

The Endangered Species Act and Species Threatened by Climate Change

Shaye Wolf
Center for Biological Diversity
www.biologicaldiversity.org



(c) John J. Mosseso



(c) Steve Amstrup



(c) Sean Nash

Climate change is impacting species now

- moving poleward and upward
- shifting timing of breeding and migration
- losing essential habitats and food sources
- population declines and extinctions



(c) Peter Bryant



(c) Don DeBold



(c) Larry Master

(Parmesan and Yohe (2003), Root et al. (2003), Parmesan (2006), Mawdsley et al. (2009))



(c) David Burdick, NOAA



(c) Adam Laverty

2/3
threatened
with
extinction
by 2100

IPCC (2007)

1/3
committed to
extinction
by 2050

Thomas et al. (2004)

Strategies to protect biodiversity from climate change threats

- Mitigation – reduce emissions

less than 350 ppm CO₂

(Hansen et al. 2008, Rockstrom et al. 2009, Veron et al. 2009, Lenton et al. 2008, Kriegler et al. 2009)



Strategies to protect biodiversity from climate change threats

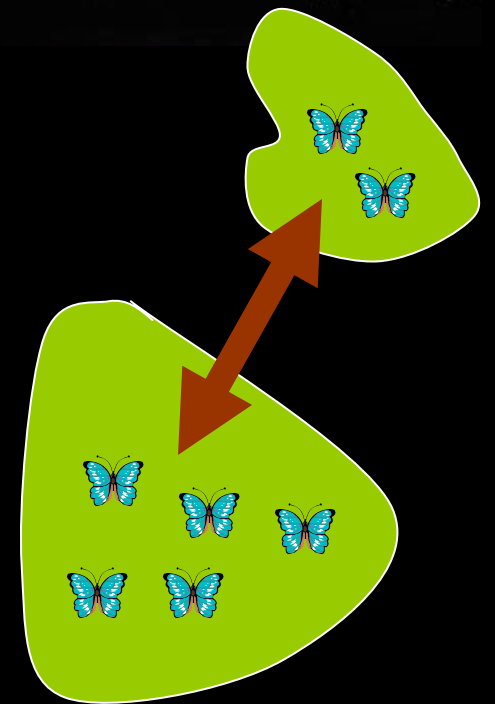
- Mitigation – reduce emissions

less than 350 ppm CO₂
(Hansen et al. 2008, Rockstrom et al. 2009,
Veron et al. 2009, Lenton et al. 2008,
Kriegler et al. 2009)



- Adaptation – increase resilience

- increase protected habitat and habitat connectivity
- reduce stressors
- restore impacted systems
- protect genetic diversity
- assisted migration (?)



Endangered Species Act (1973)

BEFORE THE SECRETARY OF THE INTERIOR
PETITION TO LIST THE POLAR BEAR (*Ursus maritimus*) AS A THREATENED SPECIES UNDER THE ENDANGERED SPECIES ACT



©Thomas D. Mangelsen/Imagofuturestock.com

CENTER FOR BIOLOGICAL DIVERSITY
February 16, 2005

PETITION TO LIST ACROPORA PALMATA (ELKHORN CORAL), ACROPORA CERVICORNIS (STAGHORN CORAL), AND ACROPORA PROLIFERA (FUSED-STAGHORN CORAL) AS ENDANGERED SPECIES UNDER THE ENDANGERED SPECIES ACT



A. palmata (foreground left) & *A. cervicornis* (background) at Saipan Island, Palau (Tom York)

CENTER FOR BIOLOGICAL DIVERSITY
Petitioner
March 3, 2004

BEFORE THE SECRETARY OF INTERIOR
PETITION TO LIST THE AMERICAN PIKA (*Ochotona princeps*) AS THREATENED OR ENDANGERED UNDER THE UNITED STATES ENDANGERED SPECIES ACT



Amery, M. © Steve Delaney

CENTER FOR BIOLOGICAL DIVERSITY, PETITIONER

OCTOBER 1, 2007

Endangered Species Act Protections

- Mitigation benefits
 - federal agencies must ensure their projects do not jeopardize listed species or harm important habitats (“consultation”)
 - applies to federal projects that emit large amounts of greenhouse gases
 - complement to comprehensive greenhouse gas regulation



Endangered Species Act Protections

- Adaptation benefits
 - prohibits killing or harming listed species
 - protects critical habitat
 - recovery plan to reduce threats
 - “consultation” by federal agencies to reduce harm to listed species and their critical habitat

What's powerful about the ESA?

