

# BIODIVERSITY CRISIS

**G**RADUALLY, THEN SUDDENLY—THAT WAS Ernest Hemingway's famous description of going bankrupt.

Distressingly, our life support system—nature—is on track to follow a similar pattern of collapse. Our oceans and forests; the manifold animals, plants and the complex ecosystems they create: All are approaching breaking point.

If this seems like hyperbole, it's not. As the following pages show, every indicator of the natural world is flashing code red. At stake are the foundations of economies, livelihoods, food security and health.

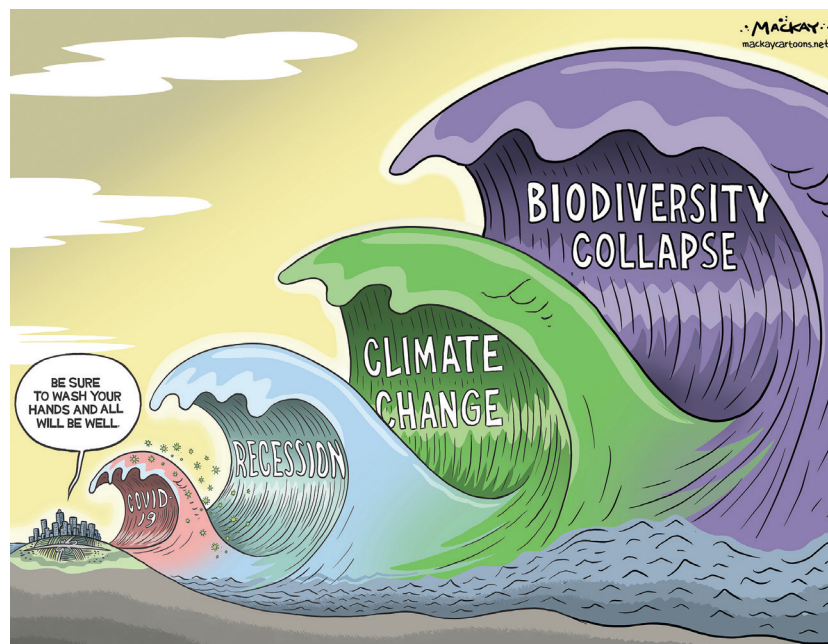
After a devastating pandemic, the economic headwinds and geopolitical tensions are severe. Energy and food costs continue to rise globally, spurring a vicious cycle: stagflation. So today, many people are more worried about the end of the month than the end of the world.

Yet an editorial cartoon (shown below) that was shared widely online in 2020 captures the challenge vividly: Acute crises don't magic away chronic ones.

The good news? Gradually, then suddenly—that is how major system transformations happen, too.

A decade ago, no country had set a net-zero target. Today, more than 130 countries representing 91% of global GDP have one. Over 550 major financial

While climate is a well-established concern, **MASS EXTINCTION** and **ECOSYSTEM COLLAPSE** loom equally large—and businesses are beginning to respond.



institutions, with \$130 trillion of assets under management, are now committed to transition their portfolios to net zero.

And just as a tipping point for climate action has been established in recent years, now we are approaching one for nature. A new consensus is emerging that our global economy must not just become net zero but also nature positive.

At the close of 2022 in Montreal, Canada, more than 190 countries came together for the UN Biodiversity Conference to forge a new global deal to reverse nature loss. With an ambitious pledge to conserve 30% of the world's land and oceans by 2030, the agreement was considered by many to be transformational, in a way that echoes the global commitment to the Paris Agreement on climate.

Beyond the conference hall, awareness of the biodiversity crisis is growing and pressure is mounting—from regulators, investors and customers—for





## THE DATA

# The 6th Mass Extinction

Scientists have warned that the biodiversity crisis is now so severe that we are witnessing Earth's sixth mass extinction event.

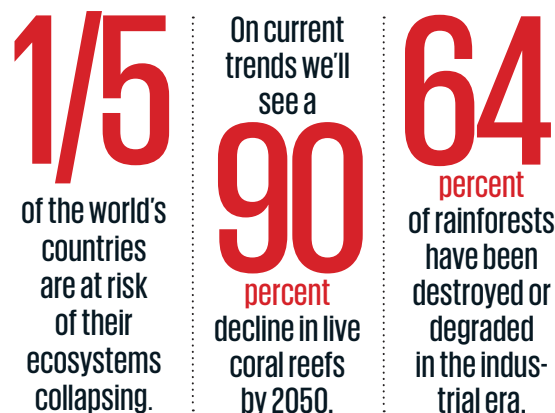
Biodiversity is the number and variety of living things on earth, and how they interconnect to create balanced natural environments that provide us all with oxygen, water, food and countless other benefits.

