

## **USDA Forest Service, Southwestern Region**

### **Terrestrial Ecological Unit Inventory (TEUI):**

An Integrated Approach to Mapping and Describing Ecosystems

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The USDA Forest Service, Southwestern Region, uses an integrated approach to describing, classifying and mapping ecosystems - the Terrestrial Ecological Unit Inventory, or TEUI. Ecosystem components, including climate, soils, geology, and vegetation, are described simultaneously to characterize an ecological type, and ecological units are mapped based on these characterizations.

NRCS has recently begun an initiative to develop Ecological Site Descriptions (ESDs) across all lands. Formerly, ESDs were only used on rangeland sites. In this new process, NRCS develops an ESD by selecting a typical soil and then describing ecological characteristics at the site. The resulting ESD is applied to map units for that soil type. The inventory system is based on an assumption that conditions at the site reflect ecological potential, and that ESDs and soils occur together consistently.

This project investigated use of the Forest Service's TEUI process to develop ESDs. Sites were sampled by personnel with integrated skill sets, including soil science, plant taxonomy, community and landscape ecology, geology, and geomorphology. The team compared similarities between the NRCS and Forest Service systems for describing and mapping ecosystems, identified common data elements, and cross-walked agency protocols. They made recommendations to improve integration. The TEUI approach provides advantages in developing ESDs through the integrated plot design and sampling process. TEUI is more robust in integrating ecosystem components and accounting for spatial variability, providing information that more accurately predicts landscape restoration potential.



Figure 1

**Interagency personnel from USDA-NRCS and USDA-Forest Service sampling soils and describing vegetation for ESD development in the Southwestern Region.**