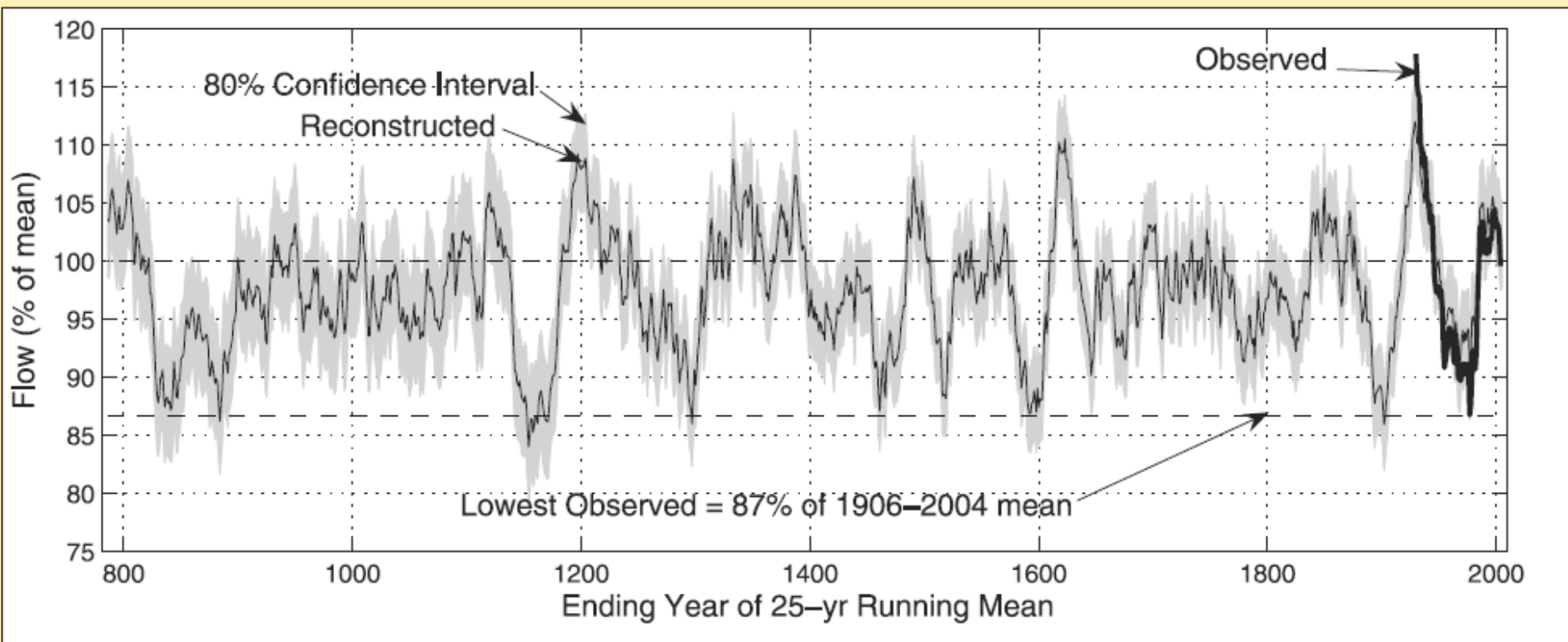


Adapting to Drought and Climate Change in Colorado



John Sanderson
Colorado Water Conservation Board 2012 Drought Conference
September 19, 2012

