

# From Local to Global: Launching the New Rangelands West Portals and Database

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**ABSTRACT:** In 1995 the University of Arizona (UA) Libraries, partnering with UA College of Agriculture and Life Sciences (CALS) rangelands specialists, joined as a charter member of the AgNIC initiative coordinated by the National Agriculture Library (NAL). The topic of rangelands was chosen by Arizona, and early on, the team recognized the challenge of representing the knowledge universe related to that topic. As a result, in 2001, the Deans of the UA Libraries and CALS invited their counterparts in the Western Land Grant Universities (LGUs) to join in a Western Rangelands Partnership. Today this collaborative effort, known simply as the Rangelands Partnership, has grown to include nineteen LGUs, with international participation from Australia, Mexico, and the United Nations' Food and Agriculture Organization (FAO). This collaborative partnership culminated in the release in December 2012 of a suite of websites — Global Rangelands, Rangelands West and hosted state Rangelands sites — with more than 13,000 resources.

**RESUME:** En 1995, les bibliothèques de l'université de l'Arizona (UA), en partenariat avec des spécialistes en parcours, du collège de l'agriculture et des sciences de la vie (CALS) de l'UA, sont devenus membres fondateurs de l'initiative AgNIC, coordonnée par la bibliothèque nationale agricole (NAL). Le thème des parcours a été choisi par l'Arizona, et au début, l'équipe a reconnu le défi de représenter l'univers des connaissances liées à cette rubrique. En conséquence, en 2001, les doyens des bibliothèques de l'UA et de la CALS ont invité leurs homologues des universités de l'Ouest (LGU) à se joindre au Partenariat Western Rangelands. Aujourd'hui, cet effort de collaboration, connue sim-

plement comme le Rangelands Partnership, s'est développé pour inclure dix-neuf LGU, avec une participation internationale de l'Australie, du Mexique, et de l'Organisation des Nations Unies pour l'alimentation et l'agriculture (FAO). Ce partenariat collaboratif a abouti à la publication en décembre 2012 d'une suite de sites web — Global Rangelands, Rangelands West et autres sites étatiques sur les parcours — avec plus de 13 000 ressources.

**RESUMEN:** En 1995, las bibliotecas de la Universidad de Arizona (UA), en alianza con los especialistas en pasturas de la Facultad de Agricultura y Ciencias de la Vida (CALS, sus siglas en inglés) de dicha Universidad, se unieron como miembros fundadores de la iniciativa AgNIC coordinada por la Biblioteca Agrícola Nacional (NAL, sus siglas en inglés). El tema de pasturas fue escogido por Arizona, y desde el principio, el equipo reconoció el reto de representar el universo de conocimientos relacionados con ese tema. Como resultado, en el 2001, los decanos de las bibliotecas de la UA y CALS invitaron a sus homólogos de las universidades públicas del Oeste (conocidos como "land-grant universities") a unirse en una Alianza de Pasturas de la Zona Oeste. Hoy en día este esfuerzo de colaboración, conocido simplemente como la Alianza de Pasturas, ha crecido hasta incluir a 19 universidades públicas, con participación internacional de Australia, México y la Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO). Esta alianza colaborativa culminó con la liberación en diciembre del 2012 de una serie de sitios web — Global Rangelands, Rangelands West y otros sitios patrocinados sobre pasturas a nivel estatal, con más de 13.000 recursos.

## Introduction

In 1995 the University of Arizona Libraries, partnering with rangeland specialists from the University of Arizona College of Agriculture and Life Sciences (CALS), joined as a charter member of the AgNIC initiative coordinated by the National Agriculture Library (NAL). The topic of rangelands was chosen by Arizona because of the large amount of that land type in the state and the importance of addressing the many issues arising from the multidisciplinary nature of rangeland management. In fact, rangelands cover seventy percent of the world's land area and fifty percent of the U.S. (Holechek, 2001, p. 42). They include grasslands, savannahs, shrublands and deserts. Rangelands are important resources for wildlife habitat, watersheds, recreation and forage for livestock production and, therefore, are critical to economic development in rural communities and to people everywhere for access to natural resources and open space.

