Photo: Daniel Grondin, NMHU

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Valles Caldera through GIS

Journey Through One of the World's Supervolcanoes

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I. Abstract

The Valles Caldera National Preserve (VCNP) was transferred to the care of the National Park Service (NPS) on October 2015. This region is composed of a super-volcano that has had eruptions in the last 1.2 – 1.6 million years. The results of these ultra-plinian eruptions is an area fifteen miles in diameter lined with large cliffs that form concentric circles marking the caldera edge. The inside of the caldera is composed of a beautiful valley with large, sweeping fields interrupted by resurgent domes, such as Redondo Peak. This unique volcanically derived geological structure provides a natural attraction that invites tourism to flourish and encourages economic opportunity for locals. The first step to accomplishing this goal is to raise awareness. Using Geographic Information Systems our team was able to highlight several different activities and educational information for the region. The types of information include the geology, topography, wildlife, cultural implications, fire history, weather models, hiking and biking trails, and rock-climbing locations. Considering at the moment, the amount of publically available information on the Caldera is limited, this information will help set the groundwork for future expansion on tourism for the area. \

II. Introduction

Having numerous volcanic fields spread throughout the state, New Mexico has been coined the Land of Volcanoes. Located in the Jemez Mountains, northern New Mexico, the VCNP is a super volcano with a caldera that is 13.7 miles in diameter. Multiple eruptions have occurred as a result of this large volcanic complex dating back to 1.15 –1.47 Ma. With satellite photography, the characteristic caldera structure can be seen with ease.

This project highlights some of the interesting aspects of the caldera by using a story map that incorporates different analyses and tools with Geographic Information Systems (GIS). The primary aspects of this project deal with: 1) Geology, 2) Wildlife Habitats, 3) Seasonal Weather Patterns, 2) Recreational Activities 5) Fire History, and 6) Cultural Implications. A 3D model was made to reflect the relief and topography of the terrain and a landform delineation to classify the different structures that make up the surrounding caldera area. To highlight recreational activities during the

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Message From The President—Laura Gleasner

Thank you to everyone who attended the Fall Meeting. A special thanks to all the speakers and board members who worked to put the program together. The work and dedication of the board members is greatly appreciated.

The definition of a family reunion is "an occasion when many members of an extended family get together" and that is what The Fall Meeting felt like to me: a family reunion. Many of you have been attending the NMGIC meetings for many years – while others are new. We may see each other only once or twice a year, but there is always much to catch up on. There were about 20 people in attendance who were either current or former EDAC/TAC employees, many of whom I had not seen for several years. I am proud to have worked with you all.

I have been involved with NMGIC for many years – mostly working with registration and making sure lunches are sorted out and ready for our hungry members. I have enjoyed the last eight years serving on the Board. This year we added "GEO-Beer" meet-ups to provide additional time to get to know our members. I look forward to attending many more of these.

Congratulations to our new board members. I know you will carry on the NMGIC traditions and am anxious to see future events.

So, whether you are a long time member or newly joined, I want to welcome you to the NMGIC family and I hope to see you at the next reunion!

Laura Gleasner, 2016 NMGIC President

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Do you have information about a project, new techniques, GIS and related issues, announcements, news, etc. that you would like published in the Map Legend?

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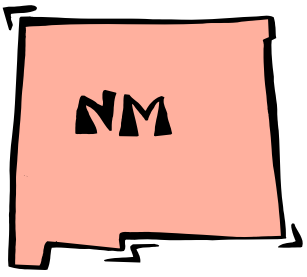

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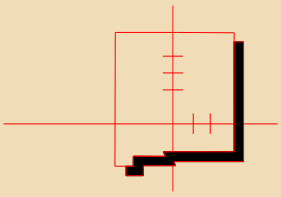

2017 GIS Event Calender

ESRI UC July 10-14 - http://www.esri.com/events/user-conference

URISA – Oct 23-26 - http://www.urisa.org/education-events/gis-pro-annual-conference/

GIS in the Rockies – Sept 20-21 - http://gisintherockies.org/

NM Surveyor's – March 24-25 - http://nmps.org/index.php/2016/06/03/save-the-date-digital-overload-2107-nmps-conference/

NM Association of Counties – Annual Conference – June 21-23 - http://www.nmcounties.org/meetings/

NSGIC – September 25-29 - https://www.nsgic.org/upcoming-conferences

NM GAC – second Tuesday of each month - http://www.gac.state.nm.us/

NM Geography Bee – March 31, 2017

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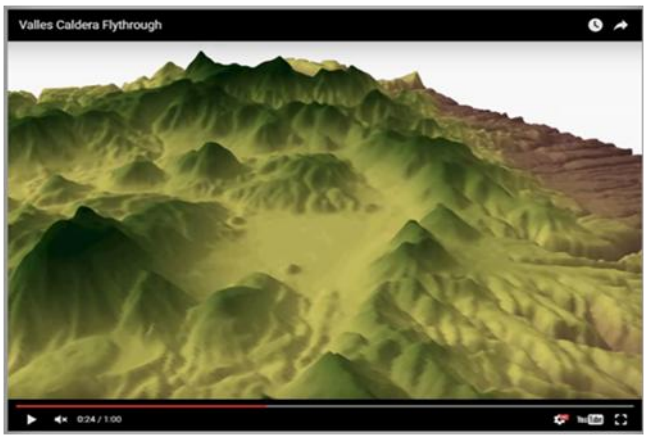
winter, time-lapse video displaying snowfall for the 2013-2016 winter seasons were created using satellite imagery. Climbing and biking trails are elucidated by maps that reveal locations for these types of activities. A description of the wildlife that inhabits the caldera and surrounding areas, is portrayed on a map alongside ecoregions. These ecologically driven maps bring to light the array of wildlife and the endangered species that reside inside the caldera.

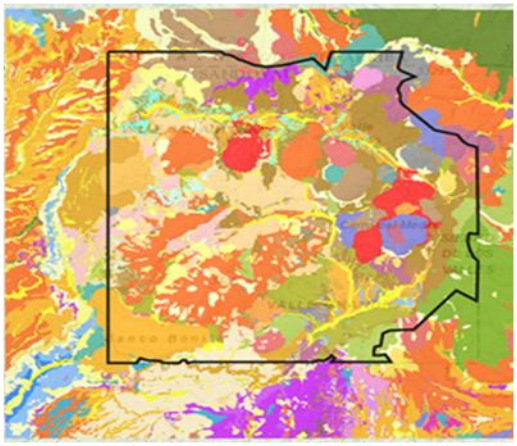
III. Methodology

Valles Caldera affords visitors a plethora of activities, many of which have only started to become available. Different aspects of the caldera and its recreational potential have been analyzed using GIS as a tool to highlight certain features. Our data comes from open sources as well as personal relationships that New Mexico Highlands University has through its geospatial laboratory.

Geology (3D Model below left & Geology below right)

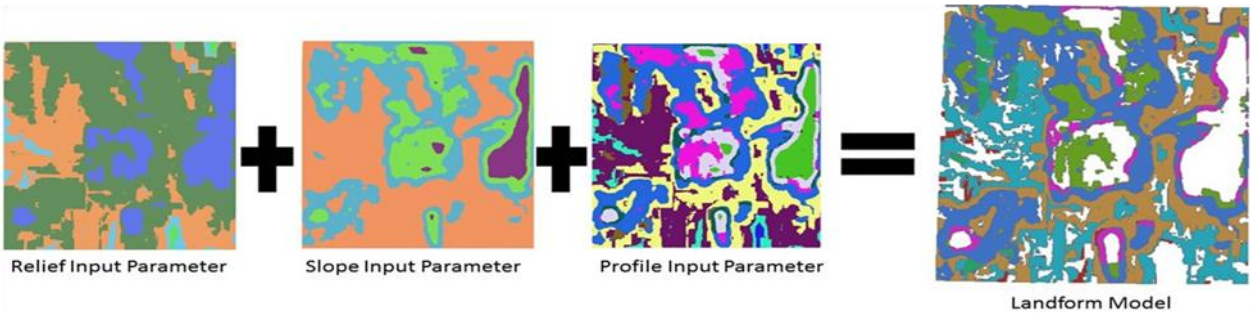
Twelve quad DEMs and a geology layer were downloaded and imported into ArcMap and ArcScene for analyses. The DEMs and geology layer were projected into NAD 1983 UTM Zone 13N and the 12 DEMs were mosaicked together and uploaded into ArcScene to make a 3D model with 1:1.1 exaggeration.





Landform Delineation (below)

A 30 meter DEM was downloaded and converted into a 250 meter DEM to follow the Improved Hammond Method (ESRI 2015) and was projected into NAD 1983 UTM Zone 13N. With the DEM, the Slope, Relief and Profile Parameters are created using Spatial Analyst tools as well as Raster Caclulator, Focal Statistics, Slope, and Reclassify. These parameters are then combined to yield a Landform Model



Wildlife

Vector datasets were used for this part of the project and were reprojected into the correct coordinate system, NAD 1983 UTM Zone 13N, using ArcMap. Datasets were geoprocessed to clip the datasets to the Valles Caldera National Preserve shapefile and bring focus to the project area. A point shapefile was created to add nearby cities to give our audience an idea where in north central New Mexico the Valles Caldera National Preserve is located relative to the data presented.

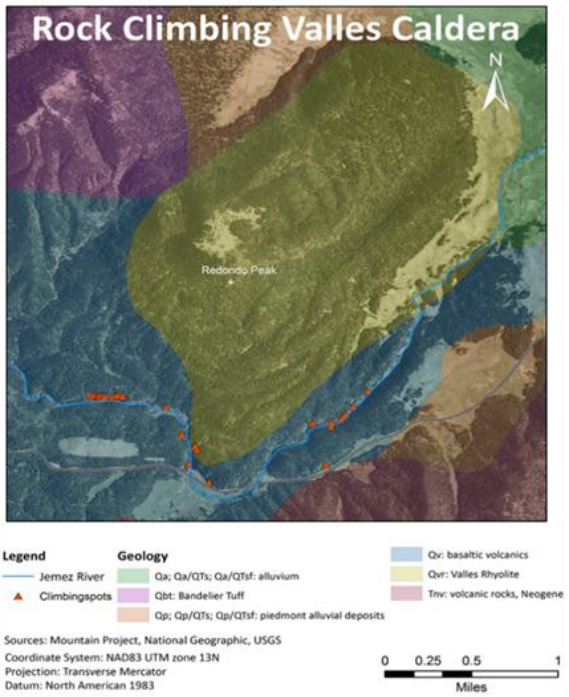
Valles Caldera through GIS

Snow Laspse

SNOTEL data and MODIS True Color Reflectance satellite images were downloaded and imported into ArcMap to produce maps for a snow time lapse model. The data was summarized, displayed, organized and exported into maps which were then imported into Adobe Premiere to make a time lapse video.

