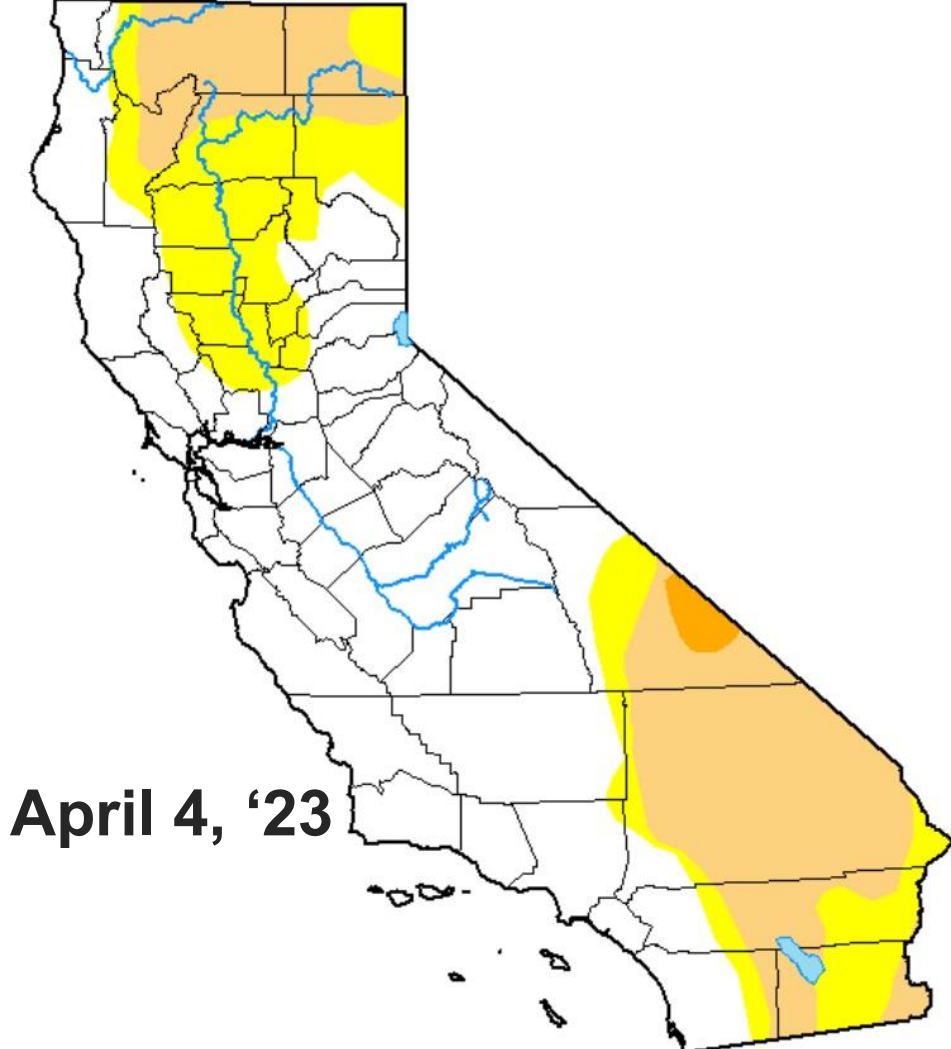
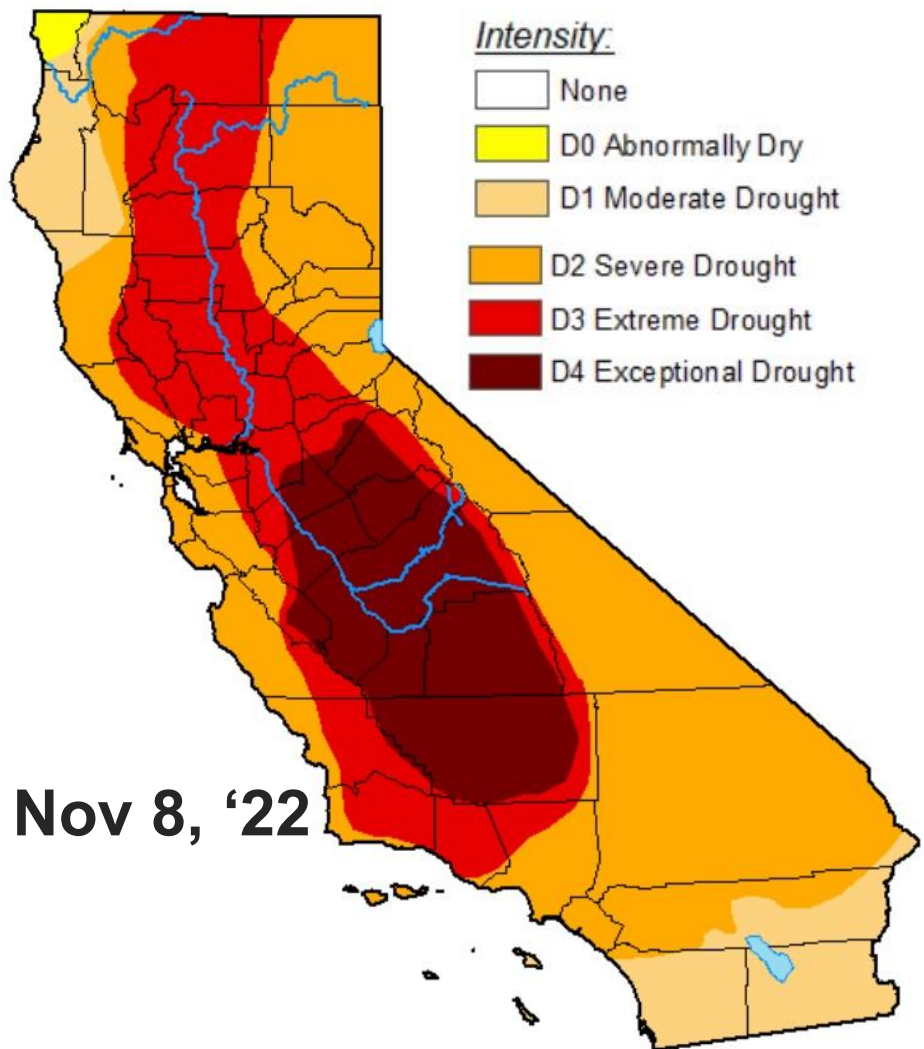
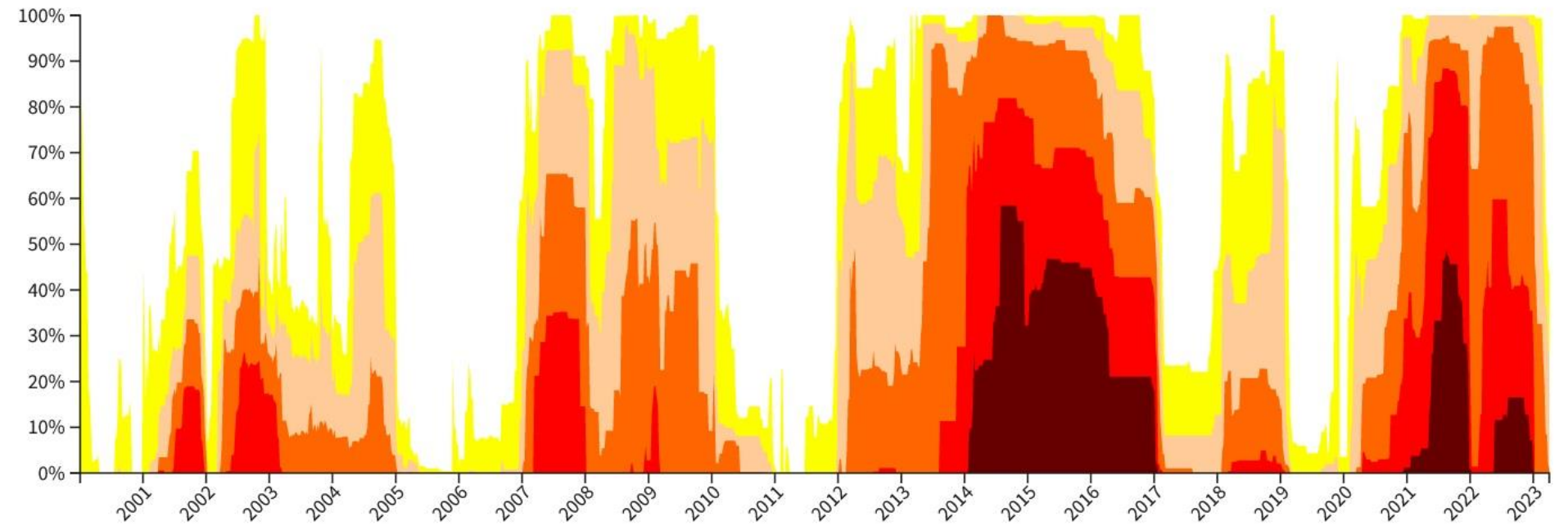






AP Photo/Noah Berger





Climate Change, SF Bay Birds, & Real Solutions



Juan Pablo Galván Martínez

GOALS

1. Birds

2. Motivate Axn

3. What/How Axn



Great Gray Owl

SURVIVAL BY DEGREES:
**389 Bird Species
on the Brink**



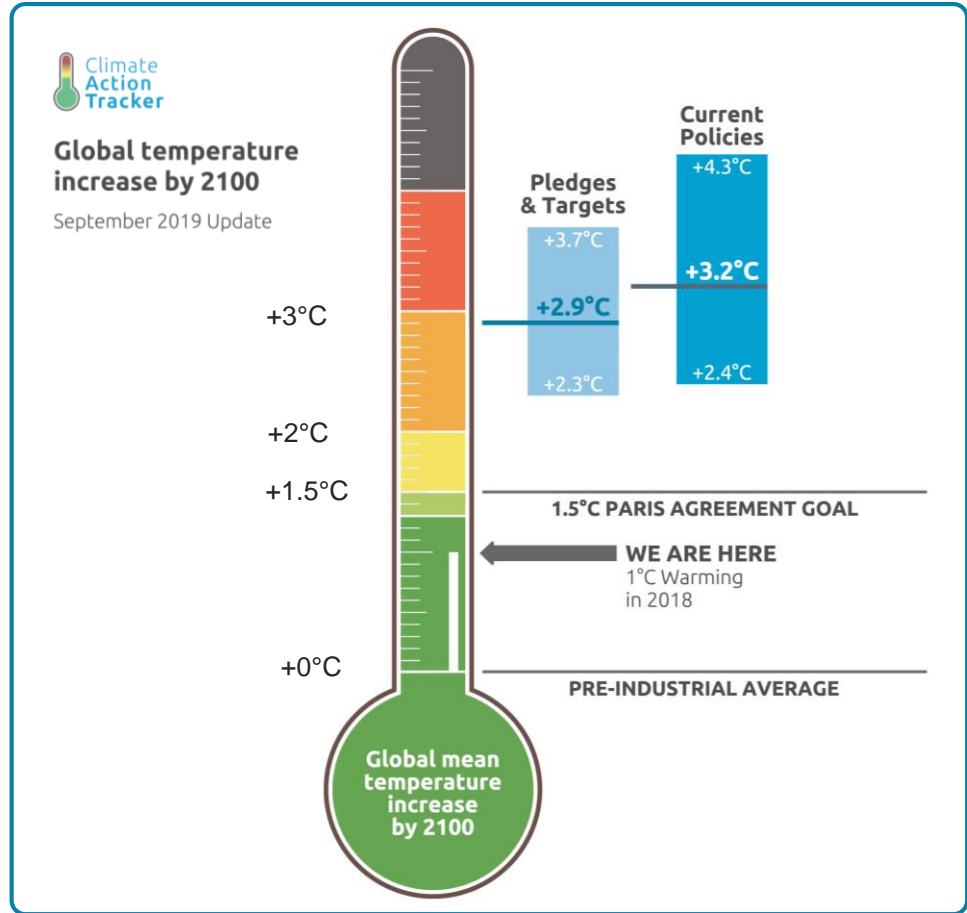
09.10.2019

Survival by Degrees: warming scenarios for future projections

1.5°C (2.7°F)

2°C (3.6°F)

3°C (5.4°F)



Vulnerable Birds in Alameda County

Warming scenario:

- +1.5 °C
- +2.0 °C
- +3.0 °C

[Why these temperatures?](#)

Season:

Summer ▾

[What is a season?](#)