Early on, the Arizona team recognized the challenge of representing the knowledge universe related to rangelands. As a result, in 2001, the Deans of the Libraries and

CALS invited their counterparts in the Western Land Grant Universities (LGUs) to send representative librarians and rangeland specialist to join in a Western Rangelands Partnership. Today this collaborative effort, known simply as the Rangelands Partnership, has grown to include nineteen LGUs, with international participation from Australia, Mexico, and the United Nations' Food and Agriculture Organization (FAO).

This paper will describe the efforts, "from local to global", that culminated in the release in December 2012 of a suite of websites providing access to a database of over 13,000 rangeland resources that are international (*Global Rangelands*), regional (*Rangelands West*) and local (hosted state *Rangelands* sites). It will also describe the plans for ongoing development of these sites. resources.

## Change is Constant

As the Rangeland Partnership collaborators worked together on the *Rangelands West* and state *Rangelands* sites, they recognized the need to change and evolve and to gain new resources. To inform these developments,

they developed a business plan and conducted needs assessments (Pfander, 2009) to guide development of technical requirements for a total redesign of the *Rangelands West* sites.

Key recommendations that emerged from the needs assessment described requirements that users felt were critical, including: frequently updated content, fast and relevant searches, libraries of documents and images, location-specific information, tools to foster interaction/networking, and a searchable directory of experts. The business plan addressed the issue of sustainability and recommended revenue generation through grants, Partner contributions and, potentially, sponsorships.

## Moving Forward

In 2010, several members of the Rangelands Partnership—the University of Arizona, the University of California at Davis; and the University of Idaho—along with Rangelands Australia and the Food and Agriculture Organization of the United Nations, received a USDA International Science Education Program Grant. The grant's objectives were to:

- Redesign the *Rangelands West* portal to host a repository of global rangelands full-text and evaluated resources.
- Establish partnerships with key organizations and associations around the world as contributors to *Global Rangelands*.
- Upload and create infrastructure to provide faster and more user-friendly access to content.

- Create a customized search interface (faceted search) and implement social networking applications.
- Develop two multimedia learning modules (overview and Australia).
- Create synthesis papers on international outreach/Extension practices for natural resources management.

The results, to date, include the new *Global Rangelands* (<http://globalrangelands.org/>) portal (Fig. 1) and back-end database of over 13,000 records; a re-designed *Rangelands West* (<http://globalrangelands.org/rangelandswest/>) site (Fig. 2) and a redesigned state Rangelands site (<http://globalrangelands.org/arizona>) template (Fig. 3) that can be used by those partners which choose to do so (some partners are using the LibGuides system to create their state sites).

In addition, papers from the Australia Rangelands Society symposia series have been digitized and records added to the Global Rangelands database. Rangelands-related records have been harvested from the FAO database and also added to GR. The Partnership will also be exploring opportunities to collaborate with other organizations such as the Grasslands Society of Southern Africa and the International Land Coalition.

Progress has been made in implementing faceted search options in the Global Rangelands search interface, including the ability to limit searches by author, document type, and keywords. Multimedia learning content has been created through the UC-Davis developed WRANGLE (World RANGELands Learning Experience)

