



## Community-Based Adaptation: Examples from the people of the Pamir Mountains and other Indigenous Communities

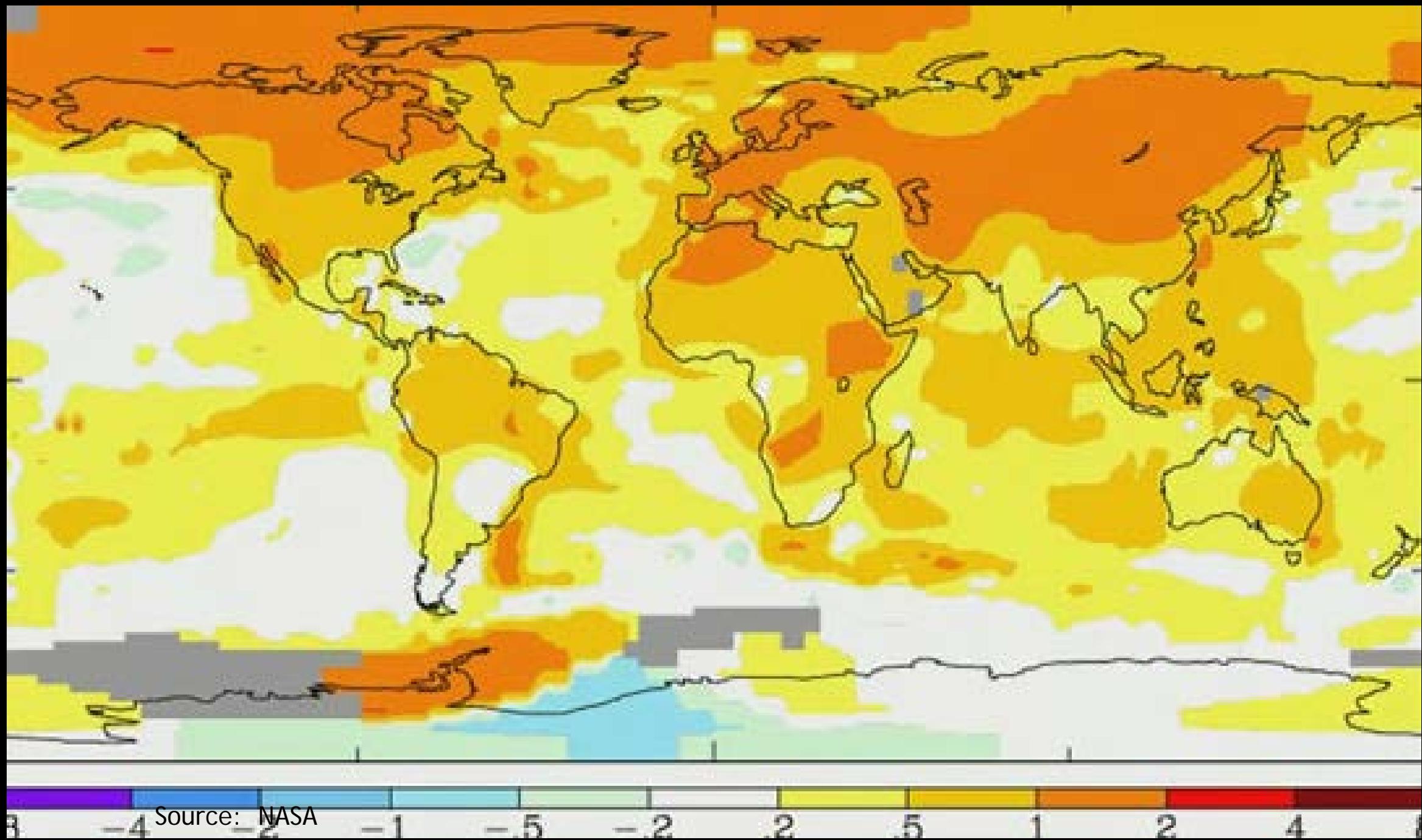
**Christopher P. Dunn, PhD**  
*Executive Director, Cornell Botanic Gardens  
Faculty Fellow, Atkinson Center for a Sustainable Future*







