



Climate change: Can Wyoming's wildlife cope?

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Climate and ecological systems

Shapes temperature, moisture, resource availability

Key factor in where we find animals on the landscape,
how many are there, and how well they survive





Illinois.edu



Christopher Furlong



Mark Gocke

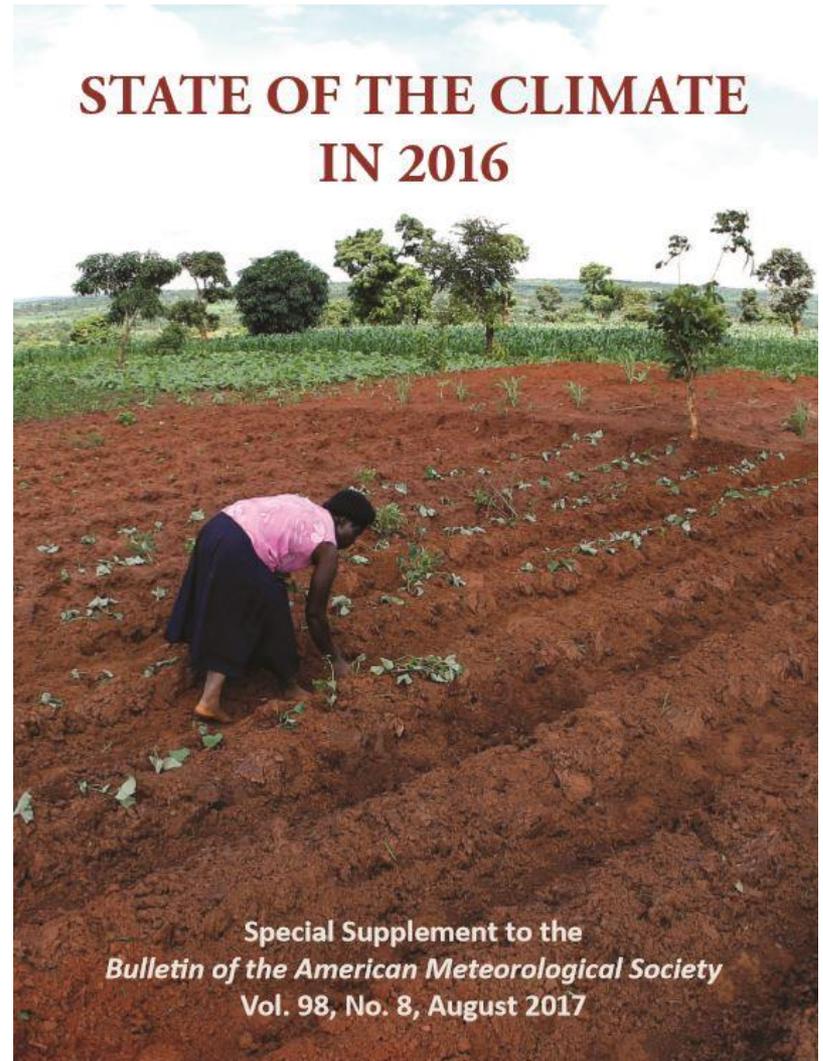


Mark Gocke

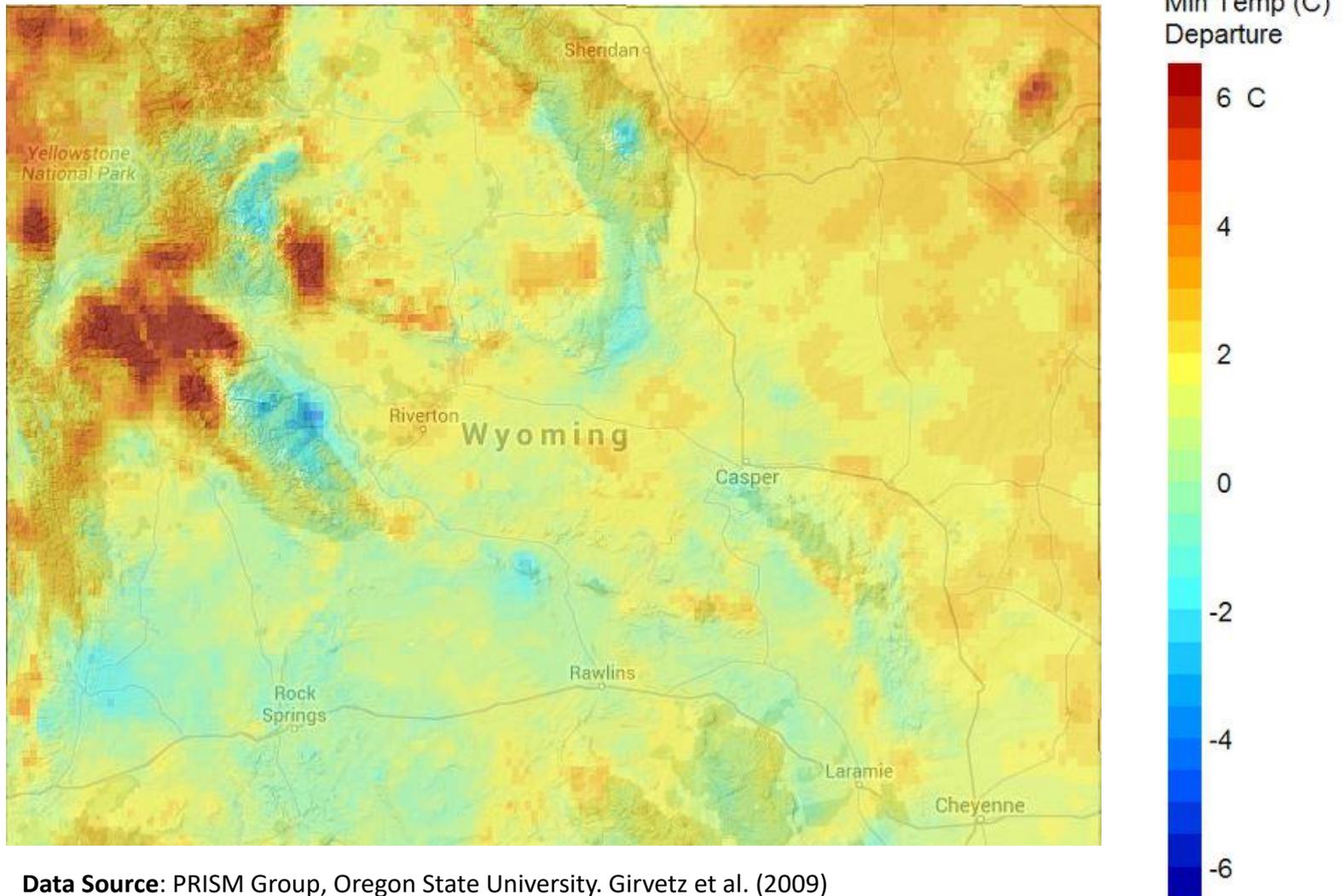
Earth's annual physical

2016: Warmest year on record (since 1880)

15 of **16** warmest years occurred since 2000



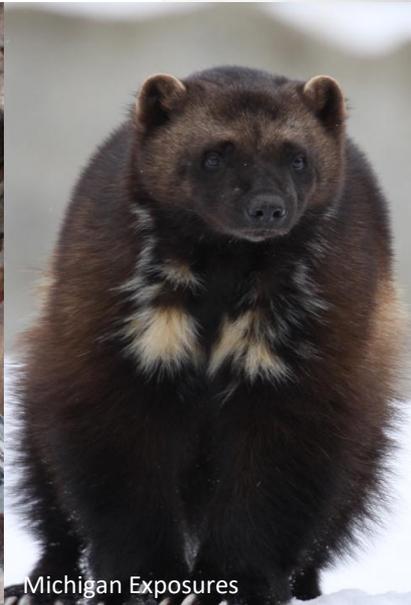
