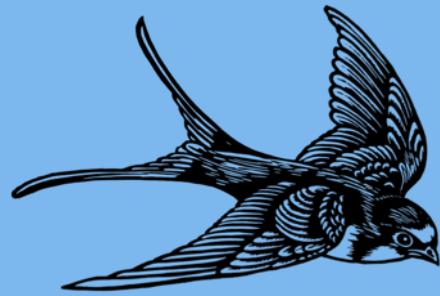
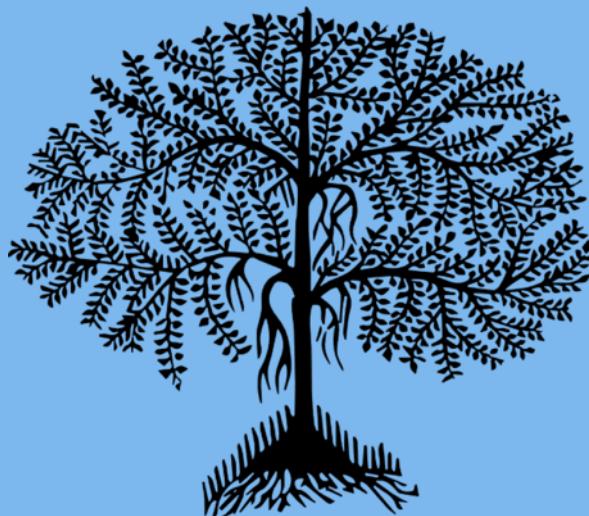


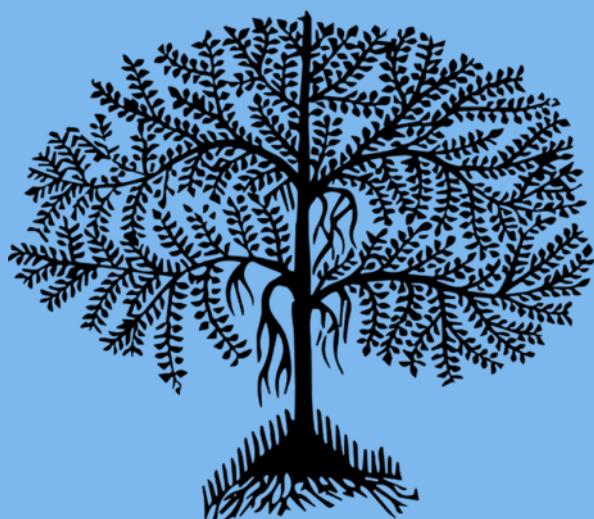


**WHY DOES XR EXIST?  
WELCOME TO  
HEADING FOR EXTINCTION  
:(OUR MOST DEPRESSING PRESENTATION)**

# INFORMATION IN THIS TALK MIGHT LEAD TO YOU FEELING...

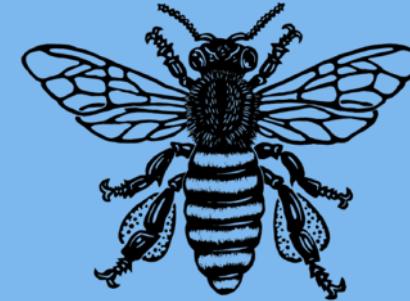
- Grief
- Anger
- Denial
- Numbness
- Shock
- Relief...