- Citizens can petition
- Mandatory deadlines
- Listing decisions must be based solely on the “best available science”
- Citizen enforcement



Petitioned species

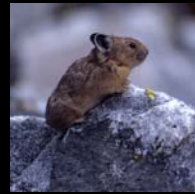
- Arctic



- Antarctic



- Mountaintop



- Corals

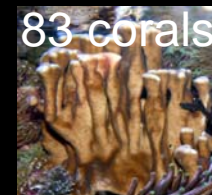


Photo credits: Kittlitz's murrelet (c) Glen Tepke; polar bear (c) Pete Spruance; ribbon seal (c) Budd Chrisman; Pacific walrus (c) Bill Hickey; ringed seal (c) Melanie Duchin; bearded seal (c) David S. Isenberg; spotted seal (c) Josh London; emperor penguins (c) MichaelVanWoert/NOAA; American pika (c) John J. Mosseso; northern flying squirrel (c) Larry Master/USFWS; white-tailed ptarmigan (c) Larry Master; elkhorn coral (c) Sean Nash; staghorn coral (c) Mark Chiappone

Successes and setbacks in listings

- Threatened



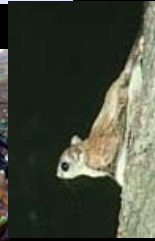
- Candidate



- Proposed



- Being considered



- Denied

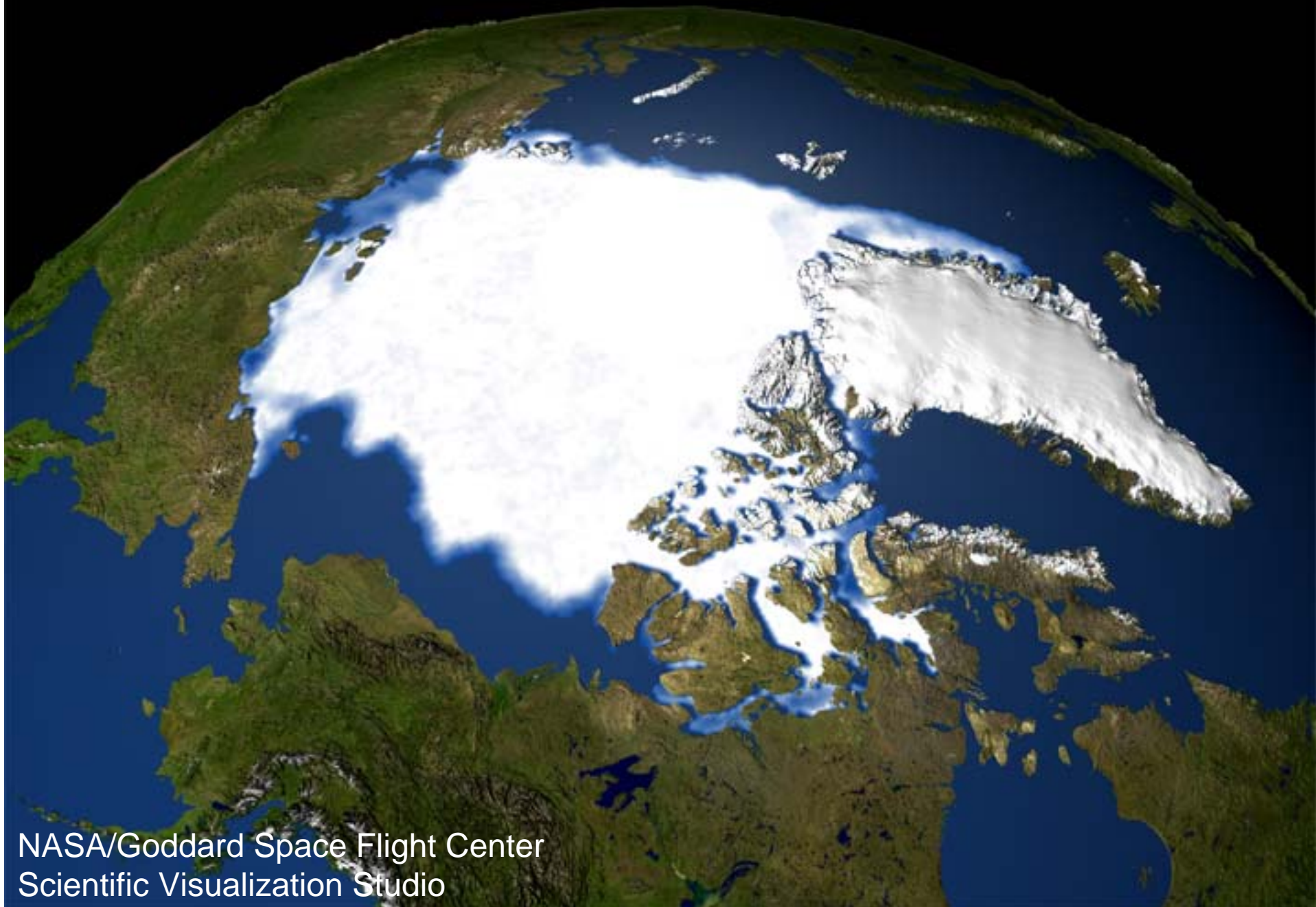


Polar bear



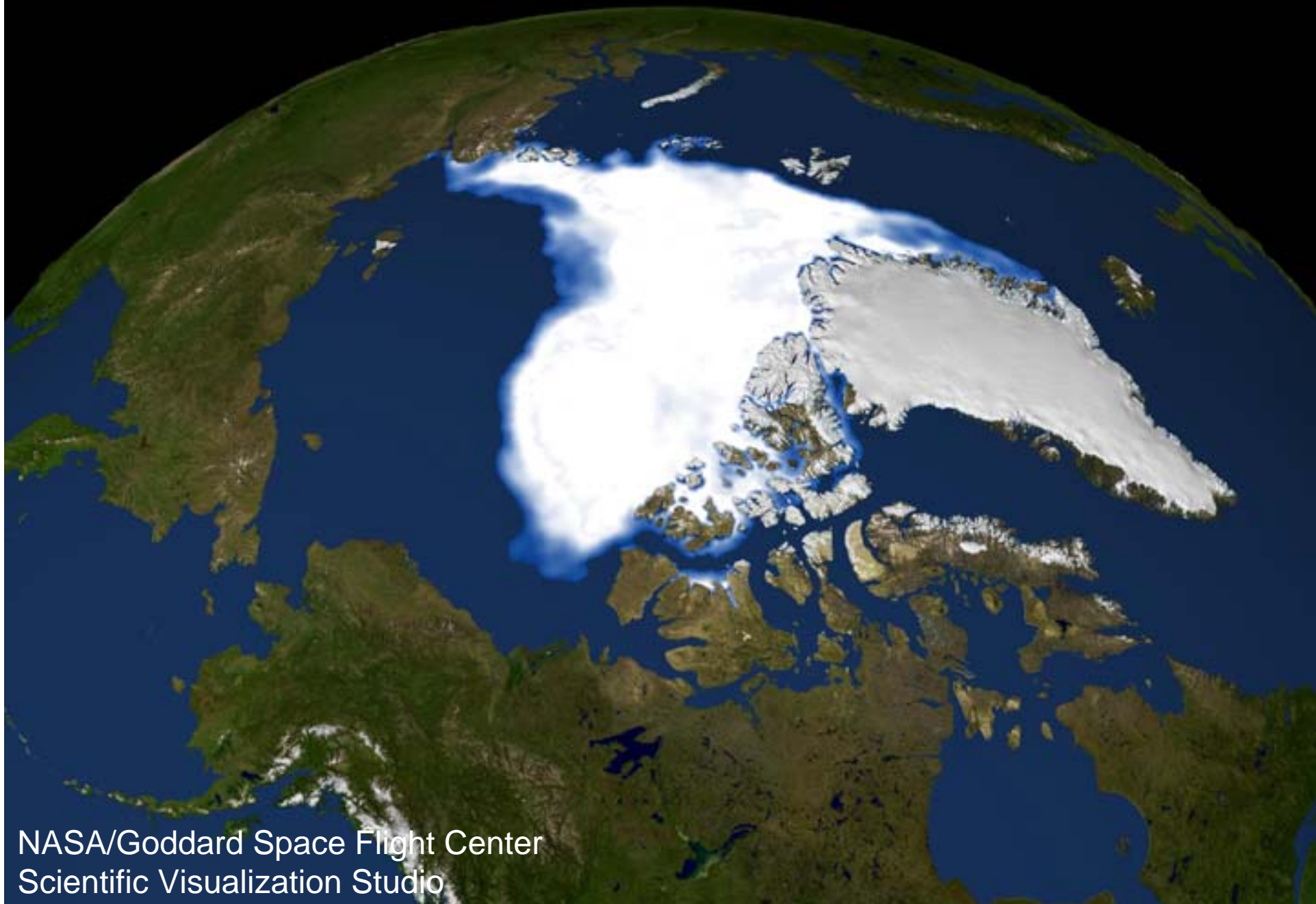
(c) Steve Amstrup

September 21, 1979



NASA/Goddard Space Flight Center
Scientific Visualization Studio

September 14, 2007



NASA/Goddard Space Flight Center
Scientific Visualization Studio

8 of 19 pops declining

- starvation
- cannibalism
- drowning

2/3 of world's polar bears predicted to be extirpated by 2050 on mid-level emissions pathway

(Amstrup et al. 2007)



© Pete Spruance

BEFORE THE SECRETARY OF THE INTERIOR
**PETITION TO LIST THE POLAR BEAR (*Ursus*
maritimus) AS A THREATENED SPECIES UNDER THE**
ENDANGERED SPECIES ACT