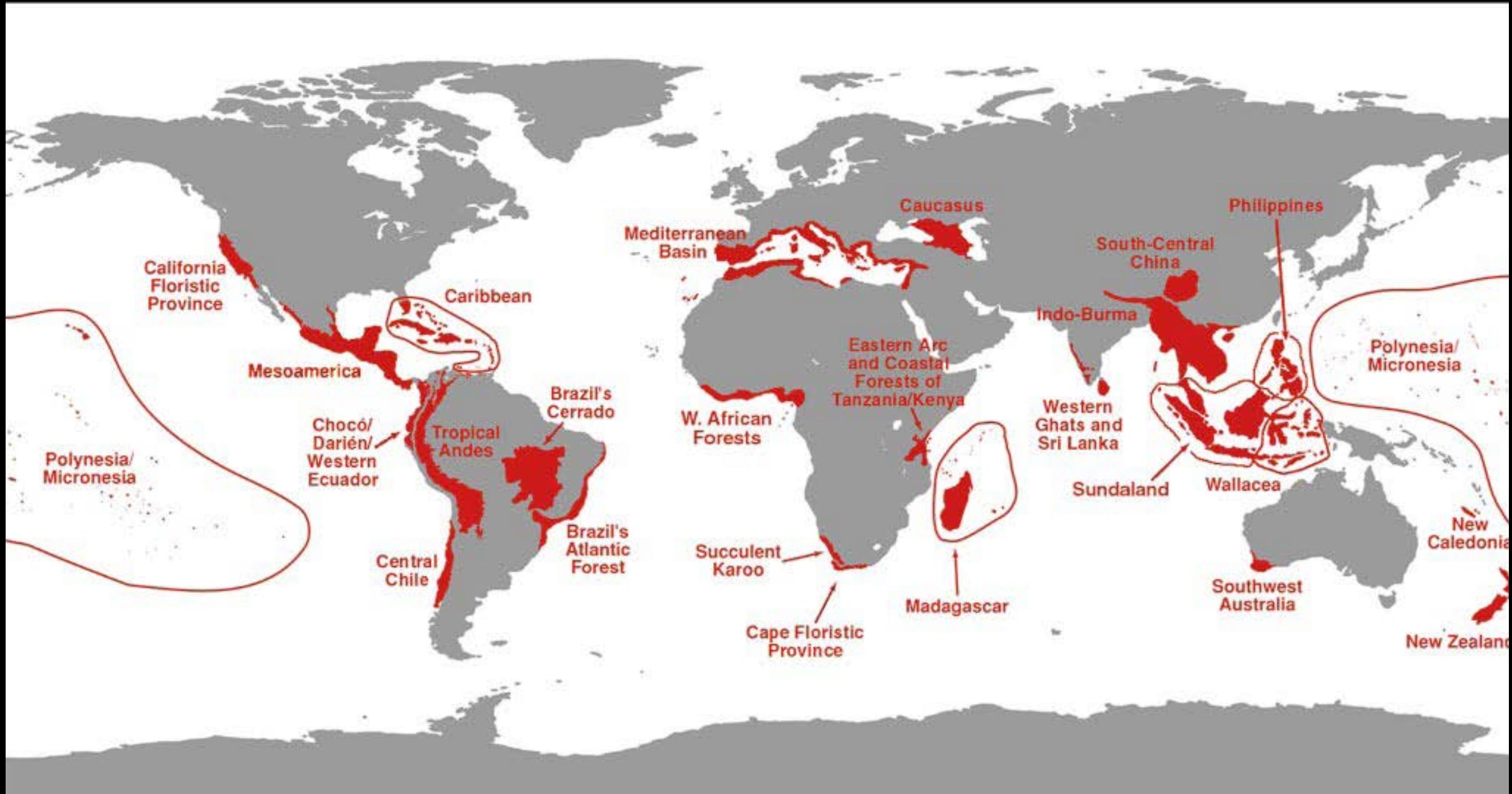




<b>Category</b>	<b>Critical</b>	<b>Endangered</b>	<b>Vulnerable</b>	<b>Extant</b>	<b>%CEV</b>
Birds	182	321	680	9797	12
Mammals	180	340	610	4630	24

Modified from: Sutherland, *Nature* 423: 276-279 (2003)