High Vulnerability Species

22

Moderate Vulnerability Species

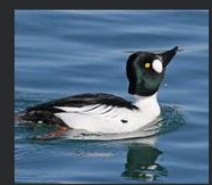
44

Low Vulnerability Species

40

Stable Species

66



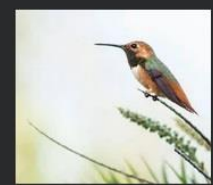
Common Goldeneye



Eared Grebe



Vaux's Swift



Allen's Hummingbird



Northern Pygmy-Owl



Acorn Woodpecker



Nuttall's Woodpecker



Olive-sided Flycatcher



Western Wood-Pewee



Cassin's Kingbird



Yellow-billed Magpie



Bushtit

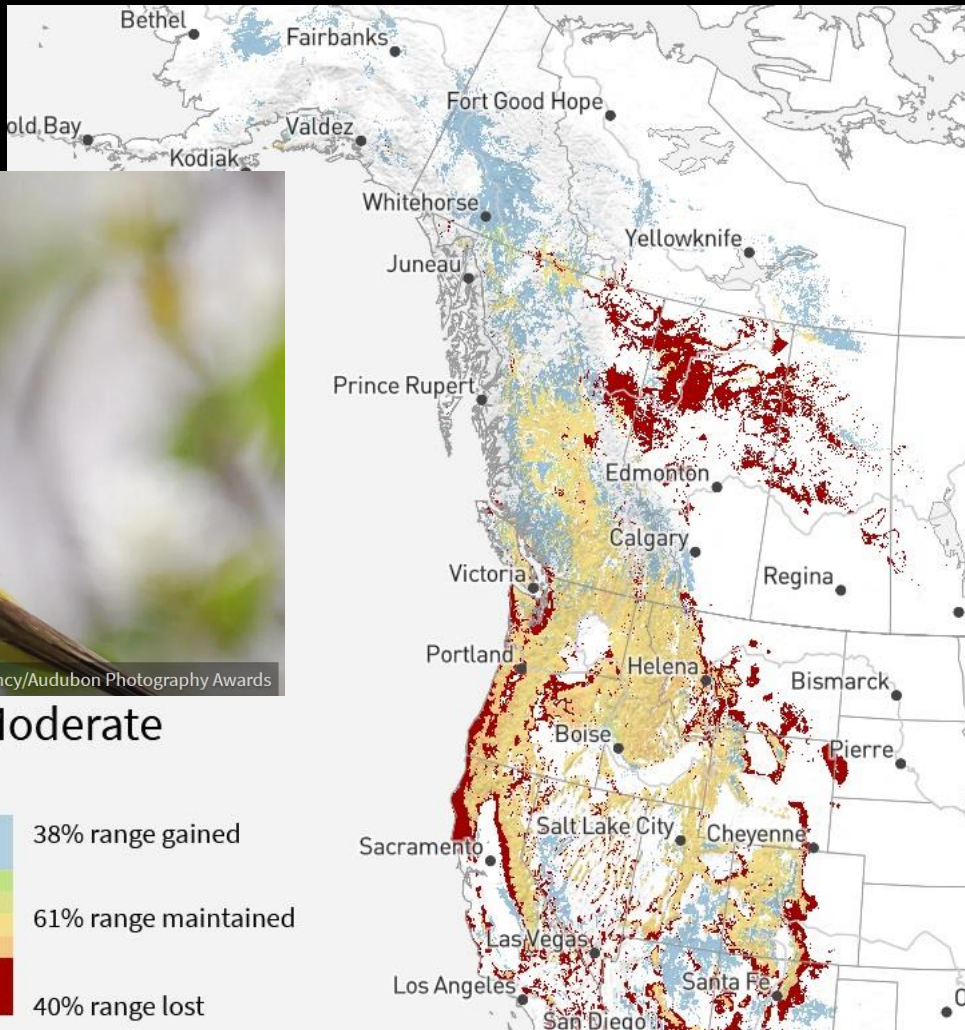


Pygmy Nuthatch



Swainson's Thrush

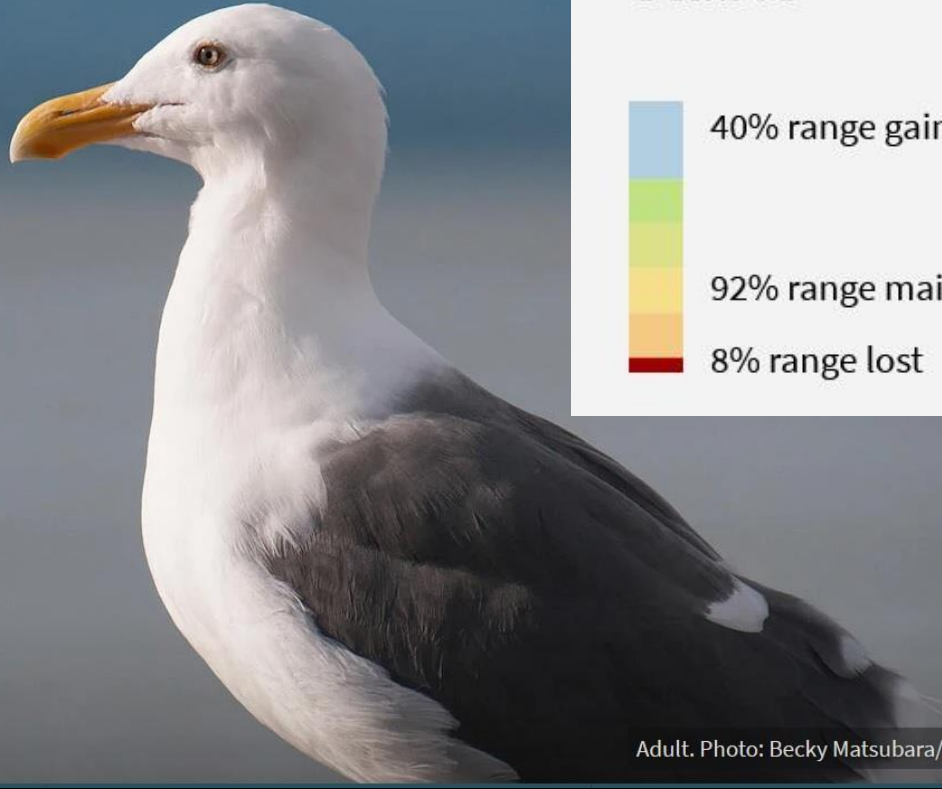
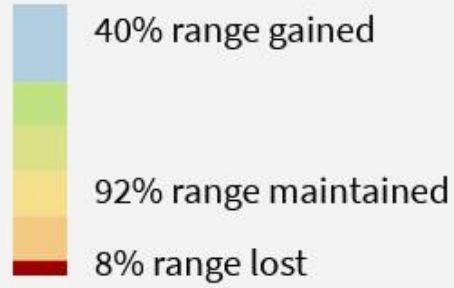
3 C - Summer



Moderate



Stable



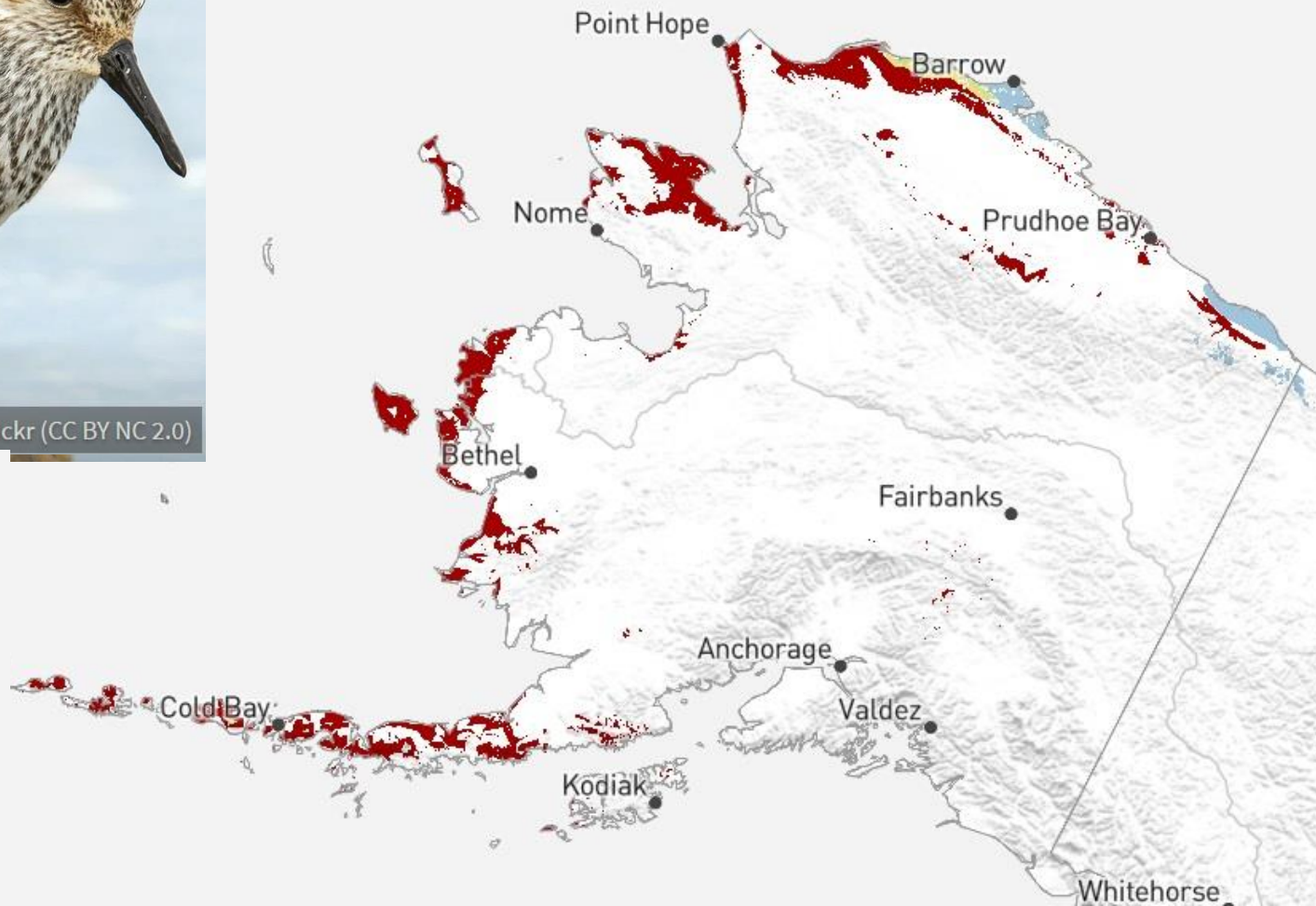
Adult. Photo: Becky Matsubara/Flickr (CC-BY-2.0)

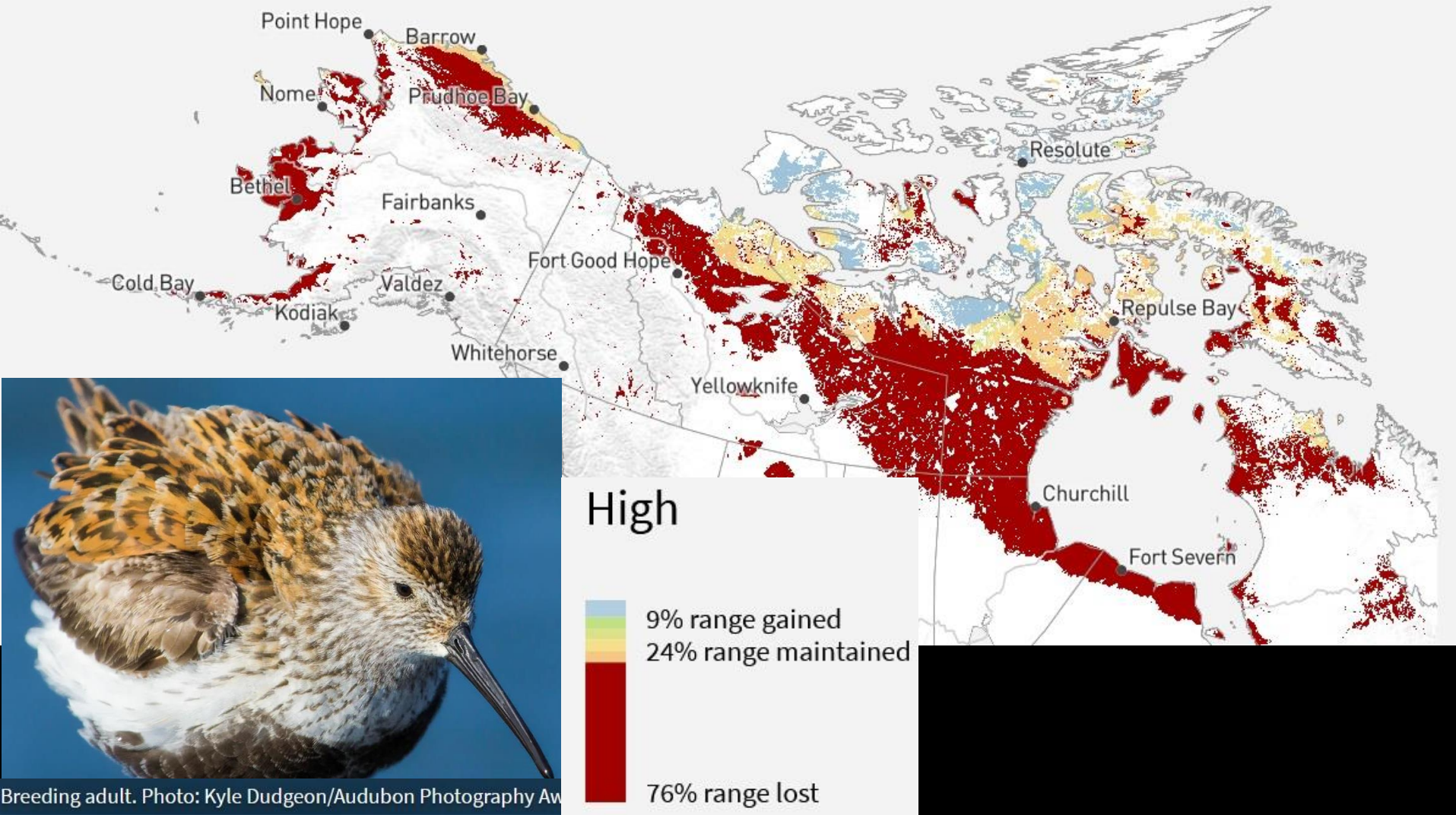




Breeding adult. Photo: Mick Thompson/Flickr (CC BY NC 2.0)

High







Mitchell Canyon Is Great For Birds

- 121 regularly occurring species (44% are migratory)
 - 37 (31%) are Spring migrants
 - 16 (13%) are Winter migrants

What Happens to Mitchell
Canyon Species on a Global
Scale (ie, species extinction)?

	BIG Trouble	Trouble	OK
TOTAL	19 (16%)	52 (43%)	50 (41%)
Resident	7 (10%)	25 (37%)	36 (53%)
Spring Migrants	10 (27%)	14 (38%)	13 (35%)
Winter Migrants	2 (13%)	13 (81%)	1 (6%)

Who's in BIG Trouble (Extinction)?

- Many Spring migrants, N breeders, CA near-endemics

Band-tailed Pigeon	Olive-sided Flycatcher	Swainson's Thrush
Vaux's Swift	Western Wood-Pewee	Fox Sparrow
Rufous Hummingbird	Hammond's Flycatcher	Golden-crowned Sparrow
Allen's Hummingbird	Bushtit	Townsend's Warbler
Calliope Hummingbird	California Thrasher	Hermit Warbler
Acorn Woodpecker	Western Bluebird	
Nuttall's Woodpecker	Townsend's Solitaire	



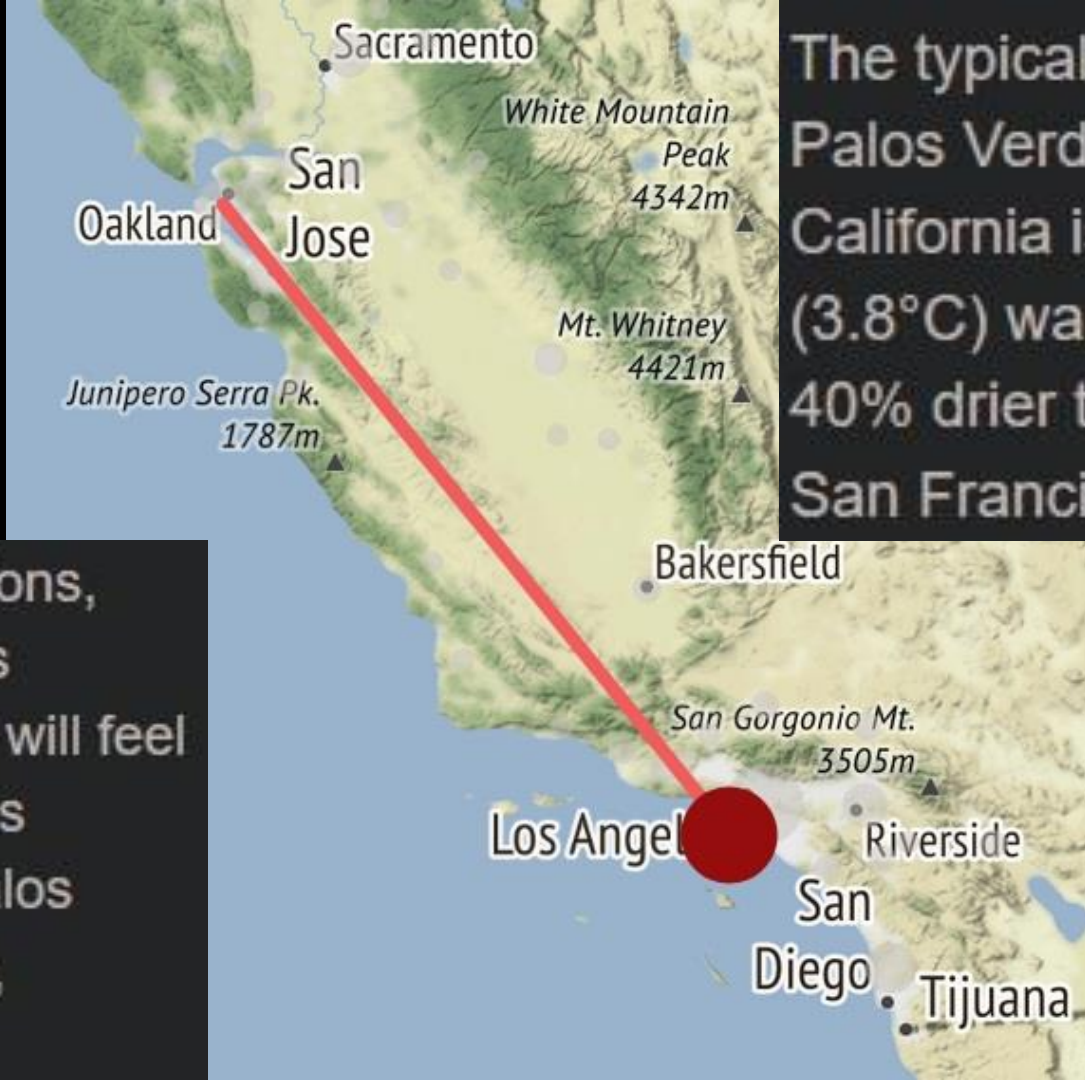
Adults. Photo: Betsy Bass/Great Backyard Bird Count

Will Species Disappear from Mitchell Canyon?

