BIOLOGICAL PLANNING NEWSLETTER
TECH TALK– SPRING 2016

May 12, 2016

From Fall 2015 Biological Planning—-

"And now we have thousands and thousands of frogs throughout the creek." *Dennis Caldwell*

"Hit the Dirt!" "Get Down" *Anonymous*

Location:

Empire Ranch Headquarters

Stone Corral 8:30 am

Agenda?

See your email for the agenda

Themes

Riparian

Heritage

Landscape Coordination Updates

In This Issue

Materials? Go to: //sites.google.com/site/lcncaadaptivemanagement/reference-materials

ADOBE HAY BARN: STABILIZATION COMPLETE

Chris Schrager, BLM/CNF

The stabilization work on the historic Adobe Hay Barn is complete! As a result of the project, voids in the foundations from erosion and animals have been filled, using a combination of erosion-resistant amended adobes below-grade, and hand-made mud adobe bricks where repairs are visible.

In addition, a metal diaphragm of threaded steel rods and angle iron will provide a framework to stabilize movement at the tops of the walls. The diaphragm was secured to the walls and top plate by using bolts set within the walls; the sub-roof structure is tied into the framework as well. Full-length wood members were attached to the existing joists and rafters to provide support for the original lumber, which in many cases had been constructed with shorter pieces, nailed together. This allowed for sagging of the ridge, and added to the forces pushing the walls outward.

Of course, there are still tasks to complete before the Barn is ready for the Empire Ranch Foundation (ERF) and other events. The completion of the primary work has provided new opportunities for ERF and other partners and volunteers:

- Remaining holes and gaps in the masonry are being addressed by a group of post-graduate students from the Historic Preservation Certificate Program at the University of Arizona.

- Volunteers will also expose the original floor surface, so that it can be documented before any new floor treatment is undertaken to make the building usable for large-scale events. An interesting feature on the Barn floor was exposed during the stabilization work along the north wall (see photo).

- The two large rolling doors need to be re-installed once their roller tracks are inspected and strengthened to support the doors' weight. The Empire Ranch Foundation is hoping to fund its repair and re-

Inlaid cobbles in floor of the Adobe Hay Barn

TICAT INTERNATIONAL WORKSHOP ON ADOBE RESTORATION

Chris Schrager, BLM/CNF

On March 16, 2016 the Empire Ranch hosted the annual TICRAT workshop. The week-long international workshop, whose acronym stands for *Taller Internacional de Conservación y Restauración de Arquitectura de Tierra*, brought over 60 participants from the United States and Mexico, for a day of hands-on learning about adobe restoration. Over half were preservation specialists from NPS (the National Park Service), or their counterparts from INAH (Mexico's federal archaeology and preservation program). Teaching sessions focused on assessment of adobe walls, designing appropriate interventions, and tools & techniques used in stabilization and repair.

TICRAT is sponsored by the University of Arizona Drachman Institute, the Missions Initiative, and INAH; this year's host site included Tumacacori National Historical Park (NPS), Tubac Presidio State Historic Park (Arizona State Parks), Empire Ranch (BLM), Canoa Ranch (Pima County Natural Resources, Parks and Recreation) and Mission San Xavier (Tohono O'odham Nation).

TICRAT participants discuss interventions for adobe deterioration at the base of a wall on the historic Empire Ranch House.

Tuckpointing the interior of the Adobe Hay Barn at Empire Ranch.

11TH ANNUAL/WET DRY WALK OF UPPER CIENEGA CREEK—- JUNE 28, 2016

Heather Swanson, BLM

11th Annual Wet/Dry Walk of Upper Cienega Creek!

The Bureau of Land Management, The Nature Conservancy and Cienega Watershed Partnership are pleased to invite volunteers to help with the 10th annual wet-dry walk of upper Cienega Creek on the Las Cienegas National Conservation Area southeast of Tucson. Las Cienegas NCA harbors between 6 and 10 miles of perennial stream, depending on drought and other factors.

Annual mapping of perennial surface waters helps managers understand effects of these factors on stream systems and the wildlife that depends upon them. This year's survey will be Tuesday, June 28th, 2016.

What: Wet/Dry walk to map upper Cienega Creek streamflow. We will divide into teams and use GPS units to record wet and dry sections of stream.

When: Tuesday, June 28th, 2016 - **7:00 a.m.** (early to avoid some heat!)

Where: We will meet at Empire Ranch Headquarters at Las Cienegas National Conservation Area.

Please contact hswanson@blm.gov for car-pooling information.

Experience using a GPS unit is a plus, but data recording does not require any formal skills. It will be about a half-day excursion once on site, with each group walking 3 to 8 miles.

To sign up to volunteer or for more information including detailed time and place instructions, please contact Heather Swanson at the Tucson BLM office 520.439.6429 or hswanson@blm.gov . Each volunteer will need to complete an individual volunteer agreement with BLM. For volunteers under age 18, a parent or guardian must sign the form.

What to bring:

Hat, sunscreen, plenty of water, and a lunch; Sturdy walking shoes that can get wet; a GPS unit if you have one. Wear a backpack so you have your hands free. Long pants and shirt recommended. You might also want your camera, binoculars, etc. We'll provide maps, instructions, and good company. Last year most teams were done walking by ~noon but we may have a few longer routes this time for folks who want them.

hswanson@blm.gov

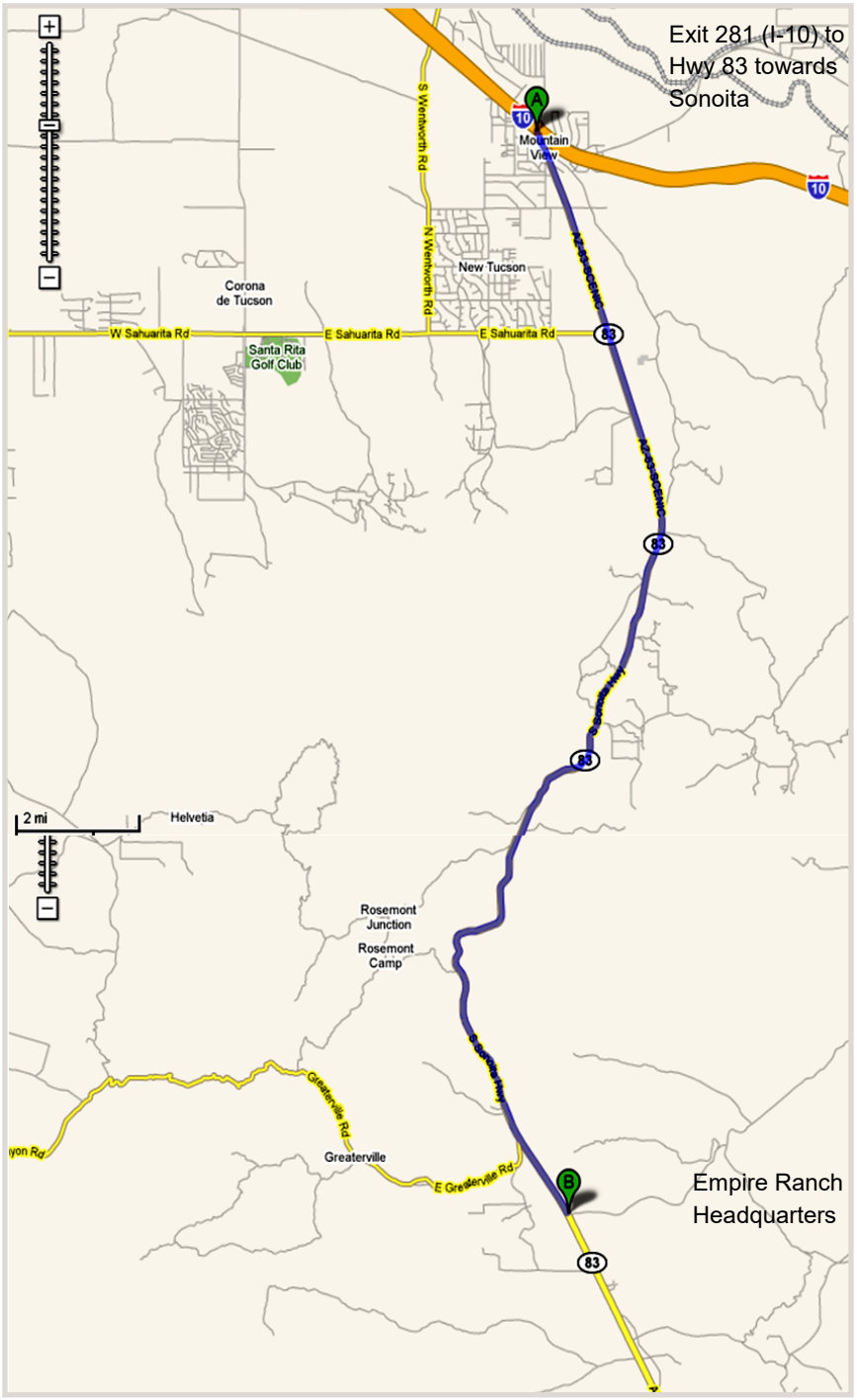
Directions to Empire Ranch Headquarters from I-10 East:

- Exit 281 to Sonoita, Hwy 83; head south

- Keep south on Hwy 83 to the Las Cienegas National Conservation Area entrance, which is just after mile marker 40, about 19 miles south of the I-10 exit.