# Relief...

**...if you look at  
the what to do  
presentation that  
follows**



# THE EARTH IS OUR ONLY LIFE SUPPORT SYSTEM



**WE ARE IN THE PROCESS OF DESTROYING IT**



**WE ARE DESTROYING ITS CLIMATE**

**WE ARE DESTROYING ITS ECOLOGY**

**WE ARE DESTROYING OUR FUTURE**

# FIRST LET'S LOOK AT CLIMATE



# GREENHOUSE GASES KEEP EARTH WARM



Carbon dioxide

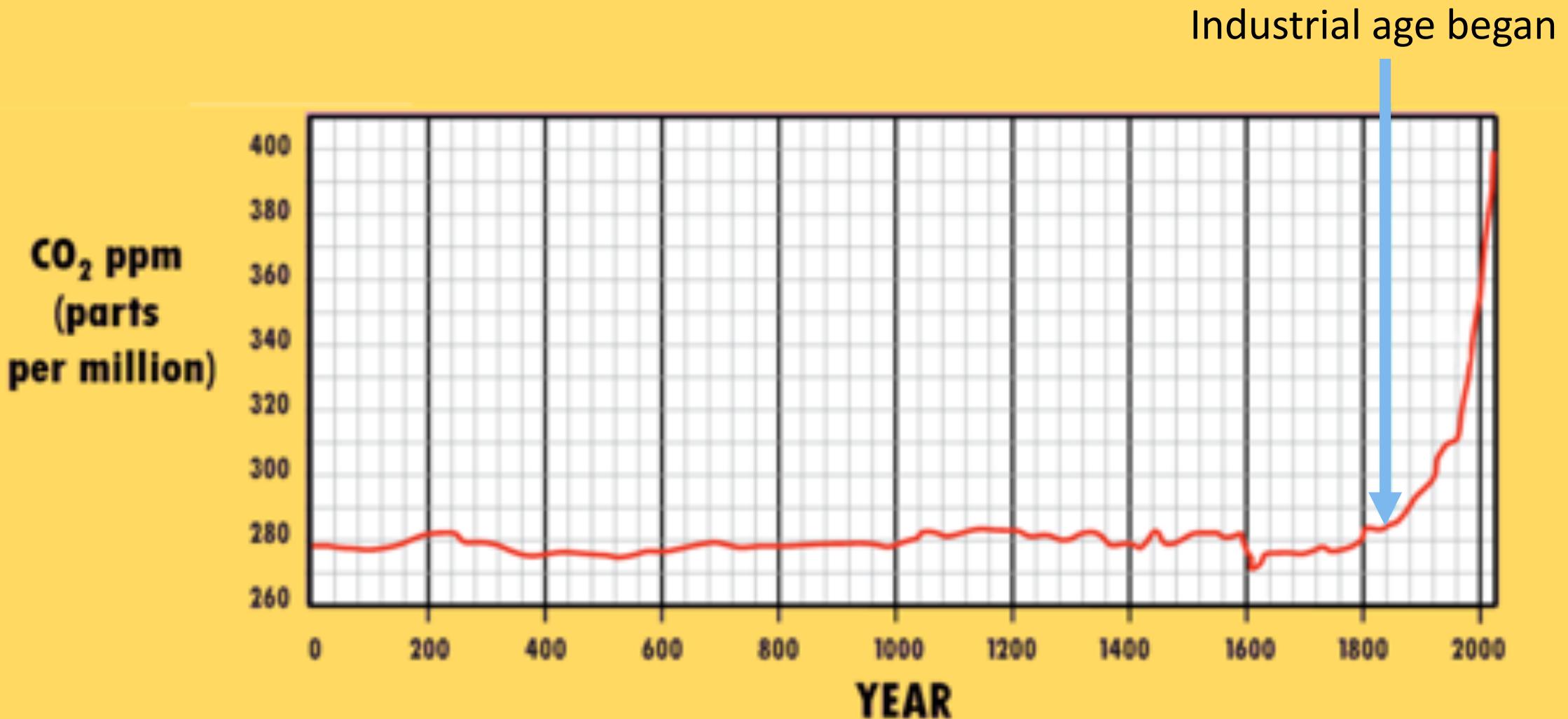
Methane

Water vapour

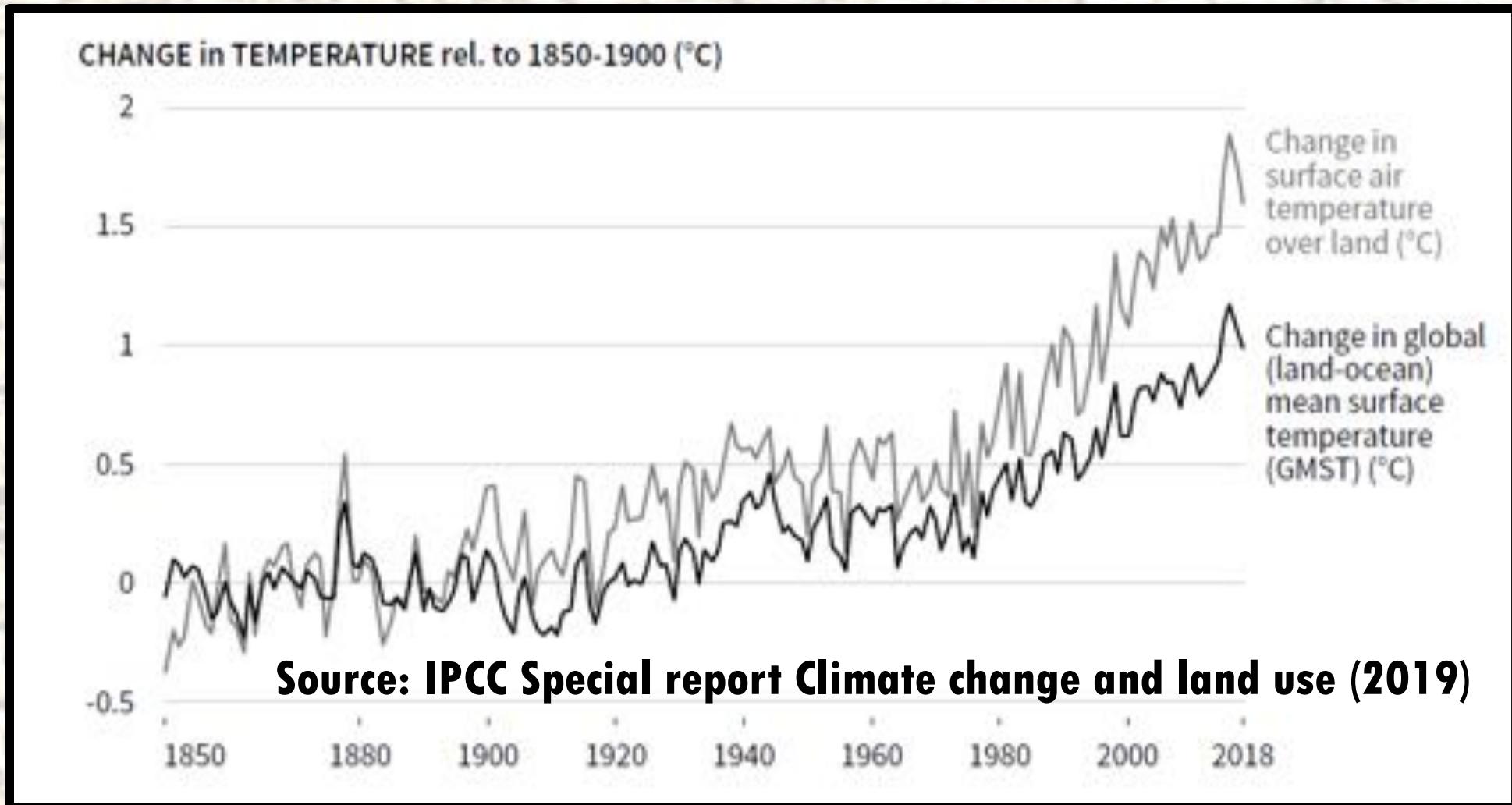
**WE HAVE BEEN PUMPING GREENHOUSE GASES INTO THE  
ATMOSPHERE AND THE EARTH IS GETTING HOTTER**