It is natural that species die off over time and nature slowly replaces what has been lost. What is different about a mass extinction event is that 75% of all species die out in a short period of geological time. The last one marked the end of the dinosaurs.

The United Nations says of the estimated 8 million plant and animal species on Earth up to 1 million species are now at risk of extinction—many of them within decades.

## ECOSYSTEM COLLAPSE

Even major ecosystems—wetlands, rainforests, coral reefs—are collapsing. In these areas, plants, animals and other organisms interact with geography and each other in a delicate balance of life. Like dominoes, the rapid decline of some species can precipitate the decline of others and the downfall of an entire ecosystem.



SOURCES: Swiss Re, UN Environment Programme, Rainforest Foundation Norway

business to become part of the solution.

The spotlight is on four key industries: food, energy, infrastructure and fashion. Together they currently drive 90% of biodiversity loss. Many business leaders are realizing that the thriving companies of tomorrow will be those who move now and innovate to protect and restore the natural systems that underpin their long-term resilience and our existence.

Nature is the focus of the fourth *Brunswick Social Value Review*, in which we explore the topic through a range of voices, geographies and sectors. We hear from companies in the vanguard as well as experts who have been studying these issues for decades.

Yet “nature” and “biodiversity” are such broad terms and topics that it can be helpful to set some context. What is the biodiversity crisis, exactly, and why does it matter? What's it got to do with businesses, and how can they respond? We highlight some of the key datapoints in the following pages.

**A deforested and burned area stretches along the Trans-Amazonian Highway in Brazil. Forest fires in the region are more frequent as temperatures rise.**



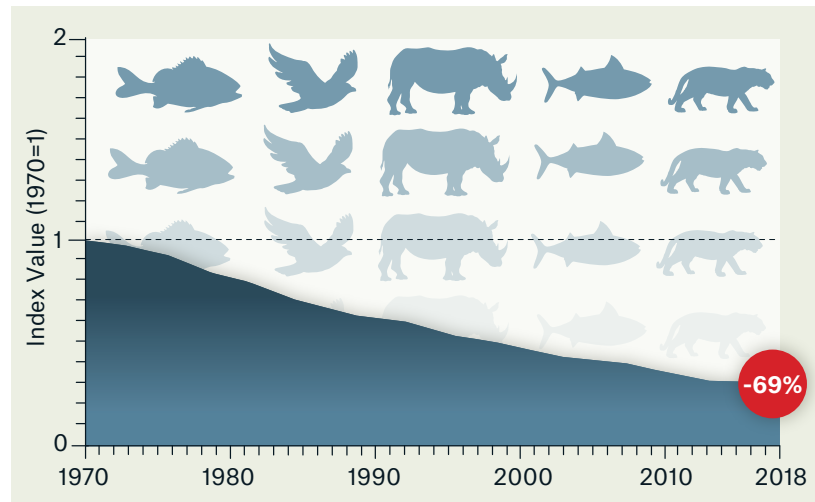
# SPECIES Decline

## ANIMALS

Even animals that aren't at immediate risk of extinction are nonetheless depleting fast, causing the threat of ecosystem collapse:

- The World Wildlife Fund's "Living Planet Report" showed that wildlife populations—mammals, birds and fish—have declined by almost 70% since 1970.

Plants, animals and insects form the natural foundations of all human activity—**AND THEY ARE IN PERIL.**



SOURCE: WWF/Zoological Society of London

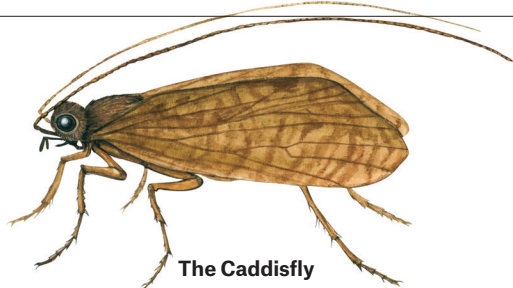


## PLANTS

While public attention and outcry usually focus on animal extinction, plant species are a fundamental part of the ecosystem picture and are also threatened:

- Plant extinction is happening 500 times faster than it would without human activity, according to a study in *Nature Ecology & Evolution*.
- Today, scientists estimate over 40% of the world's roughly 320,000 plant species are at risk of extinction, many within decades.