Average January minimum temperature departure (1951-2014)



Data Source: PRISM Group, Oregon State University. Girvetz et al. (2009)
Applied Climate-Change Analysis: The Climate Wizard Tool. PLoS ONE 4(12): e8320.



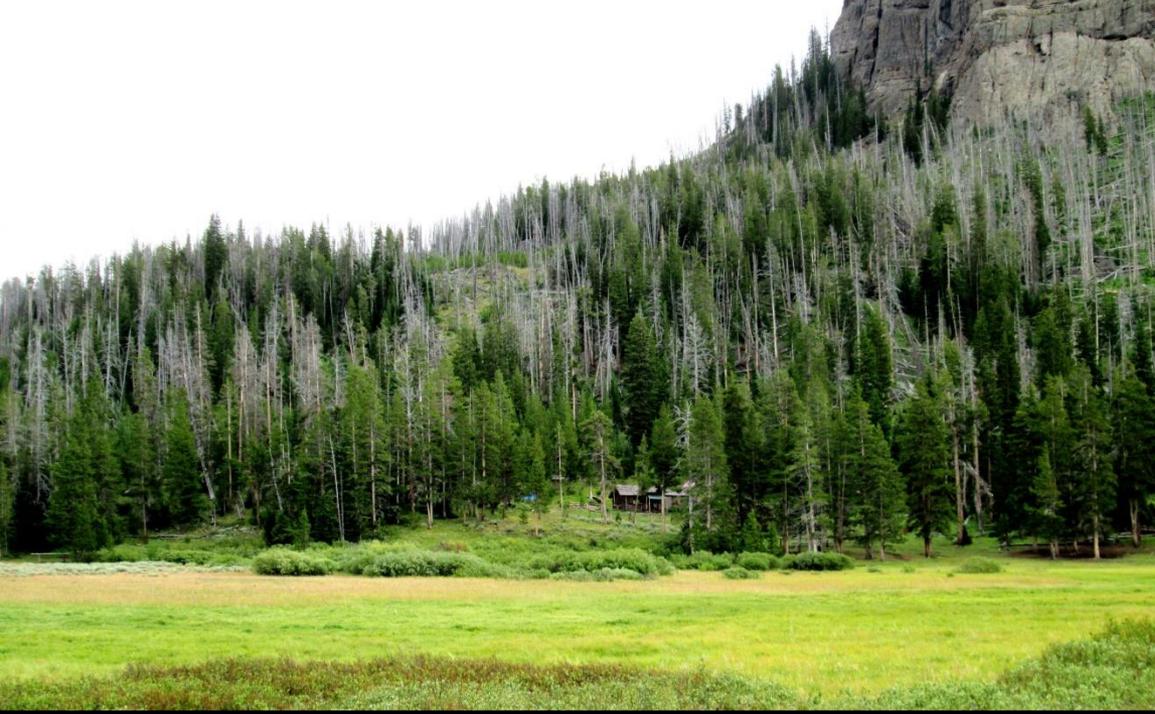
J Henningsen



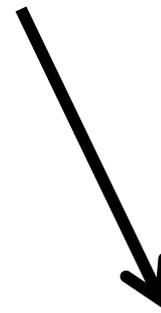
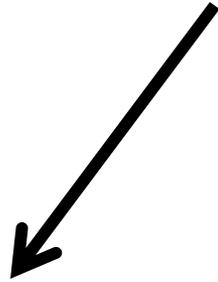
Michigan Exposures



tringa.org



Winners & losers



12 time NBA All-Star
5 time MVP
Olympic gold medalist

Winners & losers



NATIONAL
GEOGRAPHIC
PHOTOARK
JOEL SARITON



S. Torbit

Vulnerability

Sensitivity: intrinsic sensitivity (e.g. physiological tolerances)