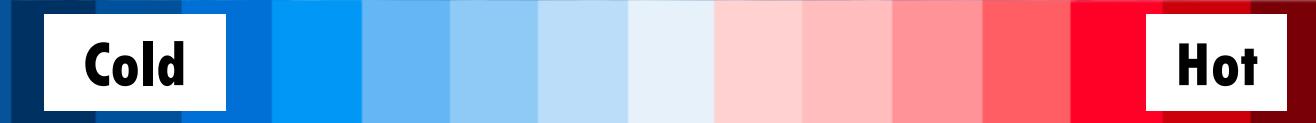


# GREENHOUSE GAS EMISSIONS ARE SKYROCKETING



# GLOBAL TEMPERATURES ARE SKYROCKETING





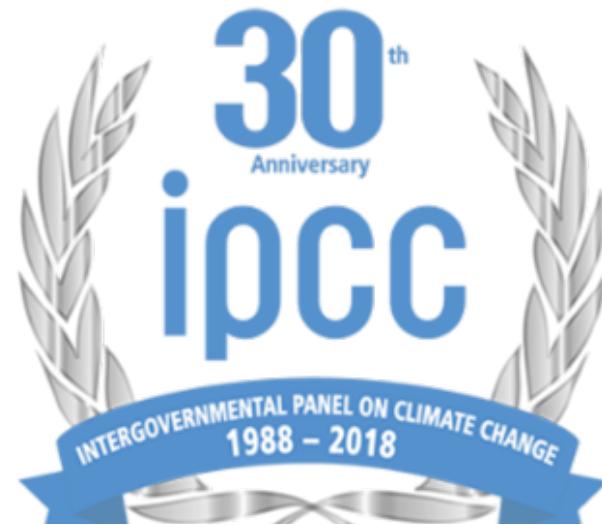
**“Warming stripes”**  
**1850-2017**  
**by Ed Hawkins**