- The entrance is to the left (east) and is a graded dirt road. Look for the Highway sign for Historic Empire Ranch which directs you to the entrance road.

- Follow entrance road (LC900) for about 3 miles to the Empire Ranch Headquarters. These are 1st buildings you see to your left. Park in large parking area near public restrooms.



Grizzly Bear? Or Not Grizzly Bear…That is the Question What do you think?

Alison Bunting started a great dialogue by passing on this photo which then set in a motion a few opinions on the matter. Dennis Caldwell and Doug Duncan shared further and got some feedback via emails. Some comments are printed below---all respondents first names begin with “D”.

Source: Alison obtained the image from the Ed Vail photo album recently received by the Empire Ranch Foundation. The caption says: Successful bear hunters at Empire Ranch. E.L.V "Tio" right. Probably taken around 1900.

Biologists observations:

“That one on the right looks a lot like a young grizzly. The feet are larger than the one on the left and the nose is different.”

“Dish face and long claws...”

“I think these are black bears although the animal on the right has the front claws and dished in face of a young grizzly. I can't say for sure as both species were found in the Santa Ritas at that time.”

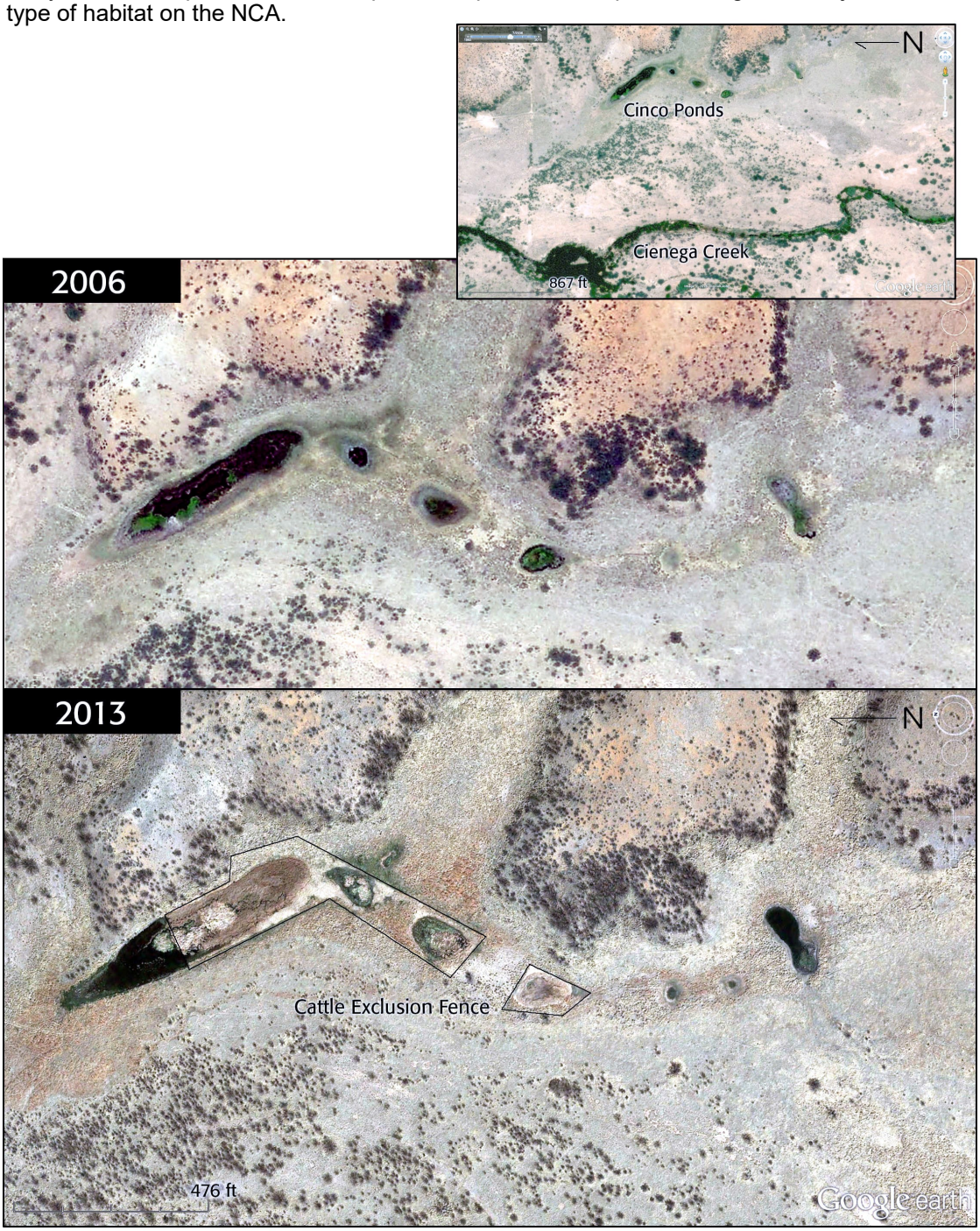
“Fascinating. I'm not a bear expert, but I would tend to agree. The last record we have [SNP] for a grizzly bear killed in the Rincons is around 1921. I think that was the last one killed in the area. The man who killed it was a rancher on the backside of the Rincons (Benson) named A.B. Carey”

“I should mention …but we trapped bears both in Coahuila and Chihuahua. The Chihuahua bears appeared to be physically different with longer hair, lighter color, longer claws (or more visible? Not sure, but they were more noticeable), and a less “blocky” face than the U.a. eremicus bears that we caught in Coahuila. Just an observation, but it made me think that the bb observations could have been confused with some of the earlier reports of gb's that Pepe Trevino documented years earlier. However, this is still worth checking out.”

Dennis Caldwell: Photos and Framing for the Discussion May 12, 2016

Cinco Ponds is a set of spring fed wetland depressions in the flood plain sacaton located east of Cienega Creek parallel to the confluence of Gardner Canyon. These wetlands vary in size and depth with the largest being roughly 70 by 20 meters and roughly 4 feet deep. When livestock utilize this pasture, they feed heavily on the wetland vegetation like cattails and bulrush converting the marsh into more of an open water pond habitat. In the process the livestock disturbance renders the habitat inhospitable to many of LCNCA's T&E species and has raised concerns from the public.

In 2006-2007, the ponds were partially fenced to study this effect on the flora and fauna and water quality and quantity. On this year's field trip, we will discuss possible options and explore management objectives to better manage this type of habitat on the NCA.



THE CIENEGA WATERSHED TIMELINE PROJECT

A Work in Progress: Shela McFarlin

The Cienega Watershed Timeline Project has moved significantly from its 2012 beginnings as a shared history exercise to become an interactive web-based timeline with researched and verified entries of almost 700 events in Cienega Watershed history. A climate timeline is provided as well for those years in which temperature and other climate records are available. The Project remains a work in progress and may be accessed at: http://apps.tucson.ars.ag.gov/cienegatimeline/ or simply Google "Cienega Timeline".

The Project is managed by a volunteer work group whose members include: Shela McFarlin with the Cienega Watershed Partnership, Alison Bunting, Empire Ranch Foundation; JJ Lamb, Vail Preservation Society; Martie Maierhauser, formerly with Colossal Cave Mountain Park; Gerardo Armendariz and Dr. Haiyan Wei, Agricultural Research Services (ARS); Dr. Gita Bodner, The Nature Conservancy; Doug Duncan, US Fish and Wildlife Services, Kathy Donahue (Volunteer), and Dr. Robin Pinto (University of Arizona). ARS's partnership has permitted the simple initial spreadsheet to become a web-based timeline using a TimeGLIDER Javacript Library application, researchable on titles, categories and key words by varying time scales.

Why is this project worthwhile? The Timeline covers over 145 million years of Cienega Watershed history. Paleontology, archaeology, Native American history, land use history, historical events from legislation to individuals, major climatic or landscape events, and other topics are now available to users ranging from researchers to students. The work group members are in the process of sourcing and verifying each event and linking events to resources, oral histories, maps or images that provide more information. Although a number of entries already pertain to plants and animals, a separate team is working on adding and verifying natural history events for the Timeline. These events will permit a user to trace not only the disappearance or appearance of species, but the context of larger watershed history.