Exposure: degree of regional climatic change

Adaptive capacity: capacity to cope with change





900% in production in dry years

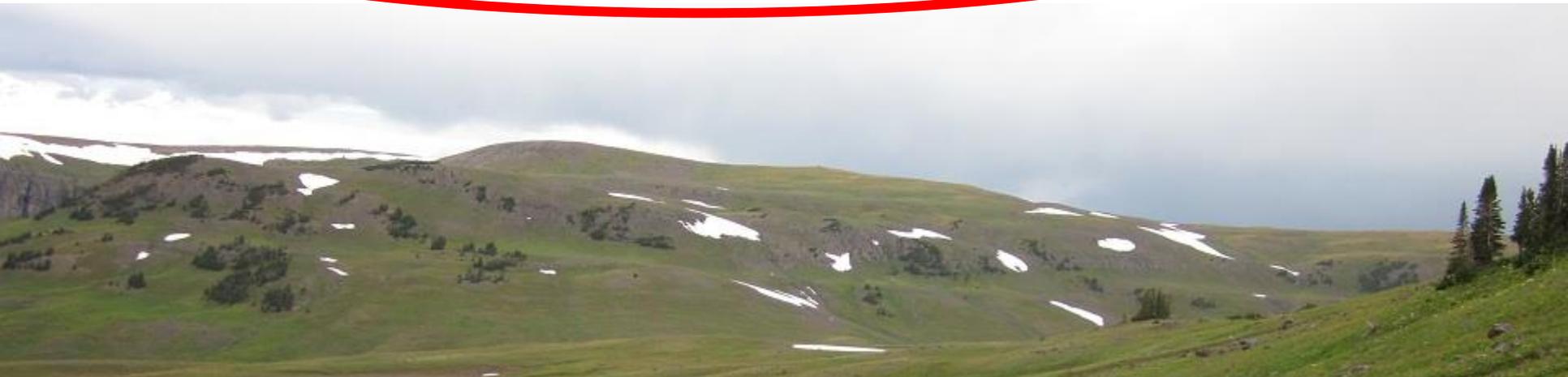
80% moderate or highly vulnerable

Vulnerability

Sensitivity: intrinsic sensitivity (e.g. physiological tolerances)

Exposure: degree of regional climatic change

Adaptive capacity: capacity of a species (or populations) to cope with change



Vulnerability

Sensitivity ✓

(25° C)

Exposure ✓

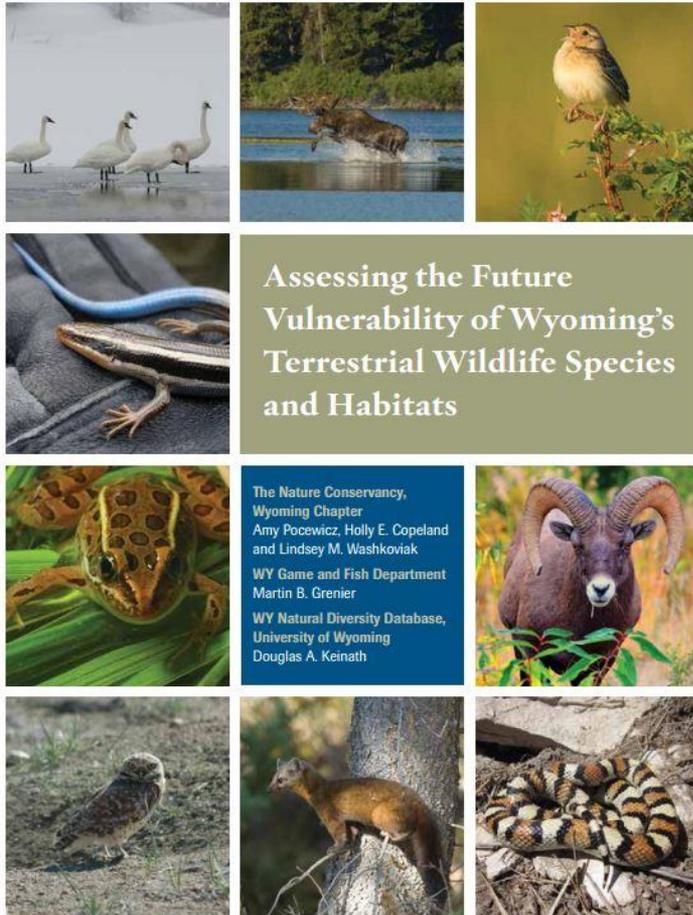
↑ 4 F in annual temp
over past 50 years

Adaptive Capacity?