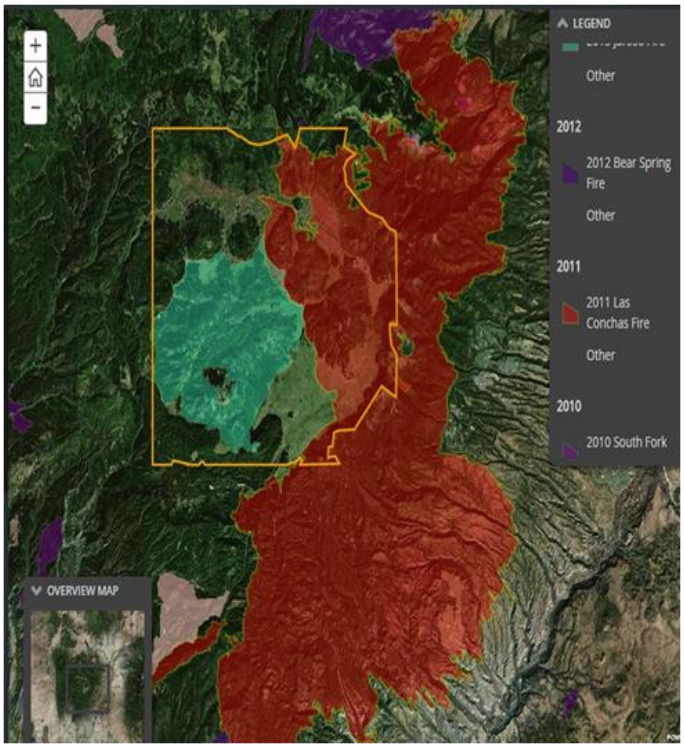
Recreational Activities

Data was downloaded as Aerial Images, vector, and GPX files for hiking, biking, and climbing spots. The GPX files had to be converted to shapefiles using the KMZ/KML to file tool. These data sets were uploaded onto ArcGIS Online to add pop-ups which include name, length, rating, website, and more.



Fire history

Fire history data was downloaded from the Santa Fe Forest website and downloaded into ArcMap and projected to NAD 1983 UTM Zone 13N. The data was then summarized into acreage by year and by location. These were then uploaded on a map in ArcGIS Online and incorporated into the story map.



Story Map (Visit link in Results section)

In order to create a story map, ArcGIS online accessibility is needed. We created a "Caldera Cruizers" group on NMHU's organizational account so that the entire group could create, edit, upload, and work on the story map. All data was exported as individual layers and uploaded one by one to ArcGIS Online and shared with the entire group. Together we looked at the story map applications and picked a design we thought best fit our project and created that application. Individual tabs were added according to what we are highlighting. Within each page to create a map we had to add our layers to the map and assign it a title. We could then show the attributes we wanted, create pop ups for each point, line, or polygon represented on the map, and edit the legend to portray certain items. Other pages that used pictures or videos were uploaded via a URL link through Facebook, referenced online images, or YouTube. After all elements were added, last minute corrections were made and the application was published and made public for anyone to visit and explore the Valles Caldera National Preserve online.

IV. Results & Discussion

Final Story Map Visualization:

Journey Through One of the World's Supervolcanoes: Valles Caldera can be accessed at: http://arcg.is/1TTLHuV

Our story map of the Valles Caldera National Preserve highlights features that are vital to the caldera's environment. The story map has sections about the geology, wildlife, winter seasons, recreational activities, landform classification, 3D flythrough, fire history, and informational videos about the caldera. The geologic map stands to illustrate the different geological formations and rock types. This is helpful to know when needing to build new structures, farming, natural resource exploration and more. The geology also stands as a forum to tell the history of the area and what has happened to this part of the earth in a scientific manner. This is important because it is the framework to dealing with societal problems like climate change, natural hazards, and natural and mineral resources, to name a few. The 3D flythrough allows us to represent a surface in 3D that would otherwise be modeled only on a 2D surface. This allows for a sneak peek into what the caldera and its neighboring features look like. Our 3D flythrough, exaggerated with a 1:1.1 ratio, enters through the Jemez Canyon into the caldera. The high peak in the center is Redondo Peak, a resurgent dome. Circling the flanks of the caldera we can see the characteristic ring shape the mountains make formed by caldera collapse faulting. As the camera circles around, we fly past Redondo peak one last time and exit through Jemez Canyon once again. This flythrough, although the DEMs were mosaicked together, still showed breaks as the animation was being made and it would be nice to further explore how to resolve this.

Delineating the landforms within and around the caldera gives a better look at the different types of landscape the caldera consists of. The major landforms that make up the caldera are open low mountains and open high mountains with very little amounts of high mountains and plains with low mountains. The process of this delineation required a 250 meter DEM and after going through the process, it seems as if it would work better for a larger continental scale or even a country scale. There are lots of undefined areas which could be improved on and if possible, with an improved method, this delineation could become more detailed to differentiate more landform types. When a more detailed method surfaces, hopefully the delineation of the Valles Caldera National Preserve could be more comprehensive.

Wildlife analyses shows that the area of the Valles Caldera is more species rich compared to much of the surrounding area of the state of New Mexico. This may be due to the Rio Grande water resource, which is a major river that runs through central New Mexico. Another reason could be that the neighboring national monument and Los Alamos National Laboratory, are protected against hunting, human presence in and around the caldera deters predators, and the area is well managed by the National Park Service to ensure wildlife diversity.

The snow time-lapse videos yielded a visual of the change in amount of snow throughout the season and how it differs with the past 3 seasons. Although there are a number of weather stations that are within the Valles Caldera boundary (Redondo Peak, Headquarters, Hidden Valley and 3 others) none of these are equipped for accurately measuring snow data. Maximum Snow Depth is recorded, but for several stations some months showed no data, -9999, or negative numbers. Precipitation is recorded but not as snow or rain. Given this, the precipitation values were considered based on their changes relative to one another but not used to calculate snowfall. Outside the park boundaries, there is a SNOTEL site at Quemazon, and weather COOP sites at Wolf Canyon, Los Alamos and Jemez Springs. These sites measure snow data but record different variables. These sites are also in widely varying terrains and locations and some data was missing for some months at various sites. Therefore, in lieu of giving specific snowfall accurate measurements for the Valles Caldera boundary itself, it was decided to make generalized observations on the overall snow trend and pattern by the stations for the three seasons. In looking at the three seasons studied (2013-14; 2014-15; and 2015-16) certain trends do emerge. For most stations, 2015-16 recorded the most snow (almost 50% more than 2013-14 and 25% more than 2014-15) and this snow came earlier in the season and tapered off by the end months. Overall, January is the month that receives the highest snowfall for the wider area. In 2014-15, the season was slower in starting, with snow coming in a little later in the season towards the end of January and then continuing through March. The 2013-14 season received less snowfall than either of the other two seasons, but what it did receive came in more steadily divided throughout the winter months.

The hiking, climbing and biking maps show selected trails for the outdoor adventurers. These map were created to show the hiking, climbing and biking spots indicating the number of biking routes or climbing spots, length, and rating at each spot. Links are

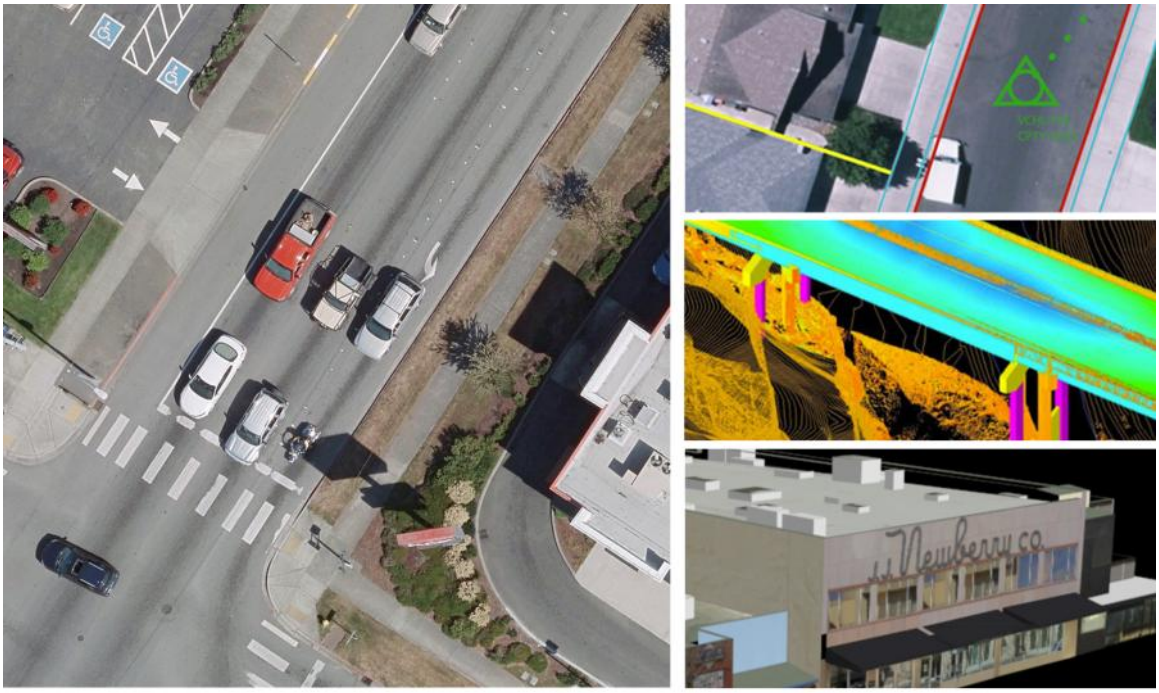
attached to some of the pop ups which allow the viewer to navigate to that website which has pictures of the trails/spots as well as other nearby trails. The map, when zoomed in, can also show how accessible they are and whether you need to hike to get to them or if there is a parking lot available.

The largest fire occurred in 2011, the Las Conchas fire, which burned 156,593 acres. The next largest fires were the Jaroso in 2013 burning 11,149 acres, and the 2010 South Fork fire burning 17,081 acres. Fires that largely affected the caldera were the 2011 Las Conchas fire and the 2013 Jaroso fire.