Volunteers to work on the natural history or ecological components are needed.
Please contact the work group at: timeline@cienega.org or talk with Doug Duncan and Gita Bodner

Example of event to be entered:

Event: Native frog die off along Cienega Creek

Description: During his November field survey along the Cienega Creek at what is now called the Las Cienegas National Conservation Area, Jeff Simms noted a massive die off of frogs along the creek and at Empire Gulch.

Date: 11/01/1992

Source: Jeff Simms Field Notes

"Fishing" Photo courtesy Alison Bunting, early 1900s?

THE 2016 WALL OF HONOR RECIPIENTS: Alison Bunting, Jeff Simms, Doug Duncan

Cienega Watershed Partnership

Congratulations to Alison, Jeff and Doug for being selected to the Cienega Watershed Partnership's Wall of Honor. The virtual Wall honors those individuals who have provided significant contributions in time and impact to the Cienega Watershed and to the Cienega Watershed Partnership. These 3 individual join 15 past recipients.

Without **Alison's** contributions, our level of understanding and access to the watershed history would be reduced and meaningful legacy programs would be less developed. Alison has volunteered hundreds of hours of her professional skills and her considerable knowledge. She has become a resource for others who want to engage in history because she integrates multiple efforts and information of the area history, its people, locations and records. For the Empire Ranch Foundation (ERF), she has ensured that records, images, recordings and the foundation for watershed history are preserved but available. For ERF, Alison served as Board President, (2007-2009), Newsletter Editor, Archives Manager and Advisory Board, and she developed the Docent Program ensuring their training included the historical, biological and ecological aspects of the Empire Ranch Headquarters and the LCNCA. Alison has applied her professional skills and personal interests in developing programs which now define the Cienega Watershed Partnership's (CWP) heritage mission. She became the mainstay of the CWP oral history program, developed the Back Then Internship Program, and is an essential member of the Cienega Timeline Project. She has been a functioning member of the BLM Las Cienegas National Conservation Area's Heritage Technical Team its inception.

Jeff is a fisheries biologist…in the desert where water and fish are scarce. Jeff's dedication and passion are reasons why native fish (and other aquatic species and habitats) have successful populations on the Las Cienegas National Conservation Area. Jeff has an unusual "intimate" relationship with Las Cienegas having both lived and worked there. From BLM's acquisition in 1988, Jeff became immersed in inventorying, monitoring, planning, and improving this landscape. He was a key participant in developing the LCNCA land use plans which sets out collaborative goals and processes and he has ensured the success of the Biological Planning field sessions. He developed projects to improve conditions ranging from "blowing up a dam" and restoring creek conditions to re-developing wetland sites including youth participation. He has been a key partner in the Cieneguita Wetlands Redevelopment and the FROG Project, successful multi-partner efforts to rid the watershed of American bullfrogs and to conserve native species. For over 25 years, Jeff has collaborated externally and internally, to ensure that native fish and aquatic species and habitats are sustained despite difficult natural settings, slow administrative processes, and conflicting uses. His long-term and numerous contributions to native species extends beyond the Las Cienegas and the Cienega and San Pedro watersheds.

Doug is dedicated to animals and their habitats but works with people to ensure their continuance. His efforts will have lasting impacts on Threatened and Endangered Species and their habitats. For over 20 years, he has contributed to the Cienega Watershed, the Las Cienegas National Conservation Area (LCNCA) and to the Cienega Watershed Partnership (CWP). Beginning with the Sonoita Valley Planning Partnership in 1995 representing the US Fish and Wildlife Service (FWS), he has collaborated with the BLM and stakeholders. He was a key participant in the 2003 LCNCA Management Plan and helped to implement strategies, programs and projects which contribute to the ecological health and long-term sustainability of the watershed. Doug did this through his intimate working relationships with researchers, agencies and non-profit organizations operating within and outside the watershed. His experience with natural systems and working knowledge of the regional flora and fauna has greatly aided in keeping regulatory decisions based in on-the-ground realty. As a FWS riparian and native fish specialist, Doug went beyond his basic job to conserve natural resources through working with: the SVPP, Cienega Corridor Conservation Council, CWP, LCNCA Biological Planning, the LCNCA Riparian Resource Technical Team, other teams and workgroups, and with the State of the Watershed, Science on the Sonoita Plain and the Cienega Timeline Project.

Analysis of Isotopes in Water, Cienega Creek Watershed

Jeanmarie Haney, The Nature Conservancy

Understanding the sources of water that sustain aquatic and riparian ecosystems at Las Cienegas NCA is critical to the protection, restoration, and appropriate management of those systems. Sources of water can include, for example, deep basin groundwater recharged at higher elevations and/or shallow aquifer water recharged along lower elevation floodplains during floods. Each of these sources may point to different, but perhaps overlapping, management actions to work toward maintaining surface water in the face of increasing temperatures and aridity and increased human use of groundwater.

The study of isotopes in surface water, groundwater, and precipitation can provide valuable clues to the origin of groundwater discharging at springs, creeks, and cienegas. Water samples for isotopic analyses have been obtained throughout the Cienega Creek watershed over the years by various groups. Most recently, we have worked to bring together several isotope study efforts, including the University of Arizona Hydrology and Water Resources Department (UA), the Desert Botanical Garden (DBG), and Pima County. Led by Dr. Jennifer McIntosh at University of Arizona, these groups are now collaborating on interpreting results for isotope analyses from sampling conducted across the basin (Figure 1).

Most recently, UA and DBG are coordinating sampling and analysis efforts in a pilot study of isotopes in groundwater and surface water of the upper basin (LCNCA). The study is aimed at addressing the following key research questions:

1. Is there a seasonal and/or elevational pattern in the isotopic composition of precipitation that can be used to determine the timing and location of groundwater recharge in the Cienega Creek basin?

2. What is the timing and elevation of groundwater recharge across the basin?

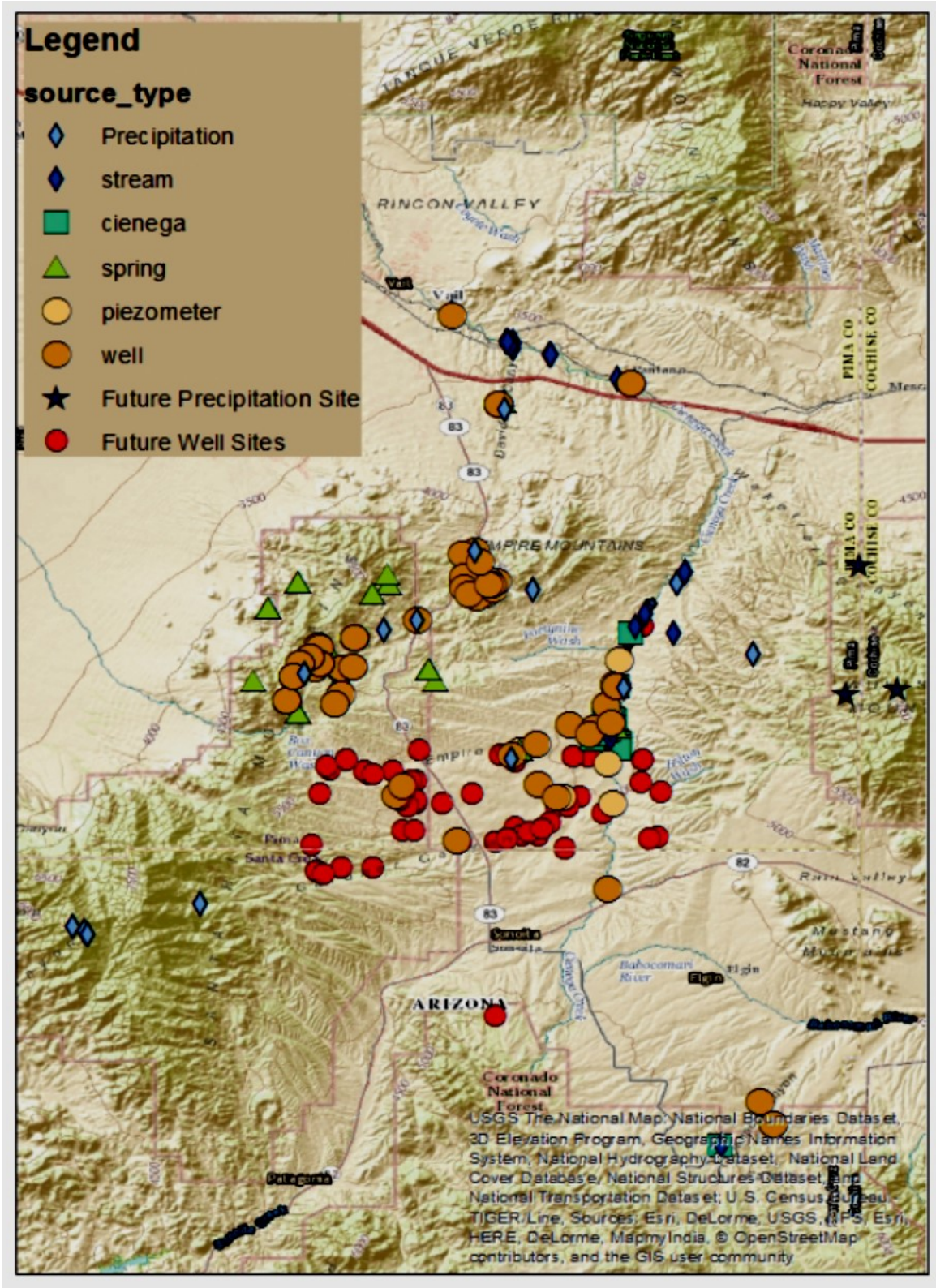
3. What is the relative age of groundwater in the basin?

