RAP reveals grassland stories.

by Troy Smith, field editor

RAP tells stories. We're not talking about the vocal component of hip-hop music, but the Rangeland Analysis Platform (RAP) and how it can tell stories through visual images. Using RAP, grassland managers can see what has happened recently on their grazing land. They can also see what was happening in the past — nearly 40 years into the past.

It's not new, but many producers don't realize how cool this platform is, or that the interactive web application is free to the public. That means anyone with a computer or smartphone and an internet connection can go to the website (*https://rangelands.app/*) and find images and information telling a story about a certain parcel of land located anywhere in the Western United States — from the Great Plains to the Pacific Ocean. The user can see pictures showing what kinds of vegetative cover dominate a particular landscape of interest, and how that has changed over time.

In a collaborative effort, RAP was developed by the Natural Resources Conservation Service (NRCS), the Bureau of Land Management (BLM) and the University of Montana as a grassland monitoring tool for land managers.

The application combines information collected from 1984 to the present, including actual field data, archived satellite imagery and remote-sensing technology to monitor millions of acres across time and space. Users can narrow their focus to certain regions, counties, farms or ranches, and even specific pastures.

The system allows users to create maps showing what percentage of the land surface is dominated by vegetative cover vs. bare ground, as well as the relative presence (percent cover) of each functional group, whether it be annual grasses and forbs, perennial grasses and forbs, shrubs, or tree cover. Users can see what percentages of those various functional groups existed in the past and how the mix has changed over time.

"Private landowners can use RAP to see the trends. They can focus on specific locations or parcels of land to see what's growing there now and compare it to what was there in 1990, for example," explains University of Nebraska Range Ecologist Dirac Twidwell, whose particular interest is woody encroachment of grasslands.

Twidwell says RAP tells a scary story about how grasslands have been and still are being lost to the spread of juniper trees like the Eastern red cedar. The shift from perennial grasses and forbs to tree cover, comprised largely by junipers, can be seen on RAP maps of the Great Plains.

Above: The shift from perennial grasses and forbs to tree cover, comprised largely by junipers, can be seen on RAP maps of the Great Plains, says Dirac Twidwell.

Individual landowners can use RAP to see if it's happening to their own rangeland and pastures. They can see if shifts in any functional groups of vegetation are occurring over time, and compare that with past weather events and application of management practices that likely influenced the changes.

"If we'd had this technology at the time, maybe we could have seen the trends leading to the Dust Bowl and done something to prevent it," opines Twidwell.

RAP is meant to help land managers monitor the ongoing story. Combined with local knowledge and on-the-ground data, it can help assess responses to practices such as prescribed fire, weed control, irrigation and grazing management, and it can aid management decisions for the future.

Editor's note: Troy Smith is a freelance writer and cattleman from Sargent, Neb.