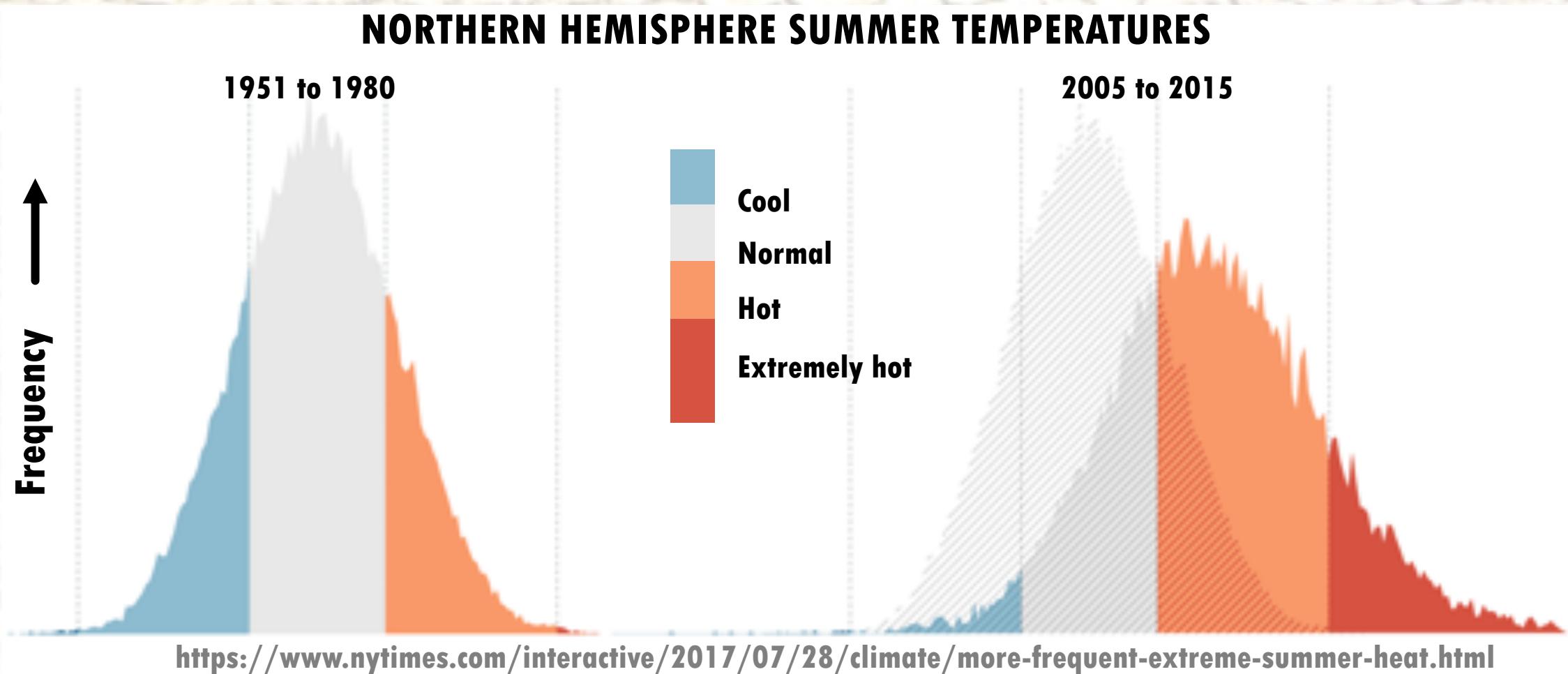
NEWS · 08 OCTOBER 2018

# IPCC says limiting global warming to 1.5 °C will require drastic action

Humanity has a limited window in which it can hope to avoid the worst effects of climate change, according to climate report.



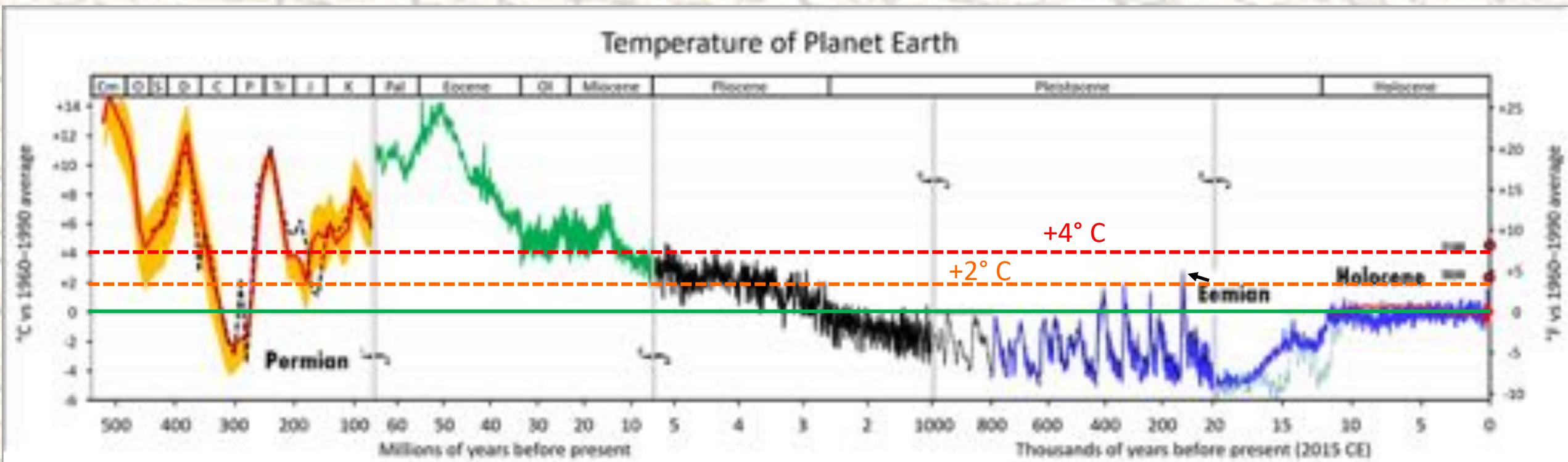
# WHY THE FUSS ABOUT SUCH A SMALL TEMPERATURE RISE?