4. Can sulfur isotopes and sulfate to chloride ratios be used to infer basin groundwater versus monsoon precipitation contributions to Cienega Creek baseflow?

Samples are being collected seasonally and across an elevation gradient, with UA focused on sampling from deep groundwater wells and DBG focused on sampling surface waters and shallow floodplain alluvium wells. The isotope study is part of a larger effort coordinated by The Nature Conservancy to develop a Hydrogeologic Conceptual Model that compiles all available information for the best possible understanding of groundwater conditions and the connection between surface water and groundwater across the basin.

Preliminary findings from the isotope study indicate that the water source for surface water, springs, and shallow alluvial groundwater appears to be mid- to high-elevation winter recharge from adjacent mountain blocks. There appears to be little evidence of monsoon (or winter rain) flood water infiltration into alluvial/shallow aquifers and discharge into the Creek. Thus, it appears that surface water at the LCNCA is dependent on the regional aquifer rather than more local floodplain recharge. This is different from what is seen in the San Pedro Basin where there is considerable alluvial aquifer storage of floodwaters, which is an important component of base flow in the stream.

Sampling continues through the summer; additional results will be presented at Science on the Sonoita Plain. The LCNCA isotope sampling and analysis team is comprised of Dr. Jennifer McIntosh and Rachel Tucci from UA; and Ron Tiller and Andrew Salywon from the Desert Botanical Garden. Jeanmarie Haney and Gita Bodner from The Nature Conservancy are coordinating the cross-basin collaborative effort of the Subsurface/ Groundwater Hydrology working group.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USGS The National Map: National Boundaries Dataset, 3D Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; U.S. Census Bureau - TIGER/Line; Sources: Esri, DeLorme, USGS, NPS, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community

Updates from the Appleton-Whittell Research Ranch

Chiricahua Leopard Frog Repatriation: Chiricahua leopard frogs historically occurred on the Research Ranch but have been absent for almost a decade. On May 26, 2015 David Hall and Ben Kelley from the "Frog Project" transferred 220 tadpoles from Game Water No. 1 in the western end of the Canelo Hills into two sites on land administered by the BLM and managed by Audubon, Bald Hill and Antelope wildlife tanks. One hundred ten tadpoles were introduced to each site. On July 10, 2015 an additional twenty-five tadpoles were introduced to each tank from the same source population. Beginning July 25, metamorphed frogs were sighted at both tank locations. The frogs appear to be doing well in 2016. On April 1, 2016 two egg masses were seen at one location. On a recent night survey over forty frogs were seen at these tanks.

The first CLF egg mass on the Research Ranch for nearly a decade is found on April 1, 2016.

Frogs of various sizes have been sighted at both release sites.

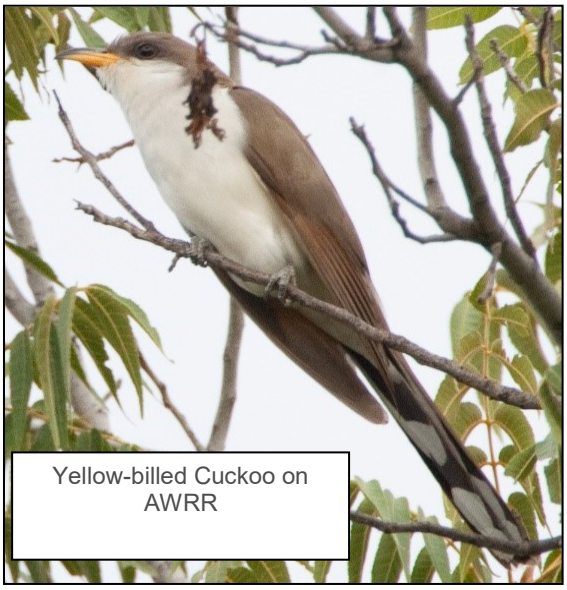
Living Gently on the Land: Educational events included presentations on Laysan Albatross research at Midway Atoll (Greg Joder), Snails in the Desert? (Jeff Sorensen), Wells (Gary Hix), Avian Impacts of Invasive Species (Erik Andersen) and a field trip by the 7th Grade Science Class from Elgin.

Roger Cogan, Conservation Program Coordinator, shows Mrs. Koweek's Science class a snake trail on the road.

Precipitation: Total precipitation for calendar year 2015 at headquarters was "average" at 17.56" but most of the monsoon precipitation came in September (3.12") and October (1.51") so very little grass or forb seed production was observed. We believe this had an impact on the wintering sparrow populations. Winter precipitation (Dec-Mar) was sparse, totaling 3.11".

Research: Three Apacheria Fellowships have been awarded for 2016:

- Anthony Gilbert, Ph.D. Candidate from Ohio University, received a renewal to continue his work on the thermal ecology of *Urosaurus ornatus*.
- William (Will) Ternes, Graduate student from Christopher Newport University, earned a fellowship to support his study of the trophic niche of *Urosaurus ornatus*.
- Cynthis Morris, Graduate student from Christopher Newport University, was named the 2016 Apacheria/Fleharty Fellow and will examine the escape behavior behaviors of *Urosaurus ornatus*.



Yellow-billed Cuckoo on AWRR

Tony Leonardini (AWRR volunteer) and John Kraft (Biologist, Coronado National Forest) will team up to test whether acoustic recorders can be used to survey avian species of concern in this area, with special focus on Yellow-billed Cuckoos.

The housing units and lab at AWRR will be busy again this summer: Rick Simpson and field crew (ASU) have returned to further study Black-chinned Hummingbirds; Christian d'Orgeix (Virginia State) will be here with his students to continue his herpetological studies; Matt Lattanzio is bringing a field crew from Christopher Newport University to further his herpetological work on AWRR and southern Arizona; and others.

Publications associated with AWRR received in 2015:

Bock, C.E. and J.H. Bock. 2014. Effects of wildfire on riparian trees in Southeastern Arizona. The Southwestern Naturalist 59(4): 568-574.

Hall, L.S., M.L. Morrison, L.L. Christoferson, J. Martin, C.E. Bock, and T. Strong. 2002. Bird populations in riparian areas of southeastern Arizona in 1985-867 and 1994-95. Western North American Naturalist 62(3): 370-376.

Kay, Jenna. 2012. Collaborative Adaptive Management in Practice: Case Studies from Arizona and New Mexico. Thesis. Massachusetts Institute of Technology. 101 pgs.

Nabhan, G.P., S. Buckley & H. Dial. 2015. Pollinator Plants of the Desert Southwest: Native Milkweeds (Asclepias spp.). USDA-Natural Resources Conservation Service, Tucson Plant Materials Center, Tucson, AZ. TN-PM-16-1-AZ. 35 pgs.

Ruth, J.M., T.R. Stanley and C. E. Gordon. 2014. Associations of wintering birds with habitat in semi-desert and plains grasslands in Arizona. The Southwestern Naturalist. 59(2): 199-211.

Salvucci, G. D., and P. Gentine. 2013. Emergent relation between surface vapor conductance and relative humidity profiles yields evaporation rates from weather data. PNAS. 110(16)6287-6291.

Schwilk, D.W., T.E. Brown, R. Lackey, and J. Willms. In Press. Post-fire resprouting oaks (genus: Quercus) exhibit plasticity in xylem vulnerability to drought. Plant Ecology.