The Story Map is the final result which is a compilation of all the results put together in a visually appealing and friendly application that can be explored by anyone. It has multiple aspects to appeal to all interests, scientific and recreational. This is an engaging outlet that incorporates technology, which is very prominent in today's society, so something that relates to a majority of people is always favored. This story map is a picture of Valles Caldera National Preserve as a whole, by showing multiple aspects and providing user access to one of the newest additions to the National Park Service.

V. Significance of Work

Valles Caldera National Preserve is special because it is a huge part of the history of northern New Mexico and is one of the newest additions to the National Park Service. Being very new to the National Park Service, this project stands to bring awareness to this natural feature that has a very vibrant history geologically, as well as culturally. This allowed us to learn more about how GIS can be used as well as learn more about the Valles Caldera National Preserve because of our love and appreciation of National Parks. There is much cultural significance around the caldera as well, like Bandelier National Monument, hot springs, and Soda Dam to name a few. People all over come visit what New Mexico has to offer, and now they can amplify their awareness by caldera cruising around Valles Caldera National Preserve



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Valles Caldera through GIS

VI. Conclusions

Geographic Information Systems can be practically applied to a wide array of topics. It can be used for social, scientific, municipal, political, and recreational in its applications. In this case our team was able to display a plethora of information concerning the newly recognized national preserve, Valles Caldera, and bring this area to public light. The hope is that this newly created database can serve the National Park System and the residents surrounding the preserve in an economic and educational manner. The creation of the map also gave the opportunity for students at New Mexico Highlands University to utilize the tools of ArcMap and other programs in a diverse in practical manner. The research and analyses provided in this project about the Valles Caldera National Preserve is a great gateway of user friendly access to show, otherwise complex, geographic information system outputs.

VII. Acknowledgments

- Joe Zebrowski, New Mexico Highlands University
- Patti Dappen, New Mexico Highlands University
- Lisa, National Snow and Ice Data Center
- National Park Service for their 100 years of service

VIII. References

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F. Goff, J.N. Garnder, S.L. Reneau, S.A. Kelley, K.A. Kempter, J.R. Lawrence, 2011. *Geologic map of the Valles caldera, Jemez Mountains, New Mexico.* Map. Socorro, New Mexico: New Mexico Bureau of Geology and Mineral Resources,Open-file Geologic Map 79, scale 1:50,000. Print.

Good News!

NMDOT Aerial Photography's unit now has an interactive online map that shows coverage of our imagery. This is phase one and **does not** show all of our imagery so don't fret if what you are interested in isn't covered, there is more to come.

Please feel free to send me information on improvement's, changes, adjustments you find to make it easier to use and please pass on to anyone you think might benefit for using this map.

NMDOT Online map gallery:
http://nmdot.maps.arcgis.com/home/index.html

NMDOT Aerial Photography Coverage map:
http://arcg.is/1X7DmDL

Alane Wainwright

In September, Blue Skies Consulting, LLC, acquired a RIEGL LiDAR system in order to expand its portfolio of services. LiDAR (Light Detecting And Ranging) is a remote sensing technology that uses a pulsed laser light to collect three-dimensional point clouds of the Earth's surface. The VQ-580 Airborne Laser Scanner provides high-speed, non-contact data acquisition using a narrow, near-infrared laser beam and a fast line-scanning mechanism. The VQ-580's high-accuracy laser ranging is based on RIEGL's unique echo digitalization and online waveform processing, which produces superior measurement results even under adverse atmospheric conditions. Blue Skies' new LiDAR is mounted in its Cessna TU206 aircraft, along with its Vexcel UltraCam Lp. Blue Skies customers can benefit from this unique ability to simultaneously collect LiDAR data and photogrammetric-quality digital imagery.

What is a LiDAR and how does it work?

A LiDAR system typically consists of a LiDAR scanner, a Global Positioning System (GPS), and an Inertial Measurement Unit (IMU). The LiDAR scanner is an active optical sensor that transmits laser pulses toward the ground as the aircraft flies a pre-determined course over the ground. A rotating polygon-shaped mirror makes the pulses of light sweep back and forth across the ground as the aircraft moves forward. Blue Skies' new LiDAR does this 380,000 times per second (380 KHz). The system records the time delay between a light pulse transmission and reception to calculate the distance between the sensor and the ground. The sensor precisely records the position of the mirror when the pulse of light is sent and measures the angle of the laser beam. The GPS measures position and velocity. The IMU measures the pitch, roll, and yaw of the sensor. By knowing exactly where the sensor is in space (GPS), where exactly the sensor is pointing (IMU), and the distance and angle the laser beam traveled to the ground (LiDAR scanner), you can very accurately determine the X,Y, and Height of the point the LiDAR scanner measured on the ground, and produce highly accurate x, y, z measurements. When the LiDAR does this 380,000 times per second, at a speed of 80 knots, the point cloud is generated at approximately 12 points per square meter. If higher density is required, the aircraft simply makes a second pass over the same area, and the point density doubles.

What are the Benefits?

LiDAR data has many benefits which include:

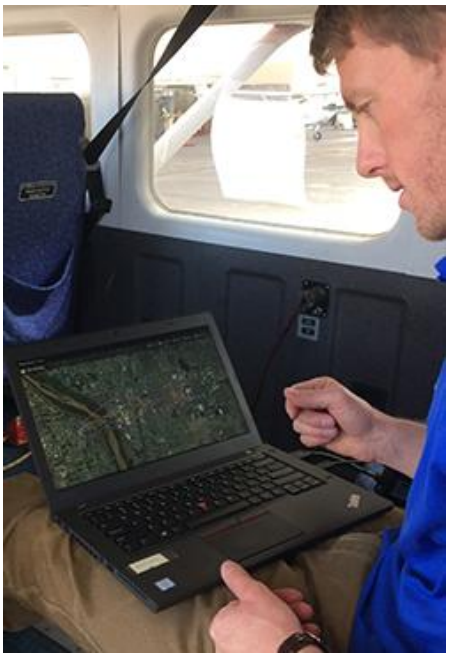
Fast data acquisition and processing.
Reduced time collecting field survey data
Higher accuracy than photo-based autocorrelated point clouds.
No weather or light dependence. LiDAR data can be gathered night or day, in sunny or cloudy weather.
A higher point density than ground-based surveys and conventional photogrammetry.
No geometric distortions.
Cost-effective accuracy, point density, and speed.
Colorized point clouds using RGB values from UltraCam digital imagery

LiDAR technology is quickly becoming a key tool in the field of surveying. With its cost-effectiveness and accuracy, LiDAR is surpassing traditional surveying techniques. Blue Skies Consulting is integrating LiDAR data with digital photogrammetry to offer clients the best data possible. Blue Skies has already begun working on projects with its RIEGL VQ-580 LiDAR, and the results are being well received.

Remote Sensing to Assess Infrastructure Damage — Aaron Hilf

UNM Geography Professor and Students Make Strides with Remote Sensing Project to Assess Infrastructure Damage After Disasters

In the wake of natural disasters, being able to quickly and accurately assess the damage to roads, bridges and other critical infrastructure can save lives. That fact is one of the driving forces for a University of New Mexico research team making big strides in the field of remote sensing.



UNM graduate student Jesse Sprague preparing the remote sensing system for a flight test.

UNM Assistant Professor of Geography and Environmental Studies, Chris Lippitt, is the lead researcher on the project which also has collaborators at San Diego State University and BAE Systems. Lippitt and his team, which also includes UNM Civil Engineering Associate Professor Susan Bogus, have been working through a grant from the United States Department of Transportation Office (DOT) of the Assistant Secretary for Research & Technology. Over the past two years, the project has gone from an idea to a commercial product currently offered through BAE.

"We've designed a capability to map and detect fine scale changes to infrastructure after hazard events," explained Lippitt. "So, rather than 'is the bridge missing,' we ask, 'is there a crack forming in the bridge?' And, we're trying to do it in a completely automated way so that we can take the terabytes of data we collect after an event and analyze it automatically."

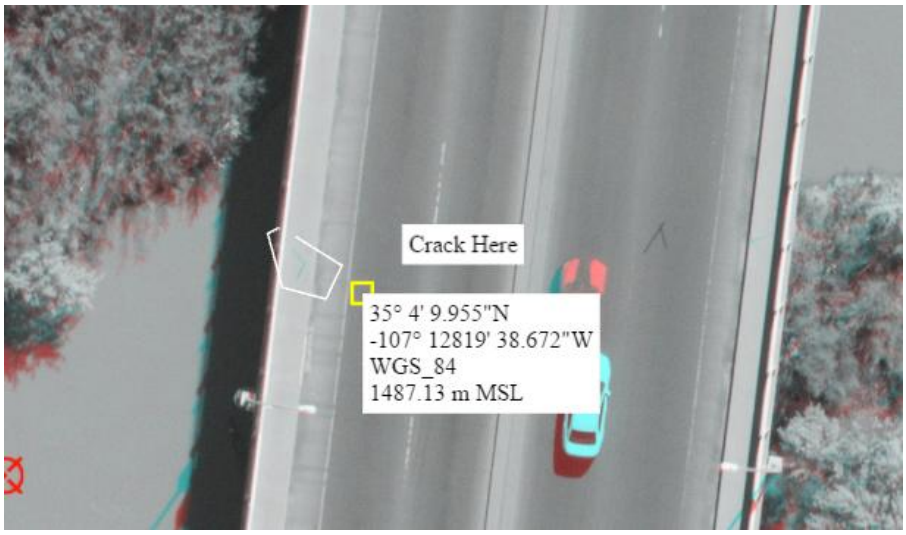
The technology is comprised of two main components; the camera hardware, mounted to a plane or unmanned aerial vehicle (UAV), and the software, which analyzes the pictures taken. Prior to a disaster event, like an earthquake or hurricane, emergency management crews would fly over populated areas and take baseline photographs of critical pieces of infrastructure. Then, following a disaster, crews fly over those same areas and take more pictures. The software will then match the before-and-after images and detect any superficial changes. From there, it's up to engineers to determine where the concern is and pass that information along to emergency crews.

"With the way that we have it currently implemented, we're detecting any changes an inch and a half or larger," said Lippitt. "And that's going to get even better as camera technology continues to improve."

This life-saving technique is just one of the many uses of remote sensing. However, according to Lippitt, for years the problem has been with the cost associated with utilizing these sorts of technologies.

"You're talking about satellites or aircraft, very expensive sensors. So, it's kind of out of the reach for most states, cities and counties to do much with," he said. "A big part of my lab's efforts were to make what is very, very valuable information available from aircraft and satellites cheap and easy to use for more people."

