Mountain Biodiversity of Tajikistan

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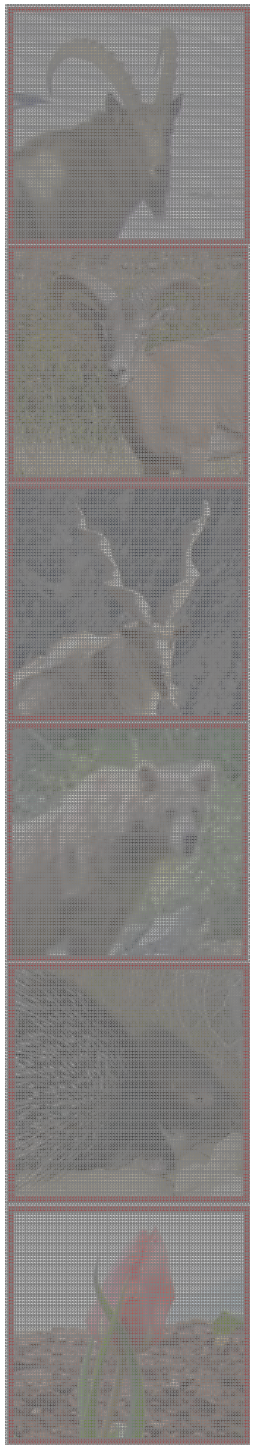
July 10 2010, Pracatinat, Italy

Source: Idrisova 2010



Background

- Medical Doctor (1999)
- Ms in Environmental Sciences, Policy and Management (2010)
- PhD Program in Environmental Sciences (starting September 2010)

- **Environmental NGOs**: environmental education, nature disasters preparedness, etc.
- **National Biodiversity and Biosafety Center**: biodiversity conservation, biosafety, climate change impacts.