**NO ROOM
AT THE
TOP**



Vulnerability

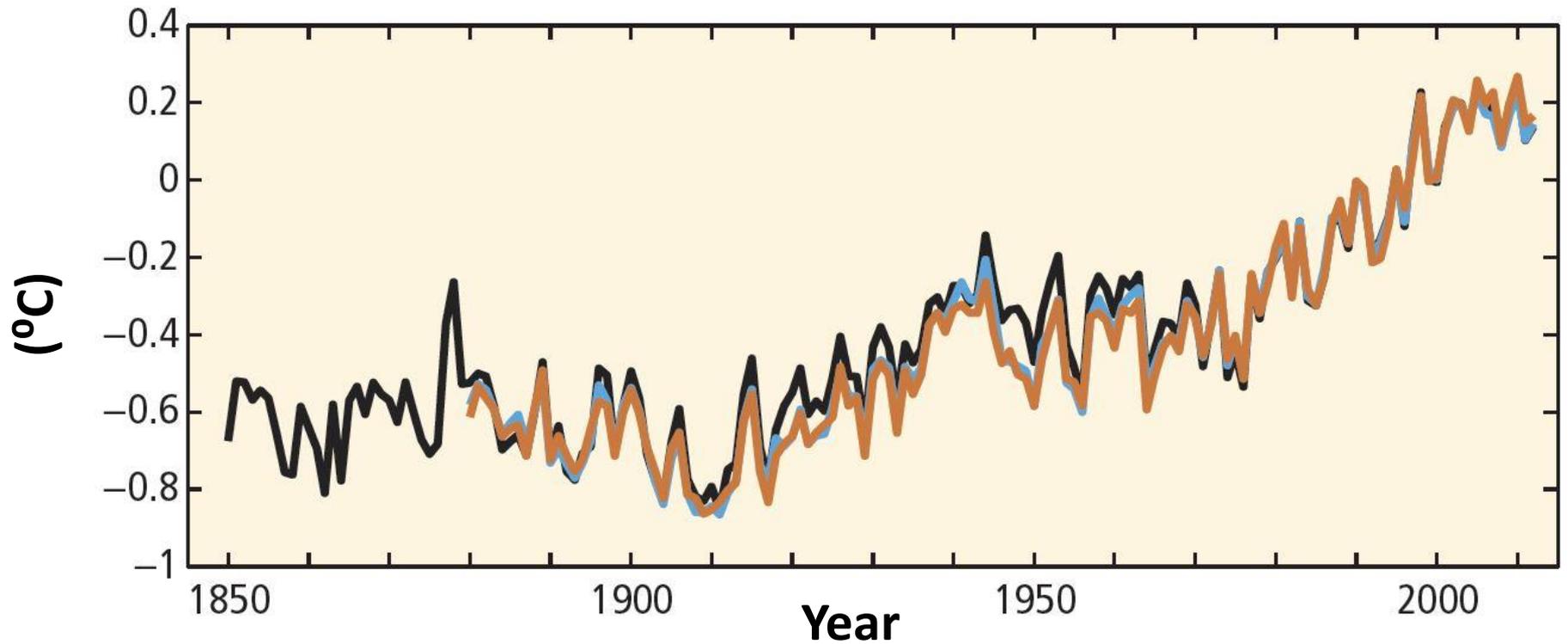


Sensitivity

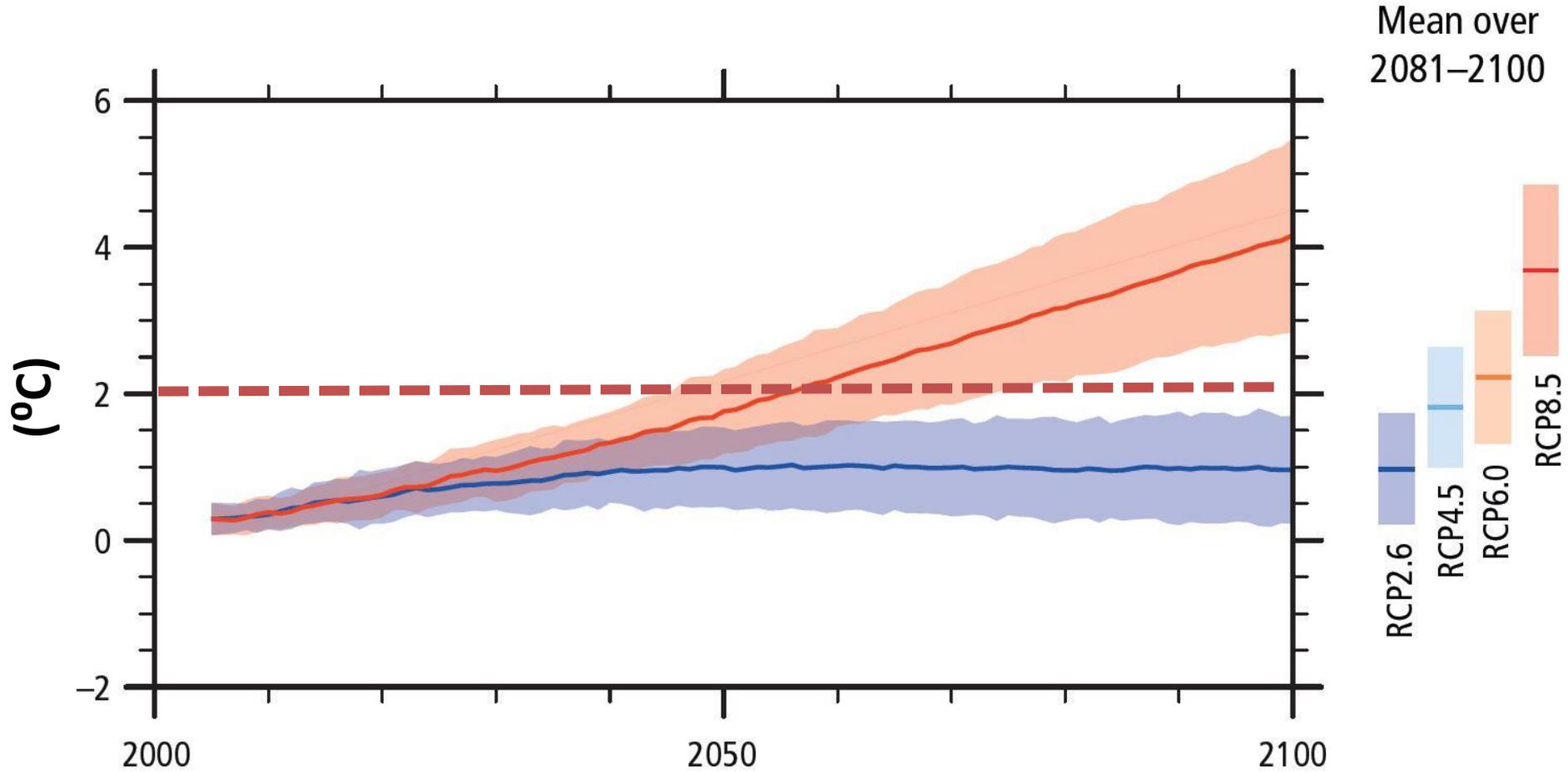