FIGURE 1 – Global Rangelands Portal

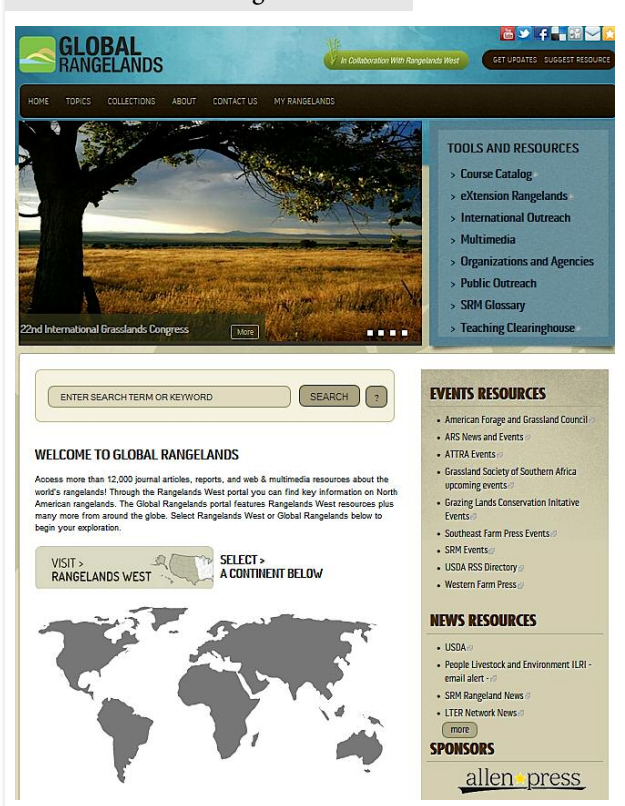
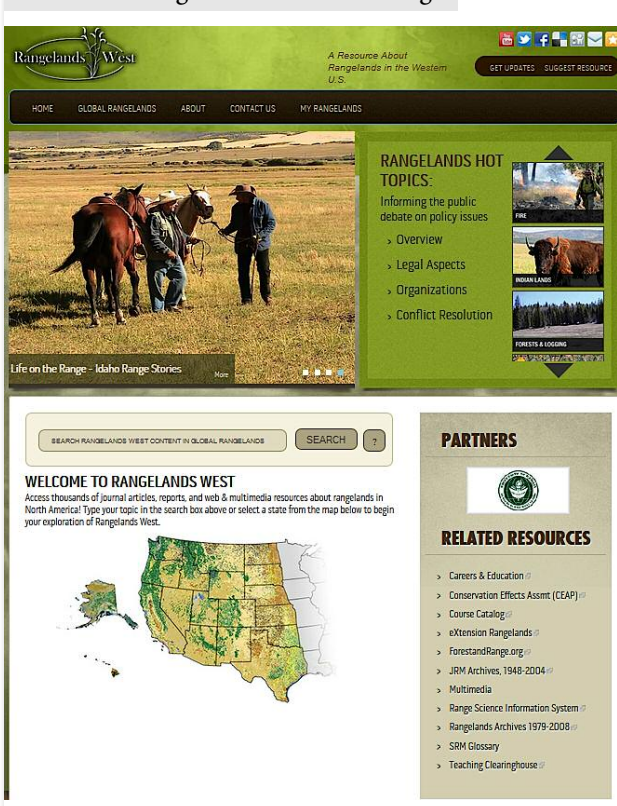


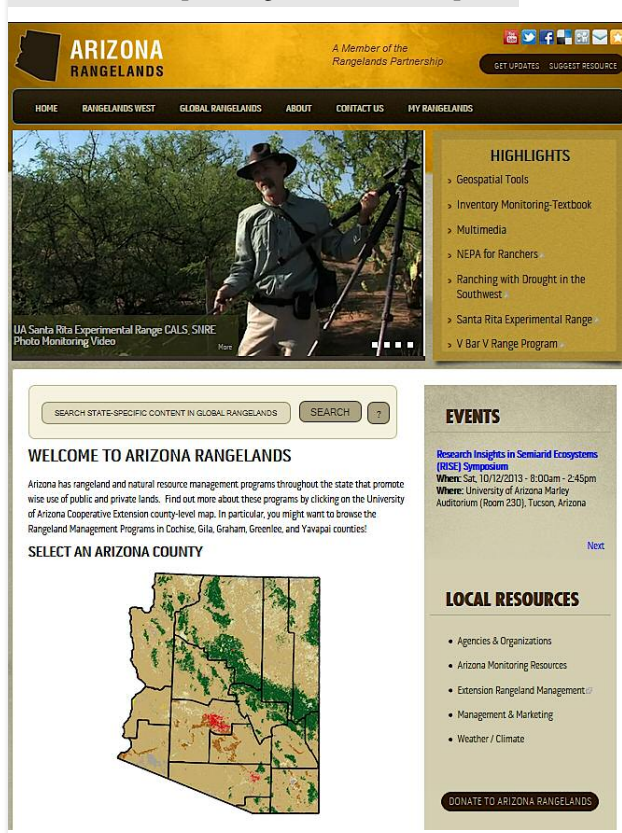
FIGURE 2 – Rangelands West Home Page





modules (Fig. 4) and other multimedia has been identified and added to the GR database.

FIGURE 3 – Sample Rangelands State Template



The international outreach section of the Global Rangelands site has been created as a resource on global extension practices involving participatory approaches and the use of Information and Communication Technologies (ICTs). Users can find information about international Extension practices, case study profiles, organizations working in this area, multimedia resources on international outreach, and links to resources on the use of ICTs in international Extension.