Introduction

- 143 thousand sq km, 7 million people

Source: Safarov *et al.* 2003

Introduction

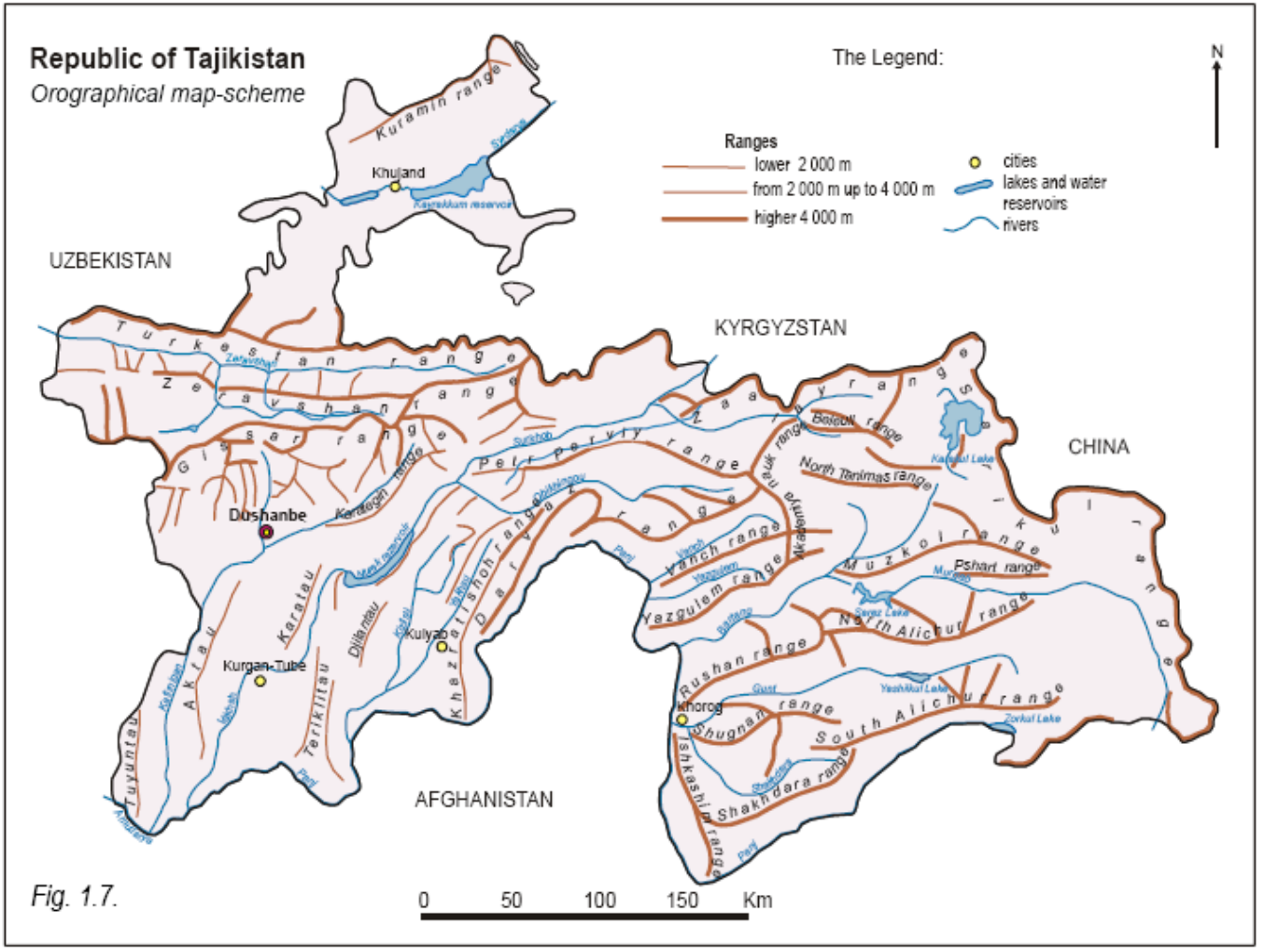


Fig. 1.7.

- 93% of the territory – mountains