U.S. Geologic Survey. 2005. Plant Assessment: *Cardaria chalapensis, Cardaria Draba, Cardaria pubescens.* http://sbscwr.usgs.gov/research/projects/swepic/SWVMA/PLANTPDF/Cardaria_chalapensis_AZ_PAF.pdf.

Wang, W., S. Liang and T. Meyers. 2008. Validating MODIS land surface temperature products using long-term nighttime ground measurements. Remote Sensing of Environment 112: 623-635.

Wheeler, Jr., A.G. 2013. Harmostes reflexulus (Say) (Hemiptera: Rhopalidae): New western U.S. host records, analysis of host-plant range, and notes on seasonality. Proc. Entomol. Soc. Wash. 115(3): 274-285.

Zhang, X. 2012. Improvements of a soil-atmosphere-transfer model for the simulation of bare soil surface energy balances in semiarid areas. Asia-Pacific J. Atmos. Sci., 48(1): 97-105.

FALL AND WINTER 2015/2016 GRAZING ROTATION

Ian Tomlinson

November 9 thru November 21: **682 cows in North Pasture** **ACTUAL: 710 cows from November 9 to January 1, 2016. REASON: Cows were well spread out, using Andrada Tank and grazing utilization was light. Summer rainfall in North pasture was exceptional and better than the two pastures (Springwater and Upper Mattie) the cattle were moved to.**

November 9 thru May 1: **100 cows in Alamo Solo Pasture** **ACTUAL: 92 cows November 9 thru April 17, 2016. REASON: Logistics more than anything. We had to start branding in a pasture and this one was it. Grazing utilization was light and we could have stayed longer if needed.**

November 9 thru February 15: **75 cows in West Pasture.** **ACTUAL: 85 cows November 9, 2015 to May 20, 2016. REASON: Grass production was much more than anticipated and grazing use remained light through the entire grazing period. Given antelope fawning in the Maternity it also seemed wise to go in later.**

November 21 thru May 1: **282 cows Springwater Pasture.** **ACTUAL 337 cows December 28, 2015 thru May 15, 2016. REASON: Because we did not go in as early and also wanted to save Apache pasture we stocked it with a few more cows and stayed 15 days later. Grazing was spread out and utilization was light.**

November 21 thru May 1: **100 cows North pasture.** **ACTUAL: 150 cows January 1, 2016 to April 25, 2016. See above.**

November 21 thru March 1: **100 cows Upper Mattie pasture.** **ACTUAL: 128 cows January 1, 2016 thru April 15, 2016. REASON: There was lots of water from Bear Springs and in the upper reaches of the pasture. Grazing utilization was moderate, except the one area. This is a tricky pasture because of the "funnel" effect Mattie Canyon has that can cause heavier utilization than desired. We opened the gates to Lower Mattie on April 15, 2016 and pushed all the cows below the "T" out to Lower Mattie.**

November 21 thru May 1: **100 cows Apache pasture.** **ACTUAL: Did not use. With the grass production from last year and the threat of La Nina, we thought it would be best to rest Apache pasture to assure we can use it in 2017.**

November 21 thru May 1: **82 cows Empire pasture.** **ACTUAL: 80 cows December 8 thru May 2, 1016.**

November 21 thru May 1: **100 cows Upper 49 pasture.** **ACTUAL: 105 cows December 28 thru April 25, 2016.**

February 14 thru April 15: **75 cows Maternity.** **ACTUAL: 89 cows May 20 thru July 1, 2016 . REASON: See above West Use.**

March 1 thru May 1: **100 cows in Lower Mattie pasture** **ACTUAL: Opened gates on April 15, 2016 and plan to come out May 20, 2016.**

November 15 thru March 1: **55 bulls in Beck pasture.** **ACTUAL: 46 bulls December 3, 2015 thru February 16, 2016. Moved onto Vera Earl.**

March 1 thru May 15: **55 bulls in Enzenberg pasture.** **ACTUAL: 34 bulls March 24, 2016 thru May 7, 2016. Added 31 bulls May 7, 2016.**

PROPOSED SPRING SUMMER 2016/2017 GRAZING ROTATION

Ian Tomlinson

May 1 to 15 thru July 15: **480 cows in West Sacaton pastures, 500 Acres West, Cieneguita, Bills, Gardner, Little Hummel. Waters used are Rattlesnake, Bills, Oil Well, Cottonwood and Hummel House.**

May 15 to 20 to July 15, 2016: **526 cows in East Sacaton pastures, Mac's, 500 Acres East, 5 Wire, Hummel Sacaton, and Hilton Sacaton. Waters used are Cinco Ponds, Irrigation Well, Cienega House Tank, Lane Tank, and Hummel Pothole.**

July 15 to August 15: **1006 cows and 65 bulls in both Davis pastures.**

August 15 to September 30: **1006 cows and 65 bulls (Possibly add 100 first calf heifers depending on the rain) ****

September 30 to October 3: **1006 cows in Blue trap. Will wean calves and sort out dry cows. Expect to have approximately 75 dry cows.**

October 3 to November 30: **930 cows in Hilton pasture.**

October 3 thru November 30 : **60 cows Beck Pasture.**

September 15 thru November 30: **60 bulls Davis pasture or move to Vera Earl.**

**** May change date we move the cows out of Springwater depending upon the rainfall and cattle distribution in the pasture. We should have the Mud Springs well project completed and that will help with some distribution.**

PROJECTS THAT NEED NEPA AND/OR ASLD APPROVAL (HOPEFULLY APPROVAL IN 2016 or 2017)

Ian Tomlinson

1. Cross fences in North pasture and Springwater pastures.

2. Artesian Well project.

3. Road Well Project.

4. Frog Well Project.

5. Lower Hilton Windmill Project.

6. Pipeline from Diamond A northwest to back of North Pasture. Install 5000-gallon storage tank and two livestock troughs.

7. Pipeline from North well northwest to back of North pasture and southern end of Upper 49 pasture. Install 5000-gallon storage tank and one livestock drinker in each the North pasture and Upper 49 pasture.

PROJECTS TO BE COMPLETED THIS SPRING AND SUMMER

1. Install 4 livestock drinkers at Cottonwood well. (June 2016)

2. Install pipeline from Cinco well east to ridge line and install 2 5000-gallon storage tanks and four livestock troughs at end of pipeline. (Fall 2017)

3. Install 4 livestock drinkers and two 5,000-gallon storage tanks at Mud Springs well (June or July 2016)

4. Pipeline from Test Hole Well to Road T Well in Upper Mattie Pasture. (June or July 2016)

5. Continue to place wildlife ramps in storage tanks. Maternity, Cottonwood, Cienega, Diamond A, Slow Poke, Oak Tree, Cinco already completed.

Maternity Well Discussion, Fall 2015 Biological Planning

EMPIRE RANCH REPORT

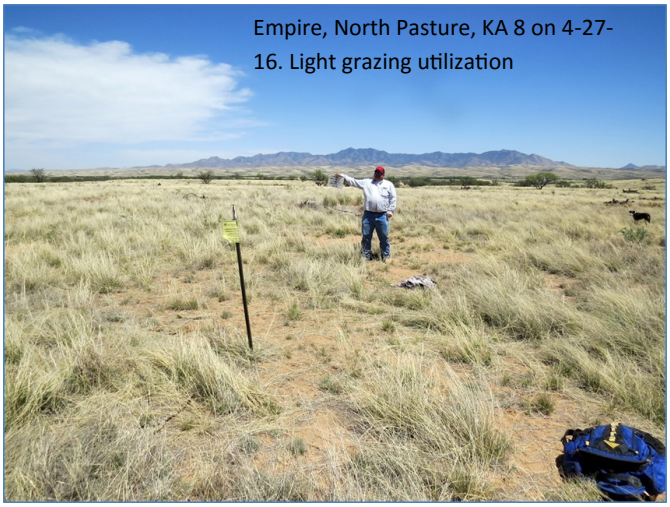
Robinett Rangeland Resources LLC, Elgin, Arizona 85611 5-3-16

On April 27 and 28 Ian Tomlinson, Alisha Phipps (NRCS) and I reviewed areas on the Empire ranch that had been grazed in the winter-spring of 2015-16. We judged utilization in the 49 pasture, estimate utilization in the North, Upper Mattie and Springwater pastures and discussed plans for the summer grazing period. Areas utilized during the winter season with the cow herd include the Empire, West, North, Upper 49, Alamo Solo and Springwater pastures.

The North pasture was grazed by the cow herd follows; 710 head were in the pasture from November 8th through January 1st. 150 cows were in the pasture from Jan 1 through April 25th.