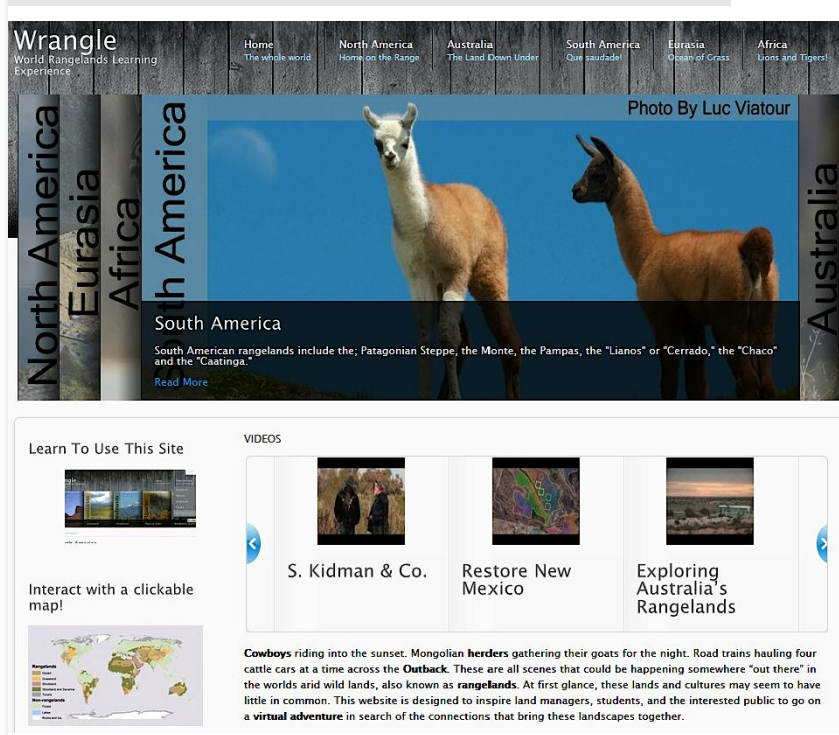
## Technical Implementation and AGROVOC Integration

Both the *Rangelands West* and the *Global Rangelands* portals are built on the Drupal Content Management System (CMS), a powerful open-source platform that offers advanced features for submitting, organizing, searching, browsing, importing and exporting contents. The integration of external content, like the *Journal of Range Management* and *Rangelands Archives* at The University of Arizona Institutional Repository ([uair.arizona.edu/journals](http://uair.arizona.edu/journals)) and the FAO Doc repository ([www.fao.org/documents/en/docrep.jsp](http://www.fao.org/documents/en/docrep.jsp)), is made possible by a very elegant import mechanism available for Drupal, which allows for importing or harvesting via CSV, RSS, and OAI-PMH (Open Archives Initiative—Protocol for Metadata Harvesting) formats. An additional module provides for faceted browsing capabilities (for the technically minded, this is accomplished by connecting Drupal to an Apache Solr instance for Solr-based browsing). The Drupal Organic Groups module is used to separate and establish editing roles amongst the different partners' repositories.

In addition, the Global Rangelands and Rangelands West portals adopted some specific solutions recommended by the AgriDrupal<sup>1</sup> community, a group facilitated by the FAO and the Global Forum on Agricultural Research (GFAR) and made up of practitioners working with the Drupal CMS to implement useful functionalities for agricultural information management. These specific solutions include the adoption of core standard bibliographic metadata for describing the resources available in the portals and the integration of the AGROVOC thesaurus for tagging all contents.

AGROVOC is a controlled multilingual vocabulary covering all areas of interest to FAO, including several topics related to rangelands. Besides the usual advantages of using a controlled vocabulary for indexing resources (e.g. the consistent

FIGURE 4 – World Rangelands Learning Experience (Wrangle.org)



use of the same terms for the same concepts across all collections and also across different portals and information systems), using AGROVOC broadens the potential range of information sources that can be harvested, as it is adopted worldwide by many organizations and is linked to other widely used thesauri<sup>2</sup> (like the U.S. National Agricultural Library's Agricultural Thesaurus; the Chinese Academy of Agricultural Sciences Thesaurus (CAAT); and Eurovoc, the EU's multilingual thesaurus). AGROVOC is integrated in the Rangelands West and Global Rangelands portals through a Drupal module that suggests AGROVOC terms when the editor is tagging contents and then makes the selected terms available for faceted browsing.