And Lippitt believes they've been able to do that. His team partnered with the Albuquerque wing of the Civil Air Patrol (CAP), a nationwide volunteer organization with the largest fleet of private aircraft in the world. In early November, Lippitt, along with UNM students and CAP, showed the technology to representatives from the Department of Transportation and FEMA. Lippitt says his hope is for these federal organizations to work with CAP to implement the technology on aircraft across the country.



Interpreted products are centralized into a common portal for access by emergency and transportation

While this project will have a huge impact on how emergency crews work after hazard events, the development has also provided great opportunities for UNM students. Lippitt's research team is made up of graduate students from a variety of disciplines across campus. He says the project has not only given them the chance to work on cutting edge technology, but also the opportunity to work with federal agencies and private business, helping expand the student's education.

DOT funding for this project is set to expire later this year. However, Lippitt says his group will continue to improve the technology and find more applications for this kind of remote sensing system.

Engineers access the data products through a web browser where they can provide their expert interpretation of the status of the infrastructure.

This Civil Air Patrol aircraft at Kirtland Air Force Base has been outfitted with the remote sensing hardware system.

A recent remote sensing demonstration was attended by representatives from UNM, San Diego State University, BAE Systems Inc., Civil Air Patrol and NMDOT.

Christopher D. Lippitt, Associate Professor of Geography & Environmental Studies, University of New Mexico

User Submitted Websites

Debra West of Geomatic and Design Aspects submit this cool mapping website: http://metrocosm.com/

Metrocosm is a collection of maps and other data visualization projects — trying to make sense of the world through numbers.

Zack Stauber has recently launched a directory and web map of black owned businesses in New Mexico: http://black.jogerfy.com.

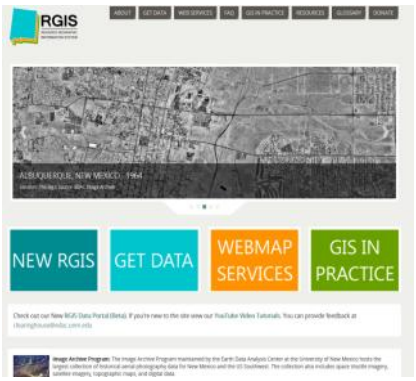
He intends to eventually build a complete list of all black owned businesses in the state by crowd-sourcing leads, and he has set up a Facebook page to message with new entries at: https://www.facebook.com/nmbob.

A mobile friendly web map can be a way for New Mexicans to easily patronize black owned businesses to help grow a thriving black business community, particularly in the wake of the recession of the late 2000's, which impacted people of color the hardest, and from which many have still not recovered."

From Laura Gleasner

3D representation of a sample of the Lidar point cloud from the Rio Hondo Watershed, NM. https://skfb.ly/XHwo

NM RGIS Data Portal - http://rgis.unm.edu



For the most current data, please go to NEW RGIS! We are migrating all data to the new portal.

New and Updated Data

NAIP 2016 County Mosaics
MRCoG 2016 Mosaic and County Mosaics
Historic Aerial Photo Indexes
Landsat Satellite Imagery 2014 County Mosaics
E-911 Roads and Address Points
Updated Boundaries
Wildfire Boundaries, Burn Severity
CASA (Community Anchor Site Assessment: Public Safety, Schools, Hospitals…)
USGS Earthquakes
FEMA National Flood Hazard Layer
FEMA Preliminary Maps
FEMA Risk MAP Products for Rio Hondo
Updated USGS NHD
LiDAR derived products

NAIP 2016

2016 NAIP

White Sands agreed to release the imagery this time!

ASPRS Manual of Remote Sensing, Fourth Edition

The American Society for Photogrammetry and Remote Sensing (ASPRS) will have a new addition to their suite of technical publications. The fourth edition of the Manual of Remote Sensing (MRS4) will be published this summer as an "enhanced" electronic product. Stan Morain (Editor-in-Chief), and co-editors Mike Renslow and Amy Budge are compiling and editing material provided by numerous contributors who are experts in various aspects of remote sensing technologies, data preservation practices, data access mechanisms, data processing and modeling techniques, end-user applications of value-added products, and legal aspects such as space policies and space law. These topics are organized into eleven chapters presented in three parts: Part 1 – Systems; Part II – Data Management; and Part III – Applications. MRS4 is unique from previous editions in that it will be available online as a "living" document that can be updated easily in years to come as new technologies and practices evolve. It also is designed to include animated illustrations and videos to further enhance the reader's experience.

Conceptually, MRS4 content expands its scope from previous editions, focusing on new and updated material since the turn of the 21st Century. The first edition was published in 1975 in two volumes totaling 3100+ pages; the second edition, also in two volumes, was published in 1983 with over 2000 pages; and the third edition was presented as a 6-volume set, published over a span of years from 1997-2009 (collectively totally about 4000 pages). All of these editions were published as hard-copy products.

The business model for pricing and distributing MRS4 is being developed by ASPRS headquarters. Details and further information will be announced at a later date.

Jessie Rossbach Memorial Scholarship Update

Initially this project was aimed at investigating the available tools for Structure from Motion (SfM) photogrammetry. Agisoft Photoscan and Menci APS were compared for their abilities to generate Digital Surface Models (DSMs) and orthophotos.

Because the available software packages each seem to propagate error in a different way, a few questions have been identified. Immediately, it became apparent that the effect of Ground Control Point (GCP) placement was poorly documented, and general best practices are mostly heuristic.

As a point of curiosity, I completed several iterations of DSM generation using different subsets of GCPs. The results of this cursory investigation yielded interesting insight and led to conceptualization of a more specific, more quantifiable project.

For the presentation at the next NMGIC meeting, I will discuss the first of these questions with the "Evaluation of the Effect of Ground Control Placement on Structure from Motion Model Accuracy". I will be using aerial imagery collected with the Civil Air Patrol and am looking forward to being able to present some interesting insights.

Thank you again for your consideration and award, I look forward to meeting with you all again in the spring.

Jesse Sprague

Attention Students in GIT...

NMGIC offers a scholarship worth up to $1000 to students working on GIT

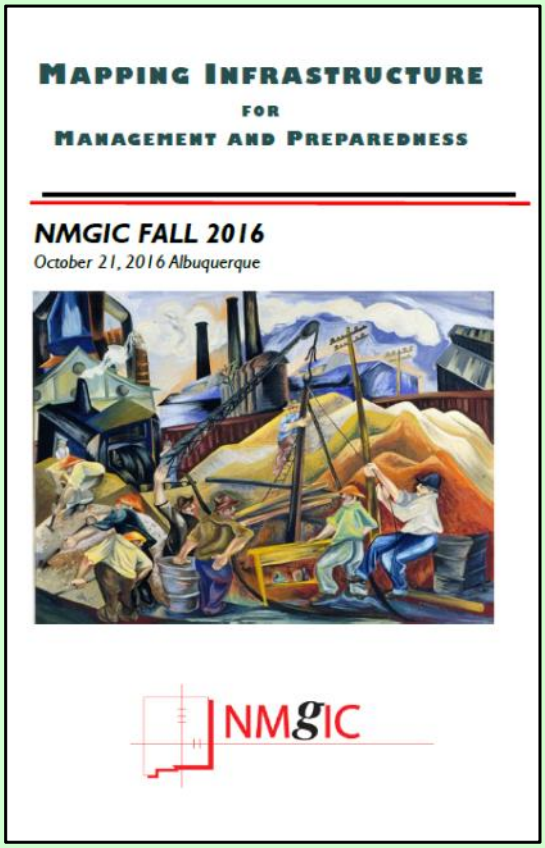
programs!!!

See *http://nmgic.com*

Fall 2016 Meeting Round Up

Joe Zebroski

The Annual NMGIC Fall meeting was held on October 21. The theme this year was “Mapping Infrastructure for Management and Preparedness.”



We had a great lineup of presenters who covered a broad array of topics related to our theme. Thanks to all of them for helping make this meeting another success.

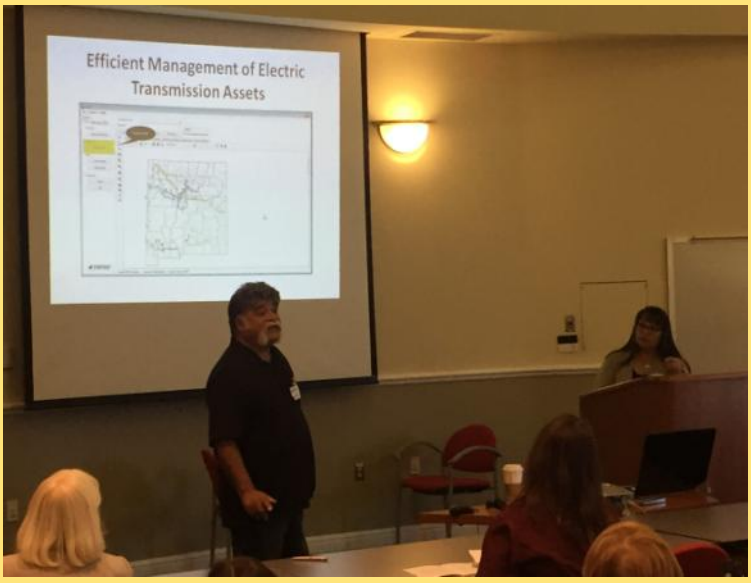
- A Closer Look at GIS Management & Mapping of PNM's Infrastructure, Gathen Garcia and Stella Murdock, PNM
- Mapping Assets Safely, Will Byrne, GISP, Space Analysis, LLC
- Map-Based Infrastructure Management for Small Towns , Melodi King, Smallmelo LLC.
- "The 2016 All Hazards Bosque Runbook": A GIS Map Book for Emergency Responders , John Peterson, U.S. Army Corps of Engineers
- Valles Caldera Through GIS: Journey Through One of the World's Supervolcanoes, Zakiya Shivji, New Mexico Highlands University
- New Mexico Multi-Hazard Risk Portfolio, Shawn Penman, Earth Data Analysis Center
- Fire Planning and the Role of GIS, Anne Russell, SWCA Environmental Consultants
- Developing Crime Profiles of Albuquerque Zip Codes: Exploring Policy and Technical Issues, Sarah Masek and Dr. Peter Winograd, Albuquerque Police Department and University of New Mexico

Photos courtesy Shawn Penman.