FIGURE 2-9. Reconstruction of Streamflow for the Colorado River at Lees Ferry



Climate Change in Colorado

A Synthesis to Support Water Resources
Management and Adaptation

FIGURE 2-2. Temperature at Nine Observing Stations

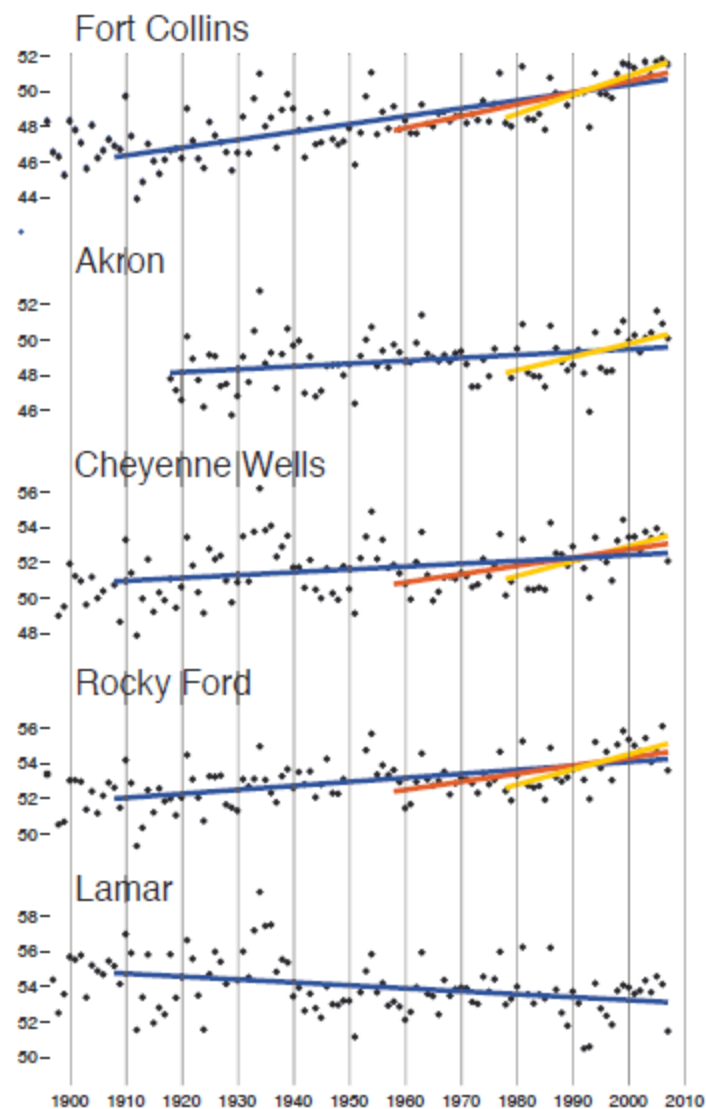
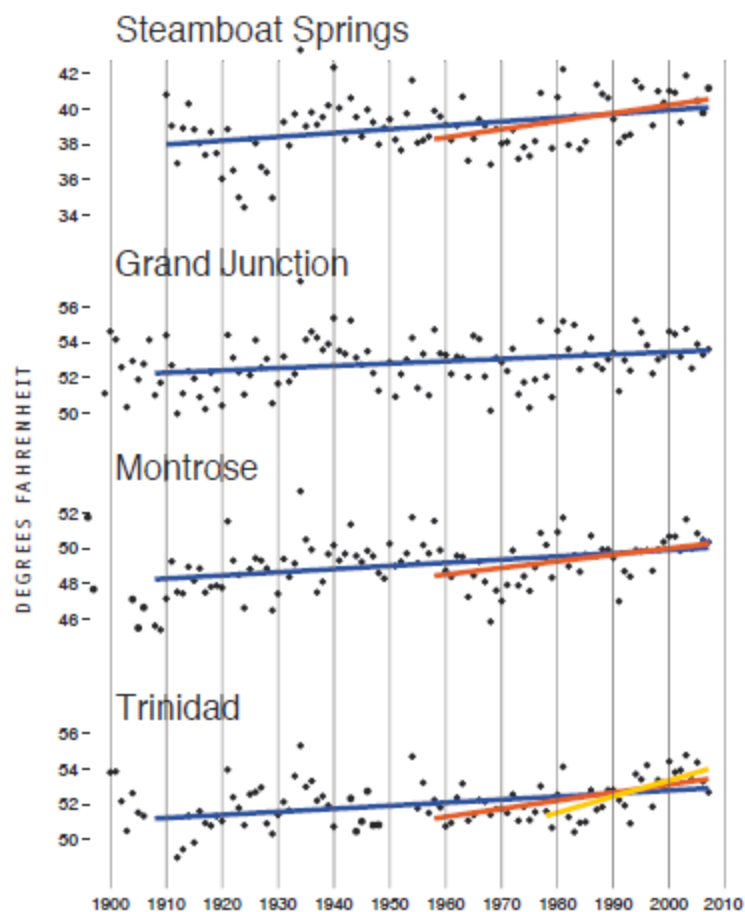
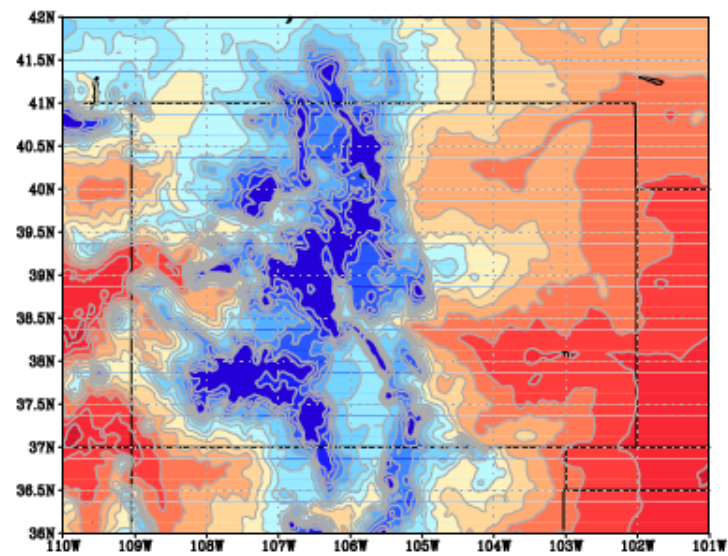
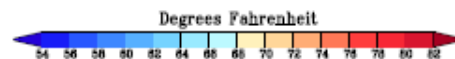
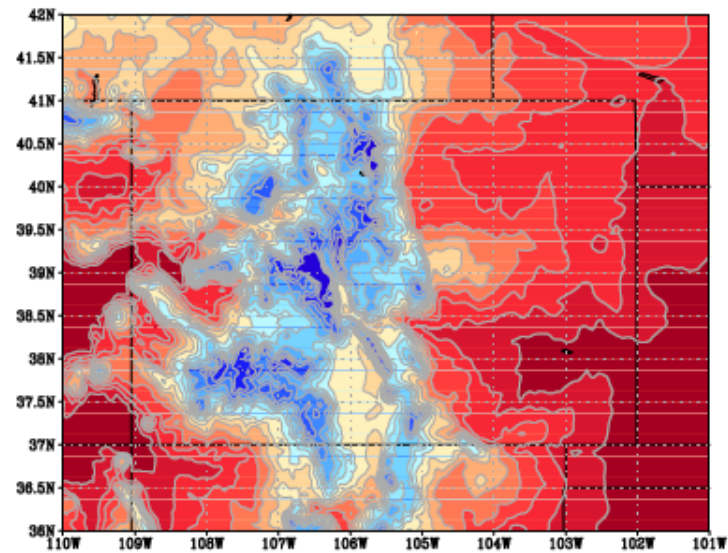