## Future Technical Improvements

One future technical improvement would address the problem of relevant information sources on the web that do not use AGROVOC for tagging contents. In order to aggregate contents from these sources (e.g. via RSS feeds or page scraping) and have them fit with the semantic organization of the platform, the "automatic tagging" feature of the AGROVOC module for Drupal can be exploited. This feature analyses the text available with the resource and automatically assigns AGROVOC terms based on natural language processing techniques, thus making the aggregated resources searchable through the faceted browsing.

Another possible area for improvement is the possible inclusion of non-English resources, which would be easily provided for by Drupal's native support for multi-language content. Additionally, non-English-speaking editors and visitors would be allowed to switch the interface language and browse AGROVOC terms in their preferred language (among the languages supported by the portals).

Finally, the provision of a Resource Description Framework (RDF) store is planned, which will supplement the basic RSS feeds to share the contents of the portals. The result will be to make all contents available as Open Data.

Some of these enhancements, especially the provision of an RDF store and the exposure of data as Open Data, will be better achieved upgrading to the latest version of the Drupal CMS, which will make the platforms more robust, performing and interoperable.

## Global Rangelands Phase II

Web portal work is never finished; not surprisingly, the Rangelands Partnership has already identified a number of goals for Phase II. Desired new features and functionality include improvements to the user interface, social networking options (Twitter, Facebook and Google Plus), advanced searching options, faceted browsing, a mobile-friendly design, search boxes on

each Collection page, options for exporting to citation management programs like Endnote and RefWorks, and continued addition of new content through harvesting or digitization efforts. Specific technical changes include:

**Advanced Searching:** will allow the user to specify criteria such as Keyword, Author, Title, Journal Source, etc. and narrow the results to specific years and document types. Advanced Search will complement current faceted searching capabilities.

**Faceted Browsing:** will allow a user to browse content at a generalized level without first having to provide a search term. For example, Faceted Browsing will allow users to "See all conference proceedings".

**Browse All Authors Alphabetically:** will give users the ability to browse Author by last name.

**Print Friendly Pages:** will provide a print friendly button that formats the content of the web page to match an 8.5 × 11 page paper.

**State Template Improvements:** Partners have requested the ability to add more "slides" to the front page rotating slideshow. This number will be increased along with the ability to add a dynamic secondary page allowing users to see all future upcoming events.

**Streamlined Data Harvesting:** will improve the back-end mechanism and workflow for importing data so that when new data becomes available on partners' repositories, it becomes searchable through Global Rangelands more quickly.

The technical team has made some improvements to the user interface. Now, when searching from a State template, the search results page has the same template as the State homepage. Prior to this, the search result page had the look of the Global Rangelands page template. This also has been addressed on the Rangelands West search results page. In addition, the Rangelands West search results page now includes results from the *Journal of Range Management* and *Rangelands* journals. Search boxes have been added to each collection's listing of resources. This can be found on the "Collections" menu item. A Rangelands West Facebook page has also been created.

## Conclusion

The Rangelands Partnership is made up of a growing number of committed rangeland professionals, librarians, and technicians from around the world who largely volunteer their time to ensure access to quality rangeland management resources. The purpose is to provide information and data that will assist with informed decision-making and knowledge sharing for a wide range of audiences, including public and private landowners, teachers and students, and the general public. The Partnership welcomes opportunities for new collaboration with related groups and organizations and values comments and suggestions from all stakeholders. To this end, the authors of this paper welcome feedback

through the “contact us” feature on the Partnerships’ portals: <http://globalrangelands.org/contact>.

## Notes

- 1 AgriDrupal is a set of solutions implemented in Drupal that extend it with ready-to-use functionalities for agricultural information management: <http://aims.fao.org/tools/agridrupal/>
- 2 These linkages consist in mappings between AGROVOC terms and other Knowledge Organization Systems (KOS) implemented using semantic technologies and a Linked Data approach.

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