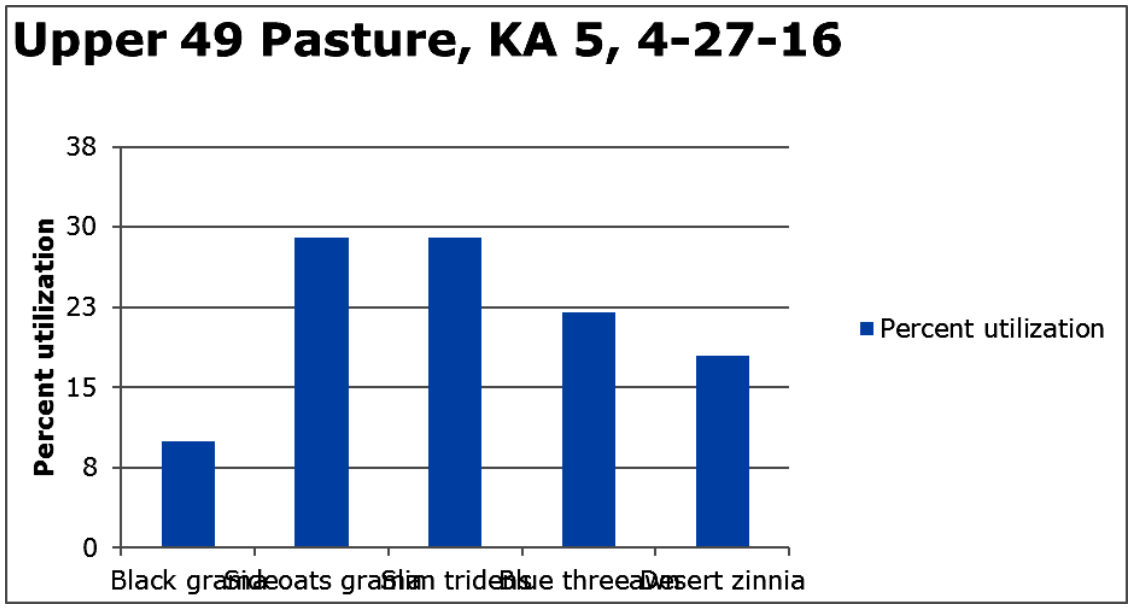
We estimated utilization at two places in the North pasture. Utilization was very light overall in the pasture. Use at KA 44 along the EPNG pipeline was less than 10% mainly on curly mesquite. Use at KA 8 ranged from 10-30% on species including blue grama, Lehmann lovegrass, Arizona cottontop and black grama.

Empire, North Pasture, KA 44 on 4-27-16. Very light grazing utilization.



Empire, North Pasture, KA 8 on 4-27-16. Light grazing utilization

Cool season rainfall (Oct-April) in the North pasture ranged from 4 inches at the gauge above Andrade Tank, to 5.25 inches at Diamond A well and 3.5 inches on the fence between North and Upper 49 pastures.



EMPIRE RANCH REPORT CONTINUED

Empire, 49 pasture, grazing utilization, 4-27-16

Cool season rainfall in Upper 49 pasture ranged from 3.5 inches on the south fence to 5.75 inches on the north fence.

Empire, Springwater pasture, grazing utilization at KA 33, Taken on 4-28-16.

Utilization in Springwater pasture at Key Area 33 (lower Springwater well) was light ranging from 10-15% for species including black, sprucetop and sideoats gramas, Lehmann lovegrass and slim tridens. 337 cows grazed in Springwater pasture from Dec. 28 through May 15.

Empire, Spring-water Pasture, KA between upper and lower wells, 11-4-15

Empire, Springwater Pasture, KA between upper and lower wells, after utilization on 4-28-16

Utilization at this key Area was light ranging from 10-20% on species including sprucetop, hairy, black and sideoats gramas, curly mesquite, Lehmann lovegrass and cane beardgrass.

Cool season rainfall in Springwater pasture ranged from 5.3 inches at the upper well to 3.75 inches at lower Springwater well.

EMPIRE RANCH REPORT CONTINUED

Upper Mattie pasture had 122 cows in it from Dec 29 through April 15 when the gates to Lower Mattie were opened. At the time of our visit most of the cows had moved into Lower Mattie pasture. Estimated utilization at the KA in Upper Mattie pasture was about 50% on all grass species. This was the heaviest use area in the pasture.

Key Area in Upper Mattie on 11-4-15

Key Area in Upper Mattie on 4-28-16

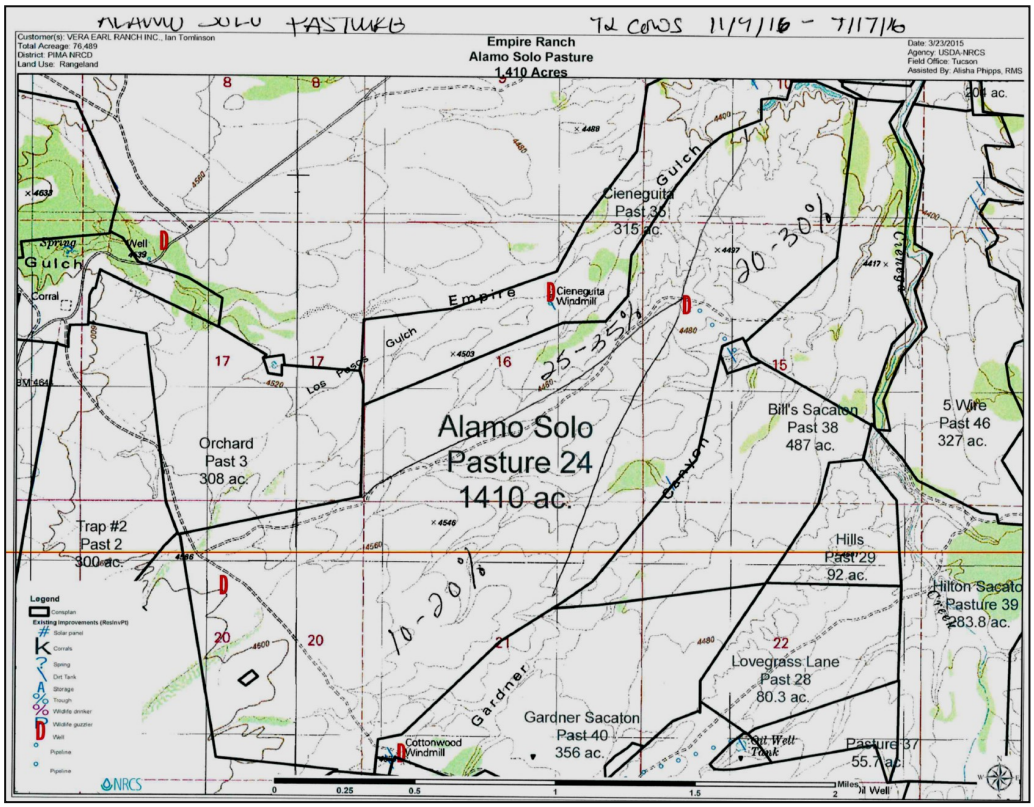
Cool season precipitation in Upper Mattie pasture ranged from 5.25 inches in Upper Mattie canyon to 4.5 inches at Lower Mattie windmill.

Plans are to graze the sacaton pastures May through July 15. The cow herd will graze the southern pastures this summer growing season. Plans are to begin the summer rotation using the Davis pastures from July 15 to Aug 15. The Springwater pasture will be used from Aug 15 to Sept 15. The Hilton pasture will be used from Sept 15 to October 15. The cow herd will be about 1050 animals.