Just because a species will be ok elsewhere, doesn't mean it'll be ok here. And vice versa.

36 (30%) species likely lost.

California Quail	Pacific-slope Flycatcher	Swainson's Thrush
Wild Turkey	Steller's Jay	American Robin
Allen's Hummingbird	Chestnut-backed Chickadee	Purple Finch
Golden Eagle	Oak Titmouse	American Goldfinch
Northern Harrier	Tree Swallow	Dark-eyed Junco
Sharp-shinned Hawk	Violet-green Swallow	California Towhee
Downy Woodpecker	Wrentit	Western Meadowlark
Nuttall's Woodpecker	Golden-crowned Kinglet	MacGillivray's Warbler
Hairy Woodpecker	Red-breasted Nuthatch	Yellow Warbler
Northern Flicker	Pacific Wren	Black-throated Gray Warbler
Olive-sided Flycatcher	Townsend's Solitaire	Wilson's Warbler
Western Wood-Pewee	Varied Thrush	Western Tanager



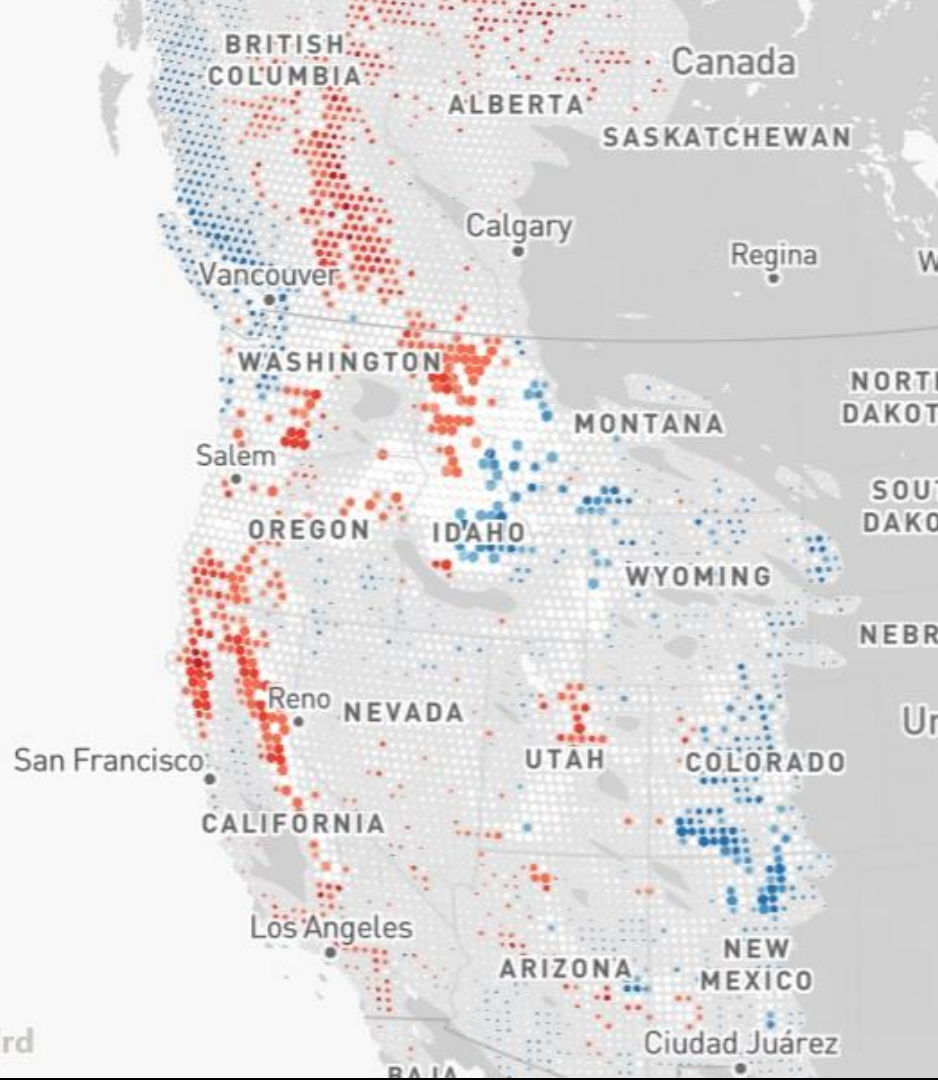
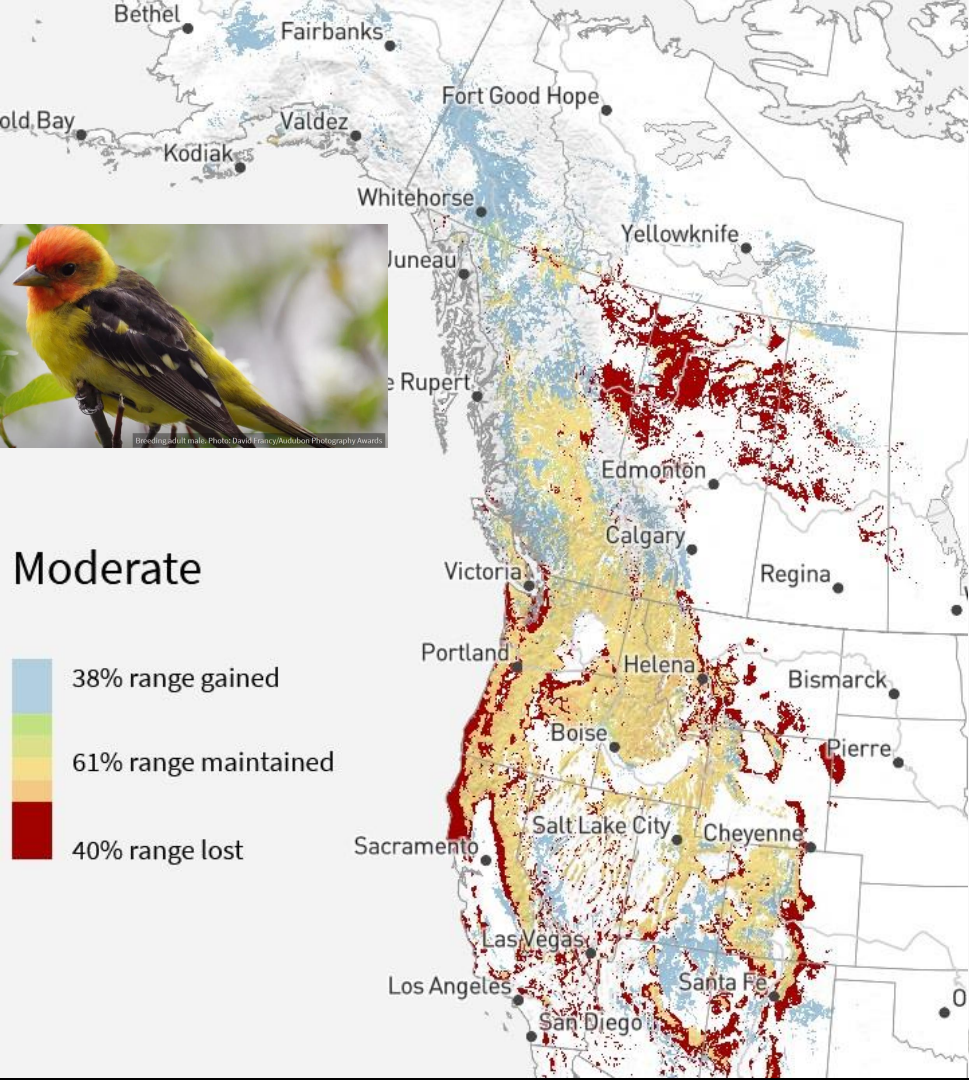
The typical winter in Palos Verdes Estates, California is 6.9°F (3.8°C) warmer and 40% drier than winter in San Francisco.

For high emissions, San Francisco's climate in 2080 will feel most like today's climate near Palos Verdes Estates, California.



Two-thirds of North American Birds are at increasing risk of extinction from global temperature rise.

Survival by Degrees: 389 Species on the Brink



Conservation: the news...is not so good

Thanks to
Master
Birder Class
Instructors
Eddie B,
Jack D &
Bruce M for
these
slides!!!



-17%
**EASTERN
FOREST BIRDS**



-23%
**ARCTIC
TUNDRA BIRDS**



-29%
**WESTERN
FOREST BIRDS**



-33%
**BOREAL
FOREST BIRDS**



-37%
SHOREBIRDS



-53%
**GRASSLAND
BIRDS**



Population loss from 1970 to 2019 (50 years)

Audubon Report: 389 Species are
vulnerable to extinction from climate
change (of 604 species studied)

Where Do I Go From Here?

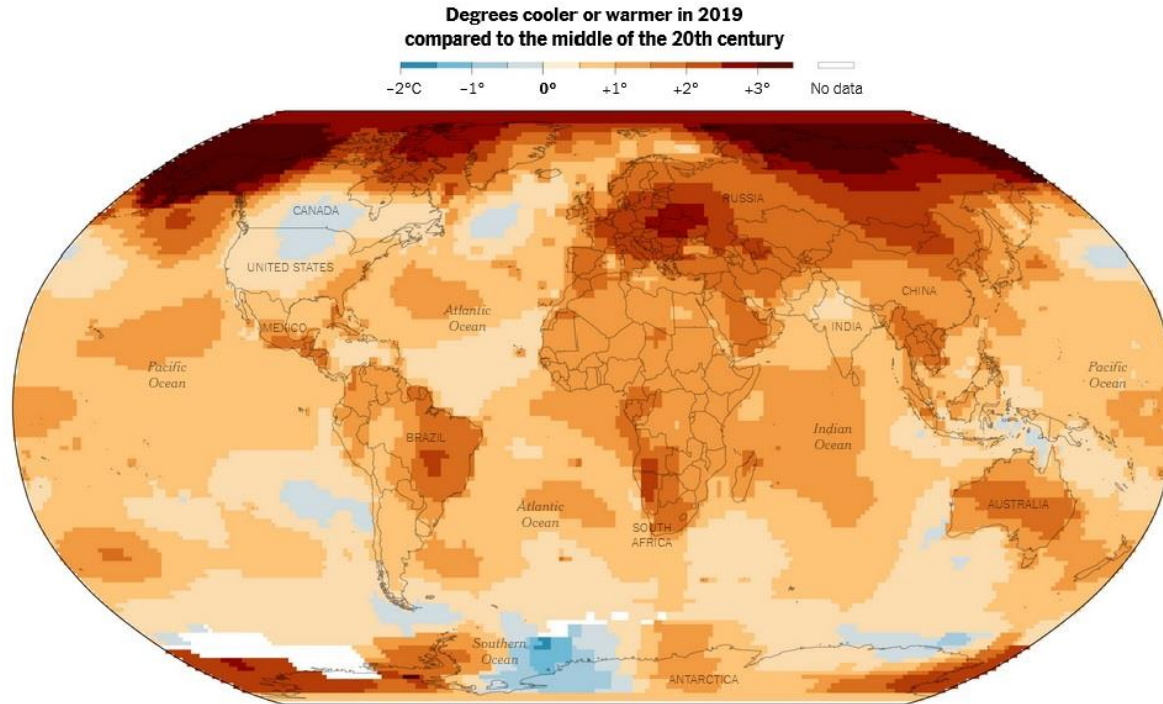
So...question time

Analysis: Global CO2 emissions from fossil fuels hit record high in 2022



2019 Was the Second-Hottest Year Ever, Closing Out the Warmest Decade

By Henry Fountain and Nadja Popovich Jan. 15, 2020



By The New York Times - Source: NASA Goddard Institute for Space Studies | Anomalies shown relative to the average temperature at each location between 1951 and 1980.

Antarctica

'Everyone should be concerned': Antarctic sea ice reaches lowest levels ever recorded



**Graham
Readfearn**

@readfearn

Sat 4 Mar 2023 14.00 EST





‘The devastation of human life is in view’:

▲ A forest fire burns on a hill in



Oil and gas production in Gulf of Mexico has twice the climate impact of official estimates, researchers say