Zakiya Shivji

Anne Russel

Sarah Masek and Dr. Peter Winograd



Gathen Garcia and Stella Murdock

Melodi King

John Peterson

IDENTIFY ASSET TYPES

HOLMAN'S | USA
PRECISION PERFORMANCE SINCE 1955
Flexibility & Performance – Leica GS14
Leica Geosystems
The Leica Viva GS14 is the most compact and powerful GNSS receiver. The integrated mobile communications and UHF modem means it is suited for any measuring task.
Together with the leading GNSS RTK the Leica Viva GS14 meets the highest standards for measurement technology.
Schedule a Demo and find out more about our
Trade-In Promotion!
Call 1-800-545-0932 today.
Hurry! This promotion ends December 31, 2014.
Call 1-800-545-0932 for your demo + quote
Holman's USA, LLC | 1403 West 10th Place, Suite B-104 (Going Priest Drive), Tempe, AZ 85281
www.Holmans.com | GSA Schedule Available

Education

The University of Maine School of Computing and Information Science announces a leading-edge master's degree program in Spatial Informatics. This graduate degree is the online version of the on-campus MS in Spatial Information Science and Engineering degree and accommodates students from wide ranging undergraduate degree backgrounds. Distance students take the same comprehensive graduate course content with the same high-caliber full-time professors as taken by on-campus graduate students.

The program focuses on advancing knowledge about spatial information particularly with respect to concepts needed in next-generation information systems. Emphasis is placed on developing novel concepts and methods in the broad field of geographic information science for sensing, storing, accessing, analyzing, and managing spatial data, and modeling, extracting, integrating, visualizing, communicating and reasoning about geospatial information.

Spatial Informatics is a term used to describe the field of study merging knowledge drawn from geographic information science, information science, cognitive science, computer science and engineering. The program is STEM certified and students build on foundations in computer science, mathematics, physics, geography, cognitive science, neuroscience, artificial intelligence, engineering and related fields to study spatio-temporal phenomena, design intelligent spatial information systems and develop human-centered accessible technologies.

The Spatial Informatics graduate program is designed to meet the growing demand in society for graduates with high-level geospatial technology skills. This student-centered curriculum provides a path for women and men from diverse fields to rapidly transition to information system career paths by providing them with foundation graduate level courses in information systems and geographic information science.

The School of Computing and Information Science also offers a MS in Information Systems (MSIS), dual MSIS/MBA degrees and two graduate certificates in Geographic Information Systems and Information Systems. All programs are offered fully online.

For more information and to apply for the MS in Spatial Informatics or Information Systems or Graduate Certificate in Geographic Information Systems or Information Systems, visit online.umaine.edu/scis or contact UMaineOnline at 581.5858 or email umaineonline@maine.edu

2016 CNM Class Offerings:

CNM School of Applied Technologies

GIS & Surveying Couses Available in Spring

GIS Courses

Course #	Course Name	CRN	Time(s)	Day(s)	Date(s)	Instructor	Campus	Online?	Credits
GIS 1002-51	Fundamentals of Geospatial Technology	83747	N/A	N/A	N/A	Theresa Watson	N/A	YES	3
GIS 1001-001	Intro to GIS	81235	04:00p-06:15p	MW	Jan 17, 2017 - Apr 30, 2017	Theresa Watson	Advanced Technology Center (ATC)	NO	3
GIS 1005-001	CAD for Surveying & GIS	82338	08:00a-10:15a	MW	Jan 17, 2017 - Apr 30, 2017	Ronald Forstbauer	Advanced Technology Center (ATC)	NO	3
GIS 1008-001	Land Information Systems	83910	08:00a-09:50a	R	Jan 17, 2017 - Apr 30, 2017	Ronald Forstbauer	Advanced Technology Center (ATC)	HYBRID	3
GIS 1096-001	UAS (drone) APPS	83409	01:30p-03:45p	MW	Jan 17, 2017 - Apr 30, 2017	Richard Watson	Advanced Technology Center (ATC)	NO	3
GIS 2001-001	Intermediate GIS	81859	10:30a-12:45p	T	Jan 17, 2017 - Apr 30, 2017	Theresa Watson	Advanced Technology Center (ATC)	HYBRID	3
GIS 2011-001	Remote Sensing & Image Process	83890	10:30a-12:50p	MW	Jan 17, 2017 - Apr 30, 2017	Theresa Watson	Advanced Technology Center (ATC)	NO	3
GIS 2030-001	GIS Project Design	83786	10:30a-12:15p	R	Jan 17, 2017 - Apr 30, 2017	Theresa Watson	Advanced Technology Center (ATC)	HYBRID	3

Surveying Courses

Course #	Course Name	CRN	Time(s)	Day(s)	Date(s)	Instructor	Campus	Online?	Credits
SUR 1001-001	Intro Survery Engr	83808	08:00a-09:05a	T	Jan 17, 2017 - Apr 09, 2017	Ronald Forstbauer	Advanced Technology Center (ATC)	NO	1
SUR 1002-51	Math for Surveying & Mapping	82288	N/A	N/A	Jan 17, 2017 - Apr 30, 2017	Ronald Forstbauer	N/A	YES	1
SUR 2001-001	Intermediate Field Procedures	83769	09:30a-02:20p	T	Jan 17, 2017 - Apr 30, 2017	Ronald Forstbauer	Advanced Technology Center (ATC)	NO	3

Shirley and Larry visit Indy: NSGIC 2016 Annual Meeting

Shirley Baros, Director, Earth Data Analysis Center and Larry Brotman, GIT Guy, New Mexico Taxation and Revenue Department had the opportunity to attend the Annual Meeting of the National States Geographic Information Council (NSGIC) in Indianapolis the week of October 24th. Both Shirley and Larry's annual NSGIC membership dues are paid by the New Mexico Department of Information Technology's (DoIT) Geospatial Program office. Because of his engagement with Census Partnership programs, Larry's conference registration and travel expenses were provided by the U.S. Census Bureau's Geography Division. Gar Clarke, DoIT Broadband and Geospatial Program Manager, and Leland Pierce, New Mexico Department of Game & Fish (and NSGIC Board member) have frequently attended this meeting in the past. They were both unable to attend this year and were sorely missed.

The meeting's venue was quite unique. The Crowne Plaza Indianapolis Downtown Union Station is integrated into a portion of the city's train station. Built in the mid 1800's, it was the nation's first "union station." It is still an active rail stop and guests can hear trains rumble through at all hours of the day and night.

Highlights of the meeting included:

State Caucus meetings (attended by state personnel only)… Discussions included the National Geospatial Data Act of 2016 (GDA) which, until recently, was a Senate bill only. The GDA now has a companion bill in the House and there is optimism about the future of the Act (Post election caveat: both will need to be reintroduced in the new Congress). The USGS 3D Elevation Program (3DEP) was a topic covered at great length.

Molly Schar, Executive Director, NSGIC… Molly was announced as NSGIC's first Executive Director in June of 2016. This was her first opportunity to introduce herself to the membership. Her presentation included observations she had made about the organization and initiatives for the future. Molly's near term goals are to reach deeper into the states for additional membership and engagement and to improve organizational communication through the use of newer media and technology tools.

Board Elections… Elections were conducted and the new NSGIC President is Bert Granberg, State of Utah. The President Elect is now Andy Rowan, State of New Jersey.

NCAA Hall of Champions… In honor of NSGIC's 25th Anniversary, Wednesday evening's social was held at the NCAA's Hall of Champions. In addition to appetizers, dinner, and dessert, guests were able to shoot hoops and make penalty kicks (soccer/futbol).

For more information about the meeting, please go to nsgic.org and click on "Annual Conference." Announcements and notes from each day are located at near the top of the page.

The Wildlife Society's National Conference — Ginny Seamster

The national conference for The Wildlife Society (TWS) will be held in Albuquerque September 23rd-27th, 2017. This is very exciting news for New Mexico – especially the New Mexico Chapter of the society. It has been over twenty years since the first national TWS conference – which was also held in Albuquerque. This conference presents an excellent opportunity for wildlife and other professionals in both the state and the southwest to highlight all the excellent work that we do for wildlife management and conservation.

Geospatial technologies are becoming increasingly important to many aspects of studies and management of wildlife. GPS units and GIS software are invaluable for recording, analyzing, and visualizing data on countless aspects of wildlife biology and ecology, including wildlife movement, habitat use patterns. Satellite data is used to create land cover maps that can inform many activities, including wildlife habitat management and restoration efforts. LIDAR can provide valuable information on habitat structure. Drones are emerging as tools for studying wildlife biology and surveying populations and habitats. Mobile applications with capability for recording spatial information are proliferating for data collection purposes, including for use in citizen science-based efforts.

Leland Pierce and I co-chair a Geospatial Advisory Committee (GAC) for the Southwest Section (SWS) of TWS. The purpose of this committee is to facilitate exchange of information between wildlife professionals regarding applications of geospatial technology that they are employing in their work. It is also intended to facilitate technology exchange between GIS and wildlife professionals. We would like to have a workshop, symposium, or panel discussion (or a few!) related to GIS technology and applications to wildlife research and management at the 2017 conference. The committee will be discussing possible topics for such a session in early December and will be submitting a proposal to TWS in early 2017. Proposals are due March 10th, 2017. Please contact me (virginia.seamster@state.nm.us) if you are interested in being involved with developing the proposal in collaboration with the SWS GAC.

Finally, the conference draws up to 2,000 professionals and is an excellent opportunity to network and promote ideas and products. Information on the 2017 conference will be posted here as it becomes available: http://wildlife.org/tws-24th-annual-conference/. Information on the 2016 conference is available here: http://www.twsconference.org/. If there is interest in sponsoring, having an exhibitor's booth, or otherwise supporting the conference, please contact me (Virginia.seamster@state.nm.us) or consider the information below.

Hope to see you next September at the Albuquerque Convention Center!

THE WILDLIFE SOCIETY

Leaders in Wildlife Science, Management and Conservation

24th Annual Conference • Albuquerque, N.M. • September 23-27, 2017

In September 2017, The Wildlife Society will be hosting one of the largest gatherings in North America of wildlife professionals, influencers, educators, students, and supporters in Albuquerque, New Mexico. During five days packed with presentations, working group meetings, workshops, discussion panels, and networking events, attendees will experience unparalleled educational, professional development, and networking opportunities.

This conference provides added value to exhibitors and sponsors, and a unique opportunity for contributors to show their support as it's the first time we're holding the conference in New Mexico since 1994. Sponsorship opportunities include member engagement, brand recognition, announcements, and special access to maximize sponsors' return on investment.

