

# Mapping Tree Cover and Conservation Practices for the Resilience in the Sahel Enhanced (RISE) Programs: Some Initial Results

A team of geographers from the U.S. Geological Survey’s Earth Resources Observation and Science Center (EROS) is working with the U.S. Agency for International Development (USAID) Sahel Regional Office (SRO) to map and monitor land use, tree cover, and soil, water, and vegetation conservation practices across Burkina Faso and Niger. The new maps will show the extent and distribution of land resources, establish a detailed baseline, and identify suitable land areas for scaling up sustainable land management practices. This effort will also map human settlement patterns, locating thousands of towns and villages across the region – many of which are not shown on earlier topographic maps.

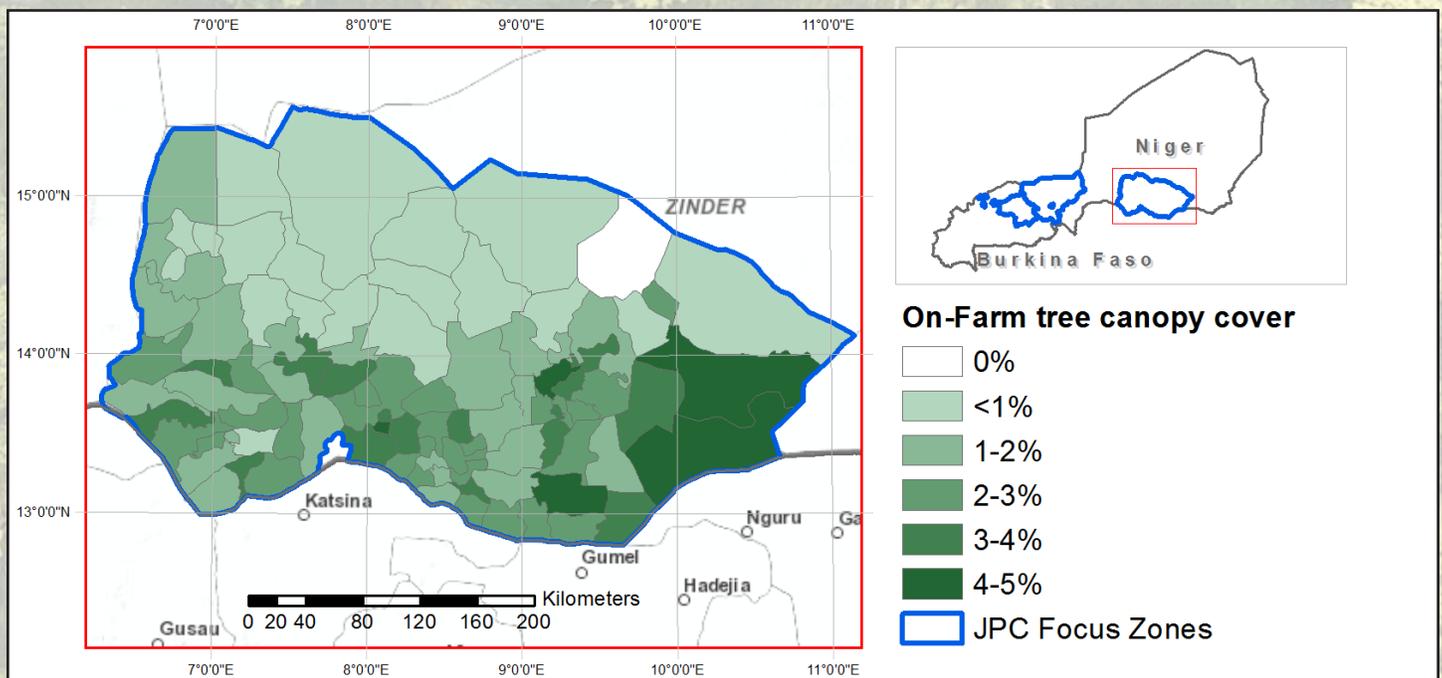
Mapping of land use/land cover is now complete for the two countries. The maps show the distribution of a variety of vegetation types and human land uses, including rainfed cropland across Burkina Faso and Niger. Accurate delineation of the rainfed cropland component is key to assessing many of the best practices being used by farmers, such as the management and conservation of on-farm trees.

Several years ago, the EROS team developed a practical technique for mapping trees in the Sahel where trees are scattered and diffuse. Much tree cover occurs as part of agroforestry systems, like the 5 million hectares of farmer-managed natural regeneration found in southern Niger.

Beginning in April, the EROS team began systematically mapping tree cover with high resolution imagery across the RISE Program’s focus zones in Burkina Faso and Niger. The partially completed maps already show the intricate patterns of tree density in dozens of communes in both countries.

In May, the team began mapping a variety of natural resource management practices in the focus zones. As of mid-June, more than half of the mapping is complete. The maps allow us to visualize geographic distribution of many practices. These include the following **soil and water conservation practices** (*banquettes*, rock lines, and *demi-lunes*); **wind and water erosion control practices** (windbreaks, dune stabilization, fences and grasstrips); **agricultural production practices** (irrigated cropland, gardening, and arboriculture/ plantations); **access control practices** (live fencing and livestock corridors); and **agroforestry**.

The first results show a higher density of soil and water conservation practices in the western part of the focus zone, particularly in the communes of Koalla and Yalgo in Burkina Faso as well as Tera and Diagourou in Niger. On the other hand, the communes of the eastern focus zone of Niger, such as Tchadoua and Gazoua, present the highest density of access control practices for livestock. Some communes show relatively few conservation practices.



**Figure 1.** Average on-farm tree canopy cover in the eastern focus zone of Niger. The highest percents of tree canopy cover are located in the communes of Boume, Koona, Gafati, and Dungass. This map is based on another recently completed map of actual tree canopy cover of the focus zones.