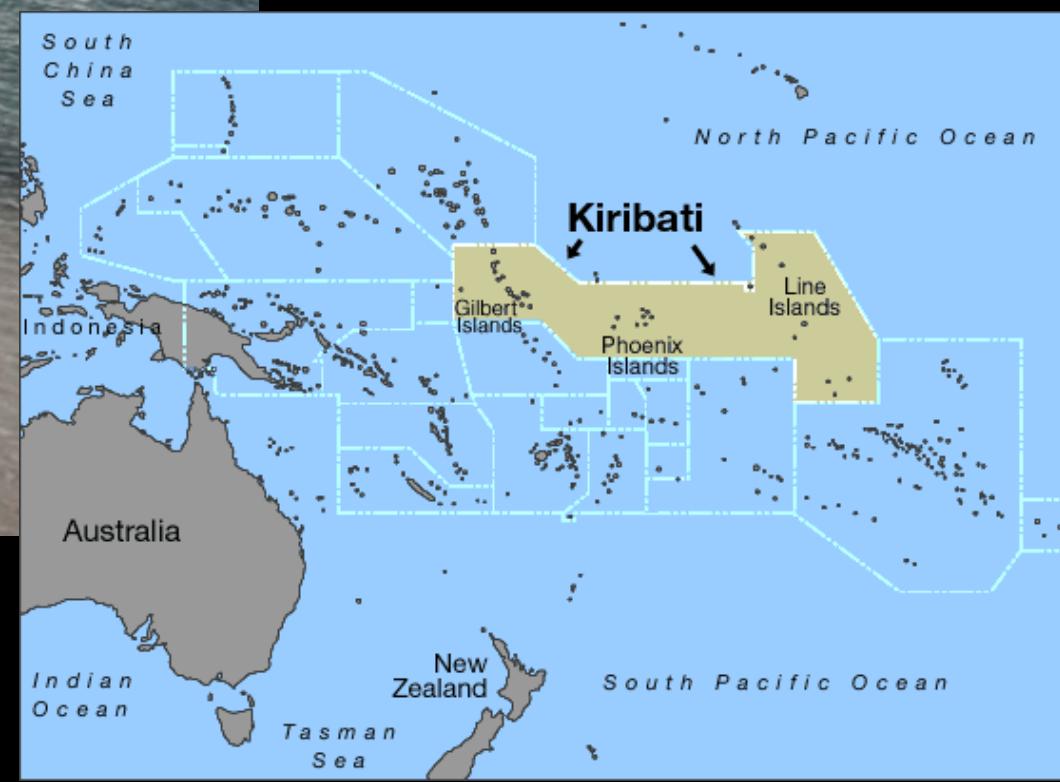
Conservation status developed from IUCN Red List criteria



From: Myers et al., *Nature* 403: 853-858 (2000)