Exposure

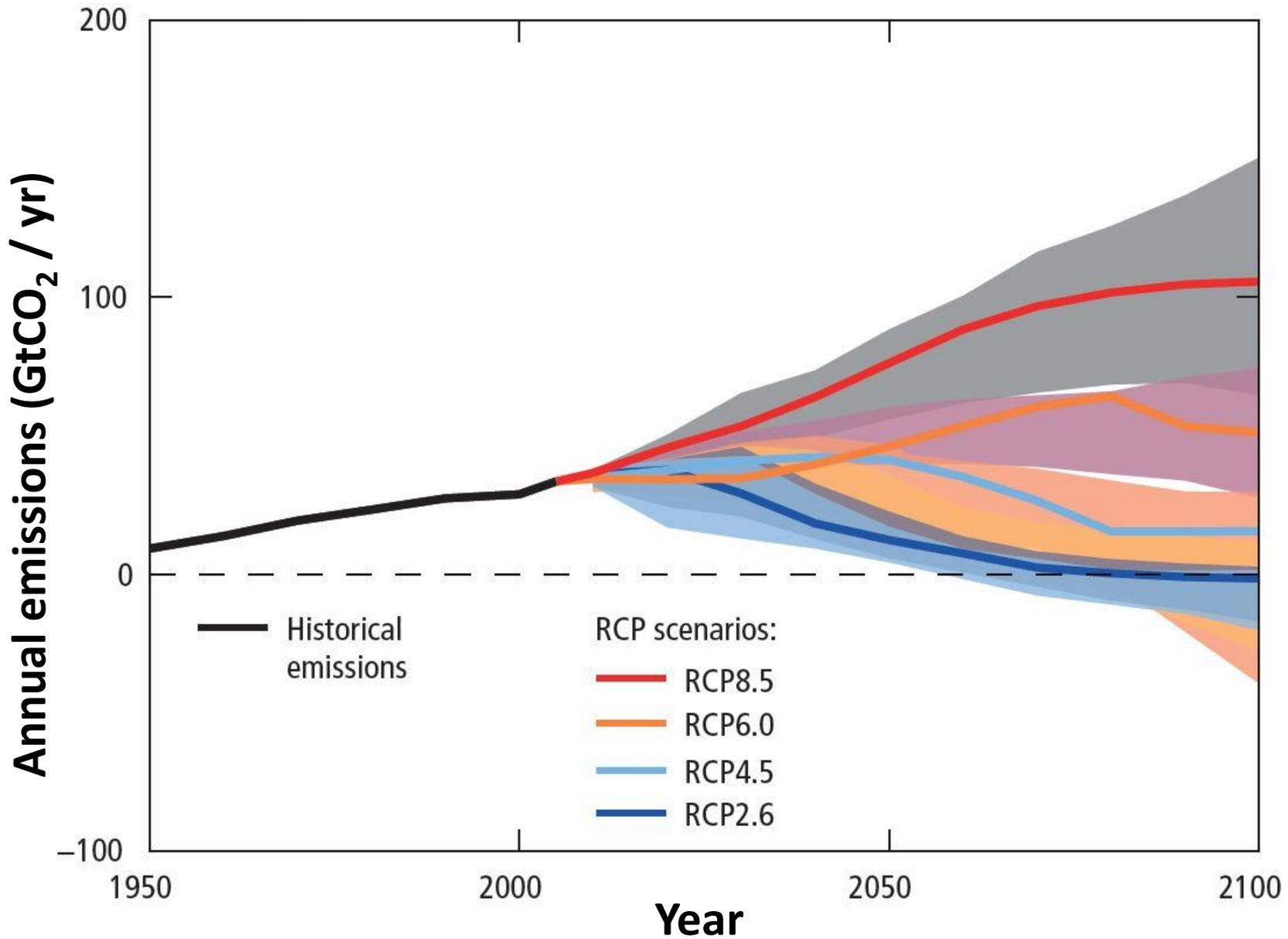
Adaptive capacity

Observed global temperature

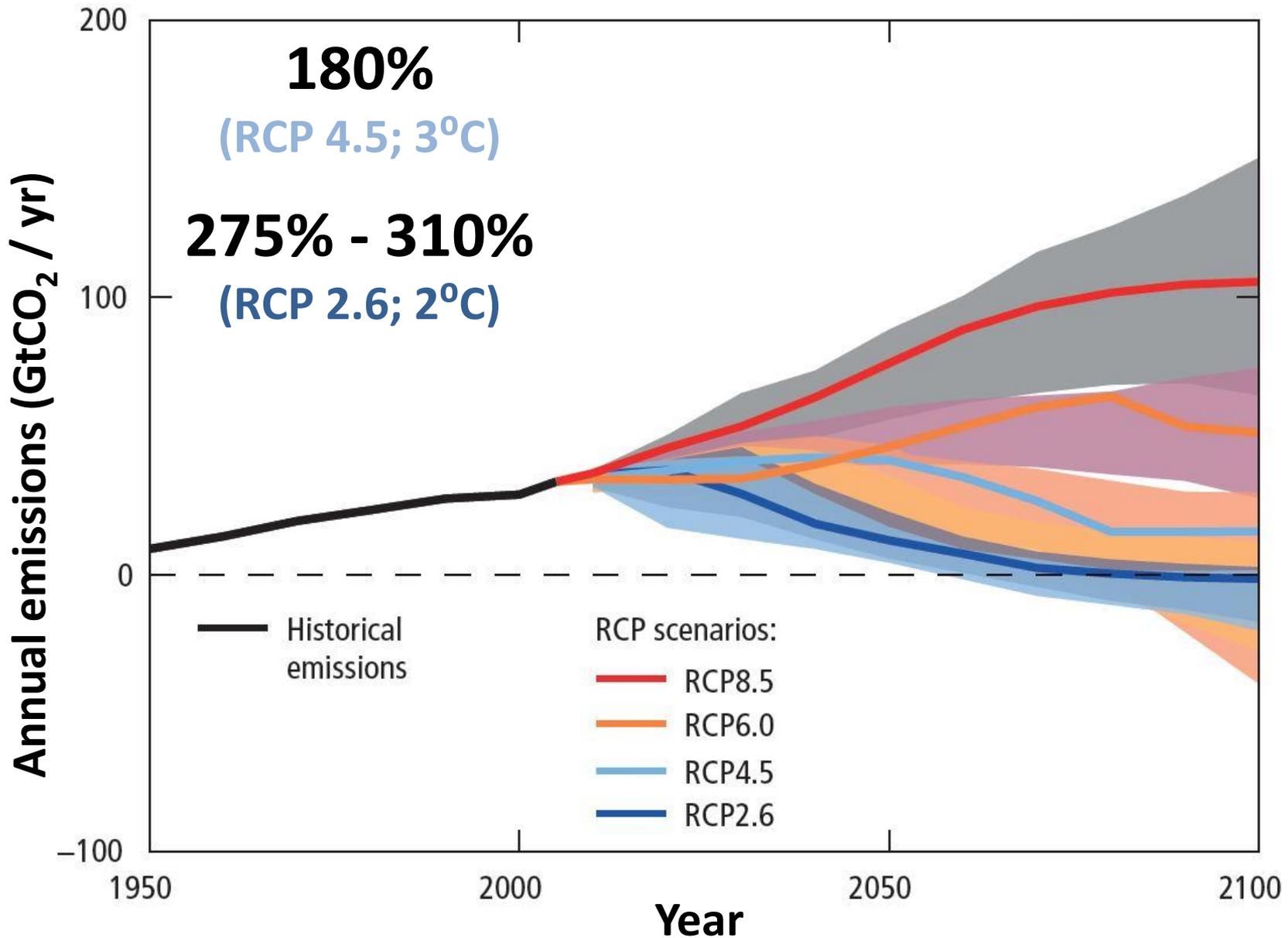


