Global mandate to improve livelihoods and contribute to healthy agriculture and food systems through agrobiodiversity research

- ISI Partner developing measurable indicators of resilience, innovation, and well-being in bio-cultural, mosaic landscapes that include wild and cultivated spaces.
- Assess their global contribution to biodiversity conservation, food and dietary security, and crop and livestock diversity.

http://www.bioversityinternational.org/
Rotational farming, or swidden agriculture is often misunderstood to be a destructive farming technique. This farm in the north of Thailand shows the ingenuity of this system. Highly knowledge intensive, it is well-adapted to local ecosystem and climate and provides numerous environmental services.
Farmers Develop and Adapt Crops to Niches in their Ecosystems
Local Rules and Institutions to Manage the Landscape
Cultural Adaptation to Difficult Environments Increases Biodiversity: Arab and Berber peoples in desert oases maintain drought resistant plant varieties and plant communities around a key species, the date palm (Phoenix dactilefera)
Why support the management of crop diversity in agroecosystems?

- Adaptation to micro-niches and reduced agricultural inputs
  - Reduced costs for farmers
  - Human and ecosystem health
- A low cost source of vitamins and minerals
- Access for farmers to a secure source for locally adapted seeds
Both months are the hottest and driest in the year.
Agro-biodiversity in East African drylands (north eastern Kenya)

- Cereals; Maize, Millets, sorghums, etc
- Legumes; pigeon peas, cowpea
- Commercial crops; cotton, mangoes, pawpaw, groundnuts
- Leafy vegetables; cowpea leaves, amaranth etc
- Indigenous fruits; tamarind, amarula, baobab, etc
- Exotic fruits; Mangoes, citrus fruits
- Fruit vegetables; edible gourd, pumpkin etc
Naturally growing fruit trees

Baobab trees in a field

Tamarind fruits
Using biodiversity for resilience and innovation in drylands

- Cultivating in different ecological zones/habitats spreads risks and diversifies food.
- Farmers mix crops as a strategy to cope with erratic weather.
- Home gardens contain more biennial and perennial crops than annuals.
- Farmers in highlands keep more perennial crops including fruit trees.
- Farmers in lowlands keep more livestock.
- Two-season (biennial) crops are also considered hardy and include some important legumes such as pigeon pea, lablab, climbing bean and creeping forms of cowpeas.
- Markets provide an opportunity for farmers to access foods that are in season in other agroecological zones.
• Cosmology and Rules
• Transmission
• Conservation
• Innovation

Farming in the Guantanamo Man and Biosphere
Agricultural Biodiversity Conservation and Man and Biosphere Reserves: **Bridging managed and natural landscapes**

- Restoring diversity and health to agrarian landscapes and food systems.
- Supporting protected area management and conservation of agricultural biodiversity (MAB – Cuba)
Indicators to measure the resilience of social-ecological systems

- Retention and acquisition of indigenous knowledge
- Complexity and intensity of interactions with the ecosystem
- Conservation of resources
- Multiple uses of land and plants
- Food sovereignty and self-sufficiency
- Customary laws, social institutions and autonomy
- Demographics
- Cultural values
- Use of indigenous and local languages

High resilience
Low resilience