# Lost Solomon Islands

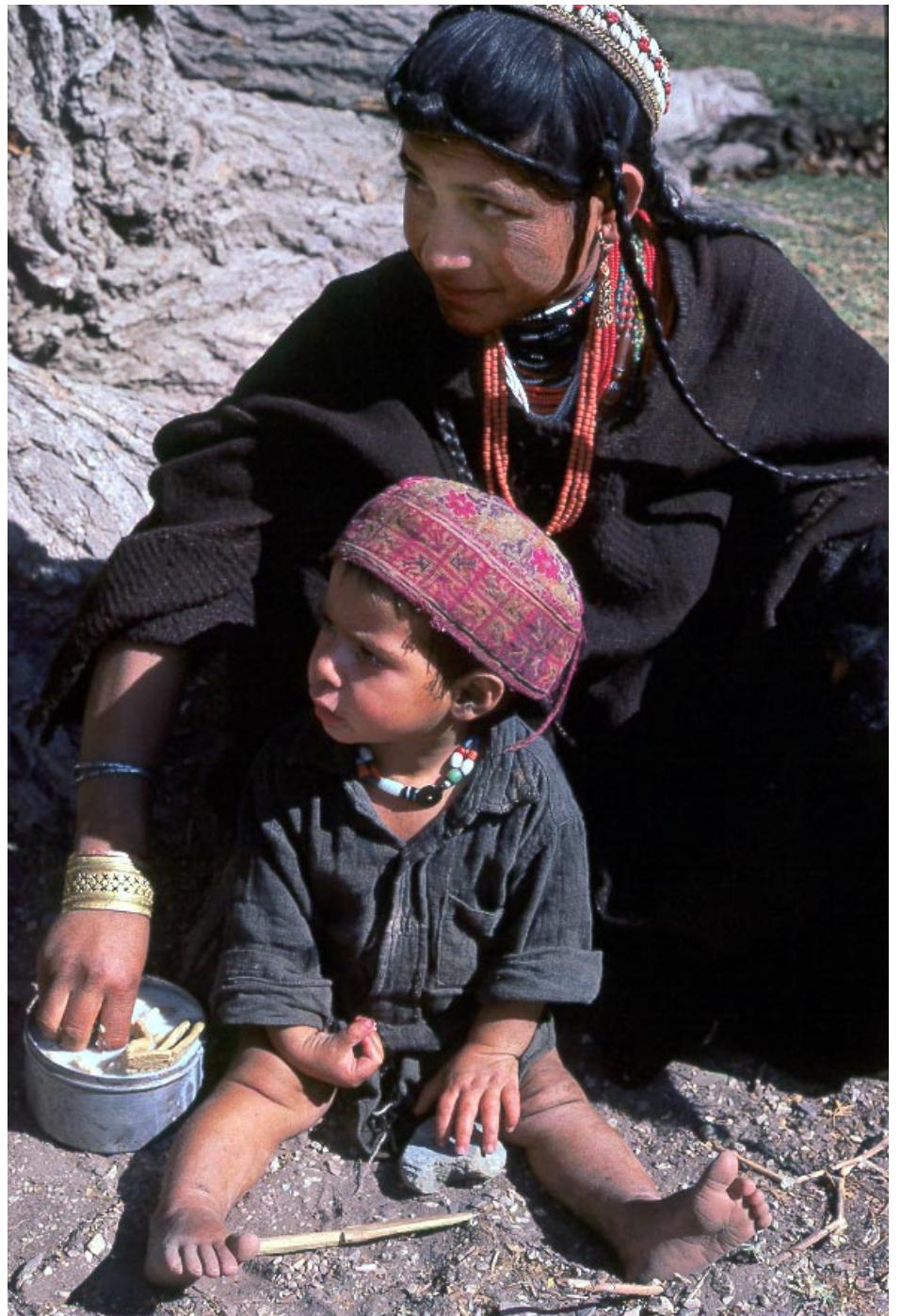


6900 extant languages

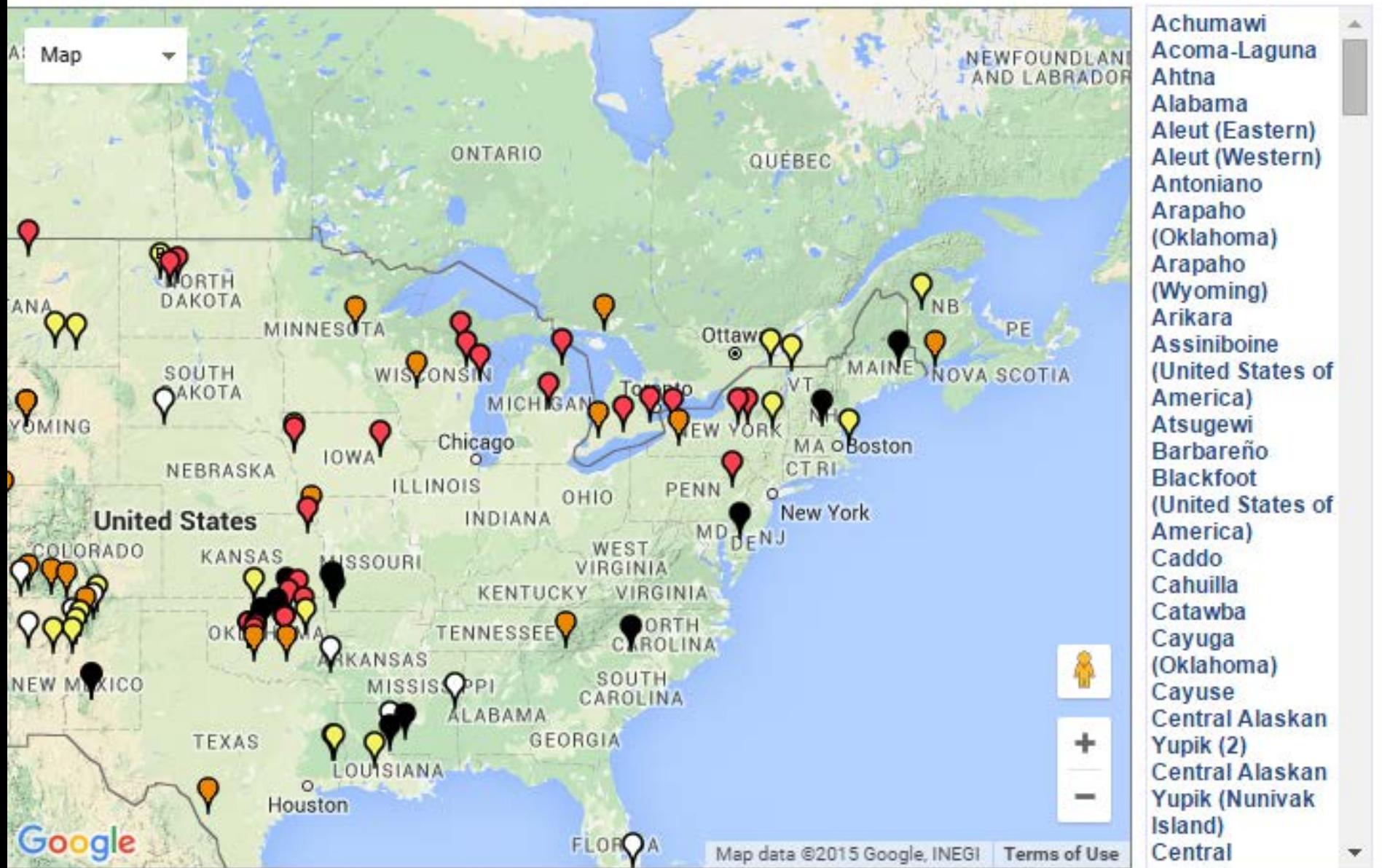
50% endangered

Losing one language every 3 months (long-term trend)