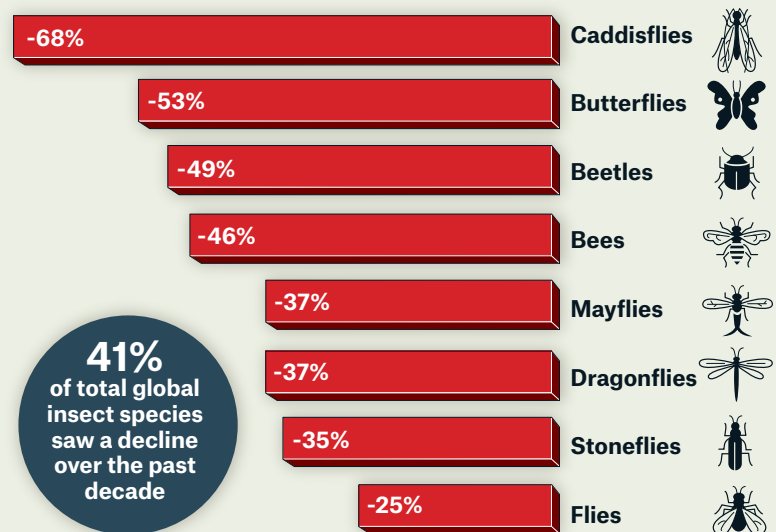
## INSECTS



Insects are by far the most varied and abundant animals and are essential to the functioning of life on earth, yet, according a recent study published in the journal *Biological Conservation*:

- More than 40% of insect species are declining and a third are endangered.
- The world's insect population is falling by 2.5% a year. If this rate continues: In 10 years 25% will be gone, in 50 years 50% will be gone and in a century all could have vanished entirely.

### Percentage decline in selected global insect populations over the past decade



SOURCE: Sánchez-Bayo, Wyckhuys, Biological Conservation

## THE VALUE AT STAKE

It's not just that we'll lose precious animal species, corals and rainforests. Nature loss is a system risk that threatens the foundations of human life: our food, our climate, our health and our economies.

### Food Security

- The World Bank finds more than 75% of crops rely on pollinators, many of which are disappearing.
- Over 3 billion people depend on marine and coastal biodiversity for both their meals and livelihoods, yet fish stocks are dangerously overfished.

### Economic Resilience

- Moody's sees biodiversity loss as the "next frontier" in risk management. Studies from the University of Cambridge show the loss of nature could severely cut more than half of the world's sovereign credit ratings and even threaten bankruptcies.

The value biodiversity creates is estimated at  
**150**  
trillion dollars annually.

A nature-positive economy by 2030 could unlock 10 trillion dollars in value and  
**395**  
million jobs.

More than  
**1/2**  
of the global GDP—44 trillion dollars—depends on nature.

SOURCE: World Economic Forum, Boston Consulting Group

**The message is clear:** Our economy and livelihoods can only be as resilient as the system they're part of. Indeed, Dr. Simon Zadek at Nature Finance argues that such calculations are essentially a distraction. "100% of the economy is 100% dependent on nature—the risk is existential," he says.

### Climate Change

Our land and oceans are invaluable carbon sinks—currently absorbing half of man-made carbon emissions. But by destroying nature, this capacity is being steadily eroded, leading to a vicious cycle:

- Deforestation alone accounts for around 11% of our annual emissions according to the influential Intergovernmental Panel on Climate Change.
- Analysis found that bottom trawling, a widespread fishing practice, releases as much CO<sub>2</sub> as aviation.
- Shockingly, the Brazilian Amazon now emits more carbon than it absorbs as rapid deforestation outweighs carbon capture by remaining trees.



Dense smog shrouds the Bandra-Worli Sea Link in Mumbai. World Health Organization data indicates that 99% of the global population breathes unhealthy air.

## WHAT'S DRIVING THE CRISIS?

The landmark 2019 report from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) highlights five core drivers of the nature crisis.

### 1. Changes in land and sea use

- Research from the University of Cambridge shows deforestation and land conversion for farming and human settlements have destroyed a fifth of wildlife habitats since 1700, with a big acceleration since 1960.

### 2. Direct overexploitation of species

- Practices such as the illegal wildlife trade and overfishing are key drivers of biodiversity collapse.
- The Food and Agriculture Organization (FAO) estimates almost 90% of fish stocks are overfished or depleted.

### 3. Climate change

- Shifts in temperature, rain and wind flows caused by climate change are key drivers of species decline, creating a dangerous feedback loop.

- These extreme pressures on biodiversity are becoming clearer each day: rising ocean acidification and desertification, melting ice landscapes and catastrophic events such as floods, wildfires or droughts.

### 4. Pollution of soil, water and air

- One third of the Earth's soils are degraded according to the FAO.
- Plastic could outweigh fish in the world's oceans by 2050.
- World Health Organization data shows that 99% of the global population breathes unhealthy air that exceeds WHO air quality limits.

### 5. Spread of invasive species

- The National Wildlife Foundation found that 42% of endangered or threatened species are put under pressure by invasive species. And human activities, often inadvertently, are the main cause—for example, releasing pets into the wild or expelling ballast water from cargo ships.