

TEUI Geospatial Toolkit: Applications in Riparian Mapping

US Forest Service - Pacific Southwest Region



**US Forest Service
Remote Sensing Applications Center**



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Project Cost: \$47,500

Internal Partners: RSAC; R3 Soils/TEUI and Vegetation Ecologists

Accomplishments: Produced riparian area delineations for approximately 43 million acres, including all National Forests and Grasslands of the Southwestern Region.

Project Objectives: Map riparian areas of the Southwestern Region in a cost-effective process using geospatial technology.

The Terrestrial Ecological Unit Inventory Geospatial Toolkit (TEUI Toolkit) is an ArcGIS extension developed by the Remote Sensing Applications Center (RSAC) to assist users in leveraging corporate geospatial technologies for accelerating ecosystem mapping while reducing costs.

A technology transfer partnership between RSAC and the Southwestern Region produced riparian maps at a low cost to the Region, and advanced Toolkit capability through user feedback and feature development.

- Custom riparian area delineation data products covering approximately 43 million acres were developed for forests and grasslands of the Southwestern Region.
- Integration of the Wacom™ hardware digitizing tablet into the workflow of the Toolkit sped up map production.
- TEUI Geospatial Data Packages provided approximately 13 million acres of geospatial data at no cost to the Region.
- TEUI Toolkit training (on-site, and on-line), and technical support, enabled Regional users to engage the tools and applications in the Toolkit.

The Southwestern Region utilized the RSAC partnership to leverage geospatial and hardware technology for accelerating TEUI development in the Region. Benefits included:

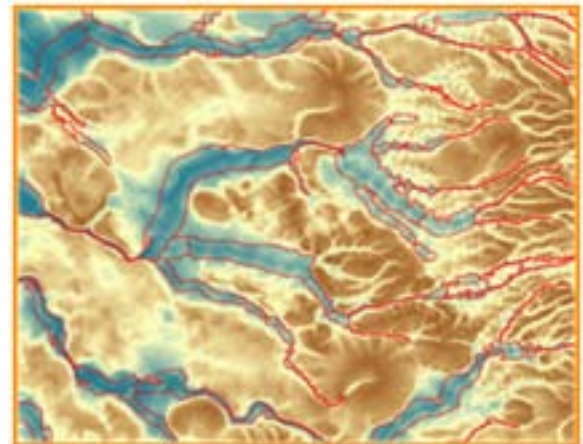
- Mapping acres more rapidly than traditional methods
- Developing a more consistent final map product
- Significantly reducing per-acre costs

TEUI Toolkit products can be used for:

- Planning, Inventory/Monitoring and Analysis
- Landscape restoration, including post-fire rehabilitation
- Understanding potential ecosystem impacts from climate change

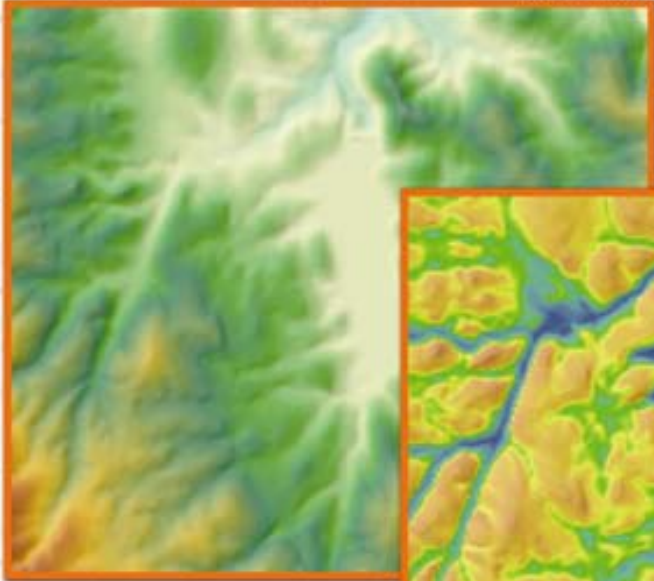


Caption: Potential riparian area segments. Kaibab NF.

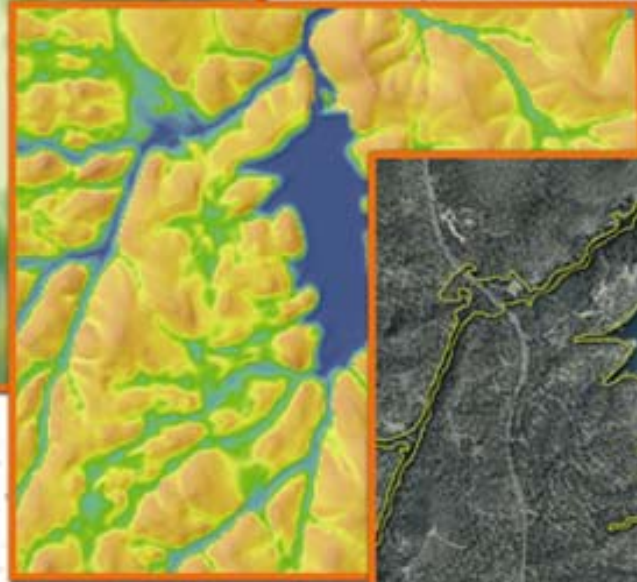


Caption: Saga Wetness Index in background. Kaibab NF.

Elevation Model



Wetness Index



Aerial Photography



Riparian habitats are among the most critical elements of biodiversity within the landscape. Aquatic and fish productivity are directly related to a properly functioning and healthy riparian habitat. An automated process for outlining riparian areas using geospatial layers was developed at the USDA Forest Service Remote Sensing Applications Center. The Forest Service Southwestern Region used this outline to expedite the delivery of their final map and reduce their labor expense by \$65,000. The final riparian map is used by land managers to support improving riparian habitat and recreational opportunities.