Sources: Mosely (UNESCO, 2010); Campbell & Okura (*in press*)



Number of languages found : 191





Google

<http://www.unesco.org/languages-atlas>

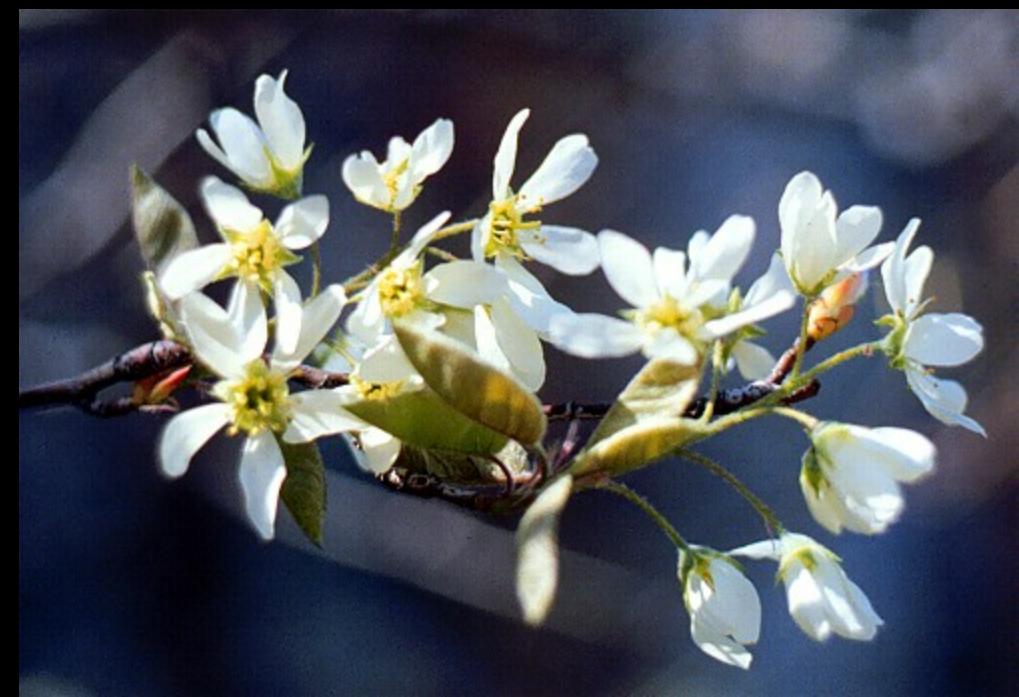


*Cyanea truncata* in tissue culture  
Lyon Arboretum, University of Hawai'i  
**Extinct in the wild**