FIGURE 5-3. July Observed and Projected Temperatures

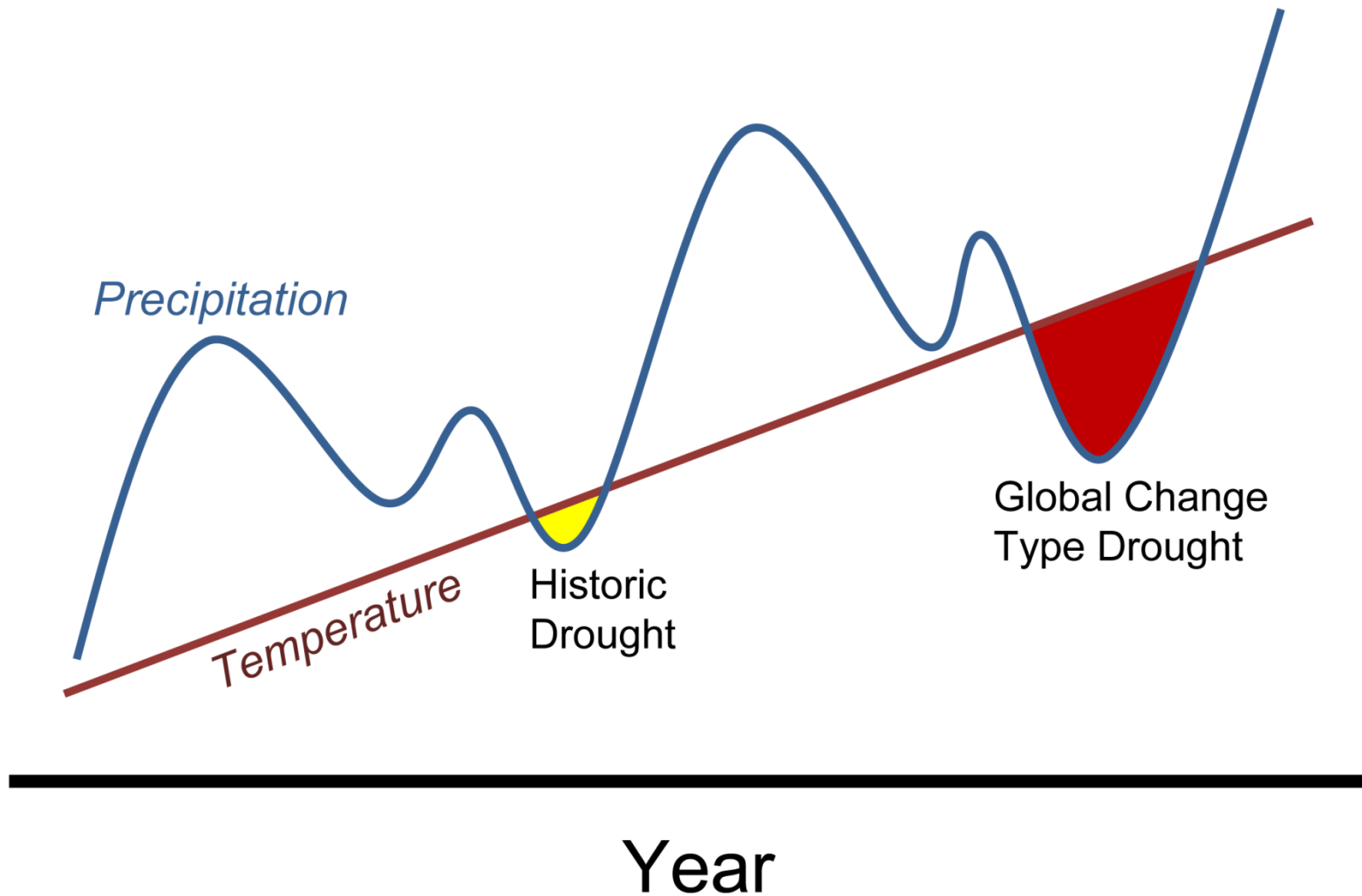
JULY CLIMATOLOGICAL TEMPERATURE (1950-99)