- Ismoil Somoni Peak – 7495 masl

Source: Safarov *et al.* 2003

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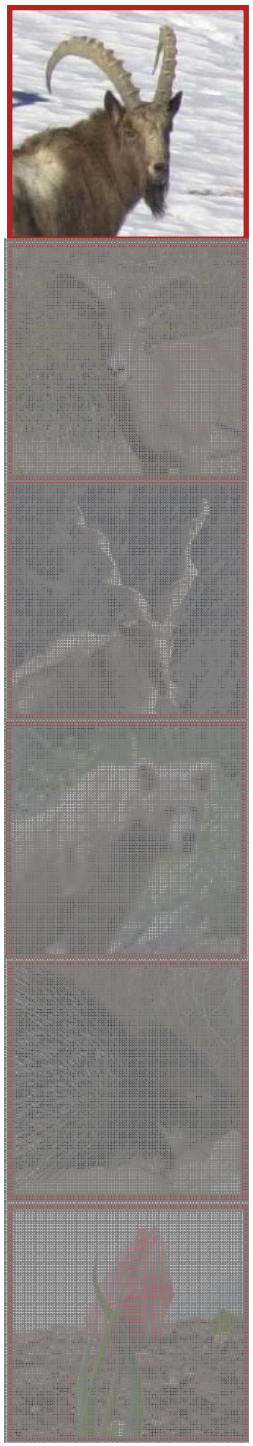
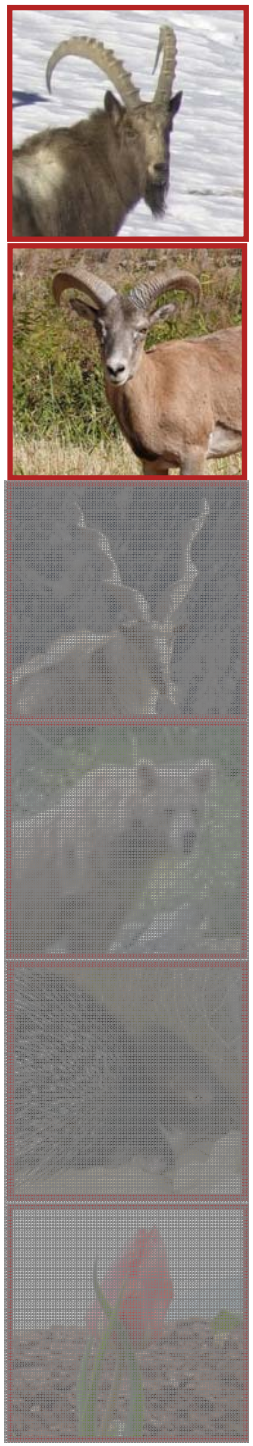