# *The Seventh Extinction?*

Biodiversity loss and  
the slow extinction of human cultural diversity



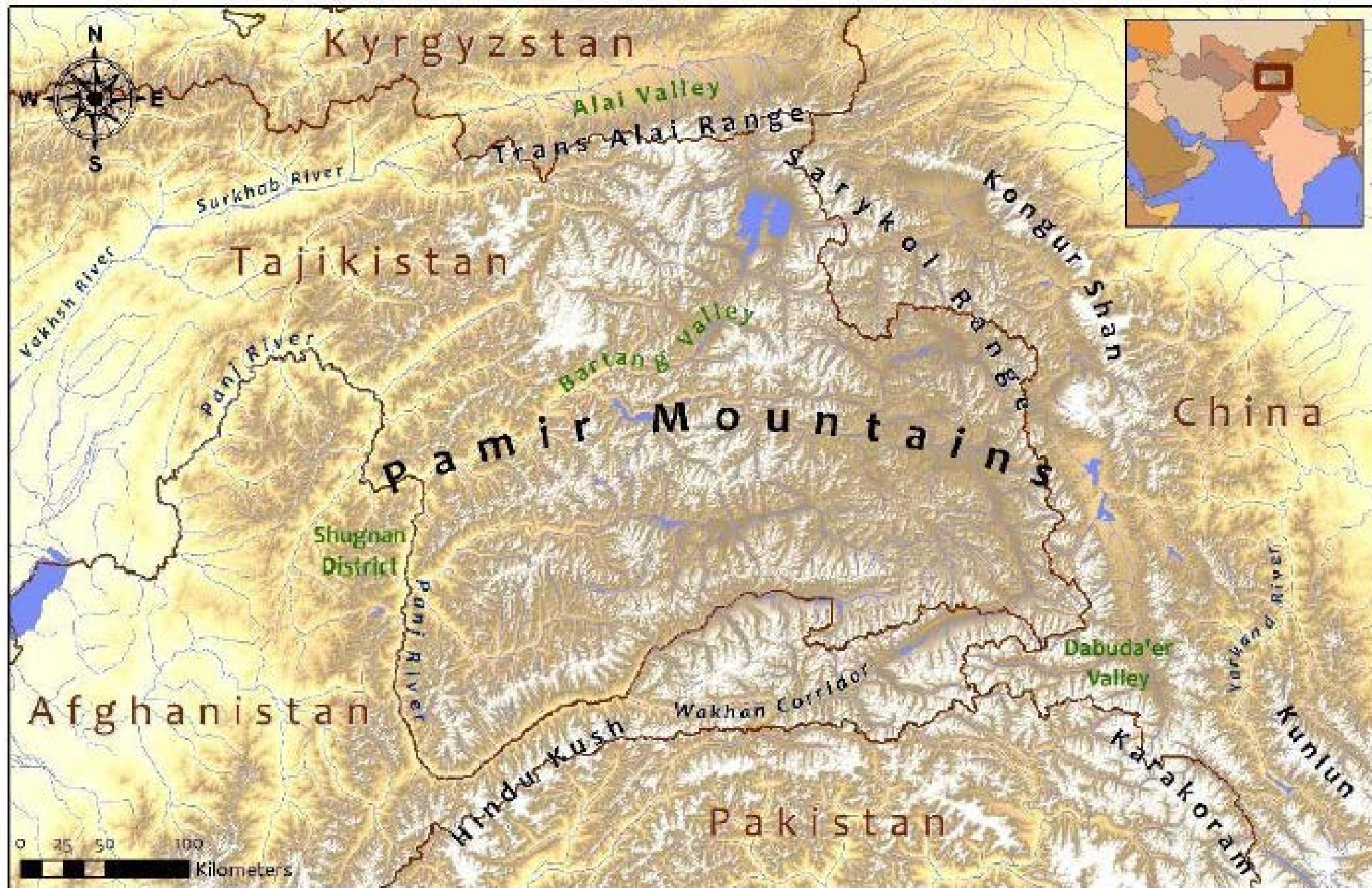




*Psoralea esculenta*