By Laura Paddison, CNN

Published 3:05 PM EDT, Mon April 3, 2023



Alarmed



Concerned



Cautious



Disengaged



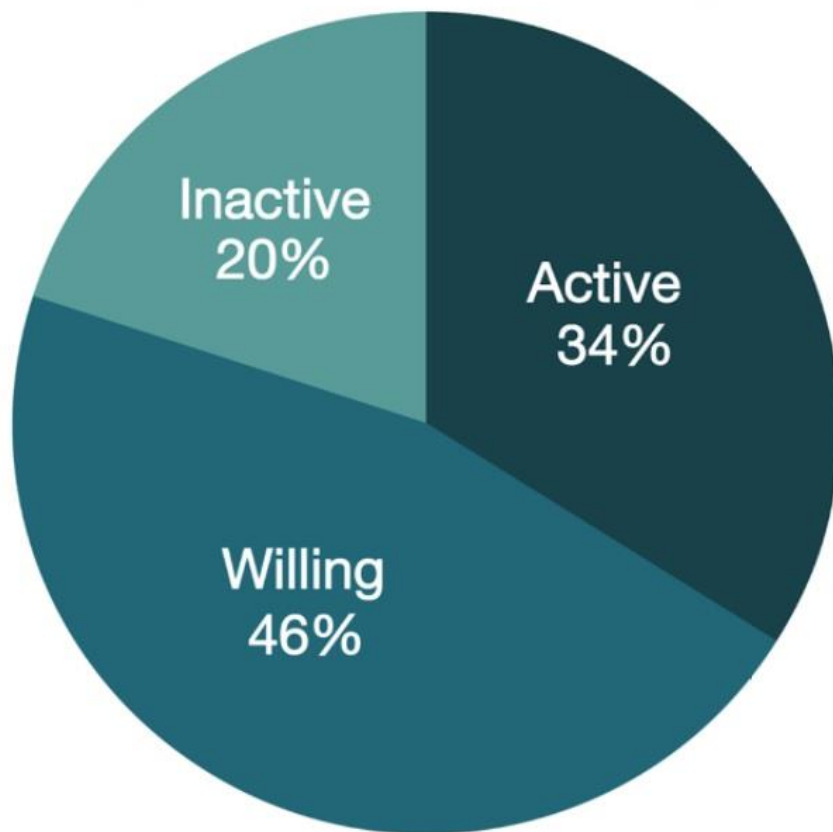
Doubtful



Dismissive

Alarmed

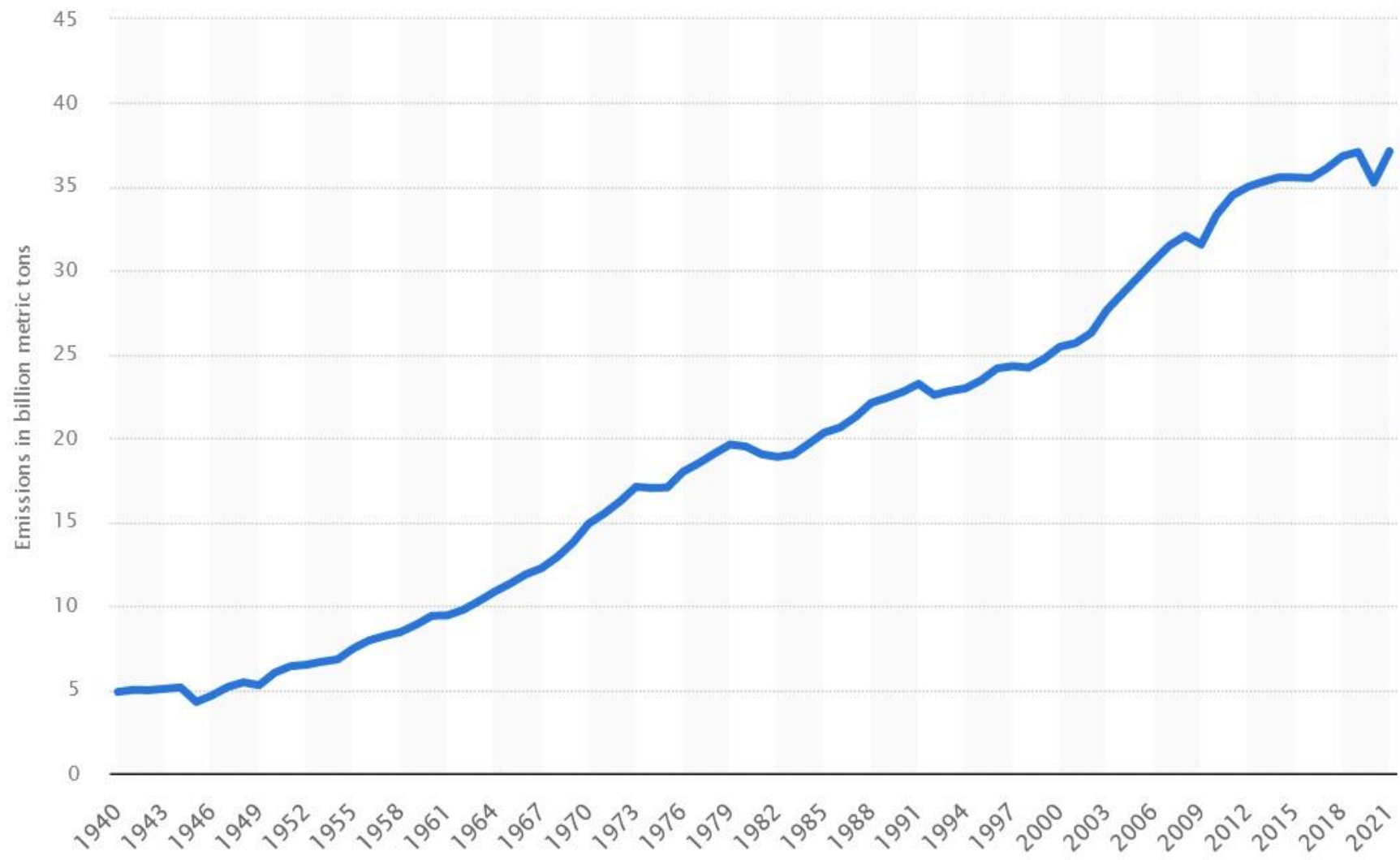
(24% of the U.S. population)



June 2017– March 2021
(Total cases = 2,019)

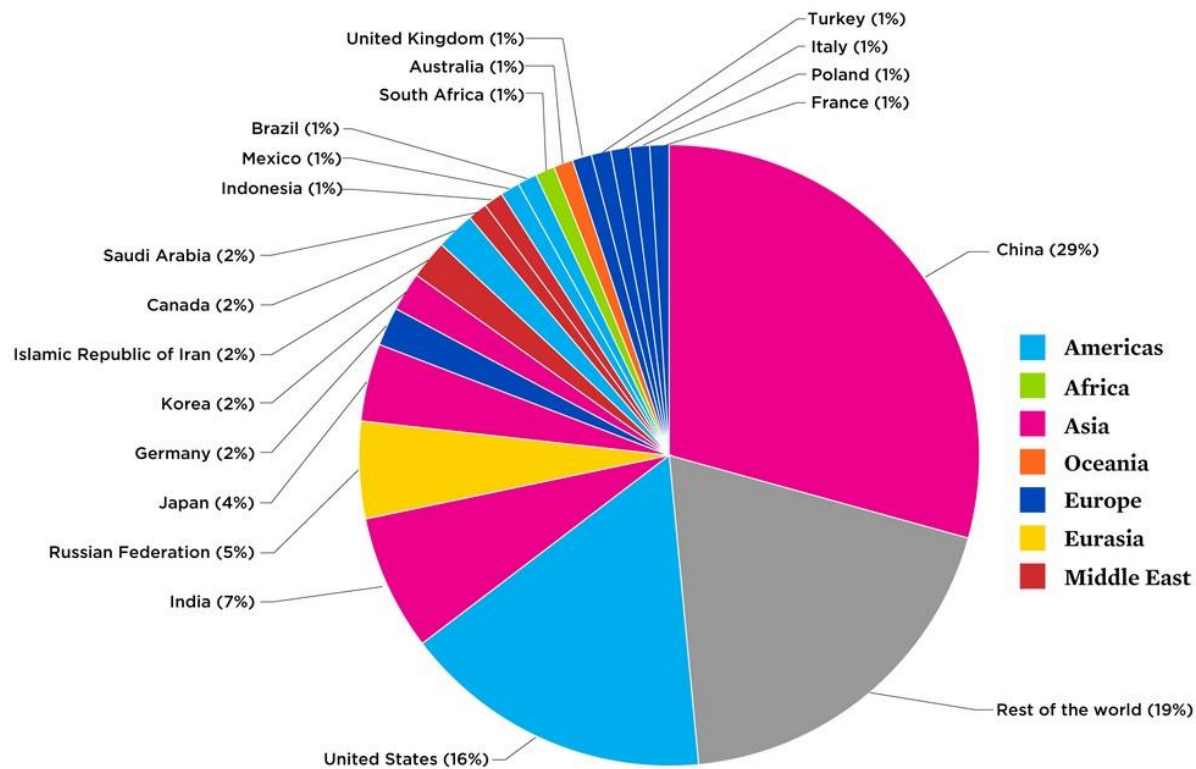
No one is coming to help.

No new tech, superhero, or
committee of geniuses, will work out
the problems while you sit and wait.



Each Country's Share of CO2 Emissions

Published Jul 16, 2008 | Updated Oct 10, 2019



Environment

This article is more than 12 years old

China overtakes US as world's biggest CO2 emitter

John Vidal and David Adam

Tue 19 Jun 2007 13.23 EDT



64



Advertisement

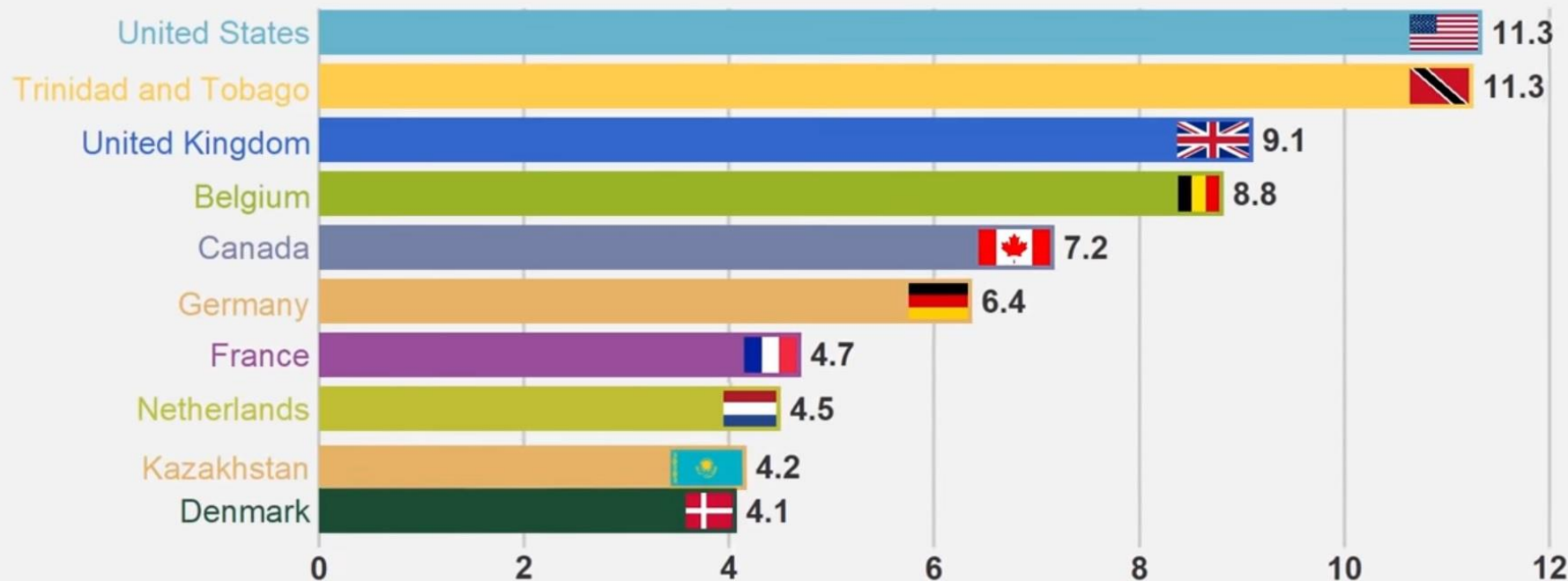


Top 10 countries by CO2 emission per capita Unit: Metric tons




United States
#1 for 30 years

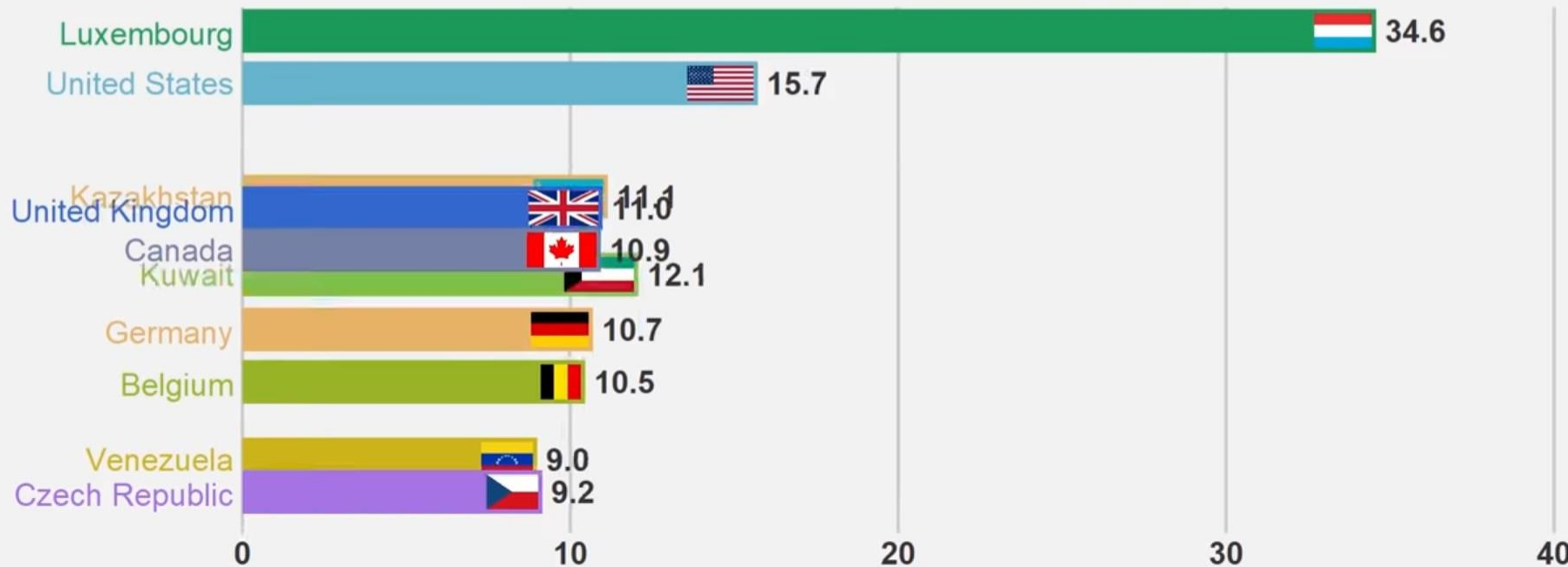
Mar 25, 1935



Top 10 countries by CO2 emission per capita Unit: Metric tons

 Luxembourg
#1 for 7 years

Dec 19, 1957



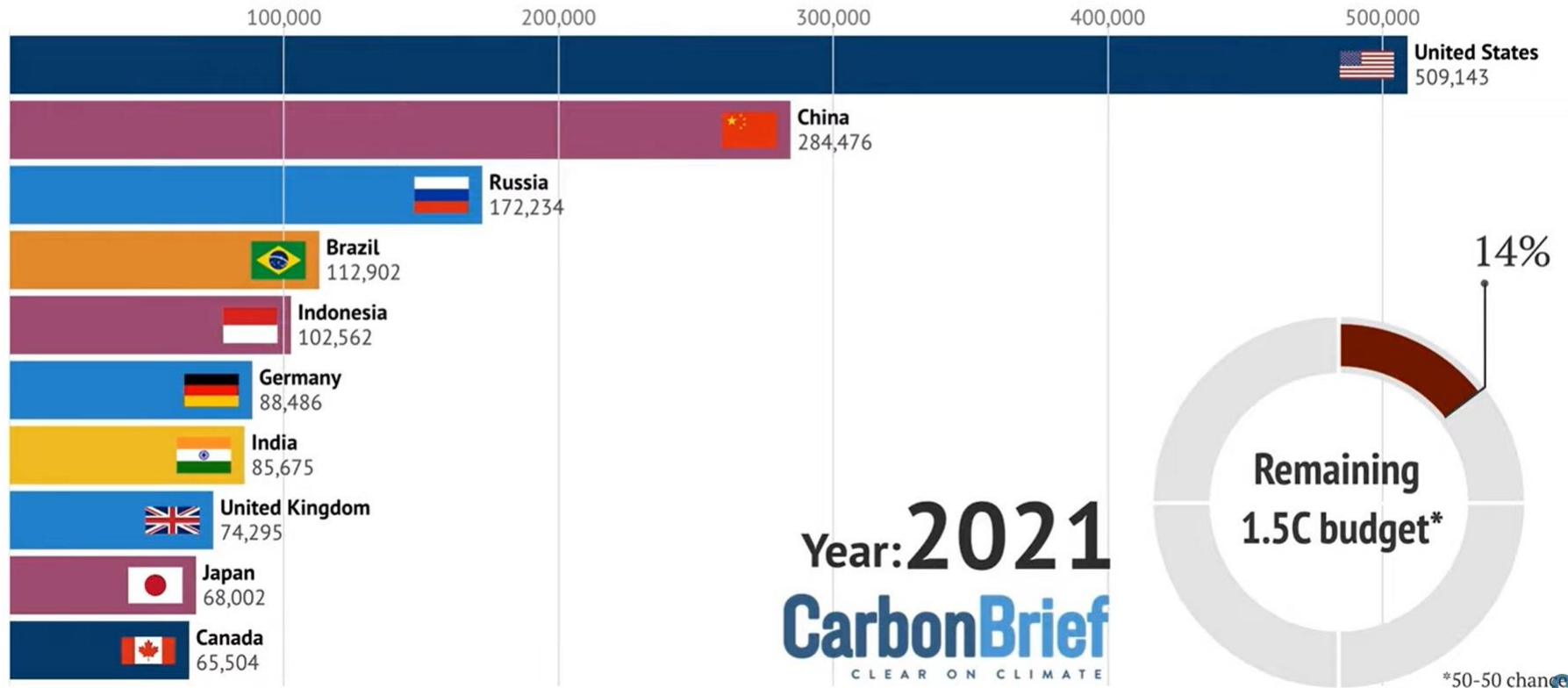
Climate change • Climate change refers to long-term shifts in temperatures and... >

Which countries are historically responsible for climate change?