**Because even a small change in an average temperature can produce a large change in extreme weather events and climates**

# WE HAVEN'T SEEN +2°C FOR 130000 YEARS...

...and +4°C for several million years



# HEATING IMPACTS ALREADY BEING FELT GLOBALLY



# **IMPACTS ALREADY BEING FELT IN THE EUROPE**



- **2003 Heatwave killed 70000 Europe-wide**
- **2014 Worst rainfall in 248 years**

- **2021: Hottest summer on record in Europe**
- **Accident & emergency saw record numbers**
- **Rise in heart failure, kidney failure and dehydration**





# WHAT HAPPENS IF WE CONTINUE HEATING UP THE EARTH?





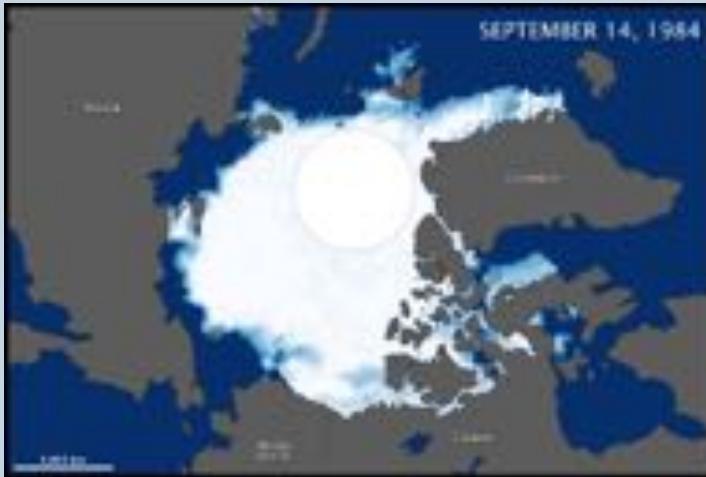
# CONSEQUENCES FOR “BUSINESS AS USUAL”



- Accelerating sea level rise due to melting ice and thermal expansion; coastal flooding & storm surges
- Stronger atmospheric weather systems with strong storms, droughts, wildfires, desertification & crop failure
- Deaths due to heat stress
- Famine, water shortages, displacement of people from their homes
- War