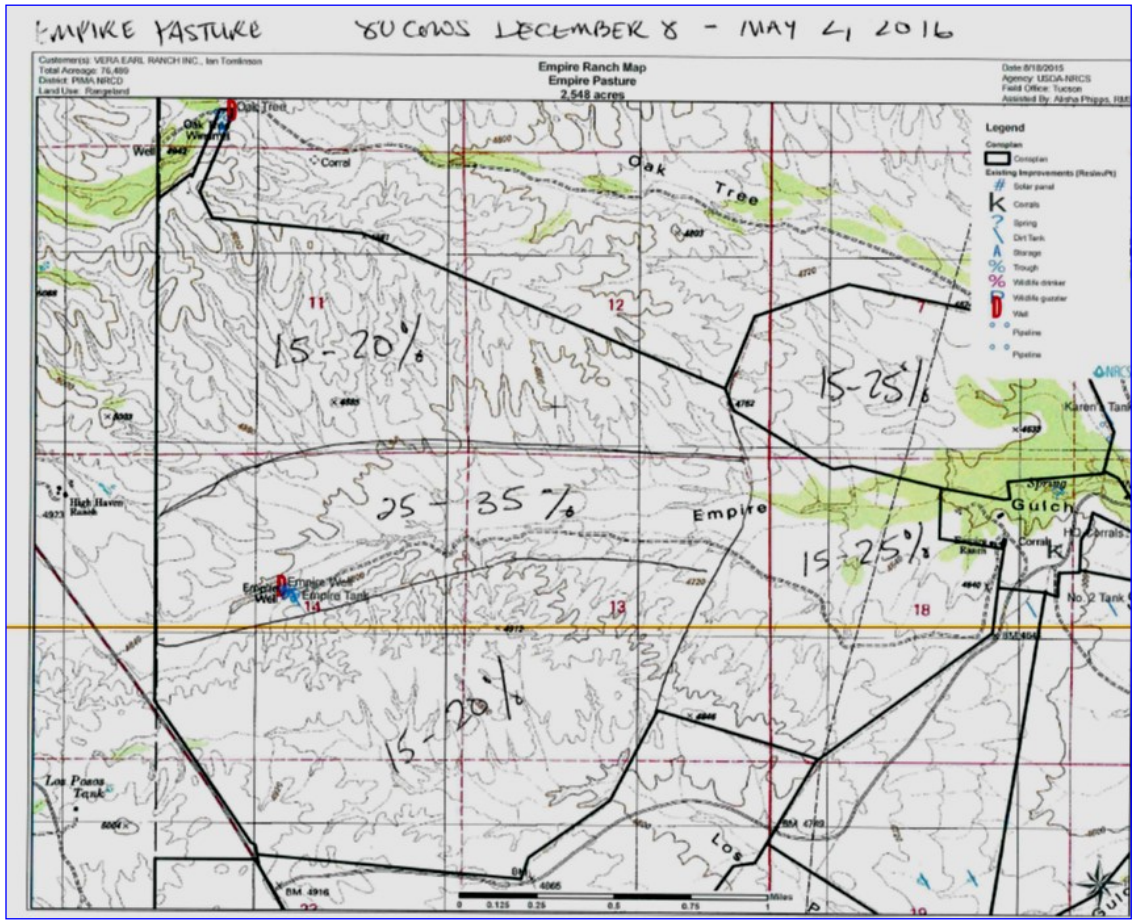
Dan Robinett

PASTURE MAPS

Please refer to the Newsletter Attachments for full-sized maps



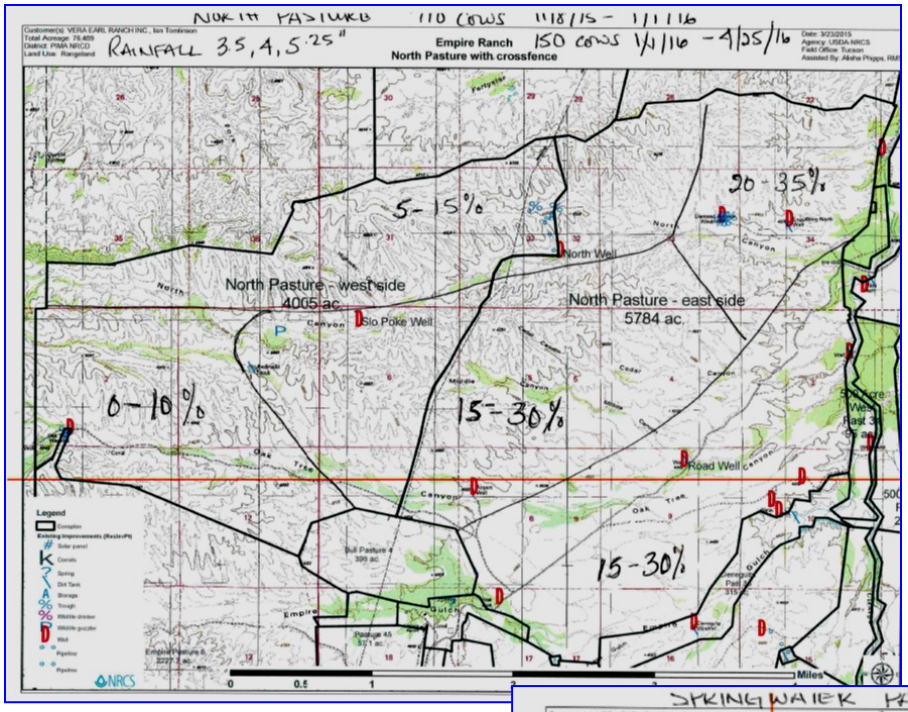
Alamo Solo Pasture 24



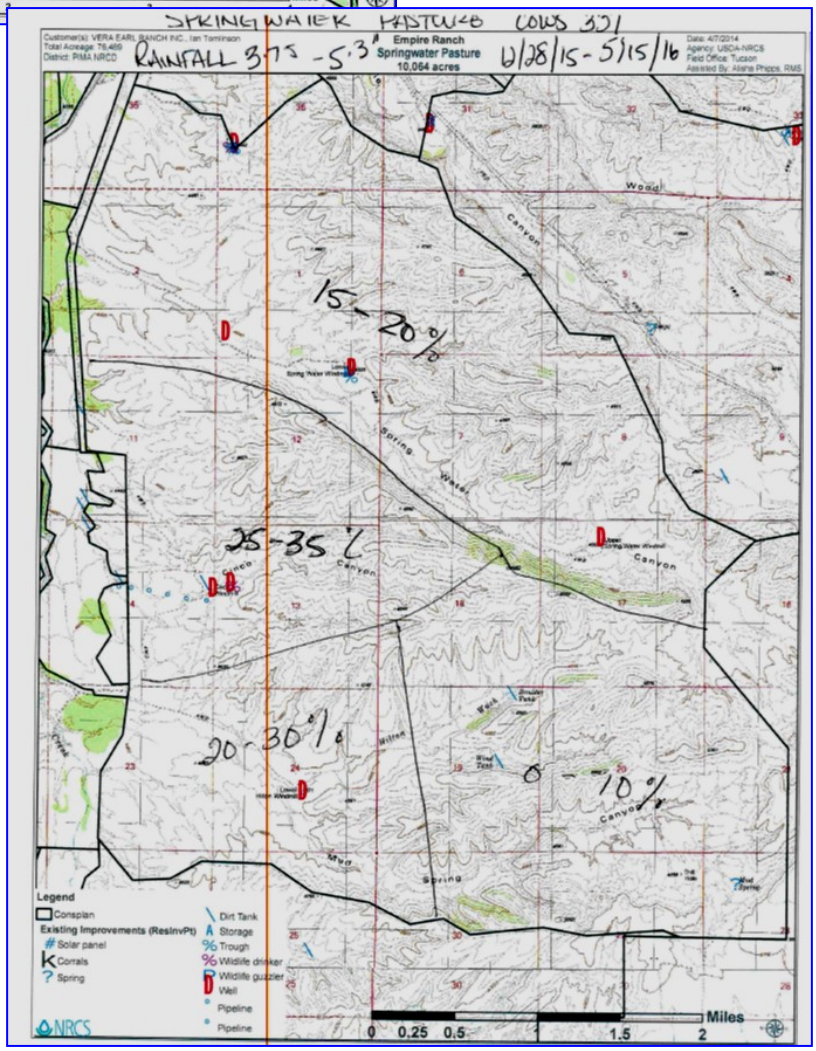
Empire Pasture

PASTURE MAPS

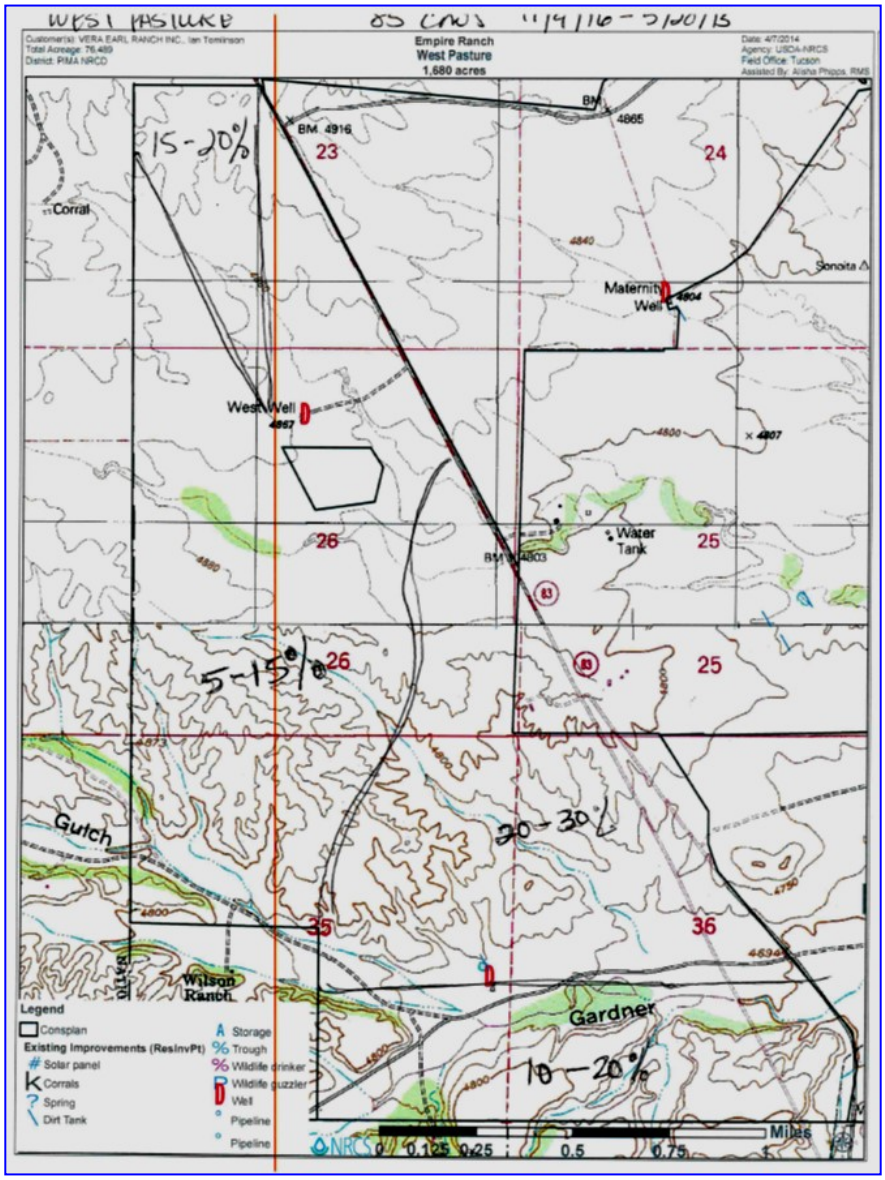
Please refer to the Newsletter Attachments for full-sized maps



North Pasture



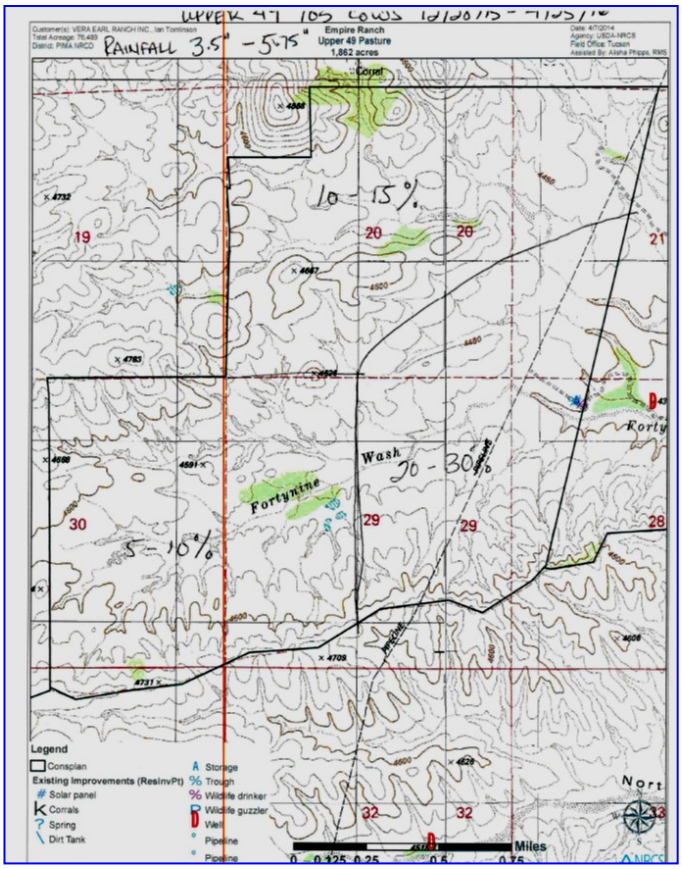
Springwater Pasture



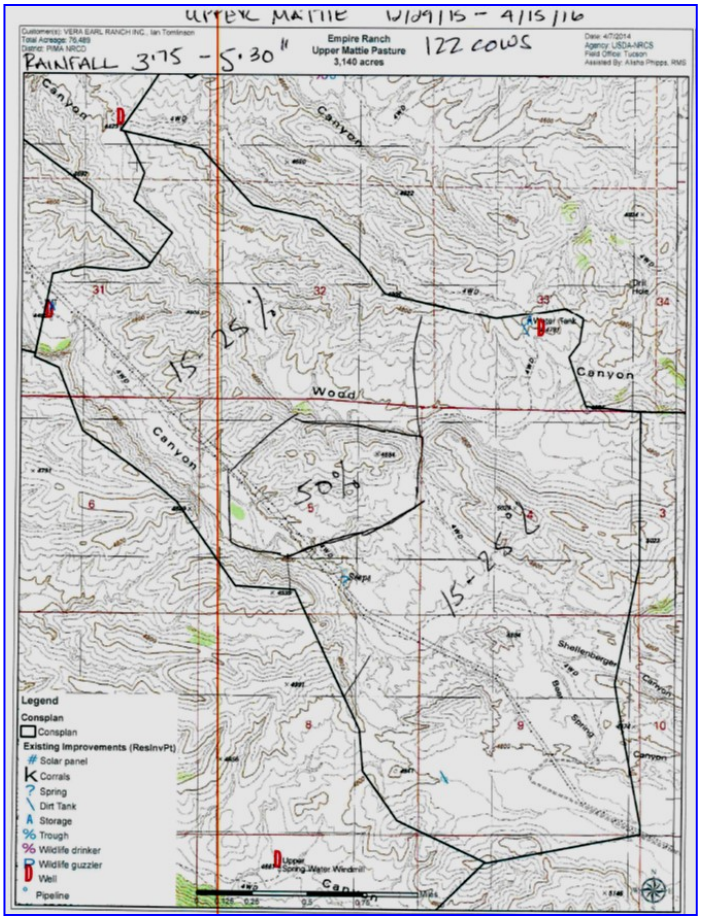
West Pasture

PASTURE MAPS

Please refer to the Newsletter Attachment for full-sized maps



Upper 49 Pasture



Upper Mattie Pasture

Biological Planning is a collaborative process to implement the flexible management prescriptions in the LCNCA RMP (with emphasis on livestock grazing management) using the best available science and with opportunity for meaningful stakeholder involvement to reduce conflicts.

Some contacts:

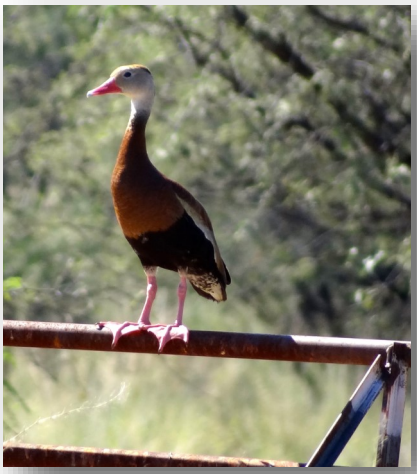
Tahnee Robertson, tahnee@swdresources.com
Karen Simms, ksimms@blm.gov
Shela McFarlin, shela_mcfarllin@yahoo.com

BLM Tucson Field Office 520-258-7200
3201 E. Universal Way, Tucson, AZ 85756

Web sites and links:

Google site: http://sites.google.com/site/lcncaadpativemanagement/

Cienega Watershed Timeline: http://apps.tucson.ars.ag.gov/cienegatimeline/



Photographs: Thanks to Gita Bodner, Shela McFarlin, Kathy Donahue

SCIENCE ON THE SONOITA PLAIN — June 4, 2016

8th Annual

Science on the Sonoita Plain

June 4, 2016

Contacts:

lkenne-dy@audubon.org

Larry Fisher at lafish-er@email.arizona.edu

outreach@cienega.org

The Science on the Sonoita Plain Symposium is held annually to share results of scientific investigations that are occurring within the upper watersheds of Cienega Creek, Sonoita Creek, and the Babocomari River, and to encourage exchanges among scientists, land managers, local landowners and citizens about the unique and diverse resources of the Sonoita Plain.

2016 Program: invasive species and general science updates.

More info? Contact outreach@cienega.org or he organizing team: Gita Bodner (TNC), Larry Fisher (CWP), Linda Kennedy (ARR)

(AudubonProceedings for SOTSP are posted:

http://researchranch.audubon.org/PDFs/Science%20on%20Sonoita%20Plain%202012.pdf