggs show a higher concentration of mercury and pesticides than any Arctic sea bird. Other threats are illegal hunting and disturbance from diamond mining in the Canadian Arctic.

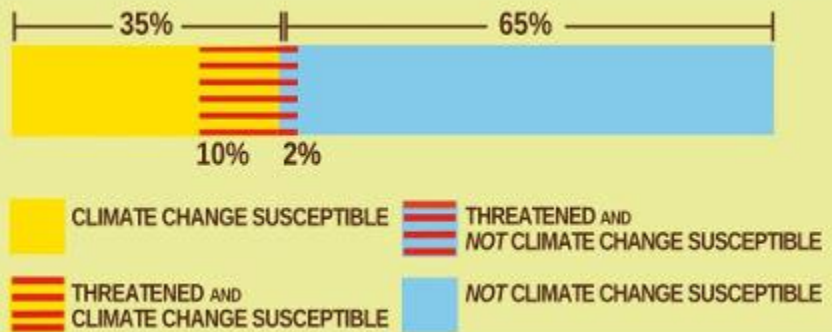


Arctic Fox

The Arctic tundra is a region of shrubs, grasses and permanently frozen subsoil. Warming could change the tundra to boreal forest—habitat for the Red Fox. The Red Fox, a predator and a competitor for food, is already beginning to migrate north into the Arctic Fox's territory. Milder tundra weather also causes changes in the population of lemmings and rodents—main food for the Arctic Fox.

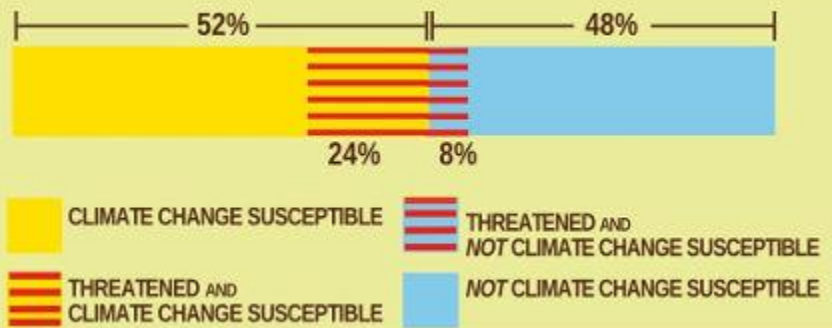
BIRDS AT RISK

35% of the world's known bird species (3,438 of 9,856) have been assessed as susceptible to climate change because of: specialized or micro-habitat, limited opportunity to disperse to new regions, and dependence on environmental cues. Ocean and coastal birds, already threatened by fishing and pollution, are particularly vulnerable because of effects to marine ecosystems, including: increasing water temperatures, increasing ocean acidity, sea level rise and storm surges. (100% of Penguin, Albatross and Petrel families are susceptible.) Wetland and arid land birds are also highly susceptible because of changes in habitats caused by warmer and drier climates. Shifts in migratory and nesting patterns attributed to climate change have been observed in 28 different species of birds in the Eastern USA.^{2, 8, 15}



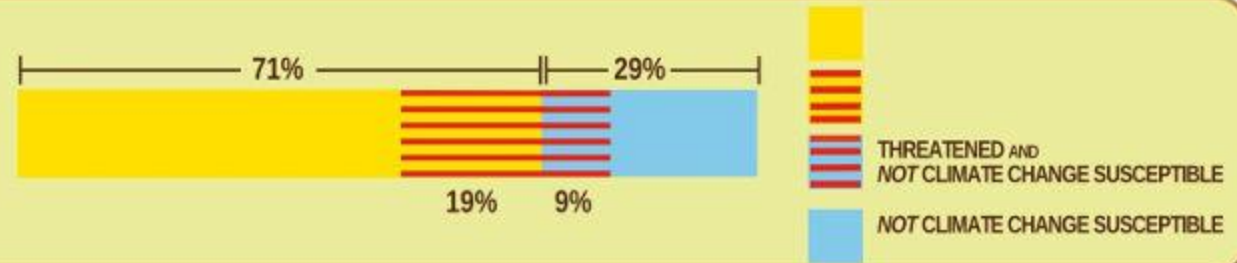
AMPHIBIANS AT RISK FROGS, TOADS AND SALAMANDERS

52% of the world's known amphibian species (3,217 of 6,222) have been assessed as susceptible to climate change because of: specialized or restricted habitat, dependence on environmental cues, limited ability to migrate and geographic barriers to migration. Over 1,000 amphibian species are susceptible to an infectious disease caused by the chytrid fungus, linked to severe population declines and possible extinctions. Some studies show that climate change is producing conditions that support the spread of the fungus.^{2, 4}



CORALS AT RISK

71% of all known reef-forming coral species (566 of 799) are assessed as susceptible to climate change—a greater proportion than any other group. Corals are highly vulnerable because of: specialized or restricted habitat; low tolerance for rising ocean surface temperature which causes bleaching; increased ocean acidity, which prevents corals from absorbing calcium carbonate needed to build hard skeletons and contributes to bleaching; vulnerability to storm damage; and poor ability to disperse.^{1,2}



REPTILES AT RISK

22% of a representative sample of reptiles (330 of 1498) have been assessed as vulnerable to climate change. Many reptiles (turtles, snakes, lizards and crocodiles) are adapted to specialized habitats and are sensitive to environmental changes. Habitat loss and exploitation currently threaten over one fifth (989 of 4220) of the world's known reptiles. Climate change is an additional, emerging threat.^{1,29}