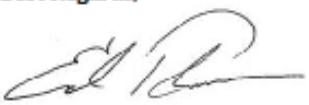
A wide variety of individuals from universities, conservation organizations, natural-resources consulting companies, and federal and state agencies will be among the attendees. Sponsors and contributors will also reach our 9,000+ members and more than 95,000 wildlife professionals, educators, students, and supporters through pre- and post-conference positioning in our magazine, website, and e-newsletters.

Our new program for sponsors offers several levels of engagement. All sponsors will have access to marketing support and insights from our team to customize a sponsorship solution that helps them achieve their desired results. Exhibitors will benefit from the high traffic generated by placement within our Member Activity Center that includes registration, poster sessions, refreshment breaks, and other popular activities.

Our goal is to provide a depth and range of educational programming and networking that ensures that attendees leave the conference more inspired, empowered, and enabled to sustain healthy wildlife populations and habitats for generations to come. With your support as a sponsor or contributor, we know that we can deliver on that promise.

Please review the attached information and contact us with any questions you may have. Our website for the 23rd annual conference is live at www.twsconference.org where you can see some of the Sponsors and Exhibitors who've already registered for this year. We appreciate your support of The Wildlife Society Annual Conference and look forward to thanking you there in person!

Best Regards,



Ed Thompson
Chief Operating Officer
The Wildlife Society

425 Barlow Place, Ste 200 Bethesda, MD 20814-2144 • 301-897-9770 • www.wildlife.org

GROSS RECEIPT TAX CODE RELEVANCY IN THE NEW MEXICO REAL ESTATE INDUSTRY

In the State of New Mexico, the real estate industry plays a critical role in gross receipts taxes, on which the State relies on heavily. As properties are being sold throughout the State, each real estate brokerage is required to report the commissions earned to the New Mexico Taxation and Revenue Department (TRD) on a monthly basis. These reported commissions are then calculated by the current tax rate for the jurisdiction in which the sold property is located. In the past, the only method available to identify the location code and gross receipts tax rate for the jurisdiction, was by using the Gross Receipts Tax Rate Schedule. This schedule is published by TRD January 1 and July 1 of each year. Example below.

GROSS RECEIPTS TAX RATE SCHEDULE **REVISED** **Effective July 1, 2016 through December 31, 2016**

Municipality or County	Location Code	Rate
BERNALILLO		
Albuquerque*	02-100	7.3125%
AISD Property/Nineteen Pueblos of NM (1)[a c *]	02-905	7.3125%
AISD Property/Nineteen Pueblos of NM (2)[a c *]	02-906	7.3125%
Laguna Pueblo (2)	02-952	6.2500%
Los Ranchos de Albuquerque	02-200	7.2500%
Mesa Del Sol TID District 1*	02-606	7.3125%
Rio Rancho (Bernalillo)	02-647	7.8125%
Sandia Pueblo (1)	02-901	6.2500%
Sandia Pueblo (2)	02-902	6.2500%
State Fairgrounds	02-555	6.2500%
Upper Petroglyphs TID District 1	02-607	6.2500%
Upper Petroglyphs TID District 2	02-608	6.2500%
Upper Petroglyphs TID District 3	02-609	6.2500%
Upper Petroglyphs TID District 4	02-610	6.2500%
Upper Petroglyphs TID District 5	02-611	6.2500%
Upper Petroglyphs TID District 6	02-612	6.2500%
Upper Petroglyphs TID District 7	02-613	6.2500%
Upper Petroglyphs TID District 8	02-614	6.2500%
Upper Petroglyphs TID District 9	02-615	6.2500%
Village of Tijeras	02-318	7.6250%
Winrock Town Center TID District 1*	02-035	7.3125%
Winrock Town Center TID District 2*	02-036	7.3125%
Remainder of County	02-002	6.2500%

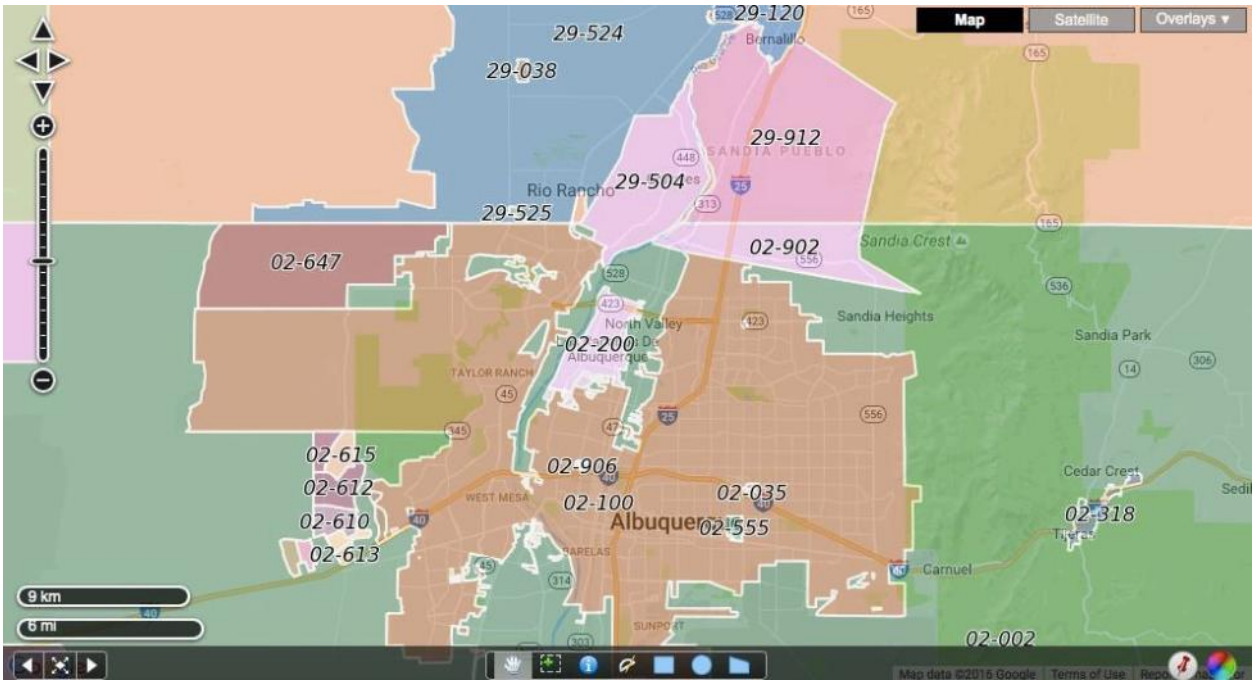
Municipality or County	Location Code	Rate
GUADALUPE		
Santa Rosa	24-108	8.0000%
Vaughn*	24-207	8.2500%
Remainder of County	24-024	6.4375%
HARDING		
Mosquero (Harding)	31-208	6.9375%
Roy	31-109	7.3125%
Remainder of County	31-031	6.1250%
HIDALGO		
Lordsburg	23-110	7.2500%
Virden	23-209	6.4375%
Remainder of County	23-023	5.9375%
LEA		
Eunice*	06-210	7.3125%
Hobbs	06-111	6.8125%
Jal	06-306	7.0625%
Lovington	06-405	7.2500%
Lovington Industrial Park	06-158	5.5000%
Tatum	06-500	6.8125%
Remainder of County	06-006	5.5000%
LINCOLN		
Bonito Lake - Alamogordo[d]	26-508	5.5000%
Capitan	26-211	6.8125%
Carrizozo	26-307	7.0000%

Through a string of correspondence with TRD and Nadine Thomason, REALTOR® and Qualifying Broker/Owner of Platinum Realty Group, it was discovered that TRD had been publishing gross receipts tax rate and geographical information system (GIS) boundary data and maps for a few years. Although the GIS data had been published through the New Mexico Resource Geographic Information System, the GRT maps available from TRD's web pages were static and designed primarily for depicting tax rate ranges throughout the State, and not for identifying respective location codes and GRT rates.

It was through a dialogue between Nadine Thomason, the staff at the Greater Albuquerque Association of REALTORS® (GAAR), and a GIS specialist at TRD, a dynamic Gross Receipts Tax Boundary Map was created to help identify the correct location code and GRT rate for each property sold within the Southwest Multiple Listing Service (SWMLS).

Gross Receipt Tax Code Relevancy

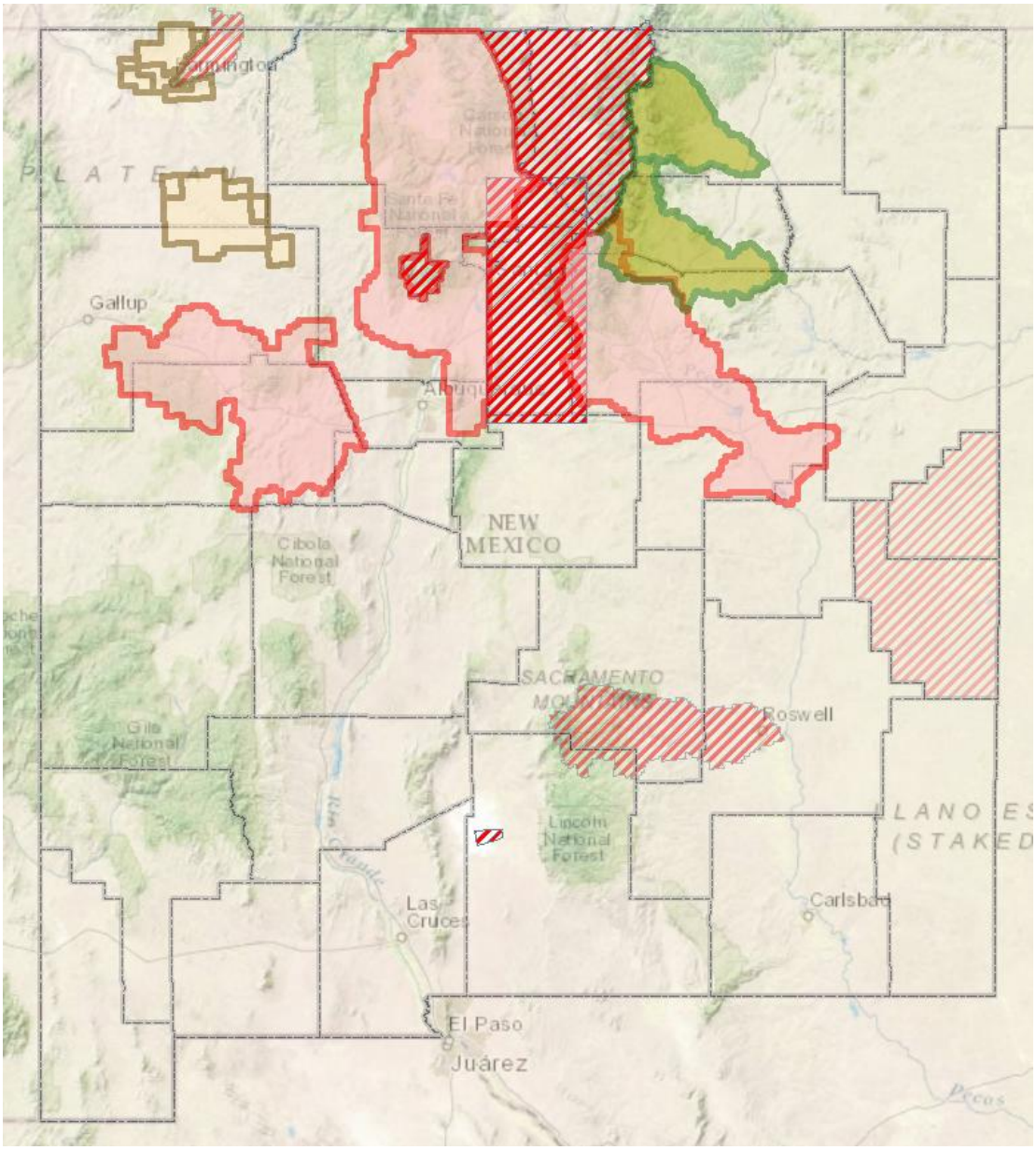
Since the creation of the GRT Boundary Map, GAAR and SWMLS have taken steps to ensure the accuracy of the allocation of gross receipts tax by adding this boundary map to the multiple listing service (MLS) as an overlay. This enables brokers to quickly identify the appropriate GRT location code, and therefore, the tax rate for a respective property.