PROJECTED JULY CLIMATOLOGICAL TEMPERATURE 2050

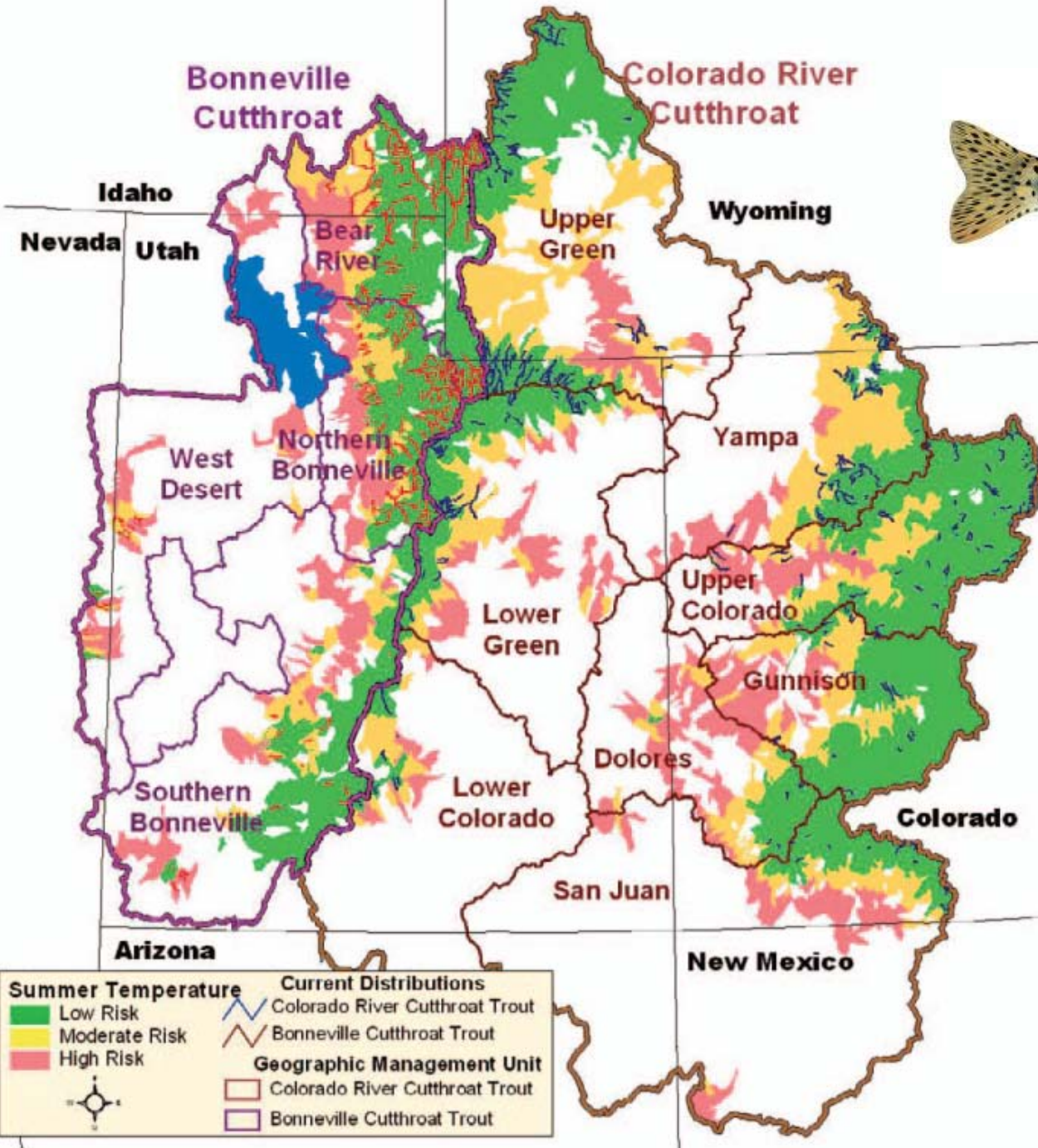


Amplification of Natural Disturbances

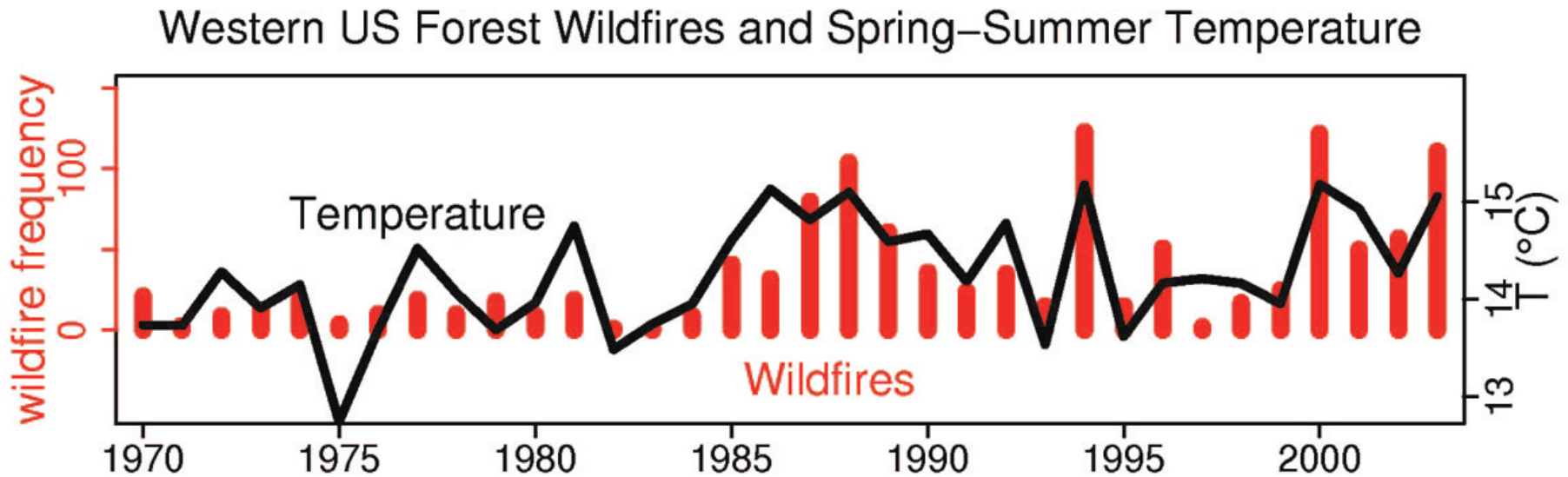


Observed impacts of drought on natural resources

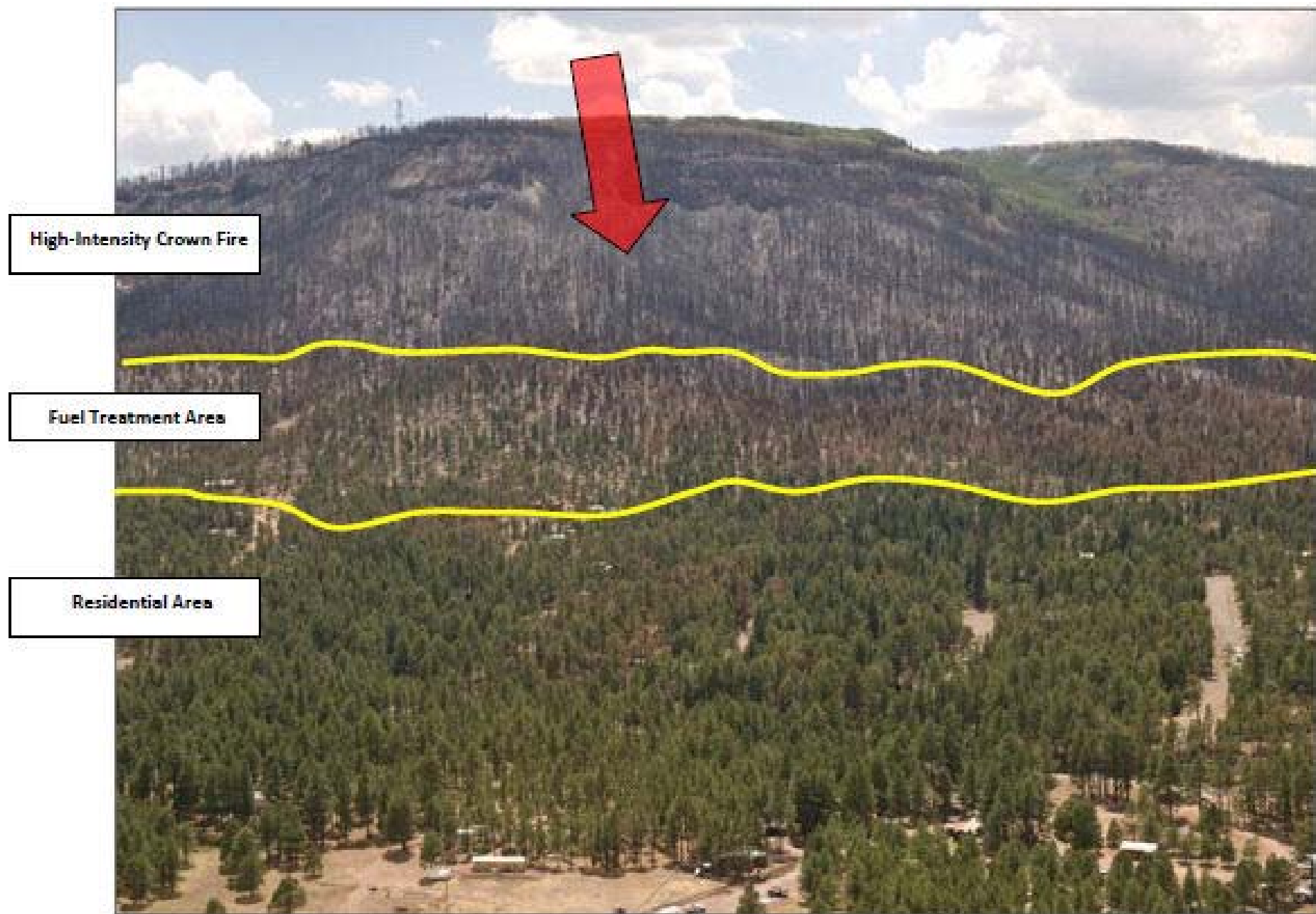
- Loss of habitat in streams and rivers
- Impaired access to key habitats for fish
- Reduced wetland area; smaller shorebirds and amphibians populations
- Warmer stream temperature stress on trout
- Warmer stream temps boosting bass predation on endangered fish
- Shortgrass prairie stressed and smaller grassland bird populations
- Increased vulnerability of forests to pests and pathogens
- Larger and more severe wildland fires



Warmer, Drier Summers → Large, Severe Fires