# AMPLIFIERS THAT MAY TRIGGER FURTHER HEATING

**Ice loss reducing cooling**



**Methane release from frozen stores**



# THAT WAS ONLY HALF OF THE PROBLEM...



WE ARE ALSO DESTROYING THE PLANET'S ECOLOGY



THE EARTH HAS **LAND** AND **OCEAN** ECOSYSTEMS  
AND WE ARE DESTROYING BOTH



# HIGH-INTENSITY AGRICULTURE HAS REPLACED WILDERNESS



# **DE-FORESTATION IS REDUCING CARBON DRAWDOWN, BIODIVERSITY & MOISTURE RETENTION**



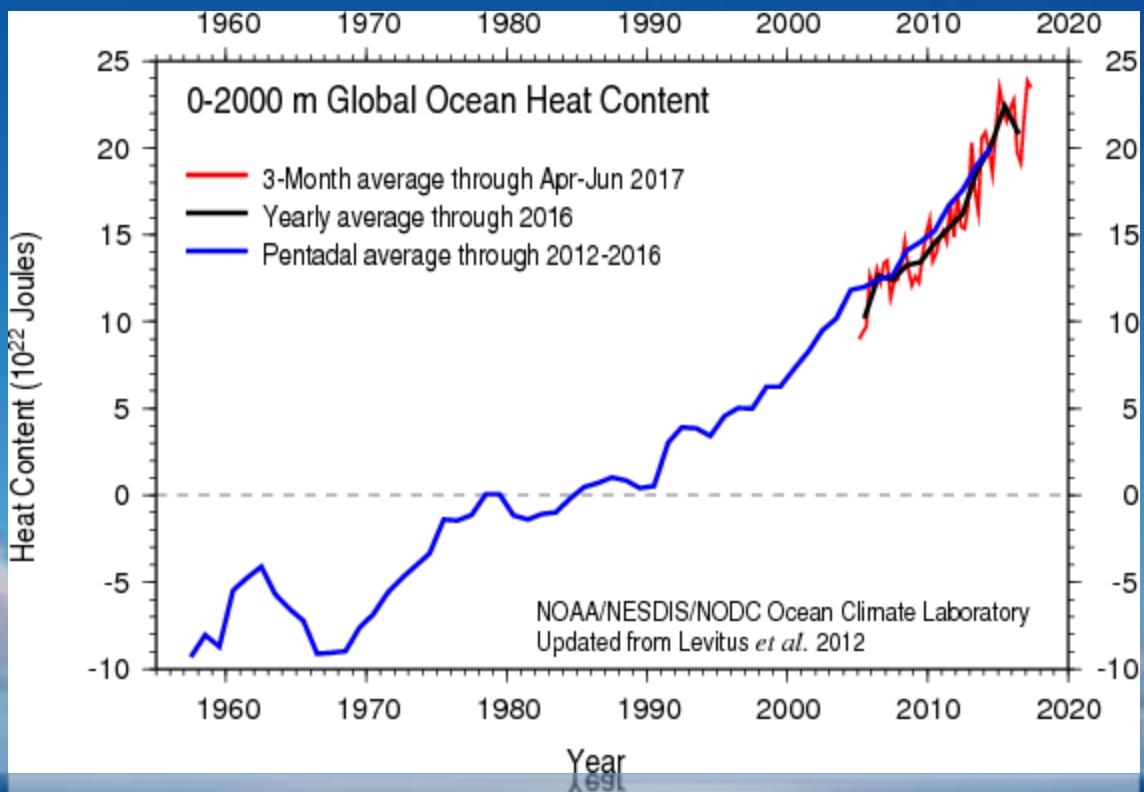
**THE END RESULT OF THESE PROCESSES IS DESERTIFICATION**



# OCEANS ARE EQUALLY VITAL TO OUR SURVIVAL



The oceans are a carbon sink and  
supply much of our food  
海水は私たちの命を救う  
The oceans are a carbon sink and



Ocean heating reduces dissolved O<sub>2</sub>, increases acidity, kills ecosystems, disturbs ocean currents and melts icecaps