Along with the GRT overlay map, SWMLS is adding a GRT Location Code field to the listing data. The data within this field will automatically populate based on the mapped location of the property, ensuring the accuracy of the location code. REALTORS® Association of New Mexico (RANM) has also taken steps to support the proper allocation of GRT by adding sections to the State's Purchase and Listing Agreements.

Prior to the creation of the GRT Boundary Map in the MLS, there was no certainty in distinguishing between bordering jurisdictions or small pockets that were within some of these areas. Thanks to the collaboration between Nadine Thomason of Platinum Realty Group, TRD and GAAR, this uncertainty is significantly reduced.

Nadine Thomason, REALTOR® and Qualifying Broker/Owner, Platinum Realty Group



This is the LiDAR footprint coverage situation for New Mexico as of November, 2016 - The red-hachured polygons indicate acquired areas (with the data from the Rio Hondo HUC08, Animas HUC10, Southwest Jemez, and Curry and Roosevelt counties available through RGIS), the red shaded polygons (funded by FEMA, USFS, and BIA), the green shaded polygons (funded by NRCS) and brown shaded polygons (funded by BLM) are all to be acquired this year and made available hopefully by late 2017. All data shown here meet the USGS 3DEP QL2 standards or better and as part of that program are to be publicly available.

Paul Neville [mailto:pneville@edac.unm.edu]

Gar's Geo-Corner

NM Gespatial Products and Support Services Price Agreements:

The Department of Information Technology (DoIT) Office of Broadband and Geospatial Initiatives (OBGI) are rounding the last corner to packaging up State Price Agreements for purchasing of Geospatial Products and Support Services. This has been a long haul incorporating many hours from the state and the providers. These multi-vendor awards will be available to all levels of government. Given final signatures we hope to have them signed, sealed, and posted by 14 November. There will be an announcement, once these are launched, directing you to the proper State Purchasing Agreement page. GAC will also have links to these pages once they are published.

- SPD/SPA: http://www.generalservices.state.nm.us/statepurchasing/Statewide_Price_Agreements.aspx

WEB SPLASH – Weridly Accurate: Chris English, Arizona

Traditional 2-D maps of Earth include major distortions. A new award-winning design, however, makes a world of difference. Like all planets, Earth isn't flat. But globes are bulky and cumbersome. "Weirdly Accurate".
Maps: http://www.mnn.com/green-tech/research-innovations/blogs/authagraph-world-map-design

WEB SPLASH – The Kentucky Opiods GeoStory: Esri

This Opiods GEOStory in Kentucky is a chilling reminder of New Mexico's similar addiction issues. This GeoStory may be a way to tell our story in a popular manner to educate New Mexico population, caregivers, and decision makers. Check it out
:https://nkhd.maps.arcgis.com/apps/MapJournal/index.html?appid=8d43ab38289f4decbda45af1b4eff875

WEB SPLASH – Cartography Book Award: Colorado

Forgot where I saw this, yet for you reader types this Cartography Book Award to Carlis Benefideo for "Imaginative Cartography" is supposed to be superb. Hunt it down at:
http://nacis.org/awards/corlis-benefideo-award/

GAC WebWorld:

- GAC Website: http://www.gac.state.nm.us/
- GAC Agency Map Services: http://www.gac.state.nm.us/maps/mapservices.html
- GAC Agency Maps: http://www.gac.state.nm.us/maps/nm_maps.html
- GAC Announcements: http://www.gac.state.nm.us/Announcements.html

GAC Subcommittees:

Elevation: http://www.gac.state.nm.us/subcommittees/elevation.html
National Hydrography: http://www.gac.state.nm.us/subcommittees/hydrography.html
Cadastral: http://www.gac.state.nm.us/subcommittees/cadastral.html
Master Addresses: http://www.gac.state.nm.us/subcommittees/masteraddress.html

GeoBeer was a success this year (as it is every year), with over 20 members attending the after meeting get together. We changed it up this year, moving the location to Canteen Brewery where there was plenty of parking and outside seating. Also, as a reminder of the new location, we showed a slide of the location during breaks. Whether it was the location or the showing the slide as a reminder, the turnout was fantastic. Thank you all for attending, and I hope to see you next year at our GeoBeer event!

We will also continue to have social gatherings every other month or so to keep up the networking component of our organization. If you have suggestions of where to hold the next event, please let me know. The format of each social will change slightly depending on the venue, but our socials will always be family friendly and welcome to all.

Veronica Lopez

Unofficial Social Coordinator

NMGIC ELECTIONS

The elections had a very close race this year. So close there was a tie, which were resolved through the election process.

Our continuing board members are **Katherine Depalo, Brian Keller, and Kerri Mich**. Our new board members are **Daniel Estrada and Scott Gunn**.

A board member is elected for two years, so the first board meeting in January will have both current and new members present to pass on information.

At the beginning of each year, board member positions are assigned, keeping in mind that newly elected board members may not know the ropes yet.

This is a great organizational board, and one that I am proud to say I am a part of. Please, if you have any questions about what it means to be a board member, talk to any board member, current or former.

National Geographic Society's NM State Geographic Bee

Where: 4800 Central Ave SE

(formerly the Hiland Theater)

When: March 31st, 2017, 10am

This is a much-anticipated, grade school event held annually. Students throughout New Mexico from fourth through eighth grades participate at their own schools, and the top 100 school winners are selected to attend the New Mexico State Geographic Bee. The winner of the state Bee is awarded $100.00 and a trip to the National Geographic Bee held in Washington, D.C. in May. The second and third place state Bee contestants receive $75.00 and $50.00 awards, respectively. The National Winner is awarded a $50,000 scholarship. Not too shabby!

As the state Bee coordinator, I'm requesting NMGIC members attend the state Bee's final competition. The venue is fantastic and begs your attendance. Please consider coming to the National Dance Institute and support the future of New Mexico. You are invited to show up at the above time and place, and stay through the Final and Championship rounds. You are also invited to the Preliminary rounds (space permitting). You are guaranteed to learn something new and take away a new respect for the children, parents, educators, and volunteers who make this competition possible.

This event provides the youth of New Mexico with an excellent opportunity for personal growth through competition with their peers while demonstrating their knowledge of geography. This is a very challenging competition that requires dedication and hard work from all the children that participate. In addition, many dedicated volunteers work hard to ensure the quality of the competition. Knowledge of geography feeds a curiosity that leads the children to solid citizenship by nurturing their deep care for our planet. This event allows us to encourage extraordinary young people who have put forth a great deal of effort to prepare for this competition.

Lakshay Sood, the 2015 and 2016 New Mexico GeoBee winner, won the first year he entered as a 4th grader. And he answered every question correctly, not one miss! In 2015 he was the youngest participant ever to go to the National competition in Washington D.C.

I hope to see you on March 31st, if not before.

If you would like to volunteer, please contact me at suzan.arfman@state.nm.us. I always need help with set up and tear down.

See you at the GeoBee!

UNM GIS DAY

THE UNIVERSITY OF NEW MEXICO
GIS DAY 2016
EARTH DATA ANALYSIS CENTER
STUDENT ASSOCIATION OF GEOGRAPHY AND ENVIRONMENTAL STUDIES
CENTENNIAL SCIENCE AND ENGINEERING LIBRARY
GIS DAY
UNM
Water Fountain
Elevator
HVAC
MERRICK & COMPANY
Thank You !!! Merrick & Company, Mid-Region Council of Governments of New Mexico, Community College of New Mexico, NMGIC, Wilson & Company, ASPRS UNM Chapter, UNM Global Education Office, UNM Dept. of Geography & Environmental Studies

