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# Protecting genetic resources for nutrition from the forest

Judy Loo, Theme Leader, Forest Genetic Resources

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# Outline

- Tree resources and nutrition
- Genetic resources : why be concerned?
- Global Plan of Action for Conservation, Sustainable use and Development of Forest Genetic Resources (FAO)
- Central Asia's fruit tree resources – global significance
- Protecting genetic resources – what does it mean?
- Conclusion

# Key facts on forests, trees and food and nutrition security

Forests and trees play an important role in many food systems, through direct provisioning or through ecosystem services

Food is by far the largest category of non-wood forest products harvested

Over 1.6 billion people depend on forests for their livelihoods

Natural populations of tree species important for food locally and globally are threatened and declining



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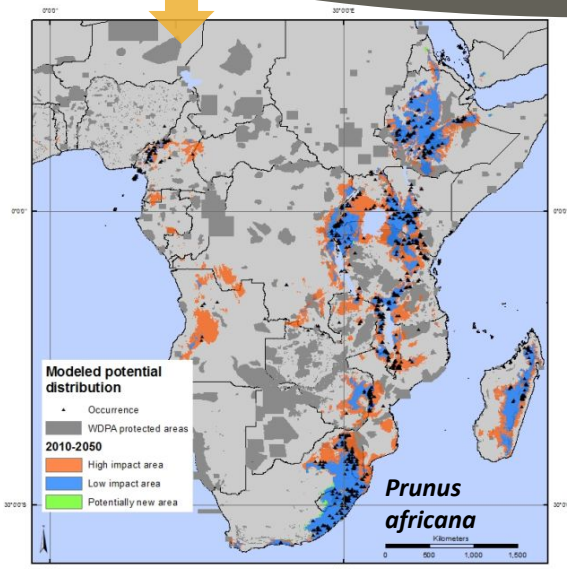
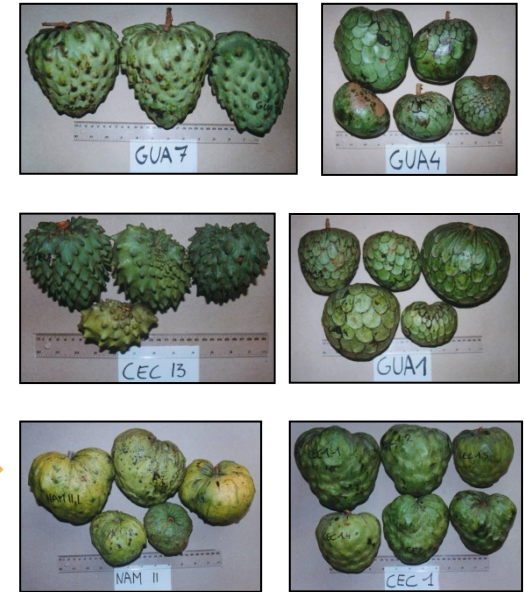


# What are forest genetic resources and why are they important?

FGR = Genetic diversity of forest tree species of current or potential value to humanity

Different from agriculture: mostly undomesticated, highly diverse, long-lived, multiple-use

Value of genetic diversity for adaptation to environmental changes and for improvement of traits important for people



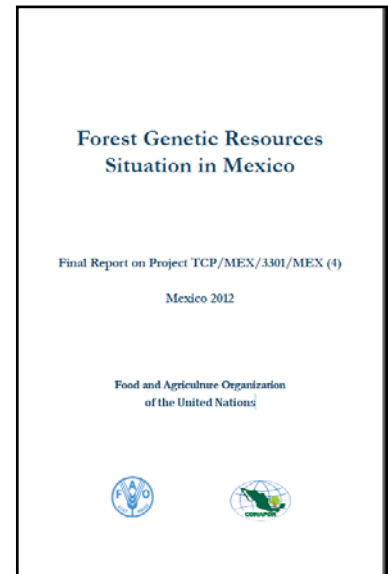
Red + blue is area of current suitable habitat for *Prunus africana*

Red: – predicted to no longer be suitable by 2050

High genetic diversity in zones of high climate-related risk increases probability of adapting to new climatic conditions

# Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources

- Based on first ever Report on the *State of the World's Forest Genetic Resources* (2014)
- National reports from more than 85 countries (about 85% of globe's forested area)
- Provides a strategic framework intended to guide and catalyze action at multiple levels



## 27 Strategic Priorities for action under four priority areas:

- Improving the availability of, and access to information on forest genetic resources
- **In situ and ex situ conservation of forest genetic resources**
- Sustainable use, development and management of forest genetic resources
- Policies, institutions and capacity building

# Central Asia's fruit trees

- Centre of origin and/or diversity for many temperate fruit and nut species (for example: apple, walnut, pistachio, almond, cherry, cherry plum, apricot, pear, peach, pomegranate)
- Conservation of wild populations of these species is crucial:
  - Under serious threat
  - Well-adapted to local conditions (drought, temperature extremes)
  - Stable yields
  - High palatability and valuable nutritional qualities
  - Resistant to pests and diseases
  - Basis for development of new varieties





# *In situ* Protection

**Great expansion of protected areas over past 20 years, four to six percent of total land area (five countries)**

However, there are:

- Wide gaps between legislation and enforcement leading to “paper parks” where grazing and other land uses prevents adequate regeneration
- Lack of knowledge and monitoring (are key species found in the protected areas? What is their status?)
- Contradictions and gaps in existing environment and forest regulatory provisions ; lack of institutional coordination
- Lack of funding for enforcement, development or implementation of strategies or management plans.



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# Traditional approach to protected areas may not be optimal for conserving genetic resources of food tree species

Protected areas afford protection to wild fruit populations **only if** the area is **effectively managed and conserved**; requires a major shift from hands-off protection to **active conservation**, allowing management actions to promote the maintenance of the natural ecosystems that contain targeted taxa.

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# Effective conservation through use

Community forests as conservation areas:

- more effective than protected areas for maintaining forest cover
- local people have a long-term vested interest, exploitation of forest products is regulated for sustainability.



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# Conclusions

- It is vital to protect key tree genetic resources for longterm nutrition and food security.
- Protection of tree genetic resources does not necessarily require traditional protected areas.
- Protected areas are usually not designed for protecting genetic resources (evolutionary potential).
- Managed forest, especially community forests are often more effective than protected areas for forest conservation.

# Thank you

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