THE PRAIRIE PROJECT

RANGELAND ANALYSIS PLATFORM

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WHAT IS THE RANGELAND ANALYSIS PLATFORM?

The purpose of this publication is to provide an overview of the Rangeland Analysis Platform (RAP), an online platform that provides vegetation cover maps from the Great Plains to the Pacific Ocean. RAP serves a crucial role in the Prairie Project and for participating educators and Extension Specialists collectively working on demonstration and research ranches. The Prairie Project is a collaboration between research, teaching, and extension faculty from Texas A&M, Oklahoma State University, and University of Nebraska. Together with ranchers, teachers, and students from Texas, Oklahoma, Kansas, and Nebraska, the Prairie Project is learning and sharing knowledge from the most current research and management experiences to tackle the problems of woody plant encroachment, more extreme climate, and increasing wildfires.

The Prairie Project team's goal is not only to maintain livestock production but to enhance it, while simultaneously providing the vital ecosystem services the Southern Great Plains provide.

RAP was a platform that was created with a partnership between the University of Montana (UM), the United State Department of Agriculture (USDA), and the U.S. Department of the Interior (DOI). This tool was developed to provide access to data that can help landowners with land management planning and decision-making.

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RAP uses a combination of satellite imagery, on-the-ground field data, and cloud-based computing, similar to Google Earth, to track and quantify vegetation changes. This platform also houses data tracking vegetation changes dating back to 1984. While the information that RAP provides is valuable, this platform is intended to be used along with local knowledge and site-specific data to help make the best-informed management decisions.

RAP contains two components: Rangeland Vegetation Datasets and Web Applications for Analyzing Data.

VEGETATION DATASETS

Five vegetation types are used in this platform. They include annual forbs and grasses, perennial forbs and grasses, shrubs, trees, and bare ground. The satellite imagery is pulled from a program called Landsat. Field data is then pulled from the Natural Resources Conservation Service's Natural Resources Inventory (NRI); the Bureau of Land Management's Assessment, Inventory, and Monitoring (AIM) Strategy; and the National Park Service Northern Colorado Plateau Network (NCPN) programs. The information is combined to form a "relationship." The Landsat model learns this relationship and then is able to predict cover percentage.

Landsat is a satellite program that has been collecting images of the earth since 1984. This program is operated by U.S. Geological Survey and NASA. It collects new images every 8 or 16 days. AIM, NRI, and NCPN have been collecting rangeland data since 2004. There have been over 74,000 plots collected, which makes it possible to combine satellite imagery with field vegetation cover. A model was built so that when combining both of these data sets, vegetation cover is able to be predicted across geography and time.

RANGELAND DATASETS

The rangeland production data is updated every 16 days. It cannot estimate standing biomass but instead new growth over each 16-day period. The data is produced using a process-based model. This means that plant productivity is based on three primary inputs: continuous vegetation cover, absorbed solar radiation, and meteorology.

WEB APPLICATIONS FOR ANALYZING DATA

RAP has several different features that help analyze rangeland. These include the Map Layer Panel, Analysis Panel, Interactive Map, and Analyzing your Region of Interest.

The Map Layer is the feature that controls the data and information seen on the interactive map. The Analysis Panel provides summaries of different regions and also allows the exportation of data for future analysis. The Interactive Map has navigation and zoom features that enable different locations to pop up, as well as any adjustments that need to be made to the data that is being displayed. The most helpful component is the ability to zone in and focus on a specific region of interest. For more information or tutorials on how to use these panels, see the RAP Activity Sheet (RWFM-PU-408), available at https://agrilifelearn.tamu.edu/, or Navigating the Platform, https://rangelands.app/support/article/17-navigating-the-platform.

When it comes to making land management decisions, the RAP program is a reliable asset. The program helps fill in gaps that may be missing from locally collected data and provides historical data and regional context. Vegetation changes are tracked through time, and the program prioritizes areas that need assessment, management, and monitoring. Depending on the land management decisions that are being made, RAP may not be the best tool to use. However, it is always important to be informed and have all information readily available before making management decisions.

For more information on RAP, reach out to the local Extension office or Specialist in the area, or visit the RAP website, https://rangelands.app/. To learn more about The Prairie Project and the research stations and demonstration ranches that are actively studying the effects of prescribed fire and goats by using RAP, please visit www.theprairieproject.org.

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