Biodiversity overview

- **12 types of ecosystems:** high mountain desert ecosystems (24%), high mountain meadow and steppe (22%), nival glacier ecosystems (20%); mid-high mountain conifer forest (6%), mesophylic forest (1%) and xerophytic forest (4%).
- **Flora** – 10,000 species, 1,132 endemic, 1,000 wild relatives of cultural crops.
- **Fauna** – 13,531 species; 800 endemic species.

Source: Safarov *et al.* 2003


Source: Idrisova 2010



Main Threats

- **Direct withdrawal:** collection of fire wood collection, poaching
- **Habitat degradation:** cattle grazing
- **Habitat fragmentation:** constructions, etc
- **Environmental pollution**
- **Climate change**

- 226 plant species and 162 animal species – Red Data Book of Tajikistan

Source: Safarov *et al.* 2003

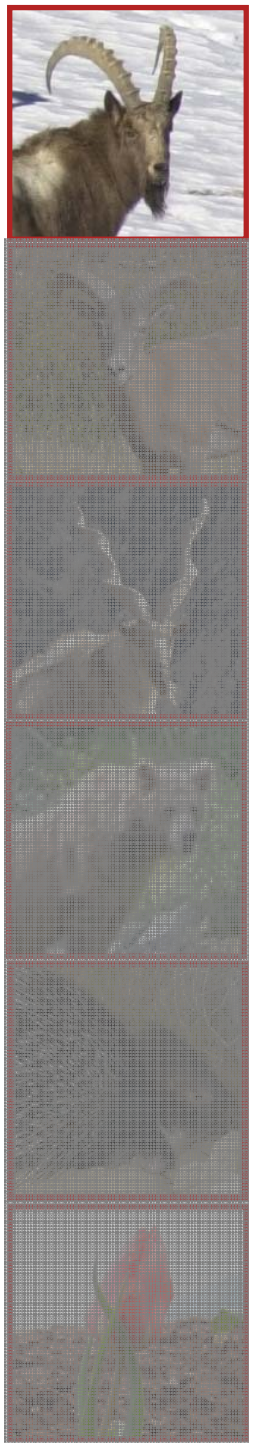

Source: Idrisova 2010



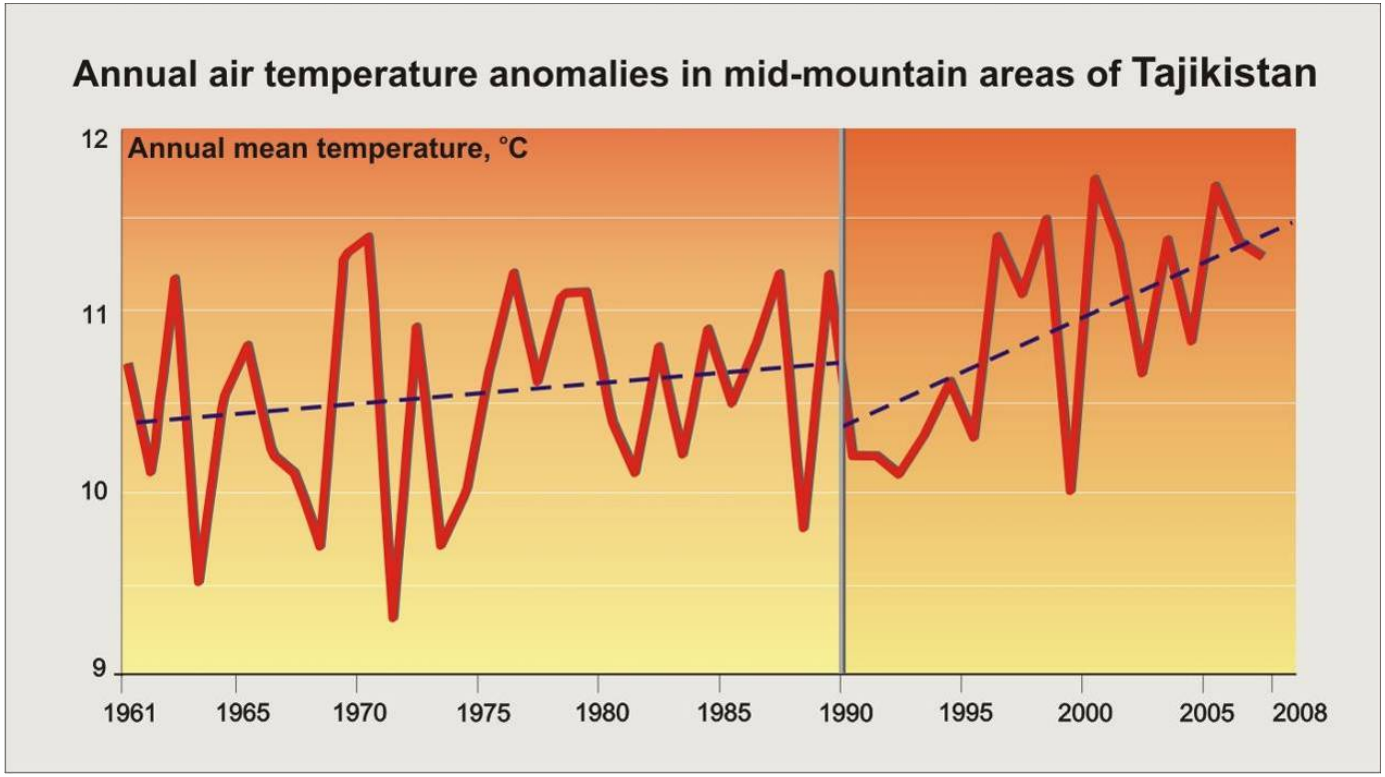



Research

Climate change impacts on biodiversity and its implications for protected areas management