©Thomas D. Mangelsen/Imagesofnaturestock.com



February 16, 2005

Education and outreach

APRIL 3, 2006 www.time.com AOL Keyword: TIME

SPECIAL REPORT GLOBAL WARMING

TIME

**BE WORRIED.
BE **VERY** WORRIED.**

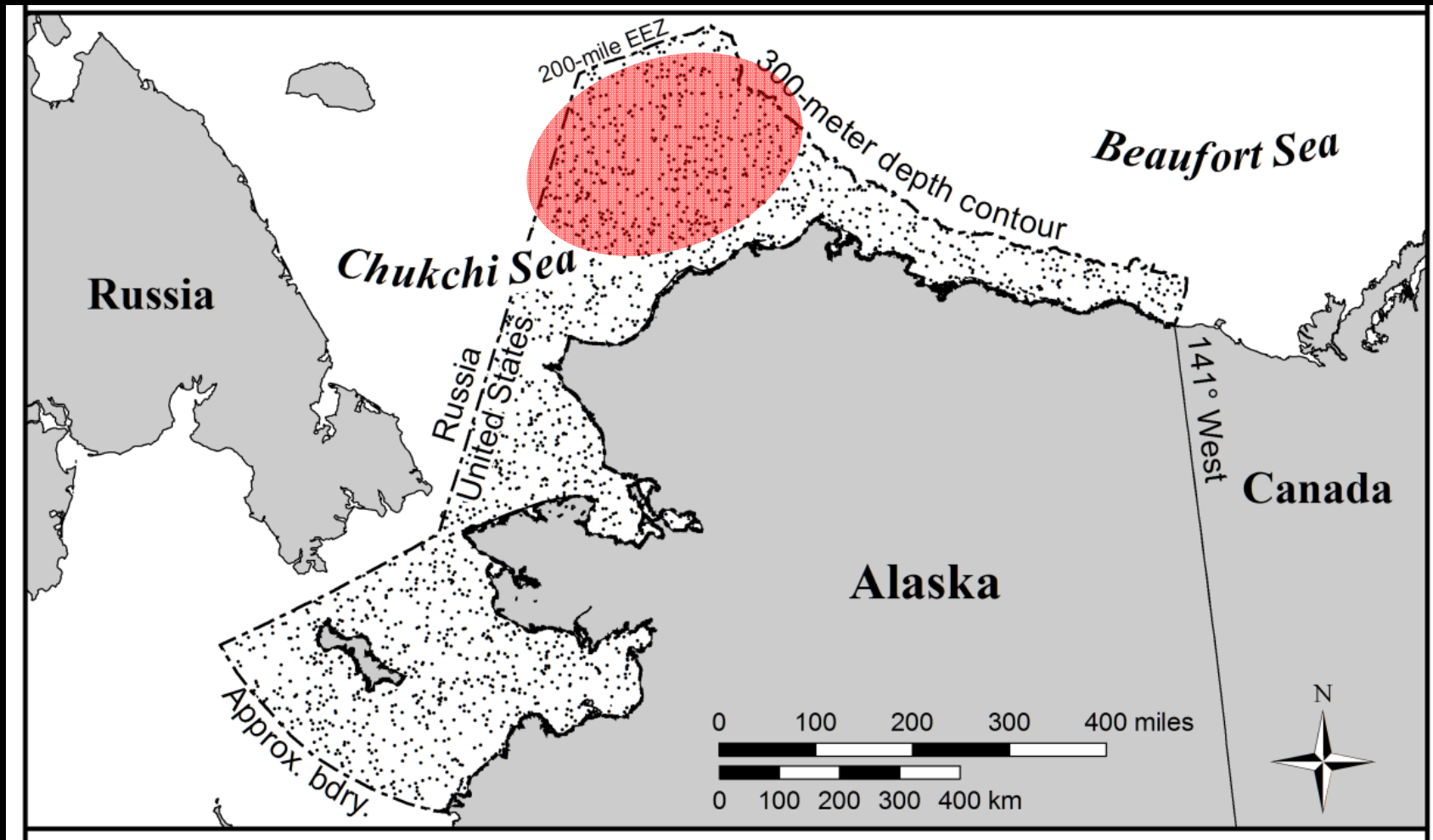
Climate change isn't some vague future problem—it's already damaging the planet at an alarming pace. Here's how it affects you, your kids and their kids as well

EARTH AT THE TIPPING POINT
HOW IT THREATENS YOUR HEALTH
HOW CHINA & INDIA CAN HELP SAVE THE WORLD—OR DESTROY IT
THE CLIMATE CRUSADERS



Polar bear critical habitat

484,734 km² (187,157 mi²) protected in 2010



ESA and the polar bear

- Listed in 2008 as threatened
- Adaptation successes:
 - protection of critical habitat
 - banned import of trophy hunted bears into US
 - agencies must consider impacts of drilling, pesticides, and other threats
- Mitigation challenges:

Bush-Obama special rule limits ability to consider impacts of greenhouse gases on polar bears