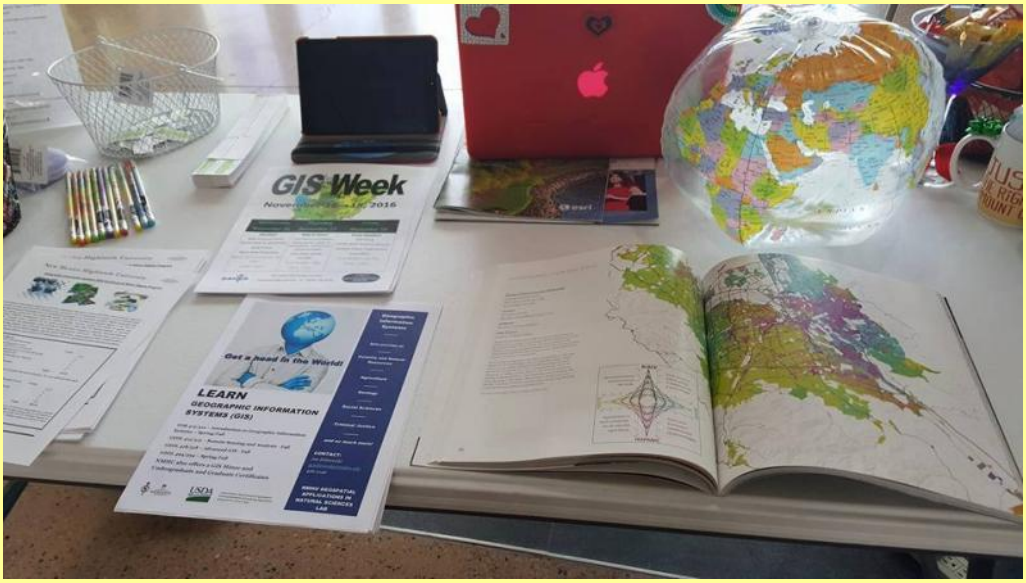
GIS Week at NMHU

Zakiva Shivji

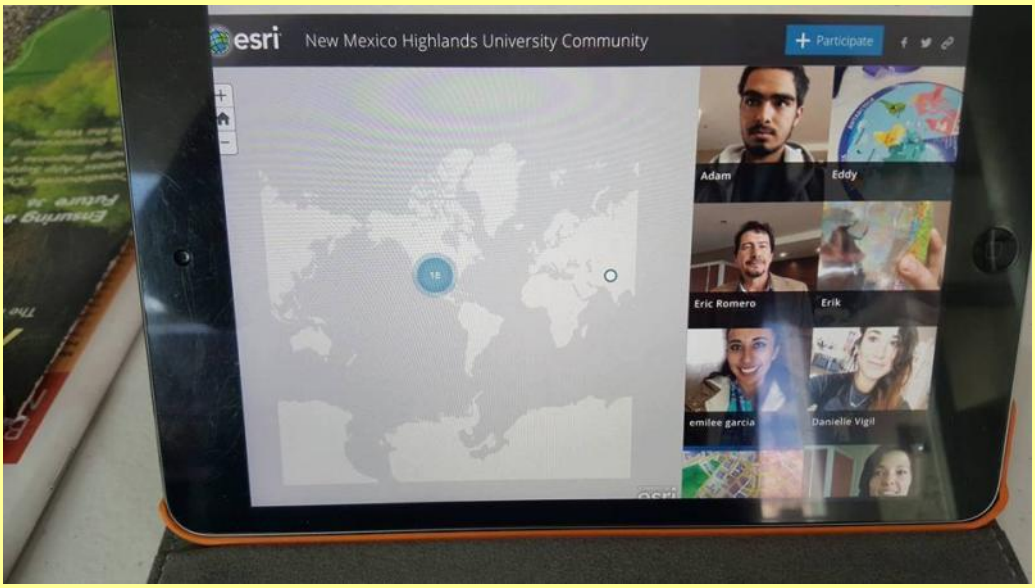
New Mexico Highlands University's **Leadership in Geospatial Technology Club** put together a 3-day event celebrating geographic information systems technology and applications, November 16-18.

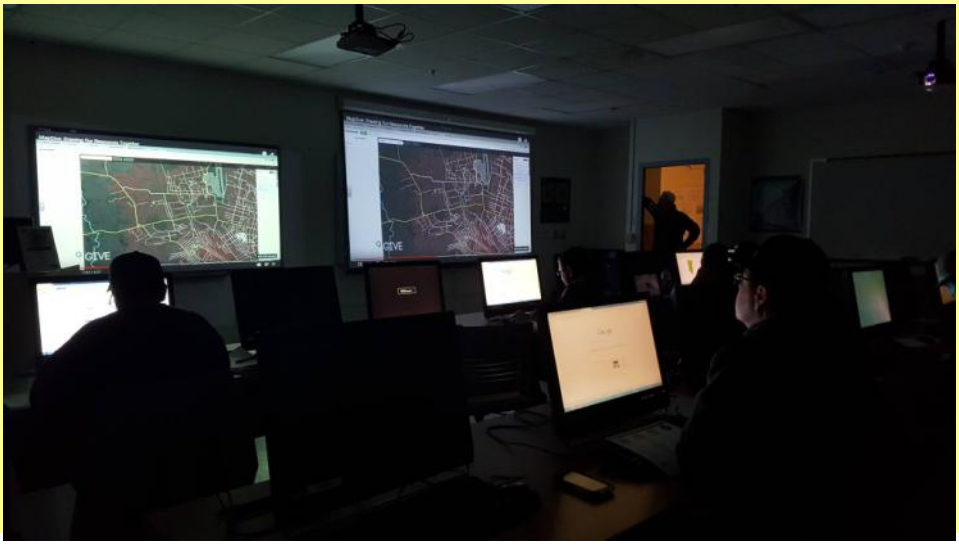
On GIS Day, November 16, they had tables set up in the student center with several computers to demonstrate using QGIS, showcase Story Maps, and a Map Treasure Hunt through ESRI for others to participate and have a chance to win a prize. On November 17, a Map-A-Thon took place where students used OpenStreetMaps to update or create data for different organizations needing help in gathering data. On the last day, November 18, Jeff Young, the American Society for Photogrammetry and Remote Sensing Rocky Mountain Region Director came to talk about LizardTech and student career opportunities.

Overall it was a successful week in bringing awareness to GIS and we hope to see some new faces in NMHU's GIS community soon!



GIS Week at NMHU





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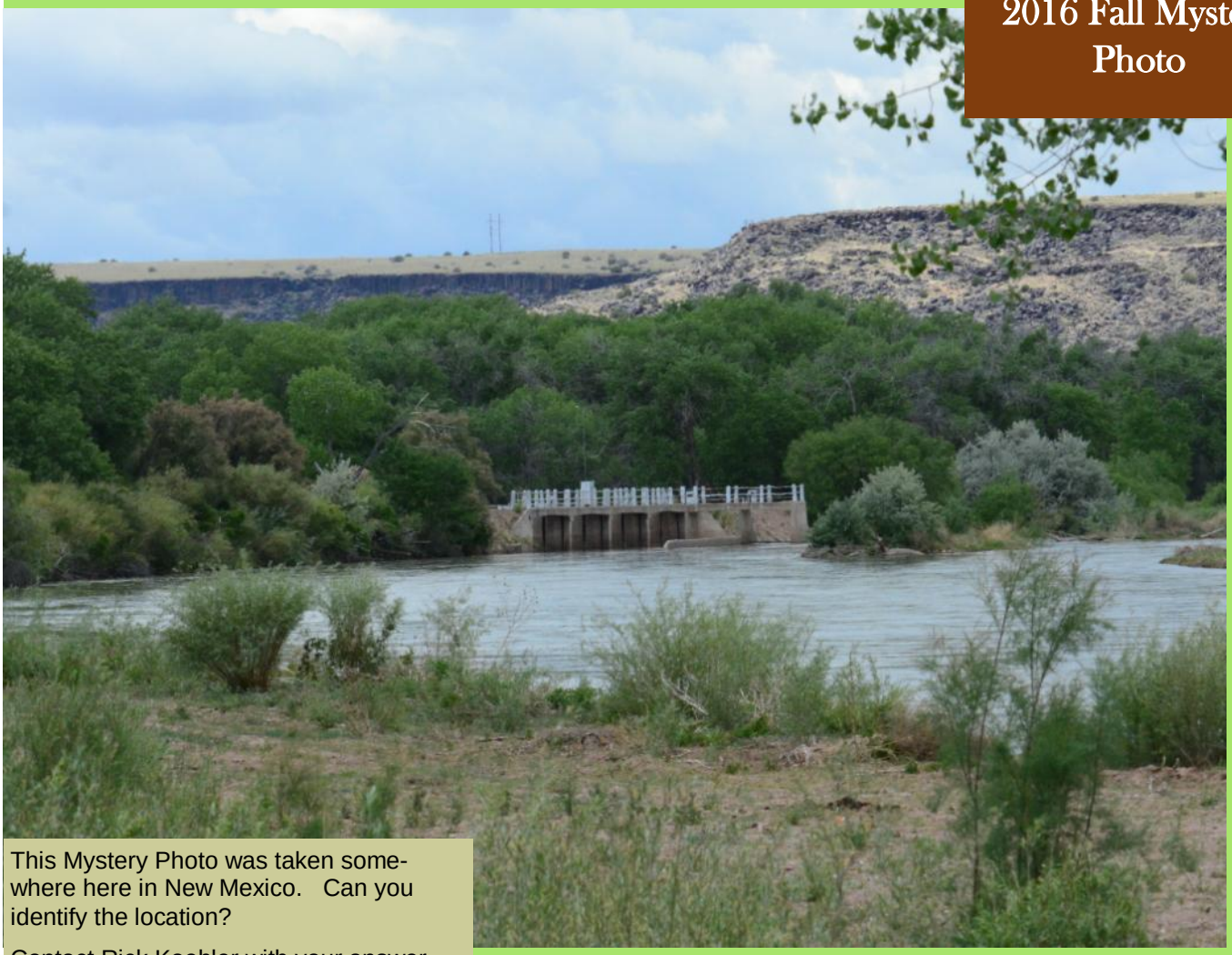
2016 Fall Mystery Photo



This Mystery Photo was taken somewhere here in New Mexico. Can you identify the location?

Contact Rick Koehler with your answer—win a cash prize! rickoehler@gmail.com

From Editor's Desk

Greetings Readers,

This issue marks my last newsletter, and final accomplishment for the NMGIC organization. It is a bittersweet moment. Sure, I now have more time for beekeeping, guitar building and various musical endeavors and will no longer break-out the laptop to struggle with Microsoft Publisher or remember how to make 'drop down menu' changes on the website. But, this Board Member position was my last professional link to GIS and it feels a little strange letting it go.

I have truly enjoyed my career-long record of attending these meetings and working for this great group of people.

I thank you all, and will see you when I attend the Spring meeting in 2017!

Jason Fink
mandoFink@gmail.com

Membership Form

New Mexico Geographic Information Council, Inc.

Name: _____

Organization/School _____

Address Line 1 _____

Address Line 2 _____

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Phone (____)-_____-_____ Fax (____)-_____-_____

Email _____

Invoicing/Billing Address if different from above:

Address _____

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Enclosed is my: Check ☐ Money Order ☐ Make Check or Money Order payable to: NMGIC, Inc.

Membership Dues:

Individual: $30.00

Student: $15.00 (Must include a photocopy of current Student I.D.)

Corporate: $250.00 - Includes two seats to each meeting, discounted exhibit fees, and an ad in each Map Legend

Payment should be mailed to: NMGIC, Inc. , PO Box 92712 Albuquerque, NM 87199

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