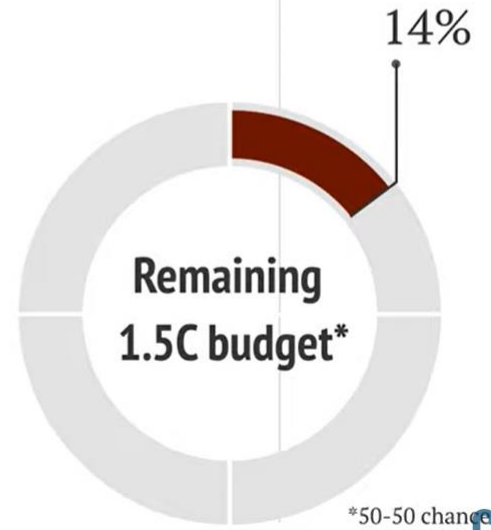
Bar colours represent regions



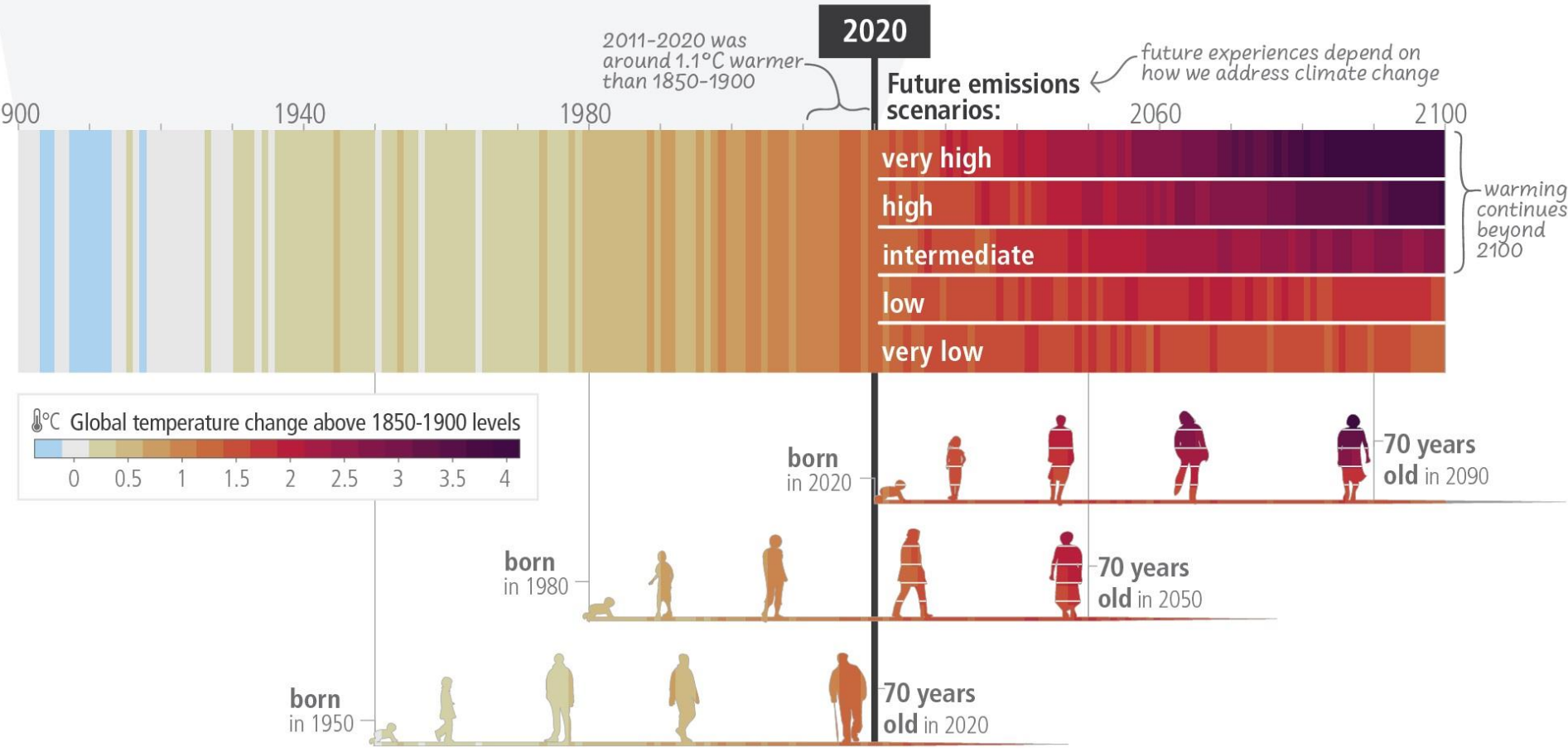
Cumulative CO2 emissions from fossil fuels, land use and forestry 1850-2021 (million tonnes)



Year: **2021**
CarbonBrief
CLEAR ON CLIMATE



c) The extent to which current and future generations will experience a hotter and different world depends on choices now and in the near-term



Why baby boomers' grandchildren will hate them



Climate activist Greta Thunberg submitted an official report on rising global temperatures in lieu of written testimony during a House hearing on Sep. 18. (Reuters)



By **Stephen Stromberg**

Opinion writer

September 17, 2019 at 4:08 p.m. PDT



It is our MORAL DUTY to

Protect people and planet from harm.

Responsibly Manage our surroundings.

Embrace Reality...Bad **AND GOOD**

Global CO2 emissions rose less than initially feared in 2022 as clean energy growth offset much of the impact of greater coal and oil use



News

02 March 2023

Risk of runaway emissions growth from shift to coal amid global energy crisis fails to materialise as renewables, EVs, heat pumps,



This is part of our special series "Home of the Future"



Chart: Americans bought more heat pumps than gas furnaces last year

Even before Inflation Reduction Act incentives kicked in, Americans bought more heat pumps than ever before last year — well over 4 million.



**Why seniors are
blocking entrances to
the four largest U.S.
banks**

Washington Post



Clean energy is cheaper than coal across the whole US, study finds

Almost every coal-fired power plant in the country could be cost-effectively replaced by local solar or wind and batteries, according to a groundbreaking new analysis.

31 January 2023

The most important climate law in U.S. history

After decades of political stalemate, the world's second-largest climate polluter, the United States, enacted the most ambitious and comprehensive climate legislation in the country's history.



The Inflation Reduction Act of 2022 devotes a historic \$369 billion to climate and clean energy investments. The law is projected to help reduce greenhouse gas emissions to about 40% below 2005 levels by 2030. It will save families money on energy and create more than 9 million new jobs. It will enable the U.S. to compete in the \$23 trillion clean energy economy and help address the legacies of disinvestment and pollution in mostly Black, Latino, Indigenous and low-income communities while ensuring they benefit from a clean energy future.

Alarmed

Concerned

Cautious

Disengaged

Doubtful

Dismissive

33%

25%

17%

5%

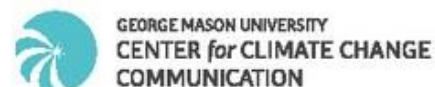
10%

9%

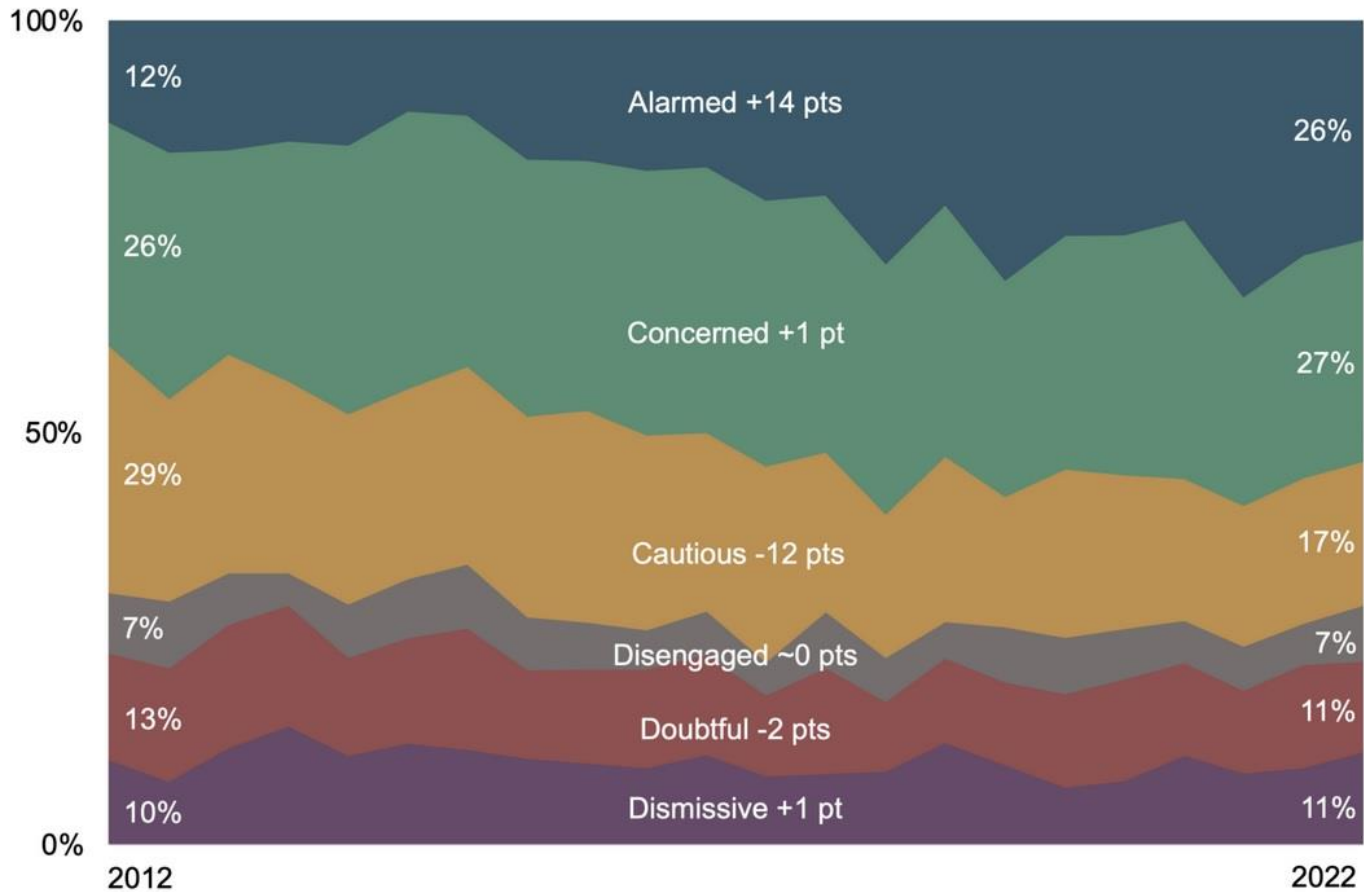
Highest Belief in Global Warming
Most Concerned
Most Motivated

Lowest Belief in Global Warming
Least Concerned
Least Motivated

September 2021
(n=1,006)



Global Warming's Six Americas Over the Last Decade



Data from 22 national surveys ($n = 25,393$)
 April 2012 – December 2022

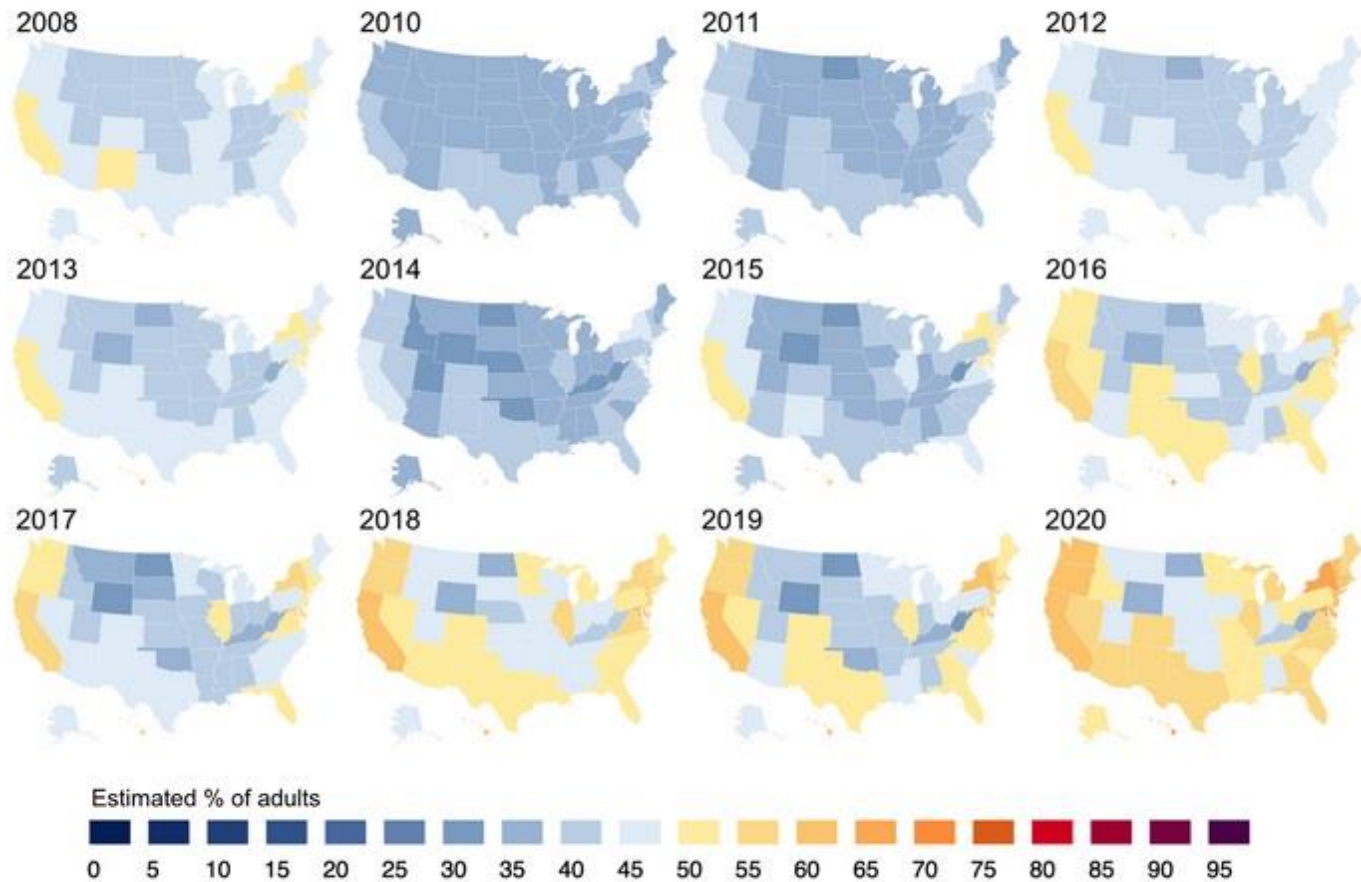


YALE PROGRAM ON
 Climate Change
 Communication



GEORGE MASON UNIVERSITY
 CENTER for CLIMATE CHANGE
 COMMUNICATION

Global warming is already harming/will harm the USA



1. I'm responsible.
2. Things are bad, and some things are getting better.
3. I want to act (DO YOU??)
4. What do I do? How?