Projected global temperature

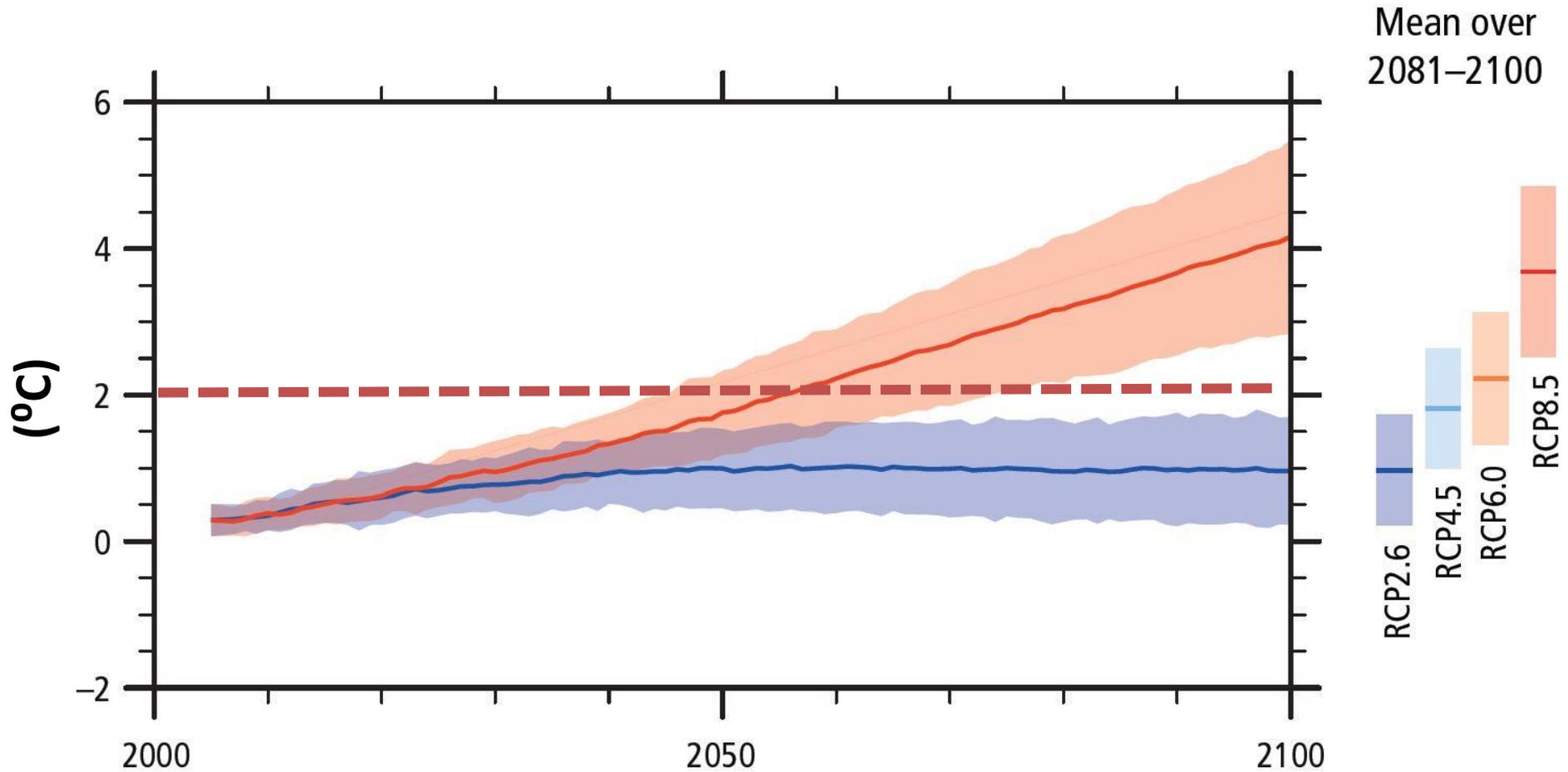




Adapted from IPCC. 2014. Synthesis report



There's still time...