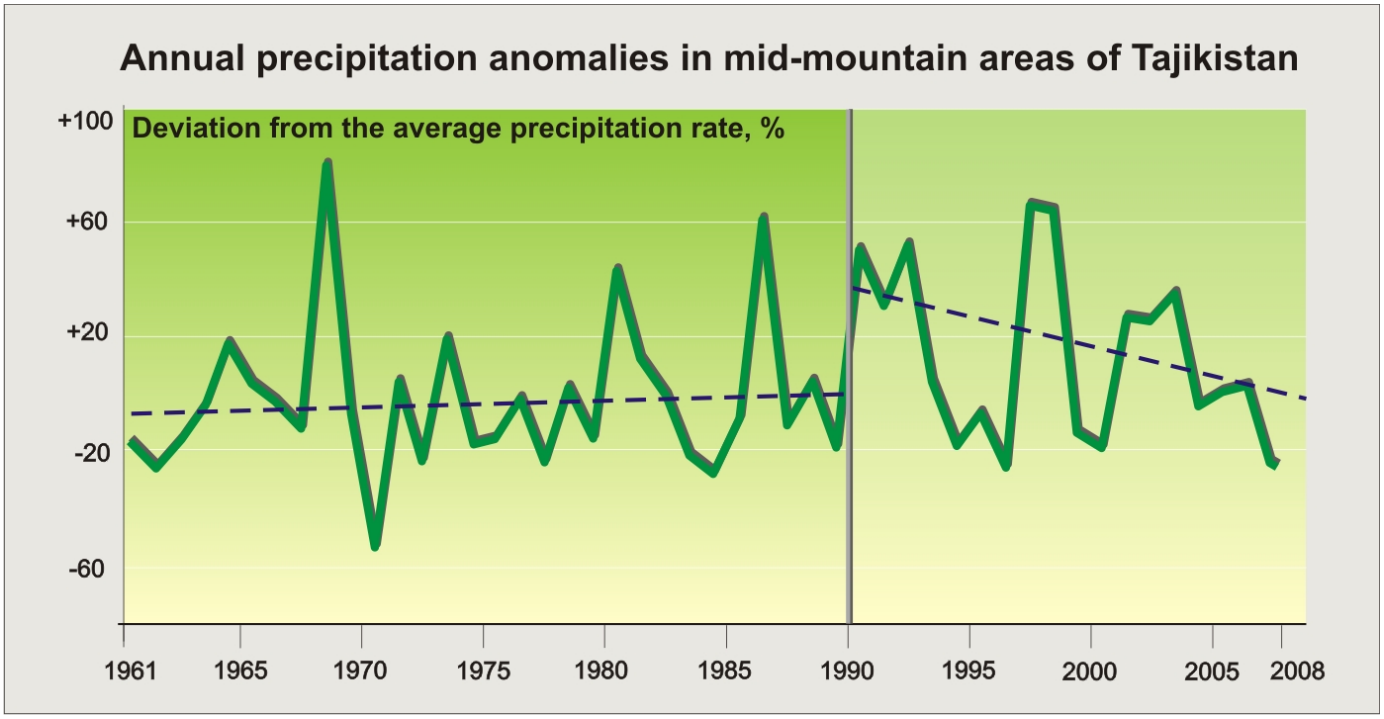


- **Climate change:** increase of air mean temperatures by 0.8°C for the last 48 years.

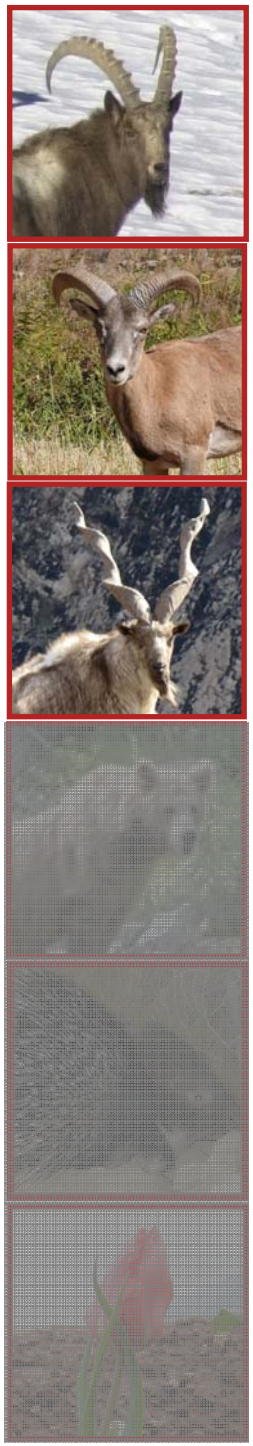


Data source: SAH 2010

- **Climate change:** increase of precipitation by 20% for the last 48 years, and significant decrease by 32% for the last 18 years.



Data source: SAH 2010



Affecting factors

- **Direct and indirect factors:**

- Anomalies in air temperature
- Anomalies in precipitation
- Anomalies in snow cover
- Anomalies in the frequency of extreme weather events
- Decrease of suitable habitats
- Decrease of forage resources
- Spread of invasive species

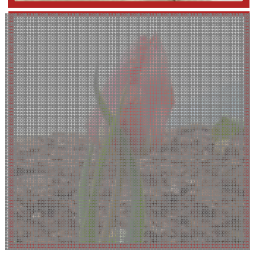
Consequences

- Changes in ecosystems composition and distributions.
- Decline of populations of the majority species,
- Increase of populations of some species,
- Potential extinctions,

AFFECTS ACHIEVEMENT OF CONSERVATION GOALS





Examples

- Markhor (*Capra falconeri*), Urial (*Ovis vignei*) – population decline, shifts of distribution ranges;
- Siberian ibex (*Capra sibirica*), snow leopard (*Uncia uncia*) – migrate outside the area of *Dashtidjum Zakaznik;* and
- Mid-mountain mesophylic forests – shrinking of the area, xerophytization and loss of species.






Adaptive measures

- Extension of the protected areas
- Establishment of buffer zones
- Establishment of migration corridors
- Monitoring and research activities
- Regional cooperation


THANK YOU!
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Source: Idrisova 2010