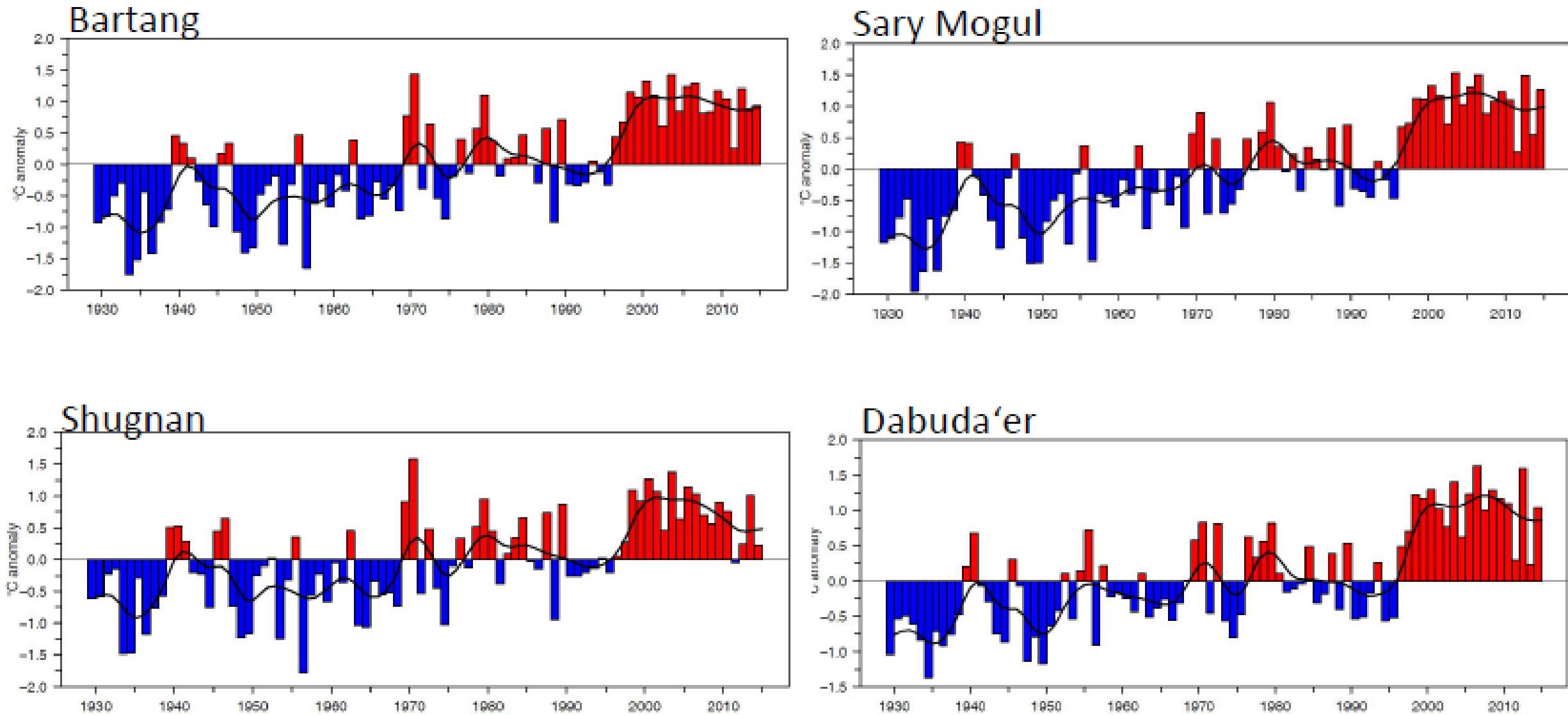
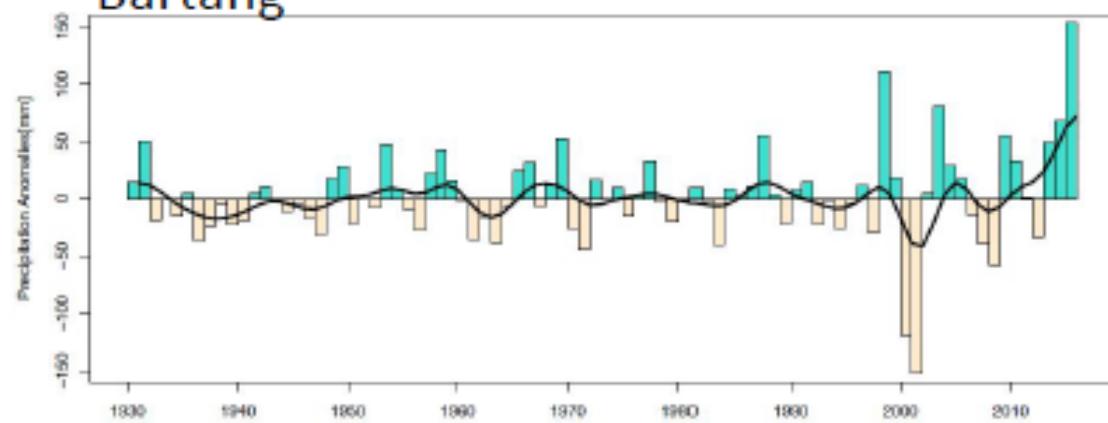
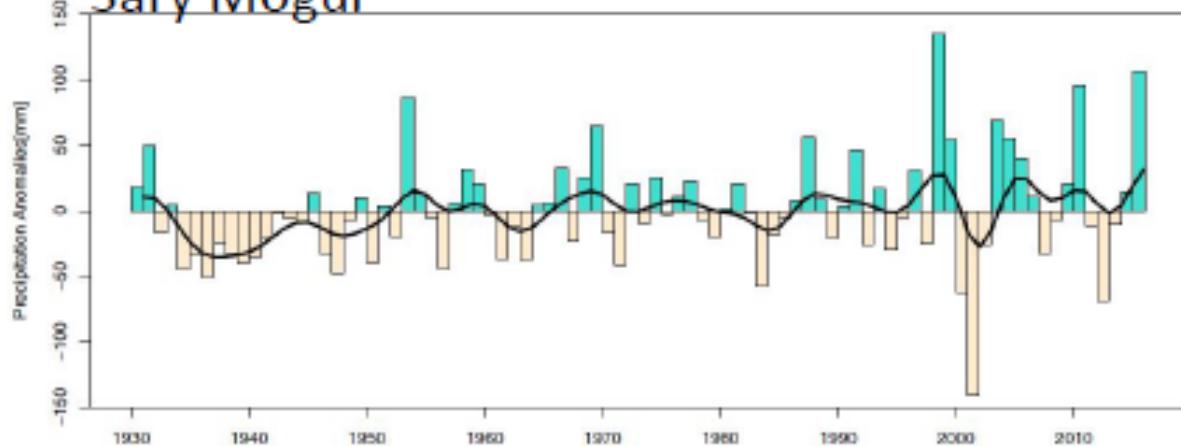


Figure 2: Annual temperature anomalies relative to 1961-1990 for the four ECCAP areas.