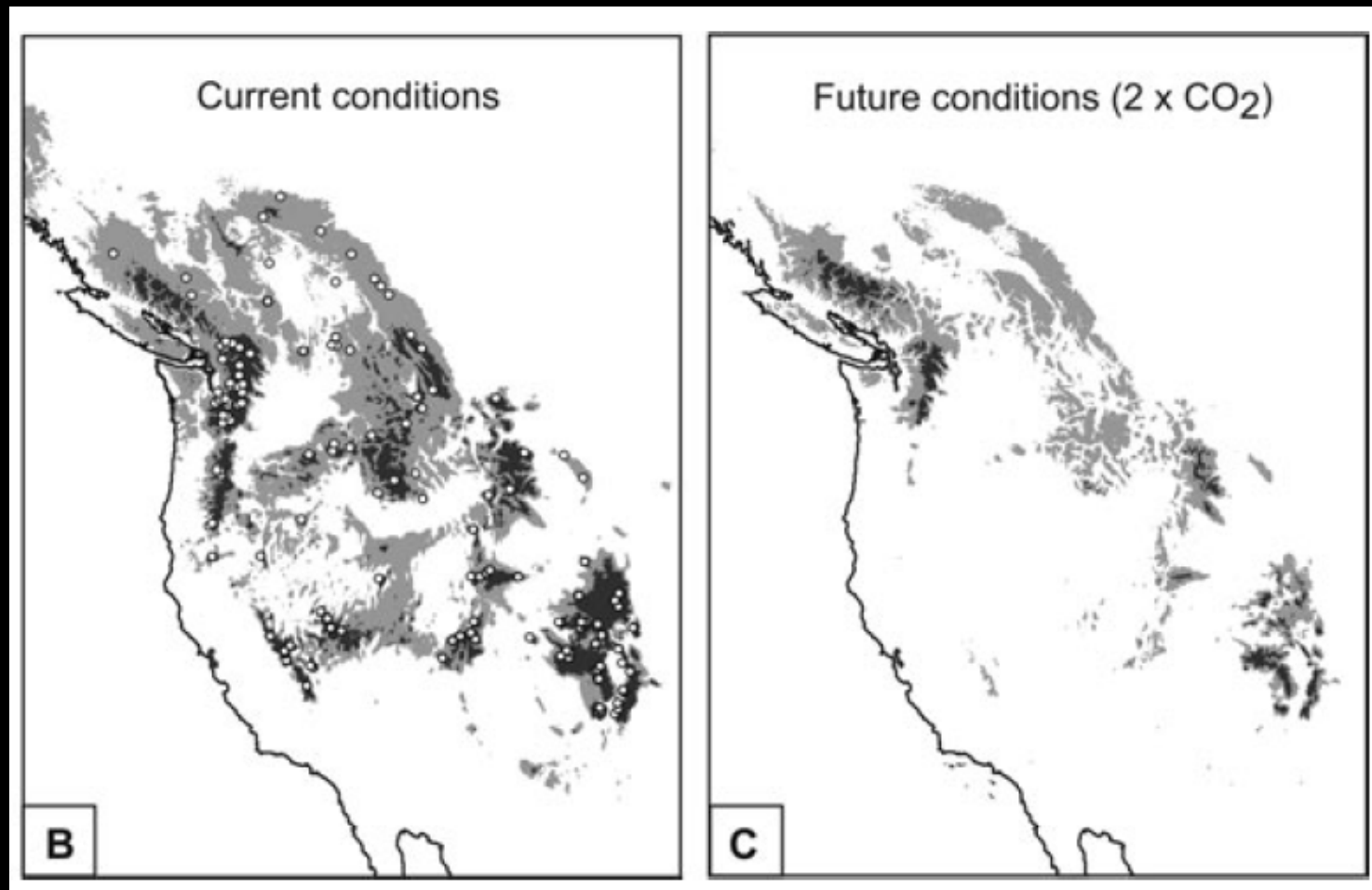
Editorial cartoon by Joe Alterio/joalterio.com

American pika



Photo (c) John J. Mosseso

Loss of suitable pika habitat



(Galbreath et al. 2009)

ESA and the pika

- Pika denied protection in Feb 2010
- Challenges:
 - FWS failed to consider best-available science
 - FWS used a short time horizon for considering climate change threats to the pika (“foreseeable future” through 2050)

Arctic ice seal listing process



denied listing in 2008
foreseeable future = 2050
insufficient sea-ice analysis

Arctic ice seal listing process



denied listing in 2008
foreseeable future = 2050
insufficient sea-ice analysis



2% of world population listed in 2010
foreseeable future not specified
insufficient sea-ice analysis

Arctic ice seal listing process

ribbon



(c) Captain Budd Christman/NOAA

denied listing in 2008
foreseeable future = 2050
insufficient sea-ice analysis

spotted



(c) Josh M. London

2% of world population listed in 2010
foreseeable future not specified
insufficient sea-ice analysis

bearded



(c) David S. Isenberg

ringed



(c) Melanie Duchin

proposed as threatened in 2010
foreseeable future = 2100
improved sea-ice analysis
advanced science on changes
in sea ice and snow depth

- ESA important tool for protecting climate-threatened species:
 - educates
 - advances the science
 - provides strong, enforceable protections including mitigation and adaptation
- Existing existing environmental laws have effective tools to address climate change

Questions?

www.biologicaldiversity.org

swolf@biologicaldiversity.org



(me in polar bear costume at SF rally)