

# The Rangeland Estimator Toolbox (RaBET) for the Conservation Effects Assessment Project for Grazing Lands

**STONE**  
ENVIRONMENTAL  
100% EMPLOYEE-OWNED

## Services / Expertise

Geospatial and Data Solutions  
Web Application Development  
Geoprocessing / Model Service Development  
Application Hosting

## Technology

ArcGIS Server Enterprise  
ArcGIS ImageServer  
ArcGIS WebAppBuilder Developer Edition  
PostgreSQL/PostGIS  
HTML/JS/CSS

## Market

Federal Government  
University Research Centers

## Project Location

NRCS Arizona Office

## Project Duration

2020–Present

## Project Owner

University of Arizona

USDA Natural Resources Conservation  
Service, Conservation Effects Assessment  
Project for Grazing Lands (CEAP-GL)

## Project Manager

Barbara Patterson

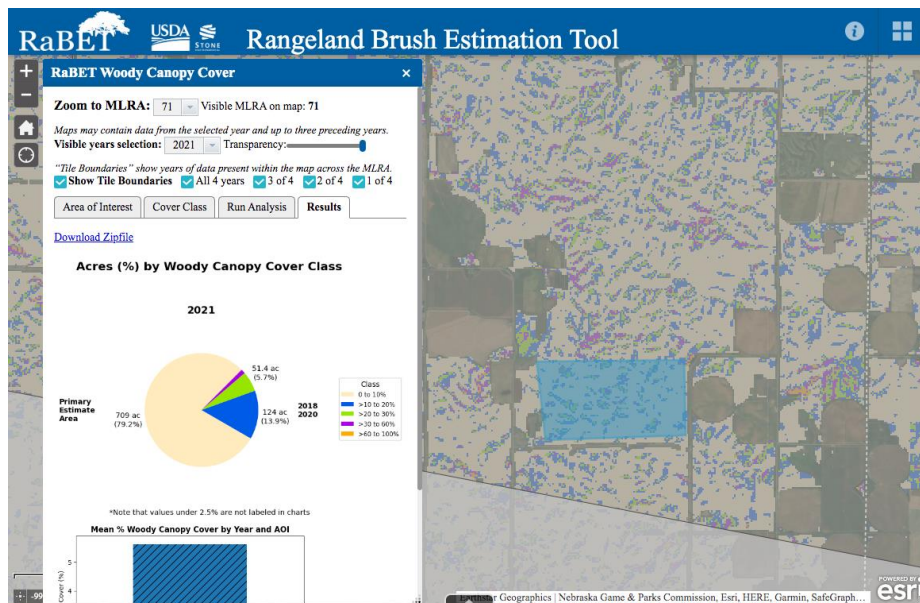
[bpatterson@stone-env.com](mailto:bpatterson@stone-env.com)

## Project Team

Nick Floersch  
Jody Stryker

## Link to Website

<https://rabetcover.app/>



*Estimating Brush for MLRA 71 using the past 5 years of data with a user-drawn field polygon*

STONE developed the Rangeland Brush Estimation Tool (RaBET) for the USDA Natural Resources Conservation Service (NRCS), Conservation Effects Assessment Project for Grazing Lands (CEAP-GL). Intended users of this application are conservationists, ranchers, foresters, ecological site specialists, and anyone wanting estimates of woody plant canopy cover on U.S. rangelands from 1997 through the present. This online tool was designed to aid users with determining woody cover amounts, observing the change in woody cover over time, strategizing focal areas in need of treatment, and tracking treatment effectiveness.

The CEAP-Grazing Lands (CEAP-GL) team, NRCS conservation planners, and ranchers needed a quick, accurate spatial and temporal estimate of woody canopy cover on rangelands. One of the most-applied and cost-shared NRCS conservation investments on rangelands is the Brush Management practice, but the pre- and post-treatment data are often lacking and can be difficult and expensive to obtain. NRCS program payment schedules rely on pre-treatment data, and program managers benefit from seeing where brush cover is increasing enough to be a resource concern. Ranchers need to be able to track changes after treatment so they can respond with appropriate maintenance or management strategies before the brush takes over again. Those evaluating conservation practice effectiveness, such as the CEAP-Grazing Lands team, can use RaBET cover values as potential model inputs where ground data are lacking. RaBET was created through a collaboration between the USDA Agricultural Research Service (ARS) and NRCS CEAP-GL to address these needs.



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RaBET offers no-cost, sub-regional-specific estimates of woody canopy cover for areas of interest like pastures, ranches, or treatment areas defined by the user. RaBET woody canopy cover maps are derived from 4-year composites of 30-m pixel Landsat imagery, to reduce the influence of variable precipitation and cloud cover that can affect satellite data for a given year. Field data collection, high resolution 10-cm color-infrared aerial imagery and NRCS field office measured data, where available, contributed to map creation and validation. Interactive features of RaBET include the ability to create or upload polygons of areas of interest and customize woody canopy cover classes. Summary graphics of analysis to assess woody cover change over space and time are also available for download. RaBET is only available on areas defined as “rangeland” and will be updated annually.

The full application is available at <https://rabetcover.app>