How Fuel Treatments Saved Homes from the Wallow Fire



Practical Action to Build Resilience or Nature and People



- Trout habitat restoration, reintroduction and relocation**
- Protection of agricultural water supply**
- Protection of wetlands for flood attenuation**



- Drought year leasing for instream flows**
- Increase habitat and lower temperatures for fish**
- Support recreation industry**
- Improve ability to divert**
- Provide income to producers, water suppliers**



- Controlled burning to increase forest resilience**
- Protection of life & property from catastrophic fire**

Practical Action to Build Resilience or Nature and People (cont.)



**Conservation easements on
lands with critical streams
and wetlands**

**Sustain natural habitats and
endangered species**

**Provide income and tax
benefits to producers**

**Make scenic values
permanent**

Provide flood control benefits



**Easements on working
ranches**

**Protect large, intact
landscapes**

**Provide ranchers with
increased resources
to buffer drought
periods**



**Collaborate on multi-
purpose projects**

**Provide critical
baseflows to
endangered fish
during drought
years**

**Create additional
storage for homes
and businesses**

How do we create more resilience for the future?

- Assess vulnerability to drought and climate change
- Build baselines where necessary; monitor change
- Develop strategies and implement actions
- Collaborate on innovative solutions
- Create flexibility in policy, markets
- Seek durable solutions