Vulnerable Birds in Alameda County

Warming scenario:

+1.5 °C

+2.0 °C

+3.0 °C

[Why these temperatures?](#)

Season:

Summer

[What is a season?](#)

High Vulnerability Species

22

Moderate Vulnerability Species

44

Low Vulnerability Species

40

Stable Species

66



Common Goldeneye



Eared Grebe



Vaux's Swift



Allen's Hummingbird



Northern Pygmy-Owl



Acorn Woodpecker



Nuttall's
Woodpecker



Olive-sided
Flycatcher



Western Wood-
Pewee



Cassin's Kingbird



Yellow-billed Magpie



Bushtit



Pygmy Nuthatch



Swainson's Thrush

Vulnerable Birds in Alameda County

Warming scenario:

+1.5 °C

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+3.0 °C

[Why these temperatures?](#)

Season:

Summer

[What is a season?](#)

High Vulnerability Species

2

Moderate Vulnerability Species

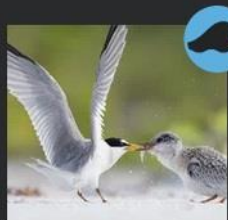
41

Low Vulnerability Species

56

Stable Species

73



Least Tern



Yellow-billed Magpie



DRAWDOWN

1. Reduce Sources — *bringing emissions to zero*
2. Support Sinks — *uplifting nature's carbon cycle*
3. Improve Society — *fostering equality for all*

Four Levels of Action

Level 1: Individual – what most climate change action has focused on.

Level 2: Immediate Group – family, close friends.

Level 3: Community – neighborhood, church, club, city, region, state.

Level 4: System – nation, globe.

Level 1: Individual



Helpful



Good



And...

NOT A Solution

MUST scale UP = X 1,000 = Community

Think beyond the individual to the collective.

How can YOU mobilize your community?

You avoid using plastic bags?...OK

You organize and get your City to ban single-use
plastics?...**GREAT**

Level 2: Immediate Group (Family, Friends)

The Secret to Talking about Climate Change



THE **SECRET** TO
TALKING ABOUT
CLIMATE CHANGE



0:48 / 4:01

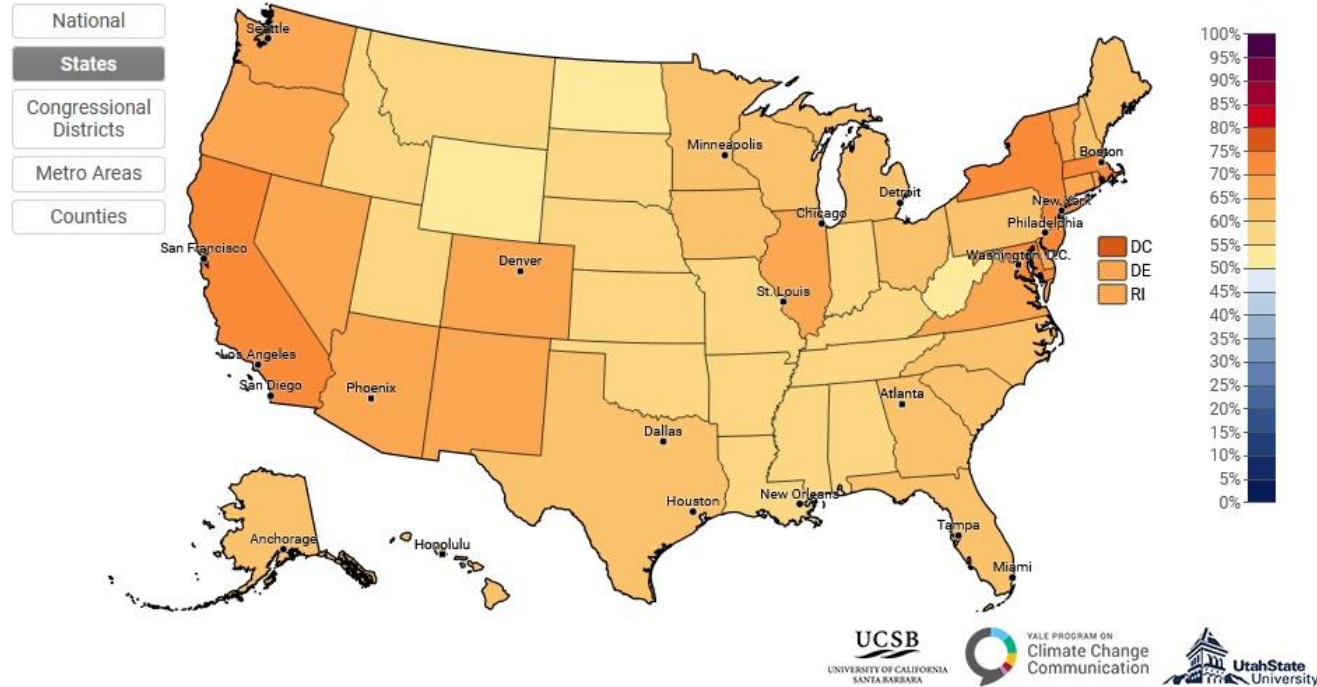
Scroll for details



Estimated % of adults who think global warming will harm people in the US (nat'l avg. 64%), 2021

Select Question:

Click on map to select geography, or:



United States

50%



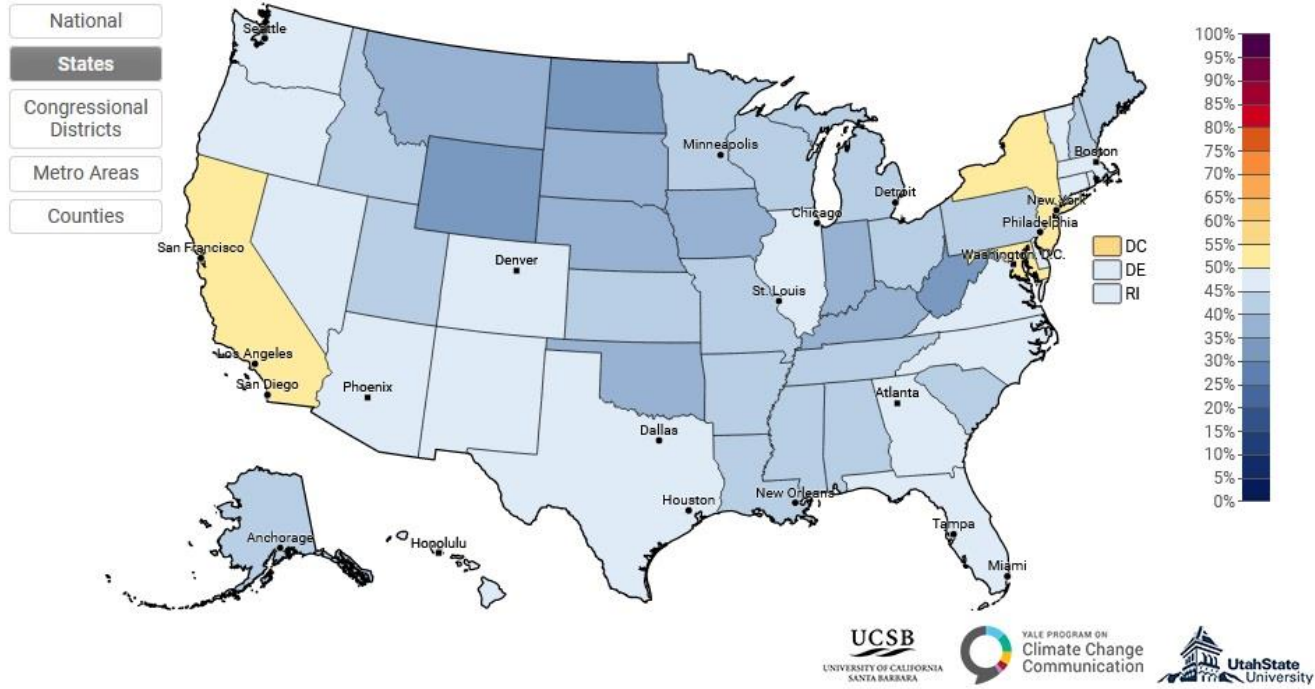
Great/Moderate Amount

Little/Not at all

Estimated % of adults who think global warming will harm them personally (nat'l avg. 47%), 2021

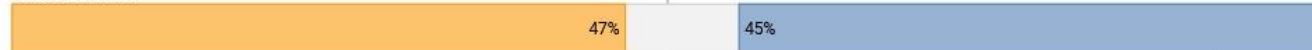
Select Question: Absolute Value

Click on map to select geography, or:



United States

50%



Great/Moderate Amount

Little/Not at all



“Greenhouse Gas Emissions”...OK

“Carbon Pollution”/ “Carbon Emissions”...

BETTER!

Level 3: Community



[GET INVOLVED](#)

[WHO WE ARE](#)

[TAKE ACTION](#)

[EVENTS](#)

[BLOG](#)

[REQUEST A PRESENTATION](#)

Bay Area Climate Leaders

TAKING ACTION. TOGETHER

[JOIN THE CHAPTER](#)



Level 3: Community



+



+



=

CHANGE



Level 3: Community

Home - Changemaker Quiz

What Kind of Changemaker Are You?



Ready to take that first step towards making change? Want to help write the next chapter in the story of Stuff? Whatever you have to offer, a better future needs it!

Take our Changemaker Personality Quiz to see which of your citizen muscles are strongest, find out what role you can play in in the SOS community, and then share your results with your friends!

At the end of the quiz, find out how to participate in our Changemaker Challenge.

TAKE THE QUIZ! ▶

(Quiz takes approximately 2 minutes to complete)

Level 3: Community

Now we're talking SOLUTIONS!

Individual actions X thousands, millions! Allows for policy change.

How do you define your community (location, workplace, school, activity, heritage)?

YOU are already a part. Not just signing up to a group.

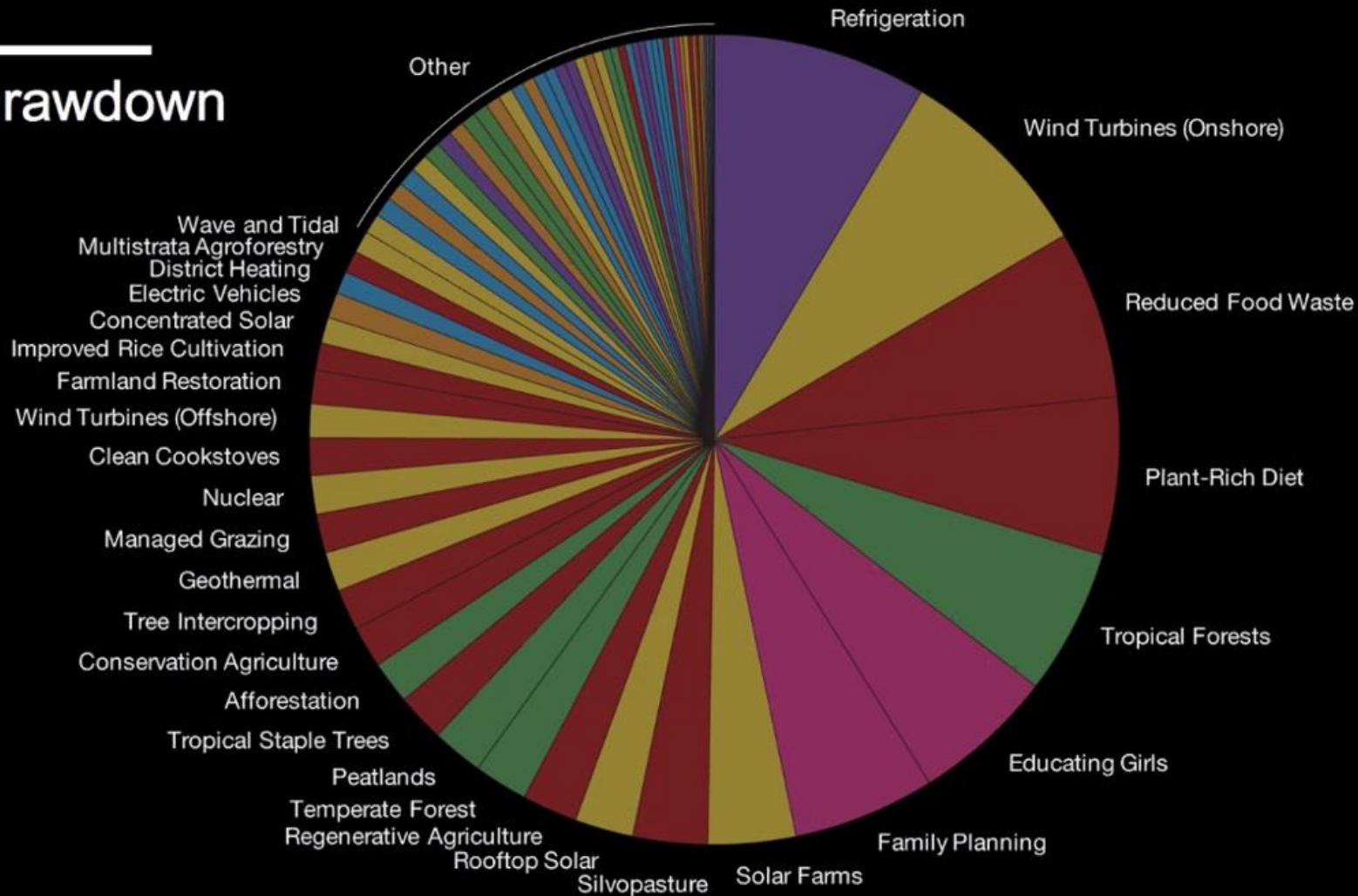
CLIMATE SOLUTIONS 101

PRESENTED BY PROJECT DRAWDOWN



WATCH THE TRAILER

Drawdown







Questions? We want to hear from you! 1 (888) 632-3674

Search ... [Search icon]