# WE HAVE BEGUN EARTH'S 6<sup>TH</sup> MASS EXTINCTION

## NEWS

Home UK World Business Politics Tech Science Health Family & Education

Science & Environment

### Nature crisis: Humans 'threaten 1m species with extinction'

By Matt McGrath  
Environment correspondent, Paris

© 8 May 2019

f o v e Share



## One in four species are at risk of extinction

Species assessed by the IUCN Red List



Amphibians  
**40%**



Conifers  
**34%**



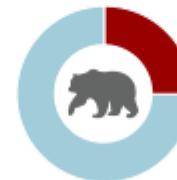
Reef corals  
**33%**



Sharks and rays  
**31%**



Selected crustaceans\*  
**27%**



Mammals  
**25%**



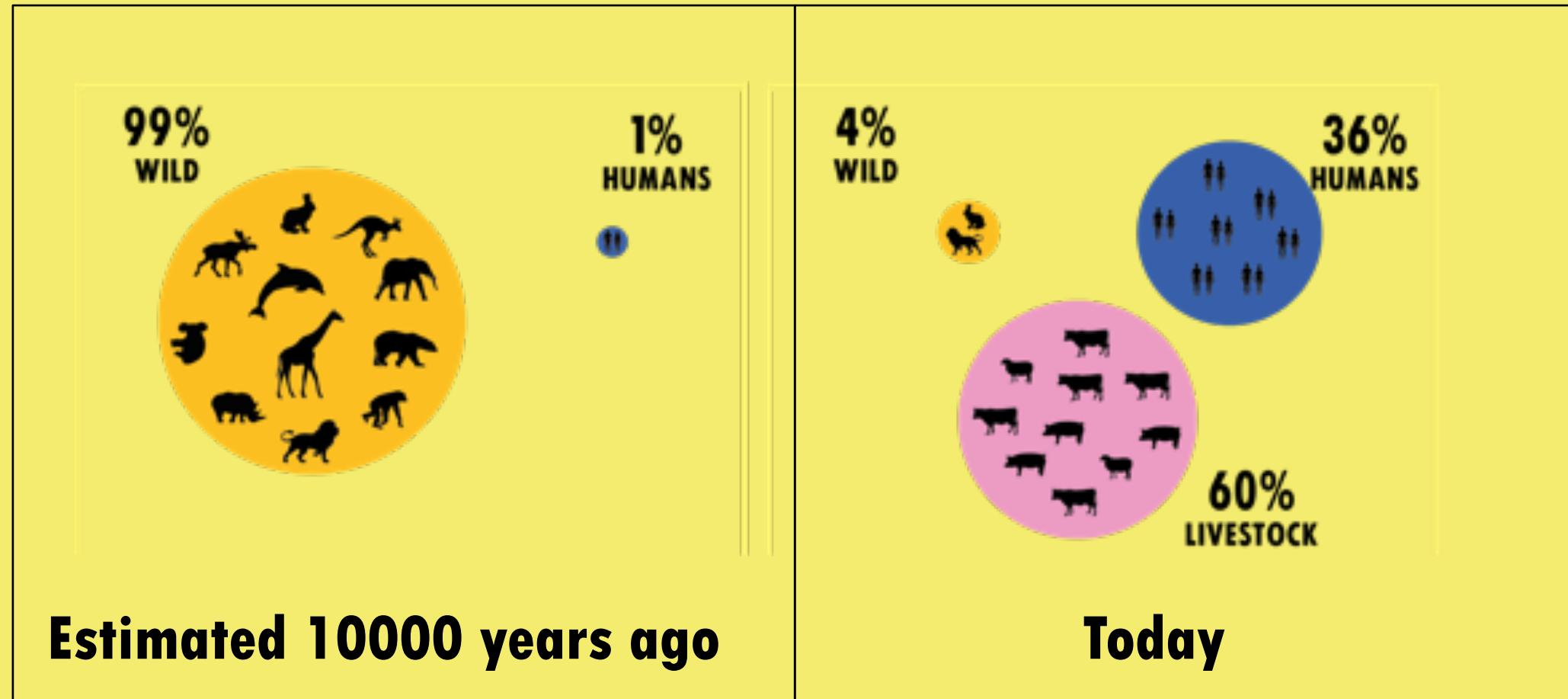
Birds  
**14%**

\*Assessed species include lobsters, freshwater crabs, freshwater crayfishes and freshwater shrimps

Source: IUCN Red List of Threatened Species

BBC

# MOST MAMMALIAN BIOMASS (FLESH) IS NO LONGER WILD



Data from Bar-On YM, Phillips R, Milo R (2018) PNAS 115:6506–6511.

**WE INHERITED A WORLD OF RICHNESS THAT OUR  
DESCENDANTS MAY NOT GET TO ENJOY**



**AND BY DESTROYING OUR FOOD WEB, WE ARE  
DESTROYING OUR OWN FUTURES**





THAT WAS A  
DOWNER.



YOU MIGHT WANT TO CHECK  
OUT OUR "WHAT DOES XR  
DO?" PRESENTATION.





WHICH WILL PROABLY  
MAKE YOU FEEL BETER AND  
SHOW YOU WHAT TO DO  
ABOUT THIS.