Final thoughts

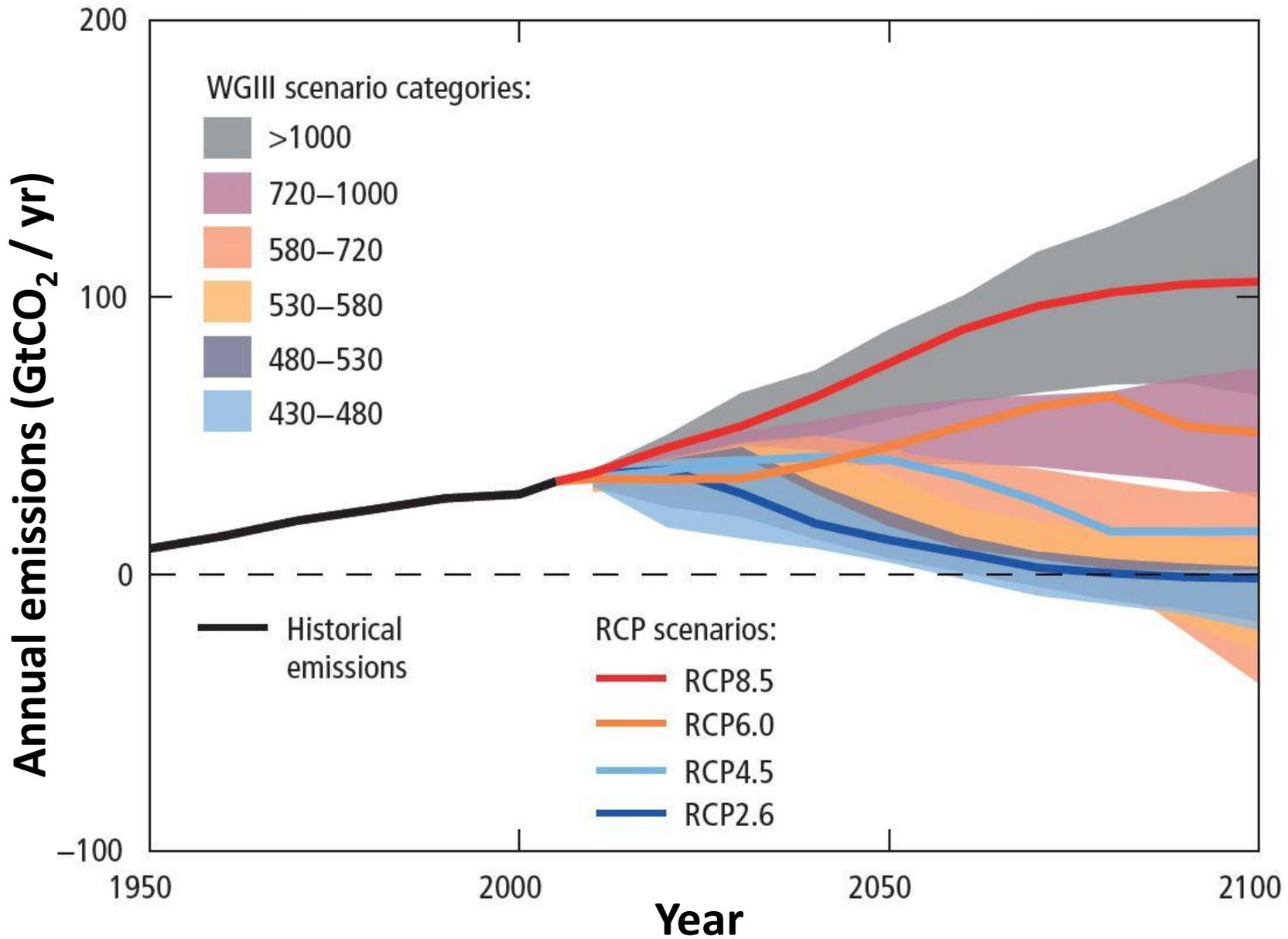
Climate change is happening in Wyoming

It affects nearly all wildlife species

New problem that requires new thinking:
Adaptive management, collaboration, uncertainty

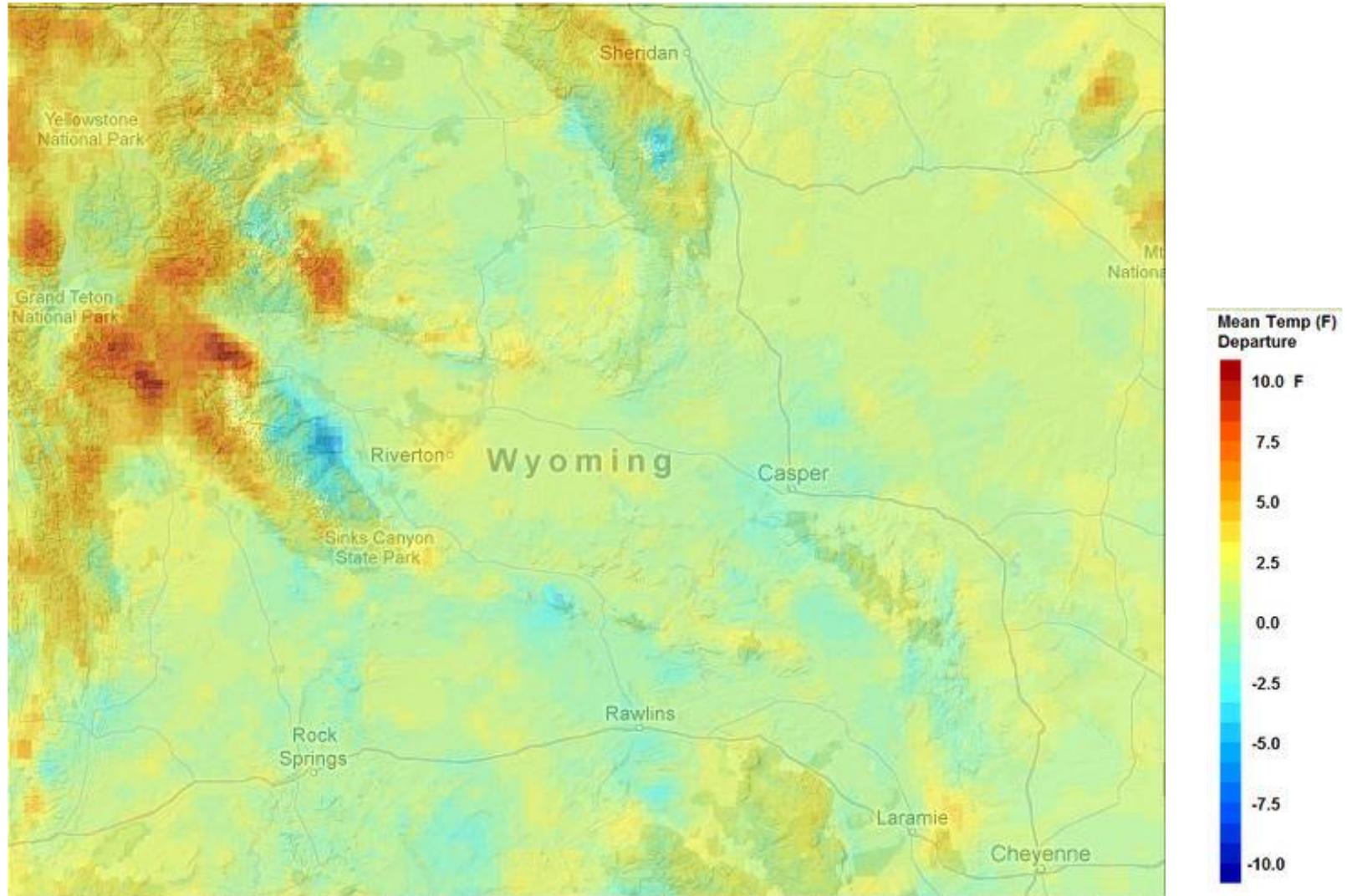
Way forward that moderates exposure and
promotes resilience