100% Renewable Energy

Deep Green 100% Renewable Energy

Choose 100% Renewable [Language dropdown: English] SIGN ME UP FOR DEEP GREEN

POWERED BY MCE DEEP GREEN



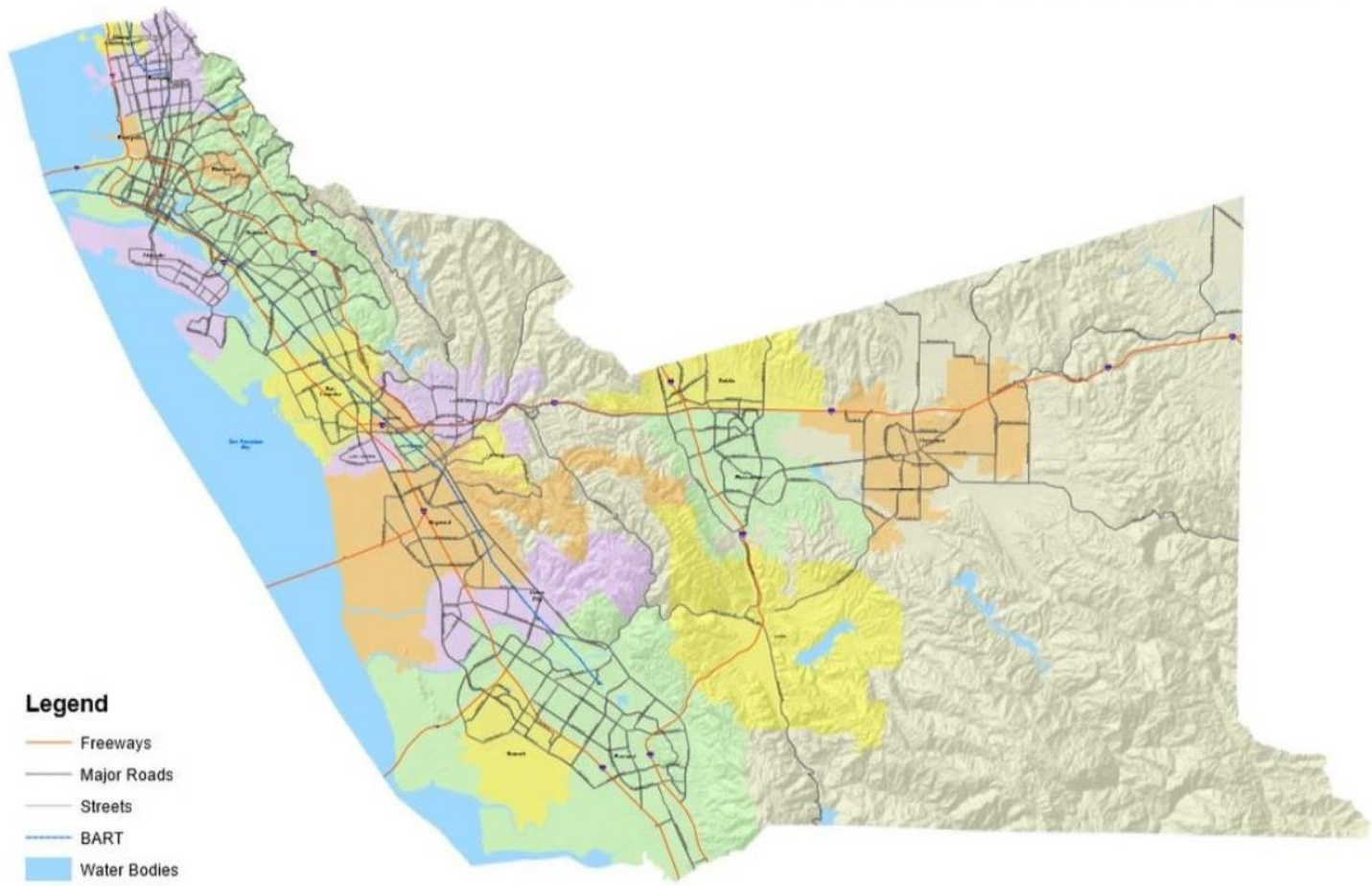
Comparing the actual US grid to the one predicted 15 years ago

Demand and carbon emissions are way down, re-
newables far more common than expected.

by **John Timmer** - Apr 14, 2021 4:44 pm



ALAMEDA COUNTY



Legend

- Freeways
- Major Roads
- Streets
- BART
- Water Bodies





SAVE OUR VALLEY

NO Industrial Solar Plants

A PATH FORWARD

Identifying Least-Conflict
Solar PV Development
in California's San
Joaquin Valley

MAY 2016

BerkeleyLaw
UNIVERSITY OF CALIFORNIA

Center for Law, Energy &
the Environment



Food Waste: Last Week Tonight with John Oliver (HBO)



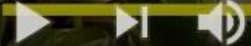


NOW
THIS



PLANETARY HEALTH DIET

Eating to Save the Planet



0:00 / 6:32



#PlantBased #Diet #Earth

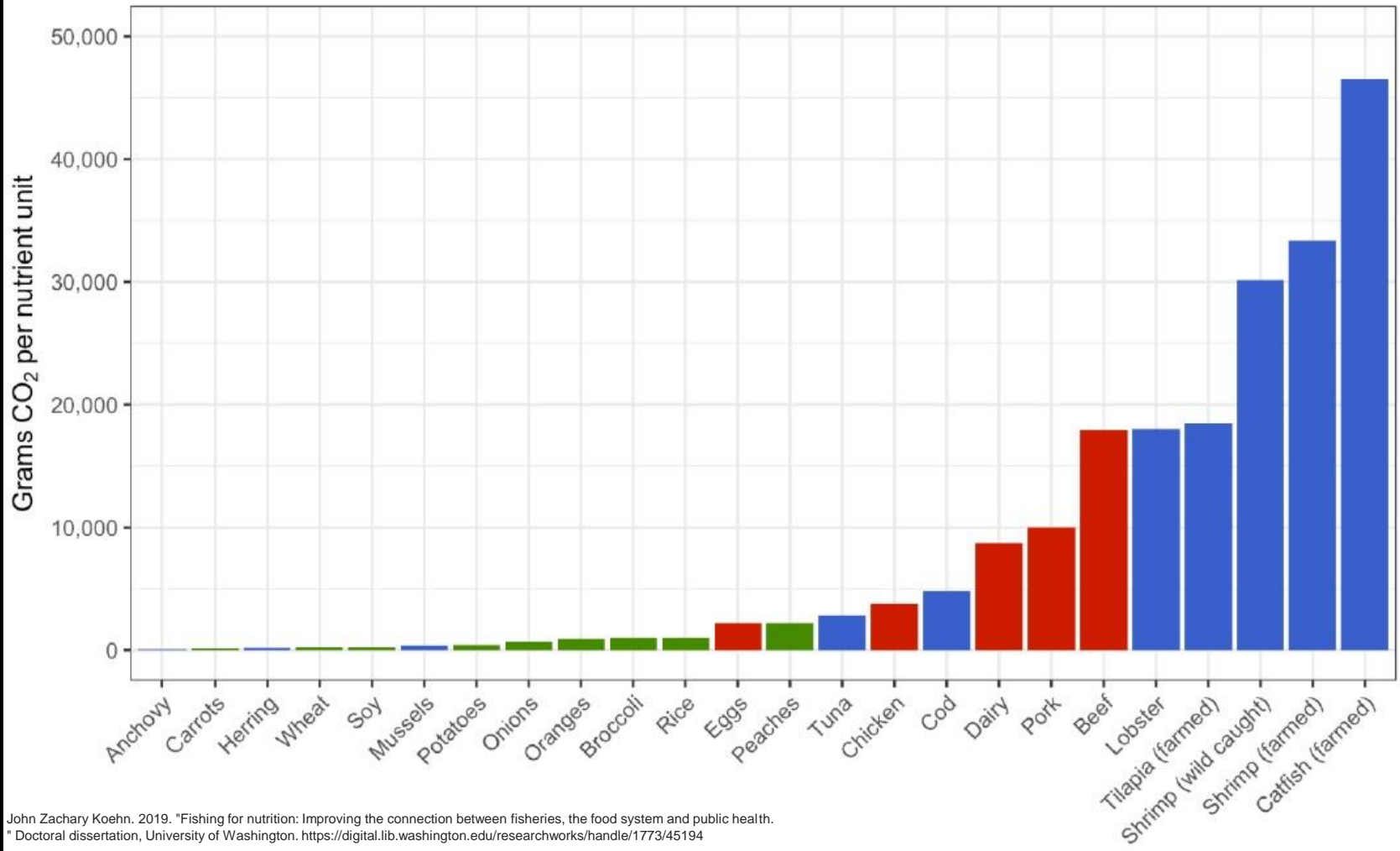
New Diet Encourages People to Eat More Plant-Based Foods

SKIP THAT BURGER



Every pound of beef served is equivalent to releasing about nineteen pounds of greenhouse gases, so consuming less beef can reduce your carbon footprint.

Comparing Heat-Trapping Gas Emissions from Food Production





How to Scale Up?

School Meals

Neighborhood Chef Champions, Lobbying Companies

Legislation – industry pays true cost of beef, top food-chain seafood. Want to eat lots of meat? Use legislative stick.

Obesity, Heart Disease, etc, - comprehensive health SOLUTION



First-ever study of all Amazon greenhouse gases suggest the forest is worsening climate change

The first broad look at all of the gases that affect how the Amazon works—not just CO₂—reveals a system on the brink.

BY CRAIG WELCH



PUBLISHED MARCH 11, 2021 • 8 MIN READ



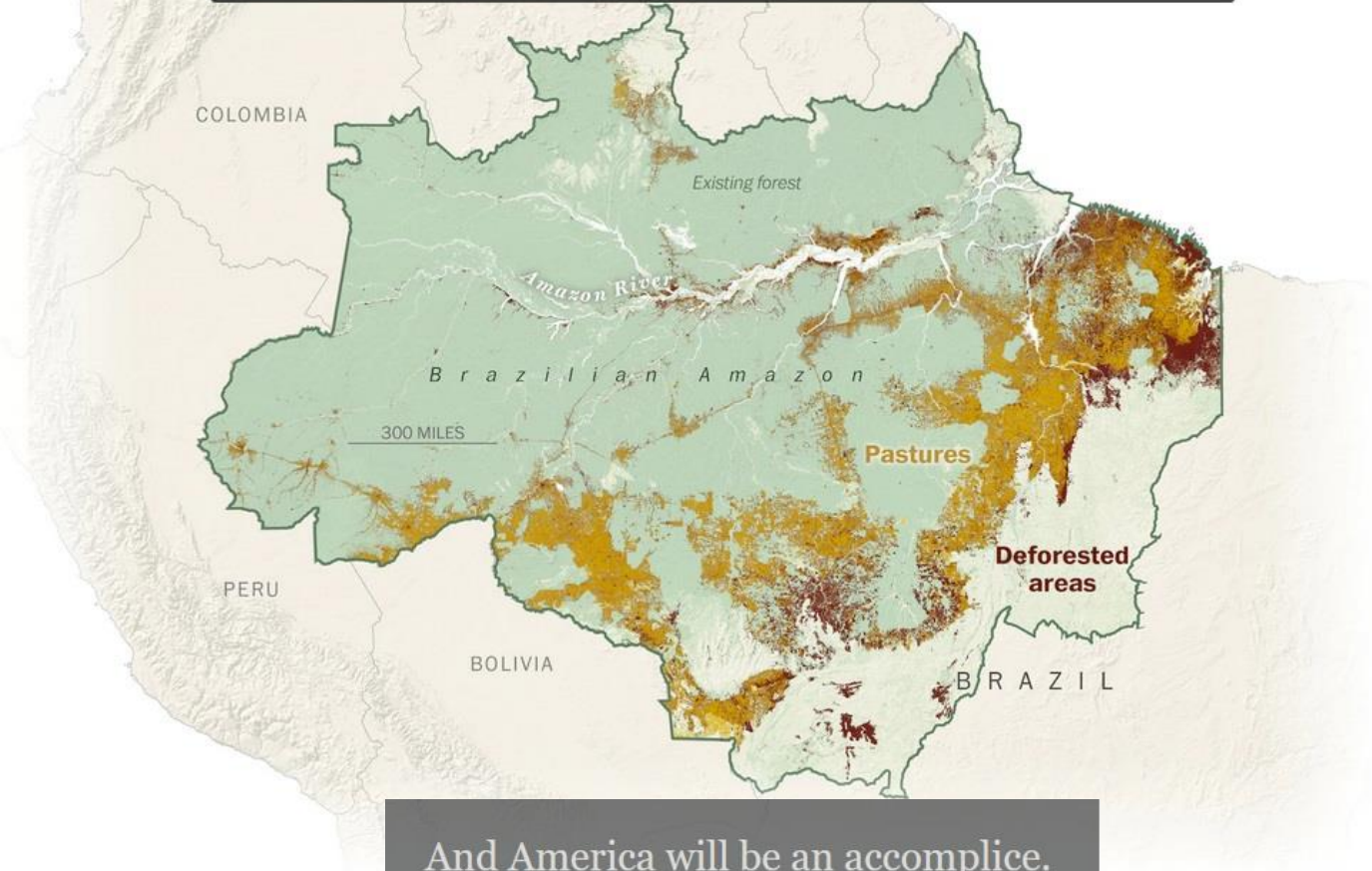
ALJAZEERA

PEOPLE AND
POWER

**THE HEAT
OF MEAT**

25:01

If the Amazon is to die, it will be beef that kills it.



And America will be an accomplice.

Washington Post –
Terrence McCoy &
Julia Ledur – April
2022



**Americans' love of beef
is helping destroy the
Amazon rainforest**

(Jonne Roriz/Bloomberg)

**JBS, Marfrig =
huge, bad exporters**

BY TERENCE MCCOY AND JÚLIA LEDUR

APRIL 29 AT 6:00 AM

“I rarely eat beef” ...OK

“I organized a campaign pressuring Safeway,
McDonalds & Burger King to stop importing
Brazilian beef” ...

GREAT!