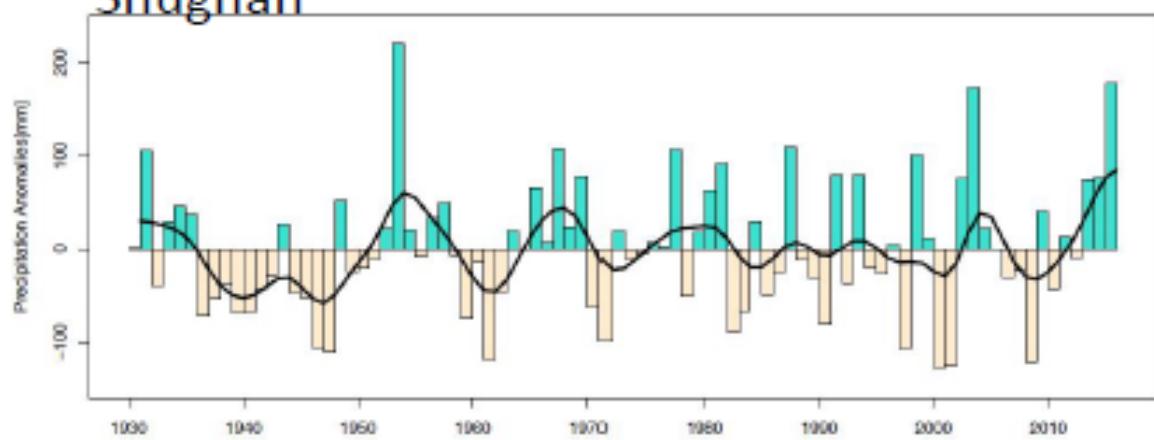
### Bartang



### Sary Mogul



### Shugnan



### Dabuda'er

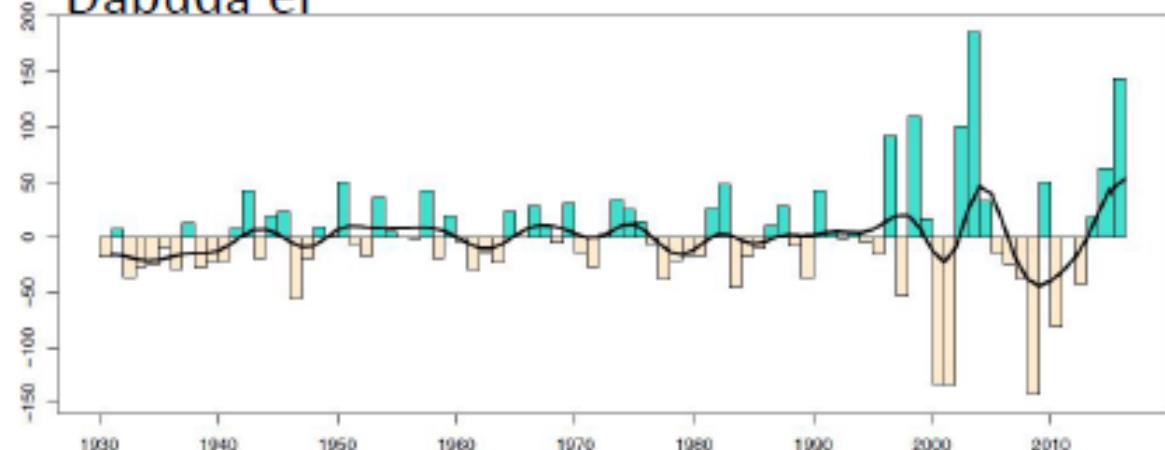


Figure 5: Annual precipitation anomalies relative to 1961-1990 for the four ECCAP areas<sup>28</sup>

## Accelerated Changes in Highlands

- Temps rising faster in higher elevations
- Glacial melting – rate higher than global avg.
- Loss of permafrost – Tibetan Plateau
- Impacts on ecological interactions
  - Shifting of Species Ranges
  - Invasive species and pests
- Disrupted agricultural cycles
  - Changes in timing of runoff
  - More precipitation as rainfall
  - Earlier snowmelt, shorter winters
- Impacts on communities and livelihoods





## Ecological Calendars

Farmers & herders integrate activities with their ecological and agricultural surroundings

Measure time with respect to phenological signs and biophysical habitat



Fig. 2. Illustrative example of the calendar of the human body from the village of Chartem, as documented by Andreev in 1902



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**Prof. Xu Jian-Chu**  
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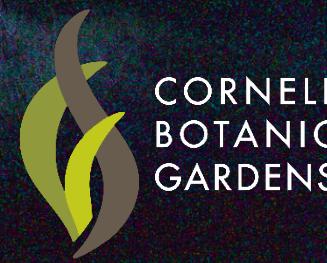
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**Prof. Kachra Ariff**  
University of Central Asia, Kyrgyz Republic  
*Local knowledge, coordination*

One touch of nature  
makes the whole world kin  
— William Shakespeare (*Troilus & Cressida*)







# Seasonal cycle mapping