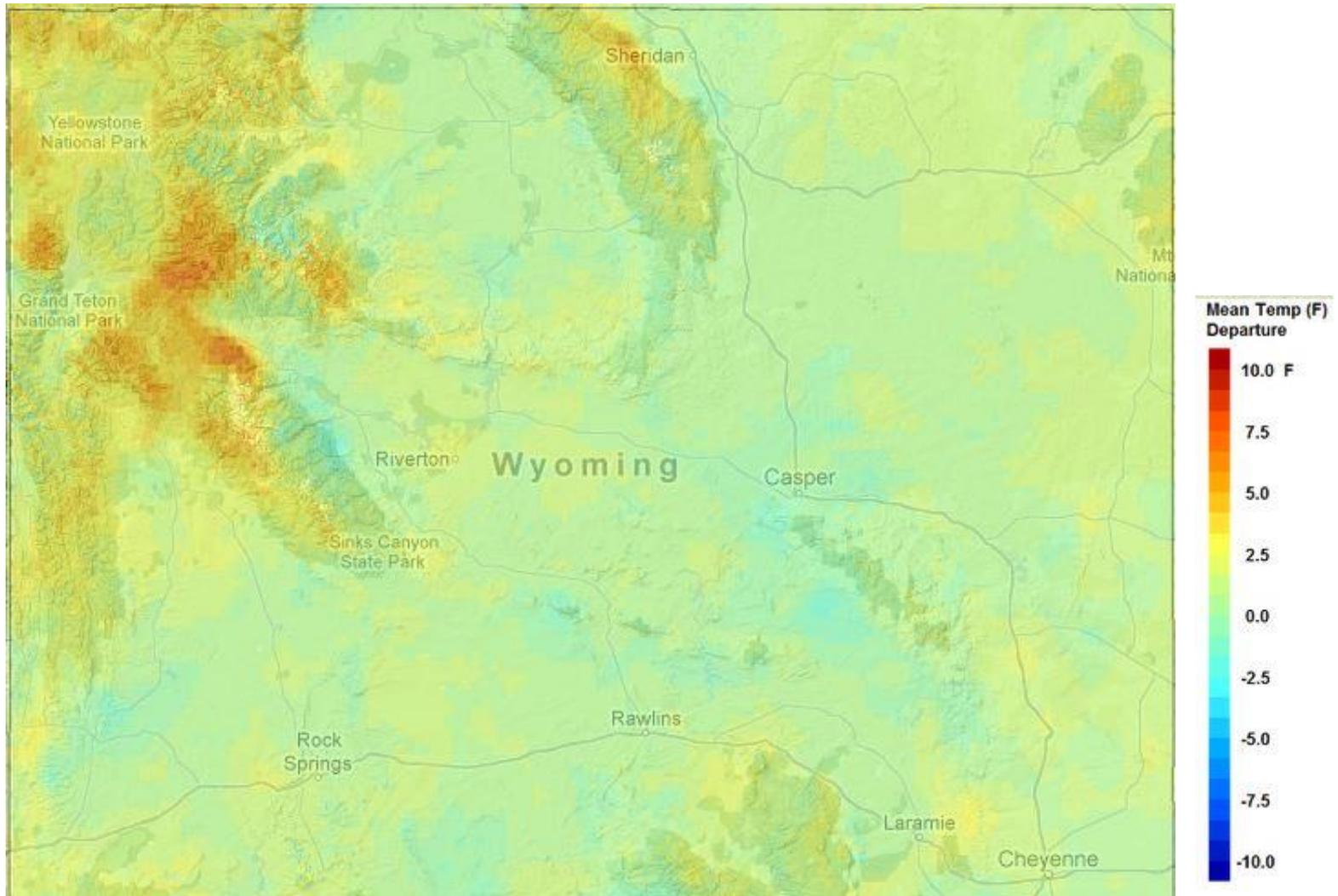
Adapted from IPCC. 2014. Synthesis report

Minimum temperature departure from normal (2000-2011)



Data Source: PRISM Group, Oregon State University. Girvetz et al. (2009)
Applied Climate-Change Analysis: The Climate Wizard Tool. PLoS ONE 4(12): e8320.

Annual temperature departure from normal (2000-2011)



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