ALJAZEERA

INSIDE
STORY

SAVING THE AMAZON

BRAZIL'S LULA

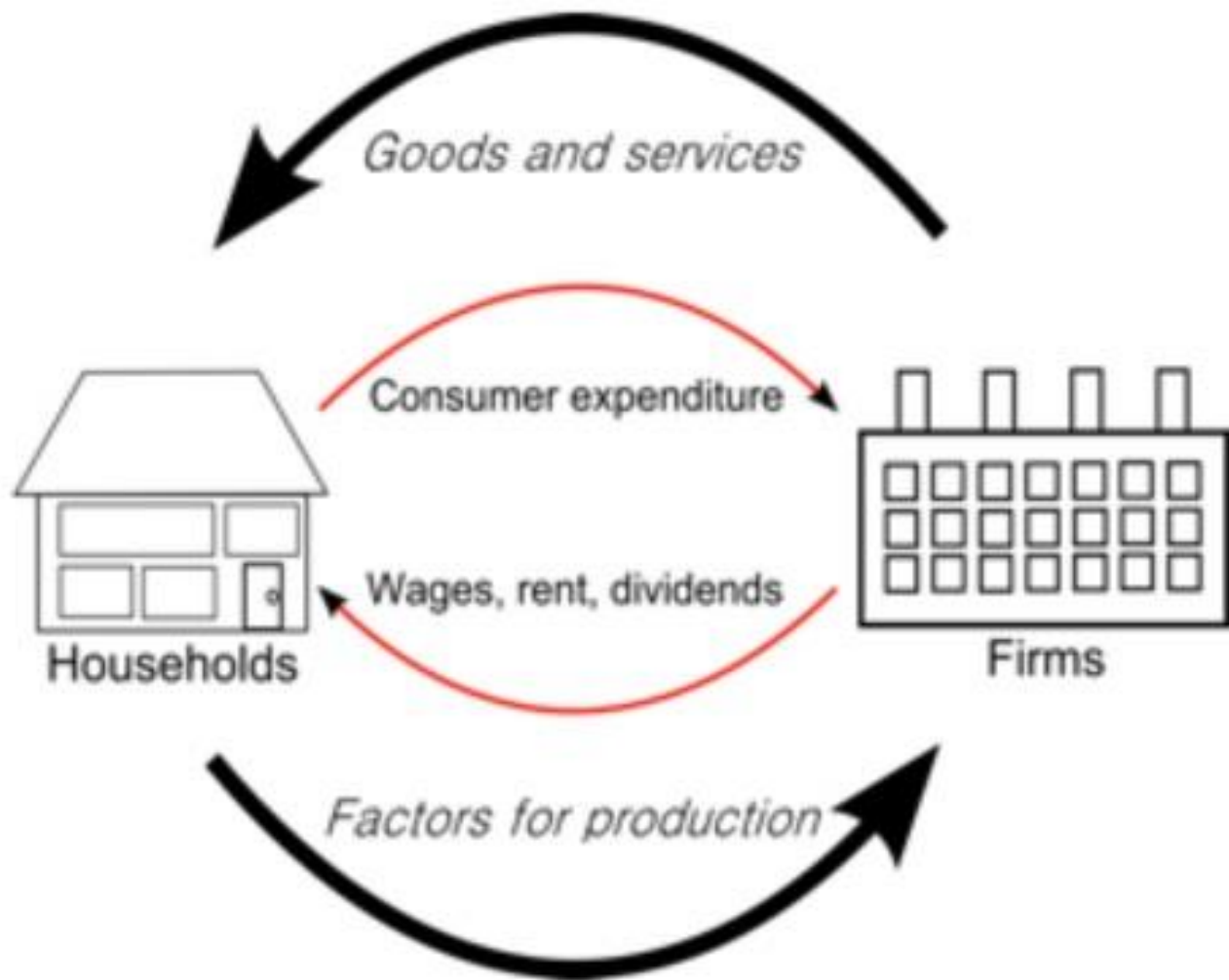
28:01

Level 4: System Change

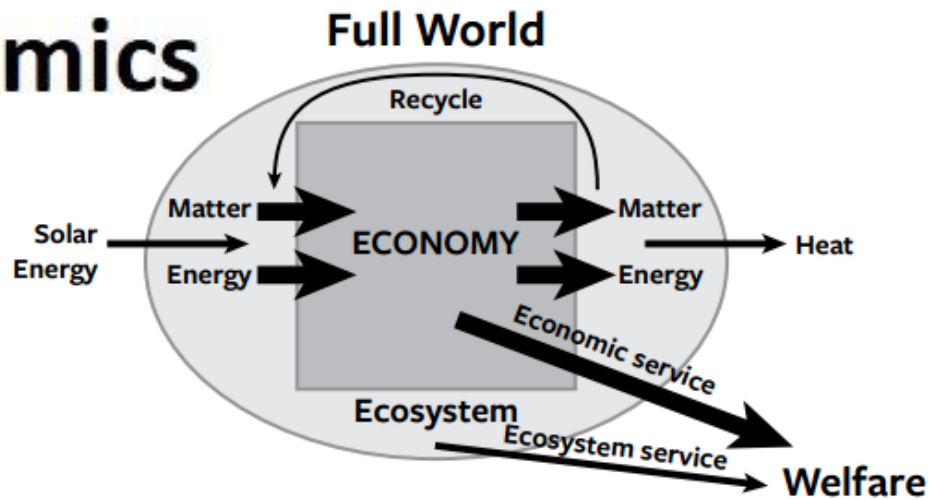
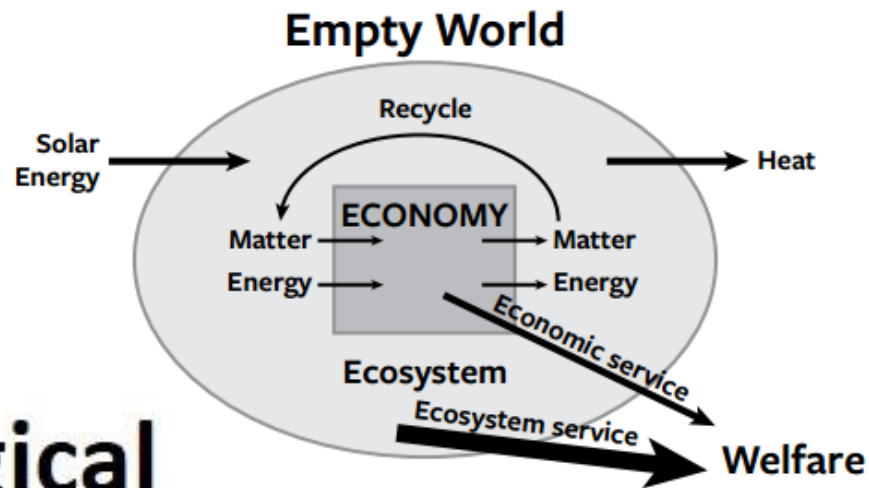
Economic and political systems of nation, world.

“We urgently need a new vision for progress” – Kate Raworth





Ecological Economics



US Fossil Fuel Companies Get a Shocking Amount of Implicit Subsidies Each Year

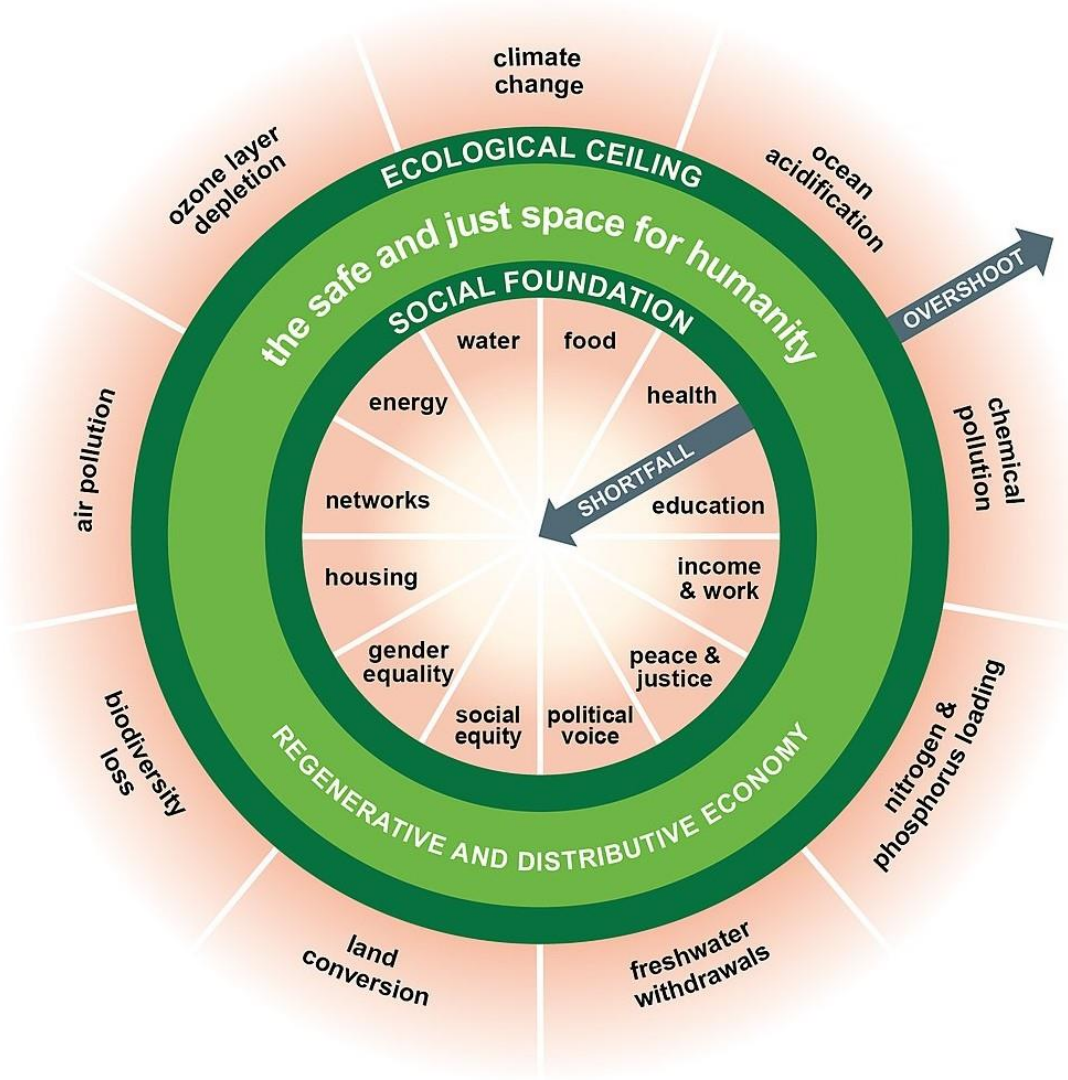
CARLY CASSELLA 28 MARCH 2021

\$180 BILLION industry gets \$5-\$62 BILLION in direct subsidies EVERY YEAR

"Fossil fuel companies benefit in a big way because prices currently do not reflect the environmental and social costs associated with the production and consumption of fossil fuels," [says](#) economist Matthew Kotchen from Yale University.

When accounting for indirect subsidies, including public health impacts and climate change, the handout could be as high as **\$649 BILLION**

Doughnut Economics





MARKETS

BUSINESS

INVESTING

TECH

POLITICS

CNBC TV

WATCHLIST

PRO 

WORLD ECONOMY

Amsterdam bet its post-Covid recovery on 'doughnut' economics — more cities are now following suit

PUBLISHED THU, MAR 25 2021•2:21 AM EDT | UPDATED THU, MAR 25 2021•3:03 AM EDT



Sam Meredith
@SMEREDITH19

SHARE



A man with a beard and a black umbrella is looking up at a cable-stayed bridge at dusk. The bridge has green and red towers and white cables. The background shows a city skyline with buildings and a tower under a cloudy sky. The foreground has bare trees and a body of water reflecting the bridge.

Three Cities Switching To Life-Affirming Economies

“Doughnut economics” invites nature and social well-being into urban planning.

Politics. Yikes.

Much of the world (incl US) in big trouble.

Long term: collective action of solving climate change yields huge benefits.

Short term: it's pretty straightforward. Get political, lean in on one side where it counts.



**VOTE
FORWARD**

We need your help to "triple" voter turnout on May 1 in Texas! V

**Write
letters to
voters**



SwingLeft

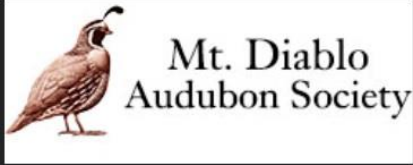
Intelligence forecast sees a post-coronavirus world upended by climate change and splintering societies

The effects of the pandemic will linger, and could shape future generations' expectations of their governments, particularly as a warming world leads to new human conflicts, including, in the most dire scenario, global food shortages that spawn mass violence.

It is our DUTY to

Protect people and our planet from environmental harm.

Responsibly Manage our surroundings.



Climate change may be the most important issue that we can address today to ensure the robust survival of humans and birds. It can be difficult to imagine ways that one individual can make a difference in solving this. But like all large problems, the final solutions are made up of many individual actions that move toward the final goal. *MDAS Conservation Chair* Juan Pablo Galván Martínez writes about this in each monthly issue of the MDAS newsletter *The Quail*. Juan Pablo's urgent messages and practical suggestions are sure to educate and inspire. We've collected some of his articles for reading below.

Warmer Is the New Normal

June 2021

You might have noticed that the hills in the East Bay were already pretty brown by late April. A drought emergency has recently been expanded to Contra Costa, Alameda, Napa, and Solano counties (Sonoma already had a declaration). One-third of California is now under an official drought emergency. This is directly tied to climate change and the emission of heat-trapping gases like CO₂, methane, and others. [Read complete article](#)

It's a Dry Spring

Watch a presentation [HERE](#) on the most impactful climate solutions you can be a part of and how Contra Costa birds are affected by climate change.

To accompany this talk, Juan Pablo made a brief document [HERE](#) of straightforward information to take effective action in your community. It has everything covered in the presentation, from one of the most important climate solutions, a climate-friendly diet ([HERE](#)), to ways you can get money to make your house green and climate friendly ([HERE](#)).

A Challenge To You on Next Steps

1. Download resources doc (tomorrow)
2. Talk with someone using guidance (Level 2; 3 days)
3. Check out two other links (5 days)
4. Delve into one Level 3 (community) action (1 wk)
5. Go out birding (2 wks)

"Hope is a verb with its sleeves rolled up. In contrast to optimism or despair, hope requires that one actually do something to improve the world. Authentic hope comes with an imperative to act." – DW Orr



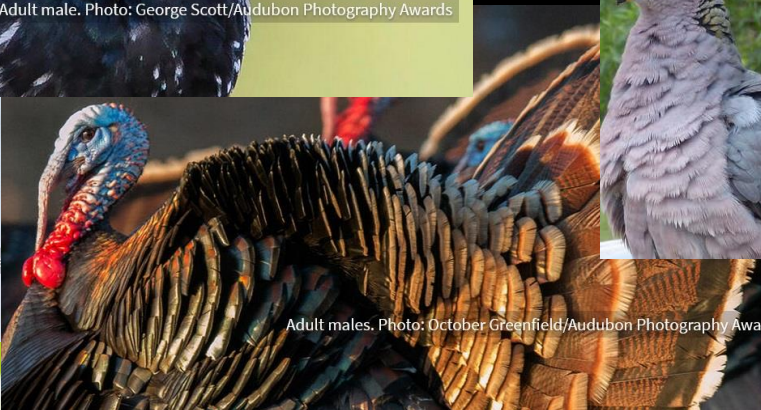
Adult male. Photo: George Scott/Audubon Photography Awards



Adult male. Photo: Rick Derevan/Audubon Photography Awards



Adult. Photo: Pamela Kopenapa/Audubon Photogre



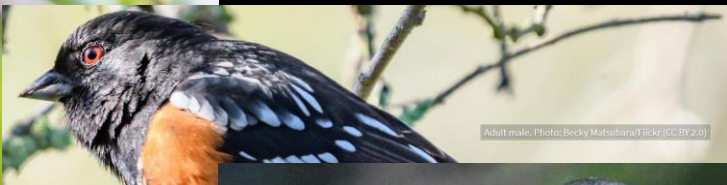
Adult males. Photo: October Greenfield/Audubon Photography Award



Adults. Photo: Mike S. Birds/Flickr (CC BY SA 2.0)



Adult. Photo: Becky Matsubara/Flickr (CC-BY-2.0)



Adult male. Photo: Becky Matsubara/Flickr (CC-BY 2.0)



Adult male. Photo: Rick Derevan/Audubon Photography Awards



Adult male. Photo: Greg Schechter/Flickr (CC BY 2.0)



Thank you for the invitation and to the journalists, photographers, scientists, conservationists, activists, you the audience, my MB and climate stew classes and instructors, and everyone taking action.

QUESTIONS?